

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Nepal is located in south Asia with the area of 1, 47,181 Sq Km., Nepal is a landlocked country where 77% of total land is covered by rocks, snow, barren mountains and sloppy hill. Rest of the land is of plain type. Nepal is a mountainous country where highest peak of the world is located. Hence it is popularly known as third pole. With its varying topography and climate, Nepal is rich in biodiversity. It is also the birth place of Lord Buddha. The country has the agriculture oriented economy with around US\$ 300 per capita income. As a developing country it is on the path of economic growth. Nepal mainly consists of two sorts of business enterprises which are actively contributing for the economic growth. The two types of business enterprises are namely public enterprises and private enterprises. Public enterprises are government owned business organizations established with the objectives of providing public service and setting up infrastructure of development. On the other hand private enterprises are established with the primary motive of revenue generation at the same time contributing of the national economic development. Hence both enterprises play the vital role for the overall development of the nation by mutual effort.

While reviewing the past trend of business performance, one can easily unfold the bitter truth of deteriorating financial condition of most of the public enterprises ultimately leading to liquidation or restructuring. Thus financial sickness has been a matter of recognition for the public enterprises. On the contrary, Nepal Telecom, unlike from other

public enterprise has a relatively good track of revenue. Revenue is an indicator of how far an organization is capable of contributing to national economy. It also shows the degree of efficient utilization of the resources to achieve primary objectives. In other words revenue planning analysis is the critical judgment of information in financial statements. With the help of revenue planning different stakeholders make future anticipation of their interest on business. Better revenue planning also shows the capability of organization for achieving the business goals by integrating and coordinating the business activities each other. Conclusively, it can be expressed that revenue planning and achieving it is the yardstick to measure organizational success.

1.2 Brief profile of Nepal Telecom Limited

Telecommunication is an inevitable infrastructure of development to all countries. It is considered as prerequisite for the other dimension of development. In Nepal the need of telecommunication services are primarily fulfilled by Nepal Telecom. History of telecommunication service in Nepal is not so long. First telecommunication service in the country is introduced in 1974 BS. Which was called Magneto Telephone. Since then and up to the lanching of first five year plan of 2012 B.S., the development of telecommunication was in slow pace. After Nepal started systematic economic development by lanching its first five year plan in 2012BS, various national and international trunk lines were added and cross bar telephone lines to people and public offices were distributed. With the formal inception of Nepal Telecommunications Corporation in 2032 BS, a systematic development of telecommunication services has

been started. It was established under the Telecommunication Corporation Act 2028 BS. In fact, the advent of Telecommunication Corporation Act is the major step taken by the Nepal Government to provide systematic and scientific telecommunication facility.

Introduction of liberalized economic policy in Nepal gradually facilitated the private sector investment as a result multinational companies also showed their presence. Further more public enterprises started to be privatized. Such trend couldn't also remain intact without influencing Nepal Telecommunications Corporation. Hence Nepal Telecommunications Corporation has been changed to Nepal Doorsanchar Company limited in 2061 BS under the company act. It's popularly known commercial name is "Nepal Telecom". Although Nepal Telecom has been recently established under the company act it's 100% ownership has been held by Nepal Government by receiving the entire investment from government owned entities. However it is on the process of issuing shares to public.

The prime objective incorporated by Nepal Telecom is to provide reliable and affordable telecommunication services all over the country. This objective is in turn coupled with economic development of country. At present Nepal telecom has provided national and international trunk services in all the 75 districts of the nation.

Services Provided by Nepal Telecom:

-) Basic Telephone Service
-) National and International Trunk Call service
-) Rural Telecom Service

-) Pay Phone service
-) Mobile Telephony
-) Voice Data and Telegraph Leased Circuit Services
-) Email and Internet Service
-) Inmersat Mini-M Services
-) Home Country Direct Dialing Services
-) International Telegraph Services
-) Telex Services
-) V- Sat Services
-) 3G Mobile Service
-) ADSL Internet Service

Role of Nepal Telecom

-) To fulfill the need of distance communication
-) To add a reliable dimension of infrastructure development
-) To introduce emerging technology of communication
-) To enhance economic development of nation
-) To minimize the digital divide by serving in rural area

Current Shareholding Pattern of Nepal Telecom

Nepal Government (91.50%) = 137,240,335 nos. of shares

Nagarik Lagani Kosh (0.03%) = 50,000 nos. of shares

General Public (3.54%) = 5,311,015 nos. of shares

Staffs (4.93%) = 7,398,650 nos. of shares

Total (100%) = 150,000,000 nos. of shares

1.3 Statement of the Problem

Public enterprises are created for infrastructure development, to generate surplus for self expansion of their service and to contribute for national revenue. So it is complicated to assess the efficiency of Public enterprise with their socio-economic development goals. Public enterprise has to be efficient in the utilization of resources. Hence, organization must assess its financial health.

As most of the industries depend heavily upon the external and internal information, industrialization without telecom development is difficult to imagine. Till the present, there is overwhelming demands of Nepal Telecom services, as it does have a little market competition. Despite this fact, the revenue of Nepal Telecom is not satisfactory. On the other hand the organization is going to issue it's share to the public. Regarding its net revenue, NTC is successful public enterprises because it is operating under revenue over the studied period. Net revenue is not only the parameter of measuring the effective financial position. Even when the revenue is in increasing trend, there may have some weakness. Revenue of NTC in relation with investment is very low. Low utilization of resources and problem of receivable management is the serious problem of NTC. The operating expenses of NTC have been increasing each year. Operating expenses has been increased due to increase of volume of transaction but there is some unnecessary item of expenditure.

NTC has not able to generate the required funds to operate its activities too. In each fiscal year, it has been taking huge amount of loan grant and grant donation from foreign government and donator agencies. It shows the internal inefficiency affairs of NTC. So, this research is trying to highlight the budgeting financial problems of this corporation.

So, matter of financial performance of Nepal Telecom holds keen interest to the stakeholders. In this context, the study primarily focuses on the financial obligation, revenue budget, actual budget, capacity utilization etc. So, the present research tries to solve the following research questions:-

1.4 Objectives of the Study

The main objective of this study is to examine the present comprehensive revenue planning mechanism applied by NTC. The main objective is to assess the strengths and weakness of Nepal Telecom. The specific objectives are

-) To analyze the trend of revenue planning of Nepal Telecom Ltd.
-) To examine, analyze and compare the revenue under different headings of services.
-) To identify the strengths and weaknesses of revenue management of NTC.
-) To provide suggestions and recommendations for future improvement on revenue inflow and its management.

1.5 Significance of the Study

Nepal Telecom is an enterprise of great national concern. As it is going to be privatize in nearest future in competitive business environment, concerned parties are looking over it's performance with great interest. As a private enterprise it has the obligation of socio-economic development as well, so study of revenue planning of leading telecom service provider in the nation will be important for the following group and individuals.

-) Present and perspective customers

-) Present and perspective investors
-) Policy making authority
-) Further researchers
-) Government
-) ICT based companies

1.6 Limitations of the study

The study has the following limitations:

-) Only the financial aspect and revenue planning analysis shall be made with bird eyes view, the other area such as Marketing, Human Resource, Research and Development aspects are also the combined input to measure the overall efficiency.
-) Secondary data are collected from annual reports of the concerned enterprises, so the study suffers from all those limitations that are associated with these reports
-) The study makes the analysis of revenue planning mechanism of Nepal Telecom; it may not be applicable to any other enterprise.
-) There is time and cost limitation.

1.7 Organization of the study

The study is divided in the following five chapters as prescribed by the university.

- Chapter I : Introduction
- Chapter II : Review of Literature

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| Chapter III | : | Research Methodology |
| Chapter IV | : | Presentation and Analysis of Data |
| Chapter V | : | Summary, Conclusion and recommendations |

Chapter one focuses on general background of the study. It deals with major issues to be investigated along with general background of the study, statement of problem, objective of study with organization of the study. This chapter signifies the rationale of this study.

Chapter second deals with conceptual consideration and review of related literature which provide a framework with the help of which the study has been accomplished. In this chapter major empirical works have been also discussed.

Chapter three is devoted to methodological approach employed in this study. This chapter includes research design, nature and sources of data, population and samples, method of analysis and definition of key terms.

Chapter fourth deals with the techniques used in analyzing the collected data and its presentation in the descriptive and analytical manner.

Chapter five consists of summary, conclusion, and recommendation.

CHAPTER-II

LITERATURE REVIEW

The review of literature basically highlights the existing literature and research work related to the present research being conducted with the view of finding out what had been already explained by the authors and researchers and how the current research adds further benefits to the field of research. This review of literature had been classified into two subgroups as follow.

-) Conceptual framework
-) Review of related studies

2.1 Conceptual Framework

2.1.1 Concept of Revenue Planning

“Revenue planning and control consists comprehensive budgeting, managerial budgeting and budgeting. This term is broadly defined as a systematic and formalized approach for performing significant phases of the management planning and control functions. Revenue planning and control includes the following facts:

-) The development and application of broad and long range objectives for the enterprises.
-) The development of strategic long range revenue plan in broad term.
-) The specification of tactical short range revenue plan detailed by assigned responsibility (division, products, projects).
-) The specification of enterprises goals.
-) The establishment of a system of periodic performance reports detailed by assigned responsibility and follow up procedures.”

(Welsch, et. all., 1999: 4-5)

In many of the better managed companies, comprehensive PPC has been identified as a way of managing. It focuses directly on a rational and systematic approach to management objectives and realistic flexibility in performing the management process.

“The international management institutions conference on budgetary control held at Geneva in 1980 has defined revenue plan as an exact and rigorous analysis of the past and the probable and desired future experience with a view to substituting considered intention opportunism in management.” (International management institutions Geneva Conference Document, 1980).

‘Revenue Plan is an estimation and predetermination of revenues and expenses that estimates how much income will be generated and how it should be spent in order to meet investment and revenue requirements. In the case of institutional operations it presents a plan for spending income in a manner that does not result in a loss’ (Ninemeire & Schmidgall, 2002).

Revenue plan represents an overall plan of operations, covers a definite period of time and formulates the planning decision of the management. It can be viewed as one of the major important approaches that have been developed to facilitate effective performance of the management process. Now a days revenue planning system is especially familiar to business organizations but the practicability of it depends upon the size of the business. The common objectives of PPC system whether applied to business administration is to formulate policy as well as with the implementation of policy. And an objective established after the consideration of the probable courses of events in the future. In conclusion PPC is directed towards the final objectives of the enterprises and generally includes all of its important elements. It has main objectives of attaining the optimum revenue in the enterprises.

2.1.2 Components of Revenue Planning

2.1.2.1 Revenue

Revenue is the basic elements of revenue plan so that the concept of revenue planning may not be complete and meaningful in absence of the clear and well defined idea of revenue. According to Oxford dictionary revenue means ‘(a) financial gain (b) amount of money gained in business especially the difference between the amounts earned and the amount spent (c) advantage or benefits gained from something.’ (Hornby, 1992) According to some theories, revenues are the factor payment for taking the risk for agreeing to take what is left over after contractual have been made. In the second type of revenue theory are viewed as a wage for the service of innovation. Revenues in this way are tried to dynamic development. All enterprises activities directly or indirectly revolve to play the significant role for judging the managerial efficiency. In absence of revenue nobody can thick about the long term survivability of the enterprises.

Short range and long range revenue planning

“Long range and short revenue plans mean strategic and tactical revenue plans respectively. The two types of revenue plans are developed in PPC. ‘The strategic revenue plan is broad and it usually encompasses three or more years in the future. The tactical revenue plan is detailed and encompasses on one year time horizon the upcoming year. The development of strategic and tactical revenue plans each year is a process that involves managerial decisions and ideally a high level of management participation” (Welsch, 2002).

2.1.2.2 Planning

Planning is the basic foundation of PPC. We should be clear in the concept of planning. According to Oxford Dictionary, planning means: (To do something) arrangement for doing or using something, considered or workout in advanced. Way of arrangement something especially when shown on a drawing scheme. Go ordering to plan (Hornby, 1999).

“Planning is the process of developing enterprises objectives and selecting a future course of action to accomplish them. It includes developing premises about the environment in which they are to be accomplished”.

(Welsch, 1999).

‘Planning is deciding in advance what is to be done in future’

(Bhusan, 1994).

“Planning is the feed forwards process to reduce uncertainty about the future. The planning process is based on the conviction that management can plan its activities and condition the state of the enterprises that determine its destiny”

(Pandey, 2006).

Plan is then a projected course of action. All planning involves anticipation of the future course of events and therefore bears an element of uncertainty in respect of its success. Management planning and control begins with the establishment of the fundamental objectives of the organization and continues as the process by which necessary resources are provided and employed effectively and efficiently towards the achievement of goals. Planning is essential to accomplished goals. It reduces uncertainty and provides direction to the employees by the determining the course of action in advance.

Hence planning is the backbone functions of the management. We can point out the nature of planning as:

-) Planning is goal oriented process
-) Planning is primary function of management
-) Planning pervades all managerial activities
-) Planning is an intellectual work
-) Planning is directed towards efficiency

Long range and short range planning

Long range planning is closely concerned with the concept of the organization as a long living institution. It is most important for broad and long living enterprises. Long range planning varying five to ten years with the enterprises is sometimes extended to ten years. Strategic planning is one of the most difficult time-span involved in planning as many problems in short range planning can be traced to the absence of a clear sense of direction and the practices which a comprehensive long range plan provides. The short term planning is limited time dimensions usually it covers one year time period. Short term planning is used by the management as a substantial part of the long range plan.

2.1.2.3 Basic Assumptions and Limitations of Revenue Plan

Revenue planning systems are more common in business organizations and non business organizations. But there are so many assumptions of using revenue planning program. Firstly, the basic plans of the business must be measured in terms of money, if there is 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 revenues goals. Thirdly, revenue planning is preplanning not merely what to do if things workout as forecasted, but also what to do if the things work out differently from the forecast. 'In developing and using a revenue planning program, the following limitations should be kept in mind:

-) The revenue plan is based on estimates.
-) A revenue planning program must be continually adapted to fit changing circumstances.
-) Execution of revenue plan will not occur automatically the revenue plan is not a substitute for management.'

(Welsch, 2002).

“The revenue plan should be regarded not as a master but as a servant. It is one of the best tools yet devised for advancing the affairs of an organization and the individuals in their various spheres of managerial activity. It is not assumed that any revenue plan is perfect. The most important consideration is to make sure, by intelligent use of revenue plans that all possible attainable benefits are derived from the plans as rendered and to re-plan when there are compelling business reasons”.

(Welsch 2002).

2.1.3 Implementation of Revenue Plan

“A budget program viewed and administered in a sophisticated way does not hamper or restrict management, instead, it provides definite goals around which day today and month to month decisions are made. Flexibility in the use and application of both the revenue plan and variable budgets also should be considered in detail. Flexibility in budget application is essential and it increases the probabilities of achieving or bettering the objectives”.

(Welsch 2002)

The final test of whether the efforts and cost in developing a revenue plan are worthwhile to its usefulness to management. The plan should be developed with the conviction that the enterprises are going to meet or exceed all major objectives. Participation enhances communication. If this principle is to be effective, the various executives and supervisors should have a clear understanding of their responsibilities. The copies of the complete revenue plan be prepared and distributed to the member of executive management. The guiding principle in establishing the distribution policy might be to provide one copy to each member of the management team according to their overall responsibilities, while taking into account the problem of security. After distribution of the revenue plan a series of revenue plan conferences should be held. The top executives discuss comprehensively the plans expectations and steps in implementation. At this top level meeting the importance of action, flexibility and continuous control may well be

emphasized. In essence, each manager has to realize that the budget is a tool for their use. Conferences should be held so as to convey the revenue plan to each level of management.

The manager of each responsibility center obtains an approved revenue plan for his center and it becomes the basis for current operations and exerts considerable coordinating and controlling effects. Performance must be measured and reported to management. Execution of the plan is assured through control procedure must be established so that accomplishment or failure is immediately known. On this basis action can be taken to correct or minimize on undesirable effects. Short term performance reporting is essential.

2.2 Budgeting as a tool of Revenue Planning

A budget is a comprehensive and coordinated plan expressed in financial terms for the operation and resources of an enterprise for some specific period in future. Budgeting, as a tool to revenue planning is closely related to the broader system of planning in an organization. Planning involves the specification of the basic objectives that the organization will pursue and fundamental policies that will guide it. In operational terms it involves the step of setting objectives, specifying goals, formulating strategies and expressing budgets. A budget is a comprehensive and coordinated plan, expressed in financial terms. For the operations and resources of enterprises for some specified period in future (Welsch, 2002:30-31). A budget is a pre-determined statement of management policy during a given period, which provides a standard for comparison with the result actually achieved.

A firm without financial goals may find it difficult to make proper decision. A firm with specific goals in the form of a budget makes many decisions ahead of time. A budget helps a firm to control its costs by setting guidelines for spending money for unneeded items because they know at all costs will be compared to the budget. A budget helps to motivate employees to do a good job. This is particularly true which employees help in

setting up the budget. The complete budget for a firm is after called the master budget. The master budget consists of many function budgets. these budget include a sales budget, production budget a purchase budget an expenses budget, an equipment purchase budget and a cash budget once all these budgets are completed. The master budget for the entire firm is prepared.

In summary, the budget involves the statement of plans, the coordination of these plans into well-balanced programs and the constant watching of actual operations to insure that they are kept in line with the predetermined plans. In this way limits are set on expenditures standards of performance are established, and forward thinking is made an essential part of the business management care must be taken, however not to fall into the error of regarding the budget as an end in itself. It is a means to an end. It is not a method of business management but an idea to clear thinking and its fundamentals object is it enables considered intention to be substituted for opportunism in management.

2.3 Forecasting

Forecasting is attempts to find the most probable course of events or at best a range of probabilities. The forecasting aims at reducing the area of uncertainty that surrounds management decision making with respect to cost, capital investment and so fourth, in many respect the future tends to more like the past. This good thing since without same elements of continuing between past, present and future. There would be little possibilities of successful participation.

“A forecast is not a plan; rather it is a statement and or a quantified assessment of future conditions about a particular subject[e.g. Sales Revenue) based on 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 into development of sales plan. The management of the company may accept, modify, or reject the forecast, other inputs and management judgment about such related items as sales volume, prices, and sales efforts.

Production and financing, it is important to make a distinction between the sales forecast and the sales plan primary because the internal technical staff should not be expected or permitted to make the fundamental management decision and judgment implicit in every sales plan. Moreover, the influence of management actions on sales potentials is difficult to quantify for sales forecasting. Therefore, the elements of management actions on sales potentials are difficult to experience and judgment must hold the sales plan. Another reason for identifying sales forecasting as only one step in sales planning is that sales forecasts are conditional”.

(Welsh 2002; 172-173).

Forecasting is an important tool of management that in preparation of budget and is an integral part of decision-making activities of management. Business forecasting refers to the stoical analysis of the past and current movements in the given time series so as to obtain clues about the future pattern of these movements management must plan ahead on the basis of a forecasts but it must also provide sufficient flexibility to enable the unexpected to be dealt with. The reasons for forecasting is not so much to predict the future as to be prepared to meet it when it comes forecasts involves a careful look at the future in term of what is though likely to happen whilst plan are the embodiment of what is to be attempted so as to meet that future.

"In preparing plans for future, the management has to make some predictions about the future shape of things. The father of modern management, Henri Fayol thought the entire plan (of the enterprise) is made up of a series of separate plans called ' forecasts'. Whenever the management plans its business operations and its organizational set-up for the years ahead, it has to take into account the past, the present and prevailing economic, political and social conditions, Forecasting provides a logical basis for determining in advance the managerial decisions about the material, personnel and requirements, It is, thus, the basis of planning'(Bhusan, 1995:52).

For example error in sales projections can trigger a series of reactions affecting budget forecast, operating expenses. Cash flows inventory levels available to each division will affect product, development, and modernization of equipment, hiring of personnel and advertising expenditures. This interdependence will influence, if not determine. The level of sales, operating costs and cash flow clearly there is a strong interdependence among the different forecasting areas in an organization.

2.3.1 Level of Forecasting

Short Range Forecasting

The short term forecasting is a prediction extending a maximum of two years into the future. While it is difficult to drive examples that fit every situation some generalization can be made to indicate the application of short term forecasting. A business firm can adjust more smoothly to an indicated higher or lower volume of sales if plans can be set out reasonably well in advance. The short term forecast of general business conditions often important in deriving a short term sales forecast useful in making internal estimates of made by the accounting department in the large enterprises can be integrated with up to date predictions of short term course of general selling and administrative expenses, gross margin, net earnings and the cash position of the enterprises them reflect the most comprehensive internal and external data. Sales forecasting adds in more effective scheduling of goods in process and inventors requirements.

Here short run forecasting provides management more rationally ordered information and sounder base for decision making

Intermediate Forecasting

The intermediate range forecasting is more useful and hopeful such forecasts suggests provide manages with estimates of requirements in the relatively certain period three to five years in the future. This is one of the least developed areas of prediction. Because the forecast does not have the advantages of surveys of consumer and business intentions nor can be extrapolate long term trends nor is he a particularly good position to rank the

importance of qualitative factors. The surveys of business and consumer spending intentions are of vital assistance in the development of short run predictions.

Similarly, the extrapolation of long-term historical trends. If subjected to adequate qualitative analysis. Can serve as a basic for estimating economic factors term to twenty years outlook may be especially valuable in formulating a capital expenditure programmed and the related financial plan for reach and product development. “The forecasts is forced to rely very heavily upon his judgments as a long range isolate form the mass of material facing him those elements in the situation that have must significance is shaping the course of economic events in the half decade tying aced and this may be difficult indeed. In particular intermediate forecasts must consider the problem of cycling fluctuation if they are to be meaningful”

Long range forecasting

Forecasts are frequently made in the form of long-range projections that compare an economic situation with a minimum of five years into the future with present circumstances or with those of the relevant past. The purpose of long-range projection is to give a rough picture of future picture of future prospects, a picture that has some empirical foundation.

