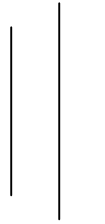
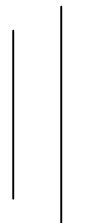


A STUDY ON CASH MANAGEMENT IN NTC



A Master's Degree Thesis

Submitted to:
Office of the Dean
Faculty of Management
Tribhuvan University



Submitted by:
Santosh kumar Neupane
Makwanpur Multiple Campus
Roll No. :- 920
Reg no. :- 7-2-479-96-2003

2010

RECOMMENDATION

This is to certify that the thesis submitted by

Santosh Kumar Neupane

Entitled

Cash Management in NTC

Has been prepared as approved by this Department in the prescribed format
of Faculty of Management and is forwarded for examination.

(Mr. Uddhav Sapkota)
Thesis Supervisor &
Head of Research Department

Campus Chief

(Mr. Jayaram Devkota)
Thesis Supervisor

***In partial fulfilment of the requirement of the degree of
Master of Business Studies (MBS)***

DECLARATION

I hereby devlare that the work done on the thesis entitled " **Cash Management in NTC**" has been subbmited to makwanpur Multiple Campus, Faculty of management, Tribhuwan University. It is my pure own created work for the partial fulfillment of the requirement of Master's Degree in Business study (MBS) course under the guidance of respected teachers Mr. Bin Bahadur Raut,Jayaram Devkota and uddhav sapkota of Makwanpur

Date:

Santosh Kumar Neupane
Researcher

VIVA VOCE

We have conducted the viva-voce examination of the thesis presented by
Santosh Kumar Neupane

Entitled:

Cash Management in NTC

And found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirements for the degree of Master's in Business Studies (MBS).

Viva- Voce Committee:

Chairperson Research Committee:.....

Member (External Exp :

Member (Thesis Supervisor) :

Member(Thesis Supervisor) :

Date:

Acknowledgements

This thesis report entitled “**Cash Management In NTC**” has been prepared strictly for the partial fulfillment for a degree on Masters’ of Business Studies (MBS).

Firstly I would like to acknowledge the deepest gratitude to my thesis supervisor Mr. Jayaram Devkota without whose valuable guidance and cooperation the thesis would not have come in this form.

I should be also grateful to the staff members of Nepal Telecom specially Mr. Praneswar Parajuli (Assistant Accountant Officer) and Mr. Basu Prasad Dhungel(Senior Assistant) for providing valuable co-operation and suggestions. I am much thankful to all the staffs of Nepal Telecom, Hetauda Branch for their sincere co-operation.

My heartily thanks goes to all the members of my family whose continuous support and regular inspirations are the secret of my success.

I would like to thank my friends, classmates and colleagues for their valuable support and co-operation in my research work.

Lastly, I don’t want to state that this thesis is complete and perfectly satisfactory. There may be various limitations and shortcomings because of the constraint of time and resources.

Hence, I state that I am alone responsible for any kind of contradiction raised from this research report.

Thank you very much

Santosh Kumar Neupane

Hetauda

Table of Contents

Chapter – I.....	86
Introduction.....	86
1.1 Background of the Study.....	86
1.2.1 Introduction of Nepal Telecommunication Corporation.....	87
1.3 Statement of the Problem.....	95
1.4 Objective of the Study.....	96
1.5 Significance of the Study.....	96
1.6 Limitations of the Study.....	97
1.7 Organization of the Study.....	97
CHAPTER II.....	98
REVIEW OF LITERATURE.....	98
2.1 Conceptual Framework.....	98
2.1.1 Meaning of Cash Management.....	98
2.2 Review of Related Study.....	112
2.3 Review of Previous Thesis.....	115
2.4 Research Gap.....	119
CHAPTER III.....	120
RESEARCH METHODOLOGY.....	120
3.1 Introduction.....	120
3.2 Research Hypothesis.....	120
3.3 Research Design.....	121
3.4 Nature and Sources of Data.....	121
3.5 Method of Data Analysis.....	122
CHAPTER IV.....	128
ANALYSIS AND PRESENTATION OF DATA.....	128
4.1 Analysis of data by Financial Tools.....	128
4.2 Analysis of data by Statistical tools.....	144
4.3 Analysis of Hypothesis.....	152
4.3 Major Findings.....	153
CHAPTER V.....	155
SUMMARY, CONCLUSION AND RECOMMENDATION.....	155
5.1 Summary.....	155
5.2 Conclusion.....	155
5.3 Recommendation.....	156

Table of figure

Table 1 Director at present time 2067 ashad.....	93
Table 2 Analysis of Current Ratio.....	129
Table 3 :Analysis of Quick Ratio.....	130
Table 5 : Cash to Current assets ratio.....	133
Table 6 :Cash Turnover Ratio.....	134
Table 7 : Cash flow from operating activities.....	135
Table 8 Cash from investing activities.....	137
Table 9 : Cash from Financing activities.....	139
Table 10 : Actual cash Flow.....	140
Table 11 : Cash Budget and Actual cash.....	142
Table 12 : Revised Cash Budget and actual cash.....	143
Table 13 : Trend analysis.....	144
Table 14 : Correlation Between Cash and Revenue.....	146
Table 15 : Correlation Between cash balance and account receivable.....	149
Table 16 : Table for hypothesis Test.....	152

Chapter – I

Introduction

1.1 Background of the Study

Cash is the oil that lubricates the wheels of business. Without adequate oil machines grind to a halt and a business with inadequate cash will do likewise. However carrying a cash is expensive because cash is non earning assets a firm that hold a cash beyond its minimum requirements lower its earning potential.

Cash Management is a very professional, highly refined activity. We need not to keep idle cash balances to guard against a failure to receive expected payment or to be ready for unexpected outflows.

The primary goal of financial manager should be to maximize the value of firm. The managing cash flow is an extremely important task for financial manager. If firms hold more cash than it needs, the shareholders won't be maximize. So the firms should invest all idle cash in productive assets that are related to highly returnable.

The speed of technological development and convergence of information and communications sector have led to a high investment requirement for the infrastructure development. Infrastructure is a key for economic development and improving quality of life. 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 have 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 people. Telecommunication was introduced with 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.

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."

1.2.1 Introduction of Nepal Telecommunication Corporation

In Nepal, operating any form of telecommunication service dates back to 94 years in B.S. 1970. But formally telecom service was provided mainly after the establishment of MOHAN AKASHWANI in B.S. 2005. Later as per the plan formulated in First National Five year plan (2012-2017); Telecommunication Department was established in B.S.2016. To modernize the telecommunications

services and to expand the services, during third five-year plan (2023-2028), Telecommunication Department was converted into Telecommunications Development Board in B.S.2026. After the enactment of Communications Corporation Act 2028, it was formally established as fully owned Government Corporation called Nepal Telecommunications Corporation in B.S. 2032 for the purpose of providing telecommunications services to Nepalese People. After serving the nation for 29 years with great pride and a sense of accomplishment, Nepal Telecommunication Corporation was transformed into Nepal Doorsanchar Company Limited from Baisakh 1, 2061. Nepal Doorsanchar company Limited is a company registered under the companies Act 2053. However the company is known to the general public by the brand name Nepal Telecom as registered trademark.

Nepal Telecom has always put its endeavours in providing its valued customers a quality service since its inception. To achieve this goal, technologies best meeting the interest of its customers has always been selected. The nationwide reach of the organization, from urban areas to the economically non- viable most remote locations, is the result of all these efforts that makes this organization different from others.

Definitely Nepal Telecom's widespread reach will assist in the socio-economic development of the urban as well as rural areas, as telecommunications is one of the most important infrastructures required for development. Accordingly in the era of globalization, it is felt that milestones and achievements of the past are not adequate enough to catch up with the global trend in the development of telecommunication sector and the growth of telecommunication services in the country will be guided by Technology, Declining equipment prices, market growth due to increase in standard of life and finally by healthy competition. Converting NT from government owned Monopoly Company to private owned, business oriented, customer focused company in a competitive environment, Nepal Telecom invites its all-probable shareholders in the sacred work of nation building.

Nepal Telecom Board established in October 1969 was converted to Nepal Telecommunications Corporation (NTC), 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 NTC. 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 (NTC), 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. 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.

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."

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.

a) Role of Nepal Telecommunication Corporation

Telecommunication is one of the fastest growing industries in the world. Presently, NTC is only telecom operator in Nepal holding total monopoly in the telecom sector and is a fully government owned and controlled organization. In Nepal, there are other means of communication also a number of means of transportation, postal service etc. But there are slower expensive and less convenient. Therefore, telecommunication is one of the quickest, cheapest and scientific means of telecommunication. It brings coordination among different government entities which ultimately promotes administrative efficiency. NTC has played a crucial role for the increase in agricultural production, which is a main source of national income. Telecoms have a major impact on agricultural production by providing information and market condition.

In developing country like Nepal, the role of importance and contribution of telecommunication in the development of country can not be explained. The international telecommunication system contributors are to link the overseas countries in the field of economy as well as politics. It also contributes in the development of tourist industry. Thus the telecommunication

system plays vital role to strengthen the national economy and bring national unity among the national and international people creating a brother hood relationship among the people.

Telecommunication has also contributed a lot for development of social condition of which teaches about the accumulation, exchange and transmission of knowledge between people. So, without communication human society would remain static and not much different from the society of other animal. "The effect of telecommunication on the rural areas and their contribution to rural development are extremely important yet rather difficult to measure".

b) Service Provided by NTC

NTC has been providing several services to the countries people and facilities for transmission of written message, voice communication and variety or other communication. It provides telecommunications services both within the country and overseas. The services provided by NTC are as follows:

1. Basic Telephone Services
2. National Trunk Telephone Services
3. Rural Telecom Services
4. Bureau Fax Services
5. Pay Phone Services
6. Mobile Services
7. Packet Switching Services
8. International Sub-service Trunk Dialling Services
9. Internet Services
10. Inmarsat Mini-M Services
11. Home country Direct Dialling Services
12. Analogue Voice/Data and Telegraph Leased Circuit Services
13. International Telegraph Services
14. Telex Services
15. International Program T.V. Services

c) Milestones Data of NTC

- | | | |
|------|---|---|
| 1913 | - | Establishment of first telephone line in Kathmandu. |
| 1914 | - | Establishment of open wire trunk line from Kathmandu to Raxaul (India). |
| 1935 | - | Installation of 25 lines automatic exchange in palace. |
| 1936 | - | Installation of pen wire trunk line from Kathmandu to Dhankuta. |
| 1950 | - | Establishment of telegraph service. |
| 1950 | - | Introduction of High frequency ratio system (AM) |
| 1950 | - | Establishment of CB telephone exchange (100 lines) in Kathmandu. |

- 1951 - Installation of pen wire trunk line from Kathmandu to Palpa
- 1955 - Distribution of telephone line to general public.
- 1962 - First public telephone line to general public.
- 1964 - Beginning of international telecommunication services using HF Ratio to India and Pakistan.
- 1965 - First automatic exchange in Nepal (1000 lines in Kathmandu).
- 1971 - Introduction of Telex Services.
- 1974 - Micro wave transmission links establishment for internal trunk.
- 1982 - Establishment of standard 'B' type earth station for international circuits.
- 1982 - Establishment of SPC telex exchange.
- 1983 - Establishment of digital telephone exchange.
- 1984 - Commencement of STD service.
- 1987 - Commencement of ISD service.
- 1995 - Installation of optical fiber net work
- 1996 - Conversion of all transmission links to digital transmission Link
- 1996 - Automation of the entire telephone net work.
- 1996 - Independent international Gateway Exchange established.
- 1996 - Introduction of VSAT Services.
- 1997 - Digital link with D.O.T. India through Optical Fiber in Birgunj-Raxual.
- 1998 - Direct Link with Bangladesh.
- 1999 - Launching of GSM Mobile Service.
- 2000 - Launching of Internet Service.
- 2000 - Implementation of SDH Micro Wave Radio.
- 2001 - Launching of Payphone Service.
- 2002 - East West Highway optical fiber project.
- 2003 - GSM Prepaid Service.
- 2004 - Nepal Telecom (Transformation from corporation to Nepal Doorsanchar Company)

d) Ownership of NTC

NTC is full government owned public utility sector enterprises. NTC is administrated by a government appoint board of directors which includes the chairman, who is the secretary of the ministry of information and communications and four voting members.

e) Functions and Duties of Corporation (NTC)

According to communication corporation act and other related documents, the functions and duties of the corporation shall be as follows :

- i) The basic function of NTC is to provide essential nation wide low const reliable and really available telecommunication services to the general public for the overall improvement of national integrity and economic development.
- ii) To promote the industry and commerce of the nation.
- iii) To promote coordination and administrative efficiently.
- iv) To promote the business activities of the corporation.
- v) To endeavour to become a self relevant.
- vi) Under the directory of HMG, to fix the policies of the corporation and to take necessary action for its implementation.
- vii) To improve the work implementation procedures for maintaining a high grade of telecommunication services.

