

# **CAPITAL BUDGETING PRACTICES IN NEPALESE MANUFACTURING COMPANIES**

A dissertation submitted to the Office of the Dean, Faculty of Management in partial  
fulfilment of the requirements for the Master's Degree

By

Dinesh Adhikari

Roll. No: 1123/17

Registration No: 7-2-31-65-2012

Campus: Central Department of Management

Kathmandu, Nepal

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### **Certification of Authorship**

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “**Capital Budgeting Practices in Nepalese Manufacturing Companies**”. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor has it been proposed and presented as part of requirements for any other academic purposes. The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

.....

Dinesh Adhikari

January, 2021

### Report of Research Committee

Mr. Dinesh Adhikari has defended research proposal entitled “**Capital Budgeting Practices in Nepalese Manufacturing Companies**” successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Prof. Dr. Puspa Raj Sharma and submit the thesis for evaluation and viva voce examination.

Prof. Dr. Puspa Raj Sharma

Signature: .....

Position: Professor

Dissertation Proposal Defended Date:

3<sup>rd</sup> December, 2019

Prof. Dr. Puspa Raj Sharma

Signature: .....

Position: Professor

Dissertation Submitted Date:

12<sup>th</sup> January, 2021

Prof. Dr. Sanjay Kumar Shrestha

Signature:.....

Position: Research Committee Head

Dissertation Viva Voce Date:

19<sup>th</sup> January, 2021

## Approval Sheet

We have examined the dissertation entitled “**Capital Budgeting Practices in Nepalese Manufacturing Companies**” presented by Mr. Dinesh Adhikari for the degree of Master of Business Studies. We hereby certify that the dissertation is acceptable for the award of degree.

.....  
Prof. Dr. Puspa Raj Sharma  
Dissertation Supervisor

.....  
Lect. Mr. Bhumi Raj Acharya  
Internal Examiner

.....  
Asso. Prof. Dr. Arun Kumar Thakur  
External Examiner

.....  
Prof. Dr. Sanjay Kumar Shrestha  
Chairperson, Research Committee

.....  
Prof. Dr. Ramji Gautam  
Head of Department  
Date:

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**ABBREVIATIONS**

ABB	Activity Based Budgeting
ARR	Accounting Rate of Return
BEP	Break Even Analysis
BS	Bikram Sambat
CEC	Certainty Equivalent Coefficient
CFAT	Cash Flow after Tax
CIMA	Chartered Institute of Management Accountants
CV	Coefficient of Variation
CVP	Cost Volume Profit
DPBP	Discounted Pay Back Period
DT	Decision Tree
FVCF	Future Value of Cash Flows
HLM	High Low Method
IO	Initial Cash Outlay
IRR	Internal Rate of Return
MA	Management Accounting
MAIS	Management Accounting Information System
MCS	Management Control System
MIRR	Modified Internal Rate of Return
NPV	Net Present Value
PBP	Pay Back Period
PI	Profitability Index
PPC	Profit Planning and Control
RAD	Risk Adjusted Discount Rate
ROI	Return on Investment
SD	Standard Deviation
WACC	Weighted Average Cost
ZBB	Zero Based Budgeting

## ABSTRACT

*Capital budgeting is the process of planning and controlling the strategic (long term) and tactical (short term) expenditure for expansion and contraction of investment in operating (fixed) assets. Capital budgeting decisions are involved with the use of cash now and get back the investment over a period longer than a year. Evaluating such decisions requires determining the investment and its resulting cash flows. Investments provide future cash flows through additional revenues and costs, and through cost saving critical to capital budgeting is that most, if not all, of the numbers used in the analyses are estimates. Capital investment decisions play vital role for the achievement of strategic plan of organizations.*

*The main objective of this study is to investigate the capital budgeting practice of manufacturing companies in Nepal. To achieve this objective, primary data was collected using self-administered questionnaire from ten manufacturing companies. The finding of the study showed that the Nepalese manufacturing companies have been practicing capital budgeting for the long term investment project. Most of the Nepalese manufacturing companies are making investment plan through executive decision and some of the companies are practicing both financial analysis and executive decision. Most of the Nepalese manufacturing companies are facing time consuming difficulty in using capital budgeting followed by unavailability of data and lack of manpower. Capital budgeting in Nepalese manufacturing companies is still evolving and will continue to do so in the future. So far, they are trying to adopt various tools and techniques to cope with the future expected opportunities and challenges to be faced due to the accession of globalization.*

**Key Words:** Cash Forecasting, Capital Investment, and Project Identification, Strategic Planning.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of the study

Capital budgeting is the process of planning and controlling the strategic (long term) and tactical (short term) expenditure for expansion and contraction of investment in operating (fixed) assets (Welsch, Hilton & Gordon, 1992). The main exercise involved in capital budgeting is to relate the benefit to cost in some reasonable manner, which would be consistent with the value maximizing objectives of the business. Capital budgeting decision is the most important area of managerial decisions as it involves more extended estimation and prediction of things to come requiring a high order of intellectual ability of their economic analysis (Goyal & Mohan, 1997).

Capital budgeting is a long-term planning exercise in selection of the projects which generates returns over a number of years in future and the heavy expenditure is to be incurred in the initial years of the project to generate returns over the life of the project. The term capital budgeting refers to planning for capital assets. The capital budgeting decision means a decision as to whether or not money should be invested in long-term projects such as installing a machinery or creating additional capacities to manufacture a part which at present may be purchased from outside. It includes a financial analysis of various proposals regarding capital expenditure. The Finance Manager has various tools and techniques by means of which he assists the management in taking a proper capital investment decisions. For purposes of investment appraisal, the cash flow is the incremental cash receipts less the incremental cash expenditures solely attributable to the investment in question. The future costs and revenues associated with each investment alternative are –

- a. Capital costs
- b. Operating costs
- c. Revenue
- d. Depreciation
- e. Residual value

An investment decision implies the choice of an objective, a technique of appraisal and a length of service - the project's life. The objective and technique must be related to

definite period of time. The life of the project may be determined by taking into consideration the following factors like

- i. Technological obsolescence,
- ii. Physical deterioration
- iii. A decline in demand for the output of the project etc.

Capital budgeting is the process of making long-term planning decisions for capital investments. There are typically two types of investment decisions: (1) Selecting new facilities or expanding existing facilities. Examples include: (a) investments in long-term assets such as property, plant, and equipment; and (b) resource commitments in the form of new product development, market research, refunding of long-term debt, introduction of a computer, etc. (2) Replacing existing facilities with new facilities. Examples include replacing a manual bookkeeping system with a computerized system and replacing an inefficient lathe with one that is numerically controlled. As such, capital budgeting decisions are a key factor in the long-term profitability of a firm. To make wise investment decisions, managers need tools at their disposal that will guide them in comparing the benefits and costs of various investment alternatives. Many techniques used for evaluating investment proposals are widely available. They include payback, accounting rate of return, Internal Rate of Return, and the Net Present Value method (Fox, Alison & Keith 1990).

Firms operating in a dynamic environment must respond to changes to beat competitors and to sustain, survive and grow in markets. Most changes impinge on capital investment decisions, which can invariably involve large sums of money over the long period and these decisions are critical in managing strategic change and sustaining long term corporate performance. Capital investment decision can be acquisitions, investing new facilities, and new product development, employing new technology and adoption of new business processes or some combination of these. Capital budgeting investment decisions are critical to survival and long term success for firms due to many factors and those factors are commonly named as uncertainty. The global financial crisis is epitomized this truth. One of the most intractable issues confronted by researchers is how to identify, capture, and evaluate uncertainties associated with long term projects. Sources of uncertainty range from the mundane (cash flow estimation, number and sources of estimation error, etc.) to the more esoteric (complementarities among

investments, options presented by investment opportunities, opportunity cost of investments, etc.). Since capital investment decision deals with large sum of fund, scrupulous attention has been given in making decision. Thus, the capital budgeting is the process of identifying, analyzing, and selecting investment projects whose returns (cash flows) are expected to extend beyond one year.

### **1.2 Problem statement**

The problem towards which study is directed identifies the long-term investment decision in manufacturing company of Nepal. Nepalese manufacturing companies are not performing well as is evident from their annual reports. Poor performance is the outcome if poor planning, controlling and decision making. This has raised the question whether Nepalese managers are competent enough? Do they practice management accounting tools and techniques particularly capital budgeting to carryout planning, decision making and controlling functions?

Boersama (1978) argued that capital budgeting is a crucial decision for the firm's success for the following reasons. First, capital investment typically account for large amount of funds of the organization. Second, capital investments normally have a fundamental effect on the future cash flows of the organization once an investment decision has been taken. Third, it is often not possible to reverse it, or it is very costly to do so, once the funds have been committed and funds are normally tied up for a considerable period of time. Fourth, since capital budgeting decisions are long term and infrequent, it does not give chance to CFO's to learn from experience and finally, capital investments affect the profitability and long-term strategy of the organizations. Modern financial management theory generally assumes that the primary objective of a firm is to maximize the wealth of its owners (Atrill, 2009). Uncertainty and risk are the major influence in making investment decision and thus Mao (1970) says 'a central aspect of any theory of capital budgeting is the concept of risk' (p.352). In order to implement the objective of modern financial management theory, 'financial executives need criteria for choosing between alternative time patterns of project evaluations within his planning horizon' (Mao, 1970). Problem statement of this study is how far capital budgeting theory differentiates with practice and to demonstrate the nature of the gaps in existing capital budgeting literature.

The main purpose of budget is to ensure the planned profit of the enterprise. So, it is considered as a tool of planning and controlling the profit. One of the primary objectives of an annual budget is to measure the profit expectation for the next financial year with regarded to all the circumstances favorable and unfavorable that can influence the trading prospect.

The research questions posed in this research were:

- i. Whether or not Nepalese manufacturing companies are practicing Capital Budgeting tools?
- ii. Which of the capital budgeting tools are mainly practiced and which are not practiced till now?
- iii. What are the major difficulties in the application of Capital Budgeting tools?

### **1.3 Objectives of the study**

The main objective of this research was to examine and study the capital budgeting practices in manufacturing companies of Nepal. The specific objectives were:

- i. To examine the present practice of capital budgeting tools in the manufacturing companies of Nepal.
- ii. To examine and determine the capital budgeting tools practiced in Nepalese manufacturing companies.
- iii. To explore the prevailing difficulties in applying capital budgeting tools in Nepalese manufacturing companies.

### **1.4 Rationale of the Study**

The present research work is the study of the practice of capital budgeting tools in manufacturing companies of Nepal. This study will be significant in the following ways:

- i. It examines the application of capital budgeting tools in manufacturing companies of Nepal.
- ii. It explores the problems and potentialities of the selected companies. It will be useful to the potential investors, lenders, managers and policy makers.
- iii. It provides information on the application of the tools under different circumstances. Thus, it will encourage the use of capital budgeting tools in decision making to those companies who have yet used any tools.

- iv. Last but not the least, it provides literature to the researcher who wants to carry on further research in this field.

### **1.5 Limitations of the Study**

This study is required for the partial fulfillment of MBS Degree. Hence, it is subject to some limitations, which affect the studies, and those limitations are given below:

- i. The study is concerned with capital budgeting. It does not consider the economic aspects of the companies.
- ii. The study is focused on the selected manufacturing companies. Thus, the findings might not be applicable to other companies of Nepal.
- iii. The research is based on primary data only. No secondary data has been used for this present study.
- iv. This study pays attention to the practices of capital budgeting only. It does not consider the implementation aspects of the tools.
- v. The data were collected through questionnaire. The information is based as perceived by the finance executive of respective manufacturing companies. In this context the actual practices and the perceived practices might be different.

### **1.6 Chapter Plan**

A chapter plan is an outline that helps us to organize material in a way that is easy to comprehend. It can be a very useful tool in helping to find the main points of the chapter. This report has been divided into five chapters.



### Chapter 1: Introduction

Chapter one gives detail about the study area and the concept note about the research problem under study. It includes background of the study, problem statement, objectives, and operational definitions, significance of the study, limitations and the conceptual frame work.

### Chapter 2: Literature Review

Review of literature gives the investigator a thorough and profound knowledge of the research topic. It provides guidelines to use statistical methods for analysis of collected data.

### Chapter 3: Research Methodology

This chapter discusses in detail the research methodology applied in the context of this study. It includes research design, data sources, variables, population, sample and sampling techniques, research tools and techniques and plan for data analysis.

### Chapter 4: Results and Discussion

Data analysis includes tabulation, coding and classification of the data gathered in accordance with the research design, to perform quantitative and qualitative analysis. The details about the analysis and interpretation of the findings are described here.

### Chapter 5: Summary and Conclusion

This chapter presents the brief background of the study, objectives, literature review and methodologies. Major findings are summarized. Conclusion includes theorization based on findings and, finally, the recommendations based on those findings are stated.

## CHAPTER 2

### REVIEW OF LITERATURE

Review of literature is the study of past research studies and relevant materials. Literature review means reviewing research studies and other pertinent preposition in the related area of the study. It is a vital and mandatory process in research works. During the review of this research, in-depth study and theoretical investigations regarding 'Investment policy aspects and their present application and potentialities' were made. Hence, in this chapter, the focus has been made on the review of literature relevant to the capital budgeting practices in various aspects of manufacturing companies, especially financial performance, investment policy, resource mobilization, lending policy etc. For this study, different Journals, Articles, Books, Annual Reports and some research paper related to this topic have been reviewed.

#### 2.1 Conceptual review

The purpose of including this chapter is to clarify the concepts of capital budgeting techniques in manufacturing companies of Nepal. Payback Period, Accounting Rate of Return, Net Present Value, Profitability Index, Cost benefit Analysis and Internal Rate of Return are some of the most popular techniques that have been reviewed here.

