A STUDY ON CASH MANAGEMENT IN NEPAL TELECOM

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RECOMMENDATION

This is to certify that the thesis

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DECLARATION

I hereby declare that the work reported in this thesis entitled **"A STUDY ON CASH MANAGEMENT IN NEPAL TELECOM"** submitted to Padma Kanya Multiple Campus,Faculty of Management,Tribhuvan University, is my original work done in the form of partial fulfilment of the requirement of Master's Degree of Business Study (MBS) under the valuable guidance of co-ordinator Associate Professor Manik Ratna Tamrakar and lecturer Neera Sherestha of Padma Kanya Multiple Campus,Bagbazar Kathmandu,Nepal..

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.....

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ABBREVIATION

%	: Percentage
&	: and
A/R	: Account Receivable
ADSL	: Assymetric Digital Subscriber
C/A	: Current Assets
C/L	: Current Ratio
CDMA	: Code Division Multiple Access
CFFA	: Cash Flow From Investment Activiities
CFOA	: Cash Flow from operating Activities
DF	: Degree of Freedom
F/Y	: Fiscal Year
GSM	: Global System for Communication
i.e	: That is
NT Pvt. Ltd	: Nepal Telecommunication Private Limited
NT	: Nepal Telecommunication
NTA	: Nepal Telecommunication Authority
NWSC	: Nepal Water Supply Corporation
Q/R	: Quick Ratio
QA	: Quick Assets
Rs ‘000’	: Nepalese Rupees in Thousands
STM	: Synchronous Line Transport Module
TU	: Tribhuvan University
UTL	: United tele Communication Limited

CHAPTER-I
INTRODUCTION

1.1 Background of Study

Infrastructure is a key for economic development and improving quality of life. The speed of technological development and convergence of information and communications sector have led to a high investment requirement for the infrastructure development. New types of telecommunications Services and network are appearing and the sociological requirement relating to information flows have assumed greater importance. This has led to a need for sector reform. Convergence of technology, access to information and reliable infrastructure not only improve the quality of life and economic activities of people but also strengthens democracy. The information available in the network will fill the gap between haves and haves not provided it could be used by common people at affordable price. The policy of each government must be oriented towards this end. Governments have taken steps in reforming published objectives, policies, laws, creating independent regulatory body but lacking willingness and commitments in implementation. It may widen the gap between poor and rich in wealth and knowledge leading to a society which democratic country does not wish to have.

The history of telecommunication in Nepal is rather very young as compared to the history and culture of Nepalese (Source:.oppapers.com)Telecommunication was introduced with first telephone line established in Kathmandu in 1913, the installation of open wire trunk telephone line between Kathmandu and Birgunj (a boarder town in southern Nepal) for the first time in Nepal around 1914 beginning of the First World War.

Then the installation of 25th line automatic exchange in royal place in 1935, In1936 there is the installation of open wire trunk from Kathmandu to Dankuta, and from Kathmandu to Palpa in 1951.There is the establishment of telegram service in 1950, STD service in 1955, internet service in 2000 converted to NDCL from (Nepal Telecom) Corporation in 2004, soft launch of CDMA in 2005. (Source: www.articlesbase.com).

Telecommunication assumes great importance in Nepal where most of the land is covered with high mountains and transport facilities are inadequate. But due to some factors like financial constrains, total dependence on imports for supply of equipment, lack of

infrastructure and lack of good management of available resource etc, telecommunication service is accessible only to a few percentage of our entire population.

As said earlier, one of the main reasons for poor performance on telecommunication sector is due to poor and inefficient management of available resource. For the efficient and effective utilization of resources, there must be proper plan, strategy and control system. Management is concerned with the efficient use of important resources for the productive result. It is a process of planning, controlling and giving feedback for proper implementation. Among various types of management, cash management plays an important role in efficient and effective utilization of recourses because "Cash is the important current asset for the operations of the any business organisation. Holding cash more than necessary for the intended purpose is as much expensive as running business with inadequate cash. Too much cash balance will result in higher opportunity cost, and too little will create crisis of cash shortage and force to borrow at higher interest rate. Therefore, it is important that firm maintain cash balance at optimal level in order to meet regular cash expenses and short term financial obligations." **(Pradhan, 2000: 152)**

1.2 Introduction of Nepal Telecommunication private Limited

Nepal Telecom Board established in October 1969 was converted to Nepal Telecommunications Corporation (Nepal Telecom), a fully government owned statutory organisation in June 1975. It was established under communication corporation act 2028 BS. The objective of corporation is to provide telecommunication services according to national communication service plan, make service easily accessible at simple and reasonable price, enhance the economic position and living standard of the people and encourage public participation in the various activities of Nepal Telecom. That was the time when the first telecom project funded by World Bank was nearing to completion and the second telecom project was in the state of starting.

After dissolving Nepal Telecommunications Corporation (Nepal Telecom), Nepal Doorsanchar Company limited (Nepal Telecom) was registered on 2060-10-11 under company act 2053 and the notice to this effect was published in Nepal Gazette dated 26th Chaitra 2060. It has branches exchange in 184 location within the country However, the company name was officially effective from 1st Baisakh 2061 (13th April 2004) and is also known to general public by the name Nepal Telecom as registered trademark (www.articlesbase.com)

The Vision

Nepal Telecom's vision is to remain as a dominant player in the telecommunication sector of the country while extending reliable and affordable telecommunications services to all regions including the remotest area of the kingdom and at the same time retaining its present sound financial health event in the coming competitive environment.

The Mission statement

"Nepal Telecom, as a progressive, customer spirited and consumer responsive entity, is committed to provide nation-wide reliable telecommunication services to serve as an impetus to the social, political and economic development of the country."

Capital structure

Nepal Telecom is a substantially Government owned company so Government of Nepal has more than 91.5%stake of total share capital, other shareholders are Employees 5%and public around 3.5%.This company has paid up share capital of Rs 15arab and authorised capital of Rs 25arab.There is only the proportion of share capital and recently, no possibilities of increasing this capital.

Sources : 7th Anniversary Souvenier 2011 of Nepal Telecom

1.3 Statement of the Problem

Cash management refers to the proper management of firm's cash position. It is concerned with all decisions and acts that influence the determination of the appropriate level of cash and their efficient use. It also includes the choice of the financing method, keeping in view of liquidity.

Cash management has been the most indicated and challenging area of modern corporate finance. Cash flow is an amount of money passing into and out of business in simple sense. In other word, cash flow means generating cash from various activities such as operating, investing and financing activities. At the time of cash management, the following questions should be consider:-

a. What is the liquidity and cash position of NT Pvt. Ltd?
b. What is the position of cash inflow and outflow of NT Pvt. Ltd.?

c. What is the relationship between liquidity and total revenue and liquidity and profitability?

1.4 Objective of the Study

The major objective of this study is to examine the management of cash in Nepal Telecom. The specific objectives are as follows.

a. To identify the liquidity position of NT. Pvt. Ltd
b. To review cash flow from operating, financing and investing activities.
c. To study the relationship of cash with total revenue and account receivable.
d. To provide N T recommendation in terms of cash management

1.5 Significance of the Study

Resources are very scarce in every organization. Out of these available resources, organisation has to accomplish its objective. The financial performance of the organisations depends upon the use of these scarce resources. Therefore cash management is one of the important tool which tells us how to optimally use these scarce resource i.e. cash The idea behind cash management is maintaining adequate liquid assets whenever and wherever required by the firm. Maintaining the corporate liquidity therefore consists of determining the volume and timing of cash required by the firm.

The study of cash management of Nepal Telecom provides crucial information about the cash management system. Management of Nepal Telecom can be benefited by this study by determining the strength and the weakness of the particular part of the cash management on which the objective of the study is based. This research tried to analyse the effectiveness of CM of Nepal Telecom using both financial as well as statistical tools This study not only helps management of Nepal Telecom.but also help other. Managerial person to have reference about the better cash management potential and practices.

1.6 Limitations of the Study

The study has very limited area of investigation. It is only partial analysis of cash management of Nepal Telecom. Comprehensive study of cash management is not possible in this thesis duty to its deadline of completion and availability of data and information. So the limitations of the study are as follows:

a. The study is based on secondary source collected from NT PvLtd...

b. The study covers the analysis of recent five years only.
c. The accuracy of this study is based on the data available from NT Pv .Ltd and various published document of the organisation.
d. Only financial and statistical tools are used for analysis of data.

1.7 Organisation of the Study

This study has been organised in five chapters.

The first chapter is the introduction chapter which deals with the background of the study, introduction of Nepal Telecom, statement of the problem, objective of the study, significance of the study and limitation of the study.

The second chapter is Review of literature which deals with the literature review relating to cash management from books, journal and thesis.

Third chapter is the research methodology used for the study. It includes introduction, research design, data collection and sources, data processing procedure and tabulation of financial tools and statistical techniques.

In the fourth chapter data are presented and analyzed through the way given in methodology.

At last, in the fifth chapter the summary, major finding conclusion and recommendation have been presented. A bibliography and appendix have also been included in the last part of the study.

CHAPTER-II

REVIEW OF LITERETURE

2.1 Conceptual Framework

2.1.1 Meaning of Cash Management

‘’Cash is the most important form of current assets. It is the basic input and ultimate output. The term ‘cash’ refers to all money items and sources that are immediately available to help pay a firm’s bills.

Cash includes coins, currencies, cheques held by a firm and balances in its bank accounts. This money is immediately usable to pay bills. Sometimes, near cash items are also included in cash e. g. marketable securities. If the firm has excess cash, it may decide to convert it to short-term investments.’’ **(Pradhan, 2004: 365).** So how a financial manager keeps track of all these money and how these cash are invested to near cash item so that it can be converted back to cash without delay. It is only the cash management with help the financial manager to keep record of all the cash and near cash items.

The term ‘cash management’ is concerned with the management of current assets and current liabilities of the business, which is necessary for day –to-day operation. ‘’Cash management is concerned with the decision regarding the short-term funds influencing overall profitability and risk involving in the firm. The management of cash has been regarded as one of the conditioning factors in the decision-making issues.’’ **(Saksena, 1974: 6)**

“Cash management according to **(Larsson 2000)** not a new phenomenon an organisation have always considered how their liquid capital should be managed.” Cash management can be defined as theory and method for handling liquid capital and cash flow.

2.1.2 Principles of Cash Management

Selection of cash management strategies entirely depend upon the individual firm. As each firm is unique in its nature, management should select strategies depending upon its own financial strength and objective. "In the matter of cash management, financial managers are mainly concerned with the (a) management of cash receipts, (b) management of disbursement,

(c) Minimization of cash balance, (d) use of most inexpensive sources of financing for cash balance, and (d) investment of excess balance of cash. The standard principles of cash management are as follows.

a. To collect accounts receivable as soon as possible without annoying and losing potential customers by establishing a system of lock boxes, electronic funds transfer, pre-authorized checks, and deposit concentration.
b. To delay payments as long as permitted without damaging the firm's credit rating by establishing controlled disbursement system.
c. To minimize cash balance without adversely affecting the business operation by following the techniques of cash balance management such as Baumol and Miller-Orr Models.
d. To manage most inexpensive sources of financing for meeting short term cash deficiency by optimally balancing between cost and risk.
e. To invest short term excess cash in most efficient market portfolios of securities such as in money market instruments." **(Pradhan**, **2000: 154)**

2.1.3 Techniques/Processes of Cash Management

The efficiency of cash management of a firm can be appreciated by understanding the firm's procedures for cash collection and cash disbursement. Both the collection and disbursement management offer opportunities for profit improvement; collection, however, offer more of them. ''The general idea is that the firm will benefit by ''speeding up'' cash receipts and ''slowing down'' cash payouts. The firm wants to speed up the collection of accounts receivable so that it can have the use of money sooner. Conversely, it wants to pay accounts payable as late as is consistent with maintaining the firm's credit standing with suppliers so that it can make the most use of the money it already has.''**(James, 2003: 227)** Following techniques are considered to be useful to accelerate the collection and slow down disbursement.

a. Managing Collection

   Cash collection systems aim to reduce the time it takes to collect the cash that is owed to a firm. Some of the sources of time delays are mail float, processing float, and bank float which are explained in detail below. Obviously, an envelope mailed by a customer containing payment to a supplier firm does not arrive at its destination instantly. Likewise, the payment is not processed and deposited into a bank account the moment it is received by the supplier firm. And finally, when the payment is deposited in the

bank account oftentimes the bank does not give immediate availability to the funds. These three "floats" are time delays that add up quickly, and they can force struggling or new firms to find other sources of cash to pay their bills. Cash management attempts, among other things, to decrease the length and impact of these "float" periods.

- Float

"The float, composed of several elements, is the time lost between two actions that is 1. The customer mails the payment and 2. the firm obtains the use of funds. The acceleration of cash receipts or equivalently the reduction of the float is an important cash management technique. The float has typically four elements.

  - Mail float
  - Processing float
  - Transit float
  - Disbursement float

- Concentration Banking

A concentration bank is one where a firm maintains a major disbursement account. In order to accelerate cash collections, many firms establish multiple lock-boxes or collection points. Even without lock boxes, firms may have many regional sales offices where cash sales and accounts receivable may be collated. Instead of having moneys in multiple bank accounts in different regions, most firms will regularly transfer the surplus balances to one or more concentration banks, thus centralizing the cash pool.

- Lock Box System

The lock box arrangement, available through commercial banks speeds up the collection of funds by reducing both mail and processing floats. Float reductions of two to four days are not unusual for firms receiving cheques from all parts of the country. In a typical lock-box arrangement, customers are instructed to mail their remittances to a numbered post office box. The bank, providing the lock-box system is authorized to operate the post office box the banks opens the box, collects the mail, processes the cheques and deposits the cheques directly into the firm's bank account. Typically, a large bank will collect payments from the post office box at once-to two-hour intervals, all business days of the year-all 365 days is also possible. The day the deposits are made, the bank will inform the firm through some type of telecommunication as to the amounts of the deposits. At the end of the day, all cheques photocopies, invoices,

deposit slips and any other documents included with the remittances are mailed to the firm. Note that firms receiving cheques from a large area will use several lock boxes, located in different regions and services by branches of the bank providing the lock-box arrangement, to the full advantage of a reduction in the float.

b. Control of Disbursement

The effective control of disbursement can also help the firm in conserving cash and reducing the financial requirements. Apart from speedy collection of accounts receivable, the operating cash requirement can be reduced by slow disbursement of accounts payable. Disbursements arise due to trade credit, which is a source of funds. The firm should make payments using credit terms to the fullest extent. There is no advantage in paying sooner than agreed. By delaying payment as much as possible, the firm makes Maximum use of trade credit as source of funds-a source which is interest free.

2.1.4 Factors Determining Cash Needs

The factors that determine cash needs are described below:

2.1.4.1 Synchronization of Cash Flows

The cash management problem originates from the lack of synchronization between cash inflows and out flows which raises two interrelated issues: 1) How to finance cash requirements when cash outflows exceed inflows, and 2) How to invest a cash surplus when net cash flows are positive. The basic financing-investment issue is indirectly affected by various factors which determine net cash flows and is directly influenced by

Minimal cash requirements and other financial policies of the corporation. The interrelated complex of these issues, to the extent that they are controlled by a financial officer, creates the cash management problem.

It is mentioned that business can control cash by synchronizing cash flows through the use of a cash budget. It can use the time such as the time from the writing of the check until it clears the bank, accelerate collections with low credit terms and high interest rates on unpaid balances, and control disbursements by making use of discounts and good purchasing practices.

2.1.4.2 Short Costs

Another general factor to be considered in determining cash need is the cost associated with a short fall in the cash needs. The cash forecast presented in the cash budget would revel period of cash shortages. In addition, there may be some unexpected short fall. Every shortage of cash, whether expected or unexpected involved a cost depending upon the severity, duration and frequency of the shortfall and how the shortage is covered. Expenses incurred as a reset of shortfall are called short costs. Included in the short cost are the following.

- Transaction cost associated with raising cash to tide over the shortage, this is usually the brokerage incurred in relation to the sale of some short term near cash assets such as marketable securities.
- Borrowing cost associated with borrowing to cover the shortage these include items such as interest on loan, commitment charge and other expenses relating to the loan.
- Loss of cash discount, that is, a substantial loss because of temporary shortage of cash.
- Cost associated with deterioration of the credit rating which is reflected a higher bank charges on loans, stoppages of supplies, demand for cash payments, refusal to sale, loss of image and the attendant decline in sales and profits.
- Penalty rates by bank to shortfall in compensating balances.**(Khan and Jain, 2003: 668)**

2.1.4.3 Excess Cash Balance Costs

Theoretically there should be optimum balance of cash in any firm's accounts i.e. there should not be excess/idle cash. But if firm holds excess cash then the cost which firm has to bear in having excessively large cash balance is known as excess cash balance cost. If large funds are idle, that implies, firm has missed opportunities to invest those funds and has thereby lost interest which it would otherwise have earned. This loss of interest is primarily the excess cost.

2.1.4.4 Procurement and Management

"These are the costs associated with establishing and operating cash management staff and activities. They are generally fixed and are mainly accounted for by salary, storage, handling of securities, etc." (**Khan and Jain, 2003: 669)**

2.1.4.5 Uncertainty and Cash Management

Finally, the impact of uncertainty of cash management strategy is also relevant as cash flows cannot be predicted with complete accuracy. The first Requirement is a precautionary cushion to cope with irregularities in cash flows, unexpected delays in collections and disbursements, defaults and unexpected cash needs. The impact of uncertainty on cash management can, however, be mitigate through (1) improved forecasting of tax payments, capital expenditure dividend, and do on: and (2) increased ability to borrow though over draft facility. **(Khan and Jain, 2003)**

2.1.5 Motives of Holding Cash

2.1.5.1 Transactions Motive

Firms are in existence to create products or provide services. The providing of services and creating of products results in the need for cash. Firms hold cash in order to satisfy the cash inflow and cash outflow needs that they have. In firm, there is regular inflow of cash in the form of sales, return from investments etc. Similarly, there is regular outflow of cash like operating expenses, taxes, interest and wages and so on. But this inflow and outflow do not perfectly synchronize with each other. So ensure that there is always synchronization of inflow and outflow of cash, firm needs to hold cash. So the requirement of cash balances to meet routine cash needs is known as transactional motive.

2.1.5.2 Precautionary Motive

Besides anticipated cash needs, sometimes firm gets unexpected cash needs at short notice like strikes, failure of important customers, unexpected slow down in collection of accounts receivable, sharp increase in cost of raw materials and many more. So cash held to meet such unexpected obligations is known as precautionary motive. Holding cash for precautionary motive large depends upon ability to predict future. Also another factor that strongly influences the precautionary motive is the ability to borrow additional cash on short notice.

2.1.5.3 Speculative Motive

“Economist Keynes described this reason for holding cash as creating the ability for a firm to take advantage of special opportunities that if acted upon quickly will favour the firm.” An example of this would be purchasing extra inventory at a discount that is greater than the carrying costs of holding the inventory. Precautionary motive is defensive in nature as firm

makes provision to meet unexpected contingencies while speculative motive represents a positive and aggressive approach. Firms aim to exploit profitable opportunities and keep cash in reserve to do so.