“Long range forecasting is admittedly difficult developing expectation about vague or uncertain future conditions is always a highly judgmental process. One that depends on personal executive skill and there fore on best carried. No system or methodology go long range man power planning has yet emerged and been demonstrated in actual practice”

“The purpose of long rang forecasting is to given aggregate appraisal has made of the growth potential of the aggregate economy. Consideration may be given first to the size of the company sales by producer or services as well as total”

(Kulkarini,1998:380-386).

2.4 Forecasting and Planning

“Business forecasting is an important element of forward accounting but business forecasting is not the same things as forward accounting.” Management must plan ahead on the basis of a forecast but it must also provide sufficient flexibility to enable the unexpected to be dealt with. The reason for forecasting is not so much to predict the future as to be prepared to meet it when it comes. Forecasts involves a careful like at the future in items of what is though likely to happen while plans are the embodiment of what is to be attempted so as to meet that future. These plans are reflected in important that budget should be seen in this way as the shadow of plans and not as the shadow of forecasts, nevertheless, the more reliable the forecast the most dependable the plans, so that every possible step should be taken lower insuring accuracy in forecasting.

2.4.1 The role of Forecasting in Planning

Planning describes it as a well thought out set of decisions and actions that when followed insure that the organization in the future will be affected by its environment in a manner consistent with its goals and objectives. This definition views planning as a coordination effort in addition to being a future oriented decision-making process.

According to P.F.Ducker. “A basic understanding of planning can them and the forecaster in determining what types of forecasts would be most useful and how one might processed to define them. Planning as a method of thinking out acts and purpose before hand. Planning as the concurs of the futurity of present decision.”

Forecasting is the prediction of future situation and event. In forecast future even will be analyzed by different tools and techniques. For effective forecasting past data should be accurate and the methods used in forecasting is also appropriate and matched with the mature of business objective. The person involve in forecasting must be unbiased and serious. In this word, market study and research about change in price, advertising

consumer behavior. Income quality and other related factors are need for good forecasting, continuity of these researches in essential for effective result.

There are different methods of forecasting which is used to nurture and are different methods of forecasting which is used to nature and situation of enterprises but there are no any universal forecasting method for every situation and circumstance. So two or more methods are broadly classified as: - (a) quantitative (b) technical and (c) judgments. These methods include time series smoothing decomposition for time series, simple and multiple regression and modeling.

Most manages are not familiar with the theoretical aspects of forecasting and its limitations because they did not depth. Yet many companies have a forecasting function because it van help them to cope with an increasing uncertain environment. Management planning involves uncertainly and reliable forecasts can help reduce the uncertainly in planning.

Forecasting provides the maximum help to the planning. In the case of certainly, forecasting does not require much effort whereas in the case of ignorance forecasting could provide some clue about future possibilities. In any organization the major purpose of forecasting is to reduce uncertainly and minimize ignorance because both forecasting and planning concern them several with the future.

2.5 Budgeting: As a Tool of Revenue Planning

In the going concern, lop management is assumed to have done much strategic planning which has set the stage for dynamic management planning on a continuing basis. Thus, as each new period of operations, approaches, it usually feels the need to apply this general knowledge of the business and its environment to the particular problems anticipated in the immediate future, what it wants is a budget as detailed, quantitative plan to guide its operation in the near future.

The concept of comprehensive budget covers its use in planning organizing, and controlling all the financial and operating activities of the firm in the forthcoming period.

PPC from a "Comprehensive view rather than the narrow, traditional view of budget as a clearly derived set of quantitative schedules prepared by an accountant, following the stereotyped reporting formats used in external financial statement. In the past years, there has also been a tendency to view the budget primarily as a mathematical model for an organization developed by computer programmers. These views completely overlook the three most relevant aspects of the PPC concept.

PPC requires major planning decisions by management. It entails pervasive mgmt control activities and PPC recognizes many of the critical behavioral implications throughout organizations (Welsch, 2002:30-31).

Lawrence M. Mathews is of the opinion that a budget is both a mechanism full revenue planning and a technique of operating cost control. (Kulkarni, 1998:385). Budget is an expression of a firm's plan in financial form for a period of time in future it is an estimate of future needs calculated for a definite period. It anticipates income for a given period and costs as well as expenses of obtaining this income are set or limited with the idea of earning a desired revenue or as an aid in controlling losses.

The system of business budgets, as prevalent in USA has been described as "a pre-determined detailed plan of action developed and distributed as a guide to current operation and as a partial basis for subsequent of performance". Budgetary control" is system of controlling costs which includes the preparation of budgets, coordinating the departments establishing the responsibilities, comparing actual performance with that budgeted and acting upon results to achieve maximum revenueability." Thus, it can be said that comprehensive planning and control is the recent origin in the field of management but budgeting is the traditional view of acclaiming and presenting financial statement which or not includes all management function; planning, organizing,

directing, leading decision making, coordinating, reporting as the basic foundation for effective easement.

Budget is concerned with policy making while bud; any control results from the implementation of the policy. The common objectives of budgetary control are to formulate policies aimed at objective. Abolished after the consideration of the possible course of events in the future aim to provide a means for the constant comparison of actual progress towards this goals against the preconceived result and also provide a standard of the performance.

While originally the budget constituted a financial document, it is now concerned with devising a coordinated program of operation, providing an effective means of communication among managerial personnel for the purpose of evaluation. Thus there is an increasing trend towards extending the frontiers of business budgets to include planning, coordinating, and controlling of the entire operation of a business. This has transformed budgets and budgetary control into valuable tool of purposeful management.

2.5.1 Advantages of Budgets and Budgetary Control

-) The reduction is seasonal in production, brought about by the budgets, decrees the cost of production by the increasing volume
-) The coordination of the main divisions of concern makes for smoother operation and less internal friction , which result in the achievement of the budget goal
-) The coordination of the main divisions of concern makes of smoother operation and less internal friction , which results in the achievement of the budget goal
-) The efficient operation of the entire unit depends upon all employees working towards a common goal, which is ensured why the budget
-) The establishment of divisional and departmental responsibilities prevents 'buck-passing ' when the budget figures are not achieved

-) The forecast of operations and financial conditions act a goal to "shoot for" and becomes a basis for dynamic action rather than historical cost system's post marlins.
-) The use of budget figures as measurements of operating performance and financial position makes possible the adoption of standard cost principle in division other than the production division
-) The desired earning on a given investment of capital sets up a revenue point objective , which is the logical basis to be used in working out their estimated sales volume
-) The purchase of stores is based upon pre jitneyed requiems for raw materials and this helps to prevent stock shortages as well as excessive purchases. Work in process investors are kept to a minimum because of predetermined production requirements. Finished goods inventories arc maintained at a level necessary to meet the predetermined schedules of sales.
-) The budgets serve, as stimuli to meet predetermined goals for both incomes and expenses thereby achieving desired revenues or reducing existing losses.
-) The budget of cash expenditures and cash receipts makes it possible for it in advance.
-) The centralization of budgetary control over all divisions and departments helps in carrying out a uniform policy without the disadvantages of authoritarian types of business organization.
-) The forecast of sales enables the management to work out the economic balance between plant and machinery, storage warehouse and inventories.
-) As goals are set up for being attained and achievements or failures are revealed only with reference to their goals, results can be viewed objectively with minimum of personal prejudice.

2.5.2 Objectives of budgets and budgetary control

The process of preparing and using budgets to achieve management objectives is called budgeting. more specifically, a comprehensive revenue planning and controlling of budgeting is a systematic and formalized approach for stating and communicating the firm's expectations and accomplishing the planning , coordination , and control responsibilities of management in such a way as to maximize the use of given resources if is a management technique.

The ultimate objective of a budgetary and control program is the measurement and control of revenue. Thus, the emphasis has been given on building sound budgets for income and costs and man ageing the enterprise so as to discourage deviation which would adversely affect revenues.

The major purposes of budgeting and control are;

-) To state the firm's expectations (goals) in clear and formal terms to avoid confusion and to facilitate their attainability.
-) To communicate expectations to all concerned with the management of the firm so that they are understood, supported and implemented.
-) To provide a detailed plan of action for reducing uncertainly and for the proper direction of individual and group.
-) To coordinate the activities and efforts and in such a way that the use of resource are maximized
-) To provide means of measuring and controlling the performance of individuals and units and to supply information on the basis of which the necessary corrective action can be taken.

2.5.3 Limitations of budgeting

-) **Budget plan is based on estimates**

The success or failure of budget depends to a large extent upon the accuracy of basic estimates of forecasts .it should always be remembered a certain judgment is always

present in such estimate forecasts. This aspects of budgeting should always be kept in view while interpreting the results there of.

) **There is danger of rigidity**

As budget estimates are quantitative expression of all relevant data, there is tendency to attach some sort of rigidity or finally to them. Budget estimates relate to business conditions which may be constantly changing, and it becomes imperative to change the budget estimates in the light of changed business conditions.

) **Budgeting is no substitute for management**

It should always be remembered that budget is not a substitute for management; it is essentially a tool of management. It is totally misconception to think that the introduction of budgeting is alone sufficient to ensure success and to guarantee future revenues.

) **Budget execution is not automatic**

Budget will not ensure its proper execution. It is very much required that each executive must feel the responsibility and should make efforts to attain the budgeted goals.

) **Budgeting is a costly affair**

The installation of budgeting system is an elaborate process involving too much time and costs. Normally, it is costly that small concerns cannot afford it. He for a large concern, it is suggested that there should be some correlation between the cost of operate a budgeting system and the benefits derived from it.

2.5.4 Essentials of an effective budgeting

A successful and sound planning and budgeting system is based upon certain prerequisites. These prerequisites represent management attitude, organization, structure and management approaches necessary for the "effective and efficient application of the budgeting system.

The following are the important essentials of a successful budgeting:

) **Sound forecasting**

Business forecasts are the foundation of budgets; these forecasts are discussed by the executives and when most revenue able combinations of forecasts are selected, they become budgets, the more sound are the forecasts better results would come out of the budgeting system. Hence, forecasts should be based on mere estimates or personal whims; these should be made by using most scientific and statistical methods and techniques.

) **An adequate and planned accounting system.**

There should be proper flow of accurate and timely information in the business which is 'must' for the preparation of budgets. This can be ensured only by having an adequate and planned accounting system in this business.

) **Efficient organization with definite lines of responsibility**

An efficient, adequate and best organization is imperative for budget preparation and its operation. Thus, budgeting system should always be supported by a sound organizational structure with clearly defined lines of authority and responsibility. Not only this, there should be a true delegation of authority from top to lower levels of management. This will provide adequate opportunity to make best decisions and also authority and responsibility. Not only this, there should be a true delegation of authority from top to lower levels of management. This will provide adequate opportunity to till executives to make best decisions and also to participate in the function of budget preparation, thus, an efficient organization helps not only in the budget preparation but it also plays an important role in budget coordination and operation.

) **Formation of budget committee**

As budget committee receives the forecasts and targets in each department as well as periodic reports and finalizes the final acceptable targets in form of master budget and also approves the departmental budgets. Involvement of all executives' line is consulted in order to make them emotionally committed.

) **Clearly defined business policies**

Every budget reflects the business policies formulated by the top management. Budget should always be prepared taking into account the policies set for particular department or function. But for this purpose, policies should be precise and clearly defined as well as free from any ambiguity. Every department executive must have clear knowledge of the impact of business policies on his department, so that he may start his budget exercise in right direction and can also , submit constructive suggestions,

) **Availability of statistical information**

Since budgets are always prepared in quantitative terms, it is necessary that sufficient and accurate relevant data should be made available from accounting system alone and therefore they may be processed through statistical techniques.

) **Support of top management**

If a budget programme is to be made successful, the sympathy of each member of the management team towards it should start preferably from top. The enthusiasm for budget operation as well as direction for it should initiate and come from top. It should be remembered that each member of the management team has a feeling to resist change and there may be some sort of resentment against budgets particularly when budgeting is being used as a pressure device, therefore, the whole system should enjoy the support and cooperation of top management.

) **Good reporting system**

An effective budgeting system also requires the presence of a proper feedback system. As work proceeds in the budget period, actual performance should not only be recorded but it should also be compared with budgeted performance. The variations should be reported promptly and clearly to the appropriate level of management. The reporting system should be designed in such a way that along with variations, the causes for such variations and person responsible for them are also reported; so that management may decide suitable remedial.

) **Motivational approach**

All the employees should be strongly and properly motivated toward budgeting system. Human beings by nature do not like any pressure and they resent or even rebel against anything imposed upon them. There is needed to make each staff member feel too much involved in the budgeting system. To meet this end, motivational approach toward budgeting should be followed.

2.5.5 Types of budgets

Budgets can be classified according to various points of view the following bases of classification are generally in vague.

) **Classification according to time factor**

On the basis time factor, budgets are broadly classified into two types.

a. Long-term budgets

They are concerned with planning the operations of a firm over a prospective of five to ten years. They are also usually in form of physical quantities.

b. Short term budget

They are usually for a period of one to five year and in the form of production plan in monetary terms.

) **On the basis of functions**

According to this basis of classification, budgets correspond and are coterminous, with a particular function and are integrated with master budget of the business. These are called "functional budgets" whose number depends on the size and nature of the business. The usual functional budgets of a business are

Sales budget

This is a forecast of total sales classified according to groups of products, salesman and geo-graphical locations

Selling and distribution cost budget

It is concerned with an estimate of the cost of selling & distribution of goods.

Production budget

It is a forecast based on sales, productive capacity and requirements of inventories.

Predictions cost budget

This is related to the cost of production including direct material cost direct labor cost and expenses fixed, variables and semi variable

2.6 Fundamentals of Revenue Planning and Control

The major fundamentals of revenue planning and control programmers are;

) Managerial involvement and commitment

Managerial involvement entails managerial support, confidence participation and performance orientation. In order to engage, competently in comprehensive revenue planning all level of management, especially top management must.

-) Understand the nature and characteristics of revenue planning and control.
-) Be convinced that this particular approach to meaning is preferable for this situation.
-) Is willing to devote the effort required to market and its operative?
-) Support the program in its ramifications
-) View the results of the planning process as prefer manse commitment

Comprehensive revenue planning programmed will be successful. It must have support of each number of management attracting with the president. The impetus and direction come from the top.

) **Organizational adoption to PPC**

A revenue-planning program must rest upon sound organizational structure for the enterprise and a clear-cut designation of authorities and responsibilities. The purpose of organizational structure and the assignment of authority are to establish a framework within which enterprise objectives may be attained in a coordinated and effective way in a continuing basis. Some time the organization structures are decided into functional, sub units each sub unit chiefs are assigned with specific responsibilities. These sub units are known as decision centers or responsibility centers. Some time these responsibility centers are seen to be in a form of a division or department or a sales district. But in most of the cases these centers are used to be a functional is like. Cost center: a responsibility center for which a manager is responsible for the controllable costs incurred in the sub unit but is not responsible in a financial sense, for revenue or investment in the center. The lower level and smaller responsibilities center tend to be cost centers.

Revenue center: A responsibility center for which a manager is responsible for the controllable costs incurred in the sub unit but is not responsible in a financial sense, for revenue or investment in the center. The lower level and smaller responsibilities center tend to be cost centers.

Revenue center: A responsibility center for which the manager is responsible for the revenues, costs and revenues of the center. Planning focuses on the centers is revenue.

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

) **Responsibility Accounting**

The accounting system must be built around the responsibility structure of the enterprise. In order to set up revenue planning in a sound basis there must be a “responsibility accounting system” that is one tailored first and for the most to the organization

responsibilities within. This primary accounting structure, secondary classifications of costs, revenue and other financial data that are relevant may be utilized. In accordance with the needs of enterprises. A responsibility accounting system can be designed and implemented or a relevant basic regardless of the other features of the accounting system non-cost system. Mercantile accounting systems, standard cost systems direct costing systems and so on. When the accounting system is established on a responsibility basic, the historical data generated became especially pertinent for planning purpose.

If the parameter of the cost and revenue used for planning purpose are not used in accounting system or are not used for costing purpose valuation of the result by comparing it with planned goal will not be effective. So for evaluation purpose and for accounting purpose each of the responsibility center have to prepare chart accounting parameters to be used for planning purpose and have to supply it with full instruction to respective unit when only the main objective of the responsibility accounting can be fulfilled.

) **Realistic Expectations**

In revenue planning, management must be realistic and avoid being either unduly conservative or irrationally optimistic. The care with which budget goals are set for such items as sales, production levels, costs, capital expenditures cash flow and productivity determines the usefulness of a revenue-planning program. For revenue planning purpose program. For revenue planning purpose, enterprise objectives and specific budget goals should represent realistic expectations. To be realistic expectation must be related.

) To their time dimension.

) To assumed (projected) external and internal environmental that will prevail during that time span.

Within these two constraints, realistic expectations should assume a high level of overall efficiency, however the objectives and goals should be attainable. Goals that are set so

high that they are practically impossible to attain discourage serious efforts to reach them. Alternatively, goals set so low that they require no special effort will provide any motivation. Thus enterprise expectation must represent a real challenge to managers operational defining the level of challenge that should be represented by realistic expectations.

) **Activity costing**

Responsibility accounting systems generally accumulate cost by department and product-costing systems associate costs with units for product or services. Organization also frequently find it useful to associate costs with activities. By decomposing an organization production process into a discrete. Management is in a better position to determine the cost and benefits or continuing the activities. Moreover by systematically identifying the activities throughout the organization, manager can identify redundant activities. Some in a dozen different places in the company. An activity was being done in a dozen different places in the company. An activity cost analysis can assist management in elimination redundant activities eliminating activities that are not cost benefit effective and achieving greater coordination among the activities the remain.

) **Application of the exception principle**

Comprehensive revenue planning program facilities control in many ways, underlying these is the measurement actual performance against planned objectives goals and standards and the reporting of that measurement in performance reports. This measurement and reporting extends to all areas of operation and to all responsibility centers in the enterprise. It involves reporting (i) Actual results (ii) budgeting or planned results (ii) the differences (performance variations) between the two. This type of reporting represents effective applications of the well recognized management exception principle.

The exception principle holds that the manager should concentrate primarily on the exceptional or unusual items that appear in daily weekly, and monthly reports there by leaving sufficient managerial time for overall policy and planning considerations. It is the

'out of line items' that need immediate managerial attention to determine the causes and to take corrective action. The items that are not out of line need not utilize extensive management time. However they should trigger 'rewards' in appropriate ways. To implement the exception principle, techniques and procedures must be adopted to call the managers attention to the 'out of control' items. Conventional accounting reports tend to present a mass of figures with no basis for calling attention to the usual to the unusual or exceptionally items.

) **Zero Basic Budgeting**

Under zero basic budgeting every budget is constructed on the premise that every activity. In the budget must be justified. Zero base budgeting has been used by many organizations both private organizations and government units. It starts with 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 cost and benefit. The discipline of zero-base budgeting takes a different approach. In fact a reverse approach to this problem of justifying everything. What says is this begins with 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 were not concerned about constraints of total justification.

) **Coordination using PP**

Some management authorities list coordination as a separate function of management. However most view it as an effect that ensues when the managerial functions of planning organizing staffing, directing and controlling are accomplished. Coordination is the synchronization of individual actions with the result that each subdivision of an effectively works toward the common objectives with due regard for all other subdivisions and with unity of effort. Such a result is often referred to as goal congruence. It means developing and maintaining the various activities within the enterprise in proper relationship to each other. This harmony of effort toward the enterprise objective is one of the central tasks of management because it involves an reconciliation of differences in effort, timing, policies and allocation of resources. Frequently, a lack of coordination in an enterprise is apparent out of proportion to others

or to base major decisions on the specific needs of the department only, although the decisions may negatively affect other department and althea their effectiveness.

) **Flexible Application**

Effective implementation of the preset planning concept requires that the management of enterprise establish the destine time dimensions for certain types of delusion. Invoicing time dimension perspectives in managerial planning clear-cut distinction should be made between historical consideration and future consideration. The fundamental stress that a revenue planning and control programmed must not dominate the business and that flexibility in applying the plans must be a forthright policy and all favorable opportunities are sized ever through. "They are not covered by the budget."

The revenue planning and control programmed administrate red in a sophisticated manner permits greater freedom because all levels of management are brought into the decision making process when plans are developed.

) **Individual and group recognition**

Behavioral aspect of human being are of the field of study of the psychologist, educators and business man and finding was that there was can be so many unknown misconception and speculations which has to be considered for an efficient management. A good and dynamic leadership can resolve these problems by integrating all groups for betterment of the organization. This fact also has been well considered under PP approach and a focus has give to resolve the behavioral problems.

Another aspect of behavioral recognition is that the individual recognition of the work should be carefully done. The system of recognizing the efficient work if and individual manager should be done and efficient one should be reawaked. Because of the dignity of an individual it is important in the management process. Realizing the truth revenue planning entails placing a high degree of responsibility on the individual manager. It entails a procedure for careful evaluating of the planning capabilities of the manager and with the help of the performance report and other observation a careful study of his work

should be done. Thus, the revenue planning approach establishes a basis for some precession in measuring the performance of an individual manager in strict process it is likely that these with high competence will soon be noticed and those with low competence will be identified.

) **Full communication**

Communication is a necessary activity in all focus of managerial communication can be broadly defined as an inter changing of thought of information to bring about a mutual understanding between two or more parties. It may be accomplished by combination of words, symbols, messages and subtleties for understanding that come from working together day by day out of two more individual all communication involve a sender a message and a receiver communication may be through the link that brings together the human element in an enterprise management decisions and leadership are accounted by the communications. That means by which behaviors is affected, modified and energized. Too often communication is taken for granted, consequently information follows are inadequate. There must be three primary information in the entity, down ward un ward laterally in the organization.