##### 2.1.1 Definition of capital

Generally speaking, the 'capital' refers to any financial resources or assets owned by a business that are useful in furthering development and generating income. However, in different contexts, the term can have a variety of other meanings. Here are a few:

- i. Capital can refer to funds raised to support a particular business or project.
- ii. Capital can also represent the accumulated wealth of a business, represented by its assets less liabilities.
- iii. Capital can also mean stock or ownership in a company.

Capital expenditures and revenue expenditures are very important terms used in capital budgeting. While capital expenditure is any expenditure benefiting a future period, revenue expenditure is intended to benefit the current period. Examples are -

- i. Expenses incurred in the normal course of business, e.g. expenses of administration, expenses incurred in manufacturing and selling products.

- ii. Expenses incurred to maintain the business, e.g. replacement for maintaining the existing permanent assets: cost of stores consumed in the course of manufacturing, e.g. oil, cotton waste.
- iii. Cost of goods purchased for resale.
- iv. Depreciation on fixed assets, interest on loan of business, loan from sale of fixed assets.
- v. Obsolescence cost.

### **2.1.2 Concept of capital budgeting**

Capital budgeting is the process of making planning decisions and analysis of opportunities for long-term investments in assets to produce benefits for more than one year (Horngren et al., 2000; Peterson and Fabozzi, 2002).

The decisions made during the process of development and evaluation of capital budgeting determine the future growth and productivity of the company, and it helps to achieve greatest profitability (Olawale et al., 2010).

Capital budgeting is a required managerial tool. One duty of a financial manager is to choose investments with satisfactory cash flows and rates of return. Therefore, a financial manager must be able to decide whether an investment is worth undertaking and be able to choose intelligently between two or more alternatives. To do this, a sound procedure to evaluate, compare, and select projects is needed. This procedure is called capital budgeting. (Horgren, Sundem & Stratton, 1991)

Capital budgeting is the process in which a business determines and evaluates potential expenses or investments that are large in nature. These expenditures and investments include projects such as building a new plant or investing in a long-term venture. A capital budgeting should have the following characteristics:

#### **1. Long term investment**

Purchasing inventories is not dealt with under capital budgeting decision because the life cycle (inventory- accounts receivable – cash) is not of more than a year. A decision to start a new production line or to buy a new machine is a capital budgeting decision because its life cycle is of more than a year.

## **2. Bulk amount of investment**

Purchasing a calculator does not come under capital budgeting decision because the amount is not so material even if the life cycle is of more than a year. (Bhajracharya, Ojha, Goet & Sharma, 2005)

Capital Budgeting is important because capital budgeting decisions impact the firm for several years. A bad decision can have a significant effect on the firm's future operations. In addition, the timing of the decisions is important. Many capital budgeting projects take years to implement. If firms do not plan accordingly, they might find that the timing of the capital budgeting decision is too late, thus costly with respect to competition. Decisions that are made too early can also be problematic because capital budgeting projects generally are very large investments; thus early decisions might generate unnecessary costs for the firm.

### **2.1.3 Limitations of capital budgeting**

Capital budgeting can be a useful tool in the analysis of large projects. However, there are serious limitations that must be considered when evaluating the results of these projects. These limitations can be used to manipulate the results of an otherwise unfavorable project and make it appear to have a larger return than it actually has. Numerous misconceptions and limitations exist and a misunderstanding of these limitations can cause incorrect decisions to be made.

For those methods that do use present value techniques, it is necessary to either have a predetermined discount rate or to calculate one. This discount rate goes by many names:

- i. Hurdle rate – implying this is an amount you must exceed to make this a suitable project.
- ii. Cost of Capital – implying that this is what it cost to obtain the required capital and that the projects return must equal or exceed this.
- iii. Required Rate of Return – an indication that this is the minimum amount the project can return.

### **2.1.4 Tools and techniques of capital budgeting**

Numerous methods of measuring the economic value of an investment can be found. The methods of appraising capital expenditure proposals can be classified into two broad categories:

1. Non- Discounting Cash Flow Techniques or Traditional Methods: - Under non-discounting technique, following methods are used in capital budgeting-

(a) Payback Period - The payback period is the traditional method of capital budgeting. It is the simplest and perhaps the most widely employed quantitative method for appraising capital expenditure decisions. This method answers the questions; how many years will it take for the cash benefit to pay the original cost of an investment normally disregarding salvage value? Cash benefit here represents CFAT, ignoring interest payment. Thus, PBP measures the number of years required for CFAT to pay back the original outlay required in an investment proposal.

There are two ways of calculating PBP. The first method can be applied when the cash flow stream is in the form of annuity for each year of the project's life i.e. CFAT are uniform. In such a situation, the initial cost of the investment is divided by the constant annual cash flows:

$$\text{PBP} = \frac{\text{Investment}}{\text{Average CFAT}}$$

The second method is used when a project's cash flows are not equal but vary from year to year. In such a situation, PBP is calculated by the process of cumulating cash flows till the time when cumulative cash flows become equal to the original investment outlay.

$$\text{PBP} = \text{Minimum year} + \frac{\text{Amount to be recovered}}{\text{Next year cash flow}}$$

**Decision rule:**

The shorter the payback period, the more attractive is the investment. The reasons are that: The earlier the investment is recovered, the sooner the cash funds can be used for other purpose. The risk of loss from obsolescence and changed economic conditions are less in a shorter payback period.

(b) Accounting Rate of Return – Accounting rate of return represents the ratio between average annual profits after taxes to the average investment of the project. The accounting rate of return method of evaluating a proposed capital expenditure is also known as average rate of return method. It is based upon accounting information rather than on cash flow.

Under the accounting rate of return technique, the average annual net income is divided by the average investment of the project. That is:

$$\text{Accounting Rate of Return} = \frac{\text{Average Net Income}}{\text{Average Investment}} \times 100$$

Where,

$$\text{Average Net Income} = \frac{\text{Total EAT}}{\text{Number of years}}$$

$$\text{Average Investment} = \frac{\text{Net Investment}}{2}$$

**Decision rule:**

According to the ARR, as an accept - reject criteria, the actual ARR will be compared with predetermined or a minimum required rate of return or cut off rate. A project will qualify to be accepted if the actual ARR is higher than the minimum desired ARR. Otherwise; it is liable to be rejected. Alternatively, the ranking method can be used to select or reject proposal. Thus the alternative proposals under consideration may be arranged in the descending order of magnitude, starting with the proposal with the highest ARR and ending with the proposal having lowest ARR. Obviously, projects having the higher ARR would be preferred to projects, which have a lower ARR. (Khan & Jain, 1996)

2. Discounting Cash Flow Techniques: - Under discounting technique, following methods are used in capital budgeting-

(a) Net Present Value – Net present value (NPV) is a technique that determines the present value of the inflows and outflows and then simply takes a difference between the two. If that difference is positive, it is considered to be returning the required rate of return and is an acceptable project. If the amount is negative, it is not providing a sufficient return and would be rejected. In the event, if two or more mutually exclusive projects all have positive net present values, then the project with the highest NPV is selected. The generally accepted advantages of NPV are that it considers the time value of money and is relatively easy to calculate. On the other hand, it is often difficult for laymen to understand the results obtained and (most importantly) it assumes that interim payments received during the life of the project that can be invested at the

discount rate used in the calculation. This is often not a true statement and can be used to manipulate the results of the analysis. (Horgren, Sundem & Stratton, 1991)

The net present value method requires that all cash flows associated with new investment proposals be discounted at a predetermined weighted average cost of capital.

$$\text{NPV} = \text{TPV} - \text{NCO}$$

Where,

TPV = Total Present Value

NCO = Net Cash Outlay

**Decision rule:**

Decision rule for a project under NPV is to accept the project if the NPV is positive and reject if it is negative. However, in practice, it is rare that such a project is accepted as such a situation simply implies that only the original investment has been recovered. As a decision criterion, this method can also be used to make a choice between mutually exclusive projects. On the basis of the NPV method, the various proposals are ranked in the orders of the net present values. The project with the highest NPV will be assigned the first rank, followed by others in the descending order. (Khan & Jain, 1996)

(b) Internal Rate of Return – Internal rate of return (IRR) is the discount rate often used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero. Generally speaking, the higher a project's internal rate of return, the more desirable it is to undertake the project. As such, IRR can be used to rank several prospective projects a firm is considering. Assuming all other factors are equal among the various projects, the project with the highest IRR would probably be considered the best and undertaken first.

The IRR is usually the rate of return that a project earns. It is defined as the discount rate, which equates the aggregate present value of the net cash inflows (CFAT) with the aggregate present value of the outflows of a project. In other words, it is that rate which keeps the NPV of a project zero. (Khan & Jain, 1996)

The project will be accepted only if IRR exceeds the cost of capital (k). Symbolically, IRR is determined as per the equation:

$$IRR = LR + \frac{NPV_{LR}}{NPV_{LR} - NPV_{HR}} (HR - LR)$$

Where,

LR = Lower rate

HR = Higher rate

$NPV_{LR}$  = NPV at lower rate

$NPV_{HR}$  = NPV at higher rate

**Decision rule:**

The IRR decision rule is that only project with IRR greater than or equal to some predetermined cut-off rate should be accepted. All other investment opportunity should be rejected. The market interest rate reflects the opportunity cost of capital involved. Thus to be acceptable, a project must generate a return at least equal to the return available elsewhere in the capital market. (Khan & Jain, 1996)

(c) Profitability index – The profitability index or benefit cost ratio is a time-adjusted capital budgeting technique. It is similar to the NPV approach. The PI approach measures the present value of return per rupee invested, while the NPV is based on the difference between the present value of future cash inflows and the present value of cash outlays. Profitability index may be defined as a ratio, which is obtained by dividing the present value of future cash inflows by the present value of cash outlays.

An index that attempts to identify the relationship between the costs and benefits of a proposed project through the use of a ratio calculated as:

$$PI = \frac{\text{Present value of cash inflows}}{\text{Present value of cash outflows}}$$

This method is also known as the benefit-cost ratio because the numerator measures benefits and the denominator costs.

**Decision rule:**

If the PI value exceeds one, the proposal is worth accepting. When profitability indeed equals one, the firm is indifferent to the projects. When the profitability index is greater, equal to, or less than one, the net present value is greater, equal or less than zero



respectively. In other words, NPV will be positive when the profitability index is greater than one, and will be negative when the profitability index is less than one. Thus, the NPV and profitability index approaches give the same results regarding the investments proposals. (Bhajracharya, Ojha, Goet & Sharma, 2005)

(d) Discounted payback period – Payback period does not consider time value of money when providing an answer whereas with discounted payback period, we get to see the real values of cash inflows when they are measured in today's amount of money as these are discounted at an interest rate called the Discount Rate. Discounted payback period (DPBP) is the length of time it takes for a project's discounted cash flows to recover the original investment. (Bajracharya, Ojha, Goet & Sharma, 2005)

$$DPBP = \text{Minimum year} + \frac{\text{Amount to be recovered}}{\text{Next year cash flow}}$$

(e) Modified Internal Rate of Return – Modified internal rate of return (MIRR) is that discounting rate where NPV and terminal value are equal. The terminal value is found as the sum of future value of cash flows compounded at the firm's cost of capital. It is a variant of IRR that assumes that cash generated is re-invested at the cost of capital (usually the WACC). This is preferable because:

- Any series of cash flows has a single MIRR.
- It takes account of the rate at which cash generated is re-invested.

MIRR can be calculated as follows: -

$$MIRR = \left( \frac{\text{Terminal Value}}{NCO} \right)^{1/n} - 1$$

Where,

$$\text{Terminal value} = \sum \text{Cash flows} (1 + k)^{n-1} \quad [\text{For Uneven Cash Flows}]$$

$$\text{Terminal value} = CFAT (FVIFA, k\%, n \text{ years}) \quad [\text{For Even Cash Flows}]$$

### 2.1.5 Capital budgeting under risks and uncertainty

A capital budgeting decision is based on the benefits derived from the project. These benefits are measured in terms of cash flows. The estimation of future returns is done on the basis of various assumptions. The actual return in terms of cash inflows depends on a variety of factors such as price, sales volume, effectiveness of the advertisement

campaign, competition, cost of raw materials, manufacturing costs and so on; each of these in turn depends on other variables like the state of the economy, rate of inflation, etc. The accuracy of the estimates of the future returns and, therefore, the reliability of the investment decision would largely depend upon the precision with which these factors are forecast. As a result, actual results vary from the estimation. This variation is technically referred to as a risk. The term risk with an investment can therefore be defined as the variability in the actual returns emanating from a project in future over its working life in relation to the estimated return as forecast at the time of initial capital budgeting decision. (Horngren, Foster & Datar, 1999)

The decision situations with reference to risk analysis in capital budgeting decisions can be broken up into three categories: -

- Uncertainty
- Risk
- Certainty

The risk situation is the one in which the probability of a particular events occurring are known. These probabilities are not known under the situation of uncertainty. The difference between risk and uncertainty therefore lies in the fact that the variability is less than in uncertainty. (Luce & Raiffa, 1957)

In reality, risk generally is incorporated into capital budgeting decisions somewhat arbitrarily. Whenever we analyze a capital project, we must consider the unique factors. A discussion of all of these factors is beyond the scope of this course. However, three common factors to consider are:

- i. Compensating for different levels of risks between projects.
- ii. Recognizing risks that are specific to foreign projects.
- iii. Making adjustments to capital budgeting analysis by looking at the actual results.

Capital budgeting analysis that incorporates consideration of risk may do so either by using traditional techniques or statistical techniques. They are described of follows.