2.1.5.4 Compensation Motive

Commercial banks perform many functions for business firms. In return it ask business firm to maintain minimum level of balance at the bank which is known as compensating balances. These balances are used by firms in the form of loan to other and earn interest which is an indirect fee to bank. Of the four primary motives of holding cash balances, the two most important are the transactions motive and the compensation motive. Business firms normally do not speculate and need not have speculative balances. The requirement of precautionary balances can be met out of short-term borrowings.

2.1.6 Objectives of Cash Management

The main objectives of cash management are to determine the optimal cash balance which is neither excessive nor inadequate and also to ensure that the optimal cash balance is maintained all through. Cash should not remain idle unnecessarily and simultaneously it should not fall short of the requirements also. For this, the collections and the disbursements of cash are to be managed properly. In case the flow of cash in not even, the cash is to be arranged by raising short-term loans for meeting the payment bills or if cash collections have been made but there is no immediate outlet for payment, the idle funds are invested in temporary securities so as to yield some return. Thus, the problem is to manage the cash affairs in such a manner that gives the least possible cost of maintaining cash. The main objective of financial management-maximizing profitability without sacrificing liquidity-should be borne in mind while attempting to manage cash and bank balances. Optimal cash balance does not mean minimum cash balance since minimum cash may lead to shortage of cash and the day-to-day operations of the business may suffer. The level of cash which meets the requirements appropriately and which gives the minimum cost is known as the optimum level of cash.

Cash management covers the management of not only cash but near-cash assets also, e.g., marketable securities and time deposits with banks, because these are readily convertible into cash, As a matter of fact, 'near-cash assets' are to be included under' cash' for the purpose of

cash management since surplus cash is required to be invested in near-cash assets for the time being.

The objectives of cash management are straightforward – maximise liquidity and control cash flows and maximise the value of funds while minimising the cost of funds. The strategies for meeting such objectives include varying degrees of long-term planning requirements. Everywhere in the world, much treasury activity is concentrated on cash management. This includes financing the corporation, administration of debts (loans, bonds, commercial papers, etc.), good relationships with the banks, payments to suppliers and collections from customers, control of foreign currency and interest positions according to the company's needs for finance, and finally the reporting and technical support of all these functions."

2.1.7 Determining the Optimum Cash Balance

Financial manager responsibilities are to maintain a sound liquidity position of the firm. There are a number of methods that try to determine the magical cash balance, which should be targeted so that costs are minimized and yet adequate liquidity exists to ensure bills are paid on time. One of the first steps in managing the cash balance is measuring liquidity. There are numerous ways to measure this, including: cash to total assets ratio, current ratio (current assets divided by current liabilities), quick ratio (current assets less inventory, divided by current liabilities), and the net liquid balance (cash plus marketable securities less short-term notes payable, divided by total assets). The higher the number generated by the liquidity measure, the greater the liquidity and vice versa. There is a trade off, however, between liquidity and profitability that discourages firms from having excessive liquidity.

The financial manager should determine the appropriate amounts of cash balance. A trade off between risk and return influences such a decision. If the firm maintains a small cash balance, its liquidity position become weak and suffers from a capacity of cash to make payment. But investing released funds in high level of cash balance it will have a sound liquidity position but forego the opportunity to earn interests. Thus the firm should maintain an optimum cash balance to find out the optimum cash balance the transaction costs and risk of too small a balance should be matched with the opportunity costs of too large a balance.

There are a number of methods that try to determine the magical cash balance, which should be targeted so that costs are minimized and yet adequate liquidity exists to ensure bills are paid on time (hopefully with something left over for emergency purposes). One of the first steps in managing the cash balance is measuring liquidity. There are numerous ways to measure this, including: cash to total assets ratio, current ratio (current assets divided by current liabilities), quick ratio (current assets less inventory, divided by current liabilities), and the net liquid balance (cash plus marketable securities less short-term notes payable, divided by total assets). The higher the number generated by the liquidity measure, the greater the liquidity and vice versa. There is a trade off, however, between liquidity and profitability that discourages firms from having excessive liquidity."

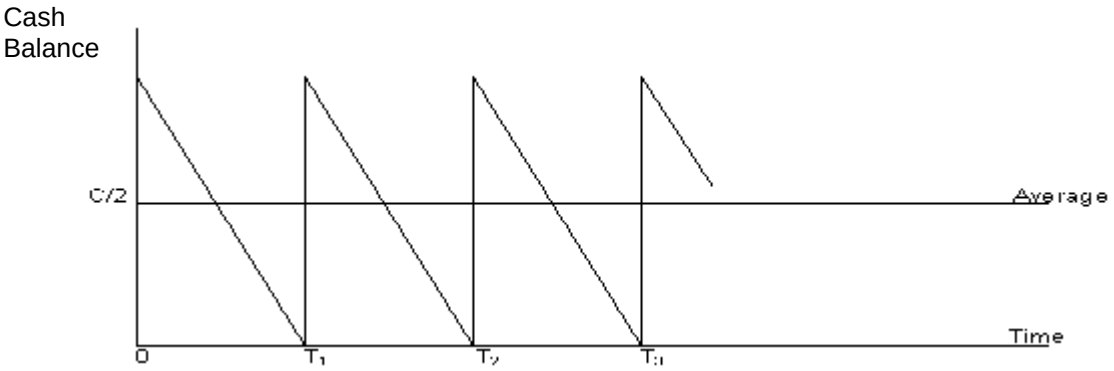
2.1.8 Cash Management Models

Baumol Model

In view of minimizing the opportunity cost of holding cash and maximizing the return on the available funds, the cash balance should be maintained at a minimum level, and the funds not required for immediate use be invested in the marketable securities. What is the minimum size of cash to hold and how do we determine it? The minimum size is the amount of cash that is enough to start with at the beginning of a period to meet the cash need of that period's transaction. In order to make sure that every period begins with the right amount of cash, a method is needed that prescribes the optimal size of cash transfer from the security account, or the optimal amount to be borrowed whenever the balance reaches to zero level. Baumol model is one of the methods that can be used for this purpose.

Baumol identifies the cash maintenance as analogous to inventory maintenance, and demonstrates that the model of economic order quantity that is applicable to inventory management is perfectly applicable in cash management too. Baumol model is based on the assumption that (i) the cash is used at a constant rate; (ii) the periodic cash requirement is more or less same; and (iii) there are some costs such as the opportunity costs that increase and other costs such as transaction costs that decrease as cash balance increase. Because of the assumptions (i) and (ii), the graphical representation of cash position looks like as follows:

Figure No. 2.1 Baumol's Model of Cash Management

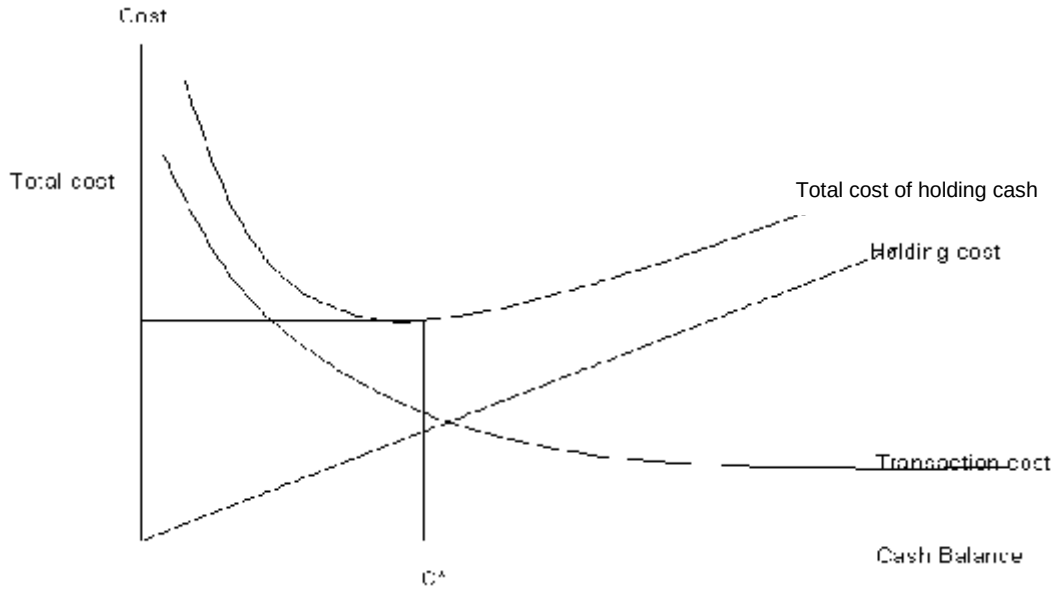


Unlike the case of inventory purchases, the cash transfer does not take time. Therefore, it is normally not required to maintain safety stock of cash.

Weeks

Under the stated assumption, the model prescribes an optimal size of cash balance and the optimal size of cash transfer from marketable securities to cash account or borrowing. What matters for a firm is the total of opportunity cost and the transaction cost. Therefore, the objective of this model is to minimize the total cost. The figure below shows the relationship between the average size of cash balance (the size of cash transfer or borrowing) and various costs associated with the cash maintenance.

Figure No. 2.2 Optimum Cash Balance



Mathematically, the optimal size of cash transfer from investment accounts or line of credit (borrowing), c* is determined as follows:

$$C^* = \sqrt{2FR / K}$$

Where

F = Fixed transaction cost per transaction

R = Requirement of cash per period

K = Opportunity cost of holding cash or the interest rate on borrowing.

The Baumol model can be appropriately applied in case of predictable uniform net cash flows, but not in the situations characterized by irregular and uncertain cash flows.

The average cash balance (C) is calculated as follows:

$$C = \frac{C^*}{2} \Gamma M$$

Where,

M = minimum balance of cash for precautionary purpose.

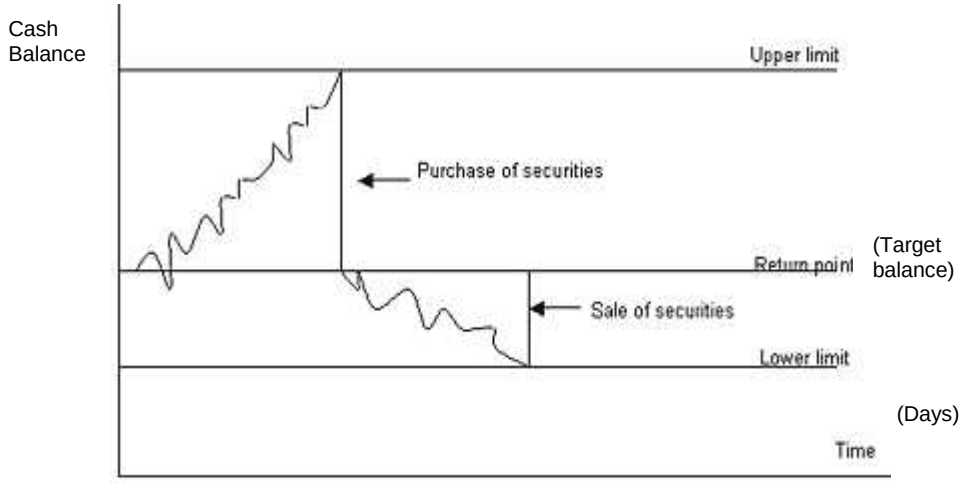
1. Miller-Orr Model

The size of cash requirement depends on the pattern and degree of irregularity of inflows and outflows. The Baumol model does not consider the possible irregularity and uncertainty of receipts and payments. Merton Miller and Daniel Orr have developed a model, known as Miller- Orr model that takes into account the realistic pattern of cash flows and prescribes when and how much cash should be transferred from cash to investment account and from investment account to cash.

The model is based on the assumption that the daily net cash flows (receipts minus payments) are random in size as well as in the matter of negative or positive flows, and are normally distributed in the long run. The model sets a range of high and low limits within which the cash balance is allowed to fluctuate and sets the target cash balance (Z) in between these two limits. The model suggests bringing the cash balance to target balance whenever it drifts away to the limits in either direction. The rule is to transfer the amount of cash that is

necessary to bring the cash position to its target balance from the investment account whenever the balance slides down to the lower limit (L); and to transfer the cash in excess of target balance to the investment account whenever it reaches to the upper limit (U). The lower limit in the model is set by either managerial decision to meet emergency need or as required by bank to maintain compensating balance in the account. The graphical representation of this model is as follows.

Figure No. 2.3 Miller-Orr Model of Cash Management



Mathematically, the model is set as follows

$$Z = \frac{3Fs2}{4i}^{1/3} \Gamma L$$

The lower limit L is given; the model calculated the Z and U.

$$U = \frac{3Fs2}{4i}^{1/3} \Gamma L$$

The average cash balance (C) is obtained as follows:

$$C = \frac{4Z\ ZL}{3}$$

Where

Z = target cash balance

F = Fixed transaction cost per transaction

I = daily rate of opportunity cost or daily interest rate

S^2 = variance of net daily cash flows

U = Upper limit

L = Lowe limit

2. Orgler's Model

According to this model, an optimal cash management strategy can be determined through the use of multiple linear programming models. The construction of the model comprises three sections: (1) selection of the appropriate planning horizon (2) selection of the appropriate decision variables and (3) formulation of the cash management strategy itself. The advantage of linear programming model is that it enables coordination of the optimal cash management strategy with the other operations of the firm such as production and with less restriction on working capital balances.

The model basically uses one year planning horizon with twelve monthly periods because of its simplicity. It has four basic sets of decisions variables with influence cash management of a firm and which must be incorporated into the linear programming model of the firm. These are: i) payment schedule, ii) short-term financing, iii) purchase and sale of marketable securities and iv) cash balance itself. The formulation of the model requires that the financial managers first specify an objective function and then specify a set of constraints.

Orgler's objective function is to 'minimize the horizon value of the net revenue from the cash budget over the entire planning period.' Using the assumption that all revenues generated are immediately reinvested and that any cost is immediately financed, the objective function represents the value of the net income from the cash budget at the horizon 'by adding the net returns over the planning period.' Thus, the objective function recognises each operation of the firm that generates cash inflows or cash outflows as adding or subtracting profit opportunities for the firm from its cash management operations. In the objective function, decision variables which cause inflows, such as payments on receivables, have positive co-efficient, while the sale of those securities would incur conversion costs and have a negative

co-efficient. The constraints of the model could be i) institutional or ii) policy- constraints. The institutional constraints are those imposed by external factors, that is, bank-required compensating balance. Policy constraints are imposed on cash management by the firm itself. For instance, the financial manager may be prohibited from selling securities before maturity. Either constraint can occur in the model during one monthly period or over several or all the months in the more year planning horizon.

An example of the linear programming model is as follows:

Maximise profit= $a_1s_1 + a_2x_2$

Subject to

$b_1x_1 \leq$ production

$b_2x_2 \leq$ constraints

$C_1x_1+C_2x_2 \leq$ Cash available constraint

$a_1x_1+a_2x_2 >$ Currents assets requirement constraint

$X_i \geq 0_i = 1$, n non-negativity constraint

A very important feature of the model is that it allows the financial managers to integrate cash management with production and other aspects of the firm. Source (Khan andJain 2007)

2.2 Review of Related Study

Cash management is regarded as a important part of working capital management, the thrust for a separate theory in this area was attempted by many economist, since 1950's. Some of them enunciated cash management theories whereas others extended the common run approaches with new techniques.

2.2.1 Review of Journals

Baumol ;(1952) *introduced a deterministic approach to determine the level of cash balances based on Economic Order Quantity of early inventory model*.

He assumed that the firm faces fixed cash inflow and outflow patterns and sought to minimize the cost of holding cash necessary for its transaction. Baumol concluded that cash will be demanded by rational individuals in proportion to the square root of the value of transactions, given the price level. Tobin (1956) interposed interest elasticity of transaction demand for cash with a view to maximizing individual's interest earnings net of transaction

cost. This is different from Baumol's propositions but the results are quite similar with Baumol's equations.

Friedman; (1959) i*ntroduced the behaviour of aggregate cash balance and its velocity. According to him, "business holds cash as a productive resource."* Friedman explored the question of whether money is like an inventory holding, or is comparable with fixed capital. He concluded with the finding that "cash balances are analogous to fixed capital rather than to inventories and that some other assets or liabilities serve as shock absorbers for business as for consumers**."**

Seldon (**1961)** *extended the study and determined the relationship between velocity of money and its inverse relationship with the assets size of the firm*. According to Seldom, the velocity is defined as the ratio of total outlays including tax, and dividend payments but excluded capital expenditures debt retirement and securities purchases from yearend cash holdings. According to him, the cost of holding money is much less for large firms that for small firms. The journal of finance, published bimonthly by American Finance Association for many decades is taken into account. In its volume XV of September 1960, Joseph C Schabacker, at his article, "A study of cash planning in small manufacturing companies**"** is reviewed here, which is as follows

A Study of Cash Planning in small manufacturing companies by **Josephc Schabacker** (1960) University of Wisconsin. Several significant investigations have been conducted to explain the causes of failure among small business. The most widely accepted theory forthcoming from such studies is that poor internal management is the predominant factor in failure. Business does not fail merely because they are small.

The purpose of this study is to explore one specific phase of the managerial job in small companies, namely the forward planning of cash requirement. Many small business owners allow themselves to be pressured into ad hoc decisions as a result of no advance planning. *The research was designed to test the hypothesis that "the financial health of a small manufacturing firm is directly related to the amount of formal cash planning which is done*" (**Schabacker, 1960)**

According to Whalen (1965) *"A cross section study of business demand for cash" on Journal of finance,* (September, 1965) has found the speculative demand for money many be considered as a function of wealth. Assets and sales are the explanatory variables to determine the cash balance of the firm. Since Whalen attempted to incorporate assets as well as transactions into the demand function, the analysis presented by him in order to determine the cash holding of the firm is not only for transaction purpose but also an investment.

Miller-Orr (1966) *assumed that firm's cash flows could be analyzed by a stochastic process.* He followed Baumol's model without question and deducted that the firm's pattern of payment and receipts is fixed and that the cost of non-payment is infinite. He added that the firm or the individual is presumed to hold that amount of money which minimise the interest cost. He further advised holding money rather those bonds, since there is transaction cost associated with the conversion of bonds into money. This reduces the cost of transaction and maximizes profits by an equivalent amount.

"Cash management is a broad term that refers to the collection, concentration and disbursement of cash. It encompasses a company's level of liquidity, its management of cash balance, and its short-term investment strategies. In some ways, managing cash flow is the most important job of business managers. If at any time a company fails to pay an obligation when it is due because of the lack of cash, the company is insolvent. Insolvency is the primary reason firms go bankrupt. Obviously, the prospect of such a dire consequence should compel companies to manage their cash with care. Moreover, efficient cash management means more than just preventing bankruptcy. It improves the profitability and reduces the risk to which the firm is exposed.

Cash management is particularly important for new and growing businesses. Cash flow can be a problem even when a small business has numerous clients, offers a superior product to its customers, and enjoys a sterling reputation in its industry. Companies suffering from cash flow problems have no margin of safety in case of unanticipated expenses. They also may experience trouble in finding the funds for innovation or expansion. Finally, poor cash flow makes it difficult to hire and retain good employees".

"Cash flow management is the process of monitoring, analyzing, and adjusting firms' cash flows. For small businesses, the most important aspect of cash flow management is avoiding extended cash shortages, caused by having too great a gap between cash inflows and outflows.