) **Follow up**

Fundamental holds that both good and sub-standard performance should be carefully investigated the purpose being three fold.

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

2.7 Components of Comprehensive Revenue Planning and Control Program

A PPC program may include more than the traditional idea of a periodic or master budget. Rather, it encompasses the application of number of related management concepts through a variety of approaches, techniques, and sequential steps. The major components of comprehensive revenue planning and control program are;

) Identification and evaluation of external variables

The variable identification phase of the pp process focuses on (a) identifying and (b) evaluating the effects of the external variables. Identification also involves separate consideration of variables that are non controllable and these that are controllable. This means that management planning must focus on how to manipulate the controllable variables. Moreover, there is managerial planning of how to work- with the non-controllable variables. By relevant variables we mean those that will have a direct and significant impact on the enterprise. Analysis and evaluation of the environmental variables must be a continuing concern of management. This activity should involve all executive managers, who in turn should expect various staff grades to provide data and recommendation. A particularly significant phase of this analysis includes an evaluation of the present strength and weakness of the enterprise.

) Development of the broad objectives of the PES

Development of the broad objectives of the enterprise is a responsibility of executive management. Based in a realistic evaluation of the relevant variables and an assessment of the strengths and weakness of the organization, executive management can specify or restate this phase of the revenue planning and control process. The statement of broad objectives should, express the mission, vision and ethical character of the enterprise its purpose is to provide enterprise identify continuity or purpose and definition.

) Development of specific goals for the enterprises

The “Goal phase” of the pp process is to bring the statement of broad objectives into sharper focus and t mover from the realm of general information to more specific planning information. It provider both narrative and quantitative goals that are definite and measurable. There goals should be developed by executive management as the second component of the substantive plan for the upcoming budget year. Executive management should exercise leadership in this planning phase so that there will be a realistic and clearly articulated framework within which operations will be conducted toward common goals. Moreover the specific goals provide a basis for performance management

These broad, but specific, goals must be developed for both the strategic long range plans and tactical short range plans. Thus statement of specific enterprise goals should define such operational goals as expansion or contraction of product and service lines growth trends, production goals in large measure are quantified and specified for each major sub division of the enterprise.

Development and evaluation of comprehensive strategies.

The company strategies are the basic thrust ways and tactic that will be used to attain planned objectives and goals. A particular strategy may be short or long term. Here are some actual examples of basic strategies.

-) Increase long-term market penetration by using technology to develop new products and improve current products.
-) Emphasize product quality and price for the “top” of the market.
-) Expand marketing to all states in USA. The company will not enter foreign markets in the foreseeable future.
-) Market with low price to expand volume (unit).
-) Use both institutional and local advertising.

-) Improve employee morale and productivity by initiating a behavior management program.

The purpose of developing and disseminating enterprise strategies is to find the best alternatives for attaining the planned broad objectives and specific goals. Strategies focus on 'now' therefore, they outline a plan of action for the enterprise. Executive management must be creative and directly currently on going strategies in harmony with the relevant variables in which management must focus on identification of the critical areas that influence the long-range success of the enterprise.

-) **Preparation and Evaluation of Project Plans**

The internal environment should be conducive to the submission of project proposals from any source within the enterprise on a continuing basis. As a result higher levels of management normally would expect to be involved in the development and evaluation of project plans at various intervals throughout the year. Consistent with this approach during the formal planning cycle management must evaluate and decide upon the stations to be planned for each project in process and to select those projects to be initiated during time dimensions covered by the strategic and tactical revenue plans. Preparation and evaluation of current and future project plans. However are essential on a formal basis as a part of the revenue planning activities.

-) **Executive Management Planning Instruction**

The phase involves communication of the substantive plan to middle and lower management level. It explains the broad objectives enterprises goals, enterprises strategies and any other executive management instructions needed to develop the strategic and tactical revenue plans.

The executive planning instructions issued by top management, communicate the planning foundation that is necessary for the participation of all levels of management in the development of the strategic and tactical revenue plans for the coming budget year. Consequently, at this point in the planning process, the foundation has been established to

articulate the board and specific objectives of the enterprise and the strategies facilitate their attainment.

) **Development & approval of strategic & tactical revenue plans**

When the managers of the various responsibilities center in the enterprise receive the executive management planning instructions and the project plans they can begin intensive activities to develop their respective strategic and tactical revenue plans. The strategic long range plan and the tactical short range revenue plan are usually developed concurrently in this possible that executive management or the financial executive will developed the strategic and tactical revenue plans. The approach is seldom advisable because it denies full participation in the planning process by middle managers lack of participation can cause unfavorable behavioral effects.

Assuming participatory planning and receipt of the executive management instructions, the manager of each responsibility center will immediately initiate activities management instructions, the manager of each within his or her responsibility center to develop a strategic. Long range revenue plan (say five years) and in harmony with the five year plan, a tactical short range revenue plan (one year).

As the two revenue plans are being completed the approval process must be initiated. This process involves approval, disapproval or revision based on either

-) Action by executive management
-) Presentation and justification by managers of the responsibility centers to the next higher level of authority.

) **Implementation of Revenue Plan**

Implementation of management plans that have been developed and approved in the planning process involves the management function of directing subordinates in the accomplishment of enterprise objective and goals. Communication is and especially

important aspect of direction. However a comprehensive revenue-planning program may aid substantially in the accomplishment of these functions, plans strategies and polices developed through meaningful participation along the lines described in course if revenue planning establishes foundation for effective communications.

2.8 Merits of Revenue Planning and Control

-) It forces early consideration of the basic policies.
-) It requires adequate and sound organization structure that is there must be a definite assignment of responsibilities for each function of the enterprise
-) It compels all members of management from the top down to participate in the establishment of goals and plans.
-) It compels departmental managers to make plans on harmony with the plans of other departments and 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 cost economical use of the labor material and capital.
-) It instills at levels of management the habit of timely, careful and adequate consideration of the relevant factor's 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 per determinate policies and clear-cut authority relationship. It there by 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 levels of management relative to basic policies and enterprise objectives.
-) It pin points efficiency and inefficiency.

-) It promotes understanding of management for their workers problems
-) It forces management to give adequate attention to the effect of general business conditions.
-) It forces a periodic bank credit; banks commonly require a projection of future operations and cash flows to support large loans.
-) It checks progress or lack of progress toward the objectives of the enterprise.
-) It forces recognition and corrective action (including rewards).
-) It rewards high performance and seek to correct unfavorable performance.
-) It forces management to consider expected future trends and conditions.

2.9 Basic Assumption of Revenue Planning.

-) The revenue planning considers all activities and operations of an organization. The budgets prepared by different department is inside the organization have to be complied or coordinated and it is cone by revenue planning, so before preparing a revenue planning firstly, all the apartments have to be compel and that budget is known as comprehensive budget or revenue planning
-) All activities covered by budgets are related with funds. So the budget has to be expresses in monetary units i.e. in rupees, dollars or pounds etc.
-) A budget is a mechanization to plan for the firms all operations or activities. The two aspects of every operation are revenues and expenses. The budgets must plan for and quantity revenue and expenses related to specific operation. Planning should not be done for revenue and expenses only. The plan should be made for carry out the operation. The planning for resources will include planning for assets and sources of funds.
-) Time dimension must be added to a budget. A budget is meaningful only when it is related to a specific of times. The budget estimates will be relevant only for some specific period.

2.10 Limitation

The following main limitations are usually given against revenue planning and control.

-) It is difficult, if not impossible, to estimate revenues and expenses in our company realistically.
-) Our management has not interest in all the estimate and schedules. Our strictly 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 works is required.
 -) It takes away management flexibility.
 -) It creates all kinds of behavioral problems.
 -) It places the management in a strait jacket.
 -) It adds level of complexity that is not needed.
 -) It is too costly, aside from management time.
 -) The managers, supervisors and other employees hate budgets.

2.11 Development of Revenue Plan

Generally two types of plans are generated. For long-range objectives, strategic revenue plans are developed, and for short-range objectives tactical revenue plans are developed.

The types of budgets or revenue plans are depend upon the nature of business entity.

Generally, for a manufacturing enterprise following plans is prepared.

-) Production plan or budget
-) Material and purchase plan or budget
-) Direct labor cost plan or budget
-) Planning of expenses
-) Planning of capital expenditure
-) Planning of cash flows

Each of the above plans is describe as follows.

2.11.1 Sales Budget or Sales Plan

Preparation of sales budget is the starting point for the development of revenue plan. After having the planning premises of the organization the sales plan is developed.

The strategic and tactical sales plans have three distinct parts (i) The planned volume of sales at the planned sales price per unit for each product (ii) The sales promotional plan (advertising and other promotional cost) and management's control of sales activities.⁷¹ The sales budget is the sales master plan for the future period. The sales budget itself is an estimate for three main figures (a) The income that will be earned from sales (b) The cost and expenses of making these sales and (c) The sales surplus the income from the sales will depends on the quantity and the price of the goods which will be sold.

All the other plans and budgets are dependent upon the sales budget. The budget is usually presented both in units and dollars of the sales revenue or sales volume. The preparation of sales plan is based upon the sales forecast. A variety of methods are used to forecast the sales for the planning period.

Unless there is a realistic sales plan, practically all other elements of a revenue plan will be out of kilter with reality. The sales plan is the foundation for period planning in the firm because practically all other enterprise planning is built on it. The primary source of cash is sales, the capital additional needed, the amount of expenses to be planned. The manpower requirements, the production level and other important operational aspects depend on the volume of sales. In inventory with the comprehensive revenue plan, both strategic long term and tactical short-term sales plans must be developed.

Thus one commonly observes a five-year strategic sales plan. Many management decisions commit a large amount of resources involving a life span of many years. Basic strategies and major moves often involve irreversible commitment of resources and long time span.

The primary purpose of a sales plan is (i) to reduce uncertainty about future revenues. (ii) To incorporate management judgments and decision into the planning process (iii) to provide necessary information for developing other elements of a comprehensive revenue plan (iv) to facilitate management's control of sales activities.

2.11.1.2 Sales Planning and Forecasting

It is important to make distinction between sales planning and forecasting because they are often confused. A forecast is not a plan. They have different purposes but are related. A forecast is a statement of future conditions about a particular subject based on one or more assumptions. Management may accept, reject, or modify the forecast. It is only one input of a comprehensive sales plan. A sales plan incorporates all management decisions that are based on forecasts, other inputs, and management judgment about such related items as sales volume, price, production, financing. A sales plan is not conditional but a forecast is conditional. It is also a technical staff function.

2.11.1.3 Strategic and tactical Sales Plan

A comprehensive revenue plan, both strategic long term and tactical short-term sales plans must be developed. The usual case is a five or ten year's strategic sales plan and one year tactical sales plan. Strategic or long term sales plans usually involve in-depth analyses of future market potentials, which will be built up from a basic foundation such as population changes, state of economy, industry projections and finally company objectives. Long term managerial strategies would affect such areas as long term pricing policy, development of new products and innovations of present products, new directions in marketing efforts, expansion or change in distribution channels and cost patterns.

Tactical or short-term sales plan is prepared to plan sales for 12 months for the first quarter. At the end of each month or quarter throughout the year, the sales plan is restudied and 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. The short-term sales plans are usually development intern's sales plan includes a detailed plan for each major product and for groupings of minor products. Short term of physical units (or jobs) and in sales and / or services dollars. Short term of plans must also be structured by marketing responsibility for planning and control purpose. Short-term sales plans may be involve in the application of technical analyses; however, managerial judgment plays a large part in their determination. A short-range sales plan should include considerable detail, where as a long range plan should be broad terms.

2.11.1.4 Development of Comprehensive Sales Plan

To develop a comprehensive sales plan the following process should be followed.

-) Develop management guidelines for sales planning
-) Prepare sales forecast
-) Assemble relevant data
-) Manufacturing capacity
-) Sources of raw materials and supplies
-) Availability of key people and labor forces
-) Capital availability of alternatives distributions channels.
-) Develop strategic and tactical sales plans
-) Consideration of alternatives
-) Developing pricing policies
-) Developing product line consideration

2.11.2 Production plan / budget

The production planning refers the development of policies about efficient production level, use of production facilities and inventory levels. The second step of revenue planning and controlling is to confirm to production and inventory policies, volume of outputs that must be manufactured by product and by interim time period are the areas of production planning.

“The production budget is an estimate of the quantity of goods to be manufactured during the budget period. In developing production budget, the first step is a stability policy relative to inventory levels. The next step is to determine the total quantity of each product that is to be manufactured during the budget period. The third step is to schedule this production budget is the initial step in budgeting manufacturing operation. To plan production effectively, the manufacturing executive must have or overlap information relative to the manufacturing operations necessary for each product. They must have at hand information relative to the use and capacities of each manufacturing department.

The company cost accountants should provide certain historical data essential in planning production quantities and cost. The direct of revenue planning and control should provide staff assistance when needed. When the production department completes the recommended production it should be submitted to the executive. Committee for appraisal and then to the president for tentative approval prior to its use as a basic for developing the materials, labor and factory overhead budgets. We can understand the production planning mathematically as under

Production unit = planned sales + final inventory – initial inventory.

Or

Production requirements = sales volume + finished goods -+ inventory change.

Production budget includes the production, finished goods inventory work in process inventory and factory overhead.

“To plan production effectively, the manufacturing manager must develop information about the manufacturing operation necessary for each product. The manager should develop information about the uses and out pout capacities of each manufacturing

department. The managers must provide historical data production quantities, costs and availability of resource. Control should provide staff assistance when needed.

When the production manager has completed the production plan. It should be give to the executive committee for evaluation and then to the president for tentative approval prior to its use as a basis for developing the direct materials direct labor and factory overhead budgets.

2.11.3 Material and Purchase Plan

After the sales and production budget has estimated, the next step is to prepare material purchase budget. When the production budget is completed then the requirement of raw materials and components to be used in the process of manufacturing the finished products could be estimated. A purchase budget gives the details of materials purchase to be made in the budget period.

Material budget is a coordination of the required raw material and parts, inventory level of raw material, parts and level of raw material and part that must be purchased. Raw material budged is prepared after the planned production. The objectives of material budged are:

-) To provide quantity data for purchase
-) To provide quantity data to compute marginal cost per unit
-) To establish effective inventory policy
-) To prepare effective cash budget
-) To introduce effective control system of material use.

To assure that isn't amounts of raw materials will be on there at the time required and to plan for the casts of such materials, it is essential that the tactical short term revenue plan include (i) detailed budget specifying quantity and cast of materials required, and (ii) a

related budget of raw materials purchase. Thus, planning raw materials usually requires the following four-sub budgets.

) Materials budget and parts budget

This budget specifies the planned quantities of each raw material required for planned production. It should specify quantities of each raw material by time by product and by using responsibility.

) Purchase budget

The material budget specifies the quantities and timing of each raw material needed. The report a plan for material purchases must be developed. The purchases budget specifies the estimated quantities to be purchased and estimated cost for each raw material and the required delivery dates.

) Materials inventory budget

This budget reports the planned level of raw material inventory interns of quantities and cost. The difference in units between materials budget (1. above) and the purchased budget (2. above) is reflected as increases or decrease in the inventory budget.

) Cost of materials used budget

This budget reports the estimated cost of the materials planned for in the materials budget (1. above) observe that the materials planned cost of purchases (3. above) is developed.

2.11.4 The purchases and Materials Inventory Budget

Careful planning of many offer and area of significant cost saving many concerns. If realistic estimates of materials requirements are specified in the materials budget for interim periods the purchasing manager can effectively plan his purchasing responsibilities. The purchasing manager should be assigned the direct responsibility fort

preparing a detailed plan of purchase and for submitting the plan in the form of purchase budget. The purchase budget specifies (i) the quantities of each type of raw material to be purchased. (ii) The timing of purchases and (iii) the estimated cost of raw material purchase. Thus, the purchase budget differs from the materials budget in two principal respects. First, the budget usually specifies different quantities of each type of raw material second. The materials budget specifies only quantities whereas the purchase budget specifies both quantities and dollar cost.

In developing the purchase budget the purchasing manager is responsible for three basic inputs.

-) Establishment of management policies with respect to material inventory levels.
-) Determination of the number of units and the timing of each of raw material to be purchased.
-) Estimating the unit cost of each type of material to be purchased.

2.11.5 Capital Budgeting

The capital expenditure budget expresses the detail plans of management concerning asset additions, improvements, replacements, patents and funds aside for these purposes. Capital additions represent assets purchased the costs of which are applicable to a number of accounting periods in the future. The capital expenditure budget doesn't include ordinary repairs since they should be included in the current expense budgets. The capital expenditure budget is variously referred to as the capital additions budget, plant and equipment construction budget, capital outlay budget, investment budget or plant additions budget.

The capital expenditure budget has considerable significance from management planning and control viewpoint. Top management is constantly faced with the problem of

determining the amount of funds to be invested in fixed plant. The basic problem revolves around the necessity to maintain adequate facilities for growth and for meeting customer demand and competition. On the other hand, considerable planning and control are necessary to prevent (i) idle operation capacity (ii) over investment in operating capacity and (iii) investment in assets that will produce a low return on the funds committed.

In conclusion capital expenditure budgeting is a process of planning and controlling of the long term and short-term expenditure for expansion, replacement and contraction of fixed assets. Capital expenditure budget is useful to earn future revenue and to reduce costs. In capital expenditure budget, major projects are separately analyzed, planned, approved, rejected, completed and controlled. Therefore, capital expenditure budget is primarily composed of series of identified projects related to specific time dimension.

Importance of capital budgeting

The capital budgeting is beneficial to the management for planning and purposes. The major importance of capital budgeting is as follows.

-) To avoid idle operating capacity.
-) To avoid excess capacity.
-) To avoid investment in capacity that will earn less than an adequate return as the invested amount.
-) Helpful to evaluate alternative expenditure.

Methods of measuring the economic value of capital expenditure

The methods of measuring economic value are as follows.

I) discounting case value

) Net Present Value

This method requires the selection of a minimum desired or target rate of return for discounting purpose. The cash flows are discounted at this rate of return for the periods

involved. The sum of the present values of the out flows is compared with sum of the present values of inflows, if the difference is favorable to the inflows, the project will earn more than the minimum rate of return. Alternatively if the different is favorable to the inflows, the project will not earn the minimum rate. In the same way, if the net present value of the project is positively the investment is revenue able. Therefore we should accept the project, in case of more than one alternative we have accept the project that project which has more net present value. If the net present value is negative project is to be rejected.

) **Internal rate of return**

Indirect contrast to the preceding method this method determines the discounting rate of return that proposal will generate, instead of selecting a minimum rate of return (15 percent in the preceding situation) we must find the exact rate that will discount the outflows so that discounted sum will equal the outflow. It is an important method of evaluating capital expenditure decision. The project should be accepted, if the IRR is more than the cost of capital and repeal, if the IRR is less than the cost of capital.

II) Simple method or traditional method.

) **Payback period**

This method computes the number years required to recover the case investment form the case from the case in flow generated from the project. It does not consider the time value of money, not does it distinguish between, alternative having different economic lives. The payback period should be computed the capital expenditure decision of lower entrant of payback period.

The pay back method is as a rough test to determine whether further investigation is warranted it is generally useful for (i) precision is not crucial (ii) a large number of proposals are to secreted on a preliminary basis (iii) cash and credit are critical are critical

and (iv) the risk is high to the future potentials beyond the pay our period are difficult to access.

) **Accounting rate return method**

The average rate of return on total investment method is one variation of what some time is called the accounting rest of retime method. One of these variations is based only on actual based revenues and cash cost which is not a cash basis analysis. ARR on investment is the percentage of annual net rectum before depreciation but after taxes to the initial investment. We have to select the project having higher average rate of return and vice versa.

2.11.6 Planning of Cash Flows

“A cash budget shows the planned cash flows, our flows and ending position by interim periods for specific time span. Most compares should develop both ling term and short term plans about their cash flows. The short term cash budge is included in the annual revenue plan. A cash budget basically includes two parts. (i) The planned cash receipts and (ii) the planned cash disbursements. Planning cash inflows and out flows gives the planned beginning and ending cash position for the budget period. Planning the cash inflows and out flows will indicate (i) the need for financing probable cash deficits or (ii) the need for investment planning to put excess cash to revenue able use.

The cash budget is directed related to other plans, such as the sales plan, accounts receivable and the expense budgets and the capital expenditures budgets.

The primary purpose of cash

-) 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 (e) expenses (d) investments and (e) liabilities.

Preparation of the cash budget should be the responsibility of the company treasurer or the cash budget is based almost exclusively on the other budget therefore, the treasurer most works closely with the managers whose decisions may directly affect cash flows.

Techniques for improving cash flow

Improving cash flow basically involves increasing the amount of callable cash on a day to day basis to accomplish this objectives the management should focus an (a) the cash collection process (b) the cash payment process (C) the investment policies. A number of methods have been employed to speed of the collection process of cash and maximize available cash. There methods are designed to do one or all of the following.

-) Speed the mailing time of payment from customers to the firm
-) Reduce the time during which payments received by the month remain uncollected funds and speed the movement or funds to disbursement banks.

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

-) Review the lag from the data of sale of goods and services on credit to the mailing of (a) invoices (b) the first billing
-) 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.
-) Review the credit granting process to determine whether bad credit risks are being screened out.
-) Consider ways to decrease the time between the data that customers pay by check and the data that the cash is available for use in the company's bank account.

Some of the ways often used to improve the efficiency of the cash payment process are as follows.

-) Make all payments on the latest non-penalty day do not early.
-) Make all payments by check preferably on Friday.
-) Take all cash discounts allowed for earns payment.
-) Establish a policy of no cash advances.
-) Establish policies and payments process to minimize the possibility of fraudulent payments by company employees.