F) Rights of Corporation

The rights of the corporation are as follows:

- i) To do all works which seem to be inevitable and necessary for the fulfilment of the functions and duties of its own?
- ii) To collect fees from the customers.
- iii) To raise loans from national institutions, banks or individuals.
- iv) To open any branch office.
- v) To use special stamps for its own purpose.

g) Service Delivery Procedure of NTC

Consumer seeking services from telecommunication have to apply for a new line connection specifying the kind of services required. The incoming applications are checked for processing and the name list of consumers of finding who have applied for new line connection is circulated and noticed out. Consumers on finding their name in the list become subscribers and come to contact to telecommunication offices for new line connection by filling the application from referring their name, location, registered number of old application and other required documents like citizenship, certificates including other necessary documents. Then the service order is relayed to the engineer who makes detail survey and feasibility studies live connection cost estimate assessment of the available points at that locality and listing of the various materials required for installation. There is a survey from which has not to be field and the engineer has to make timely installation report after identifying the line number, telephone number, coble number etc. Then the cost information is passed on to the consumer who has to make the necessary deposits and pay installation charge. Technician connects the telephone line after these pre-requisites are fulfilled. The information about the connection of telephone lines are disseminated to maintenance control centre for repairs and operations, inquiry section and telephone directory section and account section for the

purpose of maintaining the customer ledger and so on. The information will then flow to the billing section the verifies, prepares and identifies the customers. Make necessary adjustments again dispatch this information to the account section which gives the receipts prepared and telephone care number to customers.¹

h) Board of Directors

NTC has managing director under the supervision and control of board of director. The composition of board of director is as follows.

Chairman

Secretary, Ministry of Information and Communication

Member

Director, General Ministry of Finance (Dep. of tax)

Member

General Manager of NTC

Member

Director, Katmandu Regional Directorate, NTC

Member

Manager, Cable Networking Planning, NTC

Secretary

Deputy General Manager (Intes Audit and Inspection) NTC.

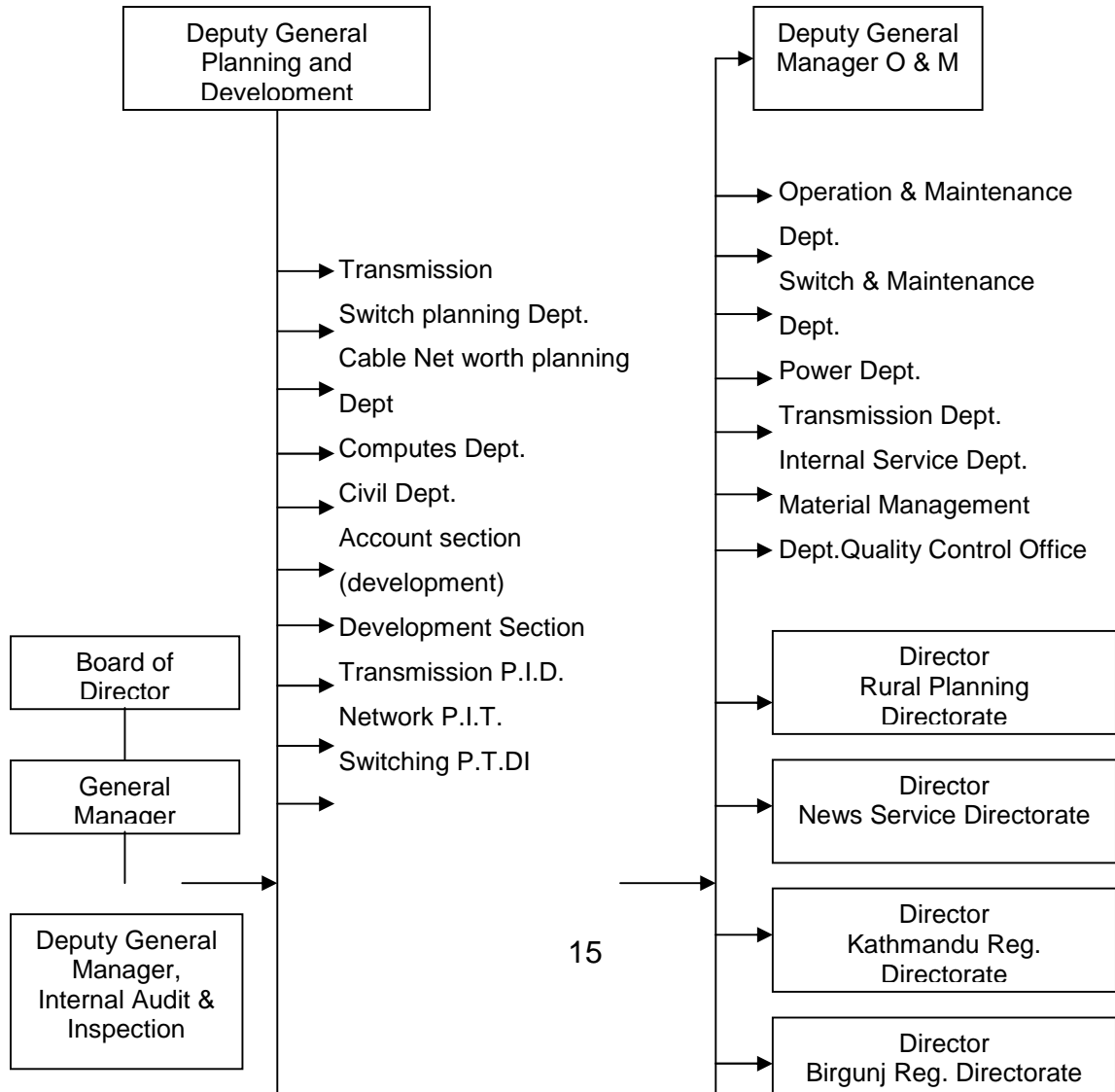
This is the actual name of the of different director at present time 2067 ashad

Table 1 Director at present time 2067 ashad

NEPAL TELECOM Board of Directors		
MANAGING DIRECTOR Mr. Amarnath Singh		
CORPORATE OFFICE	FIELD OFFICE	REGIONAL DIRECTORATE
DMD - Finance Mr. Rameshwar Karmacharya	Director IT Directorate Mr. Lok Raj Sharma	Director - CRD, Birgunj Mr. Dev Narayan Yadav
DMD - Business Mr. Vishwanath Goel	Director Telecom Training Center Mr. Nara Narayan Manandhar	Director - ERD, Biratnagar Mr. Shyam Sunder Yadav
DMD - Development Mr. Kanhaiya Lal Gupta		Director - KRD, Sundhara Mr. Madhusudan Karmacharya



Organization Chart



1.3 Statement of the Problem

Nepal Telecom is most popular corporation in communication area. It is that organization which earns profit and pays highest tax to the government. Its collection of cash is too high than. This study focuses to know whether this kind of organization is managing cash properly or not? NTC is beating other corporation due to cash management or not? This study focuses to know Is cash management is the key factor for success or the corporation or not? For these Reasons this topic is chosen.

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."

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. This study will try to answer following questions of cash management.

- a. What is the liquidity and cash position of NTC?
- b. What is the position of cash inflow and outflow of NTC?

- c. What is the relationship between liquidity and total revenue and liquidity and profitability?
- d. What is the relationship between budgeted cash & Actual Cash in NTC ?
- e. Which technique of cash collection is using by NTC ?

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 NTC
- b. To review cash flow from operating, financing and investing activities.
- c. To study the relationship of approved cash budget & Actual cash
- d. To study the cash collection techniques of NTC
- e. To analyse the cash collection and disbursement of NTC
- f. To study the relationship of cash with total revenue and account receivable.
- g. To provide NTC suggestions and 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 organisation prominently 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 NTC provides crucial information about the cash management system. Management of NTC 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 study not only

helps management of NTC Limited but also helps 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 NTC. Comprehensive study of cash management is not possible in this thesis due to its deadline of completion and availability of data and information.

The study is fully dependent on the information available on the webpage of NTC. Due to its internal rules it doesn't want to disclose its full information so that they don't want to give more information from the office side. That's why it is very much difficult to prepare the thesis. Another part is that they will disclose their yearly data of five years. i.e. working period of one management committee. The data will be of five year period. So the limitations of the study are as follows:

- a. The study is totally based on secondary data collected from NTC.
- b. The study covers the analysis of five years (2060/61 to 2064/65) i.e. one working period of management committee
- c. The accuracy of this study is based on the data available from NTC website i.e. www.ntc.net.np and various published documents of the organisation.
- d. Only financial and statistical tools are used for analysis of data.
- e. This study is focus only on NTC

1.7 Organization 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 NTC, statement of the problem, objective of the study, significance of the study and limitation of the study.

Review of literature deals with the literature review relating to cash management i.e. books, journal and thesis.

In third chapter, the research methodology employed for the study has been described. It includes introduction, research design, data collection and sources, data processing procedure and tabulation of financial tools and techniques.

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

At last, the summary, major findings, issue, constraints and some recommendation have been presented in the fifth chapter. A bibliography and appendix have also been included in the last part of the study.

CHAPTER II

REVIEW OF LITERATURE

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)

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.

- i. Mail float(Net)
- ii. Processing float
- iii. Transit float
- iv. 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 collected. 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 reveal 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 result 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 can not 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 asks 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 is 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.”

2.1.4 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.”

2.1.5 Cash Management Models

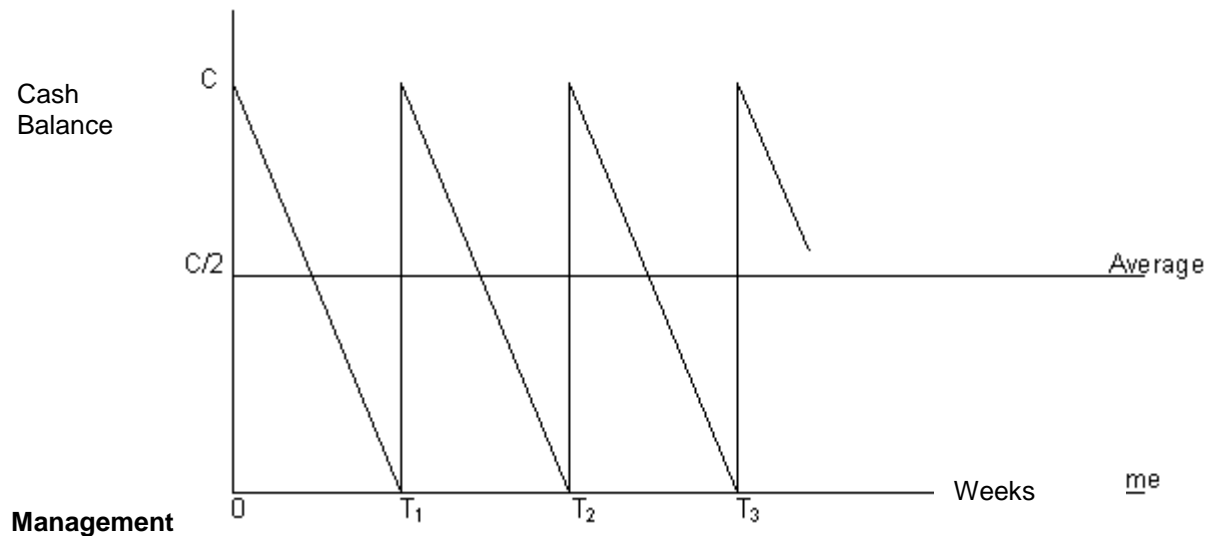
1. Baumol Model

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:

Baumol's Model of Cash Management

Figure 1 Baumol's Model of Cash

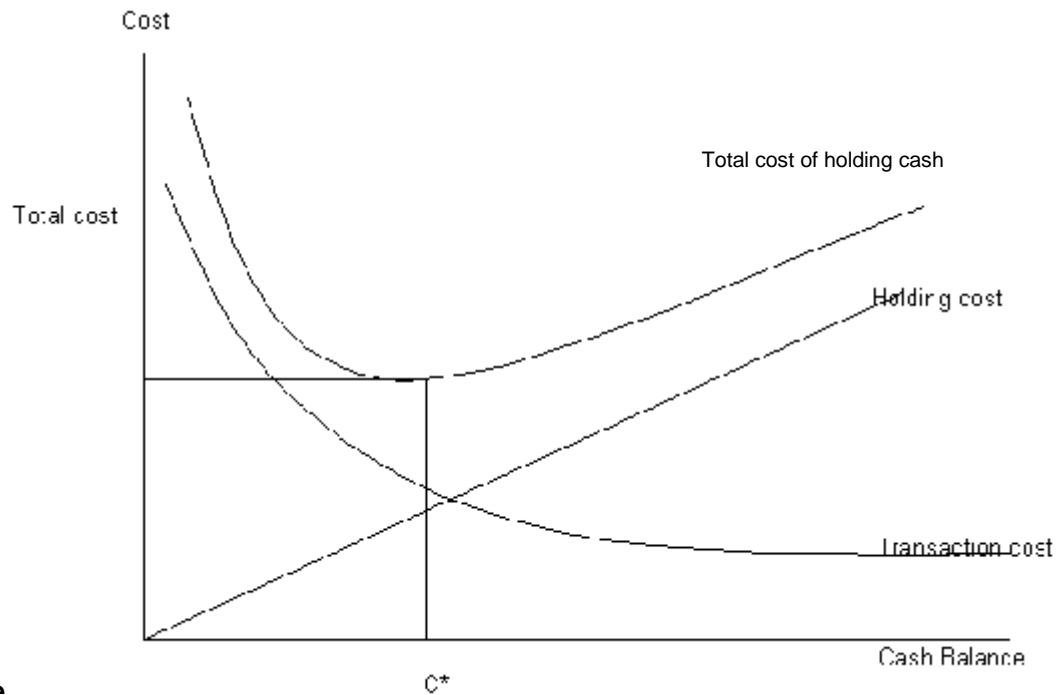


Unlike the case of inventory purchases, the cash transfer does not take time. Therefore, it is normally not required to maintain safety stock of cash.