1. Traditional techniques: - Under this technique, risk adjusted discount rate, certainty equivalent coefficient and sensitivity analysis are used for analysis of risk-

(a) Risk adjusted discount rate - The risk adjusted discount rate (RAD) approach is one of the simplest and most widely used methods for incorporating risk into the capital budgeting decision. Generally, under this method, the riskiness of the project depends upon the discount rate. If the discount rate is high, that project is considered as highly risky project and if the discount rate is low, that project is considered as a lower risky project. A risk premium rate may be added to risk free discount rate to find out the present value of future return from risky investment proposals.

**Decision rule:**

- i. NPV should be positive by using the risk adjusted rate for acceptance of proposal.
- ii. IRR should be greater than the risk adjusted rate of return for acceptance of proposal.

(b) Certainty equivalent coefficient - The certainty equivalent approach is an alternative to the risk adjusted rate method to incorporate risk in evaluating investment projects. Under the risk adjusted discount rate method, the risk of the project is taken into consideration by adjusting expected cash flows and not the discount rate. These methods eliminate the problem arising out of the inclusion of risk premium in the discounting process.

**Decision rule:**

Higher certainty equivalent coefficient denotes lower risk and lower certainty equivalent coefficient denotes higher risk. The NPV of riskless cash flows should be positive and IRR of riskless cash flows should be greater than risk free rate of return.

(c) Sensitivity analysis - Sensitivity analysis provides information as to how responsive the estimated project cash flows, the discount rate and the project life are to estimation errors. An analysis on these lines is important as the future is always uncertain and there will always be estimation errors. Sensitivity analysis takes care of estimation errors by using a number of possible outcomes in evaluating a project. The method adopted under sensitivity analysis is to evaluate a project using a number of estimated cash flows to provide to the decision maker an insight into variability of the outcomes. The sensitivity analysis provides different cash flow estimates under these assumptions.

The best (i.e. the most optimistic)

The normal (i.e. the most likely/ moderate)

The worst (i.e. the most pessimistic)

The large in the difference between the pessimistic and optimistic cash flow is considered as riskier is projects depend upon the attitude of decision maker towards the risk.

2. Statistical techniques: - Under this technique, assignment of probabilities, standard deviation, coefficient of variation and decision tree are used for analysis of risk.

(a) Assignment of probability - The probability distribution of each cash flow overtime provides information about the expected value of return and the dispersion or the probability distribution of possible returns. On the basis of the information, an accept-reject decision can be taken.

The application of this theory in analyzing risk in capital budgeting depends upon the behavior of the cash flows, from the point of view of behavioral cash being (a) Independent (b) Dependent. The assumption that cash flows are independent over time signifies that future cash flows are not affected by the cash flows in the proceeding or following year.

(b) Standard deviation - Standard deviation measures the variability of a set of outcomes. Standard deviation is defined as the square root of the mean of the squared deviation where deviation is the difference between an outcome and expected value of all outcomes. Greater the standard deviation, higher is the degree of risk and lower the standard deviation, lower is the degree of risk. The project which has higher degree of standard deviation generally is not accepted and vice-versa.

(c) Coefficient of Variation – Standard deviation can be misleading in comparing the uncertainty of alternative projects. If they differ in size of cash outlay, the coefficient of variation (CV) is a correct technique in such a case. It measures the risk per unit of return and calculated as the standard deviation divided by the expected return.

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

Higher the coefficient of variation, higher is the degree of risk and lower the coefficient of variation; lowest is the degree of risk. (Weston, 1996)

(d) Decision tree - The decision tree (DT) approach is another useful alternative for evaluating risky investment proposals. The outstanding feature of this method is that it takes into account the impact of all probabilistic estimates of potential outcomes. In other words, every possible outcome is weighted in probabilistic terms and then evaluated. The DT approach is especially useful for situations in which decisions at one point of time also affect the decisions of the firm at some later date. Another useful application of the DT approach is for projects which require decisions to be made in sequential parts. (Gyawali, Fago & Subedi, 2006)

A decision tree is a pictorial representation in tree form which indicates the magnitude, probability and inter relationship of all possible outcomes. The format of the exercise of the investment decision has an appearance of a tree with branches and, therefore, this method is referred to as the decision-tree method. A decision tree shows the sequential cash flows and the NPV of the proposed project under different circumstances. (Bajracharya, Ojha, Goet & Sharma, 2005)

#### **2.1.6 Review of management accounting tools**

Management accounting is an activity that is interwoven in the management processes of all organizations. Management Accounting refers to that part of the management process which is focused on adding value to organizations by attaining the effective use of resources by people, in dynamic and competitive contexts. The functions of management accounting may be said to include all activities connected with collecting, processing, interpreting and presenting information to management. The management accounting satisfies the various needs of management for arriving at appropriate business decisions. A short review of management accounting tools is mentioned below: -

##### **(1) Cost segregation**

Mixed cost should be separated into variable and fixed components before entering into financial planning, decision making and controlling. Mixed cost separation methods are such as Graphic method, high low method, Analytical method, average method and least square method which are described as follows:

- i. **Graphical method** - The graphical method of dividing mixed cost into their fixed and variable components makes use of all relevant use of all relevant past

data pertaining to cost volume relationship. The data are plotted in a scatter graph. Each point in a chart represents cost for a particular months/ days in relation to number of units produced or level of activity.

- ii. **High low method** - High-Low Method (HLM) is an algebraic procedure that estimates the Constant (fixed cost element) and Slope (variable rate per unit of X) of an equation by using only the highest and lowest pairs of the sample data. As mixed cost necessarily includes elements of both fixed and variable cost, the HLM analysis takes the mathematical form of the linear equation:

$$Y = a + bX, \text{ (Similar to Least Square Method, also called as Cost Formula)}$$

The difference in cost between highest and lowest level of activities are divided by the difference in activity or output. The result of division is variable cost per unit. This method assumes that fixed cost trends remain constant and if there is any changes are only in variable cost.

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

$$\text{Variable Overhead} = \text{Budgeted Mixed Overhead} \times \text{Degree of Variability}$$

- iv. **Least square method** - Least Square is a procedure, requiring just some calculus and linear algebra, to determine what the "best fit" line is to the data. It follows regression equation to segregate mixed cost into variable. It is an accurate and trusted method of segregation fixed and variable cost from mixed cost. In this method, first of all, variable cost per unit is calculated. Then fixed cost is calculated.

## (2) Cost-volume-profit analysis (CVP Analysis)

Cost-volume-profit analysis (CVP) or break-even analysis is used to compute the volume level at which total revenues are equal to total costs. When total costs and total revenues are equal, the business organization is said to be "breaking even." The analysis is based on a set of linear equations for a straight line and the separation of variable and fixed costs. The financial information required for CVP analysis is for internal use and is usually available only to managers inside the firm; information about variable and

fixed costs is not available to the general public. CVP analysis is good as a general guide for one product within the relevant range. If the company has more than one product, then the contribution margins from all products must be averaged together.

### **(3) Standard costing**

The standard cost is a predetermined cost which determines in advance what each product or service should cost under given circumstances. The CIMA, London has defined standard cost as “a predetermined cost which is calculated from management’s standards of efficient operations and the relevant necessary expenditure.” They are the predetermined costs on technical estimate of material labor and overhead for a selected period of time and for a prescribed set of working conditions. In other words, a standard cost is a planned cost for a unit of product or service rendered.

Standard costing is a system of cost ascertainment and control in which predetermined standard costs and income for products and operations are set and periodically compared with actual costs incurred and income generated in order to establish any variances. Standard costing is a management control technique for every activity. It is not only useful for cost control purposes but is also helpful in production planning and policy formulation. It allows management by exception. Standard costing is preparation of standard costs and applying them to measure the variations from standard costs and analyzing the causes of variations with a view to maintain maximum efficiency in production. This technique is complementary to the actual costing can be historical costing system. The system of standard costing can be used in all types of industries but it is more commonly used in industries producing standardized products, which are repetitive nature.

Standard costing systems are very expensive to develop and maintain; they were also designed for traditional manufacturing systems in which direct labor and direct materials are the most important costs. Recent years have seen a decline in the use of such systems as companies become less labor intensive.

### **(4) Master budget**

The master budget is a summary of company's plans that sets specific targets for sales, production, distribution and financing activities. It generally culminates in a cash budget, a budgeted income statement, and a budgeted balance sheet. In short, this

budget represents a comprehensive expression of management's plans for future and how these plans are to be accomplished.

It usually consists of a number of separate but interdependent budgets. One budget may be necessary before the other can be initiated. More one budget estimate affects other budget estimates because the figure of one budget is usually used in the preparation of other budget.

The usual master budget for a manufacturing and non- manufacturing company has the following components: -

However a master budget can be divided into two groups. That is operational budget and financial budget.

#### **(5) Zero base budgeting**

Zero based budgeting is a method of budgeting in which all expenses must be justified for each new period. A zero-based budgeting start from a “zero base” and every function within an organization is analyzed for its needs and costs. Budgets are then built around what is needed for the upcoming period, regardless of whether the budget is higher or lower than the previous one. ZBB allows top-level strategic goals to be implemented into the budgeting process by tying them to specific functional areas of the organization, where costs can be first grouped, then measured against previous results and current expectations. (Dongol, R.M & Dongol, J, 2007)

#### **(6) Activity based budgeting**

Activity based budgeting is a method of budgeting in which the activities that incur costs in every functional area of an organization are recorded and their relationships are defined and analyzed. Activities are then tied to strategic goals, after which the costs of the activities needed are used to create the budget. Activity based budgeting stands in contrast to traditional, cost-based budgeting practices in which a prior period's budget is simply adjusted to account for inflation or revenue growth. As such, ABB provides opportunities to align activities with objectives streamline costs and improve business practices.



**(7) Flexible budget**

A flexible budget is an alternative that has some compelling advantages. It relates anticipated expenses to observed revenue. To illustrate, if a business greatly exceeded the sales goal, it is reasonable to expect costs to also exceed planned levels. After all, some items like cost of sales, sales commissions, and shipping costs are directly related to volume. How ridiculous would it be to fault the manager of the business for having cost overruns? Conversely, failing to meet sales goals should be accompanied by a reduction in variable costs. Certainly it would make no sense to congratulate a manager for holding costs down in this case.

The flexible budget responds to changes in activity, and may provide a better tool for performance evaluation. It is driven by the expected cost behavior. Fixed factory overhead is the same no matter the activity level, and variable costs are a direct function of observed activity. When performance evaluation is based on a static budget, there is little incentive to drive sales and production above anticipated levels because increases in volume tend to produce more costs and unfavorable variances. The flexible budget-based performance evaluation provides a remedy for this phenomenon.

**(8) Ratio analysis**

Ratio analysis is a tool used by individuals to conduct a quantitative analysis of information in a company's financial statements. Ratios are calculated from current year numbers and are then compared to previous years, other companies, the industry, or even the economy to judge the performance of the company. Ratio analysis is predominately used by proponents of fundamental analysis. There are many ratios that can be calculated from the financial statements pertaining to a company's performance, activity, financing and liquidity. Some common ratios include the price-earnings ratio, debt-equity ratio, earnings per share, asset turnover and working capital. (Dongol, R.M & Dongol, J, 2007)

The financial ratios can be categorized into the following ways:

- v. Liquidity Ratios
- vi. Leverage Ratios
- vii. Activity Ratios
- viii. Profitability Ratios

### **(9) Breakeven analysis**

Breakeven is that point where the company just recovers all of its costs or there is no profit or no loss. In other words, where the total cost equals the total revenue is called the breakeven revenue. It will just be able to recover its cost. To put breakeven point in other words, that is point at which a company breaks the loss (minus) zone and enters into profit zone. Break even analysis is the managerial tools that shows the relationship between cost and profit with sales volume i.e. revenue in banks. Breakeven analysis helps the management to know which revenue level will only recovers its cost and after which it starts giving profit. Therefore, it can provide management some insight into decision making.

### **(10) Cash flow analysis**

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

Cash flow is determined by looking at three components by which cash enters and leaves a company: core operations, investing and financing. Cash flow analysis is done through preparing cash budget. Cash as important current asset should be managed carefully. Though it is zero earning assets, it is held by the firm with different purposes such as: transaction motive precautionary motive, speculative motive.

## **2.2 A brief review of the previous research work**

Researches on the area of capital budgeting practices in Nepalese context are not made in remarkable number. Many researches were in the area of Profit Planning & Control, Revenue planning, Cost Volume Profit Analysis and Management Accounting practices in Nepalese context. As profit planning and control and management accounting practices cover some of the aspects of capital budgeting, researches made on these areas are taken into consideration for the sake of review to examine the position of capital budgeting practice in Nepalese Manufacturing Company. An attempt is made here to review some of the researches, which have been submitted in profit planning and control, cost volume profit analysis, management accounting practices in the

context of Nepal, Capital budgeting practices in industrial sector of public enterprises of Nepal.

**Dhakal** (2003) had conducted research on *Profit planning in manufacturing enterprises; a case study of herbs production & processing company ltd.*

**His main objectives of the study were:**

- i. To examine present practice of profit planning and control and its effectiveness in HPPCL.
- ii. To observe HPPCL's profit plan on the basis of overall managerial budgeting.
- iii. To analyze the difference between budgeting and actual achievement in the Co.

**His major findings of the research works were:**

- i. There is serious lack of mgmt. Expertise, which has led to formulation of unrealistic, haphazard plans. The variances are unfavourable and very high.
- ii. Periodic performance has not been maintained to find the underlying causes of poor achievement.
- iii. Cost classification has not been done in scientific manner, which make problem in analysis and control of costs.
- iv. As government enterprises there is lack of autonomy as every major decision need to be sanctioned by the MOF. The excessive red tape makes timely decision impossible leading to loss of market opportunities.