It won't be able to stay in business if it can't pay its bills for any extended length of time. Therefore, firm need to perform a cash flow analysis on a regular basis, and use cash flow forecasting so that it can take the steps necessary to head off cash flow problems. Many software accounting programs have built-in reporting features that make cash flow analysis easy. This is the first step of cash flow management."

"Cash management forecasts cash flows (inflows or outflows of cash) as part of working capital cycle, prepares cash and financial budgets and fund-flow statements, and manages the cash or funds flowing through the company. The basic aim of cash management is to ensure that cash in exceeds cash out. In other words, the purpose of cash or funds management is to ensure that the company has the cash and working capital for its expanding or fluctuating needs without either trying up funds which could be more profitably invested or used elsewhere, or relying too heavily on bank overdrafts or other short-term loans."

"Cash management is ultimately about cash flow and very few small businesses are awash in cash. Even successful, growing companies are vulnerable to cash flow problems because they tend to add employees and inventory rapidly. This may quickly reduce the company funds and lead to cash shortages. Because having cash at the right time is so important, entrepreneurs must pay close attention to cash management."

2.3 Review of Previous Thesis

Bajracharya; (1990) *has studies" the cash management practices in Nepalese Public Enterprises."* The study has taken 18 enterprises as a sample and used data from 1977 to 1987. The study concluded,

i. Cash management in the public enterprises of Nepal is primarily based on the traditional practices, lacking in a scientific approach. A more serious aspect of cash management has been the absence of any formalised system of cash planning and cash budgeting in many of the enterprises, although the executives of some enterprises do have the practice of forecasting cash requirements on a formal basis.
ii. Modern practices with respect to debt collection monitoring the payment behaviour of customers and relevant banking arrangements in connection with collection of receivables have been virtually ignored in many enterprises.
iii. Our survey revealed that majority of the enterprises didn't face any serious liquidity problem. However, this was not because of the effectiveness of cash planning and

budgeting. The problem of liquidity actually didn't arise due to the coincidence of delay in receivables collection being matched by delayed payment to creditors.

iv. By and large most enterprises had periodic accumulation of surplus cash and corresponding cash shortage from time to time. However, none of the enterprises considered the implications of holding idle cash balance and few took into account the potential benefit of

v. Investing surplus in marketable securities. Those which did failed to consider the cost of administering such investments.

vi. There has been wide variations overtime in the state of financial health of the enterprises in terms of the composition of current assets and current liabilities as revealed by the relevant financial ratios.

vii. Regression analysis revealed that there was little effect of the opportunity cost of holding cash on the cash balances held by the enterprises. Neither interest rate nor the rate of inflation had any effect on the cash balance. Further there was very little evidence of the effect of economy of scale on cash balance holding in most cases.

Further he recommended for developing appropriate strategies for cash management. He stressed on cash planning and budgeting to cash project cash surplus and cash deficit. Firm can accelerate the inflows as far as possible to decelerate outflow. He also stressed to maintain optimum level of cash and at last, it can be better to invest idle fund in marketable securities.

Chalise (2006) c*onducted the study on" Cash management of Nepal Telecom" by using five years of data from* 2056/57 to 2060/61. The objective of his study was as follows:

"To observe devices of planning and control of cash in Nepal Telecom, to examine the existing internal control policy in Nepal Telecom regarding cash control practices, to identify the shortage or excess of cash in the company and the procedures of financing for the shortage and investment of excess cash and to study the liquidity position of the company."

Major findings of Chalise's study is as follows

i. Actual position of cash at the end of F/Y2056 / 2057 to F/Y 2059 / 2060 was higher than approved budget cash balance. The deviation was insignificantly decreasing which shows favourable trend although it is not satisfactory.

ii. The result of revision showed surplus position of cash. This shows that company was not able to meet the target of budget.

Moreover, when comparison is made in between actual cash source and actual cash uses, there was big deviation resulting

ample surplus. So, it shows that budget was not implemented properly and surplus was not used in productive investment. It could have done even keeping required level of closing cash balance in hand.

iii. When the closing balance cash is considered as source of budget, there was huge amount of surplus in approved budget, revised budget and in actual performance of budget. The degree of surplus was more in revised budget and actual performance of budget than in approved budget. But the management of those surpluses was lacking in the company.

iv. The analysis of variances in sources of cash depicts that the total actual sources of cash in the years 2056/57 and 2058/59 was less than the approved budget sources of cash.

v. There are strict provisions regarding cash handling in the company. The decision making process will be lengthy due to compliance of time consuming rules and procedure as prescribed. The Policy study shows that the company is still suffering from centralization problem of management.

Similarly, **Bhatta (2006)** *did another study on Nepal Telecom where objectives were "to analyze the gap between budgeted and actual revenue and its trend*," to examine cash collection and disbursement, to review cash flow from operating, financing and investing activities and to have information, control and security over cash balances and payment system.

Major findings of his study are ad follows:

i. The lack of accurate and proper sales forecast is one of the important contains that affect the financial performance of the company.

ii. Sales budget shows ISD sector's sales revenue is main revenue sources of Nepal Telecom, which contributes more than 40% in average.

iii. Correlation and coefficient value shows that there are positive correlation between budgeted and actual sales units and Rs. By the regression line, it is clear that future revenue will increase with compare to budgeted if other things remaining same.

iv. The collection of receivable from the customers in the company is very small decreasing year by year. It denotes efficiency of Nepal Telecom to collect its revenue in time. But A/R is low increasing in F/Y 2059/60. The decreasing trend of average collection period has shown the improvement of credit management and strict credit policy of the company.

Rayamajhi, (2006) *did study of "cash management of Nepalese Commercial Banks.* "She has studies cash management of 5 commercial banks i.e. Nabil Bank, Himalayan Bank Ltd, Standard Chartered Bank Nepal Limited, Everest Bank Limited and Nepal SBI bank Ltd. Her study mainly focused on over all cash management of selected bank with the examination of their demand for cash. She also tried to focus and analyse the cash disbursement needs, minimize funs committed to cash balance and access the credit policy adopted in Nepalese commercial bank and their impact and relationship to each other.

Her finding mainly revealed following things:

- Banks under study have the practice of preparing cash budget annually, monthly and weekly with the help of ratio analysis, cash budget method, projected balance sheet method and adjusted net income method. However, very few banks treated it as formal document.
- The study showed that there has been no uniformity among the banks with regard to cash balance, cash turnover, current ratio, account receivable, average collection period, A/R to cash/bank balance, investment in cash/bank balance on current assets and total assets, c cash/bank balance to current liabilities.
- Cash management in the banking sector of Nepal is primarily based on the traditional practices, which lack in a scientific approach.

To the end, she had made some suggestion for the improvement of cash management of selected commercial banks. She suggested to do cash planning and cash budgeting in a formal basis so as to project cash surplus or cash deficit for a period not exceeding one year and broken up into shorter intervals. Also she has suggested appointing cash planning manager or experts to upgrade the current financial management skills. She has also emphasised on paying much attention towards collection of account receivable and decrease average collection period for effective cash management

Chataut (2008) *has recently done research on" NTPv Ltds cash management*. "He has mainly done research on shortage or excess of cash in the Nepal Telecom. Also he tried to analyze the gap between budgeted and actual sources of cash.

His major findings are as follows:s

- The actual cash balances were higher than approved budgeted amounts. It shows that there was no effective implication of budgeted amount.
- Nepal Telecom prepared and approved deficit budget each year from 2056/2057 to 2061/2062. When opening balance was not included in source side of budget total budgeted cash uses was always higher.

Manandhar (2009) Conducted the study on "*cash management in Nepal telecom by using five years of data from 2002/2003 to 2006/2007"* the objective of her study was to identify the cash positions of NT, to review cash flow from various activities, to analyse the cash collection and disbursement of NT.

The major findings of her studies are as follows:

- The liquidity ratio throughout the study period was in decreasing trend indicating that there is cash shortage and poor management of cash.
- Absolute cash ratio was in decreasing trend shows that cash was not managed properly.
- Net cash flow shows the good positions of cash of NT.
- There is low degree of Correlations between cash and A/R.

Gajurel, (2010), conducted a research on *"Cash Management Analysis of Nepal Water Supply Corporation."* The objectives of the study are as follows:

1) To examine the internal control policy of cash transaction in NWSC.
2) To analyze the cash follow structure and cash management techniques Practiced by the company.
3) To examine the liquidity position of NWSC.
4) To study the relationship of cash with other influencing variable of cash management.

Major findings of study are -

1) NWSC have not any definite policy regarding how much cash balance to hold in each

period. Cash and bank balance hold during the different period of study were observed to be highly fluctuated and thus the fact indicates no definite policy regarding how much balance to be hold in each period. Average cash balance of NWSC during the study period is 265095200.

2) There is fluctuations have been observed in cash turnover ratio analysis. The fluctuation of cash turnover ratio is the indication of no definite policy holding cash balance in relation to sales volume, is applied by NWSC. The average cash turnover ratio of NWSC is 2.067.
3) Correlation between sales and cash and bank balance has been observed to be 0.607.Generlly, it indicates the positive relationship between the sales and cash and bank balance.
4) The average current ratio is 1.82, which is normally less than satisfactory level; however satisfactory level is 2:1. Overall, the average ratio signals a little bit unsatisfactory position of the NWSC, which should be little bit above near to 2:1.
5) NWSC has been operating in loss in all fiscal year during the study period. In overall, NWSC has been operating under loss and the average net profitability margin has been calculated as -52.46%.
6) NWSC has not utilizing its current assets effectively in earning profit. The overall ratios are dissatisfying, indicating loss in each fiscal year. Overall the return on working capital i.e. current asset is disappointing by indicating drastic downfall of the corporation. The average return on working capital has been calculated as 23.13%.
7) Cash and bank balances and current liabilities ratio occurred from lower 21.02% to 88.55% which indicate the significant cash balance to meet current obligation. But on the other hand most of the ratios are less than 30% which shows the excess

cash and deficit in making payment during the study. It has clearly indicated that NWSC has not been following a systematic cash management practices.

2.4 Research Gap

Most of the dissertation related to cash management has been reviewed. The previous researchers had conducted their research on Nepal Telecom only using financial tools. But researcher has tried to analyse the effectiveness of Cash management of Nepal Telecom using both financial as well as statistical tools. Already, we know the cash management of

commercial banks, but it is rear to know the cash position of NT. Pvt. Ltd. this study is fruitful to know about cash position and cash management of it. Researcher thinks the cash management of NT. Pvt. Ltd is different and process of liabilities management is also different. This here all the process and management are cleared with the help of data processing in chapter IV.

CHAPTER- III
RESEARCH METHODOLOGY

3.1 INTRODUCTION

"Research methodology refers to the various sequential steps to adopt by a researcher in studying a problem with certain objectives in view". It is concerned with the various methods and techniques used in the process of research studies. Therefore it is a systematic way to solve the research problem this chapter looks into the research design, population and sample, nature and source of data, data collection procedure and tools and techniques of analysis.

From data collection to till data interpretation, researcher needs a proper path to solve the research problem. This is guided by research methodology. This chapter tries to focus on different research methods, frameworks, tools and conditions that will be used while conducting the study.

3.2 Research Design

Research design is a broad plan for collecting and analysing data. It includes methods that are used while collecting data, instruments that are used for doing research and the sampling plan that are used for follow up.

A well settled research design is necessary to fulfil the objective of this study. It means definite procedures and techniques are required that guide to study and advocate for research viability. This study aims to evaluate managerial efficiency and performance regarding cash management of Nepal Telecom. Hence, descriptive as well as analytical research designs have been used.

Descriptive research is essentially a fact finding approach relative largely to present and abstracting generalization by the cross section study of the current situation.

Analytical approach is followed to parametric and non parametric test of data. It is process of micro-analysis and appraisal to the data.

3.3 Data collection procedures and Sources of Data

For any research work, information and data plays vital role. Method of data collection indicates the source of data and how they are collected thus it is one of the major tasks of research work. This study is mostly based upon the secondary sources. However some qualitative information have been obtained through the staffs of the company directly or indirectly from NTPvLtd. Secondary information has been mainly collected from following sources

a. Published and unpublished document and annual reports of the company.
b. Journals, Government and non government publication
c. Supportive books and thesis of related topic.
d. Websites of related topic.
e. From previous researcher.

3.4 Population and sample

As this research aims at studying the cash management aspect of the NTPvLtd. Information have been analyzed for several operations. Among these network like UTL, STM, Smart telecom, Nepal Satellite and Ncell, NTPvLtd is one.which is only one government owned Doorsanchar company .Here all the NTA are population of the study and NT P.V Ltd. has been selected as sample for the present study.

3.5 Method of Data Analysis

To find out the true picture of cash management of Nepal Telecom, different financial and statistical tools are used. Some generalisation and assumption might also be made in the course of preparation of report as demanded by the situation. The procedures of analyzing data are described as follows.

3.5.1 Financial Tools and Techniques

Financial analysis is the process of identifying the financial strength and weaknesses of the firm by properly establishing the relationship between the financial figures. A widely used tool in financial analysis is ratio analysis however there are other tools also.

3.5.1.1 Ratio Analysis

A tool used by individuals to conduct a quantitative analysis of information in a company's financial statements. Ratios are calculated from current year numbers and are then compared to previous years, other companies, the industry, or even the economy to judge the performance of the company. Ratio analysis is used to determine the strengths and weakness of business operation..

a. Liquidity Ratio

Liquidity ratio is used to find out firm's ability to meet short term obligation. In other words it helps to measure short term or current solvency of the firm. Under this, there are two types of ratio.

i. **Current ratio** may be defined as the ratio of current assets to current liabilities. It is also known as working capital ratio or 2:1 ratio. It shows the relationship between the total current assets and total current liabilities, expressed as formula given below.

$$\text{Current ratio} = \frac{Current Assets}{Current Liabilities}$$

Current assets mean cash or those assets convertible or expected to be converted into cash within the accounting year and current liabilities are those liabilities to be paid within the same time. Current assets normally include items like cash in hand and at bank, marketable securities or readily realizable investments, Bills receivable, book debts (excluding bad debts and provision), inventories and prepaid expenses. Current liabilities include items such as Outstanding or Accrued Expenses, Sundry Creditors, Bills Payable, Bank Overdraft, Provision for taxation, etc.

ii. **Liquid Ratio** may be defined as the ratio of liquid assets to liquid liabilities or current liabilities. It is concerned with the relationship between liquid assets and liquid or current liabilities. The other terms used for liquid ratio are 'Quick ratio' and 'Acid

test ratio'. For the purpose of computation, the current assets and current liabilities could be classified as follows:

Current assets: (a) Liquid Assets and (b) Deferred Assets

Current Liabilities (a) Liquid Liabilities and (b) Deferred Liabilities

Establishing a simple rule that all assets and liabilities are liquid if they are expected to be realized or paid within a month could make this classification, otherwise they belong to 'Deferred' category. However, the criterion for such classification depends upon the purpose for which the liquid ratio is used. Liquid assets normally include cash, bank, sundry debtors, bills receivable and short-term investments or marketable securities. In other words, they are current assets minus inventories and prepaid expenses. In the same manner, liquid liabilities are current liabilities minus bank overdraft and income received in advance.

$$\text{Liquid ratio} = \frac{LiquidAssets}{LiquidLiabiliites}$$

b. Cash Position Analysis

Business needs cash for meeting its daily operating expenses and other cash obligations. Therefore cash position should be looked into separately to highlight this crucial business aspect. Cash means actual cash and bank balance extracted from balance sheet of annual report.

Current liabilities consist of account payable, current portion of long term loan, other provision, pension fund and other short term liabilities. Total assets include net fixed assets, investments and current assets except deferred charges.

- **Absolute Cash Ratio** is represented by cash and near cash items. Hence, in the computation of this ratio, only absolute liquid assets are compared with liquid liabilities. These assets normally include cash, Bank and marketable securities. It is to be observed that receivables are excluded from the list of liquid assets.

$$\text{Absolute Liquidity Ratio} = \frac{Cash\ \Gamma\ Bank\ \Gamma\ Marketable\ \text{sec}\ urities}{CurrentLiabiliites}$$

The Cash Ratio should be at least 1.0 for any company, showing they can at least pay their liabilities if they had to. An increasing Cash Ratio is a positive sign, showing that the company is better able to cover its obligations to creditors.

- **Cash to Current Assets Ratio** measures the portion of a company's assets held in cash or marketable securities. Although a high ratio may indicate some degree of safety from a creditor's viewpoint, excess amounts of cash may be viewed as inefficient.

  $$\text{Cash to current assets ratio} = \frac{Cash\ \Gamma\ Marketable\,securities}{Current assets}$$

  High or increasing Cash to Current Assets ratio is generally a positive sign, showing the company's liquid assets represent a larger portion of its Total Current Assets. It also indicates the company may be better able to convert its non-liquid assets, such as inventory, into cash.

c. Cash Turnover Ratio

The ratio of cash in hand and at the bank to net sales is termed as cash turnover ratio or cash velocity. The ratio indicates the efficient use of cash to generate sales. Cash balance should be kept within reasonable limits just as debtor and stock. In theory, the ideal ratio is said to be around 20.

$$\text{Cash turnover ratio} = \frac{Sales}{Cash\ \Gamma\ BankBalances}$$

A high ratio means relatively small amount of cash which is good because cash involves holding cost. But if overdraft is there, it may not be advisable since interest burden may wipe off the resources in due course of time. A lower ratio indicates greater availability of cash which may remain idle in the business. However, too high ratio is also dangerous, as it may be an index of overtrading i.e. doing business with too little cash. In the case of Nepal Telecom, sales indicate total revenue of the year which is categorized as total revenue from local telephone, domestic trunk telephone, international telephone, domestic telegraph, international telegraph, international telex, leased circuits, telefax, mobile & internet, interconnection and others.

3.5.1.2 Actual Cash Flow Analysis

‘’Cash flow statement provides relevant information about the cash receipts and cash payments of an enterprise during a period. Information about enterprise’s cash flows is useful

in assessing its liquidity, financial flexibility, profitability and risk.'' **(Fago, Subedi, Gyawali, 2003:11.1)**

In simplified term, cash flow statement shows the movement of cash in and out of business. It also finds the reason for changes in balances of cash in hand and at bank as on date to a next date, usually the accounting period. The main source of cash receipts and channels of payment are found out and recorded in the cash flow statement.