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.

Optimum Cash Balance

Figure 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.

2.

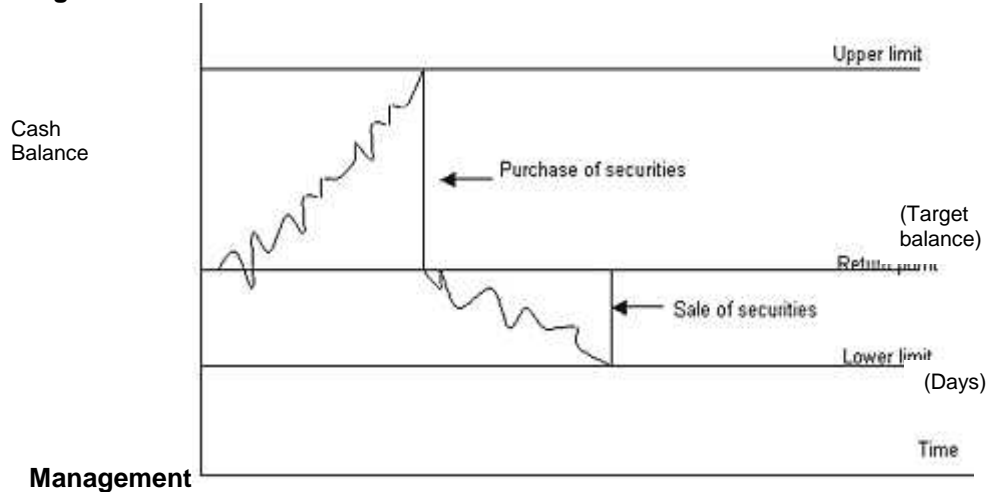
Miller-Orr Model

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

Figure 3 Miller-Orr Model of Cash



Mathematically, the model is set as follows

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

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

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

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

$$C = \frac{4Z \Gamma L}{3}$$

Where

Z = target cash balance

F = Fixed transaction cost per transaction

I = daily rate of opportunity cost or daily interest rate

S² = variance of net daily cash flows

U = Upper limit

L = Lower limit

3. Orgler's Model

According to this model, an optimal cash management strategy can be determined through the use of multiple linear programming model. 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 coefficient, while the sale of those securities would incur conversion costs and have a negative coefficient.

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:

$$\text{Maximise profit} = a_1s_1 + a_2x_2$$

Subject to

$$b_1x_1 \quad \text{production}$$

$$b_2x_2 \quad \text{constraints}$$

$$C_1x_1 + C_2x_2 \quad \text{Cash available constraint}$$

$$8_1x_1 + 8_2x_2 > \quad \text{Currents assets requirement constraint}$$

$$X_i \quad 0_i = 1, n \quad \text{non-negativity constraint}$$

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.

2.2 Review of Related Study

Cash management is regarded as an important part of working capital management, the thrust for a separate theory in this area was attempted by many economists, 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) introduced 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 Seldon, 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 year end cash holdings. According to him, the cost of holding money is much less for large firms than 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 Joseph C Schabacker (1960) University of Wisconsin. Several significant investigations have been conducted to explain the causes of failure among small businesses. 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 may 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 deduced 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 than 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 investing surplus in marketable securities. Those which did failed to consider the cost of administering such investments.
- v. 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.
- vi. 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) conducted the study on Cash management of NTC 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 NTC, to examine the existing internal control policy in NTC 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 NTC 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 as follows:

- i. The lack of accurate and proper sales forecast is one of the important factors 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 studied 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 overall 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 funds committed to cash balance and assess the credit policy adopted in Nepalese commercial bank and their impact and relationship to each other.

Her findings mainly revealed following things:

- i) 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 NTC's cash management. He has mainly done research on shortage or excess of cash in the NTC. Also he tried to analyze the gap between budgeted and actual sources of cash.

His major findings are as follows:

) 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.

2.4 Research Gap

Most of the dissertation related to cash management has been reviewed. The previous researchers had conducted their research on NTC only using financial tools. But I have tried to analyse the effectiveness of Cash management of NTC using both financial as well as statistical tools.

So, this study will be fruitful to those people who have invested in NTC or who are interested to invest in NTC in future to know about cash position and cash management of it.

Previous researchers focus only on the following points

-) The 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.
-) It is 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.
-) 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

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. It is necessary for the researcher to know not only the research methods but also consider the logic behind the methods we used in the contest of your research study and explain why we are using a particular method or technique and why we are not using others so that research results are capable

of being evaluated either by the researcher himself or by others. The study of research methodology gives the student the necessary training in gathering materials and arranging them, participating in the field work which required, and also training in techniques for collection of data appropriate to particular problems, in the use of statistics, questionnaires and controlled experimentation and in recording evidence, sorting it out and interpreting it.

This chapter tries to focus on different research methods, frameworks, tools and conditions that will be used while conducting the study. Following are the major content of research methodology in course of this dissertation.

3.2 Research Hypothesis

Quantities statement about population parameter is called a hypothesis. It is an assumption that is made about population parameter and finally its validity is tested. The act of verification involves testing the validity of such assumption which whom undertaken on the basis of sample evidence is called statistical hypothesis. The hypothesis formulation for this study is as follows:

1) Is there any significance correlation coefficient between cash balance and revenue ?

Null Hypothesis;

H₀: $\rho = 0$, i.e. population correlation coefficient is zero. In other word cash balance and revenue of NTC are uncorrelated.

Alternative Hypothesis;

H₁: $\rho \neq 0$, The variables in population (cash balance & revenue) are correlated.

2) Is there any significance correlation coefficient between cash balance and Account Receivable ?

Null Hypothesis;

H₀: $\rho = 0$, i.e. population correlation coefficient is zero which means that the variables in population i.e. cash balance and Account Receivable of NTC are not correlated.

Alternative Hypothesis;

H1:p 0, The cash balance & Account Receivable are correlated.

3.3 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 NTC. 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.

3.4 Nature and Sources of Data

For any research work, information and data plays vital role. Thus it is one of the major tasks of research work. This study is based upon the secondary data. Data have 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 of related topic.
- d. Websites of related topic.

3.5 Method of Data Analysis

To find out the true picture of cash management of NTC, 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 predominately used to proponents of fundamental analysis.

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.

$$\text{Current ratio} = \frac{\text{CurrentAssets}}{\text{CurrentLiabilities}}$$

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.

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.

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

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.

$$\text{Absolute Liquidity Ratio} = \frac{\text{Cash} \Gamma \text{Bank} \Gamma \text{Marketable securities}}{\text{CurrentLiabilities}}$$

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.

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

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.

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

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 NTC, 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, PCC card 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.

$$Y_c = a + bx$$

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 NTC, 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.

$$r = \frac{\sum uv}{\sqrt{\sum u^2} \times \sqrt{\sum v^2}}$$

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.

$$SD = \sqrt{\frac{\sum u^2}{N}}$$

$$SD = \sqrt{\frac{\sum v^2}{N}}$$

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 NTC, simple regression analysis is used to locate the relationship between total revenue on cash balance and net profit on cash balance.

CHAPTER IV

ANALYSIS AND PRESENTATION OF DATA

The basis objective of this study as stated in chapter one is to have true insight into cash management of NTC. For this purpose, most recent published financial statements and annual budget reports has been used. The data that are collected are 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'll look 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.

Stores & spare, sundry debtors, interest accrued, prepaid Exp/ Loans/ Adv. LC, Advances/ Loans to Employees, Inter-branch Balance, Bank Balance & Cash is included in current assets

Sundry creditors, interest accrued & due, others liabilities, deposit & advances and provisions is included in current liability.

Formula:

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

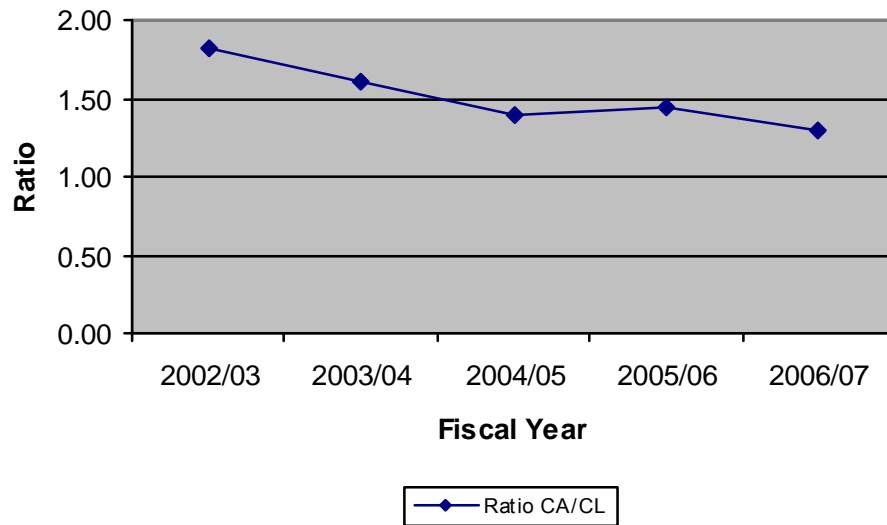
Analysis of Current Ratio of NTC

Table 2 Analysis of Current Ratio

Fiscal Year	Total Current Assets Rs. ('000')	Total Current Liabilities Rs. ('000')	Ratio CA/CL
2002/03	18424147	10137347	1.82
2003/04	20213763	12640965	1.60
2004/05	20598353	14722678	1.40
2005/06	22526522	15665379	1.44
2006/07	28648636	22199654	1.29
		Average	1.51

Figure 4 Current Ratio

Figure No. 4.1: Figure showing Current Ratio



The rule of thumb says that the current ratio should be at least 2, that is the current assets should meet current liabilities at least twice. Let's see what does the calculated ratio in table 1 tells us. In 2002/03, the NTC had 1.82 rupees worth of current assets for every rupee of liabilities. Similarly in the year 2004/05, this ratio was decreased and available current asset was 1.40 rupee for ever rupee of liability. Decreasing trend was shown on liquidity in this study period with slight increment in ratio in the year 2005/06, which is 1.44. The ratio further decreased and became 1.29 in the year 2006/07.

Looking after theoretical aspect, NTC could not fully support its short-term debt from its currents assets as rule says that the current ratio should be at least 2. But whether or not, a specific ratio is satisfactory depends on the nature of the business and the characteristics of its current assets and liabilities. The minimum acceptable current ratio is obviously 1:1, but that relationship is usually playing it too close for comfort.

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.

