

CHAPTER-I

INTRODUCTION

1.1 Background of Profit Planning

Profit Planning is a newly developed concept as a crucial way in the business organization. It is recent phenomenon used extensively in the literature of business enterprise. Every company or institution is based on the definite objectives. According to the objectives, the company performs its tasks. Mainly two types of institution i.e. profit oriented and service oriented institution are established but most of them are profit oriented because profits is the measure of the success of the firm. Profit an important as well as an effective tool of firm to achieve the objectives.

“The concept and techniques of Profit Planning have wide application in individual business enterprises, government units, charitable organization and virtually all group endeavors.”(Welsch, 1992:45)

Comprehensive Profit Planning and control is viewed as a process designed to help management effectively perform significant phases of the planning and control functions.

The profit planning model includes:

- Determination, development and application of broad and long range objectives of the enterprise

- Specification of enterprises goals

- Development of strategic long-range profit plan in broad terms

- Specification of a tactical short-range profit plan detailed by assigned responsibilities (Decision, departments and projects)

- Establishment of a system of periodic performance report detailed by assigned responsibilities, and

- Development of follow-up procedures

1.2 The Industrialization Development in Nepal

Nepal is one of the least developed countries of the world. Over 85% of 24 million people of the country live in the rural areas. Estimated per capital GNP for the year 2007/2008 is US\$ 310. Population growing rate of above 2% per annum has produced a broad based increased dependency ratio. (Statistical Handbook, CBS; 2008)

There is a great challenge for the nation is to eliminate massive poverty existing in the country through gradual development of the Industrial sector and to provide basic needs to the people. Several programs can only be result oriented when the country will follow the path of industrialization.

Industrialization is the fundamental goals of the most developing countries. (Pradhan, 2002; 12). So, it has been considered essential for the economic development of the country.

In Nepal, the history of development of industry begins after the democracy of 1937 AD. During the Rana regime, they were not interested in the development of the country. Though, Biratnagar jute mill, Nepal Bank Ltd, Juddha match factory, Morang cotton mill, Mahendra Sugar Mill and Butawal plywood and Bobiu Factory had been established during this regime. They are the parents industry in Nepal. After the introduction of Democracy, the Government felt the need of the industrialization and started some public enterprises; likewise the government established a separate unit as Udyog parisad and recognized with its new name Cottage and Small Industry Department.

It was felt that the private sector could not set up all basic and feasible industries capable of making special contribution to the Industrial development of the country. Within the period of first five year plan the new industrial policy 1974 was also announced by Government of Nepal. In 1981 a new

industrial policy was declared and the main features of this policy were that all industries were kept open to private sector except the defense industry.

The changing political situation has changed its industrial policy. In 1992 industrial policy was declared and this policy is very liberal in respects of registration and other official procedures. Private investment is encouraged and foreign investment is welcomed. In this reference, the government has conducted the procedures of privatizing some public enterprises, such as Bansbari later and shoes factory, Bhikuti paper mill and Harisiddhi brick factory are the major during first phase. The process will contribute. Likewise the ministry of industry, UNDP has jointly conducted a foreign investment forum on the first week of the December 1992, the investors' more than hundred countries attended the conference and showed their keen interest in the industrialization process of Nepal. It is believed that the conference leads the industrial situation of Nepal towards the golden future.

1.3 Introduction of Ganga Rosin and Turpentine Industry

Ganga Rosin and Turpentine industry is located in Bahundagi of Jhapa District. Because of the easy availability of the pine trees in the forest of Nepal, there is a huge potentiality of the resin products. So with the help of USSR, Nepal Rosin and Turpentine was established from the government sector. But it could not produce the expected output and the private sectors were gradually being established and Ganga Rosin and Turpentine is one of them.

Ganga Rosin started its service as a well fare institution. Slowly it converted itself to a company and now it occupies one to the greatest space in the factories of this kind. Its main area of work is the eastern hillside forest and it exports the rosin and turpentine to India by processing the resin in its own factory. It has helped too many in its area in various ways. It pays to the public forest committee for the use of its forest provides employment to the local people and more than that it helps to promote the industrial sector in our country. By the completion with several other industries, it has made itself intact and fit. The head office of this industry is located at Bahundagi village Development Committee in Jhapa district. Industry's ownership is under taking by Mr. Ratan Taya.

1.3.1 Objectives of Ganga Rosin and Turpentine Industry.

The industry was established with its definite objectives which are:

1. To accelerate the growth of industry development.
2. To estimate regional imbalance.
3. To create employment opportunities.
4. To achieve foreign currency.
5. To general profit, and utilize natural resources.

1.3.2 Rosin Collection District and Capacity

The resin collection district and maximum capacity to collect resin from the pine forest of these districts are presented below:

District	Resin Collection Capacity
Dhunkuta	450 mt
Panchthar	285mt
Tehrathum	175mt
Taplejung	<u>90mt</u>
Total Capacity of Collection resin	1000mt

The collection deposits of four districts are as follows:

Dhankuta	:	Muga, Gholikharka, Budhabare,
Pathchthar	:	Phidim, Jorshal, Amarpur,
Tehrathum	:	Chuwandada, Manglung and Singapore,
Taplegung	:	Sukertar, Fuling, Dhaku.

1.3.3 Past Performance Trends of GRTI

Rosin and Turpentine has its importance in the various fields like paint and varnish, in paper industry, in boot polish industry, in soap industry as hard filter components, in Lahan industry, in textile mill, in slipper industry ad so may other in about 280 product's finishing purpose.

The sales trend in units and amount, Production units as Profit and loss account of GRTI, five years from FY 2060/61 to FY 2009/010 are in increasing trend.

1.3.4 Functions of Ganga Rosin and Turpentine Industry (GRTI)

The main functions of GRTI are as under:

- To collect raw materials form natural resources of industry,
- Providing required Rosin and Turpentine to the industries by expansion of its production,
- Sales of Rosin and Turpentine, and
- Plantation of Pine trees

1.4 Statement of the Problems

The Successful operation of an organization largely depends upon the planning system that it has adapted. Budgeting is one of the most important managerial devices that plays a key role for the effective formulation and implementation of strategic as well as tactical plans of an organization. Profit planning system requires the effective Co-ordination between various functional budgets of an organization like Sales plan, Production Plan, material Plan, labor Plan Cash budget and Capital expenditure budget etc. This research report attempts to show the relationship between these budgets and their application along with their achievement for solving the problems of GRTI.

Hence the proposed study will try to answer the following research questions:

- (a) What are the main problem of GRTI in developing and implementing profit plans?
- (b) To what extent is the process of profit planning follows in GRTI.
- (c) What steps should be taken to improve the profit planning or managerial budgeting system in the manufacturing organizations.

1.5 Objectives of the Study

The objectives of the study are to examine the practice and effectiveness of Profit Planning in Ganga Rosin and Turpentine Industry. The major objectives of the stuy are as follows:

- 1 To study and analyze the profit planning systematic adopted by GRTI.
- 2 To analyze the major functional and financial plans formulated and implemented in GRTI.
- 3 To examine the outcome of those plans in terms of achievement of the organization.

- 4 To point out possible suggestions to improve the performance of GRTI.

1.6 Significance/Importance of the Study

This research study is concerned with the profit planning in Ganga Rosin and Turpentine Industry. So that, it will try to bridge between the literatures exploring to appraise the present practice of their company's comprehensive profit planning. It was more important for Ganga Rosin and Turpentine Industry's management because it provides necessary theoretical as well as contemporary situational concept to make appropriate decision in this regard.

1.7 Limitations of the Study

The study is constituted only to the profit planning of Ganga Rosin and Turpentine Industry. The following factors have limited the scope of this study:

1. The study covers the analysis of only five years i.e. from F.Y. 2060/61 to 064/065.
2. The limited time available to submit the thesis for the partial fulfillment of MBS is the main constraint of the study.
3. This study is only concerned Profit Planning of Ganga Rosin and Turpentine Industry.
4. The primary as well as secondary data which is provide by the management of GRTI.
5. Time and resources constraints may limit the areas covers by the study.

1.8 Organization of the Study

This study has to be completed within five chapters, which are as follows:

Chapter One: Introduction:

The chapter One includes background of the study; profile the sample of the companies, statement of the problem, objectives of study, significance of study, limitation of the study and organization of the study.

Chapter Two: Review of Literature:

Chapter Two includes Review of Literature, related to the study. It has two parts, the first part of the chapter implies the conceptual framework of the study and second part includes the major finding of the study.

Chapter Three: Research Methodology:

Chapter Three includes Research Methodology; it has two parts, the first part design, sample, nature and source of data. And second part analysis of tools and technique. The research design consists of both primary and secondary data bases.

Chapter Four: Presentation and Analysis of Data:

Chapter Four includes the presentation and analysis of data. It has three parts; the first part of the study is concern to secondary data analysis. This is the main tabular, figures and various statistical presentations and analyzing the collected data from different sources. In the second part presentation and analyzing of primary data. The third part includes the major findings.

Chapter Five: Summary, Conclusion and Recommendations:

Chapter Five is the last chapter of the study and includes summary, conclusion and some recommendations

CHAPTER-II

REVIEW OF LITURATURE

2.1 Conceptual Framework

2.1.1 Concept of Profit Planning

Profit Planning is a part of overall planning process of an organization when a management plans its profit performance that is known as profit planning or Managerial Budgeting. The managerial process and profit planning are interrelated to each other. Success of management is always depends on well planning.

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The concept ad techniques of profit planning and control (PPC) have wide application in individual business enterprises, governmental units, charitable organization and virtually all group endeavors” (Welsch, 1998:1)

Comprehensive profit planning and control is viewed as a process designed to help management effectively perform significant phases of the planning and controlling functions. Comprehensive profit planning and control is defined as a systematic and formulized approach for performing significant phases to help the management. The comprehensive profit planning and control involves.

The development and application of broad and long-range objectives of the enterprise

The specification of enterprise goals

A long-range profit plan detailed by relevant responsibilities

A short-range profit plan detailed by relevant responsibilities

A system of period performance reports detailed by assigned responsibilities, and

Follow-up procedures

Comprehensive profit planning and control or Managerial budgeting is primarily applicable in management process planning, organizing, controlling, staffing and leading. The comprehensive profit planning and control is a new term in the field of business but not a new concept in the management. The concept of comprehensive profit plan and control theory i.e. the primary success factor in an enterprise is the competence management to plan and to control enterprise activities. This nation says that a management earns its bread and butter only if it can plan and control in ways that determine the long-range destination of the enterprise. The foundation for profit planning and control, then, is that management must have confidence in its ability to establish realistic objectives and to devise efficient strategies to attain those objectives. The market theory argues very little for the concept of profit planning and control. (Hilton 1997:6)

Profit planning is a tool, which may be used by the management in planning the future course of action and controlling the actual performance because profit planning or Management budgeting is a written plan in which all aspects of business operation concerned with future period, are included. Profit Planning is a predetermined detail plan of action developed and distributed as guide to current operations and as a particular basis for the subsequent evaluation of performance.

Profit Planning is estimation and predomination of revenues and expenses that estimate how much income will be generated and how it should be spent in order to meet investment and profit requirements, it presents a plan for spending income in a manner that does not result in a loss. (Hornby, 1992; 37)

In this way, Profit Planning Managerial budgets or profit planning and control which has been developed to facilitate effective performance of the management process, is a major improvement approach of the organization and has the ultimate objectives to achieve the optimum profit for the organization.

concept of profit. There are, after all, several different interpretations of the term Profit. An economist will say that profit is the reward for entrepreneurship for risk taking. A labor leader might say that it is a measure of how efficiently labor has produced and that it provides a base for negotiating a wage increase. An investor will view it as gauge of the return on his or her money. An internal revenue agent might regard it as the base for determining income taxes. The accountant will define it simply as the excess of firm's revenue over the expenses of producing revenue in a given fiscal period.

A tangible expression of the goals, it has set for the firm

A measure of the performance toward the achievement of its goals

A means of maintaining the health, growth and continuity of the company

The word Profit implies as comparison of the operation of business between two specific data. Which are usually separated by an interval of one year. No company can survive long period without profit; profit is the ultimate measure of its effectiveness and in a capitalist's society, there is no future for a private enterprise, which always incurs losses. The main target of management to maximize profits over the long term, consistent with its social responsibility in profit planning.

achieve a desired result. A plan is then a projected course of action. All planning involves anticipation of future course of elements and therefore bears the elements undertaking in respects of its success. (Bhusan, 1976; 522)

actions of its personnel and to cope with a complex dynamic fluid environment. They bridge the gap between, they are where they want to go. (Memoria, 1990; 36)

Planning is a tool of developing and achieving the organizational objectives. According to Glenn A. Welsch, Planning is a process of developing enterprise and selecting a future course of action to accomplish them. It includes:

Establishing enterprise objectives,

Development premises about the environment in which they are to be accomplished.

Selecting a course of action for accomplishing the objectives.

Initiating activities necessary to translate plans into action and

Current re-planning to correct current deficiencies.

Planning could be taken as the tools of achieving organizational goals efficiently and effectively from the selection of various alternatives. Planning consist in setting goals for the firm both immediate and the long-range considering the various means by which such goals may be achieved. And deciding which of any variable alternative means would be best suited to the condition express to prevail. (Lynch and Williamson, 1992; 100)

Correct definition is, Planning is essential to accomplish goals. It reduces uncertainty and provides direction to the employees by determining the course of action in advance. Formal planning indicates the responsibilities of management and provides an alternative to grow without direction. Planning on the other hand involves the determination of what should be done, how the goals may be received and what individual are to assume responsibility and to be hold accountable. (Grace, 1976; 102)

So, planning means deciding in advance what is to be done in future. It is a method of thinking out acts and purpose beforehand. Uncertainty and risk future and conformity to achieve desired objectives as possible. Forecasting is playing vital role in planning. F.D. Newbury rightly says-There can be no intelligent or effective planning for a business enterprise without the primary steps of forecasting. The role of forecasting in planning is clearly pictured by D. W. Editing “Good planning depends on good forecasting.” (Ending David, 1964; 5)

Finally, according to the American accounting institution, “The distinction between forecasting and planning is not an easy one. Webster gives, to plan and earn as the leading definition for forecasting. Forecasting is our best thinking about what will happen to us in the future. In forecasting we define situations and recognize problems and opportunities. In planning we develop our objectives in practical detail and we corresponding develop schemes of action these objectives. (William, 1987; 502)

2.1.3.1 Long-range Planning

Long range planning 5 to 10 years varying with the enterprise, sometimes extended to 10 years. Long range planning is one of the most difficult time span involved in planning as may problems in short range planning can be tracked to the absence of a clear sense of

direction and the practices which a comprehensive long-range of direction and the practices which a comprehensive long-range plan provides.

Basically it is more important for broad and long living enterprises. Long range planning is concerned with the concept of the corporation as a long living institution. (Eding David, 1964; 6)

The objectives of long planning given by George R. Terry are. (Temy Geerge, 1968; 235)

- To provide a clear of whether the enterprise is handed.

- To keep enterprise strong.

- To focus on long-range opportunities.

- To evaluate management personnel.

- To expenditure new financing.

- To bring attention to new techniques.

2.1.3.2 Medium Term Planning

Two to three year generally not exceeding this period. Medium range planning usually includes time a span of about three years. One valuable purpose for using, it is to establish interim objectives between long-term goals and use in the development of annual program and budgets. In this case, target with specific result and defensive time's schedules must be developed. More detail is involved than long range plans but less than for short-range plan. While resource allocation is important, final approval will only be required for the short range and a consideration of alternatives is still possible.

2.1.3.3 Short Term Planning

The short plan is synonymous with the classical period of one year. The short range planning is made after a freeze is taken on the consideration of possible alternative course of action. Such courses are outlines for the medium range plan. Which doesn't concern implementation, its aims is weeding out a plethora of possibilities which are for the most part long on promises and short and feasible, tangible results.

Short range planning is a limited time dimension usually it covers one year's time period. It is used by the management as substantial parts of long range and short-range plan.

Corporate Planning

Corporate planning was first started in the United States in the late 1950's and it is now being used in one form or another in the several companies. Four premises of corporate planning are. (Andrew, 1968; 11)

Before drawing up a plan, which is designed to do something, decide what you want is to do.

In these days of rapid change it is necessary to ahead as for as possible to anticipate these changes.

Instated of treating a company as a collection of departments treat it as a corporate whole.

Take full accounts of the companies' environment before drawing any plan.

According to Shiv Ram P. Koirala- Corporate planning as a management technique for effectiveness in the organized form is still every poor condition. Even in 1966 in Britain corporate planning was not in such, were probably a few dozen people in that country under stood it was not considered essential for good management. However the scale gradually changed and the economic situation was more pregnant with hope than despair and many business people began thinking that the growth would continue upward trend. Expets having highly specialized knowledge and equipment, such as computers, able to handle enormous information arrived on the stage, their presence made the concept of corporate planning acceptable in the developed country. (Koirala, 2055; 2)

According to Krishna Dev Bhatta, Corporate Planning is action oriented and not concerned with more plans. Since, corporate planning is also concerned with long term goals, they can not be obtained without a forecast whose propose is to anticipate the future based on factors from the forecast one and then determines the means where must be stored in order to achieve the objectives. (Bhatta, 1999; 4)

Corporate planning therefore seems to be the technique for action new for ensuring the goal. (Higgine; 1980: 4)

Corporate planning is done for the company as a whole on a continuous basis for making present enterprise neural risk taking decision systematically and with the best possible knowledge of their probable out come and effect organizing systematically the effort and resources needed carry out these decisions and measuring the result of these decisions against the expectation through organized systematic feed back. (Ojha, 1980; 4)

Corporate Planning VS Long-range Planning

Very often corporate planning is considered synonymous with long term planning and one inter changed by used. But, in fact, they are not. (Bhattacharya, 1981; 58). Koirala express his opinion thus corporate planning is concerned with objective determination and developing means to achieve the objective. It may encompass both the short range as well as long range plan. Long or short is not determined arbitrarily. It all depends on how far a need of a company made to forecast needs to forecast and can plan. It will be determined by the company's commitment of resources. He thus sees long-range planning as a part of corporate planning.

2.2 Fundamentals of Profile Planning and Control or Managerial Budgeting

The fundamentals concerned effective implementation of the management process in resource by complex endeavors. It desires management orientations, activities, and approaches necessary for proficient and sophisticated application of comprehensive profit planning and control. This fundamental need to be established on a sound foundation of managerial commitment. The more important fundamentals are: (Welsch, 1996; 30)

2.2.1 Managerial Involvement and Commitment

Managerial involved entails managerial support, confidence, participations and performance orientation. In order to engage competently in Profile Planning or Managerial Budgeting, all levels of management, especially top management must.

Understand the nature and characteristic of profile planning and control

Be convinced that this particular approach to managing is preferable for their situation

Be willing to devote the effort required to make it operative

Support the program in all its ramifications and

View the result of the planning process as performance commitments.

A comprehensive profit planning and control or Management budgeting program to be successful, it must have the full support; direction must come from the very top.

2.2.2 Organizational Adaptation

Profit planning program must rest upon sound organizational structure for the enterprises and a clear-cut designation of lines of authorities and responsibilities. The purpose of organizational structure and the assignment of authority is to establish a framework within which enterprise objectives may be attained in a coordinated and effective way on a continuing basis. The scope and inter-relationship of the responsibilities of each individual manager are specified.

Thus the company as a whole is a responsibility center, as a division, department, a sales district. Responsibility centers are further in respect to the content of responsibility as follows:

Cost Center: A responsibility center for which the manager is responsible for the controllable cost incurred in the center, but is not responsible, in a financial sense for profit or investment in the center. The lower level, and smaller, responsibility centers tend to be cost center.