3.5.2 Statistical Tools

Statistics starts with a problem, continues with the collection of data, proceeds with the data analysis and finishes with conclusion. For data analysis and to get that analysis in conclusion, here in this topic, five different statistical tools are used which are mentioned below:-

a. Trend Analysis

Trend analysis is useful in predicting the future events on the basis of past tendencies. Trend analysis is based on assumption that the past tendency continues in future. The future trend of any variable is forecasted by using following equation.

$$\mathbf{Y_c = a + bx}$$

Where,

Y_c = the dependent variable

a. = Y intercept

b = slope of the tendencies

x = year (with regard to data used in the study)

b. Correlation (r)

Correlation is a statistical technique which can show whether and how strongly pairs of variables are related e.g. height and weight. ''In other words correlation may be defined as degree of linear relationship existing between two or more variables. '' **(Sthapit, Gautam, Joshi, Dongol, 2003: 362)**

It does not tell us anything about cause and effect relationship but it only helps in determining the degree of relationship between two or more variables. ''In business, correlation analysis

enables the executive to estimate costs, sales price and other variables. On the basis of some other series with which their costs, sales or prices may be functionally related. Some of the guess work can be removed from decisions when the relationship, between variables to be estimated and the one or more other variable on which it depends are closed and reasonably in variant.''**(Gupta, 1983:103)** For the purpose of analysis of cash management of NEPAL TELECOM, the correlation analysis is used. In this topics it can be seen the correlation between dependent variable and independent variable of cash management. The formula applied on the correlation is as follows.

$$r_{x\,y} = \frac{uv}{\sqrt{u^2 \quad v^2}}$$

Where

$u = X - \bar{X}$

$v = Y - \bar{y}$

c. Standard Deviation

It is a measure of the mean distance of the data values from their mean. If the data points are all close to the mean, then the standard deviation is low (closer to zero). If many data points are very different from the mean, then the standard deviation is high (further from zero). If all the data values are equal, then the standard deviation will be zero. The standard deviation has no maximum value although it is limited for most data sets.

$$SD = \sqrt{\frac{u2}{N}} \qquad SD = \sqrt{\frac{v2}{N}}$$

The standard deviation is also defined as the square root of the variance. This means it is the root mean square (RMS) deviation from the arithmetic mean. The standard deviation is always a positive number (or zero) and is always measured in the same units as the original data. For example, if the data are distance measurements in meters, the standard deviation will also be measured in meters.'

d. P.E.r. = $\frac{0.6745(1-r^2)}{\sqrt{n}}$

Where
r = the value of correlation coefficient
n = number of pairs of observations

If 'r' is less than its PE, it is not all significant which means that there is no evidence of correlation

If 'r' is more than its PE, it is significant which means that there is correlation.

If PE<r<6PE then nothing can be concluded.

e. Regression Analysis

'Regression analysis is used for explaining or modelling the relationship between a single variable Y, called the response, output or dependent variable, and one or more predictor, input, independent or explanatory variable i.e. X. In simple regression, there will be only two variables.

The main objective of regression analysis is to predict or estimate the value of dependent variable corresponding to a given value of independent variables.

For the analysis of cash management of NEPAL TELECOM, simple regression analysis is used to locate the relationship between total revenue on cash balance and net profit on cash balance.

Regressions = $(X - \overline{X}) = r\frac{\sigma x}{\sigma y} (Y - \overline{Y})$

CHAPTER IV

ANALYSIS AND PRESENTATION OF DATA

The basic objective of this study as stated in chapter one have been mentioned true insight into cash management of NT Pvt. Ltd. For this purpose, most recent published financial statements and annual budget reports has been used. The data that are collected and tabulated and then analyzed using different accounting and financial tools.

4.1 Analysis of data by Financial Tools

4.1.1 Liquidity Analysis

Liquidity ratios attempt to measure a firm's ability to pay off its short-term debt obligations. This is done by comparing a company's most liquid assets (or, those that can be easily converted to cash), its short-term liabilities.

In general, the greater the coverage of liquid assets to short-term liabilities the better as it is a clear signal that company can pay its debts that are coming due in the near future and still fund its ongoing operations. On the other hand, a firm with a low coverage rate should raise a red flag for investors as it may be a sign that the company will have difficulty meeting running its operations, as well as meeting its obligations.
The ratios that we looked at here are the current, quick and cash ratios.

A. Current Ratio

The current ratio is a popular financial ratio used to test a firm's liquidity by deriving the proportion of current assets available to cover current liabilities. The concept behind this ratio is to ascertain whether a firm's short term assets are readily available to pay off its short-term liabilities. In theory, the higher the current ratio, the better.

Inventory, sundry debtors, deferred tax assets, prepaid Exp/ Loans/ AdvsInter-branch Balance, Bank Balance & Cash is included in current assets.

Sundry creditors, others liabilities, and provisions is included in current liability.

Formula:

$$\textbf{Current Ratio} = \frac{Current Assets}{Current Liabilities}$$

Table No.4.1

Analysis of Current Ratio of NT

Rs. ('000')

Fiscal Year	Total Current Assets	Total Current Liabilities	Ratio CA/CL
2005/06	22526522	15665380	1.44
2006/07	23519754	15675153	1.50
2007/08	24180638	15014439	1.61
2008/09	28837295	12406163	2.32
2009/10	35015364	13661063	2.56
		Average	1.89

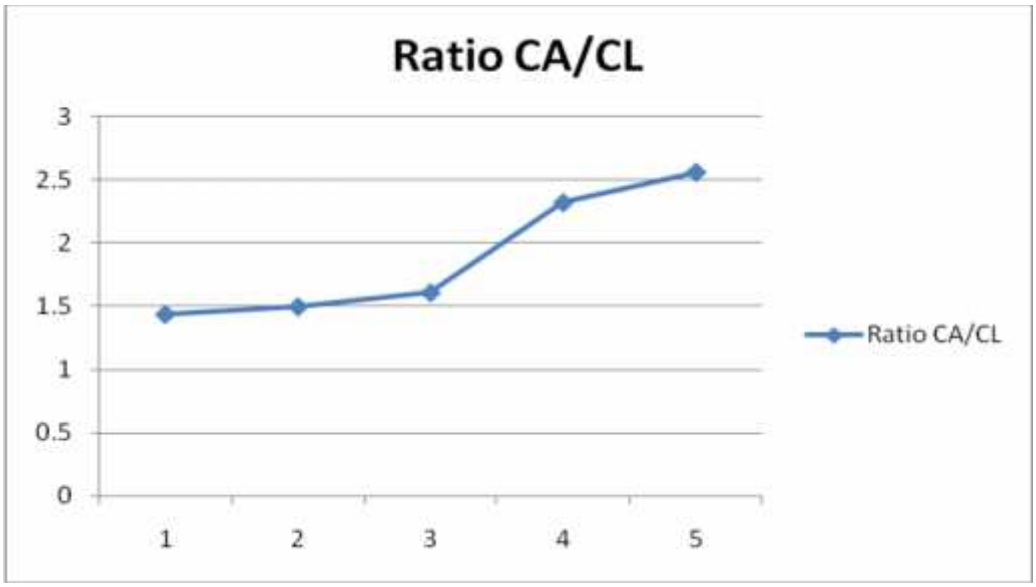
Source.NT Annual Report (2005-2010)

During the first study period Nepal Telecom had 1.44 rupees worth of current assets for every rupee of liabilities.In the year 2006/07, this ratio was increased and available current asset was 1.50 rupee for ever rupee of liability. Increasing trend was shown on liquidity in this study period with increment in ratio in the year 2007/08, which is1.61. The ratio further Increased and became 2.32 in the year 2008/09. In the year 2009/10 the ratio increased to 2.56.

Looking after theoretical aspect the minimum acceptable CR is 1. The ratio below 1.1 is the weak position of the company. Nepal Telecom supports its short-term debt from its currents assets as rule says that the current ratio should be at least 2. Ratio satisfactory depends on the nature of the business and the characteristics of its current assets and liabilities that are the current assets should meet current liabilities at least twice

.Figure No.4.1

Figure showing current ratio



B. Quick Ratio

The quick ratio or the acid-test ratio is a liquidity indicator that further refines the current ratio by measuring the amount of the most liquid assets there are to cover current liabilities. The quick ratio is more conservative that the current ratio because it excludes inventory and other current assets, which are more difficult to turn into cash. Therefore, a higher ratio means a more liquid current position.

Inventory and prepaid Exp. Loans/Adv/LC are deducted from current assets that is written in table No. 1

$$\text{Quick Ratio} = \frac{Current Assets\ Z\ Inventories}{Current Liabilities}$$

Table No: 4.2

Analysis of Quick Ratio of NT

Rs. ('000')

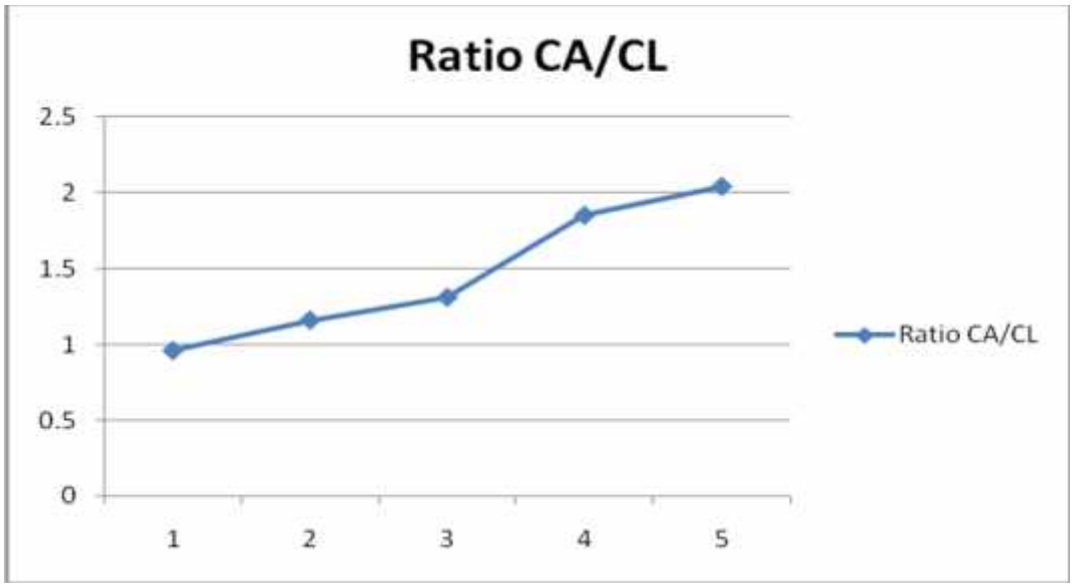
	Total Quick Assets	Total Current Liabilities	Ratio CA/CL
2005/06	15121121	15665380	0.96
2006/07	18201850	15675153	1.16
2007/08	19617128	15014439	1.31
2008/09	22957998	12406163	1.85
2009/10	27883248	13661063	2.04
		Average	1.46

(Source: NT Annual Report 2005 – 2010)

Above the table 4.2 shows the ratio between quick assets and current liabilities of the Nepal telecom.This ratio will be lower than the current ratio, but the difference between the two will indicate the extent to which current assets consist of stock. In the year 2005/06, quick ratio was 0.96 which is not uncommon for a quick ratio to be under one. .Ratio below 0.8 indicates company. i**s** running short on available cash. Ratio slowly increased to 1.16 in the year 2006/07. Increasing trend still continued and in the year 2007/08 quick ratio became 1.31. Ratio is in increasing trend quick assets were enough to meet its current liabilities until 2009/10. Nepal Telecom was maintaining minimum generally acceptable ratio i.e. 1:1. In the year 2008/09, ratio Increased to 1.85 meaning that Nepal Telecom got strength liquidity position being quick ratio to 2.04 in the year 2009\10.

Fig No. 4.2

Figure Showing Quick Ratio



4.1.2 Cash Position Analysis

a) Absolute Cash Ratio

$$\text{Absolute cash ratio} = \frac{Cash\ \&\ equivalent\ \Gamma\ MarketableSecutities}{CurrentLiabiliites}$$

Table No: 4.3 Analysis of Absolute Cash Ratio of Nepal Telecom

Fiscal Year	Cash + Bank Balance + Treaury Bill	Current Liabilities	Ratio
2005/06	12021625	15665380	0.77
2006/07	14746338	15675153	0.94
2007/08	16134517	15014439	1.07
2008/09	18191058	12406063	1.47
2009/10	21611536	13661063	1.58
		Average	1.17

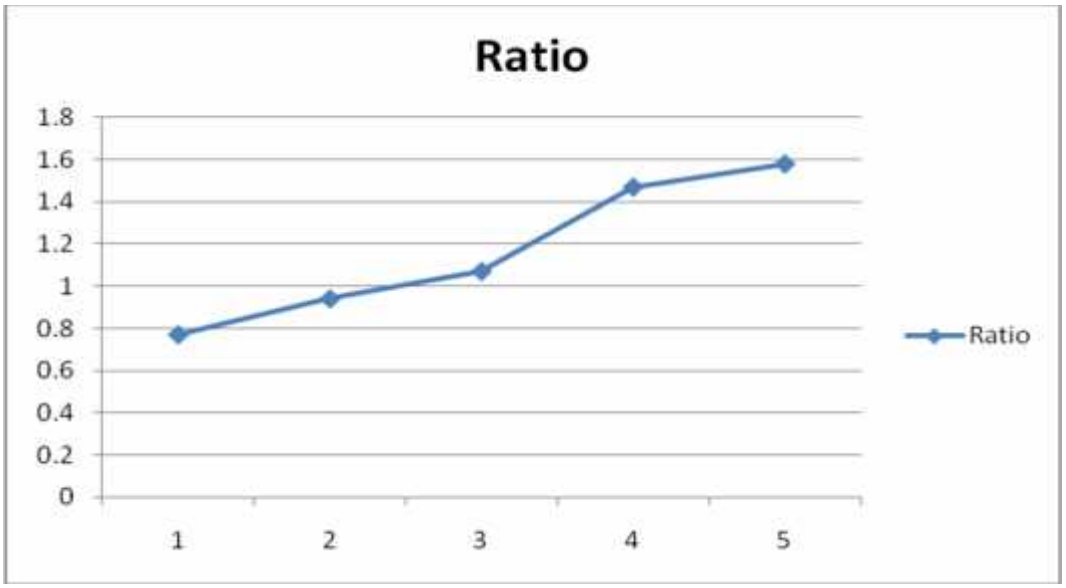
Source: NT Annual Report (2005-2010)

Table No 4.3 shows the absolute cash ratio of NT over the study period. In the year 2005/06 absolute cash ratio of NT was 0.77 which shows that company was better able to cover its obligation to creditors. This ratio has increased in the year 2006/07 to 0.94., Absolute cash

ratio became1.07, 1.47, 1.58 in the year 2007/08 2008/09 sand 2009/10 respectively. We can not say the ratio which Nepal Telecom maintained in the study period was good or bad or enough as there is no industry standard and no rule of thumb.

Fig No: 4.3

Figure Showing Absolute Cash Ratio



b) Cash to Current Assets Ratio

Table No: 4.4:

Analysis of Cash to Current Assets Ratio of NT

Rs. ('000')

Fiscal Year	(Cash + Bank) Balance	Current Assets	Ratio
2005/06	12021625	2252652	0.53
2006/07	14746338	23519754	0.63
2007/08	16134517	24180638	0.67
2008/09	18191058	28837295	0.63
2009/10	21611536	35015364	0.62
		Average	0.62

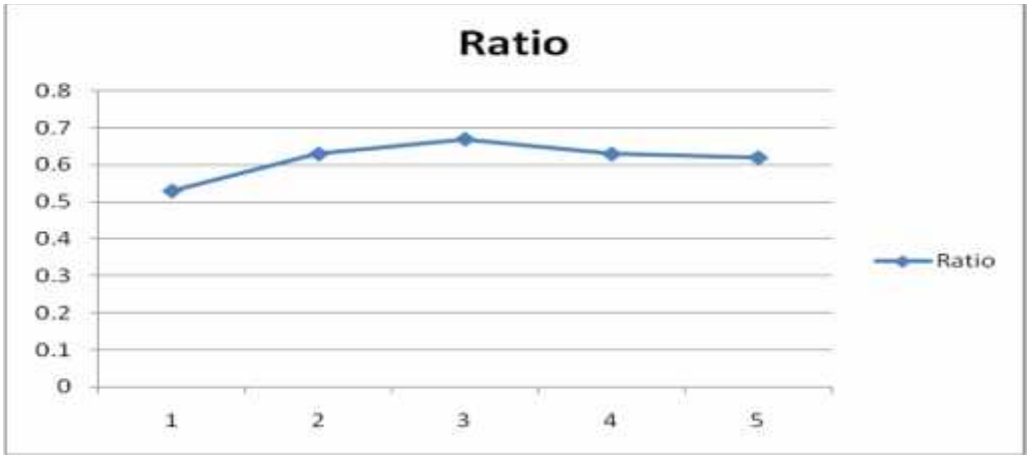
(Source: NT Annual Report (2005 – 2010)

During 1st year of study period cash portion of current assets was more than 50% i.e. cash to current assets ratio was 0.53. The ratio increased in the year 2006/07 and became 0.63. It further Increased in the year 2007/08 and cash portion of current assets became more than 50% i.e. ratio became 0.67. In the year 2009/10., this ratio slightly decreased to 0.62 from

0.63. But it makes no difference to company. The ratio above 50% shows that company is able to convert its non liquid assets into cash.

Fig No: 4.4

Figure of Cash to Current Assets Ratio



4.1.3 Cash Turnover Ratio

Cash turnover ratio indicates a firm's efficiency in its use of cash . Optimum balance should maintain by the company to meet its current obligation in course of daily business transaction. The cash turnover ratio explains how quickly cash is received from the sales. A high cash turnover ratio represents sound liquidity and vice-versa. However, too high ratio indicates excess cash balance being held idle.

Table No: 4.5:
Statement showing Cash Turnover Ratio

Rs. ('000')

Fiscal Year	Total Revenue	Cash + Bank Balances	Cash Turnover
2005/06	10413655	12021625	0.87
2006/07	13967319	14746338	0.95
2007/08	16788360	16134517	1.04
2008/09	20646629	18191058	1.13
2009/10	25058304	21611536	1.16
		Average	1.03

Source: NTAnnual Report (2005/2010)

Table No 4.5 shows cash turnover ratio of Nepal Telecom for the period between 2005/06 to 2009/10. It is found that cash turn over ratio was in increasing trend starting from 0.87 0.95 1.04, 1.13and 1.16 from the year 2005/06 to 2009/10 respectively.

Fig No: 4.5

Figure of Statement showing cash turnover Ratio

4.1.4 Actual Cash flow Analysis

Cash flow statement provides information about the cash receipts and payments of a firm for a given period. It provides important information that compliments the profit and loss account and balance sheet. The information about the cash-flows of a firm is useful in providing users or financial statements with a basis to assess the ability of the enterprise to generate cash and cash equivalents and the needs of the enterprise to utilise these cash flows. The economic decisions that are taken by users require an evaluation of the ability of an enterprise to generate cash and cash equivalents and the timing and certainty of their generation. The statement deals with the provision of information about the historical changes in cash equivalents of an enterprise by means of a cash flow statement which classifies cash flows during the period from operating, investing and financing activities.