**Recommendations of the study were:**

- i. Moves should be made to establish a skilled management to make sure that realistic plans are set and effectively implemented with continuous follow ups.
- ii. The Co. needs to have a periodic performance reporting system to identify loopholes. For this purpose operation should be decentralized and responsibility centres such cost, revenue, profit and investment centre be designated to associate the good or bad performance to a particular centre.
- iii. HPPCL needs to classify costs in a scientific manner like variable, semi-variable and fixed, so that cost can be better analysed effectively planned and controlled.
- iv. Cumbersome procedures lead to loss of marketing opportunities. Government intervention should be avoided.

Adhikari (2007) had presented a dissertation on *Cost volume profit analysis of nepal lube oil limited*.

**His main objectives of the study were:**

- i. To examine the use of CVP analysis to measure effectiveness of PPC in Nepal Lube Oil Limited.
- ii. To study relationship of Cost, volume and Profit as a tool of budgeting.
- iii. To evaluate the profitability and sensitivity of NLO's activities and its impact in profitability.

**The major findings of the study:**

- i. Company has usually very low margin of safety and also negative in some fiscal year.
- ii. Both the Sales and Net Profit of the company are fluctuating. But sales is in increasing trend and net profit is in decreasing trend.
- iii. The budgeted sales are more than actual sales inequality.
- iv. BEP is in increasing trend due to decrease in PV ratio.

**Recommendations of the study were:**

- i. NLO should consider BEA Analysis while preparing sales plan, production plan and setting price of product.
- ii. NLO should minimize the variable cost by purchasing raw materials in lower price from other supplier from the international market.
- iii. Separate cost control committee should be established for effective control and mgmt. of cost.

**Majhi (2009)** had conducted research in the topic "*A study on CVP analysis as a managerial tool of profit planning of Unilever Nepal Limited*".

**His main objectives of the study were:**

- i. To study relationship of cost, volume and profit as an applicable tools of budgeting.
- ii. To evaluate the profitability, financial position and sensitivity analysis of UNL.
- iii. To analyze the cost, volume and profit of the Manufacturing Company and its impact in profit planning.

**The major findings of the study:**

- i. The company produces Detergent/sources/laundry, Toilet Soaps, Personal Products, Soap Noodles and Tea etc. Soap Noodles and Tea were dropped after the fiscal year 2060/61.
- ii. Total variable cost ratio was not constant. High portion of variable cost includes cost of materials. Variable cost covers nearly 80% on an average of sales.
- iii. Fixed cost did not remain constant in the different fiscal year.
- iv. Semi-variable cost also fluctuated each year.
- v. Profit of the company increased every year. Though sales decreased in the same year profit increased due to decrease in fixed cost.

**Recommendations of the study were:**

- i. Classification of expenses into variable and fixed or controllable and non-controllable must be made. The effective and scientific method should be used to segregate cost.
- ii. UNL should establish a separate cost control and planning department for effective management of cost.
- iii. Preparation of sales plan, production plan and settling price of its products should be on BEP analysis.
- iv. As a multi-product Company, UNL should produce for the product high with CVP to generate huge profit. Systematic approaches should be following towards comprehensive profit planning.
- v. Some portion of income should be allocated to research and development program so that new technology could be found which provide more competitiveness in the market field.

**Subedi** (2011) had conducted research on *Capital budgeting practices in industrial sector of public enterprises of Nepal*.

**His main objectives of the study were:**

- i. To examine the present practice of capital budgeting tools in the Industrial PEs of Nepal.
- ii. To identify the difficulties in applying capital budgeting tools in Nepalese Industrial PEs.

**The major findings of the study:**

- i. There is a weak practice of capital budgeting in Nepalese Industrial PEs. The practice is also inefficient and merely for the sake of practicing capital budgeting.
- ii. Regarding the response of Nepalese Industrial PEs there is significant practice of program budgeting i.e. 60% and 40% of the enterprises are practicing traditional budgeting. None of the industrial enterprises are applying comprehensive and zero based budgeting.
- iii. Most of the Nepalese Industrial PEs are facing the problems of non-availability of data, lack of men power and knowledge in applying capital budgeting.

**Recommendations of the study were:**

- i. For each investment in fixed assets each and every enterprise should develop the practice of feasibility analysis by using capital budgeting.
- ii. For budget preparation, Nepalese Industrial PEs has been practicing based on the basis of past actual expenses and past budget estimates. Those are traditional methods and cannot adjust the future uncertainty because past will not happen in the future. So, it is recommended to use activity based budgeting and zero based budgeting for budget preparation.
- iii. Participatory system of decision making should be implemented for effective implementation and participation of all members affected by the decision. It helps to motivate the personnel of organization.

**Kengatharan** (2016) conducted his study on the topic “Capital Budgeting Theory and Practice: A Review and Agenda for Future Research”. The main objective of this study was to explain the capital budgeting theories and practices in different countries and demonstrate the disparities between theories and practices of capital budgeting. It is crucial to answer the research questions in order to attain research aims. The first question enquired about “what are the capital budgeting theories and practices used by firms? Are there any disparities between the capital budgeting theories and practices? If so, how?” The answers for these questions have been well documented during the last twenty years of studies. Capital budgeting theory recommends in using DCF methods (NPV, IRR, MIRR, and DPB) and non DFC methods (PB and ARR) for making capital budgeting decision. However, all most all the firms in developed and developing countries inclined to use sophisticated capital budgeting methods along with

many capital budgeting tools for incorporating risk (i.e., sensitivity analysis, real options) and sophisticated discounted rate (i.e., WACC, CD, CAPM). Thus it can be concluded that there are some disparities between capital budgeting theory and practice. The next research's question further backs up to this question.

The second question asked about “what are the factors determines the use of capital budgeting practices? Are there different across countries? If so how?” Numerous factors have been identified as the determinant of capital budgeting during the last two decades including size of the firm, ownership structure, nature of industries, educational qualification of CFOs, experience of CFOs, age of CFOs, uncertainty (for example, interest rate, inflation, foreign exchange rate), nonfinancial consideration and other factors (i.e., economic, human, technology, finance, ethical and political). Among them, some factors (for example, size of the firm, educational qualification of CFOs, experience of CFOs, and age of CFOs) were positively associated with the use of sophisticated capital budgeting practices.

**Lakew** (2017) conducted a study on the topic “Planning and Forecasting in Capital Budgeting: The Practice of Business Organizations in Ethiopia”. The main objective of his study was to identify problems of forecasting cash inflow and outflow related to capital projects. Most firms formulate their corporate goal & strategic plan and establish capital budget in line with it. Further, business organizations pursue multiple goals and there is a variation in goals between private and state owned firms. The goal of most private firms revolve around profit and wealth maximization whereas the goal of state owned firms focus on growth, increasing market share and increasing outreach to customers. This is in line with the natural behavior of private and state owned firms indicated in theory. However, most of them do not have capital budgeting manual specifically prepared for their company. They use the one developed by EIC, Ministry of public enterprises or UNIDO.

Most capital budgeting related decisions are made by top managers and board of directors. Top managers and board of directors are the main source of investment idea in the selected firms also. There is no significant variation among the different types of business organizations in terms of origination of investment opportunity. Only one-third of the firms have an incentive system for generating profitable investment idea. In addition, most strategic decisions such as approval and post audit are made by board of

directors and top managers of the firms. This indicates that, origination of idea is top down and participation of common employees in critical decisions is very less in the majority of firms. The implication of this is that, the majority of Ethiopian companies are treated as business units instead of standalone firms and critical decision falls in the hand of high ranking authority. This has significant corporate accountability, resulting in formal and lengthy decision-making procedures.

**Onuorah** (2019) conducted his study on the topic " Appraisal of capital budgeting techniques and performance of manufacturing firms in Nigeria". The study investigated the extent to which capital budgeting decision affects the performance of manufacturing industry in Nigeria. The study show that changes in the existing risk of a firm, firm size and the use of sophisticated capital budgeting method go a long way in positively affecting performance measures. It was also observed that capital intensity has direct relationship with the specified performance measure of manufacturing industries in Nigeria. Most firms in Nigeria were found to use non-sophisticated method irrespective of their size, risk and capital intensity, and changes do not appear to have occurred in capital budgeting methods to the extent of reflecting on the level of performance. The normal practice with regards to utilizing "Efficiency" markers, for example, payback (PB) and internal rate of return (IRR), to enhance the NPV technique was observed to be misplaced, given that such measures confound as opposed to enhance the choice procedure.



**Table 2.1 Summary of literature review**

S.No	Author	Objectives	Findings	Recommendations
1	Dhakal (2003)	<ol style="list-style-type: none"> <li>1. Examine present practice of profit planning and control and its effectiveness in HPPCL.</li> <li>2. Observe HPPCL's profit plan on the basis of overall managerial budgeting.</li> <li>3. Analyze the difference between budgeting and actual achievement in the Co</li> </ol>	<ol style="list-style-type: none"> <li>1. There is serious lack of management expertise leading to formulation of unrealistic, haphazard plans.</li> <li>2. Periodic performance has not been maintained.</li> <li>3. Cost classification has not been done in scientific manner.</li> <li>4. There is lack of autonomy as every major decision need to be sanctioned by the MOF.</li> </ol>	<ol style="list-style-type: none"> <li>1. Establish skilled management.</li> <li>2. Need for a periodic performance reporting.</li> <li>3. Costs needs to be classified in a scientific manner.</li> </ol>
2	Adhikari (2007)	<ol style="list-style-type: none"> <li>1. Examine the use of CVP analysis to measure effectiveness of PPC in Nepal Lube Oil Limited.</li> <li>2. Study relationship of Cost, volume and Profit as a tool of budgeting.</li> <li>3. Evaluate the profitability and sensitivity of NLO's activities and its impact in profitability.</li> </ol>	<ol style="list-style-type: none"> <li>1. Company has usually very low margin of safety.</li> <li>2. Both the Sales and Net Profit of the company are fluctuating.</li> <li>3. The budgeted sales are more than actual sales inequality.</li> <li>4. BEP is in increasing trend due to decrease in PV ratio.</li> </ol>	<ol style="list-style-type: none"> <li>1. Consider BEA analysis.</li> <li>2. NLO should minimize the variable cost.</li> <li>3. Separate cost control committee should be established.</li> </ol>
3	Majhi (2009)	<ol style="list-style-type: none"> <li>1. Study relationship of cost, volume and profit as an applicable tools of budgeting.</li> <li>2. Evaluate the profitability, financial position and sensitivity analysis of UNL.</li> <li>3. Analyze the cost, volume and profit of the Manufacturing Company and its impact in profit planning.</li> </ol>	<ol style="list-style-type: none"> <li>1. Total variable cost ratio, fixed and semi-variable cost were not constant.</li> <li>2. Profit of the company increased every year.</li> </ol>	<ol style="list-style-type: none"> <li>1. Expenses should be calssified into variable and fixed or controllable and noncontrollable costs.</li> <li>2. Establish a separate cost control and planning department.</li> <li>3. Preparation of sales plan, production plan and settling price of its products should be on BEP analysis.</li> <li>4. Product with high CVP should be produced.</li> <li>5. Portion of income should be allocated to research and development program.</li> </ol>
4	Subedi (2011)	<ol style="list-style-type: none"> <li>1. Examine the present practice of capital budgeting tools in the Industrial PEs of Nepal.</li> <li>2. Identify the difficulties in applying capital budgeting tools in Nepalese Industrial PEs.</li> </ol>	<ol style="list-style-type: none"> <li>1. There is a weak practice of capital budgeting in Nepalese Industrial PEs.</li> <li>2. There is significant practice of program budgeting.</li> <li>3. Lack of data, manpower and knowledge in applying capital budgeting.</li> </ol>	<ol style="list-style-type: none"> <li>1. Practice of feasibility analysis should be developed.</li> <li>2. It is recommended to use activity based budgeting and zero based budgeting for budget preparation.</li> <li>3. Participatory system of decision making should be implemented.</li> </ol>
5	Kengatharan (2016)	Examine and explain the capital budgeting theories and practices in different countries and demonstrate the disparities between theories and practices of capital budgeting	<ol style="list-style-type: none"> <li>1. Most all the firms in developed and developing countries inclined to use sophisticated capital budgeting methods.</li> <li>2. Size of the firm, ownership structure, nature of industries, educational qualification of CFOs, experience of CFOs, age of CFOs,</li> </ol>	

			uncertainty, nonfinancial considerations, etc. are the determinants of capital budgeting.	
6	Lakew (2017)	Identify problems of forecasting cash inflow and outflow related to capital projects.	<ol style="list-style-type: none"> <li>1. Goal of most private firms revolve around profit and wealth maximization whereas the goal of state owned firms focus on growth, increasing market share and increasing outreach to customers.</li> <li>2. Most capital budgeting related decisions are made by top managers and board of directors.</li> <li>3. There is no significant variation among the different types of business organizations in terms of origination of investment opportunity.</li> </ol>	
7	Onuorah (2019)	Investigate the extent to which capital budgeting decision affects the performance of manufacturing industry in Nigeria.	<ol style="list-style-type: none"> <li>1. Existing risk, firm size and the use of sophisticated capital budgeting method positively affects performance measures.</li> <li>2. Capital intensity has direct relationship with the specified performance</li> <li>3. Most firms were found to use non-sophisticated methods.</li> </ol>	

### 2.3 Research gap

There are very few research conducted on capital budgeting practices in Nepal. Moreover, even fewer research works have been conducted undertaking the manufacturing sector in Nepal. Those works which considered the manufacturing sector were also limited to few public enterprises listed in NEPSE.

This study has been carried out by examining the facts and figures from various private manufacturing entities as well as numerous public manufacturing enterprises listed in NEPSE. Moreover, this study has increased the sample size to 10 units to that of five manufacturing enterprises taken by previous studies. This study also tried to find long-term capital investment decision making in manufacturing companies. The findings of these studies were mainly based on primary data.