Profit Center: A responsibility center for which the manager is responsible for both revenue and costs, and hence profit, for the center. An important planning and control point focuses on the center's profit figure.

Investment center: A responsibility center that goes one step further than a profit center. In an investment center, the manager is responsible for revenue, costs (profit) and the amount of resources invested in the assets used by the center. An important planning and control point, therefore, focuses on the return on investment earned by the center.

2.2.3 Responsibility Accounting

In order to set up Profit Planning or Managerial budgeting on a sound basis, there must be a responsibility accounting system, that is one tailored first and foremost to the organizational responsibilities. Within the primary accounting structure, secondary classifications of cost, revenue and other financial data that are relevant may be utilized in accountancy with the needs of the enterprises. A responsibility accounting system can be designed and implemented on a relevant basis regardless of the other features of the accounting system non-cost system. Standard costing system directs costing system and so on. When the accounting system is established on responsibility basis, the historical data generated become especially pertinent of planning and control purposes.

2.2.4 Full Communication

Communication in the management and operation of an enterprise is a major managerial problem communication can be broadly defined as an interchange of thought or information to bring about a mutual understanding between two or more parties. It may be accomplished by combination of words, symbols and messages of understanding that come from working together, day-in and day-out, by two or more individuals. Communication may be thought of as the link that brings together the human elements in an enterprise.

Management is implemented through communication, the means by which behavior is affected, modified and energized. Decision-making rests in large measure upon effective communication. Too often communication is taken for granted consequently, information flow is inadequate. There must be three primary flows of information in an entity downward, upward and normally in the organization. Koontz and O' Donnell list the following obstacles for effective communication which should be avoided to have good effect in communication, badly expressed messages, faulty transmission and poor retention, inattention, unclassified assumptions, under influence, fear and failure to communicate.

There are numerous approaches for improving communication in the management process comprehensive profit planning and control, resting upon a sound foundation of communication, provides important avenues to enhance effective communication

fundamentally, these relate to the process of developing enterprise objectives. Specification of goals, the development of profit plan, and the reporting and follow-up activities related to performance evaluation for each responsibility center.

2.2.5 Realistic Expectation

In profit planning and control, management must be realistic and avoid either undue conservatism or irrational optimism. The care with which budgeted goals and objectives are set for such items as sales, production levels, costs, capital expenditure, cash flow and productivity determines in large measure the future success of the profit planning and control program. For Profit Planning or Managerial budgeting proposes enterprise objectives and specific budget goals should represent realistic expectations. Goals set so high as to be practically impossible of attainment discourage serious effort to achieve them, alternatively, goals set so low that they require. No special effort will provide no motivation. Thus, enterprise objectives and specific budget goals, in order to constitute realistic expectations, must represent a real challenge to the manager and to the operation unit. As a practical matter, the top management of the enterprise has the direct responsibility to define, as a matter of board policy, the degree of challenge that should be represented by realistic expectations. The definition of realistic expectation in a given enterprise therefore, should be related to many pervasive variables such as: size of the enterprise, characteristics of the manager, leadership characteristics, maturity of the enterprises, sophistication of the management, nature of operations and numerous psychological factors.

2.2.6 Time Dimension

Effective implementation of the managerial budgeting or profit planning concept requires that the management of enterprise establish the defined time dimensions for certain types of decision. In viewing time dimension perspective in managerial planning, a clear-cut distinction should be made between historical considerations and future considerations.

Another time dimension relates to project planning. A continuing necessity exists for management to plan specific and identifiable projects (programs) each of which as a unique time dimension because such projects entail commitments over variable time

spans. The focus in project planning is one each separate projects which may represent either an operational or a non-operational commitment.

Periodic planning is the environmental necessity for management to plan evaluate operations which in relatively short and consistent interim periods imposed by custom.

The concept of comprehensive profit planning or managerial budgeting encompasses a systematic and integrated approach to project planning to tactical planning and so to strategic planning. (Welsch, 1999: 37)

2.1.7 Flexible Application

This fundamentals stress that a profit planning and control program or Managerial budgeting must not domestic the business an that flexibility in applying the plans must be a forth right policy so that strait jackets are not imposed and all favorable opportunities are seized even through they are not covered by the budget.

It is not uncommon for budgets to impose inflexibility on an endeavor and act as a serve constraint on the decision-making freedom of managers and supervisors. Contrary to this view, profit planning and control or Managerial Budgeting program administered in a sophisticated permits greater freedom at all management levels.

To cost control, the principle of flexibility is essentially important. Expense and cost budgets must no be used and interbreed rigidly, the budget must not prevent the making of rational decisions in respect to expenses merely because an expenditure was not anticipated. Flexible expanse budgets frequently are employed to meet. One of the problems of cost control arising from a change in circumstances. (Welsh et. all, 1999; 45)

2.2.8 Behavioral View Point

“The motivation of human resources through dynamic leadership is central to effective management. The behavioral aspects of management process have been accorded extensive and intensive investigation by psychologists, educators and businessman. This attention is increasing in scope and intensity in recognition that are there are many unknowns, misconceptions and speculations concerning the responses of the individual

and the group in varying situations. The comprehensive profit planning approach to management brings many of these behavioral problems into sharp focus. A sophisticated view of managerial budgeting focuses on a positive approach to resolve behavioral problems, but in many respects it can provide one effective approach to their partial resolution.” (Welsch, 199; 43)

2.2.9 Zero Base Budgeting

Under zero base budgeting, every budget is constructed on the premise that every activity in the budget must be justified. It starts with the basic premise that the budget for next year is zero and that every expenditure, old and new, must be justified on the basis of its costs and benefit. The discipline of zero base budgeting takes a different approach—in fact, a reverse approach to this problem of justifying everything. What it says is this. Begin with and where you are and establish a business as usual budget for next year the same way and the same things you would do if you weren't concerned about constraint and total justification. (Welsch, 1999; 44.)

2.2.10 Follow-up

The fundamental holds that both good and substandard performance should be carefully investigated, the purpose being three fold: (Welsch, 1999; 49)

-) In the case of substandard performance, to lead in a constructive manner to immediate corrective action.
-) In the case of outstanding performance, to recognize it and perhaps provide for a transfer of knowledge to similar operation.
-) To provide a basis for better planning and control in the future.

2.3 Components of a Comprehensive Profit Planning and Control of Managerial Budgeting Program

A comprehensive profit planning and control of Managerial Budgeting program encompasses much more than the traditional idea of periodic budget. Moreover, it encompasses the application of a number of management concepts through a variety of approaches, techniques and sequential steps. Basic components of comprehensive profit planning and control program are below:

-) Evaluation of the potential effect of all relevant variables of the enterprise.
-) Specification of board objectives of the enterprise by executive management.
-) Establishment of specific goals for the enterprise.
-) Development and evaluation of enterprise strategies.
-) Preparation of planning premises.
-) Preparation and evaluation of project plans.
-) Development and approval of a strategic long-range profit plan.
-) Development and approach of a tactical short-rang profit plan.
-) Development of the supplementary analyzes.
-) Implementation of follow-up actions.

Some of them are describe below:

) Evaluation of Relevant Variables Affecting the Enterprise

Variables, which have a direct and signification impact if the enterprise, are relevant Variables, Variables may have their different relevancy according to the nature of the market. For a large firm with a national market, the relevant variables obviously be broad in scope where as a small firm would be concerned primarily with regional and local variables operating within the narrow environment of enterprise. These relevant variables include the environmental variables, which have a deep concern in the continuation of the enterprise. Political, social, legal points have a sharp impact and which constitute the strength and weakness of the enterprise. Profit planning or managerial budgeting program begins with the identification of these variables.

) Specification of the Broad Objectives of the Enterprise

The statement of broad objectives is viewed as a pervasive and general expression of the Philosophical objectives of the enterprise. The broad objectives normally should avoid pacific statement of quantitative goals; rather they should focus on such broad factor as long- range economic potentials, attitudes toward costumer, product and service availability, employee rationale and attitudes towards owners.

The statement of broad objectives should express the mission, vision and ethical tone of the enterprise. It tends to provide enterprises identity, continuity of purpose and definition.

Purposes to specification of broad objectives are as follows:

-) To define the purpose of the company.
-) To clarify the philosophical character of the company.
-) To create a particular "climate" within the business.
-) To set down a guide for managers so that the decisions they make will reflect the best in interests of the business with fairness and justness to those concern.

Thus, the objectives should be specified. So, as to serve as the foundation of the company and they should be 'believable' to be grasped easily by ever part concerned to the Enterprise i.e. shareholders, costumers, government, employees and so on.

) Development and Approval of Strategic and Tactical Profit Plans

The strategic long- range and tactical short-range profit plans normally should be development concurrently for all practical purpose and that the executives in charge of each of the responsibility centers through out the firm should participate in their development in harmony with planning premises. Meaningful participation in the

Planning process generates positive behavioral effects. A manager of each responsibility center has to initiate immediate activities within his own functional sphere to develop a strategic long-range profit plan(say five years) and in hormonally with the five years plan a tactical short-range profit plan (one year) as soon as he receives the planning premises and procedural instruction.

) Development of Supplemental Analysis

A number of important analysis may be development supplementary to the short and long-range profit plans. These analysis apply many useful managerial techniques in the decision making process, specific important analysis are planning model simulation ,cost-volume -profit (break even), marginal cost, return on investment, linear programming

models(LPP), variable expense budgets, and accessory statistics (both historical and prospective).

) Implementation of Management Plans

Implementation of management plan that have been development and approved in the planning process involves the management function of directing subordinates in the accomplishment of enterprise objectives and goals; communication is an especially important aspect of direction. Thus, component management at all levels requires that enterprise objectives, goals; strategies and policies be keenly appreciated and understood by subordinates. There are many facets involved in management direction and objectives and goals should be realistic and attainable, yet they should present a real challenge to the over all enterprise and to each responsibility center. The plans should have been development with the managerial conviction that they are going to be met or exceeded in all major respects. If these principles are made effective in the development process, the various executives and supervisors certainly should have a clear understanding of their responsibilities and the expected level of performance.

Expectation of the managerial plans is assured through dynamic and flexible control.

Thus, predominance report must be measured and reported to each level of management.

) Implementation of Follow-up Action

Follow-up action is an important facet of effective control and re-planning. Performance reports, since they indicate the status of predominance by responsibility, provide basis for certain follow-up action. It is important to distinguish between cause and effect. The performance variation are effect (the result), the management must determine the underlying causes. The identification of causes primarily is responsibility of line management. Analysis and determination of underlying causes of both favorable and unfavorable performance should be given immediate priority. In the case of unfavorable performance, after identifying the basis cause, as opposed to the result and having selected what appears to be the most fruitful alternative for corrective action, the manager must initiate its implementation. In addition, special type of follow up procedure should be implemented continuously, it should be designed.

-) To determine the effectiveness to the prior corrective action. and
-) To provide a basis to improve future planning and control procedures.

2.4 Advantage or Importance of Profit Planning

Formulating Profit Planning Budget becomes the most detailed level of planning when the management operationalizes the objectives, goals and strategies by developing one or more profit plans. "A profit plan is a financial and narrative expression of the expected results from the planning decisions. It is called the profit plan (or the managerial budget) because it states the goals in terms of time expectations and expected financial results (return on investment, profit, costs) for each major segment of the entity" The chief advantage of comprehensive profit planning and control are :(welsch, 1992; 60)

-) It forces early consideration of basic policies.
-) It requires adequate and sound organization structure that is there must be a definite assignment of responsibility for each function of the enterprise.
-) It compels departmental managers to make plans in harmony with the plans of other departments and of the entire enterprise.
-) It requires that management put down in figures what is necessary for satisfactory performance.
-) It requires adequate and appropriate historical accounting data.
-) It compels management to plan for the most economical use of labor, material and capital.
-) It instills at all levels of management the habit of timely, carefully and adequate consideration of the relevant factors before reaching important decisions.
-) It reduces cost by increasing the span of control because fewer supervisors are needed.
-) It frees executives from many day to day internal problems through determined policies and clear cut authority relationships.
-) It thereby provides more executive time for planning and creative thinking.
-) It tends to remove the cloud of uncertainty that exists in many organizations, especially among lower level of management, relevant to basic policies and enterprise objective.
-) It pinpoints efficiency and inefficiency.

-) It promotes understanding among members of management of their co-workers problem.
-) It forces management to give adequate attention to the effect of general business condition.
-) It forces a periodic self-analysis of the company.
-) It aids in obtaining bank credit, banks commonly require a projection of future operation and cash flows to support large loans.
-) It checks progress or lack of progress towards the objective of the enterprises.
-) It forces recognition and corrective action (including rewards).
-) It rewards high performance and seeks to correct unfavorable performance.
-) It forces management to consider expected future trends and conditions.

2.5 Assumption and Limitation of Profit Planning

Profit planning system is more common in larger companies, to serve management. Still, the usefulness of profit planning or managerial budgeting to very small business could have been circumvented by an early attempt to the dreams headstrong but sloppy thinking entrepreneurs who never directly faced the uncertainties of their venture.

But, there are so many assumptions in using profit-planning programs. Firstly, the basic plans of a business must be measured in terms of money, if these are to be any assurance that many will be available for the needs of the business. Secondly, it is possible to plan for the future of a business in a comprehensive way coordinating every aspect of the business with every other aspect to establish optimum profit goals. Thirdly, profit planning is pre-planning not merely what to do if things, work out as forecasted. But also what to do if things, work out differently from the forecast.

Effective budgeting requires co-ordinate planning. It is essential that all persons participating in the building of budget are planning toward the same objective and are contemplating the same company, industry and general economic conditions that can be accomplished by issuing a statement of basic assumption prior to the start of the budgeting system.

In developing and using a profit-planning program, the following additional limitation should be kept in mind:

-) The profit is based in estimates.
-) A profit program must be continually adopted to fit changing circumstances.
-) Execution of a profit plan will not occur automatically.
-) The profit will not take the place to management and administration.

The profit plan should not be regarded as ends of the organizations rather it should be applied as means to accomplish the predetermined objectives of the organization. It is one of the best tools yet devised for advancing the affairs of a company and the individuals in their various spheres of managerial activity. It is not assumed that any profit plan is perfect. The most important consideration is to make sure, by intelligent use of the profit plans that all attainable benefits are derived from the plan rendered.

Similarly, according to Welch the main arguments are usually given against profit planning are as following:

-) It is difficult, if not impossible; to estimate revenues and expenses in your company realistically.
-) Our management has no interest in all estimates and schedules. Our strictly informal system is better and works well.
-) It is not realistic to write out and distribute our goals, policies and guidelines to all the supervisors.
-) Budgeting places too great a demand on management time, especially to revise budgets constantly. Too much paper work is required.
-) It takes away management flexibility.
-) It creates all kinds of behavioral problems.
-) It places the management in a straitjacket.
-) It adds a level of complexity that's not needed.
-) It is too costly, aside from management time.
-) The managers, supervisors, and other employees hate budgets.

2.6 Development of Profit Planning of Managerial Budgeting.

Development of profit planning or Managerial Budgeting includes the preparation of various functional budgets, analysis of variance and presentation of projected income statement and balance sheet. Top management with the participation of law management involves in the development of profit plan. The preparation process of budget forces executives to become better administrator and budgeting put planning where it belongs in the forefront of the manager's mind. Developing profit plan beings with the preparation of master budget. The steps included in the preparation of master budget are outlined by John R. Schermerhorn as below: (John, 1995; 482)

- Step 1: Forecast demand for products of services.
- Step 2: Identify cost patterns of responsibility centers.
- Step 3: Estimate production costs.
- Step 4: Specify operating objectives.
- Step 5: Develop a sales budget.
- Step 6: Develop a production budget.
- Step 7: Develop a purchasing budget.
- Step 8: Develop budgets for responsibility centers.
- Step 9: Formulate a profit plan.
- Step 10: Compare profit plan with operating objectives.
- Step 11: Formulate a projected cash budget.
- Step 12: Prepare a projected statements of financial position.

2.6.1 Sales Budget or Plan

After the planning premises have been received, the development of sales plan is the next step in the preparation of profit plans. In practical sense, sales plan is the staring points for the development of the profit plan. The sales forecast is the starting points for budgeting because inventory level, purchases and operating expenses are generally geared to the rate of sales activity. Sales plan is the staring point in the preparation or the comprehensive profit planning and control. All the other plans and budget are dependent upon the sales budget. The budget is usually presented both in unit and dollars (Rs.) (the

sales revenue or sales volume). The preparation of sales plan is based upon the sales forecast. A variety of methods are use to forecast the sales for planning period.

The sales are foundation for periodic planning in the fir because particularly all other enterprise planning builds on it. The primary source of cash is sales; capital additions need the amount of expenses to be planed, the manpower requirement, the production level and other important operational aspect depend on the volume of sales. Therefore, the sales plan must be realistic. The Sales plan has three district parts:

-) The planned volume and the selling price per unit for each product.
-) The sales promotion plan and
-) The sales or distribution expenses plan. The sales budget itself is an estimate of main three figures. They are:
 -) The income that will be earned from sales,
 -) The cost and expenses of making these sales, and
 -) The sales surplus. The income from sales depends on the quantity and the price of the goods, which will be sold.(Hal shall, 1974;4)

Sales plan forecast what the business can responsible expect to sell to its customers during the budget period. The primary purposes of sales plan are:

-) To reduce uncertainly about about future revenues,
-) To incorporate management judgment and decisions into the planning process,
-) To provide necessary information for developing other elements of a comprehensive profit plan, and
-) To facilitate management's control of sales actives.

Sales in unit or amount can be computed as follows:

Details	Units	Rs.
Opening stock	xxxx	xxxx

Add: Planned Productions	xxxx	xxxx
Total	xxxx	xxxx
Less: Closing Stock	xxxx	xxxx
Planned sales	xxxx	xxxx

Source: Hands out of R.M Dangol, M.B.S. 2nd year

Sales Planning and Sales Forecasting

Sales planning and forecasting often are confused. Although related, they have distinctly different purpose. A Forecast is not plan rather it is a statement and/or a quantified assessment of future conditions about a particular subject (e.g. sales revenue) based on the one or more explicit assumptions. A forecast should always state the assumptions upon which it is based. A forecast should be viewed as only one input the development of a sales plan. The management of a company may accept, modify or reject the forecast. In contrast, a sales plan incorporates management decisions that are based on the forecast. Other inputs and management judgments about such related items are sales volume, Prices sales efforts, production and financing.

A sales forecast is corrected to a sales plan when management has brought to bear management judgments, planned strategies, commitments of resources, and the managerial commitment to aggressive action to attain the sales goals. In contrast, sales forecasting is technical staff function.

Sales forecast are conditional. The internal technical staffs of the organization are not involved to make the fundamental management decisions and judgment are used to mold the sales plan, sales forecast are done by the technical staff on the basis of qualified data. A sales forecast has to be translated in to a sales budget and here a number of factors have to be taken in the considerations.

Now it is clear that sales plans are formulated by top executive on the basis of strategies. Objectives and guide lines as well as considering the forecast and sales forecast is the job

of technical staffs who estimate sales on the basis of their past knowledge and experience. And this estimate is used in formulating sales plan.

Strategic and Tactical Sales planning

A comprehensive sales plan includes two separate but related plans, the strategic and the tactical sales plan. The strategic sales plan is a long term sales plan and it is usually covers at 5 or 10 years time horizon. Whereas tactical sales plan has shorter time horizon and usually covers one year period.

Strategic long term sales plan is developed as one of the first step in the overall completion process of comprehensive profit planning. Long term sales plan are usually developed as annual amounts. The long-term sales plan uses broad groupings of products (Product lines) with separate consideration of major and new products and services.