2.12 Analysis of Variances (Budget Variances)

The difference (deviation) between planned goals and actual results is called variance. Performance reports show such variances, then the next step comes to analyze such variances to identify the underlying causes behind it, for managerial planning and control process.

Variance can be either plus or minus, depending upon whether an actual result is greater or less than standard results. Since standard results is a measurement of what a particular result ought to be, any deviation from it can be interpreted as either good or bad, favorable or unfavorable to the attainment of the organizations revenue goals. Since variances can reflect clearly and correctly the causes for deviations of actual from standard performance. The major purpose of variance analysis is to enable management to measure performance against predetermined norms to seek out the cause for the standard results and to corrective action. There are numerous ways to investigate variance to determine the causes.

-) Conferences with responsibility center managers and supervisors and other employees in the particular responsibility center involved.

-) Analysis of the work situation including the flow of work, co-ordination of activities, effectiveness of supervision, and other prevailing circumstances.
-) Direct observation.
-) On the spot investigation by line managers.
-) Internal Audits.
-) Special Studies.
-) Investigation by staff group.
-) Variance Analysis.

Variance analysis involves a mathematical analysis of two sets of data in order to gain insight into the underlying causes of variance. One amount is treated as the base, standard or reference point. Variance analysis has wide application and analyzed in the following areas.

-) Raw material variance
-) Labor variance
-) Overhead variance
-) Sales variance
-) Revenue variance.

For analysis of the variance, following steps are followed.

-) Setting standards
-) Measurement of performance.
-) Analyzing variances.
-) Taking corrective action.

2.13 Review of Related Studies

Ojha (2000) has conducted a research "Revenue planning in manufacturing PEs, A case study of Royal Drugs Ltd. and Herbal production and processing Co. Ltd". This research was mainly focused with the practice of revenue planning and its effectiveness in RDL and HPP Co. Ltd. **The main objectives were;**

-) To highlight the current practice of revenue planning and its effectiveness in Nepalese PEs
-) To analyze the various functional budgets adopted in this PEs.
-) To evaluate the variance between targets and actual of PEs.
-) To evaluate the variance between targets and actual of PEs.
-) To draw picture of revenue planning process adopted in these two PEs with theoretical prescriptions.

This research covers six years data from 1991/92 to 2000/01. Both secondary and primary data collected and various financial as well as statistical tools are used to analyze data. Researcher has pointed out various findings and recommendations. Some remarkable findings and recommendations are as follows:

-) Inadequate planning of revenue due to lack of skilled planner
-) Inadequate authority and responsibility to planning department.
-) Failure in achievement due to inadequate evaluation of internal and external variable.
-) Failure to establish adequate forecasting system.
-) Lack of entrepreneurship and commercial concept in overall operation of the enterprise.

Researcher has summarized findings by stating plans are formulated on traditional ad hoc basis due to lack of budgeting expert and skilled planners. Some functional budgets are prepared but not in systematic way. They have followed a system of periodical performance reports. he has recommended followed a system of periodical performance

reports. He has recommended various recommendations to improve the revenue planning system of this PEs.

Among them the major recommendations are;

-) It seems necessary to develop, implement and improve the process of revenue planning from the very beginning to the end.
-) Price- Cost- Volume relationship should be taken into consideration while developing sales plan and pricing strategies.
-) System of periodic performance reports should be strictly followed.
-) A Systemic approach to comprehensive revenue planning should be adopted.

Poudel (2002) has conducted a study on "A study of revenue planning, a case study of Gorkhkali Rubber Industry Ltd. This research study mainly focused on the revenue planning practices and effectiveness of revenue planning of Gorkhkali Rubber Industry Ltd.

This research covered 4 years i.e. from FY 049/50 to 052/53 necessary data were collected both from the primary and secondary sources, the basis objectives of that research was to examine how far the difference functional budgets are being applied as tool for revenue planning in business enterprise the other major objectives of his research were:

-) To sketch the trend of revenue and loss.
-) To see the Gorakh Kali rubber industry's revenue planning on the basis of overall managerial budgeting.
-) To evaluate the variance between targets and actual the enterprise
-) To examine the practice and effectiveness of revenue planning

Major findings of his research are:

-) Adequate education of relevant internal as well as external market variables
-) Unrealistic of over ambiguous sales forecasts

-) Inadequate planning of revenue due to lack of skilled planners
-) Adequate knowledge of technical know how

He has conducted that GRIL does not prepare the long term strategic revenue plan and is only involved in tactical revenue plan. The objective of the industry is not clear. Finally he recommends as follows;

-) Industry should develop the long term strategic plan for every aspect of its operation
-) Industry should clearly state its objectives and should have in depth analysis of the industry's strength and weakness
-) Pricing policy should be revised and cost volume revenue relationship should be considered while pricing the products
-) Effectives sales promotion Activities should be made to increase the export of the industry

Parajuli,(2004) has conducted a research about "Revenue planning in manufacturing PEs". In this research he has tried to point out some features and problems of revenue planning in Nepalese manufacturing PEs. He has made his research with special references to "Banshabari leather and shoe factory and dairy development corporation." Taking these two NG owned manufacturing PEs as sample, he has discussed some features and problems of revenue planning prevailing practices and premises for implementing revenue planning in Nepalese manufacturing public enterprises.

The main objectives of this research work were:

-) Examine how far the revenue planning system of BLSF and DDC has applied
-) Sketch the trend of revenue and problems of planning in these two manufacturing PEs.
-) Pictures the planning diversification of this PEs (in respect of resource mobilization).

- J Examine the revenue planning of BLSF and DDC on the basis of overall managerial budgeting.

For accomplishment the above stated objective he has made his research covering the time period of 7 years from 038/039 to 045/046. He concludes that these two PEs were adopting revenue planning on an unrealistic basis which only promotes irrational optimism and undue conservation. Findings and recommendation of this research were as follows;

Major findings;

- J There is no adequate consideration system and realization of objectives between the different level managers.
- J Very few managers are competent to identify the relevant factors, variables and manipulate them for the successful formulation and implementation of the plan.
- J Enterprise has no any financial plan; they have only sales and production targets.
- J There is no practice of revenue so much be necessary to practice revenue planning.

Recommendations;

- J The enterprise should be necessary to develop the alternative for the earning of revenue.
- J The goals and objectives should be clearly and adequately spelled out.
- J Enterprises should define the short-range revenue plans detailed by relevant responsibilities as systematic and formalized approaches for accomplishing the planning objectives.
- J There is necessary to establish the foundation for revenue planning.
- J There should be annual evaluation of the statement of the board objectives of these enterprises by the executive committee.
- J There is necessary to formulate the revenue- planning calendar.
- J There is necessary to develop the basis strategies by the executive management.

Bhatta, (2006) has conducted a research in the topic "revenue planning in public utility concern, a case study of Nepal electricity authority. This research mainly centered with the corporate planning systems and budgeting procedure in public utility concern. Main objective of his research was to highlight the various functional budgets and their related variances of the authority.

Time period covered by this research was 5 years from FY 045/50 to 055/56. Data and other necessary formation were collected by using secondary as well as primary sources. His research pointed out various findings and recommendations. Some remarkable findings and recommendation are as follows:

Major Findings;

-) The authority fails to maintain its periodic performance report systematically goals and objectives are limited only to the high ranking official.
-) Specific goals and objectives are not conveyed to lower level due to lack MBO principle of management
-) Lack of coordination between departments
-) Unsatisfactory financial performance
-) Overheads are not classified systematically n
-) Absence of skilled and purely academic main power in budgeting section

He summarized his findings that goals and objectives of the authority are not clearly communicated to the lower level and there is lack of responsible accounting system. He has recommended various recommendations to improve the formulation and implementation of revenue planning system of NBA

Among them major recommendations are:

-) **NEA** must restructure its capital structure and should emphasis the internal financing
-) leakage of electricity should be controlled
-) NEA should develop efficient system of revenue collection

-) NEA should develop its overheads budget in a well classified and scientific way
-) it should try to maximize its operating revenue installed capacity should be utilized fully Participatory style of management should be following in the formulation stage of plans and policies.

Karki (2007), has conducted a research on the topic "revenue planning in agricultural farm, (a case study of potato and tomato production in Panchkhal valley under Kavre district of Nepal). The main objectives of the study was to examine the effectiveness of the revenue planning system in the agricultural farming, especially in potato and tomato vegetable crops in Panchkhal valley of Kavre district. The study covered only five years period of time from 1987 to 1991. Data were collected from farmers of Panchkhal valley within four month of period. Data and information have been taken randomly from 35 farmers on the basis of sampling methods. The study had tried to explain about the activities and also stated the trend of the production, revenue, cost of these two vegetable crops.

Data were taken from both sector i.e. primary sources and secondary source. He has pointed out various finding, based on the analysis of data and information.

Major findings;

-) Generally peasant prepares their sales and production plan at the ad hoc basis
-) The goal and objectives of peasant are not found in written and stated from but they try to fulfill their goals and objectives as soon as possible
-) The main strategy of the peasant is to achieve their goals and objectives and implement their plans in practice. in their strategy , it includes to raise income by the increment in production volume and to utilize their leisure time
-) The plan is made by the boss or based on family and he communicates his plan to his plan to his family members. sometimes, the advice is taken from family member as well as other neighbors

-) Peasant do not formulate the substantive plan strategic long range revenue plan , tactical short range revenue , variable exp budget and cost volume revenue analysis
-) The peasant does not take into account the inventory policy proper routine and scheduling of the production plan and material plan
-) Peasant do not preparing the planned income statement , balance sheet and revenue plan
-) There is not proper arrangement of market information system
-) Generally peasants do not record about cost of production , selling expand others , they also do not calculate their own labor, own manure cost , land revenue tax and depreciation and rearing and maintenance cost on their tools and implements

Researcher recommends that peasants of Panchakhal valley need to adopt revenue plan , procedures and techniques he stages that peasants should build up revenue plan for both strategic long range and tactical short range. They should define the short range t formulated for achieving long term objectives and goals they need to develop managerial approach.

They should develop the flexible budget and cost volume revenue analysis for non bearing of losses and to help increasing of revenue. They need to evaluate the statement of board objectives of the firm. They need to develop systematic periodic performance reports detailed by assigned responsibility for the accomplishing the planning objectives. They need to provide marketing information.

Conclusion about the revenue planning:

-) There is no coordination system and realization of objectives with in family and between different farmers. the broad and long-range objectives , long range plan has not been defined in the farmer's level
-) Very few of the farmers are competent to identify the relevant variables and manipulate them for the successful formulation and implementation of the plan. These few of the farmers cannot analyze internal and external environment. Son

there is not possibility of adequate information of strength and weakness, opportunity and threats.

-) Farmers have no planning for direct labor, material variables cost and other exp these are the primary requirements of revenue planning but farmer's level management does not practice by traditional habits.
-) Farmers should prepare the alternative plan for the earning more of revenue.

CHAPTER -III

RESEARCH METHODOLOGY

Research refers to looking for something more out of systematic investigation. “Research is a systematic and organized effort to investigate a specific problem that needs a solution. This process of investigation involves a series of well-thought-out activities of gathering, recording, analyzing and interpreting the data with the purpose of finding answers to the problem. Thus, the entire process by which we attempt to solve problems or search the answers to questions is called research” (Wolf and Panta, 2004:4).

The major objectives of this research are to analyze the revenue planning practice in Nepal Telecom, its effectiveness, use of short term and long term revenue planning tools, to evaluate the variance in budgeted and actual result and find out financial strength and weakness, this research work has followed the following research methodology:

3.1 Research Design

"Research design is the plan structure and strategy of investigation conceived so as to obtain answer to research questions and to control variance. The plan is the overall scheme of program me of the research. it includes an outline of what the investigator will do from writing the hypothesis and their operational implication to the financial analysis of data"(Kothari. C.R 1990:390).

To get the answers to research problems and control variance, in the present research work researcher descriptive research design. For research work most of the secondary source data has been used. Some of the financial tools along with statistical tools have been applied to examine facts and descriptive technique has been adopted.

Research variables are the important portion research design and of research study which are used for analysis out of all the available information and data. For this research study

sales, different budgets, expenses, revenue & loss, items of balance sheet are the main research variables. These are the variables of a complete budgeting. The study is closely related with the various functional budgets and other accounting statements as well as the actual result of the budgets.

3.2 Population and Sample

All the public enterprises partly or fully owned by government is the population of this study. The current study is only related with the revenue planning of Nepal Telecom as Sample Company. The present study is undertaken for a period of past 5 years from fiscal year 2061/062 to 2065/66. For the purpose of the analysis of tactical revenue plan analysis, 2061/62 is as based year. Both data budget and actual are taken from the same fiscal year 2065/66.

3.3 Sources of Data

As for effective research work, data play very important role, to the last extent all the research data for this research work are taken from its origin. For this research work all the quantitative data are collected directly from NT. Besides this data are collected from the persons directly or indirectly related with NT. Secondary data have collected from the published annual reports of NT. Similarly, other necessary data have been collected from the publication of Ministry of Finance, Central Bureau of Statistics, National Planning Commission and related publications.

3.4 Data Collection technique

There are different data collection procedures for the research work. For this study different techniques and procedures are adopted to collect necessary and authentic data and information. Since the study is related with budgeting practice most of data are collected from secondary source. As secondary source of data, published functional budget and financial statements are taken. They are collected directly from account department, planning department and functional department of NT.

3.5 Data Analysis Tools

For the research work all the data are the input for research process. And systematic processing requires an appropriate analytical tool. Since data are main raw material for analytical study, for processing these data using different analytical tool, one should first manage and arrange, accumulate and present all the data in appropriate table and formats in systematic manner.

For this research study these analytical tools are used:

3.5.1 Statistical Tools

It includes mean, standard deviation, Co-efficient of variance, correlation, regression, standard error, trend analysis, percentage diagram, graphical diagram.

3.5.2 Financial Tools

It includes Ratio Analysis, CVP Analysis, Flexible Budgeting, and Variance Analysis.

3.6 Research Variables

Sales, telephone line, capacity utilization, revenue and loss, total assets, revenue margin, total capital employed, capital expenditure, cash flows and manpower expenditures relating to long term and short term periods of NT are the research variables of the study.

CHAPTER – IV

PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

This chapter highlights the profit planning of Nepal Telecom. The tools used for the purpose of analysis have been discussed in detail in research methodology. Some financial and statistical tools have been used to evaluate the profitability position of Nepal Telecom. The financial tool include ratio analysis between various variables whereas the statistical tools include regression analysis and hypothesis test between sum of the variables. It measure variables like assets, liabilities, sales, debt, equity are taken for the analysis. Moreover the variables affecting to the profitability position are also considered in the study.

4.2. Revenue Planning

The main objective of this study is to examine the revenue planning of NTC. To meet this objective, it is essential to present, analyze and interpret data contained in annual reports of NTC. The annual reports include balance sheet and Income statement along with their supporting schedules. Analysis and interpretation of data is an attempt to find - out the implications and the significance of past activities/decisions in the light of present position and future prospect and to make suggestion for future action. Analysis and interpretation are closely connected terms because without an analysis, interpretation is not possible and lack of interpretation makes analysis useless. These two supplement each other. Analysis involves the compilation of data, raking data as per its relative significance and examination of data using different tools. On the other hand, interpretation means making explanation and drawing inferences about the changes or variations in the phenomena about the outcome of analysis. In this study, the date are presented, analyzed and interpreted on the basis of research questions.

The table summarises the key economic figures of NTC for the study period. The analysis follows would help analyze the strengths and weaknesses of the corporation and causes of the problems/weaknesses so that some recommendations could be made. The different types of tools and techniques that have been used to analyze the data are as follows:

-) Budgeted Sales and Actual Sales
-) Budgeted Cost and Actual Cost
-) Trend Analysis
-) Correlation/Regression Analysis

4.2.1 Relationship between Budgeted and Actual Sales

The sales volume of NTC is found to be increasing each year. The Budgeted sales and actual sales of Nepal telecom for the five years study period is presented in the following table:

Table 4.1
Budgeted and Actual Sales

| Fiscal Year | Budgeted Sales | Actual Sales | Difference |
|--------------------|-----------------------|---------------------|-------------------|
| 2004/05 | 6525485 | 5928648 | -9.14 |
| 2005/06 | 6254556 | 6555992 | 4.81 |
| 2006/07 | 8005000 | 7669283 | -4.19 |
| 2007/08 | 9000000 | 8855034 | -1.61 |
| 2008/09 | 11052000 | 9194297 | -16.80 |

Figure 4.1
Budgeted and Actual Sales of NTC

In the above table and figure, the difference between budgeted and actual sales of Nepal telecom is presented throughout the study period. There is a difference between the budgeted and actual sales of Nepal Telecom. The actual sales of Nepal Telecom are higher than the budgeted sales only in FY 2005/2006. In all other FY the budgeted sales is always higher than the actual sales. This clearly notifies that Nepal telecom is not being able to achieve the sales target. This is because of the severe competition from the private sector telecom.

4.2.2 Relationship between Budgeted Collection & Actual Collection

The following table presents the relationship between budgeted collection and actual collection of Nepal telecom

Table No. 4.2
Relationship between Budgeted Collection & Actual Collection

| Year | Actual Collection | Budgeted Collection | Difference |
|-------------|--------------------------|----------------------------|-------------------|
| 2004/2005 | 2317.45 | 3542.52 | 52.86 |
| 2005/2006 | 2389.76 | 2856.23 | 19.51 |
| 2006/2007 | 4214.31 | 5612.23 | 33.17 |
| 2007/2008 | 7769.16 | 6958.25 | -10.43 |
| 2008/2009 | 11270.3 | 12560.23 | 11.44 |

Source: Annual reports of Nepal Telecom

The above table shows the relationship between annual collections of Nepal telecom for the study period. The actual collection of Nepal telecom is in increasing trend throughout the study period. As if the difference between the actual collection and the budgeted collection is in decreasing trend. The difference between budgeted and actual collection is positive throughout the study period except in FY 2007/2008. The collection of Nepal Telecom generally consists of the due collection from the customers of general landline telephones service.

4.2.3 Product wise Revenue Collection of NTC

As Nepal Telecom is a service sector industry, it mainly collects revenue from sales of different products annually. As Nepal telecom was the only organization in telecommunication sector since few years ago. There was a monopoly of Nepal Telecom in telecommunication sector but now the situation has been changed due to private sector telecommunication providers. The annual sales revenue collection of Nepal Telecom for the last five years from sales of different products is shown in the following table.

Table No. 4.3
Product wise Revenue Collection (in million)

| Products | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 |
|--------------------------|----------------|----------------|----------------|----------------|----------------|
| General Telephone | | | | | |
| Local Calls | 2458.56 | 2652.43 | 2850.21 | 3430.15 | 3390.37 |
| STD | 1112.23 | 1056.25 | 1125.25 | 1326.00 | 959.93 |
| ISTD | 798.12 | 888.63 | 856.25 | 985.68 | 652.15 |
| Leased Circuit | 40.32 | 42.15 | 45.12 | 40.46 | 98.91 |
| Telex | 1.2 | 1.5 | 1.8 | 1.96 | 0.18 |
| IN Service | 38.59 | 42.31 | 45.21 | 54.47 | 77.46 |
| Internet | 8.70 | 9.57 | 16.21 | 22.74 | 22.47 |
| ADSL | - | - | - | 17.54 | 160.58 |
| Other | 122.54 | 142.74 | 156.42 | 220.18 | 154.11 |
| Total Revenue | 4580.86 | 4835.58 | 5096.47 | 6099.21 | 5516.21 |

| Mobile Service | | | | | |
|---------------------------------------|----------------|----------------|----------------|-----------------|-----------------|
| Local Calls | 755.41 | 889.56 | 929.65 | 998.62 | 830.56 |
| STD | 39.54 | 42.65 | 45.56 | 53.23 | 40.91 |
| ISTD | 88.5 | 98.25 | 108.25 | 117.29 | 111.61 |
| Roaming | 169.25 | 145.21 | 165.24 | 172.71 | 151.63 |
| Prepaid Card | 255.65 | 288.45 | 300.18 | 322.90 | 1194.31 |
| Recharge Card | 1956.32 | 2246.52 | 2856.54 | 3712.55 | 6035.99 |
| Other | 400.52 | 399.54 | 456.23 | 513.54 | 573.71 |
| Total Revenue | 3665.19 | 4110.18 | 4861.65 | 5890.88 | 8938.74 |
| CDMA | | | | | |
| Local Calls | - | - | 136.54 | 195.09 | 176.376 |
| STD | - | - | 112.56 | 124.69 | 71.29 |
| ISTD | - | - | 88.54 | 92.29 | 50.21 |
| Data Service | - | - | 11.23 | 14.85 | 15.50 |
| Prepaid Card | - | - | 142.56 | 198.102 | 133.09 |
| Recharge Card | - | - | 1245.79 | 1528.50 | 2049.03 |
| Other | - | - | 188.25 | 191.45 | 147.33 |
| Total Revenue | - | - | 1925.47 | 2344.99 | 2642.85 |
| Total Revenue After Adjustment | 8246.1 | 8945.76 | 11883.6 | 16624.21 | 20464.62 |

Source: Annual Reports of Nepal Telecom

Figure 4.2
Total Revenue Collection

4.2.4 Relationship between Budgeted Cost and Total Cost

As like the total sales the total cost of Nepal Telecom was also found to be in an increasing trend. The total cost is combined of personnel cost, maintenance and operation cost, depreciation cost and other cost. The budgeted and actual cost of Nepal telecom is presented in the following table:

Table No. 4.4
Budgeted Cost and Actual Cost

| Year | Budgeted Cost | Actual Cost | Difference % |
|-------------|----------------------|--------------------|---------------------|
| 2004/05 | 3,595,000.00 | 4,272,768.00 | 18.85 |
| 2005/06 | 4,100,000.00 | 4,215,188.00 | 2.80 |
| 2006/07 | 6,500,000.00 | 6,768,302.00 | 4.12 |
| 2007/08 | 7,500,000.00 | 7,017,854.00 | -6.4 |
| 2008/09 | 8,250,000.00 | 8,513,592.00 | 3.19 |

Source: Annual Reports of Nepal Telecom

Figure No. 4.3
Budgeted Cost and Actual Cost

In the above table and figure, the budgeted cost and actual cost of Nepal Telecom is presented for the five years study period. The actual cost is always higher than the budgeted cost except in FY 2007/08. The higher actual cost than the budgeted cost shows the inefficiency of the NTC management in regard of controlling the cost. As if the actual

cost is higher than the budgeted cost throughout the study period; the ratio of its difference is in decreasing trend in comparison with the initial year's difference.