## CHAPTER 3

### RESEARCH METHODOLOGY

Research methodology is concerned with various methods and techniques, which are used in the process of research studies. It includes wide range of methods including quantitative technique for data analysis and presentation. It facilitates the research work and provides reliability and validity to it. The main objective of this study is to analyze, examine and interpret capital budgeting practices in manufacturing companies of Nepal. The research methodology is followed to achieve the basic objectives and goals of research work. The major components of research methodology followed in this research study are discussed below.

#### **3.1 Research design**

Research design is the plan, structure, and strategy of investigation conceived so as to obtain answer to research question and to control variance. The plan is the overall schemed or program of the research like the structure of research is more specific. It is the outline, the scheme, the paradigm of the operation of the variable and strategy implies. Research design is an analytical as well as descriptive approach to achieve the objective. Thus research design is a plan to obtain the answer of research questions through analysis of data.

Descriptive design is a fact finding operation searching for adequate information. It is a type of study, which is generally conducted to assess the opinions, behaviors or characteristics of a given population and to describe the situation and events occurring at present. Descriptive research is a process of accumulating facts. It does not necessarily seek to explain relationship, test hypothesis, make predictions or get at meanings and implications of the study.

#### **3.2 Sources of data**

The data were collected from the primary sources. Primary data were collected through questionnaire survey.

#### **3.3 Population and sample**

For the purpose of the study of the capital budgeting practices of the listed and non-listed manufacturing entities were taken by the convenience sampling method. It is difficult to study the population of manufacturing companies. Hence only 10

manufacturing companies are chosen as the sample for the analysis, interpretation and representation of the population of the manufacturing companies.

- i. Bottlers Nepal (Balaju) Ltd.
- ii. Chaudhary Group Pvt. Ltd.
- iii. Dairy Development Corporation Ltd.
- iv. Gorkha Brewery Pvt. Ltd.
- v. Hilltake Industries Pvt. Ltd.
- vi. Himalayan Snax & Noodles Pvt. Ltd
- vii. Hullas Steel Industries Pvt. Ltd.
- viii. Panchakanya Group Pvt. Ltd
- ix. Shivam Cements Ltd.
- x. Unilever Nepal Ltd.

### **3.4 Data collection and processing procedure**

This study is mainly based on primary sources of data, information collected by developing a structured question. The main target respondents were the financial Directors and Accountants of the manufacturing companies. Altogether 11 questions were included in the questionnaire and analyzed for study.

Data collected information from questionnaires was in raw form. The data are tabulated into various tables according to the subject's requirement. Processing of data has. Simple arithmetic percentage tool is used for analysis. The data has been processed using the sophisticated SPSS program. Major findings are based on the analysis and the interpretation of data.

### **3.5 Data analysis tools and techniques**

Simple percentages analyses were used to interpret data. The capital budgeting tools like NPV, IRR,PI, ARR, PBP, MIRR were the major research variables Similarly the management accounting tools like budgeting, Zero base budgeting, capital budgeting, cost volume profit analysis, ratio analysis, cash flow analysis, decision making Procedure, Preparation of financial documents, short term and long term planning were also the research variables. The study has used mean and standard deviation as Statistical tools.

## CHAPTER 4

### RESULTS AND DISCUSSION

This chapter describes the main part of the whole study where the data collected from questionnaire presented and analyzed in detail. It consists of analysis and presentation of empirical data that focus on how far the Nepalese manufacturing companies are practicing capital budgeting tools which is the most important component of this study. In this chapter, the data collected from the questionnaire for the study have been tabulated, presented, analyzed and interpreted with regard to five factors- NPV, PBP, DPBP, IRR and MIRR.

#### 4.1 Tabulation and graphical presentation of practices of capital budgeting tools

In this part, it has been attempted to analyze the data collected through questionnaire. The data are presented in table and pie chart bar diagram and for the help of data analysis the SPSS programming has been used.

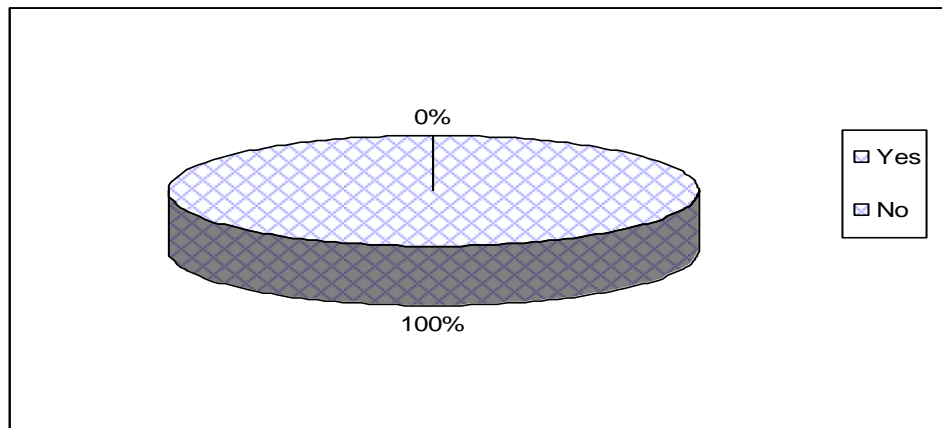
##### 4.1.1 Capital budgeting practice

Capital budgeting as the decision making is the process by which firms evaluate the purchase of major fixed assets including building machinery and equipment. It is also covers decision to acquire other firms either thought the purchase of their common stock or groups of assets that can be used to conduct an ongoing business. So, the below table tries to find out the preference given by manufacturing companies to the capital budgeting.

**Table 4.1.1 Capital Budgeting Practice**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Yes	10	100
No	0	0
<b>Total</b>	<b>10</b>	<b>100</b>

*Source: Field Survey 2020*



**Figure 4.1.1: Capital budgeting practice**

According to the table 4.1.1 and figure 4.1.1 it can be concluded that all the Nepalese manufacturing companies have been practicing capital budgeting for the long term investment project. Capital budgeting is one of the most important and useful technique to evaluate investment project for each company. It minimizes the cost of the project.

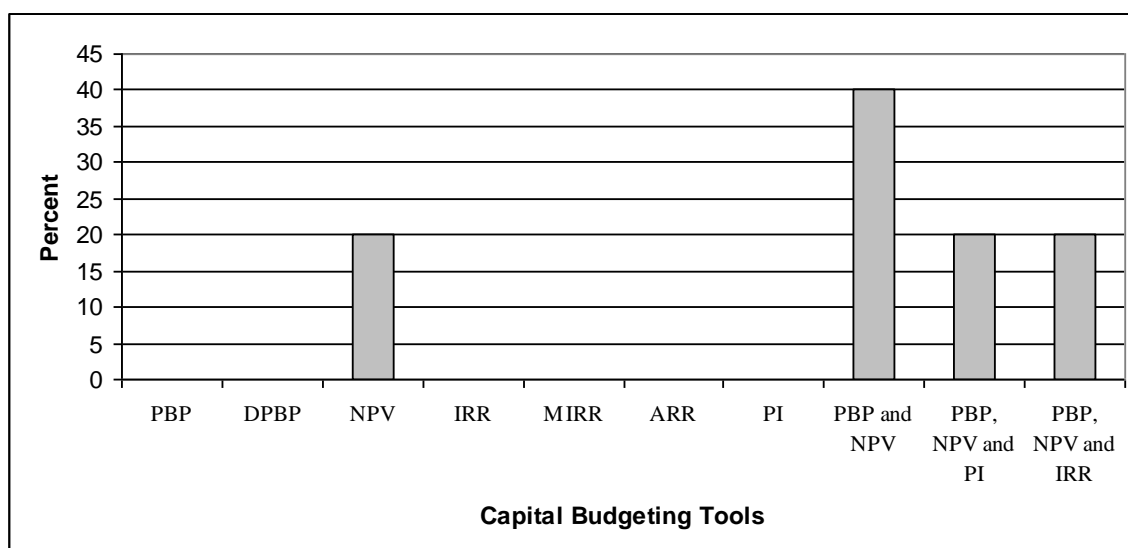
#### **4.1.2 Capital budgeting tools practice in Nepalese manufacturing companies**

More purposes for project are at the threshold of the business firm comparing to its ability and wiliness to finances some proposals good, other are different and at others poor. A screening has to be devised for finding out the real content of such proposal. Methods of differentiating them should be developed. For this purpose, numerous methods of measuring the economic value of an investment can be found. The following table presents the responses acquired from the sample Nepalese manufacturing companies regarding the capital budgeting tools practiced.

**Table 4.1.2: Capital budgeting tools practice in Nepalese manufacturing companies**

Tools	Frequency	Percent
PBP	0	0
DPBP	0	0
NPV	2	20
IRR	0	0
MIRR	0	0
ARR	0	0
PI	0	0
PBP and NPV	4	40
PBP, NPV and PI	2	20
PBP, NPV and IRR	2	20
<b>Total</b>	<b>10</b>	<b>100</b>

*Source: Field Survey 2020*



**Figure 4.1.2: Capital budgeting tools practice in Nepalese manufacturing companies**

The table 4.1.2 and figure 4.1.2 show the capital budgeting tools practiced by the Nepalese manufacturing companies. All of the manufacturing companies have been practicing net present value to analyze project as common method. 20 percent of the companies used NPV only whereas 60 percent used both PBP and NPV. Similarly, 20

percent of the companies have been practicing all PBP, NPV & PI and next 20 percent practiced PBP, NPV & IRR for long term investment project. None of the company practice DPBP, MIRR & ARR for long term investment. Time value of money is also the important factor which should be considered in the calculation of expected cash flows. Every business houses need to considered this factor while making decision to minimize risk.

#### 4.1.3 System of budgeting practices in manufacturing companies of Nepal

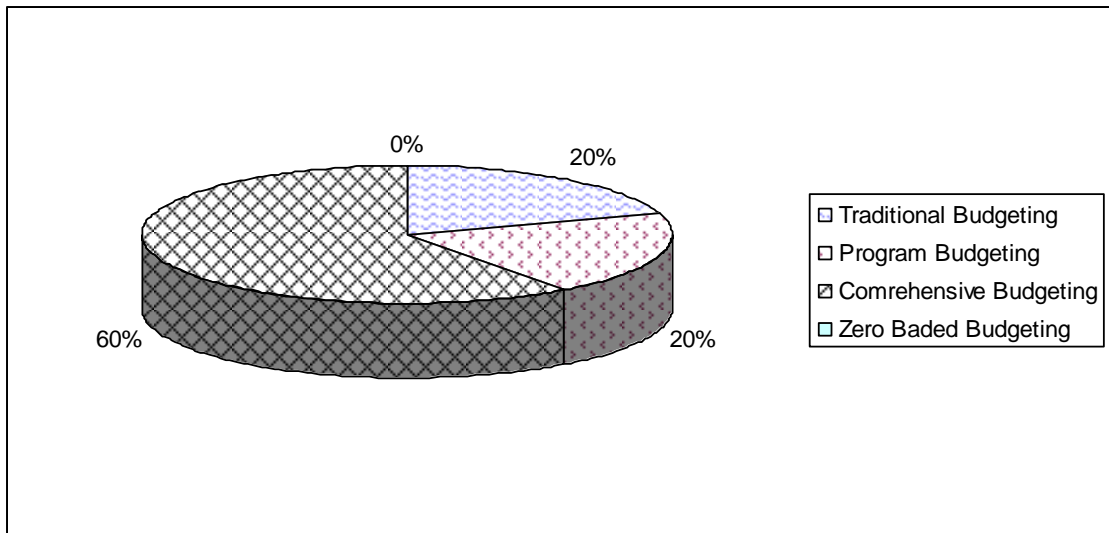
System of budgeting practices plays an important role in questioning, visualizing, analyzing, and measuring implemented strategies. It also helps to manager in overall managerial activities by providing information and helping in planning, controlling, and decision making. The following table and chart shows the current status of budgeting system practices of Nepalese manufacturing companies.

**Table 4.1.3: System of Budgeting Practices**

<b>Budgeting System</b>	<b>Frequency</b>	<b>Percent</b>
Traditional Budgeting	2	20
Program Budgeting	2	20
Comprehensive Budgeting	6	60
Zero Based Budgeting	0	0
<b>Total</b>	<b>10</b>	<b>100</b>

*Source: Field Survey 2020*





**Figure 4.1.3: System of budgeting practices**

The table 4.1.3 and figure 4.1.3 exhibit the system of budgeting practice in manufacturing companies of Nepal. Regarding the response of sample Nepalese organizations, there is significant practice of comprehensive budgeting i.e. 60 percent. 20 percent of the sample companies have been practicing traditional budgeting system and 20% percent have been using programme budgeting. Although ZBB is a justified budgeting system of every activity in the budget, none of the sample manufacturing companies has applied zero based budgeting.