Usually involves in depth analysis of future market potentials, which may be build up from a basis foundation such as population changes, state of the economy, industry projection and finally company objectives. Long -term managerial strategies would affect such areas as long term pricing policy, development of new product and innovation of present products, new direction in marketing efforts, expansion or change in distribution channels and lost patterns. The influence of managerial strategy decision is explicitly brought to bear on the long term sales plan primarily on a judgment basis. Short term sales plan or tactical sales plan is prepared to plan sales for the twelve month in to the future detailing the plan initially by quarters and by months for the first quarter. At the end of each month of quarter throughout the year, the period just ended. Thus tactical sales plans are usually subject to review and revision no a quarterly basis. The short term sales plan includes a detailed plan for each major product and for grouping of minor products. Tactical sales plans are usually development in terms of physical unit (or jobs) and in sales and/ of services dollars. To establish policy about detail in the short-range sales plan, the main question is for the use of the results. First, the major consideration is to provided details by responsibility for planning and control purpose. Second, the short -range sales plan must provided detail needed for completing the profit plan components by other functional managers. That is the production managers will need sufficient detail

for planning production leaves and plan capacity needs. The financial manager will need sufficient detail for assessing and planning cash flows, unit product costs; size of the firm, available of resources, availability of resources, and use of the result by management.(Welsch., 1995;173)

Components of Sales Plan

The component of comprehensive sales as follows:

-) Managerial policies and assumptions.
-) Marketing plan (sales and services revenues)
-) Advertising and promotion plan.
-) Distribution of selling expenses plan.

Developing a Sales plan

Following steps are followed to develop comprehensive sales plans.

Step 1: Develop management guidelines for sales planning.

Step 2: Prepare one or more sales forecast.

Step 3: Assemble other relevant data.

-) Manufacturing capacity.
-) Sources of raw materials and suppliers or goods for resale.
-) Availability of key people and a labor force.
-) Capital availability.
-) Availability of alternative distribution channels.

Step 4: develop the strategic and tactical sales plan.

There are four different participate approaches widely used in the process of developing sales plan.

-) Sales force composite (maximum participation)
-) Sales division managers composite (participation limited to managers only)
-) Executive decision (participation limited to top management)
-) Statistical approaches (technical specialists plus limited participation)

Step 5: Secure managerial commitment to attain the goals in the comprehensive sales plan.

Evaluation of Alternatives

Developing a sales plan consists of the consideration of various policies and related alternatives and a final choice by executive management among many possible courses of action. There are mainly two types of problems to which important considerations should be given while preparing the sales plan.

1. Price -Cost -Volume Consideration in Sales Planning.

In a competitive market, price and sales volume are mutually interdependent. The close relationship between sales volume and price process is a complicated problem to the management of every company. Thus, two basis relationships involving the sales plan must considered.

) Estimation of the demand curve that is the extent to which sales volume varies at different offering price, and

) The unit cost curve, which varies with the level of production output.

Thus, this price-cost volume relationship has a significant impact on the managerial strategy that should be adopted.

2. Product-line Consideration

Determination of the number and variety of products that a company will plan to sell is crucial in the development of a sales plan. Sales plan must include tentative decision about new product lines to introduce, old product lines to be dropped, innovations and product mix.

2.6.2 Production Budget or Plan

After preparing the sales plan the next step in comprehensive profit planning and control is the formulation of production plan. Production budget is an estimate of the number of unit of product that will be produced in the budget period. The production plan involves determining the number of unit (each product) that must be manufactured to meet

planned sales and maintain the planned inventory levels of finished goods. It is an estimate of how cheaply the goods required by sales can be made.

"Once sales and inventory requirement have been established, the local first step in the production plan is facility survey. This survey should determine that all planned products can be produced on existing or contemplated equipment and that they can be made in the volumes required. In this initial stage, availability of labor supply and skill are considered. Bottlenecks caused by lack of skill or equipment are frequently uncovered. At this point, decisions must be made either to eliminate bottlenecks or to reduce planned volume."(Thomas, 1993; 508).

Production budget is based on estimated sales, production must be planned to allow sufficient time to manufacture the products before the estimate data on sales. The annual sales budget and the inventory requirement provide the framework for the production budget. it is prepared on the basis of :(Rathemen, 1994; 14)

- a. sales budget.
- b. Plant capacity
- b. Opening inventory of finish goods and
- d. Required closing inventory of finish goods, and
- e. Policy of management.

Production budget is divided into monthly budgets for the purpose of production planning.

In production planning, the following factors are to be considered.

- i. Economic batch quantity.
- ii. Delivery schedules.
- iii. Seasonal Conditions.
- iv. Optimum utilization of plant capacity.
- v. Optimum utilization of labor without much over time and idle time
- vi. Reduction of bottlenecks such as shortage of man, material etc.
- vii. Stock requirements.
- viii. Work in progress.

Production plan entails the development of policies about efficient production levels, use of productive facilities and inventory levels (finished goods and work in progress inventory). The quantities specified in the marketing plan, adjusted to conform to production and inventory policies give the volume of goods that must be manufactured by product and by interim time period. Thus, the production budget can be represented in this way. $\text{Sales volume} \pm \text{finished good inventory change} = \text{production requirement}$. (Welsch, 1995; 210.)

A complete production plan should show budgeted data, classified by (a) products to be manufacturing process.

A. Objectives of Production Plan Budget

The objectives of production plan are:

-) To bring to common focus of the entire factor necessary to establish policies and to determine operations.
-) To project these established policies into the future by an analysis of past predominance.
-) To plan and control the operations beings carried out to implement policies decided upon.
-) To make provisions for material at right time and place.
-) To plan the sequence of operation requirement for economical production.
-) To co-ordinate the various aspect of factory operation so as make them aviate link in the chain of profitable program.

B. Responsibility for Production Planning

Production managers are responsible for the development of production plan. The complete marketing plan is given to the production managers for translating it into a production program consistent with managerial policies and subject to certain constraints. Production managers are fully responsible for production plan and they have also to consider top management policies is respect of (i) inventory level (ii) stability of production and (iii) capital additions.

An efficient and coordinated production plan requires the careful of executive management, particularly where there is multiple production requiring the determination of both time and place of production. The production managers must plan an optimum co-ordination between sales, inventory and production levels.

C. General Considerations in Production Plan of Budget

The production plan represents the implications of planned sales volume for planned production volume as a basis for planning the various aspects of the manufacturing functions, plan capacity requirements, direct material and component requirements, timing of purchase, direct labor requirements and costs and factory overhead. There must be coordination between sales plans, production plans and inventory policies and the production budget provides the basis of obtaining the coordination.

The production plan affects so many decisions, therefore; there should be serious consideration in preparing the production plan. So, decision required to develop the production plan include the following:

-) Total production requirement (by product) for the budget period.
-) Inventory policies relevant to leaves of finished goods and work in progress.
-) Plant capacity policies such as the limits of permissible departures from a stable production level through out the years.
-) Adequacy of manufacturing facilities.
-) Availability of direct materials, purchase components and labor.
-) Length of processing time.
-) Economic lost of runs.
-) Timing of production thought out the budget period, by product and by responsibility centers.

D. Time Dimension of Production Plan (Long-range Vs Short-range)

To development a long -rang plan, board estimates of production levels are necessary to plan capacity requirements, factory cost structures, personal requirement and cash flows.

For long -range planning purposes, only major increases or decreases in inventories need to be taken into account.

But the short-range production plan should not be planned annually, but detailed by products and by months or quarters. Also the production activities should be planned by responsibility centers within the manufacturing division.

E. Developing the Production Plan

i. Recasting of Sales Budget

As sales budget are typically classified according to product line and sales territory, it is necessary to recombine these planned sales figures on a basis that will permit determination of physical input requirements, generally means for individual plants or productive facilities.

ii. Production Analysis

This consists of breaking down production into its ultimate parts of components.

iii. Scheduling

It is concerned with fitting the various processes into a general time table to permit orders to be manufactured according to requirement based upon selling estimates.

iv. Dispatching

This covers the movement of materials and stores from the place they are initially deposited to the first process and thereafter from process to another.

V. Inspection

It is designed to exercise control over the quality of the product further work on spoiled parts, to ensure that payment is made in respect of satisfactory work only, to find and locate faults in machines and to maintain a satisfactory standard of accuracy. The production budget is phrased primarily in physical term units of output. Labor hours and material requirements Annual plan for production costs, purchase, manpower and cost of goods sold are all derived from the physical production budget which determines the actual production level by taking into account deviation from planned sales and inventory

levels. Moreover, normal loss in many process industries has to be reckoned in estimating production requirements.

The following formula is generally used to determine the planned production.

Particulars	Unit or Amount
Planned sales	xxxx
Add. Desired Ending inventory F.G.	xxxx
Total Requirement	xxxx
Less: Beginning inventory F.G.	xxxx
Production for the year	xxxx

Source: Hands out of R.M Dangol, M.B.S. 2nd year

F. Production and Inventory Policy

The coordination between the sales plan, inventory level and production requirement comes into focus and resolved in production plan. The production plan fully depends upon inventory level and demand of sales. To plan about inventory level and production level, it is not easy as it depends on variation of sales. So we have to adopt different policies is production level and inventory level which are as follows:

1. Stable Production Policy

There are fixed production in each month of specified while inventory levels are changed reversibly to sales volume. If sales increase, inventory level decreases and if sales decrease inventory level increase.

2. Stable Inventories Policy

Under this policy, inventory levels are fixed in each month of specific period time while production levels are changed due to change in the levels of sales. When sales increase, production levels also increases and when sales decrease, production level also decreases.

3. Production and Inventory within Limit or Flexible Policy

Under this approach flexible units of final inventory are to be maintained for specific period. If sales increase, production level will be slightly increased and stock level will be decreased within a certain limit.

4. JIT Production (Just In Time Production)

The JIT approach to production planning is a recent trend in manufacturing. Japanese companies develop the policy. Under this approach, Production must be as per order Specification. JIT is a production concept in which virtually nothing is purchased or manufacturing units just before it is needed.

G. Considerations in Establishing Inventory

The management should consider the following factors establishing of setting inventory

Policies:

-) Quantities needed to meet sales requirements.
-) Permissibility of items.
-) Length of the production period.
-) Storage facilities.
-) Adequacy of capital to finance inventory, production some time in advance of sales.

-) Distribution of time requirements.
-) Cost of holding inventory.
-) Production against direct material and component shortages.
-) Protection against labor shortages.
-) Protection against material and parts price increase.
-) Risk involved in inventory.
-) Price declines.
-) Obsolescence of stock.
-) Casualty loss and theft.
-) Lack of demand.
-) Customer returns policies.

2.6.3. Material Plan of Budget

The raw materials budget is prepared after production and sales budget. The production budget gives information about the unit to be produced and on this basis: the raw material need is estimated. Based on the production budget, the quantities of each materials usages lead to the solution of the problem of when and how much to purchase of each material. A Comprehensive profit planning and control program includes planning and controlling raw materials and components used in the manufacturing of finish products. Adequate coordination and balance should be planned and controlled in between (i) production requirement for raw material and component parts (ii) raw materials and parts inventory levels, and (iii) purchase of raw materials.

To assume the right amount of raw materials and to plan for the casts of such materials and part, it is essential that the tactical short-term profit plan include (1) detailed budget specifying quantity and cost of material required and (2) A related budget of materials and parts purchase. This planning of raw materials usually requires the following four types of budgets.

A. Materials and parts budget

This budget specifies the planned quantities of each raw material and parts required for planned production. It should specify quantities of each raw materials and parts by time, product and responsibility center. Thus, **materials and parts budget = planned production × usage rate.**

B. Material and Parts Purchase Budget

The materials and parts budget specifies the quantities and timing of each raw material and component part needed to be purchased, therefore, a plan for purchase must be developed. The purchases and parts budget specifies the planned quantities of materials and parts to be purchased, the estimated cost and the required delivery dates.

Material purchase budget = material required for production + closing stock of raw material - opening stock of raw material.

C. Materials and Parts Inventory Budget

Material inventory budget specifies the budgeted level of material parts inventory in term of unit and cost. In other word, material inventory budget deals with the difference between the required quantities budget and purchased unit budget.

D. Cost of Materials and Parts Budget

This budget specifies the planned cost of the materials and parts that will be use in the productive process.

The material and purchasing budget and its sub budget should be designed in such a way that the related activities and cost will be budgeted in terms of responsibility centre, interim time periods, type of raw materials and parts and type of finished product. Consideration in materials and parts purchase and inventory policies: According to welsch Hilton, Gorden. The primary considerations in setting inventory policies for materials and parts are as follows:

-) Timing and quantity of manufacturing needs.
-) Economics in purchasing through quantity discounts.
-) Availability of materials and parts.
-) Lead time (order and delivery).
-) Perish ability of materials and parts.
-) Storage facilities needed.
-) Capital requirement to finance inventory.
-) Cost of storage.
-) Expected change in the cost of materials and parts.
-) Protection against shortages.
-) Risk involved in inventories.
-) Opportunity cost (inadequate inventory)

In developing the policy with respect to purchases and inventory the basis two questions should be answered. The first is how to purchase at a time is determine by well-know approach called economy quantity (EOQ).In EOQ the ordering cost and carrying cost of the inventory will be minimum. EOQ can be calculated by using the following formula.

a) How much to purchase at time.

$$EOQ = \sqrt{\frac{2Ao}{C}}$$

Where,

EOQ= Economic order quantity (units)

A= annual used quantity (units)

O=cost of order (average annual cost)

C= Annual carrying cost/ unit in inventory for one year.

b) When to purchase

When time when a purchase is made called the 'Reorder point'. This model is used to calculate the timing for purchase. This is

Re-order point (level) [ROL] = Replacement stock + Safety Stock"

Or

Re-order point (level) [ROL] =Maximum consumption × Maximum Lead time

2.6.4 Direct Labor Cost Budget or Plan

A. Meaning

Direct labor budget is the pre-determination of planned direct hours and labor cost. After preparing the production budget, the direct labor hours is calculated by multiplying the units to be produced and estimated labor hours for each product. After finding total labor hours required, labor cost is calculated by multiplying the labor and wages rate. Planning and controlling labor costs involve major and complex area (i) Manpower needs. (ii) Recruitment (iii) Training (iv) Job description and Evaluation (v) Performance evaluation (vi) Union negotiations and (vii)wages and salary administration. Comprehensive profit planning and control of Managerial Budgeting program should incorporate appropriate

techniques and approaches applicable to each problem. Care full planning and realistic control of long term and short term labor costs will be beneficial for both the company and its employees.

Labor costs in the broad sense, are composed of all expenditures of those employee by the firm, top executive, middle management personal, staff officers, supervisors, foremen, skilled workers and unskilled workers. It is necessary to consider separately the different types of labor cost.

Labor is generally classified as:

- Direct labor
- Indirect labor

The direct labor compresses the estimate of direct labor requirement necessary to produce the types and quantities of output planned in production. Although, some companies prepare a labor budget that includes both direct and indirect labor budget.

B. Approaches Use in Direct Labor Cost

The approach used to development the direct labor budget depends primarily of on the:

- Method of wages payment
- Type of production process involved
- Availability of standard labor times.
- Adequacy on the cost accounting records relating to direct labor costs.

C. Developing the Direct Labor Budget

Basically there are three approaches to the development of direct labor budget. These are:

- Estimation of the standard direct labor hours required for each unit for each products and department. The estimate of the average wage rate by department cost center or operation = planned production unit uses hour = required hour for production.
- ii Then calculate labor cost multiplying the required hour by hourly wage rate by department, cost center or operation $Q = \text{required hour for production wages rate..}$

- Develop personnel tables by enumerating personnel requirements(number and cost) for direct labor in each responsibility center

$$\frac{\text{Total Hour}}{\text{Productive working hour per period per person}}$$

Direct labor budget depends on direct labor hour. So, an important function of industrial engineers is to develop standard labor for various operations and products. In some producing departments, reliable labor time standard can be developed. In some cases, it is impractical to estimate direct labor time expect in terms of average based on experience.

D. Four Sources or Approaches Commonly Used in Planning Standard Labor

Times are as follows:

i) Time and Motion Studies

The individual engineers analyze about the fastest, slowest of average employee that should be used. Time and motion studies can provide reliable information about the labor time needed to perform each specific operation of production. When supervised by competent industrial engineers, time and motion studies generally represent the best approach to the planning of standard labor time.

ii) Standard Cost

With the help of standard cost accounting system, we can provide standard time taken for the production or operation.

iii) Direct Estimate by Supervisors

The supervisors of production department can provide standard labor hour by his judgment, recent and past Performance of the department, assistance from the next level of management and technical staff personnel.

iv) Statistical Study

Under this approach, the historical ratio of direct labor hours to some measure of physical output is computed and then adjusted for planned change in the responsibility center. The

accuracy of this method depends on the reliability of the cost records and uniformity of the production process from period to period.

2.6.5 Overhead Budget or Plan

To accomplish planning control objectives of the organization, overhead budget also plays a significant role. It is important for every organization to classify expenses by responsibility, designated as controllable or non-controllable and estimated with respect to their cost behavior pattern.

Managers should view expense planning and control as necessary to maintain reasonable expense levels to support the objectives and planned programs of the enterprise. Expense planning should not focus on decreasing expenses, but rather on better utilization of limited resources. Viewed in this light, expense planning and control should focus on the relationship between expenditures and benefits derived from those expenditures. The desired benefits should be viewed as goals, and sufficient resources must be planned to support the operating activities essential for their accomplishment.

The planning and controlling the three broad categories of expenses are (i) factory or manufacturing overhead (ii) selling and distribution overhead, and (iii) general administrative expenses.

The knowledge of cost behavior which is essential in cost planning and control is the response of a cost to different volume of output. There are three kinds of expenses. Which are viewed in relation to changes in output? They are as follows:

i) Fixed Expenses

The expenses, which are constant in total form within relevant range and given, set at condition. For example, salaries, property taxes, insurance, depreciation etc

ii) Variable Expenses

The expenses which changes in total directly with changes in output or volume or work done, for example; direct material, direct labor etc.

iii) Semi-Variable Expenses

The expenses which are neither fixed nor variable and possess some features of both are semi-variable expenses. It changes in the same direction but not in proportion of output changes.

A. Factory or Manufacturing Overhead Budget

Manufacturing overhead is that part of total production cost which is not directly identifiable with specific production jobs. Manufacturing overhead consists of (i) indirect material (ii) indirect labor and (iii) all other miscellaneous factory expenses, such as taxes, insurance, depreciation, supplies, utilities and repairs. Manufacturing overhead includes many dissimilar expenses. Therefore, it causes problems in the allocation of these costs to productions. This is the total of indirect material cost, indirect wages and indirect expenses of the factory while developing the manufacturing overhead budget, the following steps should be taken:

- Compute the planned departmental output or activity by translating the requirements specified in the production plan into output or activity in each department.
- Plan departmental overhead expenses.
- Allocate the planned departmental expenses to the producing departments.
- Allocate the producing department expenses to the products.

From the above steps, per unit overhead rates for each product could be computed and by adding the direct material cost and direct labor cost for each product, we are in position to compute the cost of goods manufactured.

Manufacturing overhead involves the following two problems:

- Control of manufacturing or factory overhead.
- Allocation of manufacturing or factory overhead to products manufactured.

B. Selling and Distribution Expenses (Overhead) Budget

Selling and distribution expenses include all costs related to selling, distributing and delivery of products to customers. In many companies, this cost is a significant

percentage of total expenses. Careful planning of such expenses affects the profit potential of the firm.

The two primary aspects of planning distribution expenses are as follows:

- a) Planning and coordination
- b) Control of distribution expenses.