Table No: 4.6

Cash Flow from Operation activities for 2005/06to 2009/10

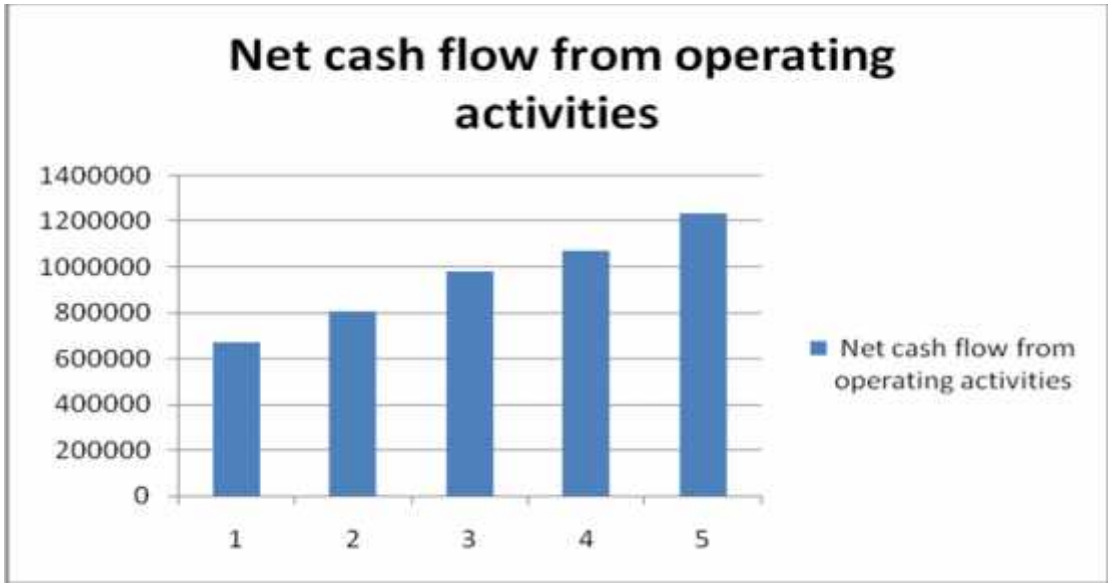
Particular Cash from operating activities	2005/06	2006/07	2007/08	2008/09	2009/10
Net operation before tax	6843726817	798334923	10871456130	13633989872	14441095208
depreciation	1196136319	1366504461	1486129221	1681293477	4406420635
Intrest on loan	1107992	0	10303949	0	0
Income from investment and bank deposit	(59683782)	(701827193)	(903773320)	(1375736070)	-20145558836
License cost & deffered expn	40029002	58374511	71161567	41079113	54637484
Foreign exchange (gain/Loss)	(280005092)	526031496			
Provision for Liability			1183534673	2250589306	1645697272
Provision for pension	241389693	286083269			
Expenses on loss of goods	853000	122922321			
Expenses onRoyalty	591807155	811462056			
Expenses on store part of optical installation		37269943			
Provision for doubtfuldebt		200365023			
Provision for earned leave	65980439	71726050			
Provision for bonus	322040673	484410505			
Increase/decrease in current assets			(2491821886)	(4382459736)	-5447824038
Increase in A/R	(273552303)	556380758			
Increment license				(189000000)	(270000)
Decrease in interest of investment	2463849	4299996			
Increase in advance tax	(1684603393)	(27044683614)			
Increase/decrease in inventory	(3425867)	655293			
Increase inpayables	618496246	1203753677			
Increase/decrease in advance payment and others	382510564	(272590616)			
Decrease in branch account	2798001`	13388009			
Payment of royalty	(370641219)	(563687484)			
Grautuityreceived	8251	899	351		
Payment for earned leaved	(22011777)	(21694456)	(28156853)	(38643025)	(48673168)
Bonus Payment	322040673	(484410505)	(352364534)	(8398932550)	(590061737)
Payment of pension	(30048819)	(35997668)	(47309251)	(64368869)	(84964731)
Interest payment	(2335181)	0			
Adjustmenton bonus payment	(301638899)	(248788172)			(58785860)
Lastyear adjustment	1268656	72974138			(2079597119
Last year adjustment on tax		58722129			
Net cash flow from operating activities	6722360621	8052325466	9799160046	10716850813	12361498089

Source: NT Annual Report (2005-2010)

Table No 4.6 represents the trend of net cash flow from operating major items. Operating cash flow, often referred to as working capital, is the cash flow generated from internal operations. In Nepal Telecom, cash from operating activities are generated from sales of the product services. Operating profit before working capital includes adjustment, depreciation, foreign exchange gain or loss provision for staff bonus, incentive, and gratuity received and pension payment, provision for income tax, fixed assets written off, income from investment and bank deposit and expenses on loss of goods. Net operating profit before tax is in increasing trend i.e. Rs. 6722360621, 8052325466, 9799160046, 10716850813 and 12351498089 for F/Y 2005/06 to 2006/10 respectively. From above analysis, it can be said that amount of operating profit before is in increasing trend for the study period. It is Rs. 6722360621 1 in F/Y 2005/06 and reached to Rs. 12361498089 in F/Y 2009/10.

Fig No. 4.6

Figure of actual cash flow from operating activities



Adjustment of working capital includes increase in A/R, increase in stock, increase in CA, increase in advance, increase in payables & payment of last year dividend, bonus, incentive, royalty, pension and working capital changes. By adjusting net operating profit before tax, operating profit before working capital changes and working capital changes, we can get net cash flow from operating activities. After the analysis, we can conclude that the operating cash flow is in increasing trend, which is good sign for Nepal Telecom. It increases from Rs.

6722360621 to Rs. 12361498089. It is the real lifeblood of Nepal Telecom because it is generated internally and it is under control of management. Furthermore, Nepal Telecom should monitor, analyze and adjust its cash flow. Similarly, the results of cash flow from investing activities are presented in given below on table.

Table No: 4.7

Calculation of cash flow from investing activities

Particular	2005/06	2006/07	2007/08	2008/09	2009/10
	Amt. in Rs	Amt. in Rs	Amt. in Rs	Amt. in Rs	Amt. in Rs
Cash flow from investing activities					
Purchase of plant and machinery	-2243645653	-1667711724	-304176047	-4150841568	-36207058347
Increase in capital work in progress	15787272	-1443449678	-76639761	6238045585	-655717388
Increase in deffered expenses	-34287106				
Increase in investment	-818214722	-726907300	-3486326363	-2794063238	-1866841983
Premium adjustment on debentures		190177657	-3128435		
Income from investment of bank deposit	596837682	701827193	903773320	1375736070	-2014558836
Net cash flow from investing activities(b)	-2483522527	-3326419166	-5709497306	-4955364151	-3715058882

Source: NT (Annual Report 2005-2010)

Table 4.7 shows the cash flow from investing activities. Investing cash flow is generated internally from non – operating activities. This component includes investments in plant and equipment or other fixed assets, non recurring gains or losses, income from investment and bank deposit or other sources used outside of normal operations.

Cash flow from investing activities was in increasing trend up to the year 2007/8 and then decreasing up to the last year of study period. CFIA was negative throughout the study period which shows that company has purchased assets and invested in fixed assets on the ,middle of the year study period.

Fig No: 4.7

Figure of Actual cash flow from investing / activities

"In thousand"

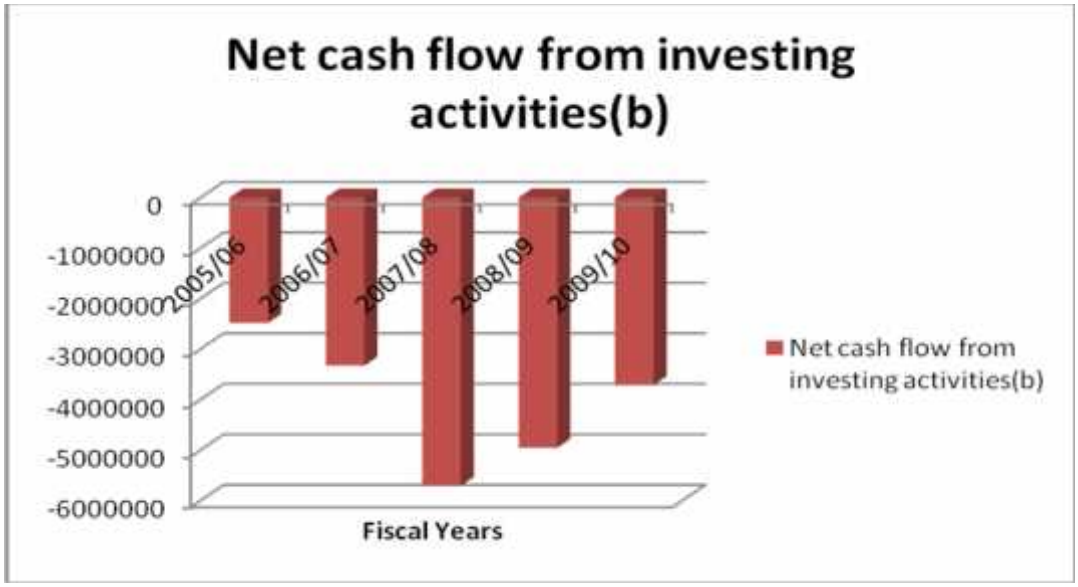


Table No: 4.8

Calculation of cash flow from financing Activities

Particular	2005/06	2006/07	2007/08	2008/09	2009/10
	Amt. in Rs	Amt. in Rs	Amt. in Rs	Amt. in Rs	Amt. in Rs
Cash flow from Financing activities					
Increase in Equity share capital					
Long term Borrowing		0			0
Repayment of long term loan	-24238654				
Receipt in long term debt	0	0	-1191680000		
Pymt of interest on loan			-10303949		0
Pymt of dividend	-43350216	-664157229	-1499500000	3704945329	-5225960846
Pymt of last year dividend		-81104490			
Re payment of retained earnings to Nepal Govt.	-1611651503				
Receipt of share capital					
Capital reserve adjusted to relained earning	-2318742				
Net cash flow from financing activities	-2071719115	-1475161719	-2701483949	-3704945329	-5225960846

Source: Annual report of NT (2005-2010)

Table no 4.8 shows cash flow from financing activities; its CFFA also has negative cash flow. This means that company was paying its long term liabilities. CFFA in the year 2005/06 is 20719115 and decreased in the year 2006/07 and again increasing trend going on up to 2009/10. During the study period CFFA was highest in the year 2009/10. Cash flow is more on the last year of the study period due to the dividend. paid .it does not need financing from other external sources.

Fig4.8

Actual cash flow from financing activities

" In thousand"

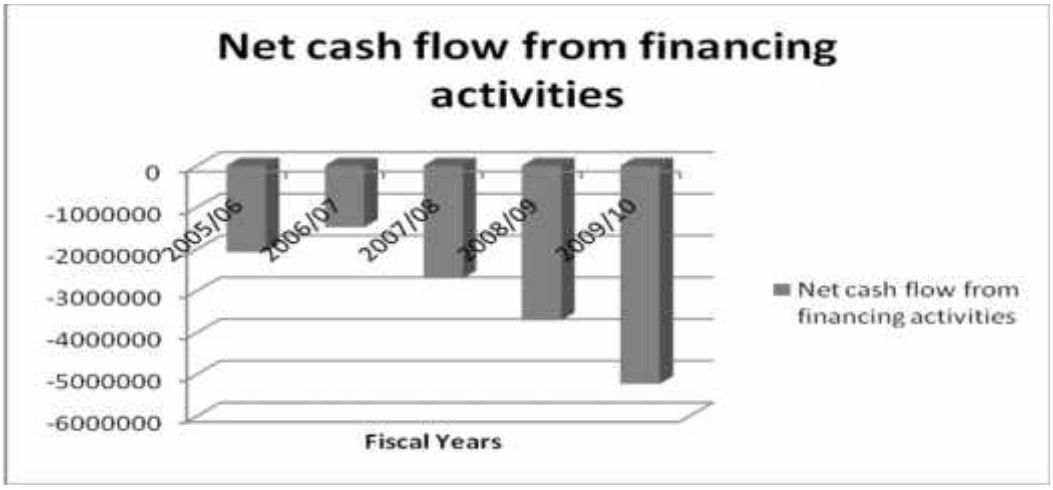


Table: 4.9

Calculation of actual cash flow

Particular	2005/06	2006/07	2007/08	2008/09	2009/10
CFOA	6722360621	8052325466	9799160046	10716850813	12361498089
CFIA	-2483522527	-326419166	-5709497306	-4955364151	-3715058882
CFFA	-2071719115	-1475161719	-2701483949	-37049445329	-5225960846
Net increment in cash (a)+(b)+ (c)	2167118979	3250744581	-1388178791	2056541333	3420478361
Cash at the beginning of the year	9574500796	12021624867	14746337952	1613516743	18191058076
Foreign exchange adjustment gain (Loss)	280005092	-526031496			
Cash at the end of the year (i+ii+iii)	120221624867	1474633952	16134516743	18191058076	21611536437

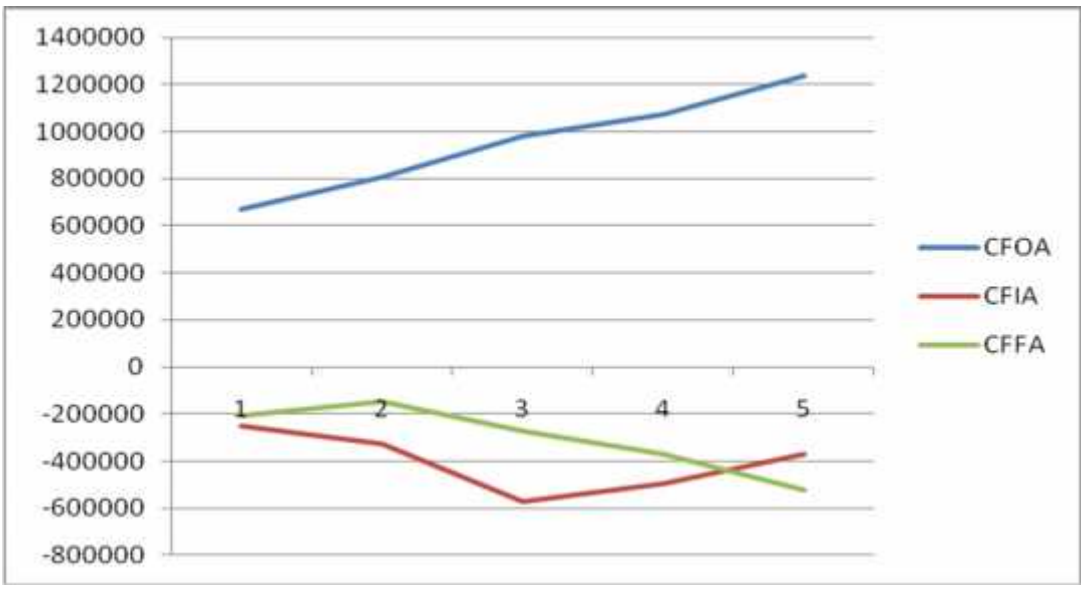
Source: Annual report of NT (2005-2010)

The table 4.9 indicates that net cash flow from operating activities is in increasing trend. Similarly cash flow from financing activities and investing activities is fluctuating. By adding operating, investing and financing cash we can get net increment in cash. After adjustment of beginning cash and foreign exchange gain or loss with net increment in cash, we can reach on the closing cash balance, which is the cash position of Nepal Telecom. Cash at the end of each study year is increasing. The closing cash balance indicates whether Nepal Telecom has sufficient cash or not. The analysis shows that Nepal Telecom has sufficient cash for its operation.

Figure No: 4.9

Trend showing cash flow position form various activities

In Lakhs



4.1.5 Cash Budget

Cash Budget is a detailed budget of cash inflows and outflows incorporating both revenue and capital items. A cash budget is thus a statement in which estimated future cash receipts and payments are tabulated in such a way as to show the forecasted cash balance of a business at defined intervals. The cash budget is one of the most important planning tools that an organization can use. It shows the cash effect of all plans made within the budgetary process and hence its preparation can lead to a modification of budgets if it shows that there are insufficient cash resources to finance the planned operations.

It can also give management an indication of the potential problems that could arise and allows them the opportunity to take action to avoid such problems. The cash budget typically

consists of four major sections: (1) receipts section, which is the beginning cash balance, cash collections from customers, and other receipts; (2) disbursement section comprised of all cash payments made by purpose; (3) cash surplus or deficit section showing the difference between cash receipts and cash payments; and (4) financing section providing a detailed account of the borrowings and repayments expected during the period.

4.1.5.1 Approved Cash Budget and Actual Cash

Table No: 4.10
Statement Showing Approved Cash Budget and Actual Cash

Rs. ('000')

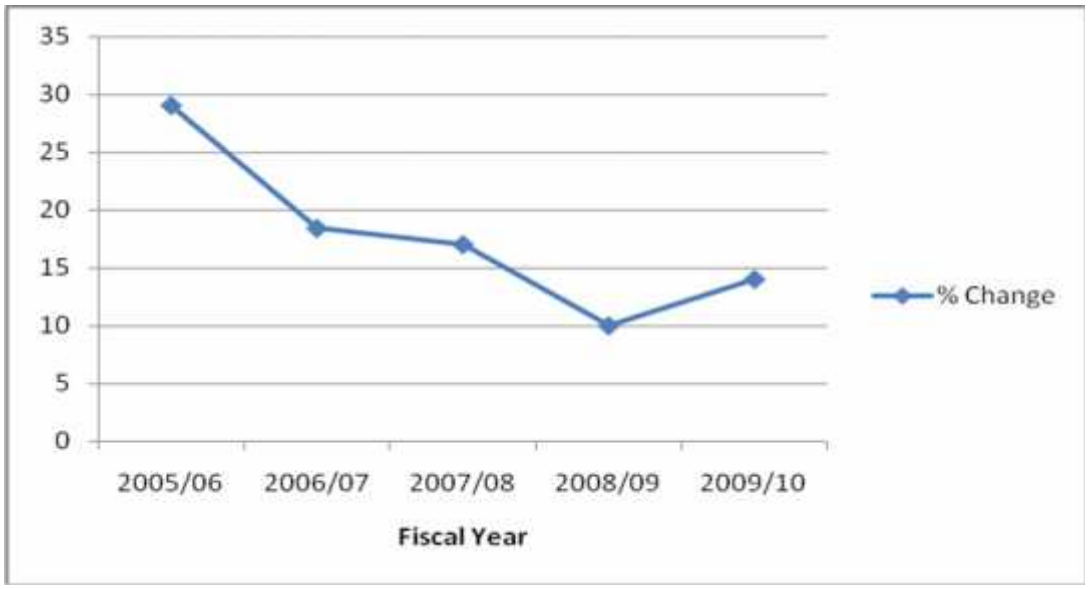
Fiscal Year	Approved cash Budget	Actual cash	Deviation	% Change
2005/06	17679531	13714571	3964960	29
2006/07	20617992	17409964	3208028	18.4
2007/08	23111220	17817621	3293599	17
2008/09	34614924	3141195	32029658	10
2009/10	43707141	38302629	5404515	14

Source: Budget and Policy Program of NT (2005-20010)

Table 4.10 shows the approved cash budget and actual cash of Nepal Telecom over the study period. Analysis showed that actual cash balance is lower than approved budget which means that budget has been properly implemented. low deviation is found which was due to proper planning. Overall cash balance of Nepal Telecom has in increasing trend.

Fig No: 4.10

Figure showing Approved Cash Budget and Actual Cash



4.1.5.2 Revised Cash Budget and Actual Cash

Table No: 4.11

Statement Showing Revised Cash Budget and Actual Cash

Rs. ('000')

Fiscal Year	Revised Budget	Actual	Deviation	% Change
2005/06	14163323	13714571	448752	3.3
2006/07	19564383	17409964	2154419	12.3
2007/08	20868451	19817621	1050860	5.3
2008/09	30771727	31411959	-640232	-2
2009/2010	37339874	38302629	-962755	-2.5

Table 4.11 shows revised and actual cash budget of Nepal Telecom for the period 2005-2010. Like approved budget, this budget also has deviation but deviation is smaller. Nepal Telecom revises its budget in its last quarter. In the study period actual cash balance is lower than revised budget except for the last two years of study period 2008/09 and 2009/10 but the last two years study period has also no more difference. There is no significance no significance

difference between Revised budget and Actual budget which is shown by the following hypothesis test.