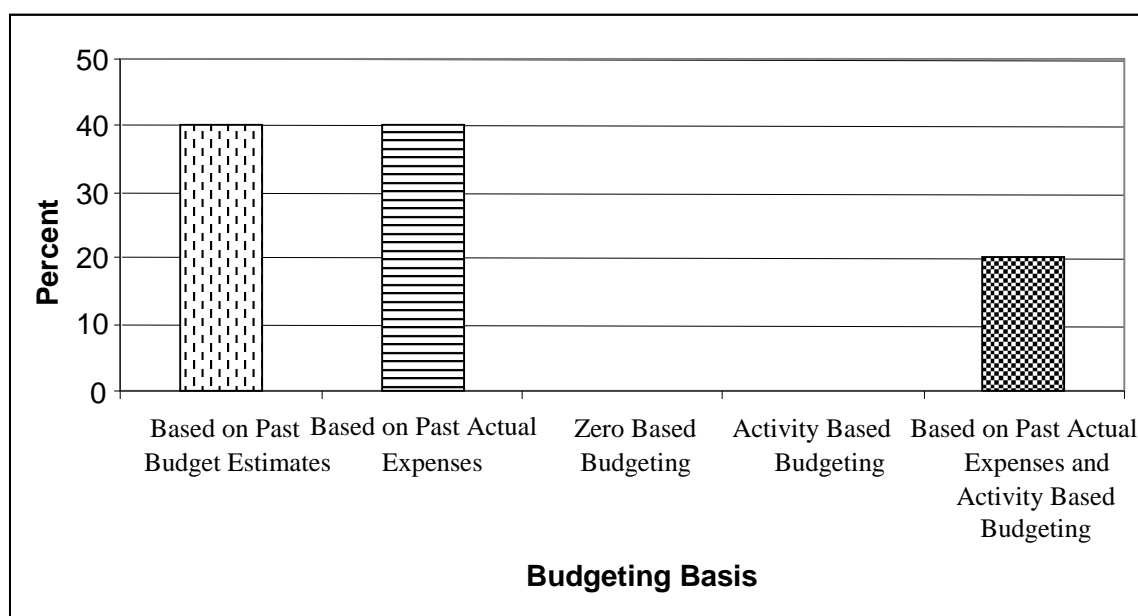
#### **4.1.4 Basis of budget preparation**

Budgeting summarized the estimated result of future transactions for the entire company in much the same manner as the accounting process records and summarizes the result of completed transactions. For assisting the management in the functions of planning and control budgeting techniques is applied. Budget can be used as benchmark that allows manager to compare actual performance with estimated or desired performance. The following table gives the manufacturing companies' response regarding the basis of budget preparation.

**Table 4.1.4: Basis of budget preparation**

<b>Basis of Preparing Budget</b>	<b>Frequency</b>	<b>Percent (%)</b>
Based on Past Budget Estimates	4	40
Based on Past Actual Expenses	4	40
Zero Based Budgeting	0	0
Activity Based Budgeting	0	0
Based on Past Actual Expenses and Activity Based Budgeting	2	20
<b>Total</b>	<b>10</b>	<b>100</b>

*Source: Field Survey 2020*

**Figure 4.1.4: Basis of budget preparation**

The table 4.1.4 and figure 4.1.4 reflect the budget estimation technique practiced by sample manufacturing companies. It is seen in the table and Fig. that 40 percent of Nepalese manufacturing companies have been preparing their budget only on the basis of past budget estimates and 40 percent companies have been preparing their budget

based only on past actual expenses. Similarly, 20 percent of them have been preparing budget on the basis of on past actual expenses and activity based budgeting. None of the manufacturing company have practiced modern useful technique zero based budgeting due to lack of time and manpower. It seems that, in Nepal must of the companies do not have trained manpower for budgeting and planning.

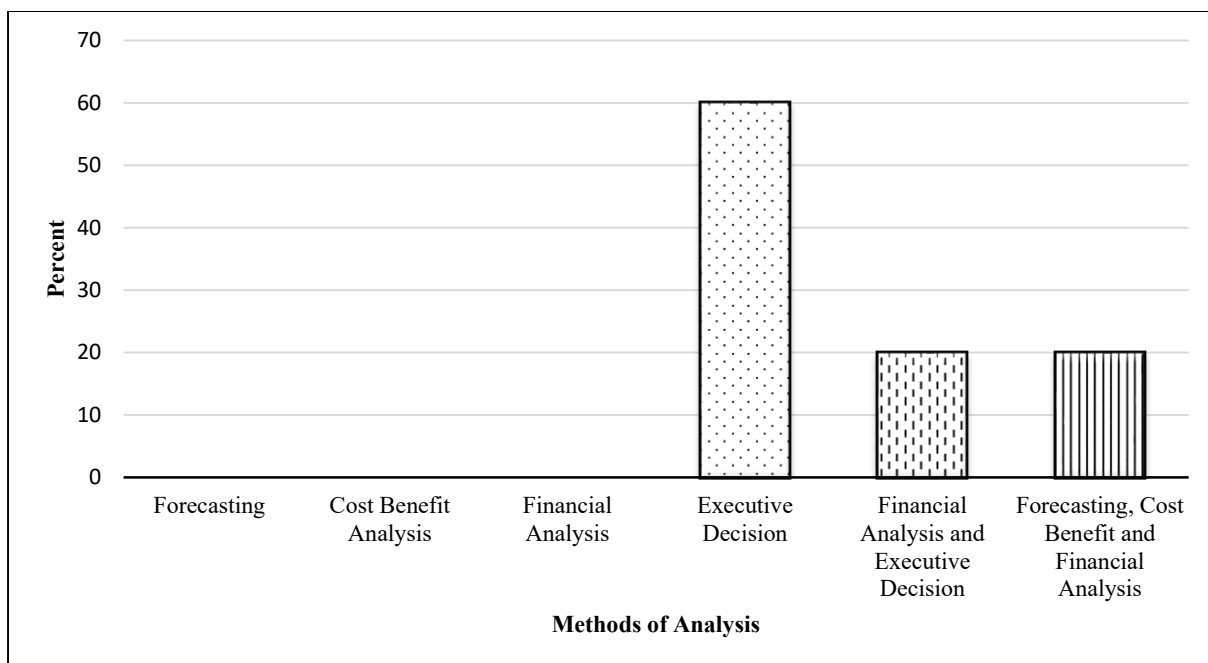
#### **4.1.5 Method of investment plan in Nepalese manufacturing companies**

Investment plan helps to get maximum return from the prospective investment for the manufacturing companies. Systematic plan is necessary for capital fund management of the organization. On the basis of management perception different method of investment planning can be used. Following are the methods of analysis for investment plan undertaking by the sample manufacturing companies:

**Table 4.1.5: Method of investment plan analysis**

<b>Methods</b>	<b>No. of Companies</b>	<b>Percent</b>
Forecasting	0	0
Cost Benefit Analysis	0	0
Financial Analysis	0	0
Executive Decision	6	60
Financial Analysis & Executive Decision	2	20
Forecasting, Cost Benefit and Financial Analysis	2	20
<b>Total</b>	<b>10</b>	<b>100</b>

*Source: Field Survey 2020*



**Figure 4.1.5: Method of investment plan analysis**

The table 4.1.5 and figure 4.1.5 show the method of investment plan analysis by the sample Nepalese manufacturing companies. 60 percent of the companies have been using executive decision for investment plan analysis. 20 percent of the companies have been practicing both financial analysis and executive decision for investment plan analysis. In the same way 20 percent of them have been applying all three forecasting, cost benefit analysis and financial analysis, to plan their investment. Although there are many effective techniques available to analyze investment plan, executive decision dominated in the Nepalese manufacturing companies. It seems that in the Nepalese companies there is still lack of practicing modern approach like participatory in decision making.

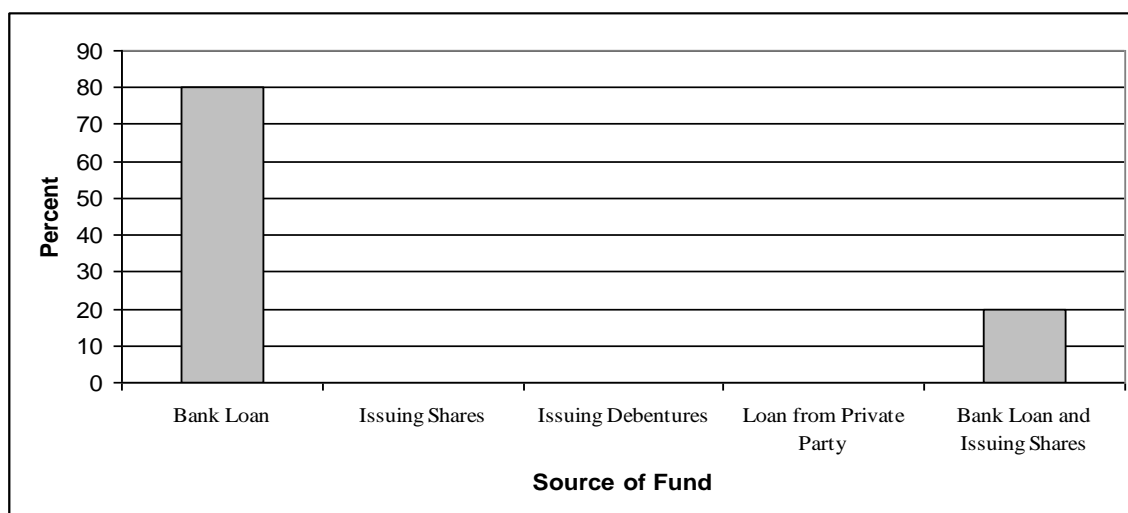
#### **4.1.6 Sources of fund for investment projects**

A company has different sources available to raise fund to invest in projects. Raising fund involves additional cost for the company and has long term effect in the life of project. Company policy and financial structure & position play a vital role in selecting source of fund. So, the below table tries to find out the preference given by manufacturing companies in selecting the source of fund.

**Table 4.1.6: Sources of fund for investment projects**

Source of Fund	Frequency	Percent
Bank Loan	8	80
Issuing Shares	0	0
Issuing Debentures	0	0
Loan From Private Party	0	0
Bank Loan and Issuing Shares	2	20
<b>Total</b>	<b>10</b>	<b>100</b>

*Source: Field Survey 2020*

**Figure 4.1.6: Sources of fund for investment projects**

The table 4.1.6 and figure 4.1.6 reveal the source of fund for investment projects by the sample Nepalese manufacturing companies. 80 percent of the manufacturing companies have been collecting their fund from banks for their investment projects. Both bank loans as well as issuing share were used for fund collection by 20 percent of the manufacturing companies. None of the companies have been using issuing debentures and loan from private party for their fund collection. Collection of fund

plays a major role in investment decision which determines the cost of project. Every business organization required to choose the optimal source of fund which minimize the cost. Bank loan is the most common and economic source of fund which has been selecting by Nepalese companies.

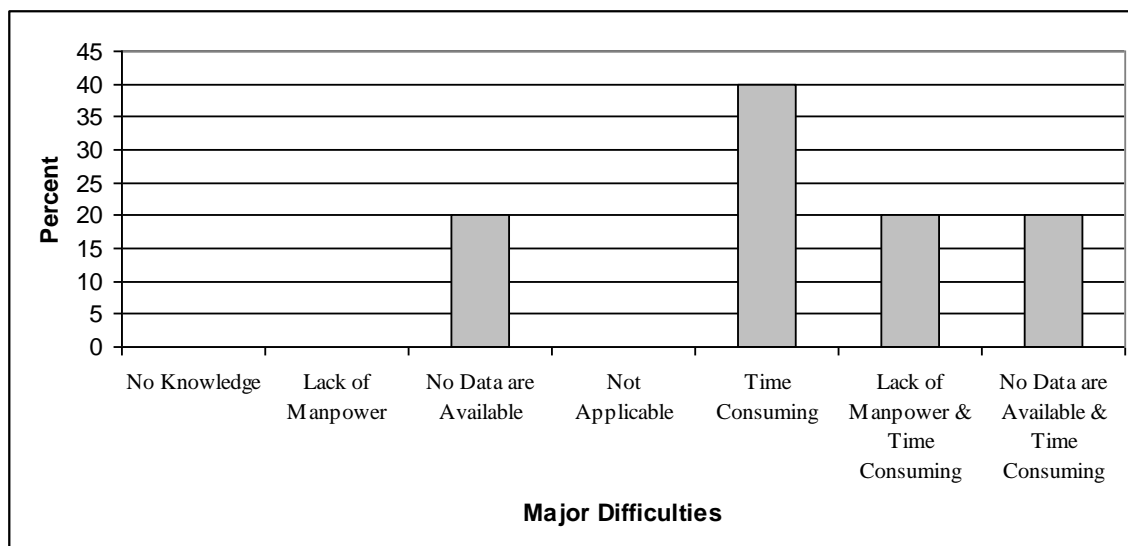
#### 4.1.7 Major difficulties for practicing of capital budgeting

Capital budgeting is investment decision-making as to whether a project is worth undertaking. Capital budgeting is basically concerned with the justification of capital expenditures. Although, capital budgeting is an important decision making tool for investment project, some companies were not practicing it till now. The table below presents the difficulties in practicing capital budgeting by sample Nepalese manufacturing companies.

**Table 4.1.7: Difficulties for practicing of capital budgeting**

<b>Reason</b>	<b>Frequency</b>	<b>Percent</b>
No knowledge	0	0
Lack of manpower	0	0
No data are available	2	20
Not applicable	0	0
Time consuming	4	40
Lack of manpower and time consuming	2	20
No data are available and time consuming	2	20
<b>Total</b>	<b>10</b>	<b>100</b>

*Source: Field Survey 2020*



**Figure 4.1.7: Difficulties for practicing of capital budgeting**

The table 4.1.7 and figure 4.1.7 illustrate the major difficulties faced by sample manufacturing companies while applying capital budgeting techniques. 40 percent of Nepalese manufacturing company faced time consuming difficulty in using capital budgeting. It was seen in the figure that 20 percent of the company assumed that not availability of the data. 20 percent of them faced lack of manpower & time consuming difficulties and another 20 percent assumed not availability of data & time consuming were the major difficulties felt by manufacturing companies in applying capital budgeting. Although the entire respondent has mentioned that they are practicing capital budgeting to analyze investment project but there is lack of expertise and trained manpower.