4.2.5 Relationship between Sales and Cost

The following table presents the relationship between budgeted cost and budgeted sales and budgeted cost and actual cost of Nepal Telecom throughout the study period.

Table No. 4.5

Relationship between Sales and Cost

| Year | Budgeted Sales | Budgeted Cost | Difference (%) | Actual Sales | Actual Cost | Difference (%) |
|----------------|-----------------------|----------------------|-----------------------|---------------------|--------------------|-----------------------|
| 2004/05 | 6525485.00 | 3595000.00 | 44.90 | 5928648.00 | 4272768.00 | 27.93 |
| 2005/06 | 6254556.00 | 4100000.00 | 34.40 | 6555992.00 | 4215188.00 | 35.70 |
| 2006/07 | 8005000.00 | 6500000.00 | 18.80 | 7669283.00 | 6768302.00 | 11.74 |
| 2007/08 | 9000000.00 | 7500000.00 | 16.66 | 8855034.00 | 7017854.00 | 20.74 |
| 2008/09 | 11052000.00 | 8250000.00 | 25.35 | 9194297.00 | 8513592.00 | 7.40 |

The above table shows the relationship between the budgeted sales and budgeted cost in one side and the relationship between actual sales and actual cost. The difference between both the budgeted sales and budgeted cost and actual sales and actual cost is positive in each year throughout the study period. It means the sales are always greater than the cost but the difference between actual sales and budgeted sales is decreasing in last FY. This is because of the high expenditures incurred in setting up the new infrastructures in the recent years.

4.3 Ratio Analysis

Financial Statements contain a wealth of information that, if properly analyzed and interpreted, can provide valuable insights into a firm's performance and position. One of the principal tools of financial statement analysis is Ratio Analysis. Ratio Analysis may be done for a variety of purposes, which ranges from a simple analysis of the short-term liquidity position of the firm to a comprehensive assessment of the strengths and weaknesses of the firm in various areas.

The term Ratio refers to the numerical or quantitative relationship between two items/variables. This relationship can be expressed as: (i) percentages, say, net profits are 25% of sales, (ii) fraction (net profit is one-fourth of sales), and (iii) Proportion of numbers (the relationship between net profits and sales is (1:4). These alternative methods of expressing items, which are related to each other for purpose of financial analysis, are referred to as Ratio Analysis. What do the Ratios do? The answer is that they reveal the relationship in a more meaningful way and enable us to draw conclusions from them. The rationale of Ratio Analysis lies in the fact that it makes related information comparable. A single figure by itself has no meaning but when expressed in terms of a related figure, it yields significant inferences. The financial statements i.e. balance sheets and profit and loss accounts of NT.

4.3.1. Liquidity Ratio

Liquidity ratios are used to judge an organizations ability to meet its short term obligation. These ratios are comparison of short term obligation with the resources available and are measured by current ratio and quick ratio. The liquidity ratio reflects the short term financial strength of a firm.

4.3.1.1 Current Ratio (CR)

The relationship between current assets and current liabilities is expressed by Current Ratio. Current Ratio is supposed to be around 2:1 but this standard should not be used rigidly. A higher Ratio here would imply that the company maintains a sound liquidity position from the short-term lenders' view point and from the Corporation's own view point. But a very high Ratio would indicate that a high amount of idle fund being invested in current assets or higher proportion of financing the current assets by dearer permanent sources.

$$\text{Current Ratio (CR)} = \text{Current Assets} / \text{Current Liabilities}$$

Table 4.6
Calculation of current ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | Current Assets | Current Liabilities | Current Ratio | Straight Line Trend |
|----------------|----------------|---------------------|---------------|---------------------|
| 2004/05 | 12320607 | 5858107 | 2.103 | 2.107 |
| 2005/06 | 15336625 | 8054419 | 1.904 | 1.9358 |
| 2006/07 | 18424147 | 10137347 | 1.817 | 1.7646 |
| 2007/08 | 20213763 | 12629716 | 1.60 | 1.5934 |
| 2008/09 | 20598353 | 14722678 | 1.399 | 1.422 |
| Average | | | 1.765 | |

Source: Annual Reports of NTC

Straight Line Trend of the Ratio is: $= 2.2782 - 0.1712(x)$

When $X=6$, $= 1.251$, i.e. Expected Current Ratio for next year (year=6)

Where,

Y= estimate of the Current Ratio

X= measure of time when base year 2004/05 = 1

The above table shows that the average Current Ratio is 1.765 times during the study period. The Ratio 1.765 on an average indicates that the Organization has current assets of Rs 1.765 for each rupee of current liabilities. As current liabilities are paid by the current assets, it seems that NTC will be able to pay its current liabilities at the time of requirement. It ranges between a highest of 2.103 times in F/Y 2004/05 AD and a lowest of 1.399 times in F/Y 2007/08. The overall Ratio trend does not show any clear direction but in most recent years it seems decreasing slowly. While comparing with the average, one finds that in F/Ys 2004/05 to 2006/07 AD the Ratio is higher than the average and for F/Ys 2007/08, 2008/09 AD the Ratio is lower than the average. If we see the actual trend, we can find its Current Ratio is not so volatile over time.

The Straight Line Trend fitted on the basis of least square method shows a lung run negative growth rate of -0.1712 times per year for this Ratio. Based on the fitted Trend Line, it can be expected that the liquidity position of the Organization would remain sound in future.

4.3.1.2 Quick Ratio/ Acid Test Ratio

One defect of Current Ratio is that it fails to convey any information on the composition of the current assets of a firm. Quick Ratio is a measure of liquidity designed to overcome the defect of Current Ratio. The term quick refers to current assets which can be converted into cash immediately or at a short notice without diminution of value. The current assets excluded from this category are inventory and prepaid expenses. So, while calculating Quick Ratio for NTC, inventory is deducted from total current assets and divided by total current liabilities. Quick Ratio is supposed to be around 1:1 but this standard also should be defined by the nature of the organization.

$$\text{Quick ratio (Qr)} = \text{Quick assets/Current liabilities}$$

$$\text{Quick Assets} = \text{Current Assets}-\text{Inventory}$$

Table 4.7

Calculation of quick ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | Current Assets | Inventory | Quick Assets | Current Liabilities | Quick Ratio | Straight Line Trend |
|----------------|----------------|-----------|--------------|---------------------|---------------|---------------------|
| 2004/05 | 12320607 | 507906 | 11812701 | 5858107 | 2.016 | 2.027 |
| 2005/06 | 15336625 | 483231 | 14853394 | 8054419 | 1.844 | 1.873 |
| 2006/07 | 18424147 | 400784 | 18023364 | 10137347 | 1.778 | 1.719 |
| 2007/08 | 20213763 | 255250 | 19958513 | 12629716 | 1.58 | 1.566 |
| 2008/09 | 20598353 | 309857 | 20288496 | 14722678 | 1.38 | 1.412 |
| Average | | | | | 1.7196 | |

Source: Audited financial Reports of NTC

Straight Line Trend of the Ratio is: $= 2.1804 - 0.1536(X)$

When $X=6$, $= 1.2588$ {i.e. Expected Quick Ratio for next year (year=6)}

Where,

Y= estimate of the Quick Ratio

X= measure of time when base year 2004/05 = 1

The above table shows that the average Quick Ratio is 1.7196 times during the study period. The Ratio of 1.7196, on an average, indicates that the Organization has quick assets of Rs 1.7196 for each rupee of current liabilities. As average Current Ratio is 1.7196 throughout the study period, we can see a little difference between these two Ratios (just about 0.091). It means that the least liquid item among the current assets, the inventory, has occupied a very nominal place as part of the total current assets of NTC. In this respect, NTC can be said to have a good liquidity position to fulfill its current obligations when they become due.

The table shows that the Ratio ranges between a highest of 2.016 times in F/Y2004/05 AD and a lowest of 1.38 times in F/Y 2008/09 AD. The overall Ratio Trend does not show any clear direction but in most recent years it seems decreasing slowly. While comparing with the average, one finds that in F/Ys 2004/05 to 2006/07 AD the Ratio is higher than the average and in F/Ys 2007/08 and 2008/09 AD the Ratio is lower than the average. If we see the actual trend, we can find that the Quick Ratio is not so volatile over time.

The Straight Line Trend fitted on the basis of least square method shows a lung run positive growth rate of -0.1536 times per year for this Ratio. Based on the fitted Trend Line, it can be expected that the liquidity position of the Organization could remain sound in future.

4.3.2 Turnover Ratio / Activity Ratio

Funds of creditors and owners are invested in various assets to generate sales and profits. The better the management of assets, the larger will be the amount of sale. Activity Ratios are employed to evaluate the efficiency with which the firm manages and utilizes its assets. These Ratios are also called Turnover Ratios because they indicate the speed with which assets are being converted or turned over into sales. So, it involves a relationship between sales and assets reflecting whether assets are managed well. Several Activity Ratios can be calculated to judge the effectiveness of assets utilization.

4.3.2.1 Inventory Turnover Ratio (ITR)

The Inventory Turnover Ratio (ITR) is the relation between the sales and the inventory of a firm. It indicates the efficiency with which the firm is able to use its inventory to generate sales revenues. Generally, the higher a firm's Inventory Turnover, the more efficient its inventory management is supposed to be. The Inventory Turnover is calculated by dividing sales by closing inventory. This Ratio of NTC for the period of five years along with its Straight Line Trend is calculated.

$$\text{Inventory Turnover Ratio} = \text{Sales/Inventory}$$

Table 4.8

Calculation of inventory turnover ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | Operating Sales | Inventory | Inventory Turnover | Straight Line Trend |
|---|-----------------|-----------|--------------------|---------------------|
| 2008/09 | 5491395 | 507906 | 10.812 | 9.643 |
| 2008/09 | 6159520 | 483231 | 12.747 | 15.002 |
| 2008/09 | 7208086 | 400784 | 17.985 | 20.362 |
| 2008/09 | 8312244 | 255250 | 32.565 | 25.72 |
| 2008/09 | 8584144 | 309857 | 27.70 | 31.081 |
| Average Inventory Turnover Ratio | | | 20.3618 | |

Source: Audited financial Reports of NTC

Straight Line Trend of the Ratio is: $Y = 4.2836 + 5.3594(X)$

When $X=6$, $Y = 36.44$ {i.e. Expected ITR for next year (year=6)}

Where

Y = estimate of the Inventory Turnover Ratio

X = measure of time when base year 2004/05 = 1

Above tables show that the average of the Inventory Turnover Ratio of NTC for the past five years is 20.3618 times. The average Ratio of 20.3618 indicates that each rupee of inventory is generating sales of Rs. 20.3618. It ranges between a highest of 32.565 times in F/Y 2007/08 AD and a lowest of 10.812 times in F/Y 2004/05 A.D. The overall Ratio Trend shows an upward direction particularly in the most recent years. If we see the actual trend, we can find that the Inventory Turnover Ratio is mildly volatile over time. But for the last years, the Ratio is increasing continuously. And since a high Ratio is good from the view point of inventory utilization, the increasing Ratio seems favorable for NTC.

The Straight Line Trend fitted on the basis of least square method shows a long run positive growth rate of 5.3594 times per year for this Ratio. Based on the fitted Trend Line, it can be expected that the inventory utilization level of NTC should improve in coming years.

4.3.2.2 Average Age of Inventory

Average Age of Inventory is just an alternate method of expressing the efficiency of the inventory management. Lesser the time the inventory remains in the go down, better would be the inventory management. The Average Age of Inventory is calculated by dividing 360 by Inventory Turnover Ratio.

Average age of inventory = $360 / \text{inventory turnover ratio}$

Table 4.8
Calculation of Average Age of Inventory

(No. of days)

| Fiscal Year | Inventory Turnover | Average Age of Inventory |
|-------------|--------------------|--------------------------|
| 2004/05 | 10.812 | 33 |
| 2005/06 | 12.747 | 28 |
| 2006/07 | 17.985 | 20 |
| 2007/08 | 32.565 | 11 |
| 2008/09 | 27.70 | 13 |
| Average | | 21 |

Source: Audited financial Reports of NTC

Above tables show that the Average Age of Inventory of NTC for the study period is 21 days. The average value of 21 indicates that an item of inventory purchased by the firm remains in the godown for 21 days before being released for sale or service to its customers (i.e. a typical item of inventory in the store is replaced every 21 day. The Average Age ranges between a highest of 33 days in F/Y 2004/05 AD and a lowest of 11days in F/Y 2007/08 AD. The overall value trend shows a downward direction particularly in the most recent years. If we see the actual trend, we can find that the Average Age of Inventory is showing decreasing tendency over time, particularly for the last four years. And since a lower value is good from the view point of inventory utilization, the decreasing value is a good indication for NTC.

4.3.2.3 Debtors Turnover Ratio (DTR)

The Debtors Turnover Ratio (DTR) is the relation between the sales and the receivables of a firm. The analysis of Debtors Turnover Ratio supplements the information regarding the liquidity of one item of current assets of the firm. It indicates the efficiency with which the firm is able to turn its credit sales into cash. Generally, the higher a firm's Debtors Turnover, the more efficient its credit management is supposed to be and vice versa. The Debtors Turnover is calculated by dividing sales by closing sundry debtors.

This Ratio of NTC for the period of five years along with its Straight Line Trend is calculated.

$$\text{Debtors Turnover Ratio} = \text{Sales} / \text{Debtors}$$

Table 4.9
Calculation of Debtors Turnover Ratio and its straight line trend equation
(Rs. in thousand)

| Fiscal Year | Operating Sales | Debtors | Debtors Turnover | Straight Line Trend |
|--------------------------------|-----------------|---------|------------------|---------------------|
| 2004/05 | 5491395 | 1760772 | 3.119 | 2.7382 |
| 2005/06 | 6159520 | 2468080 | 2.496 | 2.8282 |
| 2006/07 | 7208087 | 3030277 | 2.379 | 2.873 |
| 2007/08 | 8312244 | 2668942 | 3.11 | 2.918 |
| 2008/09 | 8584144 | 2825943 | 3.037 | 2.963 |
| Average Debtors Turnover Ratio | | | 2.8282 | |

Source: Audited financial Reports of NTC

Straight Line Trend of the Ratio is: $=2.6932+.045 (X)$

When $X=6$, $= 2.9632$ {i.e. Expected DTR for next year (year=6)}

Where,

Y= estimate of the Debtors Turnover Ratio

X= measure of time when base year 2004/05 = 1

Above table shows that the average DTR of NTC for the past five years is 2.8282 times. The average Ratio of 2.8282 indicates that each rupee of investment in receivables is generating sales of Rs. 2.8282. It ranges between a highest of 3.119 times in F/Y 2004/05 AD and a lowest of 2.379 times in F/Y 2006/07 AD. The overall trend of the Ratio does not show any specific direction. The Ratio seems to be mildly volatile over time but it has shown marked improvements over the most recent years of the study period which, if maintained, can be a very good sign for the credit collection of the NTC. While comparing with the average, one finds that from F/Y 2004/05, 2008/09, and

2007/08 the Ratio is higher than the average and for F/Ys 2005/06 to 2006/07 AD the Ratio is lower than the average.

The Straight Line Trend fitted on the basis of least square method shows a long run positive growth rate of 045 times per year for this Ratio. Based on the fitted Trend Line, it can be expected that the receivable management of NTC should improve in coming years.

4.3.2.4 Average Collection Period (ACP)

The average number of days through which debtors remains outstanding is called Average Collection Period. Average Collection Period is just an alternate method of expressing the turnover efficiency of the receivables. Lesser the time the receivables remains due, better it is supposed to be. The Average Collection Period is calculated by dividing 360 by Debtors Turnover Ratio.

$$\text{Average Collection Period (ACP)} = \text{Debtors} * 360 / \text{Sales}$$

Table 4.10

Calculation of Average Collection Period

(Rs. in thousand)

| Fiscal Year | Debtors | Operating Sales | ACP (Days) |
|------------------|---------|-----------------|------------|
| 2004/05 | 1760772 | 5491395 | 115 |
| 2005/06 | 2468080 | 6159520 | 144 |
| 2006/07 | 3030277 | 7208087 | 151 |
| 2007/08 | 2668942 | 8312244 | 115 |
| 2008/09 | 2825943 | 8584144 | 116 |
| 5-Yearly Average | | | 128 |

Source: Audited financial Reports of NTC

Above table shows that the Average Collection Period of NTC over the five years of study period is 128 days. The average value of 128 indicates that an invoice of credit receivable remains outstanding for 128 days before being collected from the customers

(i.e. a typical debtor of NTC pays his/her dues 128 days after the purchase of goods/consumption of service). The ACP ranges between a highest of 151 days in F/Y 2006/07 and a lowest of 115 days in F/Y 2004/05A.D. and 2007/08 A D. While comparing with the average, one finds that from F/Y 2004/05 to 2008/09, the values are higher than the average and for F/Ys 2005/06 and 2006/07. If we take a close look at the actual trend, we can find that the Average Collection Period is showing decreasing tendency over later half periods of the study periods. And since a lower value is good from the view point of collection efficiency, the decreasing value may be a good indication for NTC in coming years.

4.3.2.5 Total Assets Turnover Ratio

The Total Assets Turnover (TATR) is the relation between the sales and the total assets of a firm. It indicates the efficiency with which the firm is able to use all its assets to generate sales revenues. Generally, the higher a firm's Total Assets Turnover, the more efficiently its assets said to be. The Total Assets Turnover is calculated by dividing sales by total assets. This Ratio of NTC for the period of five years along with its graphic trend is shown in the following table.

$$\text{Total Assets Turnover Ratio (TATR)} = \text{Sales} / \text{Total assets}$$

Table 4.11

Calculation of Total Assets Turnover Ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | Total Sales | Total Assets | TA Turnover | Straight Line Trend |
|----------------------------------|-------------|--------------|-------------|---------------------|
| 2004/05 | 5928648 | 21584396 | 0.2747 | 0.2689 |
| 2005/06 | 6555992 | 25115657 | 0.2610 | 0.2665 |
| 2006/07 | 7669283 | 29724632 | 0.2580 | 0.2641 |
| 2007/08 | 8855034 | 33080441 | 0.2670 | 0.262 |
| 2008/09 | 9194297 | 35430582 | 0.2595 | 0.2592 |
| Average of Total Assets Turnover | | | 0.26404 | |

Source: Audited financial Reports of NTC

Where,

Total Assets = Current Assets + Total fixed Assets

Total fixed Assets = Net fixed assets + capital work in progress + Investments

Straight Line Trend of the Ratio is: $= 0.27136 - 0.00244 (X)$

When $X=6$, $= 0.2567$ {i.e. Expected TAT Ratio for next year (year=6)}

Where,

Y = estimate of the Total Assets Turnover Ratio

X = measure of time when base year 2004/05 = 1

Above table shows that the average of the TATR Ratio of NTC for past five years is 0.26404 times which is lower than the general standard average of at least 1.00 times for this line of business. The Ratio seems to be a little volatile as it ranges from 0.2580 in F/Y 2006/07 to 0.2747 in F/Y 2004/05 AD. The average Ratio of 0.26404 indicates that each rupee of investment in assets is generating sales of Rs. 0.26404. The overall Ratio Trend shows a random movement of the Ratio over the five year period. Though the Inventory Turnover Ratio is mildly volatile over time, but for the last 3-4 years, the Ratio is decreasing continuously which should be the real cause of concern for the NTC. Unless the firm generates sufficient volume the further investment in assets will not be justified.

The Straight Line Trend fitted on the basis of least square method shows a long run negligible negative growth rate of -0.00244 times per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that the total assets utilization level of NTC should remain at least constant in coming years. Continuous expansion of its assets over the recent years followed by marginal increase in sales has primarily caused TATR to remain stable. If the firm cannot utilize this expanded capacity in the near future, the firm may have to retrench its assets investment or else it would face stagnant TATR Ratio.

4.3.2.6 Fixed Assets Turnover Ratio (FATR)

The Fixed Asset Turnover measures the efficiency with which the firm has been using its fixed (earning) assets to generate sales. This Ratio shows the relationship between sales and net fixed assets of a firm. Generally, higher turnover is preferred because it reflects greater efficiency in the utilization of fixed assets. The Fixed Asset Turnover is calculated by dividing the firm's sales by its net fixed assets. This Ratio of NTC along with its graphical trend for the period of five year is shown as follows:

$$\text{Fixed assets turnover ratio (FATR)} = \text{Sales} / \text{net fixed assets}$$

Table 4.12

Calculation of fixed assets turnover ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | Operating Sales | Net Fixed Assets | FA Turnover | Straight Line Trend |
|----------------------------------|-----------------|------------------|-------------|---------------------|
| 2004/05 | 5491395 | 6672252 | 0.823 | 0.8534 |
| 2005/06 | 6159520 | 6840397 | 0.900 | .0.8912 |
| 2006/07 | 7208087 | 7607614 | 0.947 | 1.2692 |
| 2007/08 | 8312244 | 8094882 | 1.026 | 1.307 |
| 2008/09 | 8584144 | 9040917 | 0.949 | 1.3448 |
| Average of Fixed Assets Turnover | | | 0.929 | |

Source: Audited financial Reports of NTC

Figure 4.4

Net Fixed Assets of Nepal telecom

Straight Line Trend of the Ratio is: $= 0.8156 + 0.0378 (X)$

When $X=6$, $= 1.0424$ {i.e. Expected FAT for next year (year=6)}

Where,

Y= estimate of the Fixed Assets Turnover Ratio

X= measure of time when base year 2004/05 = 1

From the above table, it is clear that the Fixed Assets Turnover of NTC is in increasing trend. It ranges from a minimum of 0.823 times in F/Y 2004/05 AD to a maximum of 1.026 times in F/Y 2007/08. While comparing with the average, one finds that in initial two years, the Ratios are below the average and for later three years, the Ratios are above the average. The average Ratio is 0.929 times which indicates that each rupee of investment in fixed assets is generating sales of 92.9 paisa. Although average of this Ratio is below 1.00 marks, the good aspect is that it is showing a clear upward trend in later half of the study period.