Testing of Hypothesis for the sample of Revised and Actual Budget

Two Independent samples of 5 items respectively had the following values.

Sample I: 14.2 19.5 20.9 30.7 37.3

Sample II: 13.7 17.4 19.8 31.4 38.3

(I) Do the two samples mean differ significantly?

(II) Do the two samples Variance differ significantly?

Test of significance for difference between two independent Means Setting Hypothesis

Null Hypothesis H_0: $\mu_1=\mu_2$ .There is no significant difference between two Sample Mean. (X_1) and (X_2)

Alternative HtpothesisH_1: $\mu_1>\mu_2$: (one tail test) There is significant difference between two Sample Mean.

$H_1:u_1>u_2$ (right tail test) First sample is higher than Second Sample

The test statistic under the assumption that $6_1^2=6_2^2=6^2$ that is the sample variances are equal but unknown.

Test statistic, under H_0

$$t = \frac{X_1^{z} Z X_2^{z}}{\sqrt{S^2 \frac{1}{n_1} \Gamma \frac{1}{n_2}}}$$

Where $S^2 = \frac{1}{n_1 \Gamma n2 Z2} \quad x_1^2 Z \frac{(X_1)^2}{n_1} \Gamma \quad x_2^2 Z \frac{(X_2)^2}{n_2}$

Calculation of S_2

Error! Not a valid link.	X_1^2	X_2	X_2^2
14.2	2O1.64	13.7	187.69
19.5	380.25	17.4	302.76
20.9	436.81	19.8	392.04
30.7	948.64	31.4	985.96
37.3	1391.29	38.3	1466.89
ġx_1 =122.6	ġX_1^2 =3358.63	ġx_2 =**120.**	ϕX_2^2 =3335.34

Here $\overset{z}{X}_1 \text{ X}\frac{X_1}{n_1}\text{ X}\frac{122.6}{5}\text{ X}24.52$

$\overset{z}{X}_2 \text{ X}\frac{X_2}{n_2}\text{ X}\frac{120.6}{5}\text{ X}24.12$

1/5+5-2[3358.63 – (122.6)2+3335.34 –(120.6)2

Hence(t)=0.064

Degree of freedom= n_1+n_2-2

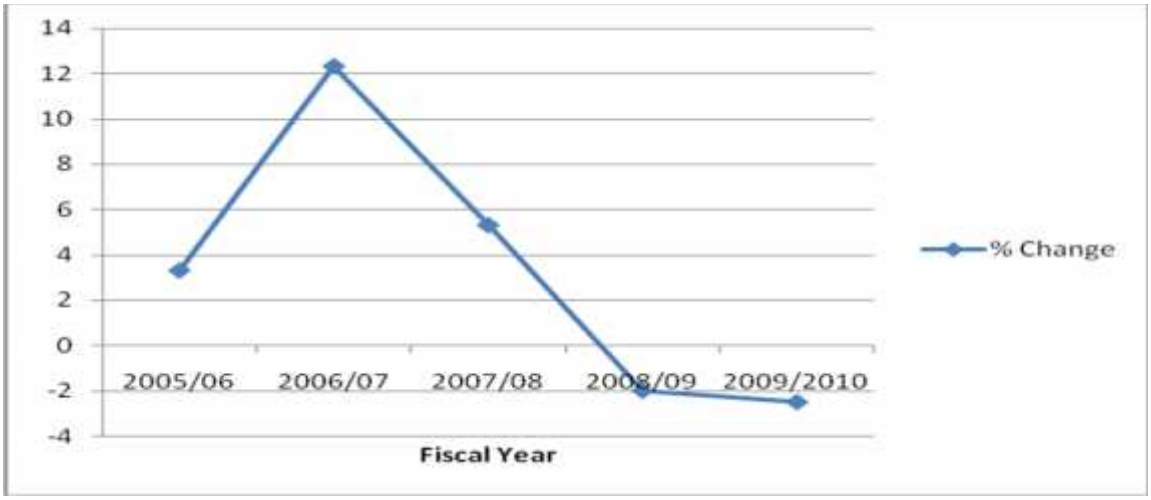
5 +5 -2=8

The tabulated value of t for 9df at 5% level of significance for right tail test is 1.860 .That is $t_{0.05}(8)$ =1.860

Conclusion: Since the calculated value of t 0.064 is less than tabulated value of t .It is not significant H_0 is accepted which means that there is no significant difference between Revised budget and Actual budget.

Fig No: 4.11

Figure Showing Revised Cash Budget and Actual Cash



4.2 Analysis of data by Statistical tools

4.2.1 Trend Analysis

Trend Analysis is a study of a company's financial performance over an extended period of time. It helps to understand overall financial performance over a period of time. The analysis involves searching for a right trend equation that will suitably describe trend of the data series. The trend may be linear, or it may not. A linear trend can be obtained by using a least-squares method .

Table No: 4.12

Trend Analysis of Cash Balance of NT by Least Square Method

Rs. ('000000')

Fiscal Year (x)	Cash/Balance Balance (y)	x	x^2	xy
1	12022	-2	4	-24044
2	14746	-1	1	-14746
3	16135	0	0	0
4	18191	1	1	18191
5	21612	2	4	43224
∑x=15	*y* X82706	0	x^2 =10	*xy* X22625

Source: Balance Sheet of NT (2005-2010)

X= Time

Y= Cash Balance[xxxx]

N= Number of observation

Straight line trend (Y_c) = a+bx

$\overset{z}{y} X \frac{y}{N} X \frac{82706}{5} X16541$ $b = \frac{\sum xy}{\sum x^2} = \frac{22625}{10} = 2262.5$

$\overset{z}{x} X \frac{x}{N} X \frac{15}{5} X3$

We have the regression equation of Yon X

Y= a+bX

$b = \frac{\sum xy}{\sum x^2}$

$a = \overset{z}{y} - b \overset{z}{x} X$

=16541-2262.5 x 3

a=16541-6787.5 =9753.5

Putting the value on equation Y= a+bx where a=9753.5 b=2262.5 X=6,7,8,9,10 respectively.

Y=a+bx

Y=9753.5=2262.5 .x

9753.5+2262.5*6 =23328.5 for 6^{th} year

9753.5+2262.5*7=25591 for 7^{th} year

9753.5+2262.5*8=27853.5 for 8^{th} year

9753.5+2262.5*9=30116 for 9^{th} year

9753.5+2262.5*10=32378.5 for 10^{th} year

This tend line shows the positive figure of cash balance for future. The annual rate of increment of cash balance is seemed to be 2262.5x 1000000= 2262500000

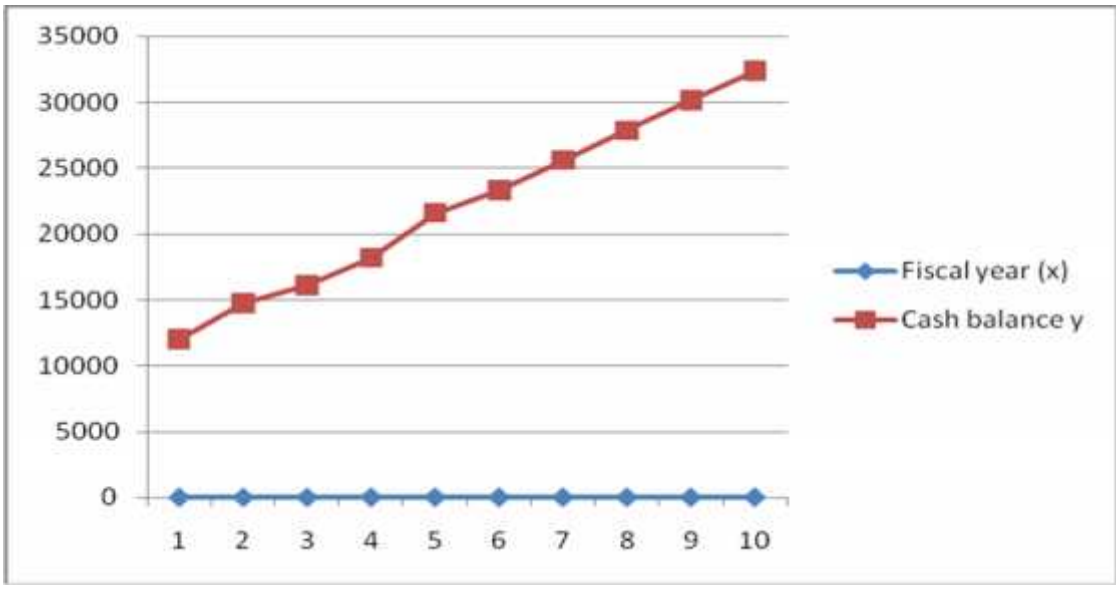
Cash balance of NT for 10 years (from 2005/2006 to2014/2015)

Predicted cash balance for 6^{th} to 10^{th} year

Fiscal year (x)	Cash balance y
1	12022
2	14746
3	16135
4	18191
5	21612
6	23328
7	25591
8	27853
9	30116
10	32378

Fig No: 4.12

Figure of Trend Line Showing Cash Balance



4.2.2 Correlation Coefficient & Regression Analysis

A correlation coefficient is a numerical, descriptive measure of the strength of the linear relationship between two variables. Values for the correlation coefficient range between -1

and +1, with a correlation coefficient of +1 indicating that the two variables have a perfect, upward-sloping (+) linear relationship and a correlation coefficient of -1 showing that the two variables are perfectly related in a downward-sloping, (-) linear sense. A correlation coefficient of 0 demonstrates that the variables have no relationship, and are independent. A correlation coefficient is determined through statistical analysis of sample data as it is fitted to a modelled linear equation. Regression Analysis is a statistical technique used to find relationships between variables for the purpose of predicting future values. In other words regression analysis is a collective name for techniques for the modelling and analysis of numerical data consisting of values of a dependent variable and of one or more.

4.2.2.1 between Cash and Revenue of Nepal Telecom

Table No. 4.13:

Correlation (r) Between Cash Balance and Revenue

Rs. (‘000000)

Year	Cash Balance (x)	Revenue (y)	u=x-16541	v=y-17374.8	U^2	V^2	uv
2005/06	12022	10414	--4519	-6960.8	20421361	48452736.64	31455855.2
2006/07	14746	13967	-1795	-3407.8	3222025	11613100.84	6117001
2007/08	16135	16788	-406	-586.8	164836	344334.24	238240.8
2008/09	18191	20647	1650	3272.2	2722500	10707292.84	5399130
2009/10	21612	25058	-5071	7683.2	25715041	59031562.24	38961507.2
Total	x X82706	y X86874			52245763	130149026.8	8217173.2
Mean	16541	17374.8					
S.D	3233	5102					

Source: Balance sheet of Nepal Telecom 2005-2010

$$\overset{z}{x}\,\mathrm{X}\frac{x}{N}\,\mathrm{X}\frac{82706}{5}\,\mathrm{X}16541$$

$$\overset{z}{y}\,\mathrm{X}\frac{y}{N}\,\mathrm{X}\frac{86874}{5}\,\mathrm{X}17374.8.$$

$$u=x-\overset{z}{x} \qquad v=y-\overset{z}{y}$$

$$\pm_x \text{X}\sqrt{\frac{u^2}{N}}\ \text{X}\sqrt{\frac{52245763}{5}}\ \text{X}3233$$

$$\pm_y \text{X}\sqrt{\frac{v^2}{N}}\ \text{X}\sqrt{\frac{130149026.8}{5}}\ \text{X}5102$$

To find out the correlation between revenue and cash balance Karl Pearson's Coefficient of Correlation (r) is determined. By calculating 'r' we can examine, whether or not cash balance will be changed in the same direction of the change in revenue. For this purpose revenue (y) are assumed to be independent variables and cash balance (x) are assumed to be dependent variables. It is assumed that revenue will increases as cash increases or vice-versa. It means there should be positive correlation between cash balance and actual sales.

$$r_{xy} = \frac{uv}{\sqrt{u^2\ \ v^2}} = \frac{82171734.2}{\sqrt{52245763x130149026.8}} = 0.996$$

Correlation coefficient between cash balance and revenue (r_{xy}) = 0.996

The value of 'r' shows that there are highly positive correlation between cash and revenue..r lies between .7 to .99 is the high degree of positive correlation It means the test of significance of the value of r shows that there is highly significant relationship between cash and revenue. The significance of r can be tested by the probable error of r.

$$\text{P.E (r)} = \frac{0.6745(1\text{Z}r^2)}{\sqrt{N}} = \frac{0.6745(1\text{Z}(.996)2)}{\sqrt{5}} = 0.0021$$

From we have probable error of 'r' = 0.0021. Since r>6P.E. (r) the value of r is significant i.e. there is evidence of correlation between sales and revenue.

A regression line can also be fitted to show the degree of relationship between the cash balance and revenue. Cash balance can be forecasted by the value of sales revenue. For this purpose cash and bank balance and revenue has been assumed interrelated economic variables. So, the regression line of revenue (x) on cash balance (y) is

$$\text{x} - \bar{x} = \text{r}\ \frac{\pm X}{\pm Y}\ \ \text{y} - \bar{y}$$

since,

	x	y
Mean	16541	17374.8
SD	3233	5102

$r_{xy} = 0.996$

$$X - 16541 = 0.99\ 6\ \frac{3233}{5102}(Y - 17374.8)$$

$$X - 16541 = 0.6311Y - 10966$$

$$X = 5575 + 0.631\ 1y$$

This equation shows that revenue will be increased by 0.63 per unit.

4.2.2.2 Cash and Account Receivable of Nepal Telecomm

Table No. 4.14:

Correlation (r) between Cash balance and Account Receivable of Nepal Telecom for the study period

Rs. ('000000')

Year	Account Receivable (x)	Cash Balance (y)	u=x-3585.2	v=y-16541.2	U^2	V^2	UV
2005/06	3099	12022	-486.2	-4519.2	236390.44	20423168.6	2197235.04
2006/07	3455	14746	-130.2	-1795.2	16952.04	3222743.04	233735.04
2007/08	3483	16135	-102.2	-406.2	10444.84	164998.44	41513.64
2008/09	3593	18191	8.2	1650	67.24	2723160	13530
2009/10	4296	21612	711.2	5072.8	505521	25713012.6	3606760.8
Total	X=17926	*x* X8270			769375.56	52247082.72	6092774.5
Mean	3585.2	1654.2					
S.D	392.26	3232.55					

Source: Balance Sheet of Nepal Telecom (2005-2010)

$$\overset{z}{x}\ X\frac{x}{N}\ X\frac{17926}{5}\ X3585.2$$

$$\overset{z}{y} = \frac{y}{N} = \frac{82706}{5} = 16541.2$$

$u = x - \overset{z}{x} \qquad v = y - \overset{z}{y}$

$$\pm_x = \sqrt{\frac{u^2}{N}} = \sqrt{\frac{769375.56}{5}} = 392.26$$

$$\pm_y = \sqrt{\frac{v^2}{N}} = \sqrt{\frac{52247082.72}{5}} = 3232.55$$

Again, Karl Pearson's Coefficient of Correlation (r) is used to determined value of r. By calculating 'r' we can examine, whether or not cash balance will be changed in the same direction of the change in account receivable. For this purpose A/R (y) are assumed to be dependent variables and cash balance (x) are assumed to be independent variables. It is assumed that A/R will increases as cash increases or vice-versa. It means there should be positive correlation between cash balance and account receivable.

$$r_{xy} = \frac{uv}{\sqrt{v^2 \quad u^2}} = \frac{6092774.5}{\sqrt{52247082.72 \mid 769375.56}} = \frac{6092774.5}{6340143.346} = 0.96$$

Correlation coefficient between cash balance and revenue (r_{xy}) = 0.96

The value of r shows that there is low degree of positive correlation between the cash and account receivable. We may therefore, conclude that the actual cash will change in the same direction as account receivable changes. The significance of r can be tested by the probable error of r.

$$\text{P.E (r)} = \frac{0.6745(1 - r^2)}{\sqrt{N}} = \frac{0.6745(1.(0.96)2)}{\sqrt{5}} = 0.024$$

We have probable error of 'r' = 0.024 since r<6 P.E. (r), the value of r is significant.

A regression line can also be fitted to show the degree of relationship between the cash balance and A/R. Cash balance can be forecasted by the value of A/R. For this purpose cash and bank balance and A/R has been assumed interrelated economic variables. So, the regression line of A/R (x) on cash balance (y) is

$$x - \bar{x} = r \frac{\pm X}{\pm Y} \; y - \bar{y}$$

$r_{xy} = 0.96$

$$X - 3585.2 = 0.96 \times \frac{392.26}{3232.55} (Y - 16541.2)$$

$X - 3585.2 = 0.1165 (Y - 16541.2)$

$X = 0.1165y + 3585.2 - 1927.049$

$X = -1658.2 + 0.1165y$

Thus, for unit increase in cash, A/R increases by 0.12per unit.

4.3 Major Findings

In the research mainly secondary data are used and the analysis is computed with the help of different financial and statistical tools. In financial tools ratio analysis has been used and on statistical tools correlation coefficient, and regression analysis has been used. This chapter focus on major finding from analysis of secondary information from Nepal Telecom.

- **Finding on current ratio**

  Current Ratio of Nepal Telecom throughout the study period is in increasing trend i.e 1.44, 1.50, 2.17, 2.32, and 2.56 from 2005/06to 2009/10 respectively.. In the 1st three year of study period, current ratio was below average ratio and the last two year of study period, it was above the average ratio. The data reveals that Nepal Telecom has high current assets, high liquidity high opportunity cost that will effect on profit of the company.

- **Finding on quick ratio**

  Quick ratio of Nepal Telecom is 1.46 on an average for the study period. The ratio is in increasing trend. i.e 0.96, 1.16, 1.31, 1.85and2.04 respectively from 2005 /06to 2009/10.Ratio was not below 1 except for year 2005//06.

  It is not uncommon for a quick ratio to be 0.96...Ratio lower than 0.8 might indicate that company is running short on its available cash, which could create problem soon after the purchase. Here, is no shortage of cash but cash may remain idle.

- **Finding on absolute cash ratio**

  The Absolute cash ratio for the five years was 1.17 on an average. The ratio was in increasing trend. i.e 0.77, 0.94, 1.07, 1.47and 1.58, from 2005 /06to 2009/010

respectively which shows that company was better able to cover its obligation to creditors. It was found that cash position of company was not weak over the study period .cash was almost sufficient to pay its current liabilities

- **Finding on cash to current ratio**

  Average cash to current assets ratio is 0.62. This indicated that 62% of current assets comprises of cash which indicate some degree of safety from creditors viewpoint, however excess amounts of cash may be viewed as inefficient..Increasing trend is going on from 2005/06 to 2007/08 i.e 0.53'.63 and.67 respectively then slightly decreased to 0.63 in the year 2008/09 and 0.62 in the year2009/2010 but it makes no difference to company.