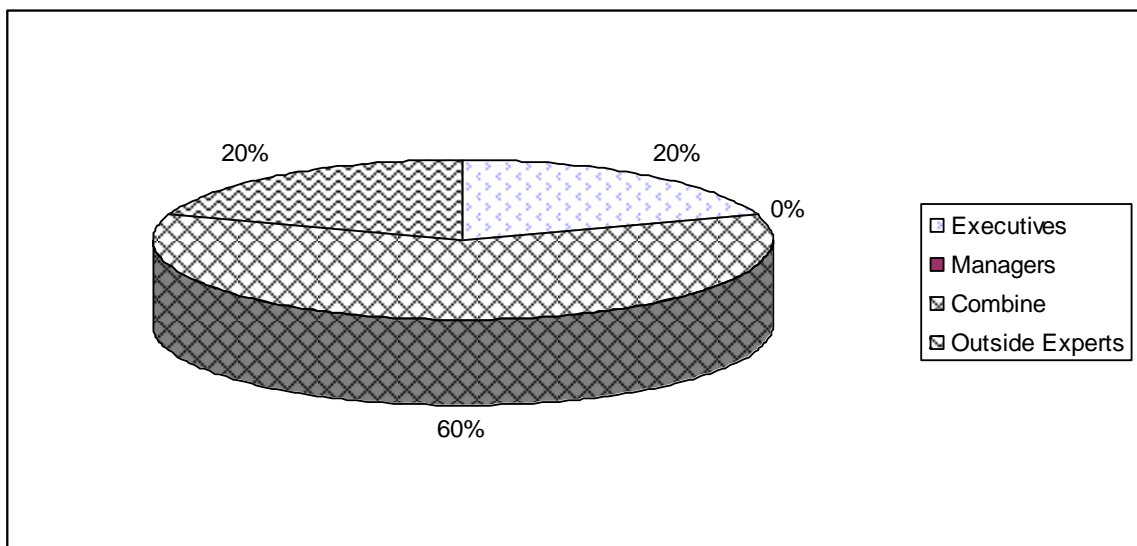
#### **4.1.8 Decision body for investment**

Capital budgeting is an important managerial tool. Every business houses need to take decision. Here the concerned is that who takes the decision to invest on project. To do this, a sound procedure to evaluate, compare, and select projects is needed. It is crucial to select the investment project for each company which requires huge investment. Therefore, decision maker must be able to decide whether an investment is worth undertaking and be able to choose intelligently between two or more alternatives. There are modern approaches like participatory approach came in to practice which includes all employees in decision making process. The approaches may save the cost for the organization and help to reach in the best alternative. The table below presents the state of decision taking body on capital investment.

**Table 4.1.8: Decision body on investment**

Decision Body	No of Respondent	No. of Practicing Company	Percent
Executive	10	2	20
Managers	10	0	0
Combine	10	6	60
Outside Experts	10	2	20

*Source: Field Survey 2020*

**Figure 4.1.8: Decision body on investment**

The table 4.1.8 and figure 4.1.8 verify the decision body on investment. In most of the manufacturing companies i.e. 60 percent decision on investment projects are taken by combination of executive and managers. Only the 20 percent of companies' decisions are taken by executives and outside experts each. Although hiring outside experts to make decision is useful but it might be costly. Every business houses should train and develop their employees for analytical purpose while making decision. So, they should be focused on modern participatory approach in decision making process.



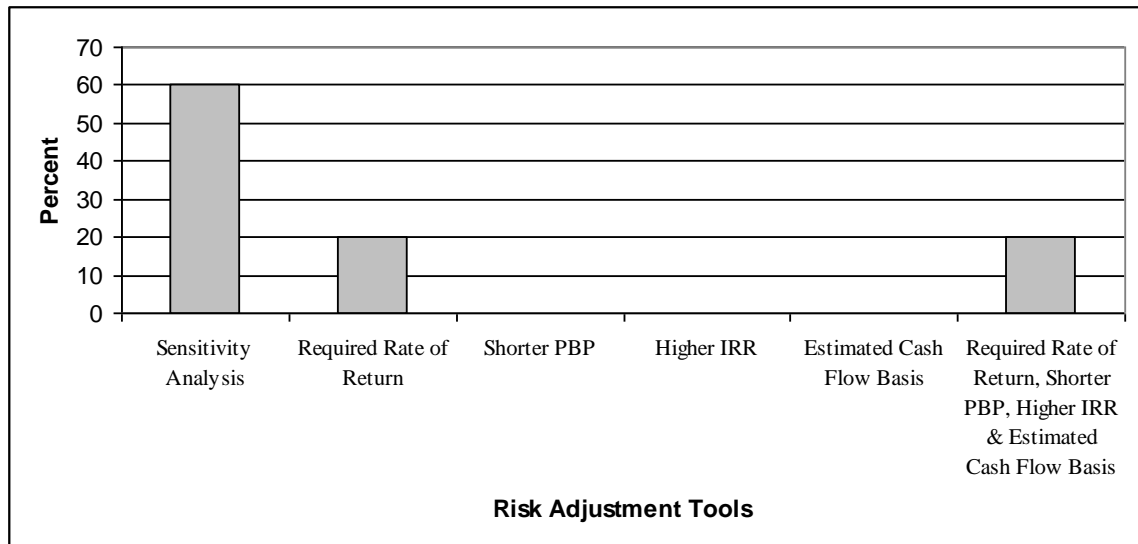
#### 4.1.9 Method of risk adjustment while evaluating capital investment

The capital budgeting decision is based on the benefits to be derived from the project in future. The benefits are measured in terms of cash flows. The estimated future cash flows are based on various assumptions. The accuracy of the estimates of future return largely depends upon the accuracy with which these factors are forecast. The actual return will not precisely correspond to the estimate. In other words, the actual returns will vary from the estimate. This is technically referred to as risk. The firm generally uses its normal or average, required rate of return to evaluate projects that have average risk, a few percentage points are added to the average required rate of return to evaluate projects that have above-average risk, and a few percentage points are subtracted from the average required rate of return to evaluate projects that have below-average risk. It is important that a project's risk be considered in capital budgeting analysis, because incorrect decisions might be made if risk is not considered.

**Table 4.1.9: Method of risk adjustment while evaluating capital investment**

Method	No of Respondent	No. of Company	Percent
Sensitivity Analysis	10	6	60
Required Rate of Return	10	2	20
Shorter Pay Back Period	10	0	0
Higher IRR	10	0	0
Estimated Cash Flow Basis	10	0	0
Required Rate of Return, Shorter PBP, Higher IRR and Estimated Cash Flow Basis	10	2	20

*Source: Field Survey 2020*



**Figure 4.1.9: Method of risk adjustment while evaluating capital investment**

The 4.1.9 table and figure 4.1.9 show the risk adjustment tools while practicing capital budgeting. 60 percent of the manufacturing companies have been practicing sensitivity analysis to adjust risk in capital budgeting. Similarly, 20 percent of them used required rate of return as risk adjustment tool. Likewise, 20 percent of the company used all four required rate of return, shorter payback period, higher IRR and estimated cash flow which might be the biasness in answering questionnaire.

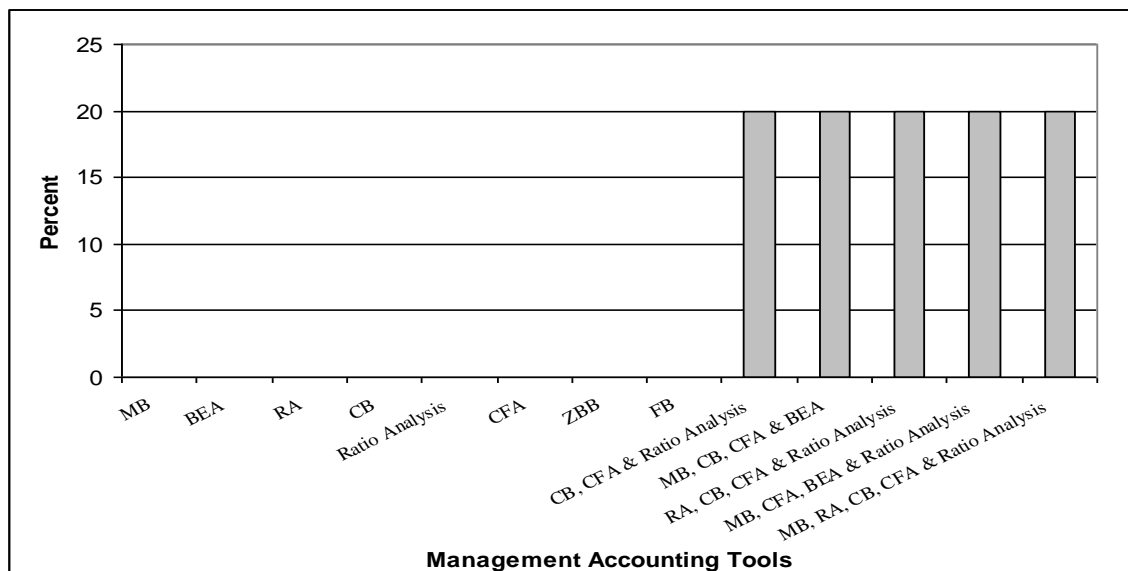
#### **4.1.10 Management accounting tools practices in Nepalese manufacturing companies**

Management accounting for manufacturing companies has to contribute to focusing the process of strategic planning and provide information to facilitate decision making and financial control of the different business units involved. Different management accounting tools are needed to be carried out for planning, controlling and decision making process. Management accounting tools are applied discipline used in various industries. The following table presents the response acquired from the Nepalese manufacturing companies regarding the management accounting tools practiced.

**Table 4.1.10: Practice of management accounting tools**

<b>Tools</b>	<b>No of Respondent</b>	<b>No. of Company</b>	<b>Percent</b>
Master Budget (MB)	10	0	0
Breakeven Analysis (BEA)	10	0	0
Responsibility Accounting (RA)	10	0	0
Capital Budgeting (CB)	10	0	0
Ratio analysis (RA)	10	0	0
Cash Flow Analysis (CFA)	10	0	0
Zero Based Budgeting (ZBB)	10	0	0
Flexible Budgeting (FB)	10	0	0
CB, CFA & Ratio Analysis	10	2	20
MB, CB, & BEA	10	2	20
RA, CB, CFA & Ratio Analysis	10	2	20
MB, CFA, BEA & Ratio Analysis	10	2	20
MB, RA, CB, CFA & Ratio Analysis	10	2	20

*Source: Field Survey 2020*



**Figure 4.1.10: Practice of management accounting tools**

The table 4.1.10 and figure 4.1.10 exhibit the practice of management accounting tools in sample manufacturing companies of Nepal. All the manufacturing companies have been practicing more than one management accounting budgeting tools. 20 percent of respondents used capital budgeting, cash flow analysis & ratio analysis. Similarly Master budget, capital budgeting, cash flow analysis & break even analysis, Responsibility accounting, capital budgeting, cash flow analysis & ratio analysis, Master budget cash flow analysis, break even analysis & ratio analysis and Mater budget responsibility accounting, capital budgeting, cash flow analysis & ratio analysis, all these combinations were practiced by 20 percent of the manufacturing companies. None of the Nepalese manufacturing company practiced flexible and zero base budgeting.

Nepal is proceeding towards globalization and got the membership of WTO, Nepalese business enterprises should adopt themselves to the global environment. Managers should think in a global perspective. Information should be updated. For better utilization of the limited resources and for achieving goals under the circumstances of ruthless competition, application of advanced managerial accounting tools can be of great help.

#### 4.1.11 Decision-making regarding capital budgeting

**Table 4.1.11: Importance while making decisions regarding capital budgeting.**

Control Objective	N	Mean	Std. Deviation
Investment decisions is very important for success.	120	3.73	1.35
Easy accessibility to sources of capital has a great role in investment planning	120	3.70	0.90
Entrepreneurship has a great influence in capital budgeting decision in the context of Nepal.	120	3.60	1.34
Rationality and adequate discount rate helps in handling the risk.	120	3.53	1.21
NPV method is the best criterion of making investment decisions.	120	3.4	1.29
Conflict can be seen between the NPV method and the IRR method.	120	3.33	1.43
Non-discounting techniques are as useful as the discounting techniques of capital budgeting.	120	3.27	1.37
When deciding on an investment opportunity, risk consideration is always vital.	120	3.23	1.45

*Source: Field Survey 2020*

The table 4.1.11 shows the present practice of capital budgeting tools in the manufacturing companies of Nepal. Investment decisions is very important for the success have higher mean score that means majority of the firms believe that their investment decisions should be made only on the outcomes of profitability. Moreover, majority of the firms have strongly agreed that NPV method is the best criterion of making investment decisions i.e. 3.4 followed NPV Method. Similarly, they have also agreed significantly too easy accessibility to sources of capital has a great role in investment planning. However, when deciding on an investment opportunity, risk consideration is always vital.

## 4.2 Findings

On the basis of above analysis, examinations and information discussion the following key findings have been drawn.