Fundamentally, the top marketing executive has the direct responsibility for planning the optimum economic balance between (i) The sales budget, (ii) The advertising budget, and (iii) The distribution expenses budget. Therefore profit planning and control view sales, advertising and distribution expenses as one basic problem rather than as three separate problems. All these expenses must be planned by responsibility centre.

C. Administrative Expenses Budget

Expenses other than manufacturing and distribution are included in administrative expenses. “These expenses are incurred in the responsibility centre that provide supervision and service to all functions of the enterprise, rather than in the performance of any one function. Because a large portion of administrative expenses rather than

variable and they cannot be controlled. Beside from certain top management salaries, most administrative expenses are determined by management decisions. It is common to find administrative expenses ‘ Top Heavy’ when measured by the volume of business done. The administrative expenses centre, after preparation by the respective managers, should be subject to approval by higher management in the same manner was discussed for all other budgets. It is advisable to base budgeted administrative expenses on specific plan and programs. Past experience, adjusted for anticipated changes in management policy and general economic condition is helpful. Because most administrative expenses are fixed, an analysis of the historical record will often provide a sound basis for budgeting them.” (Welsch, 1995; 316)

2.6.6 Capital Expenditure Budgets

Capital expenditures are investments because they required the commitment of resources today to receive higher economic benefits in the future. Capital expenditures become

expenses in the future as their related goods and services are being used to earn higher future profits from revenues or to achieve future cost saving.

A capital expenditure is the use of funds to obtain operational assets that will (a) help to earn future revenues or (b) reduce future cost. Capital expenditures budget is the firm's formal plan for the expenditure of money to purchase fixed assets. It is an internal

Corporate documents that lists the allocated investment projects for a given focal period". Capital budgeting may be decided as the decision making process by which firm evaluates the purchase of major fixed assets including building, machine and equipment. It is a part of the firm's formal planning process for the acquisition and investment of capital.

Capital projects are those that are expected to generate returns for more than one year. Capital budgeting refers to the process of planning capital projects, raising funds and efficiently allocating resources to those capital projects. (Peferson and lewis, 1995; 215)

Capital budgeting involves the generation of investment proposals: the estimate of cash flows for the proposals, the evaluation of cash flows; the selection of projects based upon an acceptance criterion, and finally the continual revaluation of investment projects after their acceptance."(Van H., 1976-66)

Thus, it is clear that capital budgeting is the process of determining capital investment. It is developed by responsibility centre and time periods.

B. Capital Expenditure Budget Process

The management should design a systematic process to develop the long-term and short-term capital expenditure budget because of the importance of sound capital expenditure decisions. The primary phase of a yearly budget process for planning and controlling capital expenditures are summarized below:

Phase Component (activity)

1. Identify and generate capital addition projects and other needs, this activity should be continuous inmost cases.

2. Develop and refine capital additions proposal, collection of relevant data about each proposals, including any relevant alternatives.
3. Analyze and evaluate all capital additions, proposals, and alternatives. Emphasis should be given to the validity of the underlying financial and operational data.
4. Make capital expenditure decisions to accept the best alternative and assignment of project designations to select- alternatives.
5. Develop the capital expenditures budget
 - a) Strategic plan; Re-plan and extend the long-term plan by dropping the past year and adding one year in to the future.
 - b) Tactical plan; Develop a detailed annual capital expenditures budget by responsibility center and by time that is consistent with the comprehensive profit plan.
6. Established control of capotal expenditure during the budget year by using periodic and special performance reported by responsibility centers.
7. Conduct post completion audits and follow-up evaluations of the actual result from capital expenditures in periods after completion.

C. Capital Expenditure Decisions

The conical capital expenditure decisions are the choices of management from the competing capital expenditures alternatives (e.g. projects). Such decisions must focus on two over riding problems.

- a. Investment decisions; selecting the best alternatives based on their economic worth to the company- called investment worth.
- b. Financing decision; determining the amounts and source of funds needed to pay for the selected alternatives. This cash constraint may necessarily limit the projects and proposals that can be initiated.

D. Method of Measuring the Economic Value of a Capital Expenditure

Numerous method of measuring the economic value, also called investment worth of an investment, is developed. The most widely used methods for those propose are:

- i. Discount cash flow (DCP) method.
 - a. Net present value (NPV)
 - b. Internal rate of return (IRR)
- ii. Short cut and simple method.
 - a) Pay back period (PBP).
 - b) Accounting rate of return (ARR).

1. Discounted Cash Flow Method.

In this method there are two types:

a) Net Present Value (NPV)

This method compares the present value of the net cash inflows with the present value of the initial net cash cost of capital expenditure project. The amount difference between these two present values is called Net Present Value. The net cash inflows are discounted to present value by using a target or minimum rate of return. The formula to calculate NPV is;

$$NPV = \sum \frac{A^t}{(1+K)^t} - C$$

Where,

= sum of different year's transactions

K = cost of capital or target rate of return

t = No. of years

C = Initial cash (investment)

A = Expected cash for inflows.

B. Internal Rate of Return (IRR)

The IRR is the rate that will discount a; the future net cash inflows so that their discounted sum will exactly equal to initial outflows of the investment project. The formula to calculate IRR is:

$$A_0 = A_1/(1+r) + A_2/(1+r)^2 + \dots + A_n/(1+r)^n$$

Where,

r = IRR

A₀ = Initial investment time zero

A₁, A₂, A_n = Cash inflow at future.

2. Shortcut and Simple Methods

This method does not consider the time value of money. There are mainly two methods of simple method, which are as follows:

a. Pay Back Period(PBP)

This method computes the payback period, which is number of years that it takes to recoup cash investment from the annual net cash inflow from the investment.

The formula is:

$$\text{PBP in years} = \text{NCO} / \text{ACFAT}$$

Where,

NCO = Net Cash Budget (investment)

ACFAT = Annual cash inflow after tax.

b. Accounting Rate of Return or Average Rate of Return (ARR)

This method represents the ratio of the average annual profits to the investment in projects.

The formula is:

$$\text{ARR} = \frac{\text{ACF}}{\text{I}} \times 100$$

Where,

ACF = Average cash flow and

I = investment

From the above, after analyzing the methods of measuring capital investment, the decision criteria can be summarized as follows:

<u>Methods</u>	<u>Accepted project</u>
i. NPP	Higher the NPV
ii. IRR	Higher the IRR or IRR > cost of capital (K)
iii. PBP	Lower the PBP
iv. ARR	Higher the ARR

2.6.7 Planning and Controlling Cash Flows

A. Cash Budget

A comprehensive profit planning and control or managerial budgeting program establishes the foundation for realistic cash budget. To plan, control and safeguard the cash assets of the enterprise is one of the important responsibilities of the management. The planning and control of the cash inflows and cash outflows is important and cash budget is an effective way for this. Cash budgeting not only plans and controls the cash inflows and outflows but also assess cash needs and effectively use excess cash. The cash plan or budget is prepared from the previously completed budgets such as the sales, materials, and labor, overhead and capital expenditure budgets.

A cash budget shows the planned cash inflows, outflows and ending position by interim periods for a specific time span. Most companies should develop both long term and short term plans about their cash flows. The short term cash budget is including in the annual profit plan. A cash budget basically includes two parts. (i) the planned cash receipt (inflows) (ii) the planned cash disbursement (outflows). Planning cash inflows and outflows gives the planned beginning and ending cash position for the budget period. Planning the cash inflows and outflows will include (i) the need for financing probable cash deficits or (ii) the need for investment planning to put excess cash to profitable use. The cash budget is directly related to other plans, such as sales plan, accounts receivable and the expense budgets and the capital expenditures budget are as follows:

) Give the probable cash position at the end of each period as a result of planned operations.

-) Identify cash excesses or shortages by time periods.
-) Establish the need for financing and / or the availability of idle cash for investment.
-) Coordinate cash with (a) total working capital (b) sales revenue (c) expenses (d) investments (e) liabilities
-) Establish a sound basis for continuous monitoring of the cash position.

B. Techniques for Improving Cash Flow

Planning the cash flow of company should include consideration of how to improve cash flow. Improving cash flow basically involves increasing the amount of available cash on a day-to-day basis. To accomplish these objectives, the management should focus on (a) the cash collection process to speed-up cash collection (b) the cash payment process to show-down the payments of cash and (c) the investment policies for the immediate investment of idle cash balances to maximize interest earnings.

Some of the ways often to improve the efficiency of the cash collection process are as follows:

1. Review the lag from the data of sales of goods and services on credit to the mailing of (a) invoices (b) the first billing.
2. If cash discounts are given to customers for early payment, review their effect on early cash collection and whether the discount is too high or too low.
3. Review the credit granting process to determine whether bad credit risks are being screened out.
4. Consider ways to decrease the time between the date that customers pay by cheque and the date that the cash is available for use in the company's bank account.

Some of the ways often use to improve the efficiency of the cash payment process are as follows:

1. Make all payments on the latest non-penalty day. Do not pay early.

2. Make all payments by cheque preferably on Friday to maximize float in favor of the company.
3. Take all cash discounts allowed for early payment.
4. Establish a policy of no cash advance to both outsiders and employees.
5. Establish policies, and a payment to minimize the possibility of fraudulent payments by company's employees.

A company should develop a specific policy about the investment of temporarily idle cash. The policy should be specific about such issues as (a) types and mix of acceptable securities (b) monthly reporting and monitoring of the portfolio and (c) safeguarding and disposal of temporary investments.

2.7 Implementation of the Profit Plan

2.7.1 Completion of Annual Profit Plan

The development of an annual profit plan ends with the planned income statement, the planned balance sheet and the planned statement of cash flows. These three statements summarize and integrate the detailed plans developed by management for the planning period. They also report the primary impacts of the detailed plans on the financial characteristics of the company. Before redistributing the completed profit plan, it is generally desirable to recast certain budget schedules. So that technical accounting mechanics and jargons are avoided as much as possible.

The redesigned budgeted schedules should be assembled in a logical order, reproduced and distributed before the first day of the up coming budget period. The profit plan complication date is important; issuance of a profit plan after the beginning of the budget period is one sure way of destroying much of the budget potential. Timely completion of the planning budget suggests the need for a budget calendar.

2.7.2 Alternatives in Developing the Profit Plan

Profit plan development might suggest that once the sales plan is completed, this can be followed by a series of simple clerical activities that result in the production, inventory,

purchase, labor and material budgets. This view is misleading because it ignores the fundamental importance of decision-making, policy formulation and consideration of alternatives actions throughout the planning process. The development of decisional inputs and the preparation of sub-budget by the manager of each responsibility centre is the heart of a comprehensive profit planning and control program.

The important areas where planning alternatives must be considered and choice made are as follows:

-) Setting of pricing to fix the sales price.
-) Development of general advertising policies.
-) Sales territory and sales force expansion or contraction.
-) Sales mix refers to the relative sales emphasis given to the various products sold by the company.
-) Balance between sales, production and inventory level.
-) Research and development expenditures.
-) Capital expenditures.
-) Testing alternative decisions.

If the profit is satisfactory, preparation of the profit plan can be continued. If the profit is unsatisfactory, management should re-examine the alternative decisions (approvals) made to date.

2.7.3 Implementing the Profit Plan

The ultimate test of whether the error and cost of developing a profit plan are with while is its usefulness to management. The plan should be developed with the conviction that the enterprise is going to meet or exceed all major objectives. Participation enhances communication. If this principle is to be effective, the various executives should have a clear undertaking of their implementation responsibilities.

The copies of the complete profit plan should be prepared and distributed to the vice presidents and to the head of certain staff groups. The guiding principle in establishing

the distribution policy might to be provided one copy to each member of the management team according to their overall responsibilities, taking into account the problem of security. The distribution policy should allow the distribution of parts of the profit plan to middle and lower management.

After the distribution of the profit plan, a series of profit plan conferences should be held. The executives comprehensively discuss the plans, expectations and steps in implementation. At this top-level meeting, the importance of action flexibility and continuous control should be emphasized. In essence, each manager has to realize that the budget is a tool for his or her use. Conferences should be held so as to convey the profit plan to each level of management. The manager of each responsibility centre obtains an approved profit plan for his centre and it becomes the basis of current operations and exerts considerable coordinating and controlling effects.

2.7.4 Performance Report

Performance reporting is an important phase of the control process. Performance reporting for internal management use is an important part of a comprehensive profit planning and control system. The performance reporting phase of a comprehensive profit planning and control program significantly influences the extent to which the organizations planned goals and objectives are attained. The performance reports are usually prepared on a monthly basis and follow a standardized format from period to period. Such reports are designed to facilitate internal control by the management. They should be composed of carefully selected series of data related to each responsibility centre. Fundamentally, the report (actual results) compared with goals and budget plans. Frequently, they identify problems that require special reports, are designed to pin point both efficient and inefficient performance.

The comprehensive profit planning and control or managerial budgeting and performance report are vital because the activities of all sub units must be focused on enterprise objectives. The central objective of performance reports is the communication of performance measurements, actual results and the related variances. The performance to budget report is the management report that affects the operating manager's efforts to live

within and beat his budgets allowances, performance reports should be prepared by considering criteria are as follows.

-) Tailored to the organizational structure and locus of controllability.
-) Designed to implement the management by exception principle.
-) Repetitive and related to short time periods.
-) Adapted to the requirements of the primary users.
-) Simple and understandable report is only essential information.
-) Accurate and designed to pinpoint significant.
-) Prepared and presented promptly.
-) Constructive in tone.

2.8 Review of Related Studies:

Very few researches have been made in the areas of Profit Planning and Budgeting. Here are some reviews made on the topics of Planning and control.

Ojha Khagentra Prasad (1999); has conducted a research on title “*The comprehensive study of Profit planning in manufacturing Pe’s; A case study of ROYAL Drugs Limited and Herbal Production and Processing Company Limited*”. The basic objective of the study was to highlight the current practice of Profit Planning and its effectiveness in Nepalese Public enterprises. Other objectives of the study were:

-) To analyze the various functional budgets adopted in these enterprises.
-) To follow the analytical as well as descriptive approaches of research design.
-) To observe the RDL profit planning on the basis of overall management budgeting.

The data and other necessary information were collected by using secondary as well as primary sources of data. The time period covered by this research was six years from FY 046/47 to FY051/051.

The major findings of the study were as follows:

-) Inadequate planning of profits due to lack of skilled planners.
-) Inadequate authority and responsibility to planning departments.

-) Failure in achievements due to inadequate evaluation of internal and external variables.
-) Failure due to inadequate forecasting system
-) Lack of entrepreneurship and commercial concept in overall operation of the enterprise.
-) Government of Nepal intervention through rules, regulation and circular.

Pokharel Mukunda (2002); has conducted research on the topic “*Profit Planning of ROYAL DRUGS Limited*”. The study covers the time period of five years from FY 051/052 to 055/056.

The basic objectives of the study were:

-) To appraise Royal Drugs Limited appropriately for the application of comprehensive profit planning system
-) To examine the present profit planning premises adopted by RDL.
-) To analysis the situation of profit management.

Mr. Pokhrel has made several points of conclusion. Among them the major findings are as follows:

-) RDL is not able to maintain a proper coordination between various departments in regards of goals, objectives, decision making and strategies.
-) RDL has lack of budgeting experts and skilled planners. Plans are formulated on traditional adhoc basis.
-) The management of the limited has applied monthly and annual sales budget. There is substantial gap between sales target and achievements as well as in production target and achievement.
-) Different statistical tools show the positive relationship between budgeted sales and actual sales, budgeted production and actual production.
-) RDL does not prepare raw material requirement budget and raw material budget separately. It purchases the raw material in adhoc basis. It does not follow the EOQ

purchase policy. Expenses made on the purchase of raw material are not recorded raw material wise but the total amount is accumulated and recorded as purchase expenses.

-) RDL has been suffering from under utilization of its available capacity.
-) RDL is seriously suffering from excessive fixed cost but RDL has not any cost reduction programs.
-) RDL has not a practice of analyzing the variances. So, the management is not conscious to re-think about cases of variances.

Acharya Prem Prasad (2004); has submitted a dissertation on the topics “*Profit Planning in Nepalese Pes (A case study of herbs production and processing co. Ltd.)*” the period covered by Mr. Acharya’s study was for five years i.e. from FY 150/051 to 054/055. Necessary data were collected from both primary and secondary sources. The basic objectives of his research were to how far the functional budgets are being applied on a tool for profit planning in manufacturing and business enterprises. Other objectives of the study were as follows?

-) To show profit plans and examines the practice and effectiveness comprehensive profit planning and control system of Herbs production and processing Ltd.(HPPCL)
-) To examine the present planning prevision adopted by HPPCL on the basis of budgeting.
-) To access the BEP analysis of HPPCL.
-) To study the present status of company in terms of commercial cultivation and production of herbs extracts and essential oils.
-) To recommend measure to encounter with the identified profit planning problems.

The major findings of the research work were as follows:

-) The company has been suffering at loss since establishment to now due to unscientific and imperfect budgets prepare.
-) The co. has faced marketing problem in international market as well as Indian market.
-) Achievement and the analysis of cost-volume-profit and flexible budgeting shows that HPPCL has been suffering with various internal and external problem in the process of formulating and implementing profit plan.

Thapa Pukar (2005); has submitted a dissertation on the topic “*Profit Planning in manufacturing enterprises in Nepal*”. A comparative study in Dairy Development Corporation (DDC) and Sita Ram Industry (SRD). The main objective of the study is to highlight the applicability and effectiveness of profit planning in manufacturing enterprises.

Regarding this broad objective, he pointed out the following specific objectives:

-) To analyze functional budgets on sales and production sector of the concern.
-) To analysis of various accounting ratios to measure the profitability and efficiency of concern.
-) To study of present process to find its usefulness and limitation.
-) To analysis of budget target and its achievement along with reason of deviation if any.
-) To point out valuable recommendation and suggestions based on analysis.

Mr. Thapa has pointed out the following major findings in his work:

-) DDC and SRD have no vague objectives but they are not strictly followed.
-) SRD’s capacity utilization is poorer than DDC’s capacity utilization.
-) Sales Figure (targets and achievement both) of SRD are more inconsistent and variable than that of DDC
-) Both companies have positive correlation between target and actual sales.
-) Lack of budgeting expert and skilled planner, plan is formulated on traditional basis in both industries (DDC and SRD).
-) Regression line shows positive relationship between actual and targets sales in both industries.
-) SRD has highly been successful to maintain coordination than DDC.

Bhandari Gopi (2006); has submitted a dissertation entitled “*Profit Planning in Nepal, A Case Study of Royal Drugs Limited*”.

The main objective of his study were as follows:

-) To examine the planning premises,

-) To draw a picture of planning diversification in RDL and
-) To examine the present planning premises in light of installation of profit planning process.

The time span covered by the study was ten years from FY 2039/40 to FY 048/49. Information was gathered from both primary and secondary sources of data.

The major findings of the study were as follows:

-) There is no well established co-ordinate system among the employees in various levels regarding the broad objectives.
-) Only few managers are competent for company success in formulation and implementation of plan. Lower level management is unknown to implement goals and objectives.
-) Management has not adequate knowledge about the nature and content of profit planning.
-) Sales plan, production and other various plans are not prepared in systemic way.
-) The company has not prepared systematic plan such as direct labor, material inventory, variable costs and other expenses.
-) Because of the lack of managerial knowledge, management has no method of study of the external and internal variables.

KC Keshab Bahadur (2007); has submitted the dissertation entitled “*Profit Planning in Herb Production and Processing Company Limited*”.

The main objectives of his study were as follows:

1. To observe the present profit planning premises adopted by the HPPCL.
2. To observe the HPPL’s profit planning on the basis of overall management budgeting.
3. To analyze the difference between budgets and actual achievement of the HPPC.
4. To point out suitable suggestions and recommendation.