- **Finding on cash turnover ratio**

  Cash turnover ratio explains how quickly cash is received from sales.Cash turnover of Nepal Telecom was 1.03 on an average Increasing trend is going on from 2005/06 to 2009/10 i.e 0.87, 0.95, 1.04 1.13, and1.16 respectively. The company's position of liquid cash that remain idle was too high. So there was lack of proper management of idle cash in the company towards profitable sector which could have yield more revenue. May be, because of lacking investing sector due to the unfavourable condition of the country.

- **Finding on cash flow from operating activities**

  Operating cash flow is generated from internal operations. In Nepal Telecom, cash from operating activities are generated from sales of product and services. Operating cashflow is in increasing trend i.e6722360621, 11246644365, 9799160046, 10716850813 and12361498089 from the year 2005/06 to 2009/10 respectively which is the good sign of NTPvLtd.

- **Finding on cash flow from investing activities**.

Investing cash flow is generated internally from non operating activities. It is increasing from the year2005/06 up to the year 2007/08 and then decreasing trend up to the last year of the study period. Investing activities is more on the middle year of the study period i.e in the year 2007/08 which is due to the investment on fixed assets, income .from investment and bank deposit.

- **Finding on cash flow from financing activities**

Cash flow from financing activities have negative cash flow due to the payment of long term liabilities .During the first year of the study period CFFA was 2071119115,then decreased to 1475161719 and then increased to 2701483949 in the year 2007/08 .Again increasing trend going on in the last remaining two year..CFFA is higher in the last year of the study period due to the payment of dividend.

- **Finding on actual cash flow**

Cash from operating activities are in increasing trend .Cash from investing activities and financing activities are fluctuating. By adjusting beginning cash and foreign exchange gain or loss with net increment in cash we reached cash at the end of the year which is in increasing trend .It indicates that Nepal Telecom has sufficient cash for its operation.

- **Finding on cash budget**

Cash budget of the study period showed that there is low deviation in budgeted and actual cash budget. It shows that there was effective implication of budgeted amount and also shows proper planning of cash. Nepal Telecom always revised its budget in last quarter of its fiscal year. There is still low deviation in revised and actual cash balance which is shown by table no 4.11. Actual cash balances were lower than revised budget. If there were high deviation it means that it has not utilised cash in effective way.

- **Finding on correlation coefficient and regression analysis between cash balance and revenue**

Correlation coefficient between cash balance and revenue of Nepal Telecom found to be highly positive. The value of "r" is 0.996 that is highly positive. It lies between 0.7 to 0.996. It means that there is highly positive correlation between cash and revenue. Means that revenue will increase as cash increase and vice-versa. The value of "r" is significant there is evidence of correlation between cash and revenue. The regression line shows that revenue is increased by 0.63%.

Finding on correlation coefficient and regression analysis between Account Receivable and cash balance

Similarly the value of "r" is 0.96 i.e. high degree of positive correlation. It means that there is highly positive relation between cash balance and A/R. Regression line show that for unit increase in cash A/R Increases by 0.12%

CHAPTER-FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter highlights some selected summary conclusions and recommendation on the basis of the major findings of the study derived from the analysis of Nepal Telecom. The study has covered 5 years data from the year 2005/06 to 2009/010 The major findings of the study based on financial and statistical analysis listed in chapter-4 of this report. In order to carry out this study, mainly secondary data are used. The analysis of the data is carried out with the help of various financial and statistical tools. The findings of the study are summarized and conclusion and some recommendation drawn as below:

5.1 Summary

Since the establishment of Nepal Telecommunication Corporation, it is providing reliable and affordable telecommunication services to the Nation. Nepal Telecommunication Corporation was dissolves and converted to Nepal Telecom from 1st Baisakh 2061. It was registered under company act 2053; the privatization of Nepal Telecom should be beneficial to company. Nepal Telecom's vast telecommunications networks play a key role in supporting the growth of business in the information technology field. It has been enjoying monopoly in telecommunication sector since last three decades but this monopoly has broken down with the establishment of UTL, STM, NCELL, satellite and smart telecom.

Now to compete with market, Nepal Telecom has to do best in every aspect of its transaction. One of its aspects of Nepal Telecom's transaction is cash management. The study focuses on the specific aspects of the cash management practices of Nepal Telecom Company. Cash management involves planning to controlling activities of the cash and near cash items. As stated in the introduction chapter, the objective of the study are to observe the liquidity position of Nepal Telecom, review cash flow from operating, financing and investing activities and to study the relationship between cash and total revenue and AR.

Review to related literature and previous studies have been done in the second chapter. Tools and techniques, which was implemented in fourth chapter has been described in chapter three. Fourth chapter includes presentation and analysis of data. Hence an effort has been made in this chapter to present major finding on specific aspect of cash management practices of Nepal Telecom.

The financial ratio"s like current quick cash to current assest , absolute cash ratio ,cash turnover ratio are in increasing trend which shows that NT has enough cash for its operation and cash has quickly received from sales.

5.2 Conclusion

On the basis of entire research study some conclusion can be drawn .this study particularly deals about the following-

Analysis of current ratio showed that average ratio of Nepal Telecom is 1.89 which is near about current ratio i.e. 2. This means that company will not be fully meet its short term obligation. However being service industry it is not necessary for Nepal Telecom to have current ratio equals to 2.

Analysis of quick ratio showed that Nepal Telecom is able to maintain minimum acceptable liquidity ratio i.e. 1.46. This means that Nepal Telecom has enough cash to pay current obligation of the firm.

Cash and bank balance with respect to current assets has been in increasing trend. On an average, 62% of current assets consist of cash which shows the greater safety of funds of short-term creditors.

Cash flow statement of Nepal Telecom showed that company was able to collect more cash from different sources. It shows good position of actual cash collection of the company. On the other hand, company did not spend cash as it targeted. Due to these facts, there was enough surplus cash in hand every year. If company could have managed these surpluses in the productive sector then it could have yield more returns to company.

Cash Budget of Nepal Telecom showed that there is low deviation in Budgeted and actual cash balance. This shows the planning of Budget. Also it showed that cash surplus but it required investing in productive sector to earn profit by Nepal Telecom. As there is always surplus cash held by Nepal Telecom, it doesn't need to take loan from external sources.

During the fiscal 2066/67 Nepal Telecom got success by earning 27 Arab and 22 crore revenue and 10 Arab 77 crore profit. It has aimed the revenue to be 28 Arab17 crore and profit to be 12 Arab 8 crore in coming year.).

It has aimed to increase the GSM and ADSL service and will expan optical fibre. For the infrastructure development 3000 km optical fibre will expan by the cooperation with Nepal Electricity Authority, 800 km optical fibre will expan by the company itself has the plan of Doorshanchar Company Ltd.

For the customer service it has the planning through convergent billing and customer support system.

5.3 Recommendations

Cash management is one the important elements of overall management area which is interrelated and integrated with economic planning and controlling of management. Financial efficiency is important for achieving the goal of any business enterprises.

On the basis of the study considering target objective, following recommendations are given for healthy financial performance and better cash management of the company.

Company's cash balance is high. It has to invest the surplus cash funds in profitable opportunities to generate income. As there is demand on hydro electricity, it is fruitful to invest its idle cash in hydro power.

Appropriate investment policy for surplus cash: On the basis of study, there seems enough cash surplus than it was required. So there must be appropriate policy and strategies to use that surplus cash in profitable sector.

NT should put effort to manage supply to the profitable sectors such as domestic, national and international wise.

There should provide more facility to their customer than other telecommunications like Mero Mobile and united telecom.

To satisfy the needs of customers and facilating quality services in reasonable price. NT should control the costs and improve the quality of services.

आ.व. २०६१।०६२ देखि आ.व. २०६५।६६ सम्मको वासलात

2004 July-2005 June to 2008 July -2009 June

वासलात (Balance Sheet

	अनुसुचि	नोट	आ.व. २०६५।६६ (2008 July - 2009 June)	आ.व. २०६४।०६५ (2007 July -2008 June)	आ. व. २०६३।०६४ (2006 July-2007 June)	आ. व. २०६२।०६३ (2005 July-2006 June)	आ. व. २०६१।०६२ (2004 July-2005 June)
कोषको श्रोत शेयरपूर्जी		१४	१५,०००,०००,०००।००	१५,०००,०००,००।००	१५,०००,०००,०००।००	१५,०००,०००,०००।००	१५,०००,०००,००।००
जगेडा र संचित मुनाफा(	१		२६,६२९,०२१,५७४।००	२०३४३८९४१९९।००	११,७९४,२८०,८४५।००	८,६८६,०२६,८८१।००	५,८२५,८५५,०१७।००
गैह् चालु दायित्व	२		४,६५१,६०४,५०२।००				
रिन					१,१९१,६८०,०००।००		२४,२३८,६५४।००
जम्मा			**४६,२८०,६२६,०७६।००	**३५३४३८९४१९९।००	**२७,९८५,९६०,८४५।००	**२३,६८६,०२६,८८१।००	**२०,८५०,०९५,६७१।००
कोषको प्रयोग गैह्र चालु सम्पति							
जायजेथा प्लाण्ट र उपकरण							
परल मुल्य			३१,३८९,५७८,४४२।००	२७,२४१,९८८,३३०।००	२४,२३४,१८०,५२०।००	२१,४१२,०५८,७४९।००	१९,१६८,४१३,०९६।००
न्यून संकलित ह्रास कट्टी			१६,०२४,०६३,२८१।००	१४,३४४,२८५,२४५।००ढ	१२,८७३,१३७,९१४।००	११,३२३,६३२,०८३।००	१०,१२७,४९५,७६४।००
ह्रास कट्टी पश्चातको मूल्य	५		१५,३६५,५१५,१६१।००	१२,८९७,७०३,०८५।००	११,३६१,०४२,६१६।००	१०,०८८,४२६,६६६।००	९,०४०,९१७,३३२।००
पूजीगत निर्माणधीन कार्य प्रगति	३		३,३१६,५०४,९८३।००	३,९२२,६९९,४३५।००	३,७३४,६४६,७७७।००	२,४४३,०६१,२६३।००	२,४५२,५७८,५३५।००
लगानी	४		११,१६७,३७३,७७३।००	८,३७३,३१०,५३५।००	४,८८३,८५५,७१७।००	४,१५६,९४८,४१७।००	३,३३८,७३३,६९५।००
कुल गैह् चालु सम्पति			**२९,८४७,३९३,९१७।००	**२५,१९३,७१३,०५५।००	**२०,००९,५४५,११०।००	**१६,६८८,४३६,३४६।००	**१४,८३२,२२९,५६२।००
चालु सम्पति							
जिन्सी मौज्दात	६		१८०,१३१,६०।००	४१६,४२४,१५०।००	३२७,६८४,१४२।००	३२९,३१५,४३५।००	309.856.764.00
आसामी बाकी	७		3.533.205053.00	348121010812	3.455.511.680.00	3.099.495.949.00	2.815.943.646.00
नगद तथा नगद बरावर	८		18.191.058.076.00	16.134.516.743.00	14.714.337.952.00	12.021.614.867.00	9.574.500.796.00
सापटी, पेशकी तथा अन्य	९		5.699.165.581.00	4.147086656	4.990..219.998.00	7.076.085.955.00	7.888.050.916.00
डेफर्ड कर सम्पति			1.173.734.890.00	987.110.643.00			
कुल चालु सम्पति			28.837.295.203.00	24180638836.00	23.519.753.772.00	22.526.522.206.00	20.598.352.122.00
चलु दायित्व र व्यवस्था							
चालु दायित्व	१०		6.718.054.667.00(	7911550096 2.00	5.712.295.482.00	4.475.7535.082.00	3.858.484.025.00
व्यवस्थपन	११		5.688.054.667.00(	709893843.00	9.962.858.235.00	11.189.626.739.00	10.864.194.034.00
खुद			16.431.232.159.00	9166198936.00	7.884.600.055.00	6.861.142.385.00	5.875.674.043.00

चालु सम्पति							
स्थगन गरिएका आयगत खर्चहरु					131,815,680.00	136,448,150.00	142,190,046.00
जम्मा			**44,280,424,074.00**	**353,538,394,199**.००	**27,985,960,845.00**	**23,684,024,881.00**	**20,850,053,471.00**

प्रमुख लेखा नीति तथा टिप्पणीहरु

स्रोत
नेपाल दुर संचार कम्पनी लिमिटेड बार्षिक प्रतिवेदन

APPENDIX-I (B)

(Nepal Doorsanchar Company Limited)
Bhadarakali Plaza Kathmandu
Financial Result of Fourth Quarter of Financial Year 2066-67, (2009 July-2010 June)

Balance Sheet

		Asset
		Ashad 32,2067
		Rs
SOURCES OF FUND		
Share Capital		15,000,000.000
Reserve and……..		32149599427
Non-Current liabilities		5355047384
	Total	**52504646811**
APPLICATION OF FUND		
Property, Plat and Equipment		
Original Cost		34596636789
Less accurraulated Depreciation		20452728728
Cost less Depreciation		14143908061
Capital work in Progress		3972222371
Investments		13034215756
Net non current asset		31150346188
Current Asset		
Inventory		1772271922
Bills Receivable		4295998004
Cash and Cash equivalent		21611536436
Loan Advance and others1		6959843776
Deferred tax asset		1975713947
Net Current Asset		**35015364086**
Less Current Liabilities and Provisions		
Current Liabilities		-6929335416
Provision		-6731728047
Gross Current Asset		21354300623
Net Current Assets		**50464681**
Total		

Sources: Annual Report of NT 2010

APPENDIX-II (A)

नेपाल टेलिकम

आ.व. २०६१।०६२ देखि आ.व. २०६५।६६ सम्मको नाफ नोक्सानी हिसाव

नाफा नोक्सानी हिसाव

Profit and Loss A/C 2004 July-2005 June to 2008 July -2009 June

अनुसुचि	नोट	आ.व. २०६५।६६ (2008 July -2009 June)	आ.व. २०६४।०६५ (2007 July -2008 June)	आ. व. २०६३।०६४ (2006 July-2007 June)	आ. व. २०६२।०६३ (2005 July-2006 June)	आ. व. २०६१।०६२ (2004 July-2005 June)
आमदानी सेवा विकी वाट आय		20,646,628,886.00	16,624,212,892.00	13,967,318,603.00	10413665067.00	8,584,144,335.00
व्याज आम्दानी		1,375,726,070.00	903,773,320.00			
सामान विकीमा लाभनोक्सान		17,679,755.00(	70,046,873.00			
विविध आय		142,896,799.00	127,130,424.00	784,305,202.00	645,259,757.00	610,152,857.00
कुल आम्दानी		**22,147,582,000.00**	**17,889310266.00**	**14,751,623,805.00**	**11,058914824.00**	**9,194,297,192.00**
खर्च						
कर्मचारी खर्च		1,623,581,209.00	1,598344420.00	1,280,523,441.00	1,164,810,762.00	1,136,819,457.00
मर्मत तथा संचालन		1,578,347,866.00	1,219001769.00	797,650,560.00	655,127,053.00	552,161,528.00
प्रशासकीय खर्च		840,580,586.00	911480928.00	853,176,850.00	442,820,441.00	408,791,001.00
रोयल्टी		819,299,285.00	671,534,386.00	540,974,704.00	394,538,103.00	491,301,830.00
ग्रामीण विकास कोषमा योगदान		409,649,643.00	335,737,193.00	270,487,352.00	197,269,052.00	
टेलिफोन तथा अन्य सामान लागत खर्च				523,278,132.00		
ग्राहक धरौटी व्याज		48,065,672.00	83,003,259.00	67,142,870.00	63,937,446.00	57,936,375.00
रिनमा व्याज			10,303,949.00	0	1,107,992.00	696,200.00
ह्रास कट्टी		1,681,293,477.00	1,486,129,221.00	1,366,504,461.00	1,195,081,001.00	1,048,435,969.00
विनिमय नोक्सान (नाफा)		496,235,083.00(	2,675,764.00	526,031,496.00	280,005,092.00(	251,124,356.00
लाइसेन्स शुल्क		41,079,642.00	37,839,000.00	58,374,511.00	40,455,397.00	40,817,734.00
टेलिफोन तथा अन्य समानको विकी वाट नोक्सानी					18005179.00	3,872,466.00
डफर्ड खर्च अपलेखन		0	33,322,567.00			
धितोपत्र दर्ता र वार्षिक शुल्क		11,300,000.00	22,500,000.00			
पेनसन र उत्पादन व्यवस्था		1,196,470,112.00				
कर्मचारी वोनस व्यवस्था		301,192,913.00	256,559,685.00	240,543,875.00	195,349,650.00	187,998,750.00
कर्मचारी प्रोत्साहन व्यवस्था		458,967,336.00	349,391,995.00	243,866,630.00	126,691,023.00	93,712,511,00
कुल खर्च		**8,513,592,128.00**	**7,017,854,136.00**	**6,768,301,882.00**	**4,215188007.00**	**4,272,768,204.00**
आयकर अघिको खुद मुनाफा		13,633,989,872.00	10,87,3145e130.00	7,983,321,923.00	6,843,726,817.00	4,921,528,988.00
आयकर व्यवस्था				2,330,633,432.00(	1,907,079,565.00	1379067662.00(
आयकर पछिको मुनाफा				5,652,688,491.00	4,936,647,252.00	3,542,461,326.00

गत आर्थिक वर्षको अषाढ मसान्त सम्मको संचित मुनाफा				४,६०२,३६४,४५७.००	५,६६५,४०६,६४५.००	५,३३४,९३४,१०९.००
विगत वर्षको आयकर समायोजन				१४,६०१,४९९.००(	३४४,६१२,५१०.००	
विगत वर्षको समायोजन				२१४,४२४,१३४.००(	१,२६४,६५६.००	१५४,०४९,९४०.००
गत वर्षको नपुग लाभांश				४११,००४,४९०.००	०	
बडफाडको लागि उपलब्ध नाफा					१०२५४७१००४३.००	
प्रस्ताविक लाभाश				१५००००००००.००	६४४,९९५,५१०.००(	५५०४२६९०.००(
बाँडफाड पछिको मुनाफा				११०७१०६२२४११.००	९५६९७१४५७३.००	९४४०४०६४४५.००
आयकरलाई संचित मुनाफामा लेखांकन गरेको				११,७१०,६२२,४११.००	५६९४३४२२१.००	०
पूँजीगत जगेडालाई संचित मुनाफामा लेखाकन गरेको					७४४७१५५६.००	०
नेपल सरकारलाई संचित मुनाफा वापत भुक्तानी					१६११६५१५०३.००(	२९०००००००.००(
सिकिंग फण्डबाट सारेको					०	४५,०००,०००.००
बाँकी संचित मुनाफा वासलातमा सारेको				११,७१०,६२२,४११.००	४,६०२,३६४,४५७.००	५,६६५,४०६,६४५.००
चालु आयकर		३,६४२,५४९,४०१.००(	१३०,३१४,३७७.००(	०		०
डेफर्ड आयकर		१४६,६२४,२४७	२०१,७६३,४४५.००	०		०
खुद मुनाफा डक्विटीमा परिवर्तनको विवरणमा सारेको		१०,१७४,०२४,७१४.००	७९४२९०१५९४.००	११,७१०,६२२,४११.००	४,६०२,३६४,४५७.००	५,६६५,४०६,६४५.००

प्रमुख लेखा नीति तथा टिप्पणी

APPENDIX-II (B)