- i. Regarding the response Nepalese manufacturing companies have been practicing capital budgeting for the long term investment project.
- ii. Regarding the response of Nepalese manufacturing company there is significant practice of comprehensive budgeting i.e. 60% and 20% of the companies are practicing traditional and program budgeting. None of the manufacturing companies are applying zero based budgeting.
- iii. 40% of Nepalese manufacturing companies are preparing their budget on the basis of past actual expenses. Similarly, 40% percent of them are preparing budget on the basis of the past budget estimates and 20% of them are preparing on the basis of both past actual expenses and activity based budgeting. None of the manufacturing company are practicing modern useful tool zero based budgeting.
- iv. Most of the Nepalese manufacturing companies are making investment plan through executive decision (60%) and 20% of the companies are practicing both financial analysis & executive decision. Whereas 20 percent of the manufacturing companies are applying all three methods, forecasting, cost benefit analysis as well as financial analysis to plan their investment. Executive decision dominated in planning investment.
- v. All of manufacturing companies collect their fund from banks for their investment projects. 80% of manufacturing companies are using bank loan only and 20 % are using both bank loan and issuing shares to raise fund. None of the companies are using issuing debentures and loan from private party for their fund collection.
- vi. All of the manufacturing companies are practicing net present value as one of the common analysis tool. 20 percent of the companies are using NPV only whereas 40 percent of them are using both NPV and payback period. Similarly, 20 percent of the company is practicing PBP, NPV & PI as well as 20 percent of them are practicing PBP, NPV & IRR all tools for long term investment project. None of the companies are practicing DPBP, MIRR and ARR for long term investment.
- vii. Most of the Nepalese manufacturing companies are facing time consuming difficulty in using capital budgeting following by none availability of data and

lack of men power. 60 percent of the companies are facing time consuming difficulty only for implementing capital budgeting tools and 20 percent of them are feeling data were not available to analyze investment project. Similarly, each 20 percent of the respondents are facing lack of manpower & time consuming and no data are available & time consuming difficulties.

- viii. 60 percent of the manufacturing company are practicing sensitivity analysis to adjust risk in capital budgeting. Similarly, 20 percent of them are using required rate of return as risk adjustment tool. Likewise 20 percent of the companies are using required rate of return, shorter payback period, higher IRR and estimated cash flow.
- ix. Most of the manufacturing companies are practicing more than three management accounting tools. All the tools master budget, capital budgeting, cash flow analysis & ratio analysis; master budget, capital budgeting, cash flow analysis & break even analysis; responsibility accounting, capital budgeting, cash flow analysis & ratio analysis; master budget, cash flow analysis, break even analysis & ratio analysis and mater budget, responsibility accounting, capital budgeting, cash flow analysis & ratio analysis are practicing by 20/ 20 percent of the manufacturing companies. None of the Nepalese manufacturing companies are practicing flexible and zero base budgeting.
- x. Most of the manufacturing company's investment decisions should be made only on the outcome of profitability. Also sources of capital and entrepreneurship has a great role in investment planning
- xi. Some of the manufacturing companies When deciding on an investment opportunity, risk consideration is always vital.

### **4.3 Discussion**

The research contributed in understating the capital budgeting practices in context of Nepalese manufacturing companies. It confirms previous research study in the topic with an empirical support from Nepal. The main purpose of this study was to determine the practices of capital budgeting in Nepalese manufacturing companies on various aspects with regard to capital budgeting. This study investigated the different factors that can influence capital budgeting practices in Nepalese manufacturing companies.

Industrial sector plays an important role in the economic development of the country. Manufacturing companies are one of the vital aspects of this sector. About 10% share in the GDP has contributed by manufacturing sector. Output value, value added and fixed capital investments are increasing in manufacturing sectors.

Capital budgeting decisions are involved with the use of cash now and get back the investment over a period longer than a year. Evaluating such decisions requires determining the investment and its resulting cash flows.

The company's circumstances in terms of available funds and investment opportunities should be considered before selecting a single capital budgeting technique for general use. Capital investments must earn returns on both working capital and plant investments. Investments that reduce inventories are especially desirable because the payoff is very high. Capital budgeting decisions involve many estimates, so managers perform sensitivity analysis to alert themselves to areas where they might face problems.

Capital budgeting decision requires recognizing the time value of money. The two most popular approaches, called discounted cash flow techniques, are the net present value (NPV) and the internal rate of return (IRR) methods. The traditional methods-payback period and accounting rate of return are often used, but are conceptually inferior because they fail to consider the time value of money. Yet, such methods, particularly payback, might be useful as rough screening devices. The source of financing a particular investment is not considered in it.

Risk is only one condition a decision maker may face. Uncertainty and risk describe the conditions most financial managers face. Probability and statistics provide useful methods for describing such situations. If only one outcome is possible, the situation can be described as certainty. If more than one outcome is possible but the probabilities of these states of nature are unknown, decisions are made under conditions of uncertainty. Different decisions rules are followed in each decision situation. Decision making under risk is different from decision making that considers the degree of risk or uncertainty.



The major capital budgeting tools are PBP, NPV, PI, IRR, ARR, DPBP, MIRR etc. The research was conducted to find out the facts that the Nepalese Manufacturing companies are getting benefits from using those capital budgeting tools or not?

The study was done with the objective to study and examine the present practice of capital budgeting tools in the manufacturing companies of Nepal, and to identify the areas where capital budgeting tools can be applied to strengthen the manufacturing companies through saving cost.

As per the nature and demand of the study, survey type research design was adopted with descriptive and analytical approach. The research is mostly based on primary source of information. Surveys of 10 manufacturing companies of Nepal were made through questionnaires. All together 11 questionnaires were distributed and analyzed. The raw data was applied to analyze and interpret the findings.

The current study has successfully answered the research objectives and research questions. The result from generated from SPSS is adequately applied to prove and support the hypotheses testing.

## CHAPTER 5

### SUMMARY AND CONCLUSION

This chapter comprises an in-brief summary of the whole study, conclusions drawn from the study and implications. The summary section provides an overview of the study and it covers a very brief introduction and justification of the study. The conclusion segment involves the corollaries drawn whereas implication segment involves the utility and contribution of the study.

#### 5.1 Summary

This study aimed at examining the capital budgeting practices in Nepalese manufacturing companies by taking four factors into consideration- NPV, PBP, DPBP, IRR and MIRR. The study tried to address issues associated with capital budgeting practices in Nepalese manufacturing companies. The main limitations of this study was the lack of sufficient literature review regarding this topic in the context of Nepal.

Relevant literature was reviewed and that has been referred under the conceptual review section, which covers the concepts, definitions of capital budgeting and revelation of capital budgeting determinants from various perspectives. Various variables were defined, for which, various books, journal articles, articles in periodicals, conference proceedings, reports, cases, websites and other literary articles were studied.

Descriptive research design has been used in this study. The population for this study comprised all the listed as well as non-listed private and public limited companies that are currently in operation in Nepal and a suitable sample size was chosen on the basis of personal contacts. The source of data was primary in nature. Data was collected through Likert based questionnaire survey which included both open as well as closed-ended questions. Descriptive statistics, mean and standard deviation tests were used for the analysis of data in the study.

This study showed that the identified variables were decisive in fulfilling capital budgeting practices in Nepal. The study confirmed the underlying fact in the literature by providing that all the identified variables were essential for the capital budgeting practices.

Nepal lacks studies on capital budgeting practices. There have been a couple of studies but none of them have dealt with the all these factors and its effect on capital budgeting. Hence, this research provides knowledge about the status of capital budgeting practices in Nepalese manufacturing companies and the factors that need to be taken into consideration.

## **5.2 Conclusion**

On the basis of the major findings of study, some conclusion has been drawn about the capital budgeting tools practiced in manufacturing companies of Nepal. Most of the manufacturing companies adept the tools like PBP and NPV. The tools not in well practice were DPBP and MIRR. It can also be concluded that the major difficulties in applying capital budgeting are time consuming and unavailability of data.

Although universities and government has put greater effort on practices of capital budgeting for investment project but in some company there is lack of its practice. One of the respondents argues that in case of private limited company, most of the major decision is taken by executive body. So all these theoretical concept of capital budgeting is not fully implemented in practical scenario. This might represent the actual situation of capital budgeting practices.

Capital budgeting in Nepalese manufacturing companies is still evolving and will continue to do so in the future. So far, they are trying to adopt such tools and techniques to cope with the future expected opportunities and challenges to be faced due to the accession of globalization

## **5.3 Implications**

### **5.3.1 General implications**

In the light of the study following are the recommendation for the further managerial actions to the manufacturing company.

- i. Practice of development of an investment plan for capital budgeting programme has to be developed by the business houses.
- ii. For each investment in fixed assets, every company should develop the practice of feasibility analysis by using capital budgeting.
- iii. Budget preparation practices have been based on the basis of past actual expenses and past budget estimates. These are traditional methods and cannot adjust the

future uncertainty because past will not happen in the future. So, it is better to use activity based budgeting and zero based budgeting for budget preparation.

- iv. Participatory system of decision making should be implemented for effective and efficient implementation. It helps to motivate the organization's personnel.
- v. To strengthen the competitiveness of Nepalese manufacturing companies and to carry out the managerial activities, the use of management accounting tools is a must.
- vi. Academicians should put an effort into bringing management accounting tools into the light by the help of books, journals, articles and campaigns such as seminars, workshops and trainings. Long term as well as short term training packages should be offered to the managers about the techniques of management accounting and to update their knowledge and skills.
- vii. Hiring outside experts to analyze the long term investment plan may increase the cost burden for the organization. Hence, it is recommended to develop an internal expert by providing training and development programme.
- viii. It is better for Nepalese business houses to make risk adjustment while purchasing fixed assets or long-term investment through tools like shorter payback period and sensitivity analysis.
- ix. Nepalese business houses should put an effort to stand in the global environment by providing training and development programme to their staffs and make them familiar about the tools and techniques not only of capital budgeting but also on other modern management accounting tools.

### **5.3.2 Implications future researches**

This study has portrayed some crucial results and one avenue for future research is to extend the study to other emerging markets.

- i. The study is entirely based on primary data and does not include the preference of different investors and other stake holders. Therefore, future studies can be based on using primary data or both primary and secondary data.
- ii. The sample size and time period taken for the study is limited so future study can be carried out by taking large sample size for longer time period. The model used in this study is limited. Thus other models can be taken to examine the capital budgeting tools practice by Nepalese manufacturing companies.

- iii. This study has been conducted by taking data from manufacturing entities only. Future research works can be conducted by taking data from various other sectors such as insurance, banking, hydropower, hotels, etc.

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# Appendix -1

## Questionnaire

### CAPITAL BUDGETING PRACTICES IN NEPALESE MANUFACTURING COMPANIES

Dear Sir/Madam,

As a student of MBS of Central Department of Management (Tribhuvan University), I have been writing a thesis entitled "**CAPITAL BUDGETING PRACTICES IN NEPALESE MANUFACTURING COMPANIES**" as a part of my Graduate Research Project to fulfill the course requirement of MBS. I assure you that the survey is purely academic and confidential. I kindly request you for your valuable participation and cooperation.

It would be very much appreciated if you could spare some of your valuable time for filling it. I shall be highly obliged for prompt responses as far as possible.

Thank You.

Dinesh Adhikari

#### Section I: Respondent Profile

Name..... Signature.....

Name of the Organization.....

Designation.....

Gender: - Male  Female

## Section II: Other Related Information

**Instruction:** Please answer the following questions with a tick mark in the given space as required by the questions

1) Do you practice capital budgeting?

- a) Yes. [      ]
- b) No. [      ]

2) If yes, what are the tools do you practice in Capital Budgeting?

- a) Pay Back Period. [      ]
- b) Discounted Pay Back Period. [      ]
- c) Net Present Value. [      ]
- d) Internal Rate of Return. [      ]
- e) Modified Internal Rate of Return. [      ]
- f) Accounting Rate of Return. [      ]
- g) Profitability Index. [      ]

3) What system of budgeting do you practice in your company?

- a) Traditional Budgeting [      ]
- b) Program Budgeting [      ]
- c) Comprehensive Budgeting [      ]
- d) Zero Based Budgeting [      ]
- e) Others.....

4) What is the basis for budgeting in your company?

- a) Based on past budget estimates. [      ]
- b) Based on past actual expenses. [      ]
- c) Zero based budgeting. [      ]
- d) Activity based budgeting. [      ]
- e) Others .....

5) How do you plan your investment in your company?

- a) Forecasting. [     ]
- b) Cost Benefit Analysis. [     ]
- c) Financial Analysis. [     ]
- d) Executive Decision. [     ]
- e) Others.....

6) What are the sources of fund in your company?

- a) Bank Loan. [     ]
- b) Issuing Shares. [     ]
- c) Issuing Debentures. [     ]
- d) Loan from private party. [     ]

7) Which of the following difficulties your company face in implementing capital budgeting?

- a) No knowledge. [     ]
- b) Lack of manpower. [     ]
- c) No data are available. [     ]
- d) Not applicable. [     ]
- e) Time Consuming [     ]

8) Who does the decision on Investment in your company?

- a) Executive. [     ]
- b) Managers. [     ]
- c) Combine. [     ]
- d) Outside Experts [     ]
- e) Others.....

9) Which methods your company follows risk adjustment while evaluating capital investment?

- a) Sensitivity Analysis. [    ]
- b) Required Rate of Return. [    ]
- c) Short Pay Back Period. [    ]
- d) Higher IRR. [    ]
- e) Estimated for cash flow basis. [    ]

10) Which of the following management accounting tools do you practice in your company?

- a) Master Budget [    ]
- b) Breakeven Analysis [    ]
- c) Responsibility Accounting. [    ]
- d) Capital Budgeting. [    ]
- e) Ratio Analysis [    ]
- f) Cash Flow Analysis. [    ]
- g) Zero Based Budgeting. [    ]
- h) Flexible Budgeting [    ]

**Instruction:** Please tick the following factors in order of importance while making decisions regarding capital budgeting.

**(Strongly agree = 5, Agree = 4, Unsure =3, Disagree =2, Strongly disagree = 1)**

5    4    3    2    1

Investment decisions is very important for Success.					
When deciding on an investment opportunity, risk consideration is always vital.					
Rationality and adequate discount rate helps in handling the risk.					
Non-discounting techniques are as useful as the discounting techniques of capital budgeting.					
Conflict can be seen between the NPV method and the IRR method.					
Easy accessibility to sources of capital has a great role in investment planning					
NPV method is the best criterion of making investment decisions.					
Entrepreneurship has a great influence in capital budgeting decision in the context of Nepal.					

12) Any Suggestions?

.....  
 .....