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

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

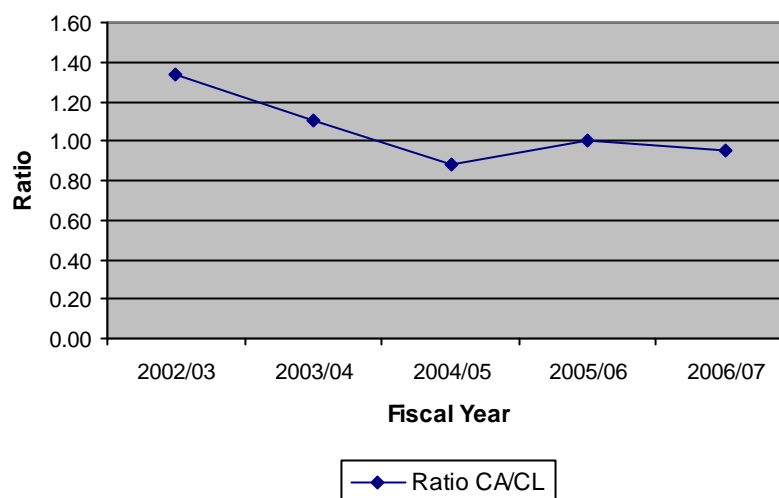
Analysis of Quick Ratio of NTC

Table 3 : Analysis of Quick Ratio

Fiscal Year	Total Quick Assets Rs. ('000')	Total Current Liabilities Rs. ('000')	Ratio CA/CL
2002/03	13571008	10137347	1.34
2003/04	13946011	12640965	1.10
2004/05	12958166	14722678	0.88
2005/06	15768952	15665379	1.01
2006/07	21176085	22199654	0.95
		Average	1.06

Figure 5 : Quick Ratio

Figure No.4.2: Figure Showing Quick Ratio



The table 4.2 shows the position of highly liquid assets to meet the current liabilities of the NTC. 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 2002/03, current ratio was 1.34 which slowly decreased to 1.10 in the year 2003/04. Decrease in trend still continued and in the year 2004/05 quick ratio become 0.88. Although ratio was in decreasing trend but quick assets were enough to meet its current liabilities until 2003/04. Till this period NTC was maintaining minimum generally acceptable ratio i.e. 1:1. But in the year 2004/05, ratio drastically decreased to 0.88 meaning that NTC got weaker liquidity position than it had before. But the year 2005/06 showed good performance in liquidity maintenance, increasing current ratio to 1.01

4.1.2 Cash Position Analysis

a) Absolute Cash Ratio

$$\text{Absolute cash ratio} = \frac{\text{Cash \& equivalent \& Marketable Securities}}{\text{Current Liabilities}}$$

Table No: 4.3: Analysis of Absolute Cash Ratio of NTC
 Rs. ('000')
Table 4 : Analysis of Absolute Cash Ratio

Fiscal Year	Cash + Bank Balances + Treasury Bill	Current Liabilities	Ratio
2002/03	11008439	10137347	1.09
2003/04	11755643	12640965	0.93
2004/05	9574501	14722678	0.65
2005/06	12021625	15665379	0.77
2006/07	16165920	22199654	0.73
		Average	0.83

Figure 6 : Absolute cash ratio

Figure No. 4.3: Figure Showing Absolute Cash Ratio

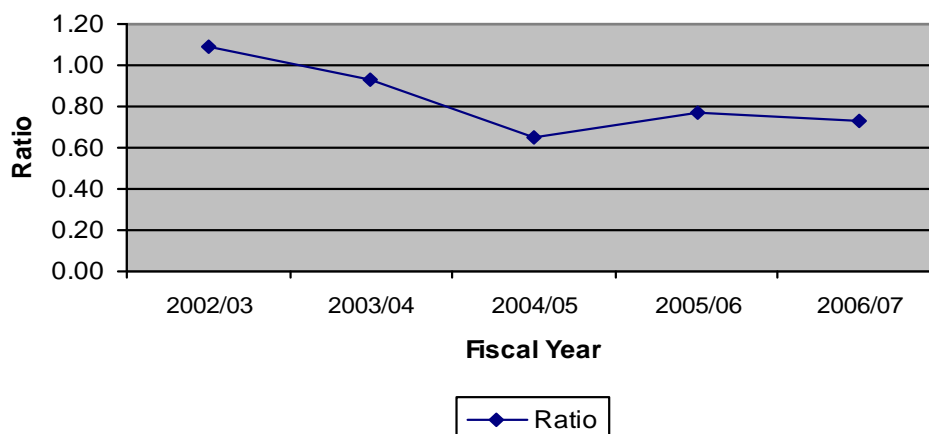


Table No 4.3 shows the absolute cash ratio of NTC over the study period. In the year 2002/03 absolute cash ratio of NTC was 1.09 which shows that company was better able to cover its obligation to creditors. This ratio has decreased in the year 2003/04 by 16%. There is to be noted that in the study period NTC did not held any marketable securities. In the year after 2003/04, absolute cash ratio started to decrease and became 0.65 in the year 2004/05. After 2004/05 ratio slightly increase and became 0.77 and 0.73 in the year 2005/06 and 2006/07 respectively. We can not say the ratio which NTC maintained in the study period was good or bad or enough as there is no industry standard and no rule of thumb.

b) Cash to Current Assets Ratio

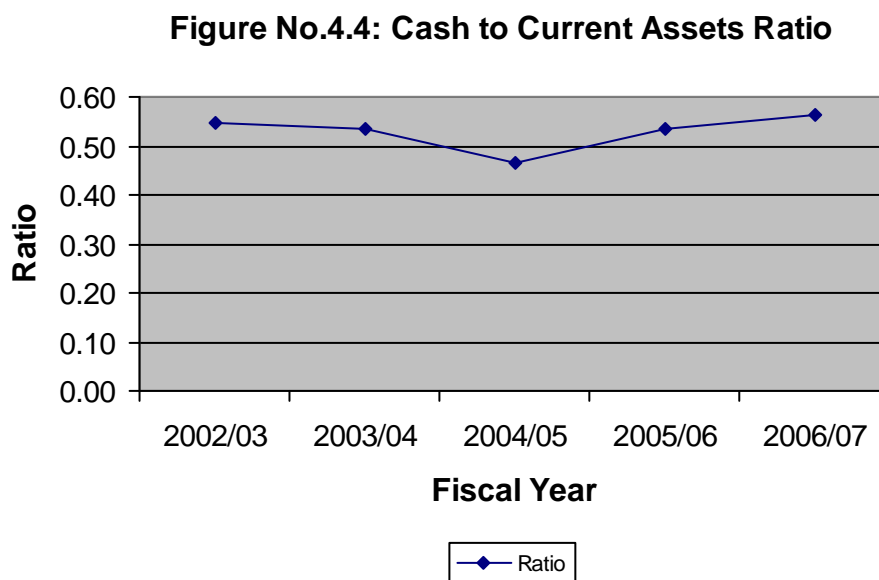
Analysis of Cash to Current Assets Ratio of NTC

Table 5 : Cash to Current assets ratio

Fiscal Year	(Cash + Bank) Balance Rs. ('000')	Current Assets Rs. ('000')	Ratio
2002/03	10097738	18424147	0.55
2003/04	10780669	20213763	0.53
2004/05	9574501	20598353	0.46
2005/06	12021625	22526522	0.53

2006/07	16165920	28648636	0.56
		Average	0.53

Figure 7: Cash to Current asset ratio



During 1st year of study period cash portion of current assets was more than 50% i.e. cash to current assets ratio was 0.54. The ratio decreased in the year 2003/04 and became 0.53. It further decreased in the year 2004/05 and cash portion of current assets became less than 50% i.e. ratio became 0.46 in the year 2004/05. After this year, this ratio gradually increased and became 0.53 in the year 2005/06 and 0.56 in the year 2006/07. In this type of company, there is continues cash inflow and out flow because of which cash to current assets ratio keeps on fluctuating. But it makes no difference to company.

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.

Statement showing Cash Turnover Ratio

Table 6 :Cash Turnover Ratio

Fiscal Year	Total Revenue Rs. ('000')	Cash + Bank Balances Rs. ('000')	Cash Turnover
2002/03	7208087	10097738	0.71
2003/04	8312244	10780669	0.77
2004/05	8584144	9574501	0.90
2005/06	10413655	12021625	0.87
2006/07	14787475	16165920	0.91
		Average	0.83

Figure 8: Cash Turnover Ratio

Figure No.4.5: Figure showing Cash Turnover Ratio

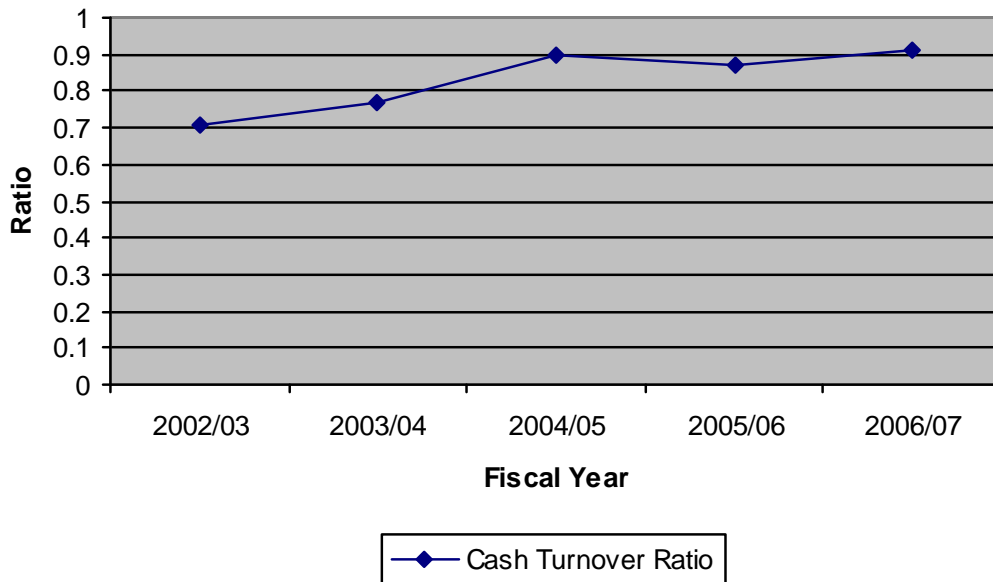


Table No 4.5 shows cash turnover ratio of NTC for the period between 2002/03 to 2006/07. It is found that cash turn over ratio was in increasing trend starting from 0.71 in year 2002/03, 0.87 and 0.91 in the year 2005/06

and 2006/07 respectively. In the study period NTC was able to utilize its cash in generating sales.

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.” (Kishore, 2003)

Table No. 4.6: Calculation of Cash Flow from Operating Activities for the Year Ended 2002/03 to 2006/07

Source: Annual Report of NTC (2002-2008)

Table 7 : Cash flow from operating activities

	2002/03	2003/04	2004/05	2005/06	2006/07
Particulars	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.
Cash Flow from Operating Activities					
<i>Net Operating profit before tax</i>	4093118353	4550667734	4921528988	6843726817	11298722582
Adjustment:					
Depreciation	940224526	1027922573	1050485813	1196136319	1498861408
Deffered Expenses	34435417	32770817	40817764	40029002	71161566
Foreign Exchange Gain/loss	162000231	28442774	251124356	-280005092	-86939175
Provision for staff bonus and incentive	301638899	309211605	281711261	322040673	620118387
Provision for Pension	62526226	234993917	312606943	241389693	331238763
Interest on loan		3291470	696200	1107992	10303949
Bad debts	662011				
Provision for Bad debts	21072345	225979927			
Fixed asset written off	2972544	33932265	1224800		
Income from investment & bank deposit	-419546350	-490270207	-463827650	-596837682	-822066146
Special charge	124371534	7004544			

Expenses on loss of goods	42084932	163489179		8530000	
Royalty	405266600	126574376	491301830	591807155	1007248557
Provision for earned leave		37602296	24236908	65980439	87041391
Operating profit before working capital change	5770827268	6291613270	6911907213	8433905316	14015691282
Adjustment for working capital change					
Increase in account receivable	-562197346	135354808	-157001491	-273552303	-176215868
Increase in stock	82447002	50620115	-54606668	-34258671	-39187088
Increase/ Decrease in interest accrued	-7126509	-18066728	5457834	2463849	-36247684
Increase in Advance	-732608582	-247063386	221484011	382510564	-222017727
Increase in Advance-Tax		-1315698127	-1602051292	-1684603393	-3171335436
Branch Account (Ad)	-12437486	12182199	-4041036	2798001	-400228
Increase in payables	684847704	332544285	226452780	618496246	1225052666
Increase in Provision	219326976				
Payment of interest/Adjustment				-2335181	-10303949
Payment of Royalty				-370641219	-1003349005
Payment of Earned leave				-22011777	-28156853
Payment of Pension				-30048819	-47309251
Gratuity Received				8251	351
Pymt of last year dividend, bonus, incentive tax etc	-1372145408	-418560065	-878193785	-301638899	-281711261
Last year adjustment		-48339283	158089940	1268656	-102479633
Working Capital Changes	-1699893649	-1517026182	-2084409707	-1711544695	-3893660966
(1+2)Net cash flow from Operating Activities (a)	4070933619	4774587088	4,827,497,506	6722360621	10122030316

Figure 9 : Cash from operating activities

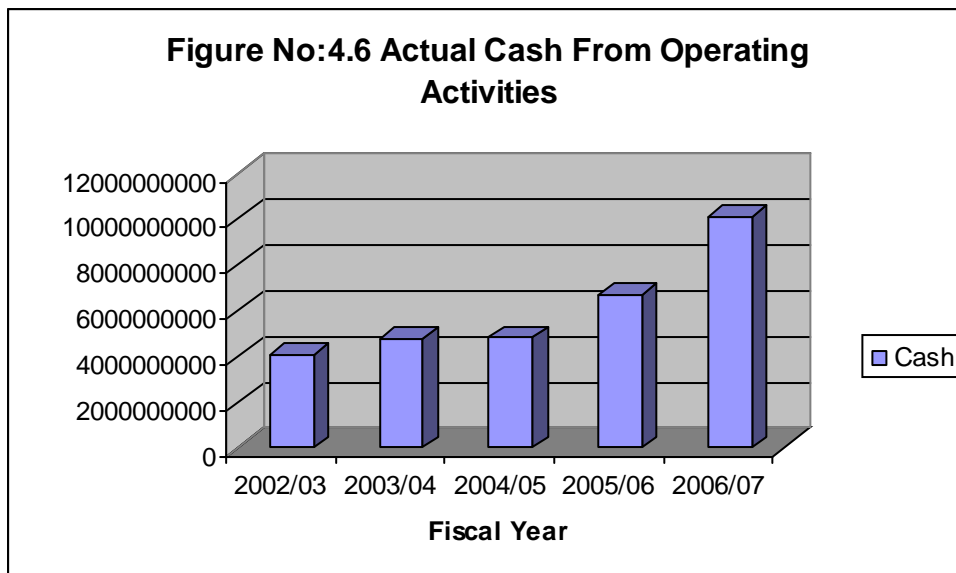


Table No 4.6 represents the trend of net cash flow from operating major items. Operating cash flow, often referred to as working capital, is the cash flow

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, gratuity and pension, 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. 4093118358, 4550667734, 4921528988, 6843726817 and 11298722582 for F/Y 2002/03 to 2006/07 respectively.