Major findings of his research work were presented below:

-) Specific goals and objectives are not conveyed to lower level of staffs and it denotes the absence of MBO principle of management.
-) There is lack of proper coordination between the various responsible departments,
-) HPPCL is unable to define clearly the duties and responsibilities of their employees.
-) There is no cost classification system. Overheads are not classified systematically and it creates problem to analyze its expenses properly.
-) The company is suffering from low contribution margin and high fixed cost.
-) Absence of skilled and purely academic manpower and management planning training by the company.
-) There is no arrangement of any accounting and management planning training by the company.
-) Actual sales are very below than budgeted sales.

Bhattarai Bishnu Prasad (2008); has tried to investigate “*The sales budget of Manufacturing Public Enterprises*”. The fundamental objective of the study is to highlight and appraise the current practice of sales planning and its effectiveness in manufacturing company.

Other major objectives of the study were as follows:

-) To analyze the sales budget prepared by HPPCL.
-) To evaluate the variance between standard and actual result.
-) To comparison of sales with profit of the HPPCL.

The major findings of the study were as follows:

-) Bhattarai concluded has research with some findings and recommendations. His minor findings were:
 -) Actual sales are very low than the budgets sales.
 -) Sales forecasting is not based on realistic ground. HPPCL only use sales force composite method in sales forecasting but it has not practice of using statistical techniques in sales forecasting.

-) Lack of proper management to supply the herbs and other herbal products in international market.
-) There is no cost classification system in the company. The cost is not segregated into fixed and variable in systematic manner.
-) There is a serious lack of management expertise, which has led to formulation of unrealistic, haphazard plans. The various are unfavorable very high.

Bhattarai Tara Nath (2009); has also studied “*Sales Budget in Manufacturing Enterprises*”. The basic objective of the present study is to highlight the sales Budget in the manufacturing enterprises established under foreign investment.

The objectives of the study were as follows:

1. To analyze the sales budget prepared by UNL.
2. To evaluate the difference between budgeted and actual sales.
3. To comparison of sales with profit in UNL.
4. To point out suitable suggestions for improvement of planning system of UNL.

The major findings of his study were as follows:

-) No practice in sales budget with statistical tools.
-) Budgeted sales always higher than actual sales.
-) UNL can meet its sales goals as specified in annual program because of the correlation between budgeted and actual sales shown a positive relation.
-) The company has no proper practice of segregating cost into fixed, variable, semi-variable.
-) The company is able to occupy 60% market of tooth paste, 50% of toilet soap, 80% of detergent powder, 45% of fairness cream and 30% of shampoo of the total market.
-) Authorities and responsibilities are not clearly defined among various departmental working management. Role conflict and lack of co-ordination among them is paramount.
-) Application of profit is not realistic. Everything is prepared on ad-hoc manner.

2.9 Research Gap

Although there are various studies related to capital budgeting and profit planning regarding different organizations and available in different libraries, but reviewed of literature indicates that there are few studies devoted in capital budgeting and profit planning together in Nepalese context. These few studies conducted earlier have now needed to carryout a study to assess the recent development in capital budgeting and profit planning together. Nobody of the earlier studies has focused on role of capital budgeting in overall profit planning of the organization. Moreover this study has not been done by previous researcher as separately. Furthermore no one had test the correlation of different parts of the capital budgeting. Thus, to fill the gap, this study has been conducted. Thus this study will be milestone in the field of capital budgeting analysis and management of profit in GRTI. In spite to above, multiple gaps among the researcher's view as well as there is time gap regarding the study of capital budgeting and profit plans.

CHAPTER – III

RESEARCH METHODOLOGY

3.0 Introduction

As the basis objective of the present research is to highlight the current practice of profit Planning or Managerial Budgeting and its effectiveness in Nepalese private manufacturing and accordingly the sub-objectives are formulated. The research methodology is followed to achieve the basic objectives and goals of this research work.

Following are the major contents of research methodology followed in course of this dissertation.

3.1 Research Design

The Research Design of the study is analytical as well as descriptive approaches. This study is an examination and evaluation of budgeting procedure in the process of planning (Profit Planning) of Ganga Rosin and Turpentine Industry (GRTI). This study is closely related with the various functional budgets and other accounting statements as well as the actual result of the budgets. These information and data are presented in an analytical method. But the qualitative aspects of the research such as effectiveness of Profit Planning or managerial budgeting in “GRTI” problems of formulating and implementing the profit plans, views of the top personnel of the theoretical prescriptions are explained in words wherever necessary.

3.2 The Population and Sample

This research work is related with budgeting aspects of private manufacturing enterprises in Nepal. So, the total present number of private manufacturing enterprises in Nepal is the population of this study. Due to the various constraints of mine like time, resource, etc among the total population, “GRTI” has been chosen randomly as sample for case study purpose.

3.3 Period Covered

The study covers a time period of 5 years from FY 2004/05 to 2008/09. Data are taken from “GRTI” and the analysis is basically made on the basis of these 5 years data. For the purpose of the analysis of tactical profit plan analysis, data are taken from FY 2008/09. both budgeted and actual data are taken from the same year FY 2008/09.

3.4 Nature and Sources of Data

To fulfill the objectives of this study secondary data has been used. Secondary data has been taken from the published documents of “GRTI”, book, booklets, and magazines and similarly prevail dissertations and other publications. Data requisition slip of GRTI is in appendix.

3.5 Tools Uses

Data collected from various sources are managed, analyzed and presented in proper table and formats. Such table and formats are interpreted and explained wherever necessary. To analyze the collected data, financial and statistical tools mainly used are financial ratio, CPV analysis and flexible budgets. Similarly the statistical tools used are mean correlation, regression line, time series, coefficient of variance, standard deviation, graphs diagrams etc as per need.

3.6 Research Variable

The research variables of the study are mainly related with the accounting statement of “GRTI”. Sales, production, inventories, purchase, expenses, capacity utilization, profit and loss, manpower, capital expenditures and cash flows relating to long term and short term period of “GRTI” are the main research variables of this study.

3.7 Research Question

As the basic of this study is to examine how far the different functional budgets are being applied as tools Profit Planning or Managerial Budgeting the research has tried to seek answer of this.

CHAPTER-IV

PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

Profit Planning or Managerial budgeting is a systematic approach for attaining effective management goals. Profit is the primary measure of business success in any enterprise. The primary purpose of profit or planning managerial budgeting of business enterprise is to increase the chance of making profit. Comprehensive profit planning and control or managerial budgeting continues to be of prime importance in virtually all organizations. Planning involves the control and manipulation of relevant variables (controllable and non-controllable) and reduces the impact of uncertainty so that the enterprise could be saved from the chances of making losses.

Private enterprises are established due to ineffective and inefficient performance of public enterprises. So, like public enterprises, they are also responsible to prepare infrastructure serviced, to produce the required goals in the country, to help in controlling the price situation, to increase government revenues and to contribute significantly in the national development as well as to assist in the country's economic advancement.

Ganga rosin and turmeric industry (GRTI) is a solo manufacturing company, which is continuously increasing its profit since the time of establishment. GRTI is fully an operator in the area of its sector to collect rosin to process and to sell rosin and turpentine.

4.2 Sales Budget

Sales budget t formulation is the primary step in developing the overall budget. Sales are the primary source of cash and other functional budgets are prepared on the basis of sales budget. For this, Sales budget Preparation should be done on the realistic ground. If sales budget is not realistic, all other will not be realistic.

Sales budget involves the following four interrelated steps(a) the sales forecast (b) the marketing plan (c) the advertising or promotion expense budget and (d) the selling expenses budget.

Sales budget is prepared by products, by time periods and by sales territory in amounts as well as in volume or quantity.

On the basis of time period, there are two types of sales budget. First, the long-term sales plan, which covers the period of 5 or above years and the second is short-term sales plan (budget) covering the period of one fiscal year.

4.2.1 Long-term Sales Plan (Rosin)

The following table represents the sales budget and actual sales achievement of Rosin in kg from fiscal year 2005/06 to 2009/010.

Table-4.1
Sales budget and achievement

The table shows the actual sales are always near to target sales. The actual sales are in increasing trend throughout the study period according to the targeted budget. The average actual sales of Rosin are 96.94% of target sales. As the actual sales is increasing in accordance to the targeted sales, there is less variance in between the targeted sales and actual sales.

In order to find out the nature of variability of sales budget and actual sales of different year. We have to calculate the arithmetic mean, standard deviation and coefficient of variation of the budgeted and actual figures of GRTI.

The detail calculations of those statistical tools are presented in appendix-1. We have,

Tools	Sales Budget in Kg (x)	Sales Achievement in Kg (y)
Mean(\bar{X})	3,98,000	3,86,056
S.D. ()	16,000	23,522.77
Coefficient of variation(C.V.)	4.02%	6.09%

The above analysis shows that coefficient of variation of actual sales is higher than that of target sales. This means, the actual sale is more variable than budgeted sales. Lower the C.V. is said to more homogenous or uniform or less variable than the other. The standard deviation of sales achievement is higher than the sales budget which indicates

that there is higher risk in sales achievement. The targeted and actual sales can be shown by graphical form:

Figure 4.1

Sales Budget Target and Actual Achievements

The graphical presentation shows that the actual sales aren't meeting the target sales. However, every sales figure are almost near to the target sales. Both budgeted and actual sales figures are in upward trend. The deviation between target and actual sales is more in FY 2005/06, which is 91.12% and very low deviation is in FY 2006/07, where the actual sales is near to meet the budgeted sales or actual sales is 99% of budgeted sales.

Another statistical tool, correlation coefficient can be used to analyze the relationship between budgeted and actual sales. For this purpose, we can take the help of Karl Pearson's coefficient of correlation and it is denoted by (r). By calculating r, we can examine, whether that is positive correlation between budgeted and actual sales or not. In other words, whether or not the actual sales will be changed in the same direction of the change in budgeted sales. For this reason, budget figure, indicated by 'x' are assumed to be independent variable and actual figure, indicated by 'Y', are assumed to be dependent variable. This achievement is large if the target is large and vice-versa. Calculation of 'r' and 'probable error of r' are presented in appix-1 and from this appendix, we have, the calculated value of 'r' is 0.91069.

The figure of 'r' shows that there is positive and close co-relation between budgeted and actual sales. This means actual and budgeted sales both will go to same direction. The significance of 'r' is tasted by the help of 'probable error of r'. We have, probable error of $r = 0.05147$.

Since, r is greater than probable error of r ($0.91069 > 0.05147$). This means, actual sales will go to same direction of budget or the value of r is significant. A regression line can also be fitted to show the degree of relationship between budgeted and actual sales and to forecast the possible actual sales with given budget figure. For this purpose actual sales achievements have been assumed to dependent upon budgets.

So, the regression line of achievement on budget or Y on X is as follows:

$$Y - \bar{Y} = r \frac{SY}{SX} (X - \bar{X})$$

Where the following values are calculated above

Tools	Budget sales (X)	Actual sales (Y)
Mean(\bar{X})	3,98,000	3,86,056
S.D. ()	16,000	23,522.77

$$r = 0.9107$$

Putting the above values in to the for this equation, we came to know that, there is positive relationship between budgeted and actual sales. Actual sales will be increased by 1.3389 times per k.g. increased in budgeted sales.

By the help of regression equation, we can determine the expected sales achievement with the given value of budgeted sales (x). If we use this equation to ascertain the expected sales achievement of FY2009/010, the following result will be come out:

Budgeted sales for FY 2009/010 = 4, 30,000 kg

Or, X=4, 30, 000 kg

Then, expected sales achievement,

$$Y = 1.3389 \times 430,000 - 146820.89 = 428900 \text{ kg.}$$

If the relationship between budgeted and actual sales remain same as previous year than the actual sales for the FY 2009/010 will be 428900 kg as stated by the above regression equation.

By the help of least square method, we can analyze the trend of actual sales and estimate the possible future sales for a given time or a given time or a year. Time element is an important factor. With the passage of time, the sales achievement change can be expressed by the component of time series. Least square method will show the relationship between years (time) and actual sales.

Table-4.2
Time Series Analysis

FY	Actual sales (y) in kg	X	X ²	XY
		-2	4	-6,92,500
		-1	1	-3,76,200
		0	0	0
		1	1	3,99,760
2009/010	4,15,230	2	005/06	3,46,250
Total	Y = 19,30,280	X =0	2006/07	3,76,200
			2007/08	3,92,840
			2008/09	3,99,760

In the above table, FY2007/08 is assumed as base year, straight-line trend,

$$Y_c = a + bx$$

$$a = \frac{\sum Y}{N} = \frac{19,30,280}{5} = 3,86,056$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{1,61,520}{10} = 16,152$$

$$Y = 3,86,056 + 16,152X$$

The trend line shows the increasing sales figure for the future. The sales will be increased by 16152 kg yearly. This is the past trend and continues in the figure. With the help of trend equation, it is easy to estimate the actual sales for FY 2009/010.

The value of X for the year 2008/09, from the base year 2006/07=3

$$\begin{aligned} \text{Sales for 2009/010} &= 3, 86,056 + 16,152 \times 3 \\ &= 4, 34,524 \text{ kg.} \end{aligned}$$

4.2.2 Long-term Sales Plan (Turpentine)

The following table shows the sales budgets and actual sales of turpentine in liters of 5 years from FY 2005/06 to 2009/010.

Table-4.3
Sales Budgets and Achievements

FY	Turpentine (ltr)		
	Target Sales	Actual Sales	Achievement
2005/06	95,000	82,000	
2006/07			
2007/08			
2008/09	1,00,000		99.72%
2009/010	1,10,000		96.07%

The above table shows the satisfactory sales achievement of turpentine though the actual sales figures have not met the budgeted figures but the achievement is very near or average 95.735% of budgeted sales. The lowest achievement is in year 2005/06, which is 86.32% of budget and the greatest achievement is in FY 2008/09, which is very close to budget or 99.72% of budgeted sales. The main reason for not achieving the target is lack of sufficient demand of the product in the market.

In order to find out the nature of variability of budgeted and actual sales of different years, we have to calculate the arithmetic mean, standard deviation and coefficient of

variation of the budgeted and actual figures of GRTI. These statistical tools are calculated of variation of the budgeted and actual figures of GRTI. These statistical tools are calculated in appendix-2 summarizing the results from appendix-2,

we have:

	Sales Budgeted in Ltr.	Actual Sales in Ltr.
Mean(\bar{X})		95,416
S.D.		7,854.97
C.V.		8.23%

The result shows that the achievement is strongly near but less than the mean budgeted sales. The actual sales are more variable than that of budgeted sales but the results are uniform because the both variances are less than 10%. Both the deviations are insignificant. Higher standard deviation indicates that there is higher risk in the actual sales than that the sales budget.

The actual and budgeted sales of 5 years can be presented in graphical form:

Figure-4.2

Sales Target and Actual Turpentine

The graphical presentation shows that the actual sales don't meet the budgeted sales. But both the lines are in very near and are in approximately parallel from FY 2005/06 to FY 2009/010. The sales budget line and actual sales vary the most in fiscal year 2005/06 in comparison with other years throughout the study period. But this variation has been

decreased in other years. In the FY 2008/09 the actual sales and targeted sales are equal. From all these data and figure it is seen that the company has made an effort to sale the products aggressively to meet the sales budget. To find out the correlation between target and actual sales, Karl Pearson's coefficient of correlation (r) is determined. For this purpose, target figures (x) are assumed to be independent variable and achievement figures (Y) are assumed to be dependent variable. If the target sales are large, actual achievement will be large and vice-versa. The detail calculation of "r" and "problem error of r" is presented in appendix-2 and from this appendix, we have the calculated value of 'r' is 0.8187.

The value of 'r' shows the positive and very close relationship between budgeted and the actual sales figure. This means, both the target and achieved sales are in same direction. The significance of 'r' is tasted by the help of 'probable error of r'. We have the calculated value of 'probable error of r'= 0.09946. Since, the value 0.09946 is less than the correlation coefficient i.e. 0.8187 (or 0.8187 > 0.09946). So, the value of 'r' is significant, budgeted and actual sales will go to same ratio and direction.

A regression line can also be fitted to show the degree of relationship between budgeted and actual sales and to forecast the possible actual sales for the future with given budget figure. For this, sales achievement has assumed to be dependent upon budget. So, the regression line of achievement Y on budget X or Y on X is as follows:

Y-Y = Y _{xy}	Sales Budgeted (x) Ltr.	Actual Sales (Y) Ltr.
Mean(\bar{X})	99,600	95,416
S.D. ()	5535.34	7854.97

$$r_{xy} = 0.8187$$

Putting the value on formula,

$$\text{or, } Y - 95,416 = 0.8187 \times \frac{7,854.97}{5,535.34} (X - 99,600)$$

$$\text{Or, } Y - 95,416 = 1.16831 (X - 99,600)$$

$$\text{Or, } Y = 1.16831X - 20,984$$

Then, expected sales achievement

$$Y = 1.16831 \times 1,25,000 - 20,948 \\ = 1,25,090.75 \text{ ltr.}$$

If the relationship between budgeted sales and actual sales remain same as previous year, then the actual sales for the year 2009/010 will be approx. 1,25,091 liters as stated by the above regression equation.

The next statistical tool, called 'Least Square Method', can also be used to analyze the trend of actual sales and to estimate the possible future sales for a given time of year. Least square method will show the relationship between tear (time) and actual sales:

Table -4.4
Fitting Straight Line Trend by Least Square

FY	Actual sales (Y) in ltr.	(X)	(XY)	(X²)
2005/06	82,000	-2	-1,64,000	4
2006/07	93,430	-1	-93,430	1
2007/08	96,250	0	0	0
2008/09	99,720	1	99,720	1
2009/010	1,05,680	2	2,11,360	4
Total	Y = 4,77,080	X = 0	XY = 53,650	X² = 10

Assumed base year FY 061/062.

Straight line trend (Y_c) = a + bx

$$a = \frac{\sum Y}{N} = \frac{4,77,080}{5} = 95,416 \text{ ltr.}$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{53,650}{10} = 5,365$$

$$y = 95,416 + 5,365x$$

This trend line indicates the increasing sales figures. The sales will be increased by 5,365 liters every year if sales trend of past year continues for future. With the help of trend equation, the actual estimated sales for FY 2009/010 are calculated below:

The value of x for the year 2009/010 according to the base year 2007/08 = 3

$$Y = 95,416 + 5,365 \times 3 = 1, 11, 511 \text{ ltrs.}$$

If the trend doesn't change, the possible sales for 2009/010 will be 1, 11, 511 ltrs.

To conclude the sales budget of GRTI, following points can be noted out:

-) Generally actual sales don't meet the budgeted sales.
-) Achievement is satisfactory and is very near to target.
-) There is perfect and positive correlation between actual and budgeted sales.
-) Variations are budgets and actual sales are not in significant position or both are uniform and realistic.
-) There is systematic and rationale approach about sales budget making.
-) Sales of both Rosin and Turpentine are better.
-) Analysis shows, sales of both products will increase in the future.

4.2.3 Tactical Short-Range Sales Plan

Short-term sales plan or tactical sales plan is prepared to plan sales for the twelve month into future detailing first quarter. At the end of each revised by adding a period in the future and by dropping the period just ended. Thus, tactical sales plans are usually subject to review and revision on a quarterly basis. Then short term sales plan includes a detailed plan for each major product and for groupings of minor products. Tactical sales plans are usually developed in term of physical units or jobs and in sales and or service dollars. To established policy about detail in the short range sales plan the main question is to use of the results. First, the major consideration is to provide detail by responsibility for planning and control purpose. Second, the short-range sales plan must provide detail needed for completing the profit plan components by other functional managers. That is the production manager will need sufficient detail for planning production levels and plans capacity needs. The financial manager will need sufficient detail for assessing and

planning cash flow, unit product costs, inventory needs and so on. Third, the amount of detail also depends on the type of industry, size of the firm, availability of resources and use of the results by management.