Profit and Loss Account

	Shrawan-Ashad 2067 **Rs**
INCOME	
Income from service	25058303890
Other Income	2162764145
Total Income	**27221068035**
EXPENDITURE	
Personal Costs	1850126139
Operation and Maintenance Costs	2070867851
Administrative Costs	1004443682
Royalty	1002332156
Contribution on Rural Telecom Dev Fund	501166078
Interest on Subscriber's Deposit	48665574
Depreciation	4455464599
Amortization of License fee	54637484
Annual Charge	50000
Provision on pension	764666712
Provision on bonus	347605978
Others	484751419
Total Expenditure	**12,779972827**
Net Profit before Tax	14441095208
Provision for income tax	4467919801
Deffered tax	801979057
Net profit after tax	10775154464
At Fourth Quarter ended Ashad 32,2067	**Asset** **Ashad 32,2067**
Earnings Per Share (Rs)	69.36
Closing Market Price of share on Ashad 32,2067(Rs)	460
P.E. Ratio	6.63
Net worth per share(Rs)	311.92
Current Ratio	202

Sources: Annual Report of NT 2009/10

APPENDIX-III

Cash Flow from Operation activities for 2005/06to 2009/10

Particular Cash from operating activities	2005/06	2006/07	2007/08	2008/09	2009/10
Net operation before tax	6843726817	798334923	10871456130	13633989872	14441095208
depreciation	1196136319	1366504461	1486129221	1681293477	4406420635
Intrest on loan	1107992	0	10303949	0	0
Income from investment and bank deposit	(59683782)	(701827193)	(903773320)	(1375736070)	-20145558836
License cost & deffered expn	40029002	58374511	71161567	41079113	54637484
Foreign exchange (gain/Loss)	(280005092)	526031496			
Provision for Liability			1183534673	2250589306	1645697272
Provision for pension	241389693	286083269			
Expenses on loss of goods	853000	122922321			
Expenses onRoyalty	591807155	811462056			
Expenses on store part of optical installation		37269943			
Provision for doubtfuldebt		200365023			
Provision for earned leave	65980439	71726050			
Provision for bonus	322040673	484410505			
Increase/decrease in current assets			(2491821886)	(4382459736)	-5447824038
Increase in A/R	(273552303)	556380758			
Increment license				(189000000)	(270000)
Decrease in interest of investment	2463849	4299996			

Increase in advance tax	(1684603393)	(27044683614)			
Increase/decrease in inventory	(3425867)	655293			
Increase inpayables	618496246	1203753677			
Increase/decrease in advance payment and others	382510564	(272590616)			
Decrease in branch account	2798001`	13388009			
Payment of royalty	(370641219)	(563687484)			
Grautuityreceived	8251	899	351		
Payment for earned leaved	(22011777)	(21694456)	(28156853)	(38643025)	(48673168)
Bonus Payment	322040673	(484410505)	(352364534)	(8398932550)	(590061737)
Payment of pension	(30048819)	(35997668)	(47309251)	(64368869)	(84964731)
Interest payment	(2335181)	0			
Adjustmenton bonus payment	(301638899)	(248788172)			(58785860)
Lastyear adjustment	1268656	72974138			(2079597119
Last year adjustment on tax		58722129			
Net cash flow from operating activities	6722360621	8052325466	9799160046	10716850813	12361498089

APPENDIX-III (B)

Particular	2005/06	2006/07	2007/08	2008/09	2009/10
	Amt. in Rs	Amt. in Rs	Amt. in Rs	Amt. in Rs	Amt. in Rs
Cash flow from investing activities					
Purchase of plant and machinery	-2243645653	-1667711724	-304176047	-4150841568	-36207058347
Increase in capital work in progress	15787272	-1443449678	-76639761	6238045585	-655717388
Increase in deffered expenses	-34287106				
Increase in investment	-818214722	-726907300	-3486326363	-2794063238	-1866841983
Premium adjustment on debentures		190177657	-3128435		
Income from investment of bank deposit	596837682	701827193	903773320	1375736070	-2014558836
Net cash flow from investing activities(b)	-2483522527	-3326419166	-5709497306	-4955364151	-3715058882

Calculation of cash flow from investing activities

APPENDIX-II (C)

Calculation of cash flow from financing Activities

Particular	2005/06	2006/07	2007/08	2008/09	2009/10
	Amt. in Rs	Amt. in Rs	Amt. in Rs	Amt. in Rs	Amt. in Rs
Cash flow from Financing activities					
Increase in Equity share capital					
Long term Borrowing		0			0
Repayment of long term loan	-24238654				
Receipt in long term debt	0	0	-1191680000		
Pymt of interest on loan			-10303949		0
Pymt of dividend	-43350216	-664157229	-1499500000	3704945329	-5225960846
Pymt of last year dividend		-81104490			
Re payment of retained earnings to Nepal Govt.	-1611651503				
Receipt of share capital					

Capital reserve adjusted to relained earning	-2318742				
Net cash flow from financing activities	-2071719115	-1475161719	-2701483949	-3704945329	-5225960846

APPENDIX-III (D)

Calculation of actual cash flow

Particular	2005/06	2006/07	2007/08	2008/09	2009/10
CFOA	6722360621	8052325466	9799160046	10716850813	12361498089
CFIA	-2483522527	-326419166	-5709497306	-4955364151	-3715058882
CFFA	-2071719115	-1475161719	-2701483949	-3704945329	-5225960846
Net increment in cash (a)+(b)+ (c)	2167118979	3250744581	-1388178791	2056541333	3420478361
Cash at the beginning of the year	9574500796	12021624867	14746337952	1613516743	18191058076
Foreign exchange adjustment gain (Loss)	280005092	-526031496			
Cash at the end of the year (i+ii+iii)	120221624867	1474633952	16134516743	18191058076	21611536437

APPENDIX- IV

Five Year budget comparison chart

(July 2009-June2010)				
	Approved	Revised	Actual	%
Capital Expenditure	10598886	65000028	4160908	10.84
Revenue expenditure	598535.12	4943392.4	4925438	12.86
Government liability (tax)	10636084	8461788	9348133	24.41
Dividend	4500000	525000	5227727	13.65
Royalty	1617835	1428837	1228949	3.21
Other Lialibility	69100	35829	248645	0.08
Financial investment	10300000	10720000	13398645	34.97
Total	43707141	37339874	38302629	100.0

(July 2008-June2009)				(July2007-june2008)			

Approved	Revised	Actual	%	Approved	Revised	Actual	%
9986075	4543357	3875428.6	12.34	1388220	3719090	1615561	8.15
4475102	4156156	4042508.6	12.87	3281921	3139180	2744203	13.85
8787100	8095698	7362408	23.44	6878323	5797569	5913408	29.84
3600000	3750000	3734053	11.89	1500000	1500000	1499500	7.57
926865	1023426	1228949	3.91	758845	811462	953301	4.81
189777	1498	1248	0.00	153905	23998	25796	0.13
7260000	8021595	11167374	35.55	5150000	5877152	7065852	35.65
34614924	30771727	31411959	100.0	29111220	20868451	19817621	100.00

(July 2006-June2005)				(July2005-june2006)			
Approved	Revised	Actual	%	Approved	Revised	Actual	%
7534917	4791896	3783603	21.73	7115345	2526194	2521641	18.39
2615581	2745937	2147520	13.34	1970540	1902178	2032283	14.82
3982641	5001835	5017792	28.82	3438336	3731639	3298669	24.05
580432	1500000	1500000	8.67	2495554	1969999	2094999	15.28
529778	755574	563687	3.24	458241	327535	371551	2.71
246816	97441	84412	0.48	281515	174778	174778	1.27
5127827	19564383	4312950	24.77	1820000	35331000	3220500	23.48
20617992	19564383	17409964	100	17679531	14163323	13714571	100.00

Source: Annual report of NT (2005-2010)

APPENDIX- V

Trend Analysis of Cash Balance of NT by Least Square Method

Rs. ('000000')

Fiscal Year (x)	**Cash/Balance Balance (y)**	**x**	**x^2**	**xy**
1	12022	-2	4	-24044
2	14746	-1	1	-14746
3	16135	0	0	0
4	18191	1	1	18191
5	21612	2	4	43224
∑x=15	*y* X82706	0	x^2 =10	*xy* X22625

Source: Balance Sheet of NT (2005-2010)

N= Number of observation

Straight line trend (Y_c)= a+bx

$\overset{z}{y}$ X $\frac{y}{N}$ X$\frac{82706}{5}$ X16541 b= $\frac{\sum xy}{\sum x^2} = \frac{22625}{10} = 2262.5$

$\overset{z}{x} X \frac{x}{N} X \frac{15}{5} X3$

We have the regression equation of Yon X

Y= a+bX

$b = \frac{\sum xy}{\sum x^2}$

$a = \overset{z}{y} - b \overset{z}{x} X$

=16541-2262.5 x 3

a=16541-6787.5 =9753.5

Putting the value on equation Y= a+bx where a=9753.5 b=2262.5 X=6,7,8,9,10 respectively.

Y=a+bx

Y=9753.5=2262.5 .x

9753.5+2262.5*6 =23328.5 for 6^{th} year

9753.5+2262.5*7=25591 for 7^{th} year

9753.5+2262.5*8=27853.5 for 8th year

9753.5+2262.5*9=30116 for 9^{th} year

9753.5+2262.5*10=32378.5 for 10^{th} year

This tend line shows the positive figure of cash balance for future. The annual rate of increment of cash balance is seemed to be 2262.5x 1000000= 2262500000

APPENDIX- VI

Between Cash and Revenue of Nepal Telecom

Correlation (r) Between Cash Balance and Revenue

Rs.('000000)

Year	Cash Balance (x)	Revenue (y)	u=x-16541	v=y-17374.8	U^2	V^2	uv
2005/06	12022	10414	--4519	-6960.8	20421361	48452736.64	31455855.2
2006/07	14746	13967	-1795	-3407.8	3222025	11613100.84	6117001
2007/08	16135	16788	-406	-586.8	164836	344334.24	238240.8
2008/09	18191	20647	1650	3272.2	2722500	10707292.84	5399130
2009/10	21612	25058	-5071	7683.2	25715041	59031562.24	38961507.2
Total	x X82706	y X86874			52245763	130149026.8	8217173.2
Mean	16541	17374.8					
S.D	3233	5102					

Source: Balance sheet of Nepal Telecom 2005-2010

$$\overset{z}{x}\,\mathrm{X}\frac{x}{N}\,\mathrm{X}\frac{82706}{5}\,\mathrm{X}16541$$

$$\overset{z}{y}\,\mathrm{X}\frac{y}{N}\,\mathrm{X}\frac{86874}{5}\,\mathrm{X}17374.8.$$

$u = x - \overset{z}{x} \qquad v = y - \overset{z}{y}$

$\pm_x X \sqrt{\frac{u^2}{N}} X \sqrt{\frac{52245763}{5}} X 3233$

$\pm_y X \sqrt{\frac{v^2}{N}} X \sqrt{\frac{130149026.8}{5}} X 5102$

$r_{xy} = \frac{uv}{\sqrt{u^2 \quad v^2}} = \frac{82171734.2}{\sqrt{52245763 x 130149026.8}} = 0.996$

$P.E\ (r) = \frac{0.6745(1 Z r^2)}{\sqrt{N}} = \frac{0.6745(1 Z (.996)2)}{\sqrt{5}} = 0.0021$

$x - \bar{x} = r \frac{\pm X}{\pm Y} \quad y - \bar{y}$

	x	y
Mean	16541	17374.8
SD	3233	5102

$r_{xy} = 0.996$

$X - 16541 = 0.99\ 6\ \frac{3233}{5102}(Y - 17374.8)$

$X - 16541 = 0.6311Y - 10966$

$X = 5575 + 0.631\ 1y$

This equation shows that revenue will be increased by 0.63 per unit.

APPENDIX- VII

Cash and Account Receivable of Nepal Telecom

Correlation (r) between Cash balance and Account Receivable of Nepal Telecom for the study period

Rs. ('000000')

Year	Account Receivable (x)	Cash Balance (y)	u=x-3585.2	v=y-16541.2	U^2	V^2	UV
2005/06	3099	12022	-486.2	-4519.2	236390.44	20423168.6	2197235.04
2006/07	3455	14746	-130.2	-1795.2	16952.04	3222743.04	233735.04
2007/08	3483	16135	-102.2	-406.2	10444.84	164998.44	41513.64
2008/09	3593	18191	8.2	1650	67.24	2723160	13530
2009/10	4296	21612	711.2	5072.8	505521	25713012.6	3606760.8
Total	X=17926	$\overset{z}{x}$ X8270			769375.56	52247082.72	6092774.5
Mean	3585.2	1654.2					
S.D	392.26	3232.55					

Source: balance sheet of Nepal Telecom (2005-2010)

$$\overset{z}{x} \text{X} \frac{x}{N} \text{X} \frac{17926}{5} \text{X} 3585.2$$

$$\overset{z}{y} \text{X} \frac{y}{N} \text{X} \frac{82706}{5} \text{X} 16541.2$$

u=x-$\overset{z}{x}$ v=y-$\overset{z}{y}$

$$\pm_x \text{X} \sqrt{\frac{u^2}{N}} \text{X} \sqrt{\frac{769375.56}{5}} \text{X} 392.26$$

$$\pm_y \text{X} \sqrt{\frac{v^2}{N}} \text{X} \sqrt{\frac{52247082.72}{5}} \text{X} 3232.55$$

$$r_{xy} = \frac{uv}{\sqrt{v^2 \quad u^2}} = \frac{6092774.5}{\sqrt{52247082.72 \mid 769375.56}} = \frac{6092774.5}{6340143.346} X0.96$$

$$P.E\ (r) = \frac{0.6745(1 Z r^2)}{\sqrt{N}} = \frac{0.6745(1.(0.96)2)}{\sqrt{5}} = 0.024$$

$$x - \bar{x} = r \frac{\pm X}{\pm Y} \quad y - \bar{y}$$

$r_{xy} = 0.96$

$$X - 3585.2 = 0.96 \times \frac{392.26}{3232.55} (Y - 16541.2)$$

$X - 3585.2 = 0.1165\ (Y - 16541.2)$

$X = 0.1165y + 3585.2 - 1927.049$

$X = -\ 1658.2 + 0.1165y$

Thus, for unit increase in cash, A/R increases by 0.12per unit.

APPENDIX- VIII

Testing of Hypothesis for the sample of Revised and Actual Budget

Two Independent sample of 5 items respectively had the following values.

Sample I: 14.2 19.5 20.9 30.7 37.3

Sample II: 13.7 17.4 19.8 31.4 38.3

(I) Do the two sample Mean differ Significantly?

(II) Do the two sample Variance differ significantly?

Test of significance for difference between two independent Means

Setting Hyphothesis

Null Hypothesis H_0: $\mu_1=\mu_2$ .There is no significant difference between two Sample Mean. (X_1)and (X_2)

Alternative HtpothesisH_1: $\mu_1>\mu_2$: (one tail test) There is significant difference between two Sample Mean.

H_1:$u_1>u_2$ (right tail test) First sample is higher than Second Sample

The test statistic under the assumption that $6_1^2=6_2^2=6^2$ that is the population variances are equal but unknown.

Test statistic, Under H_0

$$t = \frac{X_1^z Z X_2^z}{\sqrt{S^2 \frac{1}{n_1} \Gamma \frac{1}{n_2}}}$$

Where $S^2 = \frac{1}{n_1 \Gamma n2 Z 2} \quad x_1^2 Z \frac{(X_1)^2}{n_1} \Gamma \quad x_2^2 Z \frac{(X_2)^2}{n_2}$

Calculation of S2

X_1	$X1^2$	X_2	X_2^2
14.2	**2O1.64**	**13.7**	**187.69**
19.5	**380.25**	**17.4**	**302.76**
20.9	**436.81**	**19.8**	**392.04**
30.7	**948.64**	**31.4**	**985.96**
37.3	**1391.29**	**38.3**	**1466.89**
122.6	**3358.63**	**120.6**	**3335.34**

Here $\overset{z}{X}_1 \text{X} \frac{X_1}{n_1} \text{X} \frac{122.6}{5} \text{X} 24.52$

$\overset{z}{X}_2 \text{X} \frac{X_2}{n_2} \text{X} \frac{120.6}{5} \text{X} 24.12$

1/5+5-2[3358.63 –(122.6)2+3335.34 –(120.6)2

Hence (t) =0.064
Degree of freedom= n_1+n_2-2

$5+5-2=8$

The tabulated value of t for 9df at 5% level of significance for right tail test is 1.860 .That is $t_{0.05}(8)=1.860$

Conclusion: Since the calculated value of t 0.064 is less than tabulated value of t .It is not significant H_0 is accepted which means that there is no significant difference between Revised budget and Actual budget.

OR

F-test (Variance Ratio test)for equality of Variance

Setting hypothesis

Non hypothesis H_o : $\sigma_1^2 = \sigma_2^2$. That is two estimates of population variance do not differ significantly.

Alterative Hypothesis H_1 : $\sigma_1^2 \neq \sigma_2^2$ (Two tailed test). That is two estimates of population variance differ significantly.

Test Statistic : Under, Ho, the test static is

$F = \frac{s_1^2}{s_2^2}$ if $S_1^2 > S_2^2$

And

$F = \frac{S_2^2}{S_1^2}$ *if* $S_2^2 > S_1^2$

i.e. $F = \frac{\text{Greater Variance}}{\text{Smaller Variance}}$

Calculation of $S_1^2$and S_2^2

X1	$X1^2$	X^2	X^{22}
14.2	**2O1.64**	**13.7**	**187.69**
19.5	**380.25**	**17.4**	**302.76**
20.9	**436.81**	**19.8**	**392.04**
30.7	**948.64**	**31.4**	**985.96**
37.3	**1391.29**	**38.3**	**1466.89**
:ġx_1 =122.6	**ġX_1^2 =3358.63**	**ġx_2=120.6**	**ġX_2^2 =3335.34**

Now $S_1^2 = \frac{1}{n_1 - 1}\left[\Sigma x1^2 - \frac{(\Sigma x_1)^2}{n_1}\right]$

$\frac{1}{5\,Z1}$ $3358.63\,Z\frac{(122.6)^2}{5}$

$\frac{1}{5}$ Z1 3358.63 Z $\frac{3006.15}{}$

$\frac{1}{4}$ •352.48′ X88.12

$$S_2^2 = \frac{1}{n_2 - 1}\left[\sum x_2^2 - \frac{(\sum x_2)^2}{n_2}\right]$$

$\frac{1}{5}$ Z1 3335.34 Z $\frac{(120.6)^2}{5}$

$\frac{1}{4}$ •3335.34 Z2908.87′

$\frac{1}{4}$ •426.47′ X106.62

F= $\frac{GreaterVariance}{SmallerVariance}$ Since $S_1^{2 < S}{}_2 2$

F= $\frac{S_2^2}{S_1^2} = \frac{106.62}{88.12}$

Degree of Freedom (n_1 Z1)(n_2 Z1)

DF = (4,4)= £ = 5%

Tabulated $F_{0.05}$ (4, 4=6.39)

Conclusion: Since the calculated value of F 0.1.21 is less than tabulated value of F. It is not significant H_0 is accepted which means that there is no significant difference between Revised budget and Actual budget.