From above analysis, it can be said that amount of operating profit before change in working capital is in increasing trend for the study period. It is Rs. 5770827268 1 in F/Y 2002/03 and reached to Rs. 14015691282 in F/Y 2006/07.

Adjustment of working capital includes increase in A/R, increase in stock, increase / decrease in interest accrued, increase in advance, branch account (adj), 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. 4070933619 to Rs. 10122030316. 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.

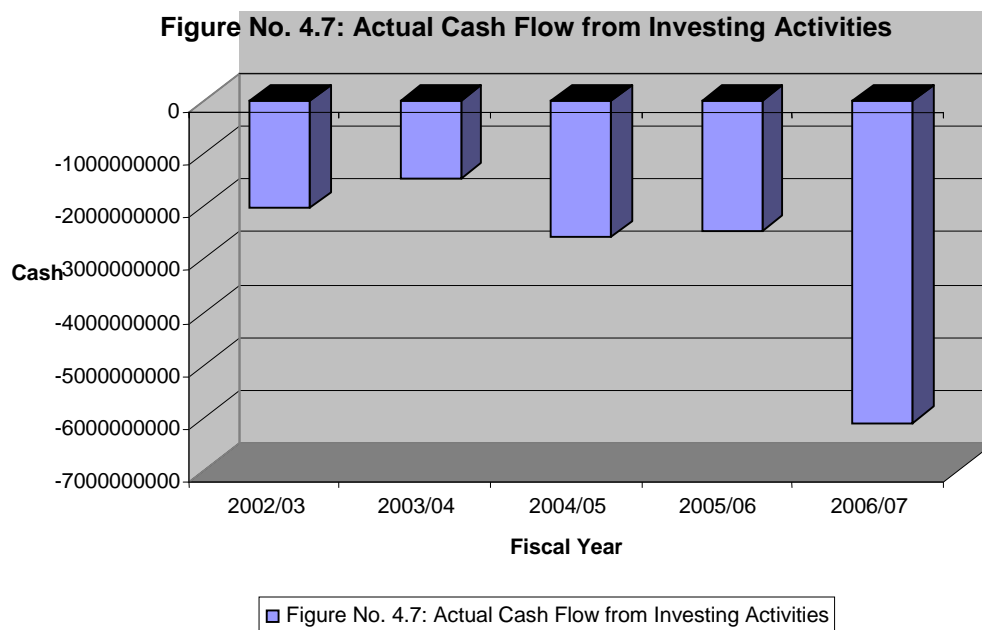
Similarly, the results of cash flow from investing activities are presented in given below on table.

Calculation of cash flow from investing activities for the Year ended 2002/06 to 2006/07

Table 8 Cash from investing activities

	2002/03	2003/04	2004/05	2005/06	2006/07
Particulars	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.

Cash Flow from Investing Activities					
Purchase of Fixed Assets	-1768641894	-1549122679	-1997745812	-2243645653	-3048075299
Purchase of Investment (Decrease in CWIP)	-976527465	-41500006	-1075339893	15787272	-382629316
Increase in deferred expenses		-5320767	-42097104	-34287106	-3242822
Increase in Investment		-383816890	55824025	-818214722	-3486326383
Sale of Investment	282500000				
Income from investment & bank deposit	419546350	490270207	463827650	596837682	822066146
Net cash flow from Investing Activities (b)	-2043123009	-1489490135	-2595531134	-2483522527	-6098207674



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, or other sources and used outside of normal operations.

Cash flow from financing activities was also in increasing trend except for the year 2003/04 which was very low than other study period. CFIA(cash from investing activities) was negative through out the study period which shows that company has purchased more assets and invested in fixed assets. CFIA has become fluctuating in the study period but it has drastically increased in the year 2006/07. This was because NTC has spent huge money in its new investment like installation of towers.

Table No. 4.8: Calculation of cash flow from Financing Activities for the Year ended 2002/03 to 2006/07

Table 9 : Cash from Financing activities

Particulars	2002/03 Amt. in Rs.	2003/04 Amt. in Rs.	2004/05 Amt. in Rs.	2005/06 Amt. in Rs.	2006/07 Amt. in Rs.
Cash Flow from Financing Activities					
Increase in Equity Share Capital					
Long term Borrowing	233906064				
Repayment of long term loan	-300116190				
Receipt in long term debt		11249585	24238654		
Pymt of long term debt		-233780333	-11249585	-24238654	-1191680000
Pymt of dividend		-496814035	-300000000	-433510216	-1499500000
Pymt of last year dividend		-92395927			
Repayment of retained earning to Nepal Govt		-1000000000	-2,900,000,000	-1611651503	
Receipt of Share Capital		5000000			
Capital Reserve Adjusted to retained earnings				-2318742	
Net cash flow from Financing Activities ©	(66,210,126)	(1,109,541,895)	(3,187,010,931)	(2,071,719,115)	(2,691,180,000)

Figure 10 Cash flow from financing activities

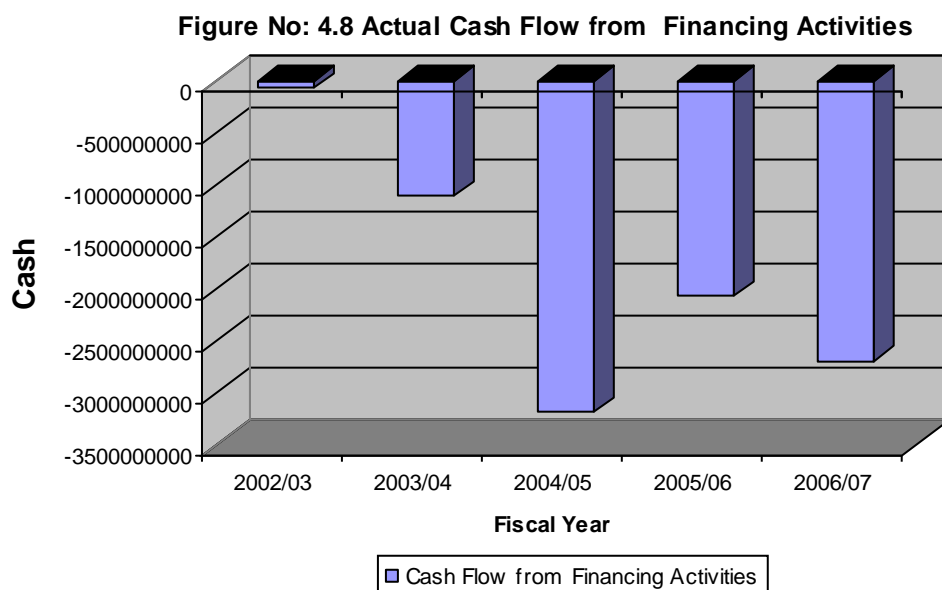


Table no 4.8 shows cash flow from financing activities. Like NTC CFIA, its CFFA also had negative cash flow. This means that company was paying its long term liabilities. There was drastic increment in CFFA in the year 2003/04. It was because payment of long term debt, payment of investment and repayment of retained earning to Nepal Govt was 0 in the year 2002/03 which increased to 2 million, 4million and 1 billion respectively in the year 2003/04. During the study period, CFFA was highest in the year 2004/05 which was because of repayment of retained earning to Nepal Govt which was 2 billion.

Company was paying back its loan and investing its fund simultaneously which become possible because of retained earning.

Table No. 4.9: Calculation of actual cash flow for the Year ended 2002/03 to 2006/07

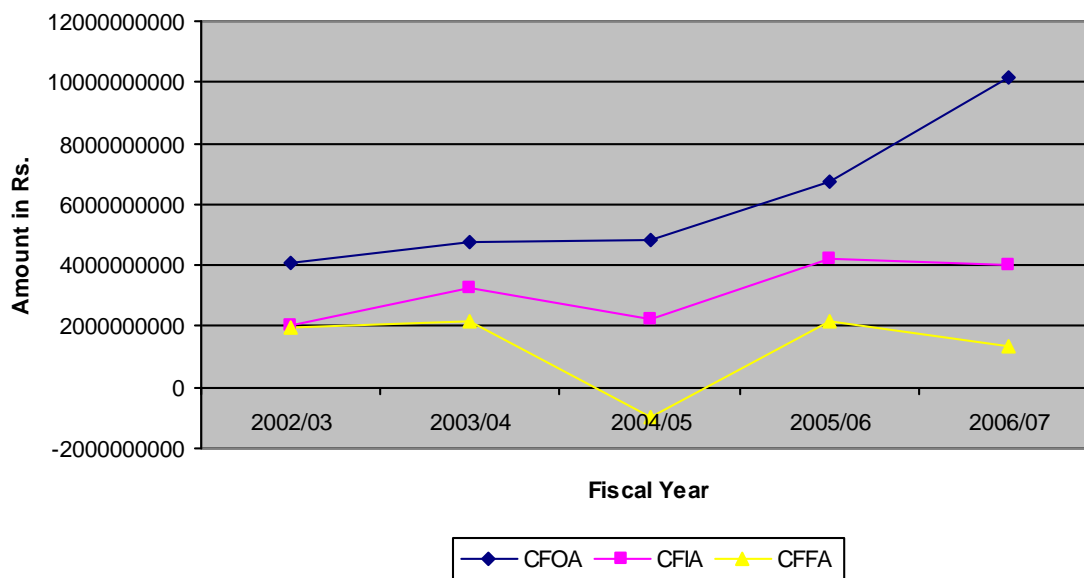
S

Table 10 : Actual cash Flow

Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
CFOA	4070933619	4774587088	4827497506	6722360621	10122030316
CFIA	-	-	-	-	-
	2,043,123,009	1,489,490,135	2,595,531,134	2,483,522,527	- 6,098,207,674
CFFA	-66210126	-	-3187010931	-2071719115	-2691180000
Net increment in cash (a) + (b) + ©	2017599085	9578049	-955044559	2167118979	1332642642
Cash at the beginning of the year	8242138736	10548112205	10780669711	9574500796	14746337952
Foreign Exchange Adjustment Gain/(Loss)	-162000231	222979457	-251124356	280005092	86939175
Cash at the end of the year (I + ii + iii)	10,097,737,590	10,780,669,711	9,574,500,796	12,021,624,867	16,165,919,769

Figure 11 : Actual cash flow

Figure No. 4.9 Trend showing Cash Flow position from Various Activites



The table 4.9 indicates that net cash flow from operating activities is in increasing trend. Similarly cash flow from financing activities is also in increasing trend. This however is not in the case of cash flow from investment activities. There is erratic fluctuation in the CFIA. 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 fluctuating. 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 but it did not perfectly followed cash flow management of avoiding extended cash shortage.