GRTI hasn't proper and systematic plan about short-range sales budget. Planners of GRTI forecast the annual sales plan as a whole firstly and then divide the total annual budget into four different quarters according to their hypothetical judgment. Then, they also divide the quarterly sales in to different month but there is no any hard and fast rule for making short-range forecasting. GRTI doesn't develop short-term sales plan by territories. The head office collects all raw materials (Resins) and manufactures it in to Rosin and Turpentine. So, head office doesn't make budget by territory but only by products and by time period. Planning and monitoring department plans the sales budget. The sales department has only the responsibility to supply goods to customers and to records the order.

GRTI doesn't plan its sales budget in amount because rate of the products is not fixed. Product price will be changed due to change in external market or product price changes according to the external market fluctuation.

The rough estimation of short-range sales plan for the FY 2009/010 is presented below:

Table -4.5
GRTI Sales Target (Plan)
By Period and By Product for the FY 2009/010

Period			Turpentine	Percent

			(Ltr)	Change
January			5,650	-
February			10,400	84.07%
March			11,650	12.02%
Total of 1 st quarter			27,700	-
2 nd quarter			40,300	45.49%
3 rd quarter			35,200	(-12.66)%
4 th quarter			21,800	(-38.07)%
Total target for the year			1,25,000	

Sales budget is mainly focused on second and third quarters. GRTI feels the two quarters as the main seasons to sell its products. Past record also shows low sales in other two quarters. But, GRTI has not proper records of quarterly sales. So, it is said that the short-term sales plan is only for formality. The basis for sales plan is last year's actual sales.

4.3 Production Plan (Budget)

Production budget preparation is the second step in the process of profit planning or Managerial Budgeting. For the purpose of the formulation of profit plan, the sales requirement is to be translated into production plan. The main objective of the production plan is to fulfill the requirements of the sales plan as well as final inventory.

Production in units = total requirement for sales + ending inventory – opening inventory

While making production plan, the following should be considered seriously:

-) Total sales requirement by product for the planning period.
-) Inventories policies related to level of finished goods and work-in-progress.

-) Plant capacity policies such as the limits of permissible departures from as table.
-) Adequacy of manufacturing facilities.
-) Availability of raw materials, purchase components and labor.
-) The effect of the length (time) of the processing time.
-) Timing of production through out the planned period.

Two types of production budget are prepared on the basis of time period covered by budget. First, the long term production plan covering 5 or more years and the second is short-term production plan covering the period of one fiscal year.

4.3.1 Long-term Production Plan (Rosin)

The following table represents the production budget and actual production achievement of Rosin in kilograms from fiscal year 2005/06 to 2009/010:

**Table – 4.6
Production Target and Achievement**

FY	Rosin (kg)		
	Target Production	Actual Production	Achievement%
2005/06	3,80,000	3,52,230	92.69%
2006/07	3,80,000	3,83,810	101.00%
2007/08	4,00,000	3,91,715	97.93%
2008/09	4,10,000	4,04,582	98.68%
2009/010	4,20,000	4,18,790	99.71%

The above table shows the homogeneity between budgeted and actual production figures.

To find out the nature of variability of production budget and actual production of different years, we have to calculate the arithmetic mean, standard deviation and coefficient of variation. The detail calculations of these variables are presented in appendix-3:

	Production Budgeted in Kg (X)	Actual Production in Kg (Y)
Mean (X)	3,98,000	3,90,225.4
S.D.()	16,000	21,557.25
C.V.	4.02%	5.52%

The mean of budgeted production is higher than actual production but the difference is not much. The coefficient of variation of actual production is little greater than budgeted production. Therefore, we can say that the actual production is more variable than that of budgeted production. In the long term production plan there is higher degree of variability in actual production.

The budgeted and actual production can also be shown by graphical presentation, which is presented below:

Figure – 4.3
Production Target and Actual Achievement

Above graphical presentation shows the very little gap between budgeted and actual production. Always budgeted figure has exceeded the actual except in the fiscal year 2005/06.

A statistical tool, correlation coefficient (r) can be used to analyze the relationship between budgeted and actual production. For the purpose of calculating 'r', budget figures, denoted by 'x' are assumed to be independent variable and actual figures, denoted by 'Y' are assumed to be dependent.

The detail calculation of 'r' and 'probable error of r' is presented in appendix -3 and from this appendix, we have the calculated value of r is 0.9295. The above value of 'r' shows the great relation or the maximum positive relation between budgeted and actual production. The significance of 'r' can be tested by the help of 'probable error of r'. We have, probable error of r = 0.0410.

Since the value of 'r' is much greater than 'probable error of r' or $0.9295 > 0.0410$. so, the value 'r' is significant. That means, we can say, the actual production will go on same direction of budgeted production.

A regression line can also be fitted to show the degree of relationship between budgeted and actual production, and to forecast the possible actual production with given budgeted figures. For this purpose, actual production has been assumed to be dependent upon budgets.

So, the regression line of achievement Y on budget X or Y on X is as follows:

$$Y - \bar{Y} = r \frac{SY}{SX} (X - \bar{X})$$

We have, the following value as calculated above,

	Budget production (X)	Actual production (Y)
Mean (X)	3, 98,000 kg.	3, 90,225.4 kg.
S.D. ()	16, 000 kg.	21,557.25 kg

$$r_{xy} = 0.9295$$

Putting the value on formula:

$$\text{or, } Y - 3,90,225.4 = 0.9295 \times \frac{21,557.25}{16,000} (X - 3,98,000)$$

$$\text{Or, } Y - 3,90,225.4 = 1.25234X - 498432$$

$$\text{Or, } Y = 1.25234X - 10,8206.6$$

The regression equation shows the positive relationship between target and actual production. Actual production will be increased by 1.25234 times per kg increase in budgeted production. By this regression equation, we can ascertain the expected production achievement with given value of production say (x). if we use this equation to ascertain the expected production achievement for FY2009/010, the following result will be come out.

Budgeted production units for FY 2009/010 = 4,40,000 kg.

$$X = 4,40,000 \text{ kg}$$

The expected production achievement (Y)

$$= 1.25234 \times 4,40,000 - 108206.6$$

$$= 4,42,823 \text{ kg.}$$

The relationship between budgeted and actual production is remain same direction as previous year, the actual production for the FY 2009/010 will be 4,42,823 kg which is little greater than the budgeted production for the year.

Least square method can also be used to analyze the trend of actual production and to estimate the possible future production for a given time or year. A straight-line trend by this method will show the relationship between time or year and actual production of that relevant year. To fit the straight-line trend, the time factor is considered as independent factor and production is considered as dependent factor.

Table -4.7

Time series analysis

Fitting Straight Line Trend by Least Square

FY	Actual Production in (Kg) Capital (y)	X	X ²	XY
----	---------------------------------------	---	----------------	----

	Rosin			
2005/06	3,52,230	-2	4	-7,04,460
2006/07	3,83,810	-1	1	-3,83,810
2007/08	3,91,715	0	0	0
2008/09	4,04,582	1	1	4,04,582
2009/010	4,18,790	2	4	8,37,580
Total	Y = 19,51,127	X =0	X²	XY = 1,53,892

FY 2007/08 assumed base year.

Straight-line trend

$$Y_e = a + bx$$

$$a = \frac{\sum Y}{N} = \frac{19,51,127}{5} = 3,90,225.4$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{1,53,892}{10} = 15,389.20$$

$$Y = 3,90,225.4 + 15,389.2X$$

The production will be increased by 15,389.2 kg per year, if production trend of past years continue for future.

By using trend equation, we can estimate the actual production for FY 2065/066. the value of X for the year 2065/066 (2007/08 base year) or X =3.

So that,

$$Y = 3,90,225.4 + 15,389.2 \times 3$$

$$= 4,36,393 \text{ kg.}$$

If the trend does not change, the possible production for the FY 206/066 will be 6,36,393 kg.

4.3.2 Long Term Production Plan (Turpentine)

The table 13 shows the target and actual production (in liter) from FY 2005/06 to 2009/010.

Table 4.8
Production Target and Achievement

FY	Turpentine (Liter)		
	Target Production	Actual Production	Achievement%
2005/06	95,000	88,520	93.018%
2006/07	95,000	92,480	97.35%
2007/08	98,000	96,650	98.58%
2008/09	1,00,000	1,01,240	101.24%
2009/010	1,10,000	1,09,635	99.24%

The above table indicated that the actual production, each years, nearly equal to or greater

	Budgeted production in ltr (X)	Actual production in ltr. (Y)
mean(X)	99,600	97,696
S.D.()	5535.34	7,317.04
C.V.	5.56%	7.49%

than budgeted (target) production. Ratio of achievement is from 93.18% (in FY 2005/06) to 101.24% (in FY 2008/09). Average production achievement is 98.09% of budget, which is very near to 100%. The achievement percent in the first three years is in increasing trend but the same in last three years of the study period is in fluctuating trend. This fluctuation in the achievement is because of the strikes, lockouts and vandalisms ongoing in the country. This fluctuation can be related with the political risk hampering the industrial sector of the country.

The main reason for fluctuation in FY2009/010 is due to political instability and lacking of raw material.

The different types of statistical tools: Mean, Standard Deviation and Coefficient of variation should be calculated to find out the nature of variability of budgeted and actual production of turpentine. The detail calculation of these variables is presented in appendix-4 and from the appendix, we have:

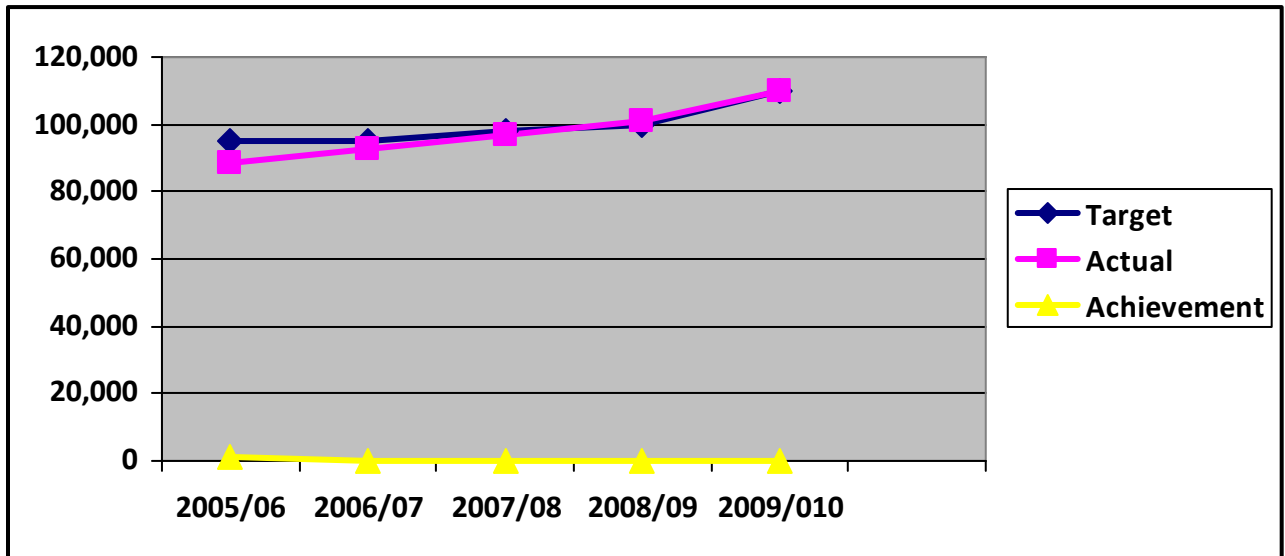
The mean of budgeted production is little higher than actual production of Turpentine.

The C.V. of actual production is higher than the budgeted production, but both the variances are below than 10% or insignificant. Analysis shows only that the actual production is of the nature of more variability than budgeted production.

Budgeted and actual production of Turpentine of different FY can be shown by graphical presentation.

Figure- 4.4

Production Target and Actual Turpentine



Above graphical presentation shows that both the lines are very close to each other. Budgeted production line, each FY is little higher than actual production line except in FY 2007/08. In FY 2007/08, line of actual production of turpentine has crossed the budget line.

A statistical tool, correlation coefficient (r) can be used to analyze the relationship between budgeted and actual production. For the purpose of calculating r , budget figures denoted by 'X' are assumed to be independent variable and actual figures denoted by "Y" are assumed to be dependent variable. The detail calculation of ' r ' and 'probable error of r ' is presented in appendix-4 and from this appendix, the calculated value of $r = 0.9557$.

This value of ' r ' shows the maximum positive relationship between budgeted and actual production figures. The significance of ' r ' can be tasted by the help of 'probable error of r ' can taste the significance of ' r '. From appendix-4

We have:

Probable error of $r = 0.0238$

Since, the value of 'probable error of r' is very low as compared to the value of 'r'. (i.e. $r > \text{probable error of } r$ or $0.9557 > 0.0238$). So that, we can say that the value of r is significant or, there is significant relationship between budgeted and actual production. Similarly, a regression line can also be fitted to show the degree of relationship between budgeted and actual production of Turpentine and to forecast the possible actual production with given budget figures. For this purpose, actual production has assumed to be dependent up on budgets.

So, the regression line of achievement Y on budget X or Y on X is as follows:

$$Y - \bar{Y} = r \frac{S_Y}{S_X} (X - \bar{X})$$

we have the following values as calculated above,

	Budgeted Production(X)	Actual Production(Y)
Mean(X)	99,600 ltr.	97,696 ltr.
S.D.()	5,535.34 ltr.	7,317.04 ltr.

$$r_{xy} = 0.9557$$

Putting the value into formula:

$$\text{or, } Y - 97,696 = 0.9557 \times \frac{7,317.04}{5,535.34} (X - 99,600)$$

$$\text{Or, } Y - 97,696 = 1.26332X - 1, 25,826.5$$

$$\text{Or, } Y = 1.26332X - 28,130.5$$

This regression equation shows the positive relationship between target and actual production. Actual production will be increased by 1.26332 times per ltr. Increase in budgeted production.

By this equation, we can ascertain the expected production achievement with given value of target production, say (X). We use this equation to ascertain the expected production for FY 2009/010 the following result will be come out:

Budgeted production in ltr. For FY206/065 = 1, 25,000 ltr.

Or, X = 1, 25, 000 ltr.

Then, expected production achievement (Y)

$$Y = 1.26332 \times 1, 25, 000 - 28, 130.5$$

$$= 1, 29, 784.5 \text{ ltr.}$$

If the present relation of budgeted and actual production is remained same as previous years, the actual production of Turpentine will be 129784.5 ltr in FY 2009/010.

Least square method can also be used to analyze the trend of actual production and to estimate the possible future production for a given time or year. A straight-line trend by this method will show the relationship between time or years and actual production of the relevant year. To fit the straight line trend, the time factor is considered as independent factor and production is considered as dependent factor up on time.

Table – 4.9
Fitting Straight Line Trend by Least Square

FY	Actual production in ltr (y)	X	X²	XY
2005/06	88,520	-2	4	-1,77,040
2006/07	92,480	-1	1	-92,480
2007/08	96,605	0	0	0
2008/09	1,01,240	1	1	1,01,240
2009/010	1,09,653	2	4	2,19,270
total	Y = 4,88,480	X = 0	X²	XY = 50,990

Assumed base year is FY 2007/08

Straight-line trend,

$$Y_c = a + bx$$

$$a = \frac{\sum Y}{N} = \frac{4,88,480}{5} = 97,696$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{50,990}{10} = 5,099$$

Substituting the value of a and b, we have:

$$y = 97,696 + 5,099X$$

This trend line shows the increasing production figure. The production will be increased by 5,099 ltrs, every year if the production trend of past years continues for future. By using above trend equation, we can estimate the expected actual production for FY 2062/066.

The value of X for the year 2065/066 =3. (2007/08 base year)

Hence, by putting the value of x, we have:

$$\begin{aligned} Y &= 97,696 + 5,099 \times 3 \\ &= 1,12,993 \text{ ltrs.} \end{aligned}$$

If the trend doesn't change, the possible production for FY 2065/066 will be 1,12,993 liters.

4.3.3 Short-range Production Budget

Short-term production budget should be an annual production budget detailed by products and by months or quarters. Also the production activities should be planned by responsibility centers within the manufacturing division.

GRTI is upon planning manager under the overall responsibility of developing production plan. GRTI consults with production manager for capacity utilization, technical consideration and other relevant factors. Zero inventory policy is adopted by GRTI. So, there is no difference between sales and production budget for GRTI.

Already discussed that GRTI has not the proper and hard and fast manner or techniques for making short-range planning. The same thing is in short-range production budget also. GRTI prepares its strategic planning and then divides it into different ranges or short duration of time periods. Planning is based upon judgment of planning manager. The table shows the tactical or short-range production budget of GRTI by quarter and by product for the fiscal year 2065/066.

Table – 4.10
Production plan (By Product and By Plan)

Period	Target (Rosin) Kg	% Change	Target(Turpentine) Ltr.	% Change
January	19,750		5,650	
February	36,500	84.81%	10,400	84.07%
March	41,000	12.33%	11,670	12.21%
Total of 1 st quarter	97,250		27,700	
of 2 nd	1,42,000	46.02%	40,300	45.49%
of 3 rd	1,24,000	(12.68%)	35,200	(12.66%)
of 4 th	76,750	(38.10%)	21,800	(38.07)%

Total of the year	4,40,000		1,25,000	
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From the above table, it is seen that the production plan is in decreasing trend. It has been decreased to 38.07% negatively. It indicates that there is a low demand of the product in the market as compared to the previous years. The targeted production of both the Rosin and Turpentine has been decreased throughout the study period. The decrease in the production clearly indicates the decrease in demand of the above two products in the market.

4.4 Pricing Policy of GRTI

Pricing strategy is the vital part of sales planning. Sales price and sales volume are mutually interdependent with each other. There must be necessary planned sales price and expected sales volume. Price setting is that field of business in which management only becomes an art. In a sales plan, pricing strategy plays a crucial role. There must change in volume of sales due to changes in sales price.

Sales price of GRTI is totally affected by the Indian market of Rosin and Turpentine market. GRTI sells all the products in the Indian market. Price is very flexible in the Indian market. So, pricing of GRTI is also flexible. GRTI analyze the market and fixes the average. Price for the estimation of its sales amount. GRTI has not any grade wise price lists although differential pricing is adapted for different grades of its products.

Ganga Rosin and Turpentine has exercised cost based pricing policy as well as mark up pricing policy. From the above calculations it can be concluded that pricing depends upon the cost also. So higher the cost of the production higher is the price and vice-versa.

Market researchers of GRTI have forecasted the prices of Rosin in between Rs. 42 to Rs. 48 per kg. and Rs. 25 per liter of Turpentine. So, the industry has forecasted its sales amount with average selling price i.e. Rs. 45 per kg of Rosin and Rs. 24 per kg of Turpentine. From the above calculations it can be concluded that price depends upon the cost also. So, higher the cost of the production higher is the price and vice-versa.