The Straight Line Trend fitted on the basis of least square method shows a sizeable long run positive growth rate of 0.0378 times per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that the fixed assets utilization level of NTC should improve, at least in coming years. NTC should try to increase its current level of fixed assets utilisation in the near future.

4.3.2.7 Working Capital Turnover Ratio (WCT)

The Working Capital Turnover (WCT) Ratio measures the efficiency with which the firm has been using its net current assets (revolving assets) to generate sales. This Ratio shows the relation between sales and net current assets of a firm. Generally, higher turnover is preferred because it reflects greater efficiency in the utilization of net current assets. Working capital here means only that part of current assets which is financed by the long term sources. The Working Capital Turnover is calculated by dividing the firm's sales by

its net working capital. This Ratio of NTC along with its graphical trend for the period of five year is shown as follows:

$$\text{Working Capital Turnover Ratio (WCT)} = \text{Sales} / \text{Net working capital}$$

Table 4.13

Calculation of Working Capital Turnover ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | Operating Sales | CA | Total CL | Net WC | WC Turnover | Straight Line Trend |
|--|-----------------|----------|----------|----------|-------------|---------------------|
| 2004/05 | 5491395 | 12320607 | 5858107 | 6462500 | 0.917 | .7822 |
| 2005/06 | 6159520 | 15336625 | 8054419 | 7282206 | 0.900 | 0.9385 |
| 2006/07 | 7208087 | 18424147 | 10137347 | 82868000 | 0.925 | 1.0948 |
| 2007/08 | 8312244 | 20213763 | 12629716 | 7584047 | 1.167 | 1.2511 |
| 2008/09 | 8584144 | 20598353 | 14722678 | 5875675 | 1.565 | 1.4074 |
| Average of Working Capital (WC) Turnover | | | | | 1.0948 | |

Source: Audited financial Reports of NTC

Where,

$$\text{Total Current liabilities} = \text{Current liabilities} + \text{provision}$$

Straight Line Trend of the Ratio is: $= 0.6259 + 0.1563 (X)$

When $X=6$, $= 1.5637$ {i.e. Expected WCT for next year (year=6)}

Where,

Y= estimate of the Working Capital Turnover Ratio

X= measure of time when base year 2004/05 = 1

Above table and figure show that the average of the WCT Ratio of NTC for past five years is 1.0948 times and this is lower than the general standard average of at least 2.00 times for this line of business. The ratio seems to be increasing as it ranges from 1.565 in 2008/09 AD to 0.9 in 2004/05 AD. The average Ratio of 1.0948 indicates that each rupee of investment in working capital is generating sales of Rs. 1.0948 The overall Ratio Trend shows a upward movement of the Ratio over the five year period.. It means that

for the 5 years, the Ratio is increasing continuously which should be the real cause of concern for the NTC.

The Straight Line Trend fitted on the basis of least square method shows a long run sizeable growth rate of 0.1563 times per year for this ratio. If this ratio is to move as per the fitted trend Line in future, it can be expected that the total assets utilization level of the company would be to the level of satisfactory in the near future. Continuous addition in working capital over the recent years followed by less than proportional increase in sales has primarily caused WCT to nosedive over the study period. If the firm cannot utilize this added investment in working capital in the near future, the firm may have to retrench its working capital investment or else it would face further decline in WTC Ratio.

4.3.2.8 Capital Employed Turnover Ratio (CET)

Funds of owners and creditors are invested in various assets to generate sales, so the invested capital must be compared & analyzed with sales in order to examine the efficiency of the company's management in generating revenues from available capital. The Sales to Capital Employed Ratio, also called Capital Employed Turnover, have been computed to know how efficiently the long term capital is employed in generation of revenues. Higher Ratio is desirable from the viewpoint of owners as well as creditors. The Ratio shows the future sales promotion condition by appropriate use of long term debt and capital.

Capital Employed Turnover Ratio (CET) = Sales/Total Capital Employed

Capital Employed Turnover Ratio (CET) = Total of Net Worth + Long Term Liabilities

Table 4.14
Calculation of Capital Employed Turnover Ratio and its straight line trend
equation

(Rs. in thousand)

| Fiscal Year | Total Sales | Capital Employed | CE Turnover | Straight Line Trend |
|--|-------------|------------------|-------------|---------------------|
| 2000/01 | 5928648 | 15726288 | 0.372 | 0.3664 |
| 2004/05 | 6555992 | 17061238 | 0.384 | 0.3854 |
| 2005/06 | 7669283 | 19587285 | 0.391 | 0.4044 |
| 2006/07 | 8855034 | 20450725 | 0.432 | 0.4234 |
| 2007/08 | 9194297 | 20707904 | 0.443 | 0.4424 |
| Average of Working Capital (WC) Turnover | | | 0.4044 | |

Source: Audited financial Reports of NTC

Figure 4.5
Total Capital Employed

Straight Line Trend of the Ratio is: $= 0.3474 + 0.019(X)$

When $X=6$, $= 0.4614$ {i.e. Expected CET for next year (year=6)}

Where, Y = estimate of the Capital Employed Turnover Ratio

X = measure of time when base year 2004/05 = 1

Above table shows that the average of the CET Ratio of NTC for past five years is 0.4044 times which is lower than the general standard average of at least 1.00 times for this type of business. The Ratio ranges from the lowest of 0.372 in F/Y 2004/05 AD to the highest of 0.443 in 2008/09 AD. The average Ratio of 0.4044 indicates that each rupee of investment in permanent capital is generating sales of just 40.44 paisa. The overall Ratio Trend shows a positive movement of the Ratio over the five year period. While comparing with the average, one finds that in F/Ys 2004/05, 2002/01 and 2006/07 AD, the Ratio is higher than the average and for F/Ys 2007/08, 2008/09 AD the Ratio is lower than the average.

The Straight Line Trend fitted on the basis of least square method shows a long run positive growth rate of 0.019 times per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that the volume generated by the permanent capital of the company should increase in coming years.

4.3.3 Leverage Ratio

The short - term creditors like bankers and suppliers of raw materials are more concerned with the firm's current debt paying ability. On the other hand, long term creditors, like debenture holders, financial institutions, etc. are more concerned with the firm's long term financial strength. In fact, a firm should have a strong short as well as long term financial position. To judge the long term financial position of the firm, financial leverage, or Capital Structure Ratios are calculated. These Ratios indicate mix of the

funds provided by owners and lenders. As a general rule, there should be an appropriate mix of debt and owners equity in financing the firm's assets.

4.3.3.1 Total Debt Ratio (TDR)

The relationship between creditors' funds and total assets is known as proprietary Ratio. This Ratio measures the proportion of total assets financed by owners' funds. This Ratio intends to show the long-term financial composition/strength of the company. Higher Ratio means high financial risk and lower Ratio means not-proper utilization of leverage benefit. So, an average position between the two extremes is favourable .It is calculated by dividing total liabilities by total assets. The Total Debt Ratio along with its Straight Line Trend of NTC for the past five year period is shown in the following table.

$$\text{Total Debt Ratio} = \text{Total debt} / \text{Total assets}$$

$$\text{Total Debt} = \text{Current liabilities} + \text{Long term debt}$$

Table 4.15
Calculation of Total Debt Ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | Total Debt | Total Assets | Total Debt Ratio | Straight Line Trend |
|-----------------------------|------------|--------------|------------------|---------------------|
| 2004/05 | 6810458 | 21584396 | 0.316 | 0.3094 |
| 2005/06 | 8354409 | 25115657 | 0.333 | 0.3343 |
| 2006/07 | 10371127 | 29724632 | 0.349 | 0.3592 |
| 2007/08 | 12640965 | 33080441 | 0.382 | 0.3841 |
| 2007/08 | 14746917 | 35430582 | 0.416 | 0.409 |
| Average of Total Debt Ratio | | | 0.3592 | |

Source: Audited financial Reports of NTC

Figure 4.6
Total Debt of Nepal Telecom

Where, Total Debt= Long Term Liab+ Current Liab and provision

Total Assets= Current Assets+ Fixed Assets+ Investments+ Capital Work in Progress

Straight Line Trend of the Ratio is: **=0.2845+0.0249(X)**

When X=6, = 0.4339 {i.e. Expected CET Ratio for next year (year=6)}

Where, Y= estimate of the Total Debt Ratio

X= measure of time when base year 2004/05 = 1

In the above table, Total Debt to Total Asset Ratio of NTC from F/Y 2004/05 to F/Y 2008/09 AD is presented. The total debt of NTC includes the all short term as well as long term loans included in the balance sheet of NTC, presented in the appendix of this thesis. The total assets include the entire assets of NTC shown in the balance sheet. During the F/Y 2004/05, the actual value of the ratio during each of the successive years of the period seems to be increasing. The average ratio for the five t-year period indicates that the creditors have contributed just around 35% of the fund requirement of the

business. It seems that in recent years the Corporation, recognizing the risk and utilising the surplus profit, has increased the debt.

The Straight line trend fitted on the basis of least square method shows a long run growth rate of 0.0249 times per year for this Ratio. If this ratio is to move as per the fitted Trend Line in future, the debt would increase so fast that most of the benefits of leverage can be recognized.

4.3.3.2 Debt Equity Ratio (DE)

Debt to Equity Ratio is another type of measure of financial structure. This Ratio shows the position of total debt relative to the owner's capital. This relationship between total debt and net worth shows the outsiders' liabilities as a percentage of owners' capital. There is no exact standard norm of this Ratio, but in common practice this Ratio will be good for industries of this sort if it is below 1.5:1. This Ratio is calculated by dividing total debt by net worth. The table given below shows the Debt Equity Ratio of NTC for five years period with the Trend Line in accompanying graph.

$$\text{Debt Equity Ratio (DE)} = \text{Total Debt} / \text{Net Worth}$$

$$\text{Net worth} = \text{Total of equity capital} + \text{Reserve and surplus} - \text{Deferred expenditure}$$

Table 4.16

Calculation of Debt Equity Ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | Total Debt | Net worth | Debt Equity Ratio | Straight Line Trend |
|------------------------------|------------|-----------|-------------------|---------------------|
| 2004/05 | 6810458 | 14773937 | 0.455 | 0.4344 |
| 2005/06 | 8354409 | 16927414 | 0.494 | 0.4982 |
| 2006/07 | 10371127 | 16761248 | 0.531 | 0.562 |
| 2007/08 | 12640965 | 20439476 | 0.618 | 0.6258 |
| 2008/09 | 14746917 | 20683665 | 0.712 | 0.6896 |
| Average of Debt Equity Ratio | | | 0.562 | |

Source: Audited financial Reports of NTC

Figure 4.7
Total Net Worth of Nepal Telecom

Straight Line Trend of the Ratio is: $Y = 0.3706 + 0.0638(X)$

When $X=6$, $Y = 0.7534$ {i.e. Expected Debt-Equity Ratio for next year (year=6)}

Where, Y = estimate of the Debt-Equity Ratio

X = measure of time when base year 2004/05 = 1

The above table shows that the Total Debt to Net worth Ratio of NTC is increasing year by year.. This increase indicates that the organization deliberately wants to increase its financial leverage/risk and shows the management's attitude to content with lever up the capital structure of the organization. The Ratio ranges from a higher of 0.712 in F/Y 2008/09 AD to a lower of 0.455 in F/Y 2004/05 AD. The average is 0.562 which means that for each rupee of equity holder's money, the debt holder's have contributed 56 paisa to finance the firm's operation. This Ratio is lower than average in initial three years and higher than the average in the final two years of the study period. The average of this Ratio over the study period is clearly much lower than the general industry norm of 1.5:1.

The Straight Line Trend fitted on the basis of least square method shows a long run sizeable positive growth rate of 0.0638 times per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that the debt financing level of the company would almost two third the equity financing of the Organization in the coming year. Continuous addition in debt over the study periods followed by marginal increase in total debt in the same periods has primarily caused D-E Ratio to nosedive over the study period.

4.3.3.3 Long Term Debt to Capital employed ratio (LTD TO CE)

The relationship between creditors' funds and firm's capital can also be expressed in terms of another Leverage Ratio, known as LTD to CE Ratio. Here, the just the long term creditors' funds are measured relative with the total capitalization of the firm and not merely with the NW. The total capitalization or capital employed includes the total explicit cost bearing debt (long term) and shareholders' equity. This Ratio is computed by dividing LTD by CE. The table given below shows the LTD to CE Ratio of NTC for five years of study period. And the figure shows the Trend Line for this Ratio.

Long Term Debt to capital employed ratio = Long Term Debt / Capital Employed

Table 4.17

Calculation of Long - term debt to capital employed ratio and its straight line trend

(Rs. in thousand)

| Fiscal Year | Long Term Debt | Capital Employed | CE to NW Ratio | Straight Line Trend |
|---------------------------------|----------------|------------------|-----------------|---------------------|
| 2004/05 | 952351 | 15726288 | 0.06055 | 0.0192 |
| 2005/06 | 299990 | 17061238 | 0.01758 | 0.02359 |
| 2006/07 | 233780 | 19587285 | 0.01193 | 0.02803 |
| 2007/08 | 11249 | 20450725 | 0.00055 | 0.03241 |
| 2008/09 | 24239 | 20707904 | 0.00117 | 0.0368 |
| Average of Long Term Debt Ratio | | | 0.018356 | |

Source: Audited financial Reports of NTC

Straight Line Trend of the Ratio is: $Y = 0.014718 + 0.004438(X)$

When $X=6$, $Y = 0.041346$ {i.e. Expected LTD to CE Ratio for next year (year=6)}

Where, Y = estimate of the LTD to CE Ratio

X = measure of time when base year 2004/05 = 1

The Ratio shows steeply decreasing pattern over time. The average Ratio of 1.8% implies that out of total capitalization, only about one-fifth is financed by permanent debt sources and remaining four-fifth by equity fund. This may imply a good margin of safety to the company lenders point of view. But, from the view point of the owners, the reduction in this Ratio position signifies that the company is not properly utilising the benefits of the leverage for magnifying the return to the stockholders.

The Straight Line Trend fitted on the basis of least square method shows a long run growth rate of 0.004438 times per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that long term debt of NTC would take subsequent part in coming year.

4.3.3.4 Interest Coverage Ratio(IC)

Interest Coverage (IC) Ratio is one of the most important Coverage Ratio used to test the firm's debt- servicing capacity. This Ratio is computed by dividing EBIT by interest expenses. This Ratio, as the name implies shows how many times the interest charges are covered by EBIT. A higher IC Ratio is desirable, but too high indicates that firm is conservative in using debt and firm is not using enough creditors' securities to the best advantage of shareholders. A lower IC Ratio indicates excessive use of debt or inefficient/weak operational profit. This Ratio for NTC for the period of F/Y 2004/05 to 2008/09 is calculated as follows.

$$\text{Interest Coverage Ratio} = \text{EBIT} / \text{Interest}$$

Table 4.18

Calculation of Interest Coverage Ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | Interest Expenses | EBIT | IC Ratio | Straight Line Trend |
|-----------------------------|-------------------|---------|-----------|---------------------|
| 2004/05 | 143654 | 3186669 | 22.1829 | 2812.15 |
| 2005/06 | 38407 | 3358570 | 87.4468 | 3463.621 |
| 2006/07 | 15955 | 4109072 | 257.5413 | 4115.092 |
| 2007/08 | 3292 | 4553959 | 1383.3410 | 4766.563 |
| 2008/09 | 696 | 4922225 | 7072.1620 | 5418.03 |
| Average of Total Debt Ratio | | | 1764.535 | |

Source: Audited financial Reports of NTC

Straight Line Trend of the Ratio is $= 2160.685+651.471 (X)$

When $X=6$, $= 6069.51$ {i.e. Expected IC Ratio for next year (year=6)}

Where, Y = estimate of the Interest Coverage Ratio

X = measure of time when base year 2004/05 = 1

The above table shows the Interest Coverage Ratio of NTC over the study periods. It seems that the Organization has excellent and all time increasing Coverage Ratios over the period i.e. the debt servicing capacity of NTC seems quite favourable. But this is a good performance in disguise because we can see that the organization is reducing its use of long term debt over the years so fast that the fixed interest burden of the organization becomes almost negligible in the most recent year. The average Interest Coverage Ratio is 1764.535 times which implies that NTC has been able to cover the interest expenses by a good margin of safety. In other words, the Organization seems to be able to earn good operating profit to meet its fixed obligations.

During the study period, the Ratio ranges from a minimum of 22.1829 times in F/Y 2004/05 to a maximum of 7072.16 times in F/Y 2008/09. In last two years, there has been remarkable improvement in Coverage Ratio but this all is more because of dwindling

interest expenses rather than excellent operating profits. So, the performance of the firm in terms of Interest Coverage Ratio should be judged cautiously in this case.

The Straight Line Trend fitted on the basis of least square method shows a long run sizeable positive growth rate of 651.471 times per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that the debt servicing ability of the firm would not be any cause of concern in coming years. Continuous sharp reduction in long term debts over the study periods followed steady increase in operating income over the same periods has primarily caused Interest Coverage Ratio to increase fast over the study period.

4.3.4 Profitability Ratio

A company should earn profits to survive over a long period of time. Therefore, profits are essential for a company. But, then, it does not mean that every action initiated by management of a company should be aimed at maximizing profits. The social consequence of the actions does also matter. So, maximum profit consistent with social responsibility should be the long run objective. It is unfortunate that the word 'profit' is looked upon as a term of abuse since some firms always want to maximize profits at the cost of employees, customers and society. Except such infrequent cases, it is a fact that sufficient profits must be earned to sustain the operation of the business, to be able to obtain funds from investors for expansion and growth and to contribute towards the social overheads for the welfare of the society.

Profit is the difference between revenues and expenses over a period of time. Profit is the ultimate 'output' of a company, and it will have no future if it fails to make sufficient profits. Therefore, the financial manager should continuously evaluate the efficiency of the company in terms of profits. The profitability Ratio is calculated to measure the operating efficiency of the company. Creditors and owners both are interested in the profitability of the firm. If company is making profits regularly, creditors will also be assured of getting their dues on time.

4.3.4.1 Net Profit Margin (NPM)

The Net Profit Margin measures the relationship between profit and sales and indicates management's efficiency in manufacturing, administering and selling the product. This Ratio is the overall measure of the firm's ability to turn each rupee sales into net profit. A high Net Profit Margin would ensure adequate return to the owners as well as enable the firm to withstand adverse economic conditions. A low Net Profit Margin has the opposite implications. However, a firm with low Net Profit Margin can earn a high rate of return on investment if it has a higher Inventory Turnover. The Net Profit Margin is measured by dividing profit after taxes by sales.

$$\text{Net Profit Margin} = \text{Net Profit after Tax} / \text{Sales}$$

Table 4.19

Calculation of net profit margin ratio and its straight line trend using net profit after tax

(Rs. in thousand)

| Fiscal Year | NPAT | Total Sales | NP Margin | Straight Line Trend |
|------------------------------------|---------|-------------|-----------|---------------------|
| 2004/05 | 2281997 | 5928648 | 0.384 | 0.3842 |
| 2005/06 | 2467930 | 6555992 | 0.376 | 0.3839 |
| 2006/07 | 3087782 | 7669283 | 0.402 | 0.3836 |
| 2007/08 | 3290117 | 8855034 | 0.371 | 0.3833 |
| 2008/09 | 3542461 | 9194297 | 0.385 | 0.383 |
| Average of Net Profit Margin Ratio | | | 0.3836 | |

Source: Audited financial Reports of NTC

Figure 4.8
Net Profit of NTC

Straight Line Trend of the Ratio is= **0 .3845-0.0003 (X)**

When X=6, = 0.3827 {i.e. Expected NPM for next year (year=6)}

Where, Y= estimate of the Net Profit Margin Ratio

X= measure of time when base year 2004/05 = 1

Above table shows that the average of the NPM Ratio of NTC for past five years is 38.36% which is higher than the general standard average of at least 25% for this line of business. The Ratio seems to be stable barring over the study period. The average Ratio of 0.3836 times indicates that each rupee sales is contributing 0.3836 paisa for rewarding the owners. The overall Ratio Trend shows a small swing in either direction of the Ratio within the range of 37.6% to 40.20% over the five year period. The computations show that the Net Profit Margin upon sales is favorable. With the low Turnover Ratio, further decline in NPM is sure to have a negative impact on the equity holders' return.

The Straight Line Trend fitted on the basis of least square method shows a long run negligible positive growth rate of -0.0003% per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that the profit margin level of the company in coming years should remain at stable to the firm currently earning. Continuous increase in the cost composition of the Organization due to ongoing Maoist civil war is perhaps showing its effect on the profitability of the organisation.