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')

Table 11 : Cash Budget and Actual cash

Fiscal Year	Approved cash Budget	Actual cash	Deviation	% Change
2002/03	5176317	10097737	4921420	48.74
2003/04	7375201	12417486	5042285	40.61
2004/05	5936374	9574500	3638126	38.00
2005/06	3399304	12021625	8622321	71.72
2006/07	6590307	14746338	8156031	55.31

Figure 12 : actual cash budget

Figure No: 4.10 Trend Line showing percentage change in Approved and Actual Cash Budget

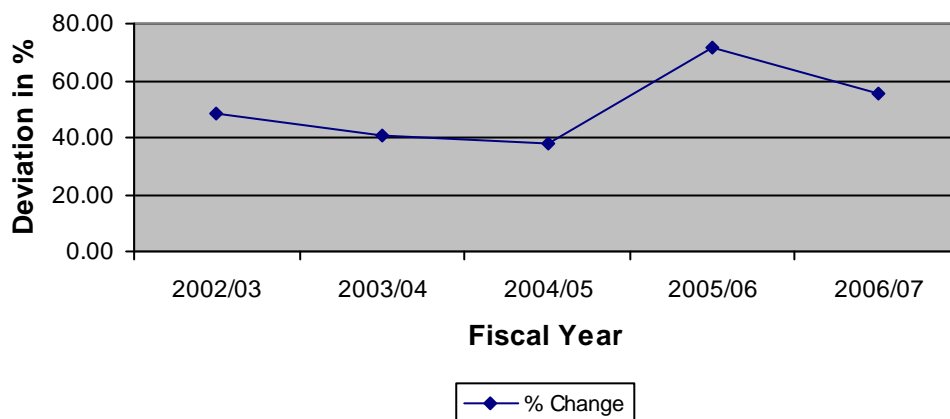


Table 4.10 shows the approved cash budget and actual cash of NTC over the study period. Analysis showed that actual cash balance is higher than approved budget which means that budget has not been properly implemented. Highest deviation is found in the year 2005/06 which was due to improper planning. Overall cash balance of NTC fluctuated a lot during study period.

4.1.5.2 Revised Cash Budget and Actual Cash

Table No. 4.11: Statement Showing Revised Cash Budget and Actual Cash

Rs. ('000')

Table 12 : Revised Cash Budget and actual cash

Fiscal Year	Revised Budget	Actual	Deviation	% Change
2002/03	9392113	10097737	705624	6.99
2003/04	10829362	12417486	1588124	12.79
2004/05	10655130	9574500	-1080630	-11.29
2005/06	8195242	12021625	3826383	31.83
2006/07	11030579	14746338	3715759	25.20

Figure 13 : Revised Cash budget and actual cash

Figure No: 4.11 Trend Line showing percentage change in Revised Cash Budget and Actual Cash

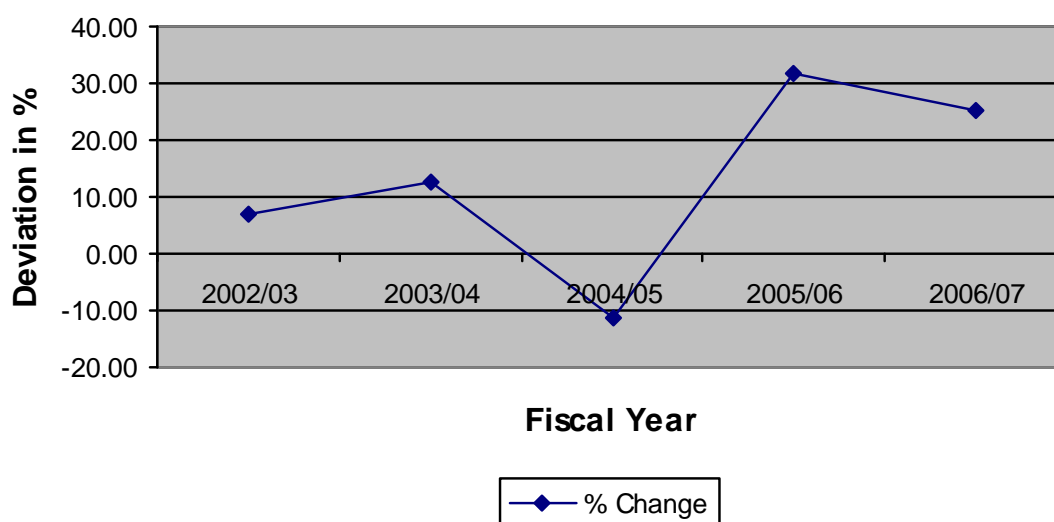


Table 4.11 shows revised and actual cash budget of NTC for the period 2002-2008. Like approved budget, this budget also has deviation but deviation is smaller. NTC revise its budget in its last quarter. In the study period actual cash balance is higher than revised budget except for the year 2004/05.

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 NTC by Least Square Method

Source: Audited Balance Sheet of NTC (2002-2008)

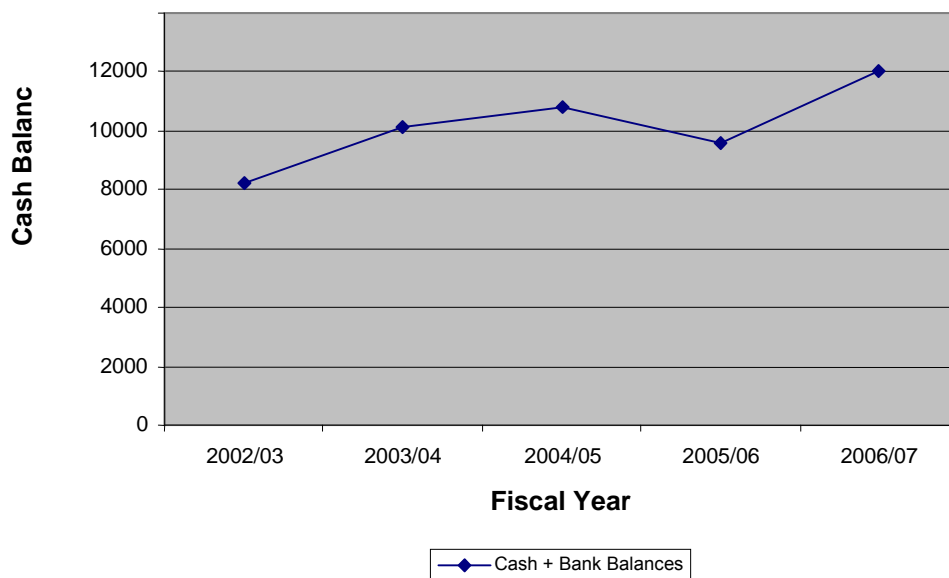
Rs. ('000000')

Table 13 : Trend analysis

Fiscal Year (x)	Cash/Balance Balance (y)	x	x ²	xy
-----------------	--------------------------	---	----------------	----

2002/03	10097	-2	4	-16484
2003/04	10780	-1	1	-10087
2004/05	9574	0	0	0
2005/06	12021	1	1	9574
2006/07	16165	2	4	24042
	$\Sigma y = 58637$	0	$\Sigma x^2 = 10$	$\Sigma xy = 13377$

Figure No: 4.12 Trend Line showing Cash Balance



e

X= Time

Y= Cash Balance

N= Number of observation

Straight Line trend (Y_c) = a + bx

$$a = \frac{\Sigma y}{N} = \frac{58637}{5} = 11727.4$$

$$b = \frac{\sum xy}{N} = \frac{13377}{10} = 2675.4$$

$$(Y_c) = 11727.4 + 2675.4x$$

This trend line shows the positive figure of cash balance for future. The annual rate of increment of cash balance is seemed to be $2675.4 \times 100000 = 267540000$.

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 modeling 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 Telecomm

Correlation (r) Between Cash Balance and Revenue

Rs.('000000)

Table 14 : Correlation Between Cash and Revenue

Year	Cash Balance (x)	Revenue (y)	u=x- 11727.4	v=y- 10261	U ²	V ²	uv
2002/03	10097	7209	-1630.4	-3052	2658204.16	9314704	4975980.8
2003/04	10780	8312	-947.4	-1949	897566.76	3798601	1846482.6
2004/05	9574	8584	2153.4	-1677	4637131.56	2812329	36112513.8
2005/06	12021	10413	293.6	152	86200.96	23104	44627.2
2006/07	16165	16787	-4437.6	6526	19692293.76	42588676	28959777.6
Total	$\sum x$ 58637	$\sum y$ 51305	0	0	27971397.2	58537414	39438120

Source: Audited balance sheet of NTC 2002-2008

$$\bar{x} = \frac{\sum x}{N} = \frac{58637}{5} = 11727.4$$

$$\bar{y} = \frac{\sum y}{N} = \frac{51305}{5} = 10261$$

$$u = x - \bar{x} \quad v = y - \bar{y}$$

$$t_x = \sqrt{\frac{\sum u^2}{N}} = \sqrt{\frac{27971397.2}{5}} = 2365.2$$

$$t_y = \sqrt{\frac{\sum v^2}{N}} = \sqrt{\frac{58537414}{5}} = 3421.6$$

Since,

	x	y
Mean	11727.4	10261
SD	2365.2	3421.6

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 increase as cash increases or vice-versa. It means there should be positive correlation between cash balance and actual sales.

$$r_{xy} = \frac{\sum uv}{\sqrt{\sum u^2 \sum v^2}} = \frac{39438120}{\sqrt{27971397.2 \times 58537414}} = 0.97$$

Correlation coefficient between cash balance and revenue (r_{xy}) = 0.974

The value of 'r' shows that there are highly positive correlation between cash and revenue. 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.

$$P.E (r) = \frac{0.6745(1 - Zr^2)}{\sqrt{N}} = \frac{0.6745(1 - 0.97^2)}{\sqrt{5}} = 0.017$$

From we have probable error of 'r' = 0.017. 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

$$x - \bar{x} = r \frac{\sum X}{\sum Y} (y - \bar{y})$$

Since,	x	y
Mean	11727.4	10261
SD	2365.2	3421.6

$$r_{xy} = 0.97$$

$$X - 11727.4 = 0.97 \frac{2365.2}{3421.6} (Y - 10261)$$

$$X - 11724.4 = 0.674y - 6874.87$$

$$X = 4849.53 + 0.674y$$

This equation shows that revenue will be increased by 0.67 per unit.

4.2.2.1 Cash and Account Receivable of Nepal Telecomm

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

Rs. ('000000')

Table 15 : Correlation Between cash balance and account receivable

Year	Account Receivable (x)	Cash Balance (y)	$u=x-3572.8$	$y-y-11727.4$	u^2	v^2	uv
2002/03	3030	10097	-542.8	-1630.4	294631.84	2658204.16	884981.12
2003/04	5279	10780	5279	-947.4	27867841	897566.76	-5001324.6
2004/05	2825	9574	2825	-2153.4	7980625	4637131.56	-6083355
2005/06	3099	12021	3099	293.6	9603801	86200.96	909866.4
2006/07	3631	16165	3631	4437.6	13184161	19692293.76	16112925.6
Total	17864	58637	0	0	58931060	27971397.2	6823093.52

Source: Audited balance sheet of NTC 2002-2008

$$\bar{x} = \frac{x}{N} = \frac{17864}{5} = 3572.80$$

$$\bar{y} = \frac{y}{N} = \frac{58637}{5} = 11727.4$$

$$u = x - \bar{x} \quad v = y - \bar{y}$$

$$t_x = \sqrt{\frac{u^2}{N}} = \sqrt{\frac{58931060}{5}} = 3433.1$$

$$t_y = \sqrt{\frac{v^2}{N}} = \sqrt{\frac{27971397.2}{5}} = 2365.22$$

Since,

	x	y
Mean	10142.8	11727.4
SD	3433.1	2365.22

Again, Karl Pearson's Coefficient of Correlation (r) is used to determine the 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 increase as cash increases or vice-versa. It means there should be positive correlation between cash balance and account receivable.

$$r_{xy} = \frac{uv}{\sqrt{v^2 u^2}} = \frac{6823093.52}{\sqrt{27971397.2 \times 58931060}} = \frac{6823093.52}{40600296.49} = 0.16$$

Correlation coefficient between cash balance and revenue (r_{xy}) = 0.16

The value of r shows that there is a 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.

$$P.E (r) = \frac{0.6745(1 Z r^2)}{\sqrt{N}} = \frac{0.6745(1 Z 0.16)}{\sqrt{5}} = 0.29$$

We have a probable error of 'r' = 0.16. Since $r < 6 P.E. (r)$, the value of r is not 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

$$x - \bar{x} = r \frac{\sum X}{\sum Y} (y - \bar{y})$$

Since,

	x	y
Mean	10142.8	11727.4
SD	3433.1	2365.22

$$r_{xy} = 0.16$$

$$X - 10142.8 = 0.16 \frac{3433.1}{2365.22} (Y - 11727.4)$$

$$X - 10142.8 = 0.11(Y - 11727.4)$$

$$X = 0.11y + 10142.8 - 11727.4$$

$$X = -1574.6 + 0.11y$$

Thus, for unit increase in cash, A/R increases by 0.11 per unit.