4.5 Actual Production and Sales of Rosin and Turpentine

The production budget is prepared with the help of sales budget or the production budget is dependent upon the sales budget. So, it makes necessary to examine whether production meets sales or not and it is very important to analyze the relationship between actual production and sales. The following table shows the actual production and sales of last 5 years from FY 2005/06 to 2009/010 for each product:

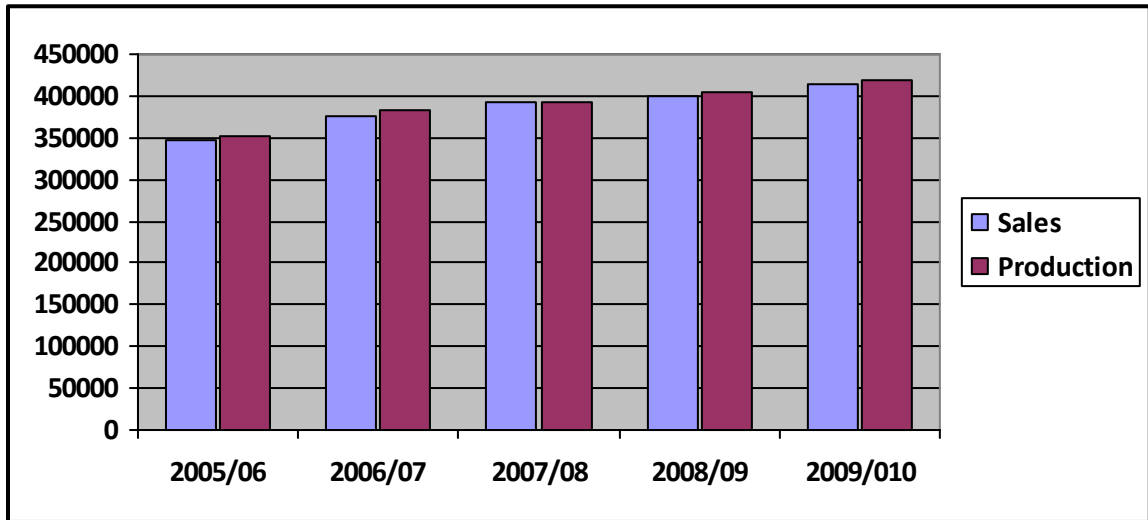
Table -4.11
Actual Production and Sales of Rosin:

FY	Rosin in Kg. (Actual)			
	Sales	Percentage Change	Production	Percentage Change
2005/06	3,46,250		3,52,230	
2006/07	3,76,200	8.65%	3,83,810	8.97%
2007/08	3,92,840	4.42%	3,91,715	2.06%
2008/09	3,99,760	1.76%	4,04,582	3.28%
2009/010	4,15,230	3.87%	4,18,790	3.51%

The above table indicates the actual production and sales of Rosin in FY 2006/07 percentage change is higher than the other fiscal years throughout the study period. The percentage change in both sales and production in this fiscal year is higher than that of the other years. After the fiscal year 2006/07 both the production and sales are in declining trend. From the above data we can conclude that there is homogeneity between production and sales change trend in Rosin

The above data can also be presented on the Bar diagram as:

Figure 4.5
Actual Production and Sales of Rosin



The above diagram shows the relationship between production and sales of Rosin. In spite of zero inventory policy of GRTI, there is difference in sales and production. It shows the ineffective performance of budget policy. But, there is not remarkable gap between them. In FY 2006/07, the gap between production and sales is little sales higher compared to other fiscal years. A production of Rosin shows the inventory level between them.

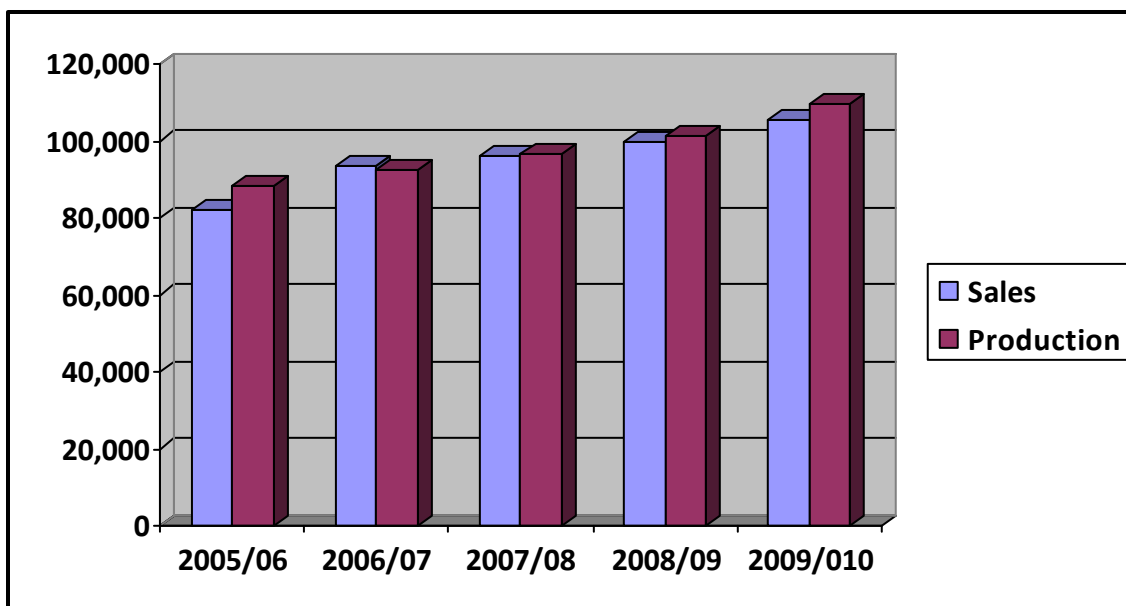
Table – 4.12
Actual Production and Sales of Turpentine

FY	Turpentine in Ltr.(Actual)			
	Sales	Increase %	Production	Increase %
2005/06	82,000	11.26	88,520	7.82
2006/07	93,430	16.38	92,480	4.47
2007/08	96,250	3.02	96,605	4.46
2008/09	99,720	3.61	1,01,240	4.48
2009/10	1,05,680	5.98	1,09,653	8.29

From the above data it can be concluded that the sales of turpentine is in increasing trend throughout the study period but the percentage increase of the sale is in fluctuating trend. On the other hand the production of the turpentine is simultaneously in increasing trend but the percentage increase in the production of the turpentine too is in fluctuation trend.

The above figures can be presented on bar diagram as: the above diagram shows the relationship between actual production and actual sales of turpentine. Like Rosin, difference in production and sales is also in Turpentine. But the difference is very low. In year 2007/08, in FY 2006/07, sales have exceeded the production and the other fiscal year's sales and production are nearly equal to each other.

Figure 4.6
Actual Production and Sales of Turpentine



4.6 Resin Collection Trend and Expenses Trend

The yield of crude pine resin from each matured tree is 3.5 kg per annum from *pinus roxburghii*. The lip and French cup method is using for collection. Resin is collected from the *pinus roxburghii* having minimum circumference of 90 cm. the average collection is almost Rs. 10 per kg of Resin. GRTI pays Rs 3 per kg of resin to the government or the same amount to the community, in the case of the forest owned by community as royalty or the forest ownership charges. Resin collection season is in the month of Falgun to Kartik of next year. GRTI collects resin from four hilly districts of eastern zone of Nepal. The districts are Dhankuta, Panthar, Tehrathum and Taplejung. The actual resin collection trend in different years is presented below:

Table 4.13

Actual Resin Collection Trend

S.N.	Fiscal year	Collection of Resin (kg)	Change Trend (%)
1.	2003/04	4,35,286	35.18%
2.	2004/05	5,86,785	34.80%

3.	2005/06	6,69,616	14.12%
4.	2006/07	7,13,327	6.52%
5.	2007/08	7,40,912	3.86%
6.	2008/09	7,53,852	1.75%
7.	2009/010	7,67,625	1.83%

It shows the resin collection in increasing trend. But the increasing rate is becoming very low in the last some years. The scarcity of resin in recent days is the prime reason behind the decreasing trend of collection of resin. The low degree of awareness about the Resin and Turpentine is another factor of decreasing Resin collection.

Table – 4.14
GRTI Expense Trend

FY	Manufacturing Expenses (Rs)	Administration Expenses (Rs)	Depreciation (Rs)	Total (Rs)
2005/06	85,65,570	53,90,070	4,25,000	1,43,80,640
2006/07	94,53,580	54,80,900	4,25,000	1,53,59,480
2007/08	1,02,56,605	61,24,450	4,25,000	1,68,06,055

2008/09	1,08,82,312	63,61,652	-	1,72,43,964
2009/010	1,13,06,014	71,29,505	-	1,84,35,519

The above table shows the actual manufacturing, administrative and selling and depreciation expenses of last five years. The above data shows that the manufacturing expenses and administration expenses are increasing throughout the study period. The higher manufacturing and administrative expenses affects the profitability of the company in the long run.

4.7 Profit and Loss Trend

Profit and loss account shows the final position of the company. The below table shows the profit and loss and gross profit trend of GRTI since 2005/06 to 2009/010.

Table -4.15
Profit and Loss Trend

Fiscal Year	Net Profit (Rs)	Percentage Change	Gross Profit (Rs)	Percentage Change
2005/06	16,56,000	-	74,71,070	-
2006/07	19,35,000	16.85%	78,40,900	4.95%
2007/08	21,63,000	11.78%	87,12,450	-

2008/09	25,77,000	19.14%	89,38,652	(11.12)%
2009/010	26,22,481	1.76%	97,51,986	(9.10)%

The above table shows the increasing profit trend of GRTI. Both net profit and gross profit are increasing in every year. Net profits bare very low compared to gross profit. It shows the over fixed charges or administration charges from the above net profit trend, we can fit a straight line trend to forecast the possible position for the coming year (s). Calculation is presented below:

Table-4.16
Straight Line Trend by Using Least Square Method

FY	Net Profit(y)	X	X²	XY
2005/06	16,56,000	-2	4	-33,12,000
2006/07	19,35,000	-1	1	-19,35,000
2007/08	21,63,000	0	0	0
2008/09	25,77,000	1	1	15,77,000
2009/010	26,22,481	2	4	52,44,962
	Y-1,09,53,481	X=0	X ² =10	XY=25,74,962

Let,

Base Year = 2006/07

Least Square Trend,

$$Y_c = a + bx$$

$$a = \frac{\sum Y}{N} = \frac{1,09,53,481}{5} = 21,90,696.2$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{25,74,962}{10} = 2,57,496.2$$

By putting the value of a and b, we have:

$$Y_c = 21,90,696.2 + 2,54,496.2X$$

Using this equation, we can compute the forecast actual profit for the year 2065/066

Where,

The value of $X=3$

(From the base year 2007/08)

Then,

$$Y_c = 2190696.2 + 257496.2 \times 3 \\ = \text{Rs } 2963184.8$$

In FY 2065/066 the net profit will be Rs. 29, 63,184.8 if trend does not change.

4.8 Marketing System

Marketing plan frequently refers to the sales budget, quantities sales in volume and rupees for each major sub-division of sales. Marketing plays a vital role in any business organization either profit oriented or not. Production is impossible in the long-run without adequate marketing policies. 'Marketing is the dominant factor for manufacturing and trading organization.

Rosin and Turpentine are export-oriented products but a certain percentage of products are demanded for domestic use also. GRTI sells its almost all of the products in the external market. Its main markets are some cities of India. Indian parties purchase the products from head office. Marketing representatives collect purchase orders from the Indian markets but delivery facilities are not given. Parties themselves come to collect their lots. Sales are made both on cash and credit basis.

GRTI has straight channel of distribution, directly from producer to customers. As mediator, GRTI has placed some marketing representatives in the salary basis. Promotional campaigns are not done by GRTI because of great competition in this field. GRTI is also feeling the needs of some promotional activities. Some competitor's of GRTI are as follows:

- | | |
|-----------------|-------------|
| 1. Khanal Rosin | - Nepalgunj |
| 2. Laxmi Rosin | - Nepalgunj |
| 3. Akmi Rosin | - Butwal |
| 4. Ganga Rosin | - Jhapa |

5. Bhawani Rosin	- Dhangadi
6. Bhadrakali Rosin	- Dhangadi
7. Sunrise Rosin	- Itahari
8. Durga Rosin	- Dhairjan
9. Himal Rosin	- Doti

4.9 Manpower budget

Manpower planning is an important part in profit planning or managerial budgeting. Since, GRTI is the labor based manufacturing industry, so manpower planning must be adequate. In adequate manpower bring unnecessary cost and inefficient performance in the organization.

GRTI is a sole Trading and manufacturing concern (industry), registered in the name of Mr. Ratan Tayal himself handles the industry as founder chairman and under his chairman other many personnel's are recruited (placed) for different posts. GRTI has 122 staffs, out of which 22 are for administrative service, 33 are of technical and 67 are workers. Among 67 workers, 63 are semi-skilled and remaining 25 are un-skilled. GRTI has fixed salaries of staffs on the monthly basis. It has paid to all the staffs on the basis of time and not on the basis of productivity or piece rate. The table – 26 shows the current position of manpower in GRTI.

Table-4.17
GRTI Personnel Chart

Besides above personnel's, the following persons are also engaged in collecting and transportation of crude resin from forest to rode-side depot:

Post	Position Ranks	Administration	Technical	Labor
Founder Chairman	1 st			
Managing Director	2 nd	1	-	-
Manager (head office)	3 rd	1	1	-
Branch Managers	4 th	-	4	-
Assistant (chief)	5 th	5	4	-
Assistant	6 th	10	24	-
Head peon	7 th	1	-	-
Peon	-	4	-	-
Labor	-	-	-	67
Total		22	33	67
Tapping Labor		74		
Transportation Labor		63		
Others		23		
Total		160		

Payment is made for these labors on the basis of their productivity or on piece rate basis.

4.10 Planning Expenses

Managerial Budgeting expenses may cause either decreased or increased expenditure. Expenses planning should focus on the relationship between expenditure and the benefits derived from that expenditure.

GRTI is the labor-based industry. All the manufacturing process is done by labor except in some process which are done by machine. GRTI has purchased an old machine on the year of establishment. The written down value of achine at present is zero, all the value has been depreciated in first five years. The machine must be necessary to repair and maintenance. Because of the peacelessness condition of work site, it has become necessary to pay a large amount as donation to the different commercial and terrorist groups. The below table represents the expenses report of GRTI based on FY 2009/010.

Table – 4.18
GRTI Production Expenses (FY 2009/010)

S.N.	Particular	Amount (Rs)
1.	Resin	23,02,800
2.	Firewood	1,86,000
3.	Acid	92,550
4.	Salt	5,640
5.	Lime Stone	560
6.	Wages:	
	Tapping labor	30,70,400
	Transportation labor	23,02,800
7.	Carriage(depot to factory)	11,51,400
8.	Other tools	4,32,000
9.	Repairs and Maintenance	45,250

10.	Insurance	80,322
11.	Electricity Charge	1,32,000
12.	Fuel for other use	1,56,820
13.	Cost of empty tins	14,95,000
14.	Welfare Fund	48,840
	Total	1,15,02,382

Cost of Production	1, 15, 02,382
+ Opening stock	14, 95,542
- Closing Stock	16, 91,910
Cost of sales goods	1, 13, 06,01

Table-4.19
Expenses Report (FY 2009/010)

S.N.	Items	Amount (Rs)
1.	Salary and provident Fund	50,40,600
2.	Allowance and TADA	2,34,850
3.	Medical Treatment	30,200
	Expenses	
4.	Insurance	4,45,635

5.	Repair and Maintenance	45,648
6.	Printing and Stationary	42,300
7.	Newspaper and Stationary	18,412
8.	Electricity and Water	35,180
9.	Stamp and Telephone	96,560
10.	Fuel and Transport	2,54,470
11.	House Rent	1,04,500
12.	Uniform	64,250
13.	Primary Treatment	46,500
14.	Donation	3,00,000
15.	Audit Fees	15,800
16.	Welfare Fund	42,100
17.	Contingencies	20,800
18.	Employees Compensation Fund	1,20,000
19.	Extra activities	30,500
20.	Flowering and finishing	8,600
21.	Miscellaneous Material	<u>1,32,000</u>
	Total	<u>71,29,505</u>

4.11 Capital Expenditure Planning

Capital expenditure involves generally a huge amount to be invested. This is intended to acquire some operational assets such as fixed assets, plants, building, equipment, machinery etc.

In order to earn future revenues or to reduce future costs. In capital expenditure projects funds are tied up for relatively long period of time. Capital expenditure plan enables management to plan the amount of resources that should be invested in capital additions.

GRTI does not prepare long-term capital expenditure budget. It prepares short-term budget but this is not prepared in detail. Total amount is allocated for all capital expenditures and Founder Chairman decides what to be purchases according to the necessary of the industry and within the limitation of the allocated amount. Therefore, there are no systematic budget procedures in the context of capital additions. For evaluations purpose, GRTI does not use modern methods like NPV, IR etc.

4.12 Cash Budget

Cash budget is not an expenses budget but it is a plan of cash inflows and outflows. The budget shows the planned cash inflows, outflows and ending position by interim periods for a specific time span. A cash budget basically includes two parts: (a) the planned cash inflows (receipts) and (b) the planned cash outflows (disbursements). Planning cash inflows and outflows gives the planned beginning and ending cash positions for the budget period and this will indicate: (1) the need for financing probable cash deficits or (2) the need for investment planning to put excess cash to profitable use.

GRTI does not prepare its cash budget for the coming year. So, it is not available in GRTI instead of cash budget, actual cash inflows and outflows are tabulated below:

Table -4.20**Actual Cash Collection and Disbursement FY 2009/010**

Particular	Amount (Rs)	Amount(Rs)
Cash inflows: Opening cash balance		56,83,505
Add: Cash sales and collection from debtors	2,05,14,400	
Sales of fixed assets interest, dividend received from investment	83,700 1,60,500	2,07,58,600
(a) Total Cash inflows (collection)		
Cash Outflows:		
Production expenses	11502382	
Administration and fixed Expenses	71,29,505	
Investment	12,50,000	
Purchase of fixed assets	4,56,000	
Income Tax Paid	5,75,400	2,08,53,288
(b) Total Cash Outflows (disbursement)		2,08,53,288
(c) Closing Cash Balance (a-b)		55,88,817

Above table shows the amount of Rs. 55, 88,817 as closing balance or surplus of cash for the year 2009/010, which is opening balance of cash for the next FY 2065/066.

4.13 Profit and Loss Account of GRTI

Budgeted profit and loss a/c is prepared after preparing all functional budgets. Budgeted P/L a/c indicates the possible future profit or loss for the budgeted period. It shows the final conclusion of operation in an accounting year. GRTI does not prepare a projected profit and loss account in advance. But at the end of each fiscal year. Profit and loss a/c is prepared to know the profit and loss situation of the industry.

GRTI is going to be a profit of Rs. 26,22,481 in FY 2009/010 from its regular operation and Rs. 1,60,500 from other incomes. After transferring into provision for taxation and general reserve, Net profit (balancing figure of P/L a/c) is Rs/ 9,03,485. this is presented below

Table -4.21
GRTI Profit and Loss for the FY 2009/010

Particulars	Amount (Rs)	Particulars	Amount (Rs)
To cost of goods sold	1,13,06,014	By sales (Rosin and Turpentine)	2,10,58,000
To gross profit c/d	97,51,986		
	2,10,58,000		2,10,58,000
To administrative and fixed expenses	71,29,505	By gross profit b/d	97,51,986
To provision for taxation	5,24,496	By interest, dividend received from investment	1,60,500
To transferred to general reserve	13,55,000		
To balance c/d	9,03,485		
	99,12,486		99,12,486

4.14 Balance Sheet

Balance sheet is a statement of assets and liabilities of a firm. It shows the overall financial condition of a firm. Balance sheet indicates the financial strength and weakness of the company. It is prepared at the end of accounting period. GRTI prepares its balance sheet at the end of each fiscal year, but it does not prepare the projected balance sheet for the coming fiscal year. The balance sheet of GRTI as at 31st Ashad 2065 is presented in below table:

Table -4.22
GRTI balance Sheet as 31st Ashad 2065

Capital & liabilities	Amount (Rs)	Assets	Amount (Rs)
Initial capital invested	1,75,00,000	Fixed Assets	1,26,22,400
General reserve	68,72,568	plant and machinery	nil
Current liabilities	7,32,528	closing stock	35,75,600
Provision for income tax	5,24,496	bank and cash	61,04,217
Payable tax		balance	
P/LA/c		investment	43,00,000
Previous: 17,61,050			
add: Current 9,03,485	26,64,535		
Total	2,82,94,127	Total	2,82,94,127

The balance sheet shows that the financial structure of GRTI is satisfactory. The company has enough amount of profit and has sufficient cash balance. GRTI has a old

machine which is operating in good condition but at present the book-value of machine is zero i.e. depreciation was fully deducted in the initial five years.