4.3.4.2 Modified Net Profit Margin (MNP)

Depending on the concept of profit employed by the company, Net Profit Margin Ratio can be calculated differently. The company's capital structure, non - operating income and non - operating expenses etc. are some factors that affect the earnings by its operation. So among different factors, capital structure is an important factor which can bring important variation in this ratio and can make comparison distorted. Because the conventional measure of net profit margin computed above is affected by the firms financing policy. So, for a true comparison free of biases of the leverage ratio variation, profit should also include the financing charges. Thus, the revised net profit margin can be computed in the following way:

$$\text{Net Profit Margin} = (\text{NPAT} + \text{Interest after tax}) / \text{Sales}$$

Table 4.20

Calculation of net profit margin ratio and its straight line trend using earnings after tax + interest after tax as profit

(Rs. in thousand)

| Fiscal Year | NPAT | Int. AT | NPAT+Int. AT | Total Sales | NP M | Straight Line Trend |
|------------------------------------|---------|-----------|--------------|-------------|--------------|---------------------|
| 2004/05 | 2281997 | 105089.77 | 2299306.77 | 5928648 | 0.388 | 0.3816 |
| 2005/06 | 2467930 | 26747.98 | 2353276.98 | 6555992 | 0.359 | 0.3823 |
| 2006/07 | 3087782 | 12063.870 | 3149287.87 | 7669283 | 0.411 | 0.383 |
| 2007/08 | 3290117 | 2195 | 3292312 | 8855034 | 0.372 | 0.3837 |
| 2008/09 | 3542461 | 501 | 3542461 | 9194297 | 0.385 | 0.3844 |
| Average of Net Profit Margin Ratio | | | | | 0.383 | |

Source: Audited financial Reports of NTC

Straight Line Trend of the Ratio is: $= 0.3809 + 0.0007 (X)$

When $X=6$, $= 0.3851$ {i.e. Expected Modified NPM Ratio for next year (year=6)}

Where, Y = estimate of the Modified NPM Ratio

X = measure of time when base year 2004/05 = 1

If we eliminate the effect of financing charges from the Net Profit Margin, the Trend Line deteriorates and turns into negative. Now ranges between a highest of 47.6% in F/Y 2004/05 to 35.9% in F/Y 2005/06 AD. Besides these, the Modified Net Profit Margin Ratio has similar strengths and weaknesses as general Net Profit Margin Ratio calculated above.

4.3.4.3 Operating Expenses Ratio (OE)

Operating expenses constitute service/product costs, administrative costs and selling costs. The Operating Expenses Ratio indicates the average aggregate variation in expense. In general, higher Operating Expenses Ratio means inefficiency due to higher operating cost relative to Sales. A lower Operating Expenses Ratio is favorable since it will leave a higher amount of operating income to meet interest, taxes, bonus, dividend and plough back of profit in the firm. It is measured by dividing operating expenses by sales.

Operating Expenses Ratio (OE) = Operating Expenses / Sales

Table 4.21

Calculation of operating expenses ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | Opt. Expenses | Total Sales | Opt Exp. Ratio | Straight Line Trend |
|-------------------------------------|---------------|-------------|----------------|---------------------|
| 2004/05 | 2463758 | 5928648 | 0.416 | 0.4242 |
| 2005/06 | 2891309 | 6555992 | 0.441 | 0.4288 |
| 2006/07 | 3258571 | 7669283 | 0.425 | 0.4334 |
| 2007/08 | 3991863 | 8855034 | 0.451 | 0.438 |
| 2008/09 | 3990361 | 9194297 | 0.434 | 0.4426 |
| Average of Operating Expenses Ratio | | | 0.4334 | |

Source: Audited financial Reports of NTC

Figure 4.9
Operating Expenses of NTC

Straight Line Trend of the Ratio is: $Y = 0.4196 + 0.0046(X)$

When $X=6$, $Y = 0.4472$ {i.e. Expected OE Ratio for next year (year=6)}

Where, Y = estimate of the Operating Expense Ratio

X = measure of time when base year 2004/05 = 1

Above table shows that the average OE Ratio of NTC for past five years is 43.34% which is lower than the general standard average of around 50% for this line of business. The Ratio seems to be stable but slightly in increasing trend as it ranges from a lower of 41.6% in F/Y 2004/05 to 45.10% in F/Y 2007/08 AD. The average Ratio of 43.34 indicates that the firm incurs a cost of 43.34paise for each rupee of sales it generates. Barring F/Y 2004/05, the Ratio is increasing on year to year basis.. Though the operating expense Ratio is relatively stable over time, but for the last 3-4 years, the Ratio is increasing continuously which should be the real cause of concern for the NTC. Unless the firm takes measures to tame the operating expenses, the situation may go out of control.

The Straight Line Trend fitted on the basis of least square method shows a long run positive growth rate of 4.6% per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that the cost of operation of NTC should increase slowly but surely. Continuous increase in input prices due to inflation and the security situation not accompanied by the equal sales increase has brought this position.

4.3.4.4 Return on Assets Ratio (ROA)

Here the profitability is measured in terms of profit and the assets. The ROA is also called return on investment (ROI). The conventional approach of calculating ROA/ ROI is to divide NPAT by investment/assets. Assets represent pool of funds supplied by shareholders and lenders, while NPAT represents residue income of the owners. Therefore, it is conceptually unsound to use NPAT in the calculation of ROA. Secondly, NPAT is affected by the capital structure. It is therefore more appropriate to use the following formula to compute the ROA/ROI.

$$\text{Return on Assets} = (\text{NPAT} + \text{Interests after tax}) / \text{Total assets}$$

$$\text{NPAT} = \text{Net profit after tax}$$

Table 4.22

Calculation of Return on Assets ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | NPAT | Interest AT | NPAT Plus Interest AT | Total Assets | ROA | Straight Line Trend |
|-----------------------------|---------|-------------|-----------------------|--------------|-------|---------------------|
| 2004/05 | 2281997 | 105089.77 | 2299306.77 | 21584396 | 0.107 | 0.1032 |
| 2005/06 | 2467930 | 26747.98 | 2353276.98 | 25115657 | 0.094 | 0.1021 |
| 2006/07 | 3087782 | 12063.870 | 3149287.87 | 29724632 | 0.106 | 0.101 |
| 2007/08 | 3290117 | 2195 | 3292312 | 33080441 | 0.099 | 0.0999 |
| 2008/09 | 3542461 | 501 | 3542461 | 35430582 | 0.099 | 0.0988 |
| Average of Return on Assets | | | | | 0.101 | |

Source: Audited financial Reports of NTC

Straight Line Trend of the Ratio is: $Y = 0.1043 - 0.0011 (X)$

When $X=6$, $Y = 0.0977$ {i.e. Expected ROA Ratio for next year (year=6)}

Where, Y = estimate of the Return on Assets Ratio

X = measure of time when base year 2004/05 = 1

The above table shows that the average ROA of NTC for the study period is 10.0%. The Ratio seems to be almost stable as it ranges from 10.7% in F/Y 2004/05 to 9.9% in F/Y 2007/08 AD. But the real problem is that the actual trend of this Ratio is showing downward movement particularly in the most recent years. The average Ratio of 10.0% indicates that each 100 rupees of investment in assets is generating a profit of Rs. 10.0. The actual Trend Line is humped.

The Straight Line Trend fitted on the basis of least square method shows a long run negligible negative growth rate 0.0011 % per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that the total assets return level of the company should further decline, albeit slowly, in the coming years. Continuous expansion of its' assets over the recent years followed by marginal increase/decrease net profit of the Organization over the most recent years has primarily caused the ROA to take this downward trend.

4.3.4.5 Return on Capital Employed (ROCE)

The relationship between the after tax return earned by both equity holder and lender and the capital they provided indicates the efficiency of management for capital utilization. The Ratio is similar to the ROA except in one respect. Here the profits are related to capital employed. The funds employed in net assets or the funds financed by permanent sources are known as capital employed. This Ratio shows effectiveness of management in generating profit by the utilization of available capital. Higher the Ratio, the more efficient is the use of capital employed.

$$\text{ROCE} = (\text{NPAT} + \text{after tax Interests on long-term debt}) / \text{Capital Employed}$$

Table 4.23
Calculation of Return on Capital Employed ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | NPAT | Interest AT | NPAT Plus Interest AT | Capital Employed | ROCE | Straight Line Trend |
|---------------------------------------|---------|-------------|-----------------------|------------------|--------|---------------------|
| 2004/05 | 2281997 | 105089.77 | 2299306.77 | 15726288 | 0.146 | 0.1408 |
| 2005/06 | 2467930 | 26747.98 | 2353276.98 | 17061238 | 0.138 | 0.1481 |
| 2006/07 | 3087782 | 12063.870 | 3149287.87 | 19587285 | 0.161 | 0.1554 |
| 2007/08 | 3290117 | 2195 | 3292312 | 20450725 | 0.161 | 0.1627 |
| 2008/09 | 3542461 | 501 | 3542461 | 20707904 | 0.171 | 0.17 |
| Average of Return on Capital Employed | | | | | 0.1554 | |

Source: Audited financial Reports of NTC

Straight Line Trend of the Ratio is: $= 0.1335 + 0.0073 (X)$

When $X=6$, $= 0.1773$ {i.e. Expected ROCE Ratio for next year (year=6)}

Where, Y = estimate of the ROCE Ratio

X = measure of time when base year 2004/05 = 1

The above figures show that the average ROCE of NTC for the study period is 15.54% as in the case with ROA, this is good if we compare this return with the cost of debt. But the past trend of this Ratio does not show any clear downward trend as it is the case with ROA. Therefore, it can be safely said that the return to the long term stakeholders are better than the return earned by its assets assuming that cost of the short-term sources are negligible. The average Ratio of 15.54% indicates that each rupee of long term fund employed by the Organization is generating after tax profit of 15.54 paisa.

The Straight Line Trend fitted on the basis of least square method shows a long run negligible positive growth rate 0.0073 % per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that the return level of the long term capital employed by the company should increase marginally in coming years.

4.3.4.6 Return on Equity (ROE)

The Return on Shareholders' Equity (ROSE) {or simply Return on Equity (ROE)} indicates how well the company's management is able to provide return to its owners. The return on common stock is not fixed. The residue of the earnings, on which the stockholders have claim, may be distributed to them or retained in the business. Nevertheless, the net profit after taxes represents their return. The shareholders' equity includes the total of equity capital, reserve & surplus minus deferred expenditure. ROE is regarded as an important measure because it reflects the productivity of shareholders' capitals well as the operational efficiency of management.

$$\text{Return on Equity (ROE)} = \text{Net profit after tax (NPAT)} / \text{Net worth}$$

Table 4.24

Calculation of return on equity ratio and its straight line trend equation

(Rs. in thousand)

| Fiscal Year | NPAT | Net Worth | ROE | Straight Line Trend |
|---|---------|-----------|-------|---------------------|
| 2004/05 | 2281997 | 14773937 | 0.154 | 0.153 |
| 2005/06 | 2467930 | 16927414 | 0.145 | 0.158 |
| 2006/07 | 3087782 | 16761248 | 0.184 | 0.163 |
| 2007/08 | 3290117 | 20439476 | 0.161 | 0.168 |
| 2008/09 | 3542461 | 20683665 | 0.171 | 0.173 |
| Average of Return on Equity (ROE) Ratio | | | 0.163 | |

Source: Audited financial Reports of NTC

Figure 4.10
Return on Equity of NTC

Straight Line Trend of the Ratio is: $Y = 0.148 + 0.005(X)$

When $X=6$, $Y = 0.178$ {i.e. Expected ROE Ratio for next year (year=6)}

Where, Y = estimate of the Return on Equity Ratio

X = measure of time when base year 2004/05 = 1

The above table shows the ROE of NTC for past 5 years. The average Ratio for the 5-year period is around 16.3% which indicates that the equity holders of NTC earned 16.3 paise of return on their investment of Re. 1.00 over the last 5 years, on average. It is obvious from the table that after the initial 2 years of the study period the average ROE for the final of the 3 years has been satisfactory movement toward positive. NTC has to take measures to make the Ratio more stable in future which should increase the confidence of the owners.

The Straight Line Trend fitted on the basis of least square method shows a long run negative growth rate of .0.5% per year for this Ratio. If this Ratio is to move as per the fitted Trend Line in future, it can be expected that the equity holders' return would further go slightly upward from its current level.

4.4 Statistical Analysis

4.4.1 Correlation and Regression Analysis

Correlation Analysis intends to measure the relationship between two variables. This analysis describes not only the magnitude of relationship but also its direction. Regression Analysis intends to use the relationship between the known variables and the unknown variables to estimate and predict the values of unknown one. Correlation & Regression analysis of Gross Domestic Product (GDP) and Sales Revenue; Investment (Total Asset) and Profit; Sales Revenue and Cost; Investment (Total Asset) and Sales Revenue are presented in this study.

4.4.1.1 Correlation & Regression analysis of Gross Domestic Product (GDP) and Sales Revenue

The relationship between Gross Domestic Product (GDP) and Sales Revenue is measured and tested by Karl Pearson's Co-efficient of Correlation. A positive Correlation here would imply that the company maintains a stable growth in its revenue with the growth in the economy as a whole. Insignificant or negative value would point out the weakness of management to expand and grow the Organization in the tune of the economic growth. The Regression Equation would develop a function using which we can predict what the likely Sales Revenue will be in the coming years with a given GDP estimates. The calculation of this Correlation and Regression Equation is shown as follows:

Summary of Computations

$$r = 0.987042$$

$$PE = 0.007767$$

$$|r| > PE$$

$$|r| > 6 \times PE \ \& \ |r| > 0.5$$

The value of r is found to be 0.99 which means that there exists a high degree of positive Correlation between GDP and Sales Volume i.e. the two variables increase/decrease strongly in the same direction. The value of r is far greater than 6 times the probable error, which means that there is clear evidence of significant association between these two variables. The computed value of r indicates a cause and effect relationship.

The calculations of the regression co-efficient are given by

$$= -48.76 + 0.02804*(X)$$

The value of b is found to be 0.02804, which means that 1 unit change in GDP would result in 0.02804 unit change in the Sales Revenue of NTC. Given the forecast of GDP of the country for future by the economists, we can use the above developed equation to estimate what the revenues of the NTC would likely to be in the coming years and plan accordingly for future sales.

4.4.1.2 Correlation & Regression Analysis of Investments (Total Assets) and Profit

The relationship between Investment and Profit is measured and tested by Karl Pearson's Co-efficient of Correlation. A positive Correlation here would imply that the Corporation maintains a stable growth (or decline) in its Profit in line with its Investment increase (or decrease). Insignificant or negative value would point out the weakness of management to keep the Profit in line with the Investments i.e. it points to the fact that the

Corporation's expansion may not be giving desirable results. The Regression Equation would develop a function using which we can predict what the size of profit would be in the coming years with a planned additional investment in Assets. The calculation of this Correlation and Regression Equation is shown as follows:

Summary of Computations

$$r = 0.9912296$$

$$PE = 0.005267$$

$$|r| > PE$$

$$|r| > 6 \times PE \ \& \ |r| > 0.5$$

The value of r is found to be 0.99, which implies that there exists a high degree of positive Correlation between Total Investments and Total Profit. This means the two variables move in the same direction; i.e. if Total Investment increases then Total Profit also increase and vice-versa. The value of r is greater than 6 times the probable error and higher than +0.5; means that there is significant degree of positive Correlation between the variables i.e. the value of r is significant. Hence, the relationship between Total Investments and Total Profit is that of a cause and affect one.

Hence the regression equation of Profits (Y) on Investments (X) is given by

$$= 2.0127 + 0.094274 * (X)$$

The value of b is found to be 0.094274, which means that, on average, 1 unit change in Total Investment (Asset) would result in 0.094274 unit change in the Net Profit of NTC. Given the capital budget plan of the NTC for coming years, we can use the above Equation to estimate what the profit of the NTC would likely to be in the coming years.

4.4.1.3 Correlation & Regression Analysis of sales revenue and Total Cost

The relationship between Sales Revenue and Cost is measured and tested by Karl Pearson's Co-efficient of Correlation. A positive Correlation here would imply that most of the Costs of NTC are of variable nature. A low positive Correlation would imply that the average Cost would go down as the volume expands. A negative Correlation, which is highly unlikely, would point out that Cost of NTC decreases with the increase in Sales Volume and vice versa. The Regression Equation would develop a function, with the help of which, we can predict what the amount of Cost would be in the coming years with various predicted Sales Levels. The calculation of this Correlation and Regression Equation is shown as follows:

SUMMARY OF COMPUTATIONS

$$r = 0.994495921$$

$$PE = 0.00331$$

$$|r| > PE$$

$$|r| > 6 \times PE \text{ \& } |r| > 0.5$$

The value of r is found to be 0.99, which implies that there exists a high degree of positive Correlation between Sales Revenue and Cost. This means the two variables move in the same direction; i.e. if Sales Revenue increases then Cost also increases, and vice-versa. The value of r is greater than 6 times the probable error and higher than +0.5; means that there is significant degree of positive Correlation between the variables i.e. the value of r is significant. Hence, the relationship between Total Costs and Total Sales Revenue is that of a cause and affect one.

Hence the regression equation of Costs (Y) on Sales (X) is given by

$$= 7185.10 + 0.09679 \times (X)$$

The value of b is found to be 0.09679, which means that, on average, 1 unit change in sales revenue would result in 0.094274 unit change in the total cost of NTC. Given the

capital budget plan of the NTC for coming years, we can use the above Equation to estimate what the profit of the NTC would likely to be in the coming years.

4.4 Major Findings of the Study:

The major findings of the study are as follows:

- J On the basis of these Ratios, one should say that the overall short-term solvency position of NTC is satisfactory. Perhaps, because of the service nature of its operation, NTC has maintained low level of inventory compared with other current assets components. Hence, the difference between Current Ratio and Quick Ratio is negligible.
- J The revenue collection pattern of Nepal Telecom is in an increasing trend throughout the study period.
- J The Average Age of Inventory and the Average Collection Period are simply mirror images of Inventory Turnover and Debtor Turnover Ratios. Because of the monopoly of NTC in telecommunication sector till the date of the research period, this researcher could not compare the Ratios with across the section of industry. So the conclusions could solely be based on historical Straight Line Trend, Actual Trend and historical average. In absence of such cross-sectional comparison, 100% true assessment of performance could not be made.
- J Overall, the asset utilization position of NTC is termed poor as well as deteriorating over the five years of study period. NTC should pay constant/close attention on the desirability of the current size of its current assets investment.
- J NTC has kept the policy of increasing its debt financing proportion gradually over the study period. Overall debt financing proportion increase approximately 1:3 to

1:2 of the total assets. The amount of long -term debt used by NTC has been increasing.

-) The foreign debts taken by NTC backed by the government counter guarantee are not forthcoming in the recent years and old foreign loans are getting redeemed. On overall, the firm should maintain its long - term debt to previous levels so that Debt Ratio is around 50%.
-) Solvency position, short-term as well as long -term, is good and the direction of the Ratios which indicate these positions is positive particularly from the viewpoint of the lenders. But when it comes to resource employment position, it can be safely said that the turnovers generated by the assets are not satisfactory.
-) GDP and sales indicate the relationship of volume with that of the expansion of economy. The higher degree of Correlation between GDP and sales points out to the fact that the volume of NTC is going to be up as the nation become more and more affluent. This rate of change in volume as shown by the Regression Coefficient 'b' is approximately 3 paisa per rupee of GDP increased.
-) The relation between the Investment and profit indicates the profitability on investment. High and significant Correlation between investment and profit points to the fact that additional investment, on aggregate; by rupee 1 will lead to increase in profit by just 10 paisa. So, a typical investment project, NTC is expected to initiate, can expect to earn around 10% Return on Investment, approximately equal to the 5 years average ROI. The relationship between sales revenue and cost indicate the profitability on volume.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Located in south Asia with the area of 1, 47,181 Sq Km., Nepal is a landlocked country where 77% of total land is covered by rocks, snow, barren mountains and sloppy hill. Rest of the land is of plain type. Nepal is a mountainous country where highest peak of the world is located. Hence it is popularly known as third pole. With its varying topography and climate, Nepal is rich in biodiversity. It is also the birth place of Lord Buddha. The country has the agriculture oriented economy with around US\$ 300 per capita income. As a developing country it is on the path of economic growth. Nepal mainly consists of two sorts of business enterprises which are actively contributing for the economic growth. The two types of business enterprises are namely public enterprises and private enterprises. Public enterprises are government owned business organizations established with the objectives of providing public service and setting up infrastructure of development. On the other hand private enterprises are established with the primary motive of profit generation at the same time contributing of the national economic development. Hence both enterprises play the vital role for the overall development of the nation by mutual effort.

Telecommunication is an inevitable infrastructure of development to all countries. It is considered as prerequisite for the other dimension of development. In Nepal the need of telecommunication services are primarily fulfilled by Nepal Telecom. History of telecommunication service in Nepal is not so long. First telecommunication service in the country is introduced in 1974 BS. Which was called Magneto Telephone? Since then and up to the lanching of first five year plan of 2012 BS., the development of telecommunication was in slow pace. After Nepal started systematic economic development by lanching its first five year plan in 2012BS, various national and

international trunk lines were added and cross bar telephone lines to people and public offices were distributed.

Introduction of liberalized economic policy in Nepal gradually facilitated the private sector investment as a result multinational companies also showed their presence. Further more public enterprises started to be privatized. Such trend couldn't also remain intact without influencing Nepal Telecommunications Corporation. Hence Nepal Telecommunications Corporation has been changed to Nepal Doorsanchar Company limited in 2061 BS under the company act. It's popularly known commercial name is "Nepal Telecom". Although Nepal Telecom has been recently established under the company act its 100% ownership has been held by Nepal Government by receiving the entire investment from government.

As financial health is the key indicator of the success and failure of the organization. Different financial indicator show to what extent would the organization is capable to meet the expectations of various stakeholders of the company. In the light of this main issue of the study is to evaluate the profit planning of Nepal Telecom on the basis of latest available information. It will light upon the past financial strength and weaknesses faced by the organization and provide the guidelines to improve the financial health. Financial Analysis and planning function is not a decision- making in itself rather it is an ancillary service which helps in planning for those two decisions and evaluating the outcome of those two decisions and recommending necessary rectifying measures.