4.2.2.1 Cash Collection Technique of NTC

Nepal Telecom is using following technique for cash collection:–

A) Direct Cash Collection:– This is the system which is providing services, direct sales through office that is direct cash collection. Registration fee, SMS charge, Service fee & selling of recharge card fee are collected in center, regional offices of NTC. Collected cash is deposited day by day in Bank account.

B) Cash Collection through Bank

Nepal Telecom has been started online Bill payment through Bank. PSTN Telephone Bill can payment by online through NMB Bank, Machhapuchhre Bank, Laxmi Bank, Bank of Kathmandu, Nepal Investment Bank Ltd. & Bank of Asia Nepal Ltd.

4.3 Analysis of Hypothesis

We know that hypothesis is quantities statement about population parameter. It is an assumption that is made about population parameter and finally its validity is tested. The act of verification involves testing the validity of such assumption which whom undertaken on the basis of sample evidence is called statistical hypothesis.

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

Rs. ('000000')

Table 16 : Table for hypothesis Test

Year	Account Receivable (x)	Cash Balance (y)	$u=x-3572.8$	$y-y-11727.4$	u^2	v^2	uv
2002/03	3030	10097	-542.8	-1630.4	294631.84	2658204.16	884981.12
2003/04	5279	10780	5279	-947.4	27867841	897566.76	-5001324.6
2004/05	2825	9574	2825	-2153.4	7980625	4637131.56	-6083355
2005/06	3099	12021	3099	293.6	9603801	86200.96	909866.4
2006/07	3631	16165	3631	4437.6	13184161	19692293.76	16112925.6
Total	17864	58637	0	0	58931060	27971397.2	6823093.52

Source: Audited balance sheet of NTC 2002-2008

$$\bar{x} = \frac{x}{N} = \frac{17864}{5} = 3572.80 \quad \bar{y} = \frac{y}{N} = \frac{58637}{5} = 11727.4 \quad u = x - \bar{x} \quad v = y - \bar{y}$$

$$t_x = \sqrt{\frac{u^2}{N}} = \sqrt{\frac{58931060}{5}} = 3433.1 \quad t_y = \sqrt{\frac{v^2}{N}} = \sqrt{\frac{27971397.2}{5}} = 2365.22$$

Since, x y

Mean 10142.8 11727.4

SD 3433.1 2365.22

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 increase as cash increases or vice-versa. It means there should be positive correlation between cash balance and account receivable.

$$r_{xy} = \frac{uv}{\sqrt{v^2 u^2}} = \frac{6823093.52}{\sqrt{27971397.2 \times 58931060}} = \frac{6823093.52}{40600296.49} = 0.16$$

let focus on Alternative Hypothesis once again

H1: $\rho \neq 0$, The cash balance & Account Receivable are correlated.

Here correlation coefficient between cash balance and revenue (r_{xy}) = 0.16

As mentioned above the hypothesis is done on the base of coefficient correlation between cash and revenue. Correlation coefficient between cash balance and revenue (account receivable) is 0.16 so alternate hypothesis is accepted that means correlation between cash and revenue (account receivable) is correlated.

4.3 Major Findings

- Current Ratio of NTC through out the study period was in decreasing trend with the average ratio of 1.65. In the 1st three year of study period, current ratio was above average ratio and the last two year of study period, it was below the average ratio. The data reveal that NTC have current ratio less than two in the study period indicating that there is cash shortage and poor management of cash. This was especially critical in the 5th year of the study.
- Quick ratio of NTC was 1.06 on an average for the study period. The ratio was in decreasing trend. Although ratio was in decreasing trend but was not below 1 except for 4th and 5th year
It is not uncommon for a quick ratio to be under 1, with number between 0.8 and 1.0 most common. Ratio lower than 0.8 might indicate that

company is running short on its available cash, which could create problem soon after the purchase.

- The Absolute cash ratio for the five years was 0.83 on an average. The ratio was in decreasing trend. It was found that cash position of company was bit weak over the study period but was worst in the year 2004/05. In the 1st two year of study, cash was almost sufficient to pay its current liabilities but in later years it was not. So it shows that cash was not managed properly.
- Average cash to current assets ratio is 0.53. This indicated that 53% of current assets comprises of cash which shows good liquidity position of NTC.
- The above analysis of cash turnover of NTC revealed that there is no any fixed trend of cash turnover over the study period. Cash turn over ratio was 0.83 on an average. This indicates that NTC is unable to utilize its idle cash in generating revenue. The company's position of liquid cash that remained 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.
- Table 10 has shown the summary of cash flow from operating, financing and investment activities. Cash at the end of each year of study period is in increasing trend which shows good position of cash in NTC.
- Cash budget of the study period showed that there is high deviation in budgeted and actual cash budget. It shows that there was no effective implication of budgeted amount and also shows improper planning of cash. Had there been a proper planning of cash, deviation would have been minimum and cash available would have been utilised in effective and productive way. NTC always revise its budget in last quarter of its fiscal year. There is still deviation in revised and actual cash balance which is shown by table no 4.12. Actual cash balances were higher than revised budgeted cash however deviation of revised and cash budget was insignificant.
- Correlation coefficient between cash balance and revenue of NTC found to be highly positive. Cash balance & revenue of NTC are

correlated. This means when revenue increases cash balance will increase or vice versa.

- There is low degree of correlation between cash and A/R receivable. Cash balance & Account receivable of NTC are correlated. The actual cash will change in the same direction as account receivable changes.
- NTC is using direct cash collection & cash collection through Bank technique.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

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 dissolved 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 and Spice Nepal(N Cell) now a days.

Now to compete with market, NTC has to do best in every aspect of its transaction. One of its aspects of NTC'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 NTC, review cash flow from operating, financing and investing activities and to analyse the cash collection and disbursement of NTC.

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.

5.2 Conclusion

Analysis of current ratio showed that average ratio of NTC is 1.51 which is below traditional 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 NTC to have current ratio equals to 2.

Analysis of quick ratio showed that NTC is able to maintain minimum acceptable liquidity ratio i.e. 1:1. This means that NTC has enough cash to pay current obligation of the firm.

Cash and bank balance with respect to current assets has been in fluctuating trend. On an average, 50% of current assets consist of cash which shows the greater safety of funds of short-term creditors.

Cash flow statement of NTC 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 NTC showed that there is high deviation in Budgeted and actual cash balance. This shows the improper planning of Budget. Also it showed that only total internal sources are not enough for NTC to meet its operating and non operating expenditure. So NTC took loan from external sources. But this however was not required as there is always surplus cash held by NTC.

5.3 Recommendation

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 liquidity is satisfactory. However, it is important for the company to estimate how much fund is necessary to maintain liquidity position and to invest the surplus cash funds in marketable securities or profitable opportunities to generate some income. It seems the quick ratio is in smooth and good. so the the company should focus to maintain current assets to get the ratio at least 2 .
- 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 or to invest that surplus cash in profitable sector. Like, it could use in marketable securities or bonds or hydropower sectors.

- NTC should have proper cash planning to estimate the cash receipts and payments which helps to control the efficient management of cash. Similarly, Nepal Telecom should analyze various cash management techniques and models so that it can predict the optimal cash balance. For example direct cash collection & cash collection through bank techniques and Baumol's model or Miller –orr model of cash management. Baumol approach to determine the level of cash balances based on Economic Order Quantity of early inventory model. it assumes that the firm faces fixed cash inflow and outflow patterns and sought to minimize the cost of holding cash necessary for its transaction. The ratio of total outlays including tax, and dividend payments but excluded capital expenditures debt retirement and securities purchases from year end cash holdings. According to it, the cost of holding money is much less for large firms that for small firms. So this kind of technique should be followed.
- Preparation of realistic budget: while preparing budget company should analyze the actual past data and present needs of the programs applying systematic and scientific method of data analysis. Actual total uses of budget amount were not matching with budgeted target for expenses purpose.
- Use internal source in full capacity: Internal source is sufficient to finance whole budgeted expenses of the company. It should not borrow loan from foreign institution because it involves cost. Because there is enough internal source. and internal fund is possible to invest for internal improvement.

- NTC have good liquidity position in study period so it should also maintain in coming year. But it must try to maintain the current ratio to 2 and should keep up the quick ratio.
- NTC should require giving quality services to customers by effective managing cash. Quick and effective methods should follow where there shouldn't be any chance to wait customer to in queue to pay the bill.
- NTC should need to analyze the mail float, processing float, transit float & disbursement float in money collection & disbursement.
- NTC should minimize the deviation of revised budget & actual cash balance for earning more profit.
- NTC should require making reduced cash balance plan amount for each next yearly increment revenue and account receivable because Cash balance & revenue & Account receivable of NTC are correlated
- NTC should provide facility to deduct the cash directly from the account of customer account directly. they can keep the relation with different local banks and give the facility to customer
- NTC has to adapt a new technology for the cash management which is suitable for the Nepalese perspective. All the part of Nepal are not fully developed . Nepal is landlocked country with agro-based economy. The country is divided into three parts (i.e. Mountains, Hills, Terai region) with its geographical nature. Nepal is one of the least developed and very poor country in the world. More than 90 % of the people are still in rural areas and most of them are deprived minimum physical facilities, which is necessary for human being. Agriculture is still the backbone of Nepalese economy. Economy development is not possible with out agriculture development. National planning commission has given more emphasis to this sector. But the real picture of this sector is very poor. This is because Nepal has not been able to provide basic facilities to the farmers like irrigation, electricity and transportation. So this company should focus on this should get credit through social services also.

Table of Contents

Chapter – I.....	86
Introduction.....	86
1.1 Background of the Study.....	86
1.2.1 Introduction of Nepal Telecommunication Corporation.....	87
1.3 Statement of the Problem.....	95
1.4 Objective of the Study.....	96
1.5 Significance of the Study.....	96
1.6 Limitations of the Study.....	97
1.7 Organization of the Study.....	97
CHAPTER II.....	98
REVIEW OF LITERATURE.....	98
2.1 Conceptual Framework.....	98
2.1.1 Meaning of Cash Management.....	98
2.2 Review of Related Study.....	112
2.3 Review of Previous Thesis.....	115
2.4 Research Gap.....	119
CHAPTER III.....	120
RESEARCH METHODOLOGY.....	120
3.1 Introduction.....	120
3.2 Research Hypothesis.....	120
3.3 Research Design.....	121
3.4 Nature and Sources of Data.....	121
3.5 Method of Data Analysis.....	122
CHAPTER IV.....	128
ANALYSIS AND PRESENTATION OF DATA.....	128
4.1 Analysis of data by Financial Tools.....	128
4.2 Analysis of data by Statistical tools.....	144
4.3 Analysis of Hypothesis.....	152
4.3 Major Findings.....	153
CHAPTER V.....	155
SUMMARY, CONCLUSION AND RECOMMENDATION.....	155
5.1 Summary.....	155
5.2 Conclusion.....	155
5.3 Recommendation.....	156

Table of figure

Table 1 Director at present time 2067 ashad.....	93
Table 2 Analysis of Current Ratio.....	129
Table 3 :Analysis of Quick Ratio.....	130
Table 5 : Cash to Current assets ratio.....	133
Table 6 :Cash Turnover Ratio.....	134
Table 7 : Cash flow from operating activities.....	135
Table 8 Cash from investing activities.....	137
Table 9 : Cash from Financing activities.....	139
Table 10 : Actual cash Flow.....	140
Table 11 : Cash Budget and Actual cash.....	142
Table 12 : Revised Cash Budget and actual cash.....	143
Table 13 : Trend analysis.....	144
Table 14 : Correlation Between Cash and Revenue.....	146
Table 15 : Correlation Between cash balance and account receivable.....	149
Table 16 : Table for hypothesis Test.....	152

Chapter – I

Introduction

1.1 Background of the Study

Cash is the oil that lubricates the wheels of business. Without adequate oil machines grind to a halt and a business with inadequate cash will do likewise. However carrying a cash is expensive because cash is non earning assets a firm that hold a cash beyond its minimum requirements lower its earning potential.

Cash Management is a very professional, highly refined activity. We need not to keep idle cash balances to guard against a failure to receive expected payment or to be ready for unexpected outflows.

The primary goal of financial manager should be to maximize the value of firm. The managing cash flow is an extremely important task for financial manager. If firms hold more cash than it needs, the shareholders won't be maximize. So the firms should invest all idle cash in productive assets that are related to highly returnable.

The speed of technological development and convergence of information and communications sector have led to a high investment requirement for the infrastructure development. Infrastructure is a key for economic development and improving quality of life. 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 have 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 people. Telecommunication was introduced with 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.

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."