4.15 Financial Ratios of GRTI

An arithmetic relationship between two figures is known as ratio. It is computed by dividing one item of relationship with the other. Ratio simply means one number expressed in term of another. Financial ratio means the relation between balance sheet and income statement items. It shows the actual situation of the industry. Below table shows the financial ratios the GRTI of different fiscal years:

(Detail calculations of all ratios are presented in appendix-5)

Table – 4.23
Financial Ratios of GRTI

FY	2005/06	2006/07	2007/08	2008/09	2009/10
Current ratio	4.70:1	4.092:1	5.77:1	7.71:1	9.047:1
Quick ratio	3.85:1	3.298:1	4.91:1	6.512:1	7.70:1
Inventory turnover	9.92:	8.354	8.035	7.796	7.094
Fixed asset turnover	1.492	1.441	1.399	1.295	1.244
Current assets turnover	2.885	2.67	2.183	2.06	1.852
Gross profit margin	46.59%	45.34%	45.93%	45.10%	46.31%
Net profit margin	8.78%	9.298%	9.12%	10.40%	9.963%
Cost of goods sold to sales	53.41%	54.66%	54.07%	54.92%	53.69%

The above results of the ratios can be interpreted as below:

-) Current ratio: Current ratio shows the relationship of current asset and current liability. Higher the current ratio better is the liquidity position. If this ratio is less than 2:1, the cash may not be available to pay current liabilities. But GRTI has very high current ratio than the standard, it shows the industry can pay current liabilities easily or the result is satisfactory.
-) Quick Ratio: It is considered to be better if it is 1:1. GRTI has 3.85 to 7.70:1 quick ratio in different years. It shows better condition of quick ratio of GRTI. But very high ratio than standard also shows unnecessary stock of quick assets. The quick ratio of the company is in satisfactory condition.
-) Inventory Turnover: a high inventory turnover is indicator of good inventory management. GRTI has almost seven times inventory turnover which shows very good inventory management of GRTI but ratio is decreasing every year from 2005/06 to 2009/10.
-) Fixed assets turnover: Higher the ratio of fixed assets turnover indicates the more efficient management on utilization of fixed assets. A fixed assets turnover of GRTI is between 1.244 to 1.492 times, which is satisfactory, but decreasing value of ratio also indicates little unsatisfactory condition.
-) Current assets turnover:- higher the current turnover is considered as better for the industry. Table shows the satisfactory condition of current assets turnover for GRTI.
-) Gross Profit Margin: - it is between 45.10% to 46.59% of sale for GRTI. From this, we can see very good condition of gross profit margin shows better profitable of industry.
-) Net Profit Margin:- it shows the relationship between net profit and sales. Net profit margin of GRTI is in between 8.78% (in FY 2005/06) to 10.40% (in FY 2008/09), which is satisfactory in it. But, net profit margin of GRTI is very below as compared to gross profit margin, which shows over administrative expenses of GRTI.

) Cost of goods sold to sale:- lower the cost of goods sold to sales is considered as better. This ratio of GRTI is between 53.41% (in FY 2005/06) to 54.90%(in FY 2008/09) which shows better position of cost Management.

4.16 Profit Planning with Cost-Volume –Profit Analysis

4.16.1 Identification of Cost Variables

Identification of the variability of cost is necessary in planning and controlling of the cost. Thus, the knowledge cost behavior is very important. Generally, cost behaves in two ways with relation to volume of output .first, it does not change in output and second, it change proportionately with the change in output. Cost behavior give us answer as the output increase or decrease, what happens to each expenses incurred to produce that output.

According to the behavior of the cost. Cost can be classified in two ways :(1)fixed cost ,remain constant in total for certain period of time and (2) Variable Cost that changes in total directly with changes in output or volume of operation but remains constant in per unit basis. Classification of costs into variable and fixed is very important to plan cost. It help to determine the volume of operation desired to maintain the industry's profitability. But GRTI has not maintain any clear- cut boundaries about cost classification as fixed and variable com[ponents. There is rough practice of classifying the expenses into fixed and variable.

The classification of expenses in fixed and variable component of GRTI is presented below in table.

Table-4.24
Cost Classification of GRTI Based on FY 2009/010.

Fixed item	Fixed cost(Rs)	Percent	Variable cost(Rs)	Percent
cost of resin	-	-	23,02,800	12.36
wages	-	-	5,373,200	28.84
salary	50,40,600	27.05	-	-
other	2,088,905	11.12	-	-
other direct	-	-	38,26,382	20.54
total	7,129,505	38.26	1,15,02,382	61.74

The above table shows fixed cost based on FY 2009/010 is Rs 71,29,505 and variable cost is Rs 1,15,02,382

The variable and fixed cost to sales ratios is:

$$\begin{aligned} \text{variable Cost Ratio} &= \frac{\text{Variable Cost}}{\text{Sales}} \times 100\% \\ &= \frac{1,15,02,382}{2,10,58,000} \\ &= 54.62\% \end{aligned}$$

$$\begin{aligned} \text{Fixed Cost Ratio} &= \frac{71,29,505}{21,05,800} \times 100\% \\ &= 33.86\% \end{aligned}$$

And

Variable cost is 61.74% and fixed cost is 38.26% of total cost.

4.16.2 Cost-Volume Profit Analysis of GRTI

CVP analysis shows the relationship between the cost of producing the product, the volume of the product sold and the total fixed cost, per unit variable cost and profit gained by selling the product. It is the management accounting tool for planning the

volume of operation and level of profit plan is a function of the sales price of a unit product, the volume of product units sold and the fixed costs. Cost-Volume analysis shows which volume or level of activity is necessary to stay at break-even or to gain a certain amount of profit. Breakeven point is point of sales volume at which sales revenue is equal to total costs.

Now, the calculations are made as follows:

Table – 4.25
Flexible Budget of GRTI

Particular	Level of activity		
	80%	100%	120%
Sales Revenue	1,68,46,400	2,10,58,000	2,52,69,600
Less: Variable Cost (54.62%)	92,019,060	1,15,02,382	1,38,02,858
Contribution Margin	7644494	9555618	1,14,66,742
Less: Fixed cost	7129505	712950	71,29,505
Profit (Loss)	5.14.989	24.26.113	43.37.237.

Above table shows the different levels of Profit Schemes at different levels of activities. Table shows that profit or loss will be more flexible than flexibility of sales volume. We can see that 20% decreased sales revenue causes 78.77% reduce in profit and 20% increased sales, increase 78.77% profit.

4.17 Major Findings of the Study

The various functional budgets of GRTI have been presented along with achievements by comparing budget and actual results. By analyzing the various functional budgets and financial tools. We came to know that there are some internal and external problems existing in the company's Profit Planning or Managerial budgeting.

Major findings of the research work can be presented below:

-) The industry has not working in full capacity. The highest utilized capacity in FY 2009/010 is 76.0%
-) Fluctuation of selling price in external market has made it more complicated.
-) Inventory policy has not been maintained because of fluctuation in demand of Indian market.
-) The company (industry) is suffering from high fixed cost and administration costs.
-) There is lack of skilled planners for profit planning and controlling.
-) The company (industry) does not consider the cost of production, while pricing its product. The price is fixed by boarder price.
-) GRTI makes its long-term sales and production budget but there is lack of short-term budget as well as budgeted income statement and budgeted balance sheet.
-) The cost is not classified properly.
-) Investment in current assets is being higher than necessity, which may reduce the profitability of industry in the future.
-) The actual production and sales of Rosin in FY 2006/07 percentage change is higher than the other fiscal years throughout the study period. The percentage change in both sales and production in this fiscal year is higher than the other years. After the fiscal year 2006/07 both the production and sales are in declining trend. So it can be concluded that there is homogeneity between production and sales change trend in Rosin.
-) It can be concluded that the sales of turpentine is in increasing trend throughout the study period but the percentage increase of the sale is in fluctuating trend. On the other hand the production of the turpentine is simultaneously in increasing trend but the percentage increase in the production of the turpentine too is in fluctuation trend.

CHAPTER – V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The main objective of planning or budgeting of business is to increase the chances of making profit. Business managers are continually involved in organizing, planning and controlling the operation of both large and small business organizations. Profit planning or Managerial Budgeting is one of the most important tools, which is used to plan and control business operations.

Profit Planning or Managerial budgeting is one of the most important tools to plan business operations. The effective operation of a business concern resulting in to the excess of income over the expenditure fully depends upon what extent the management follows proper planning, ial budgeting is one of the most important tools to plan business operations. The effective operation of a business concern resulting in to the excess of income over the expenditure fully depends upon what extent the management follows proper planning, effective co-ordination and dynamic control. Profit Planning or Managerial Budgeting plays a vital role in the performance of all organizations (manufacturing and non-manufacturing), whether they are small or large in size, without proper planning of profits and their implementation, no organization can achieve its goal land objective efficiently. There fore, these days, profit planning or management tools to plan business operations in any short of business organization.

Time dimension is another important consideration in profit planning. Profit plans are prepared for two time dimensions strategic Long range plan for 5 or above years and tactical short range plan for a year detailed by interim periods. Having prepared a plan, it is equally important to implement effectively and to watch performance. Difference between actual results and the budgeted may arise to indicate the necessity for correction so as to assure the realization of forward plans.

Most of the Nepalese enterprises are facing the ambiguity upon their goals and objectives. Lower level management's perception and participation both are ignored by most of the enterprise in developing plans, goals, objectives and strategies. This is the lack of proper co-ordination and communication between the different levels of

management and management has no commitment on the goals and objective of the organization. Like wise, planners are having no proper skill and technique to develop various functional budgeting. In GRTI, through many of the functional budgets are prepared , there is no practice of developing variable and flexible budget, Profit Planning or the managerial budgeting system becomes baseless and groundless.

The present study has examined the application of profit planning or managerial budgeting in Nepalese manufacturing Industry. Ganga Rosin and Turpentine Industries have been taken as representatives of manufacturing industries. This study has analyzed and examined the practice of Profit Planning or Managerial budgeting of GRTI. It also tried to answer certain questions stated in the statement of the problem.

GRTI was established on Bhadra 10-2055 at Bhaundangi Jhapa district under company act 2021 in the private sector as an undertaking of Mr.Ratan Tayal. The head office of GRTI is located at Bahundangi, Jhapa.

The basic objective of the study is to examine the impact of budgeting on profitability of Nepalese enterprise. In addition other sub budgets are laid down with consistent to the basic objective for the fulfillment of this objective various functional budgets are analyzed in detail. For the purpose of analyzing a short term budget data of 2004/05 to 2063/2064 has been taken statically and financial tools. Descriptive approaches have equally been used to analyze the quantitative data wherever necessary. Data have been collected from both sources primary and secondary. On the other hand, the objective of the present study is to highlight the current practice of Profit Planning or managerial budgeting and its effectiveness in GRTI. The scope and limitations of the study is limited to the randomly selected manufacturing industries.

The study has been organized in five chapters consisting of:

- Introduction
- Conceptual Framework
- Review of literature
- Research Methodology
- Presentation and analysis of the Chapter
- Summary, conclusion and recommendations

5.2 Conclusions

After analyzing in detail the present practice of budgeting in respect of profit planning process of GRTI. This study concludes the following:

-) The actual sales of GRTI are satisfactory, which is about 96.94% of budgeted sales.
-) Different statistical tools show the positive and very close relationship between budgeted production and actual production and budgeted sales and actual sales.
-) Gross profit and net profit margin of GRTI are always positive but net profit margin of GRTI is always very below than gross profit margin which shows the bearing a huge amount as fixed and administrative expenses.
-) GRTI does not prepare long – range strategic a Profit plan but pre-practical short term profit plan. The period covered by the budget is only one year but not in details.
-) Financials ratios show the strong condition of GRTI, but, balance –sheet shows a huge amount of cash remaining idle.
-) Analysis shows, GRTI has not maintained its inventory policy. Budget shows stable inventory but in actual not so.
-) Regression line about sales of GRTI indicates a positive or increasing trend.
-) Least square straight lines sales trend of GRTI shows that sales will be high in future.
-) GRTI does not prepare flexible budget to know the capacity utilization condition.
-) GRTI has not prepared capital expenditure planning. No criteria are used to evaluate major capital expenditures.
-) GRTI does not prepare plan for direct labor.
-) There are no clear cut boundaries to separate cost in to fixed and variable. The costs are roughly classified and this classification is not scientific and appropriate.
-) The plans are prepared at top level; lower level participation in planning is not encouraged.
-) Budgeted production is made in accordance with the budgeted sales. In other words, budgeted production is equal to budgeted sales.
-) There is no effective system in recording of essential documents.
-) Budgets are prepared just to fulfill the formalities but these are used effectively for the profit planning process.

-) Employees are very careful of their duties and responsibilities. Reward and punishment to employees on the bases of their work performance is maintained in GRTI.
-) Pricing in GRTI is market based but not cost based.
-) CVP relationships are not considered at the time of developing the sales plan and privacy policy.
-) GRTI has not prepared various functional budgets for the application of existing budgets. There is no system of taking corrective action for re-planning.

5.3 Recommendations

Based on the above study, the following suggestions are recommended to improve the formulation and implementation of profit planning or managerial budgeting system of GRTI.

-) GRTI should have in depth analysis of the industry's strengths and weakness. It should try to overcome its weakness by using the strengths.
-) GRTI should utilize full capacity to increases its production and to generate more incomes.
-) It should develop its specific goals for the coming year. Such goals may be net profit on sales, cost of production, sales of revenue etc. With out such goals the operation of the industry may not be effective.
-) Democratic style of management should be followed while formulating plans, policies of the organization. Lower level's participation should be encouraged in budgeting or profit planning and similarly there should be proper communication to all levels of management about the tactical and strategic plan of the industry.
-) The pricing policy of the industry should be revised. The cost of production should be considered while pricing the productions.
-) The sale budget should be prepared showing sales units, sales revenue and sales territories for both products.
-) CVP relationship should be considered while formulating profit plan and the industry should be accustomed with the flexible budget system.

-) System of periodical performances report should be strictly followed.
-) Cost should be clearly classified as fixed and variable.
-) If possible, GRTI should formulate the profit planning or management budgeting calendar(both short-term and long-term).
-) It should make the sales promotion by different media in Nepal and foreign country.
-) GRTI should make search of a market of its production third country.
-) The cash budget should be developed per year of find out surplus or deficit from receipts and payments of cash.
-) Finished goods inventory and raw material inventory volume should be reduced to optimum level. So, it will reduce idle current assets.
-) Planning department should have adequate authority to decide and create new ideas to formulate various plans.
-) There should be the proper co-ordination the different types of personnel in regard of objectives, goals and strategies of the company.
-) GRTI should have an effective as well as scientific record system of the essential documents.
-) The cost control program should be introduced to control the high overhead costs.
-) The management needs to organize planning training program, time to time for providing new theory and concept of planning of the planner.
-) Last but not the least, to make profit planning managerial budgeting system more progressive, the effective implementation of management system is very essential.
-) As both the sales and production of resin in decreasing trend since the FY 2060/61, GRTI should focus more on maintaining both the production and sales level through a proper strategy.
-) As the sales of turpentine is in increasing trend but the percentage change in sales of turpentine is in fluctuating trend, GRTI should maintain uniformity in the sales of the turpentine too.

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Appendix

Appendix -A

Fiscal	Sales x	Inventory Y	X ²	Y ²	XY
060/061	25.31	131.87	640.60	17389.70	3337.63
061/062	51.02	156.41	2603.04	24464.09	7980.04
062/063	47.14	182.70	2222.18	33379.29	8612.48
063/064	57.03	149.31	3252.42	22293.48	8515.15
064/065	53.35	159.81	2846.22	25539.24	8525.86
065/066	50.28	153.00	2528.07	23409.00	7692.84
066/067	52.47	157.32	2753.10	24749.58	8254.58
	X=336.6	Y=1090.42	X ² = 16845.63	Y ² =171224.37	xy52918.58

Source: Annual Report of GRTI

Correlation between f.G. inventory and total inventory

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

$$= \frac{7 \mid 52918.58 - 336.6 \mid 1090.42}{\sqrt{7 \mid 16845.63 - (336.6)^2} \sqrt{7 \mid 171224.37 - (1090.42)^2}}$$

$$= \frac{3394.69}{6643.93}$$

$$= 0.5109$$

...Correlation (r) = 0.5109

Appendix B

Fiscal	Finished Goods (in million) x	Total Inventory (in million) Y	X ²	Y ²	XY
060/061	654.34	131.87	42816.83	17389.70	86287.82
061/062	578.03	156.41	334118.68	24464.09	90409.67
062/063	701.49	182.70	492088.22	33379.29	128162.22
063/064	613.90	149.31	376873.21	22293.48	91661.41
064/065	618.67	159.81	382752.57	25539.24	98869.65
065/066	628.64	153.00	395188.25	23409.00	96181.92
066/067	635.86	157.32	404317.94	24749.58	100033.49
	X=4430.93	Y=1090.42	X ² = 2813499.7	Y ² =171224.37	xy=691606.19

Source: Annual Report of GRTI

Correlation between sales (x) and inventory (y) (r)

$$\begin{aligned}
 r &= \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \sqrt{N \sum Y^2 - (\sum Y)^2}} \\
 &= \frac{7 \mid 52918.58 - 33.6 \mid 1090.42}{\sqrt{7 \mid 2813499.7 - (4430.93)^2} \sqrt{7 \mid 171224.37 - (1090.42)^2}} \\
 &= \frac{9668.64}{24212.74} \\
 &= 0.3993
 \end{aligned}$$

...Correlation (r) = 0.3993

Appendix C

Fiscal	Cost of RM Consumed (x)	Cost of Average(Y)	X2	Y2	XY
060/061	343.91	30.16	118274.09	909.63	10372.33
061/062	348.19	36.91	121236.28	1362.35	1281.69
062/063	415.29	42.32	172465.78	1790.98	17575.07
063/064	396.93	35.94	157553.42	1291.68	14265.66
064/065	333.07	21.96	110935.62	482.24	7314.22
065/066	408.39	24.28	166782.39	589.52	9915.71
066/067	398.94	29.40	159153.12	864.36	11728.84

	X=2644.72	Y=220.97	X ² = 1006400.72	Y ² =7290.76	xy84023.52
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Source: Annual Report of GRTI

Correlation between cost of raw material consumed and cost of average raw material (r)

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

$$= \frac{7 \cdot 84023.52 - 2644.72 \cdot 220.97}{\sqrt{7 \cdot 1006400.72 - (2644.72)^2} \sqrt{7 \cdot 7290.76 - (220.97)^2}}$$

$$= \frac{3760.86}{10533.54}$$

$$= 0.3570$$

...Correlation (r) = 0.3570