To make the study significant, ratio analysis and regression analysis, income and expense analysis, correlation analysis and regression analysis have been carried out regarding the major variables of NTC. Before the analysis of such financial and statistical tools the details of the same has been explained in the chapter namely literature review and for the mathematical calculations research methodology has been carried out. On basis of the analysis we will conclude our findings and try to provide some relevant recommendations

to the management of NTC so that they can apply those recommendations if they deem appropriate.

5.2 Conclusions

The conclusions that have been drawn from the analysis and interpretation of the data have been listed below in order to have a glimpse of profit planning of the NTC.

Ratio Analysis

Ratio is said to tell more than what is told alone by absolute values comprising the Ratio. Indexing of two items tell more than the items tell together. All Ratios computed in chapter four try to measure the profit planning of NTC, the core subject matter of this study. The analysis becomes irrelevant if the corrective actions based on the suggestion do not make difference.

) Liquidity Position

This research has used two short-term liquidity indicator Ratios. On the basis of these Ratios, one should say that the overall short-term solvency position of NTC is satisfactory. Perhaps, because of the service nature of its operation, NTC has maintained low level of inventory compared with other current assets components. Hence, the difference between Current Ratio and Quick Ratio is negligible. Though both these ratios decreasing beyond the traditional standard 2:1. The nominal negative growth rate shown by the Straight Line Trend is not fair so the actual trend should not be let to increase this way for long time. Payment of short term dues and obtaining short term loans under favourable terms and conditions should not be of much problem to the NTC in coming years.

) Turn over position

This research has used 7 Turnover Ratios to judge the efficiency of the component/aggregate of the resources used by the firm in generating volume. The Average Age of Inventory and the Average Collection Period are simply mirror images

of Inventory Turnover and Debtor Turnover Ratios. Because of the monopoly of NTC in telecommunication sector till the date of the research period, this researcher could not compare the Ratios with across the section of industry. So the conclusions could solely be based on historical Straight Line Trend, Actual Trend and historical average. In absence of such cross-sectional comparison, 100% true assessment of performance could not be made.

Though inventory seems to have good utilization rate compared to other current assets, it is because of the inventory's small size NTC carries. So NTC should be concerned about its current assets investment in future. If working capital could generate a turnover in excess of 1.50 in fiscal years 2004/2005 and 2005/2006, then there is no reason why the working capital cannot generate similar turnover now or in other years. There seems to be laxity in management in efficiently mobilizing the working capital. Fixed Assets Turnover/utilization seems to be improving over time. But it is still far below 1.00* mark which should make management not to be complacent. The performance of current assets in terms of volume generation was so poor over time that the improvement in performance of fixed assets could not compensate it. That's why the Total Assets Turnover is poor and fluctuating. So, overall, the asset utilization position of NTC is termed poor as well as deteriorating over the five years of study period. NTC should pay constant/close attention on the desirability of the current size of its current assets investment. If the company can improve asset utilization, it can charge cheaper rates for its service which would be vital in coming days because of the competition from the private sector permitted by the government under its liberalization and open market policy. A vital investment is debtors/receivables. Its utilization trend needs to be improved if the Organization has to obtain better return on its resources. We see that, on average, it takes five months to collect a typical account from a customer.

Long term Solvency Position

This research has, in effect, used 3 Leverage Ratios to judge the extent to which NTC has been financed with debt and bear fixed obligations. TD to TA and TD to TE Ratios are

essentially the same measure. It seems that NTC has kept the policy of increasing its debt financing proportion gradually over the study period. Overall debt financing proportion increase approximately 1:3 to 1:2 of the total assets. The amount of long -term debt used by NTC has been increasing. Capital employed now solely consists of equity. The foreign debts taken by NTC backed by the government counter guarantee are not forthcoming in the recent years and old foreign loans are getting redeemed. On overall, the firm should maintain its long - term debt to previous levels so that Debt Ratio is around 50%.

Profitability Position

This research has used 6 Profitability Ratios to judge the overall effectiveness of the firm. The first 3 Ratios use sales as a base to measure performance, while the other 3 use investment/capital as a base to measure performance. The profitability position shown by the first type of Ratios seems good. The profit margin are good, operating costs proportion are minimum. But the trends are not satisfactory enough. Operating Expenses Ratio Trend is maintaining its stage up and Modified Net Profit Margin. It means that operating expenses as well as other expenses are slowly going up on average over the study period. To reverse this trend, the Organization needs to put stringent cost control measures in place. The profitability of assets/capital is also poor. With so huge investment, the average return of 10% on assets can safely be termed as poor. Because of the cheaper debt source, the return to equity holder could be magnified to 15.0% on average over the study period. Because the Organization is reducing sharply its long term debt financing (interest bearing) sources, the shareholders of the Organization can expect to receive lower rate of return in future on their investments. The after tax return on total assets is also going in downward trend according to least square method. One of the main reasons that is said to have adverse effect on its profitability during the most recent years is the Maoist insurgency, which has destructed many of its key structures all over the country and has resulted in drastic decline in operational profit. This argument is not totally valid. The Organization has not seem the provisions of to buy enough insurance to cover destroyed assets Competition is also going to be a major factor for the downturn of the Organization, if NTC does not get alert on time and take careful and measured

actions. The way it behaved to its customers under monopoly is certainly not going to work under competitive market. Secondly, given the competitors mainly concentrated around big cities, the Organization subsidizing its rural operation through urban profit is going to face competition with such a severe constraint and new competitor also.

Solvency position, short-term as well as long -term, is good and the direction of the Ratios which indicate these positions is positive particularly from the viewpoint of the lenders. But when it comes to resource employment position, it can be safely said that the turnovers generated by the assets are not satisfactory. Utilization of working capital in particular is very poor. Profitability on the operational front seems fairly good but with such low turnover, this cannot be termed excellent. Moreover, the negative trend of profit on operation makes the situation even more disappointing. The low rate of profit on assets/capital accompanied by negative growth rate on these Ratios shows that asset returns are poor on aggregate. Investments decisions are weak, operational efficiency are weak, only financial position / management is good. But even the financial management from the viewpoint of the equity holder can be termed unsatisfactory because of the reducing leverage benefits to the staff holders. So, on all fronts, NTC need to have a fresh re - look so that it can sail smoothly in coming days of the 21st century.

Regression and correlation analysis

Regression and Correlation Analysis are used to see the relationship between the variables that does not point to the past position and performance but to the future prospect based on which planning for better performance can be done. We computed Correlations and Regression Equations between three pairs of variables. Correlations between all the pairs of variables are highly positive as per our anticipation. Because the Correlations are highly positive and significant, one can safely use the Regression Equations to forecast the value of dependent variables based on the anticipated value of independent variable.

GDP and sales indicate the relationship of volume with that of the expansion of economy. The higher degree of Correlation between GDP and sales points out to the fact that the volume of NTC is going to be up as the nation become more and more affluent. This rate of change in volume as shown by the Regression Coefficient 'b' is approximately 3 paisa per rupee of GDP increased. With such a low turnover position, if the company can achieve the increased sales without investing much on assets, the overall profitability position should improve.

The relation between the Investment and profit indicates the profitability on investment. High and significant Correlation between investment and profit points to the fact that additional investment, on aggregate; by rupee 1 will lead to increase in profit by just 10 paisa. So, a typical investment project, NTC is expected to initiate, can expect to earn around 10% Return on Investment, approximately equal to the 5 years average ROI. The relationship between sales revenue and cost indicate the profitability on volume.

5.3 Recommendations

The following recommendations are in order NTC's management on improving its profitability addressed by this study.

-) ACP of NTC is very poor despite some improvement in recent years. On average, it takes the Organization more than 5 months to collect a typical account, so the collection effort needed to be intensified so that ACP can be reduced to more manageable level. Given the credit term of more than 3 months by NTC to its suppliers, it can convert 2/5 of its investments tied up in receivable into cash.
-) It seems that the Organization is losing the benefit of the leverage over time, particularly in the most recent years. A profitable company like NTC should not hesitate to use the cheaper debt source to magnify the Return of Equity. So, the

management should consider using long-term debt when financing new expansion projects in the future.

- J It seems that the working capital is not managed properly in generating sales volume. The excess investment in working capital is not properly utilized. So NTC can think of reducing its current assets components and/or increasing costless short-term financing (if available) if it cannot sufficiently increase its sales volume in near future.

- J Though Fixed Assets Turnover is increasing over time, it is still far below 1.00 times barrier. So, NTC management should be careful in future not to undertake capital intensive investment projects if they fail to generate sufficient volume. The management can even think of retrenching its fixed assets now. But this recommendation is not stressful.

- J Though the average cost of producing and selling services to the customers of this Organization is satisfactory, the increasing trend of cost should be a cause of concern. With such a low Turnover Ratio of the Organization's assets, the management should be careful not to let the Profit Margin go down. This can be achieved either by increasing price charged to the customer or by reducing cost. Given the competition that is forthcoming in the recent years, the Organization should concentrate itself seriously on second alternative (i.e. reducing cost).

- J Given the high risk perception on most part of the countryside where the key communication towers and related structures are situated, NTC should buy enough insurance for all of these structures. So that it does not suffer from huge losses even if the facilities/structures are destroyed. The past experience of the management of not buying enough insurance for those valuable structures should have taught a good lesson to them.

- J The investment appraisal criteria should be overhauled to make it more scientific so that it weighs all relevant factors before making further investment decision so that the project do not provided lesser return than cost of loan.

- J Periodic financing requirement should be forecasted and planned in advance so that uniformity in financing can be insured for the general policy.

- J Set up pro-forma balance sheet and income statements to use these as a general guideline to determine the size/proportion of investment and financing items of balance sheet and operational items of the income statement, so that a standardization and rationalization in operation, financing and investment can be made.

- J The Organization should impart professional management on its top hierarchy. Given the tough competition emanating from the private sector, the Organization should resist unnecessary political interferences in managing its day to day operations. It should seek freedom to decide on its own under the broad guidelines given by the government.

BIBLIOGRAPHY

BOOKS:

Agrawal, A.N. and Kundon L (1998). *Economics of Development and Planning.* Vikash Publishing House Pvt. Ltd. New Delhi, India.

American Institute of Banking (1972). *Principles of Banking operation.* USA, American Institute of Banking.

Andrew, R (1998). *Corporate Planning.* Publishing Division British Institute of Management.

Bratt, E (1985). *Business Forecasting.* McGraw Hill Book Co. Inc. New York.

Dangi, D. (2004). *Public Policy Analysis.* Dhaulagiri Books & Stationery Kathmandu.

Drucker, P. F. (1998). *The Practice of Management.* New York: Harper & Raw Publisher.

Fregmen, J.M. (1976). *Accounting for Management Analysis.* Homewoor: Rechar D. Irwin.

Ghimire, R.(2004). *Economics of Public Policy Analysis.* New Hira Books Enterprises, Kirtipur, Nepal.

Grace, C.E. (1964). *Management Control.* New York Marwick Mitchell and 10.

Gulshan, S.S. and Gulshan, K.K. (1994). *Banking Law and Practice.* New Delhi: Chand & Company Ltd.

Gupta, S.C. (1981). *Fundamental of Statistics.* New Delhi: Himalayan Publication Hosue.

Gupta, S.P. (1992). *Management Accounting.* Sahitya Bhaban, Agra, India.

- Horny, A.S. and Lawie, A.P. (1998).** *Oxford Advanced Learners Dictionary of Current English*. Indian Edition, Calcutta: Indian Edition, Oxford University Press.
- Khan, M.Y. and Gain, P.K. (2003).** *Management Accounting*. Tata McGraw Hill Publishing Company Limited.
- Koontz, H. and Cyric D. O. (1964).** *Long Range Planning for Management*. 3rd edition, New York, McGraw Hill Book Publishing.
- Kothari, C.R. (2004).** *Research Methodology & Techniques*. New Age International Pvt. Ltd. Publishers.
- Lynch, R. M. and Williams, R.W. (1989).** *Accounting for Management*. New Delhi: Tata McGraw Hill Publishing Co.
- Nepal Telecom;** *Annual Reports*; 2002/03 to 2007/08.
- Pandey, I.M. (1991).** *Financial Management*. fifth revised edition, New Delhi: Vikash Publishing House.
- Planning & Control*. 5th Edition New Delhi: Prentice Hall of India.
- Roy, A G. (1984).** *Alcan's Integration of Management Techniques Raise their effectiveness*. American Marketing Association Forum, USA.
- Shrestha, S and Amatya, S. (2004).** *Business Statistics*. Buddha Academic Publishers & Distributors Pvt. Ltd. Kathmandu.
- Stein J. and Urdang L. (1985).** *The Random House Dictionary of the English Language*. New York, Random House Inc.
- Vaish, M.C. (1996).** *Money Banking Trade and Public Finance*. 3rd updated Edition New Delhi, New Age International (P) Ltd. Publishers.

Van Horne, J. C. (1990). *Financial Management & Policy*. New Delhi: Prentice Hall of India.

Varshey, P.N. (1993). *Banking Law and Practises*. New Delhi: Sultan Chand & Sons.

Welsh, G. A., Hilton R. W. and Gordon P. N. (2002). *Budgeting Profit*.

JOURNALS, REPORTS, ARTICLES, PUBLICATIONS & DISSERTATIONS:

Bhatta Hrishikesh (2007), *An analytical study on Profit Planning and Budgeting*

Mechanism of Nepal Telecom Limited. A Thesis submitted to Shanker Dev

Campus, the Faculty of Management, TU, in partial fulfillment of the requirement for MBS.

Poudel (2002) "A study of revenue planning, a case study of Gorkhkali Rubber Industry

Ltd", A Thesis submitted to Shanker Dev Campus Faculty of Management, TU, to partial fulfillment of the requirements for the MBS.

Dhungana K. D. (2004), *Profit Planning Mechanism of Nepal Telecom*, A Thesis

submitted to Shanker Dev Campus, the Faculty of Management, TU, in partial fulfillment of the requirement for MBS.

Ojha (2000) ; "Revenue planning in manufacturing PEs, A case study of Royal Drugs

Ltd. and Herbal production and processing Co. Ltd", A Thesis submitted to Shanker Dev Campus, the Faculty of Management, TU, in partial fulfillment of the requirement for MBS.

Ministry of Law, GON (1995). *Commercial Act*. Nepal Ain Sangraha Khand 4 (Ga),

Kathmandu, Kanoon Kitab Byabastha Samiti.

National Planning Commission, HMG/N (2004). *The Tenth Five Years Plan.*

New Business Age Information and Analysis, August 2004.

Parajuli,(2004) ; *"Revenue planning in manufacturing PEs".*, (A Case Study of Nepal Bangladesh Bank), A Thesis submitted to Shanker Dev Campus Faculty of Management, TU in the partial fulfillment of the requirements for the MBA.

Thapa Suman (2005), *Profit Planning Mechanism of Nepal Door Sanchar Sansthan*, A Thesis submitted to Shanker Dev Campus, the Faculty of Management, TU, in partial fulfillment of the requirement for MBS.

Websites:

www.ntc.net.np

www.nepalstock.com

www.onlinethesis.com

www.answer.com

www.nepal.gov.gov.np

Appendix - 1
Computation of Correlation & Regression Co-efficient from variables GDP & Sales Revenue

(Rs. in ten millions)

| Fiscal Year | GDP Rs (X) | Sales Rs (Y) | X ² | Y ² | XY |
|-------------|------------|--------------|----------------|----------------|-------------|
| 2004/05 | 3940.52 | 59.28648 | 15527697.87 | 3514.886711 | 233619.5602 |
| 2005/06 | 4061.38 | 65.55992 | 16494807.5 | 4298.10311 | 266263.7479 |
| 2006/07 | 4375.46 | 76.69283 | 19144650.21 | 5881.790173 | 335566.41 |
| 2007/08 | 4749.19 | 85.59283 | 22554805.66 | 7326.132547 | 406496.6123 |
| 2008/09 | 5086.51 | 91.94297 | 25872583.98 | 8453.509732 | 467668.8363 |
| | 22213.06 | 379.075 | 99594545.22 | 29474.4223 | 1709615.167 |

Source: Audited financial Reports of NTC & economic survey F/Y 066/067 BS, Ministry of Finance

Now, the Karl Pearson's co-efficient of correlation(r) is given by

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

$$r = \frac{5 * 1709615.167 - 22213.06 * 379.075}{\sqrt{[5 * 99594545.22 - (22213.06)^2] * [5 * 29474.4223 - (379.075)^2]}}$$

$$r = 0.987042$$

Calculation of Probable error,

$$PE = \frac{0.6745(1-r^2)}{N}$$

$$PE = \frac{0.6745[1-0.974252]}{5}$$

$$PE = 0.007767$$

Summary of Computations

$$r = 0.987042$$

$$PE = 0.007767$$

$$|r| > PE$$

$$|r| > 6 \times PE \text{ \& } |r| > 0.5$$

The calculations of the regression co-efficient are given by

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

$$b = \frac{5 * 1709615.167 - 22213.06 * 379.075}{5 * 99594545.22 - (22213.06)^2}$$

$$b = 0.02804$$

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

$$a = \frac{379.075}{5} - 0.02804 * \frac{22213.06}{5}$$

5

5

$$a = 75.815 - 124.571$$

$$a = -48.76$$

Hence the regression equation of Sales (Y) on GDP (X) is given by

$$= -48.76 + 0.02804 * (X)$$

Computation of Correlation & Regression co-efficient from variables investment & profit

(Rs. in Ten

million)

| Fiscal Year | Investment (X) | Profit (Y) | X ² | Y ² | XY |
|-------------|----------------|------------|----------------|----------------|------------|
| 2004/05 | 215.84396 | 22.81997 | 46588.6151 | 520.751031 | 4925.55269 |
| 2005/06 | 251.15657 | 24.6793 | 63079.6227 | 609.067848 | 6198.36834 |
| 2006/07 | 297.24632 | 30.87782 | 88355.3748 | 953.439768 | 9178.31836 |
| 2007/08 | 330.80441 | 32.90117 | 109431.558 | 1082.48699 | 10883.8521 |
| 2008/09 | 354.30582 | 35.42461 | 125532.614 | 1254.90299 | 12551.1455 |
| | 1449.3571 | 146.70287 | 432987.784 | 4420.64863 | 43737.237 |

Source: Audited financial Reports of NTC

Now, the Karl Pearson's co-efficient of correlation(r) is given by

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

$$= \frac{5 * 43737.237 - 1449.3571 * 146.70287}{\sqrt{[5 * 432987.784 - (1449.3571)^2][5 * 4420.64863 - (146.70287)^2]}}$$

$$r = \frac{5 * 43737.237 - 1449.3571 * 146.70287}{\sqrt{[5 * 432987.784 - (1449.3571)^2][5 * 4420.64863 - (146.70287)^2]}}$$

$$r = 0.9912296$$

Calculation of Probable error,

$$PE = \frac{0.6745(1-r^2)}{N}$$

$$PE = \frac{0.6745[1-.98254]}{5}$$

$$PE = 0.005267$$

Summary of Computations

r = 0.9912296

PE = 0.005267

|r| > PE

|r| > 6 x PE & |r| > 0.5

The calculations of the regression co-efficient are given by:

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

$$b = \frac{5 * 43737.237 - 1449.3571 * 146.70287}{5 * 432987.784 - (1449.3571)^2}$$

b = 0.094274

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

$$a = \frac{146.70287}{5} - 0.094274 * \frac{1449.3571}{5}$$

a = 2.0127

Hence the regression equation of Profits (Y) on Investments (X) is given by

$$= 2.0127 + 0.094274 * (X)$$

**Computation of Correlation & Regression co-efficient from variables sales revenue
& total cost**

(Rs. in Ten million)

| Fiscal Year | Total Sales Revenue (X) | Total Costs (Y) | X ² | Y ² | XY |
|-------------|-------------------------|-----------------|----------------|----------------|-------------|
| 2004/05 | 5928.648 | 3646.651 | 35148867.11 | 13298063.52 | 21619710.16 |
| 2005/06 | 6555.992 | 4088.062 | 42981031.1 | 16712250.92 | 26801301.77 |
| 2006/07 | 7669.283 | 4581.502 | 58817901.73 | 20990160.58 | 35136835.4 |
| 2007/08 | 8855.034 | 5564.917 | 78411627.14 | 30968301.22 | 49277529.24 |
| 2008/09 | 9194.297 | 5651.836 | 84535097.32 | 31943250.17 | 21619710.16 |
| | 38203.254 | 23532.968 | 299894524.4 | 113912026.4 | 154455086.7 |

Source: Audited financial Reports of NTC

Now, the Karl Pearson's co-efficient of correlation(r) is given by

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

$$r = \frac{5 * 154455086.7 - 38203.254 * 23532.968}{\sqrt{[5 * 299894524.4 - (38203.254)^2 * 5 * 113912026.4 - (23532.968)^2]}}$$

$$r = 0.994495921$$

Calculation of Probable error,

$$PE = \frac{0.6745(1-r^2)}{N}$$

$$PE = \frac{0.6745[1-0.989022]}{5}$$

$$PE = 0.00331$$

SUMMARY OF COMPUTATIONS

$$r = 0.994495921$$

$$PE = 0.00331$$

$$|r| > PE$$

$$|r| > 6 \times PE \text{ \& } |r| > 0.5$$

The calculations of the regression co-efficient are given by:

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

$$b = \frac{5 * 154455086.7 - 38203.254 * 23532.968}{5 * 299894524.4 - (38203.254)^2}$$

$$b = 0.09679$$

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

$$a = \frac{38203.254}{5} - 0.09679 * \frac{23532.968}{5}$$

$$a = 7185.10$$

Hence the regression equation of Costs (Y) on Sales (X) is given by
= 7185.10+ 0.09679 *(X)