1.2.1 Introduction of Nepal Telecommunication Corporation

In Nepal, operating any form of telecommunication service dates back to 94 years in B.S. 1970. But formally telecom service was provided mainly after the establishment of MOHAN AKASHWANI in B.S. 2005. Later as per the plan formulated in First National Five year plan (2012-2017); Telecommunication Department was established in B.S.2016. To modernize the telecommunications services and to expand the services, during third five-year plan (2023-2028), Telecommunication Department was converted into Telecommunications Development Board in B.S.2026. After the enactment of Communications Corporation Act 2028, it was formally established as fully owned Government Corporation called Nepal Telecommunications Corporation in B.S. 2032 for the purpose of providing telecommunications services to Nepalese People. After serving the nation for 29 years with great pride and a sense of accomplishment, Nepal Telecommunication Corporation was transformed into Nepal Doorsanchar Company Limited from Baisakh 1, 2061. Nepal Doorsanchar company Limited is a company

registered under the companies Act 2053. However the company is known to the general public by the brand name Nepal Telecom as registered trademark.

Nepal Telecom has always put its endeavours in providing its valued customers a quality service since its inception. To achieve this goal, technologies best meeting the interest of its customers has always been selected. The nationwide reach of the organization, from urban areas to the economically non- viable most remote locations, is the result of all these efforts that makes this organization different from others.

Definitely Nepal Telecom's widespread reach will assist in the socio-economic development of the urban as well as rural areas, as telecommunications is one of the most important infrastructures required for development. Accordingly in the era of globalization, it is felt that milestones and achievements of the past are not adequate enough to catch up with the global trend in the development of telecommunication sector and the growth of telecommunication services in the country will be guided by Technology, Declining equipment prices, market growth due to increase in standard of life and finally by healthy competition. Converting NT from government owned Monopoly Company to private owned, business oriented, customer focused company in a competitive environment, Nepal Telecom invites its all-probable shareholders in the sacred work of nation building.

Nepal Telecom Board established in October 1969 was converted to Nepal Telecommunications Corporation (NTC), 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 NTC. 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 (NTC), 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. 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.

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."

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.

a) Role of Nepal Telecommunication Corporation

Telecommunication is one of the fastest growing industries in the world. Presently, NTC is only telecom operator in Nepal holding total monopoly in the telecom sector and is a fully government owned and controlled organization. In Nepal, there are other means of communication also a number of means of transportation, postal service etc. But there are slower expensive and less convenient. Therefore, telecommunication is one of the quickest, cheapest and scientific means of telecommunication. It brings coordination among different government entities which ultimately promotes administrative efficiency. NTC has played a crucial role for the increase in agricultural production, which is a main source of national income. Telecoms have a major impact on agricultural production by providing information and market condition.

In developing country like Nepal, the role of importance and contribution of telecommunication in the development of country can not be explained. The international telecommunication system contributors are to link the overseas countries in the field of economy as well as politics. It also contributes in the development of tourist industry. Thus the telecommunication system plays vital role to strengthen the national economy and bring national unity among the national and international people creating a brother hood relationship among the people.

Telecommunication has also contributed a lot for development of social condition of which teaches about the accumulation, exchange and transmission of knowledge between people. So, without communication human society would remain static and not much different from the society of other animal. "The effect of telecommunication on the rural areas and their contribution to rural development are extremely important yet rather difficult to measure".

c) Service Provided by NTC

NTC has been providing several services to the countries people and facilities for transmission of written message, voice communication and variety of other communication. It provides telecommunications services both within the country and overseas. The services provided by NTC are as follows:

16. Basic Telephone Services

17. National Trunk Telephone Services
18. Rural Telecom Services
19. Bureau Fax Services
20. Pay Phone Services
21. Mobile Services
22. Packet Switching Services
23. International Sub-service Trunk Dialling Services
24. Internet Services
25. Inmarsat Mini-M Services
26. Home country Direct Dialling Services
27. Analogue Voice/Data and Telegraph Leased Circuit Services
28. International Telegraph Services
29. Telex Services
30. International Program T.V. Services

c) Milestones Data of NTC

- | | | |
|------|---|---|
| 1913 | - | Establishment of first telephone line in Kathmandu. |
| 1914 | - | Establishment of open wire trunk line from Kathmandu to Raxaul (India). |
| 1935 | - | Installation of 25 lines automatic exchange in palace. |
| 1936 | - | Installation of pen wire trunk line from Kathmandu to Dhankuta. |
| 1950 | - | Establishment of telegraph service. |
| 1950 | - | Introduction of High frequency ratio system (AM) |
| 1950 | - | Establishment of CB telephone exchange (100 lines) in Kathmandu. |
| 1951 | - | Installation of pen wire trunk line from Kathmandu to Palpa |
| 1955 | - | Distribution of telephone line to general public. |
| 1962 | - | First public telephone line to general public. |
| 1964 | - | Beginning of international telecommunication services using HF Ratio to India and Pakistan. |
| 1965 | - | First automatic exchange in Nepal (1000 lines in Kathmandu). |
| 1971 | - | Introduction of Telex Services. |
| 1974 | - | Micro wave transmission links establishment for internal trunk. |
| 1982 | - | Establishment of standard 'B' type earth station for international circuits. |
| 1982 | - | Establishment of SPC telex exchange. |
| 1983 | - | Establishment of digital telephone exchange. |
| 1984 | - | Commencement of STD service. |
| 1987 | - | Commencement of ISD service. |
| 1995 | - | Installation of optical fiber net work |
| 1996 | - | Conversion of all transmission links to digital transmission Link |
| 1996 | - | Automation of the entire telephone net work. |

- 1996 - Independent international Gateway Exchange established.
- 1996 - Introduction of VSAT Services.
- 1997 - Digital link with D.O.T. India through Optical Fiber in Birgunj-Raxual.
- 1998 - Direct Link with Bangladesh.
- 1999 - Launching of GSM Mobile Service.
- 2000 - Launching of Internet Service.
- 2000 - Implementation of SDH Micro Wave Radio.
- 2001 - Launching of Payphone Service.
- 2002 - East West Highway optical fiber project.
- 2003 - GSM Prepaid Service.
- 2004 - Nepal Telecom (Transformation from corporation to Nepal Doorsanchar Company)

d) Ownership of NTC

NTC is full government owned public utility sector enterprises. NTC is administrated by a government appoint board of directors which includes the chairman, who is the secretary of the ministry of information and communications and four voting members.

e) Functions and Duties of Corporation (NTC)

According to communication corporation act and other related documents, the functions and duties of the corporation shall be as follows :

- viii) The basic function of NTC is to provide essential nation wide low const reliable and really available telecommunication services to the general public for the overall improvement of national integrity and economic development.
- ix) To promote the industry and commerce of the nation.
- x) To promote coordination and administrative efficiently.
- xi) To promote the business activities of the corporation.
- xii) To endeavour to become a self relevant.
- xiii) Under the directory of HMG, to fix the policies of the corporation and to take necessary action for its implementation.
- xiv) To improve the work implementation procedures for maintaining a high grade of telecommunication services.

F) Rights of Corporation

The rights of the corporation are as follows:

- vi) To do all works which seem to be inevitable and necessary for the fulfilment of the functions and duties of its own?
- vii) To collect fees from the customers.
- viii) To raise loans from national institutions, banks or individuals.
- ix) To open any branch office.
- x) To use special stamps for its own purpose.

g) Service Delivery Procedure of NTC

Consumer seeking services from telecommunication have to apply for a new line connection specifying the kind of services required. The incoming applications are checked for processing and the name list of consumers of finding who have applied for new line connection is circulated and noticed out. Consumers on finding their name in the list become subscribers and come to contact to telecommunication offices for new line connection by filling the application from referring their name, location, registered number of old application and other required documents like citizenship, certificates including other necessary documents. Then the service order is relayed to the engineer who makes detail survey and feasibility studies live connection cost estimate assessment of the available points at that locality and listing of the various materials required for installation. There is a survey from which has not to be field and the engineer has to make timely installation report after identifying the line number, telephone number, cable number etc. Then the cost information is passed on to the consumer who has to make the necessary deposits and pay installation charge. Technician connects the telephone line after these pre-requisites are fulfilled. The information about the connection of telephone lines are disseminated to maintenance control centre for repairs and operations, inquiry section and telephone directory section and account section for the purpose of maintaining the customer ledger and so on. The information will then flow to the billing section the verifies, prepares and identifies the customers. Make necessary adjustments again dispatch this information to the account section which gives the receipts prepared and telephone care number to customers.²

h) Board of Directors

NTC has managing director under the supervision and control of board of director. The composition of board of director is as follows.

Chairman

Secretary, Ministry of Information and Communication

Member

Director, General Ministry of Finance (Dep. of tax)

Member

General Manager of NTC

Member

Director, Katmandu Regional Directorate, NTC

Member

Manager, Cable Networking Planning, NTC

Secretary

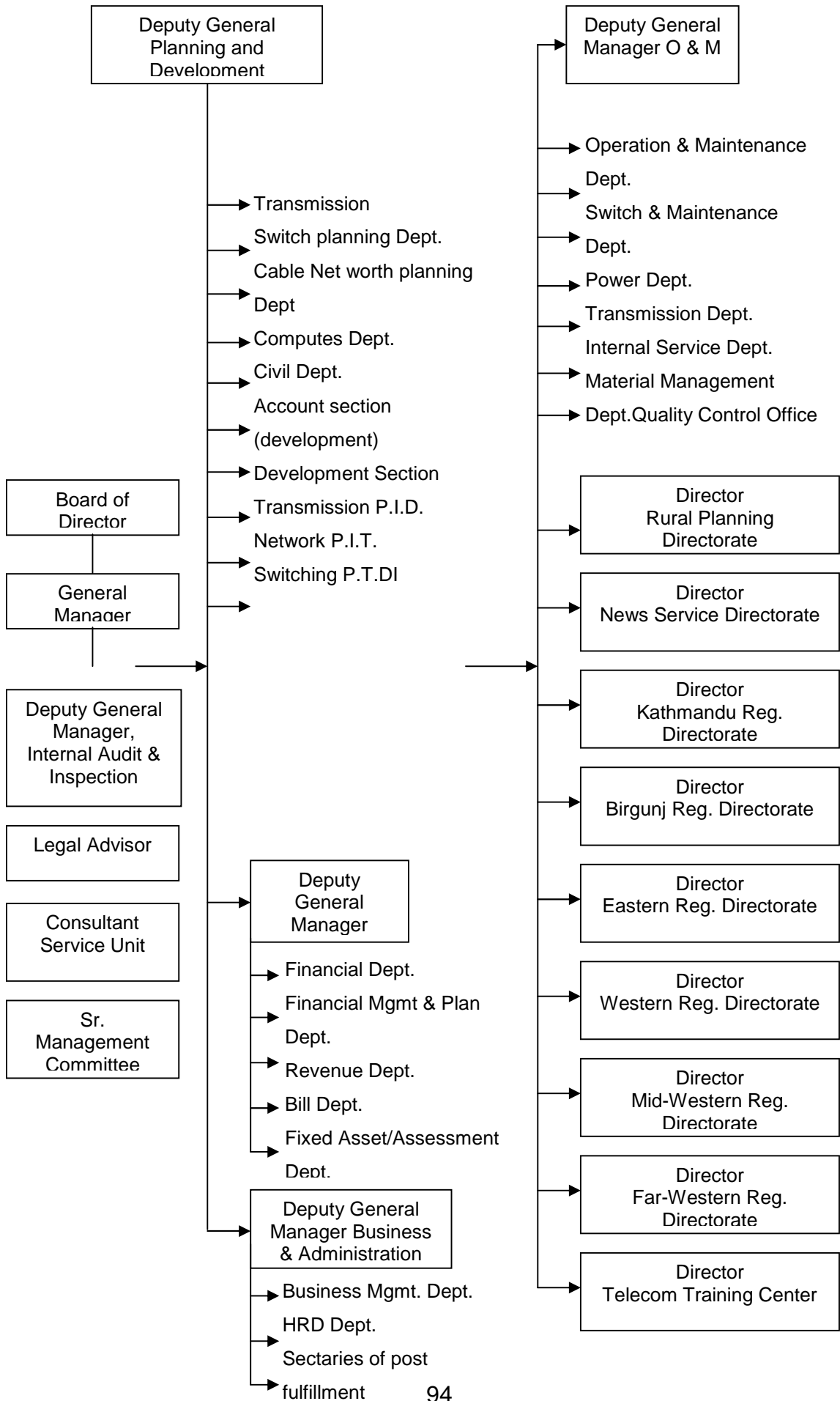
Deputy General Manager (Intes Audit and Inspection) NTC.

This is the actual name of the of different director at present time 2067 ashad

Table 17 Director at present time 2067 ashad

NEPAL TELECOM Board of Directors		
	MANAGING DIRECTOR Mr. Amarnath Singh	
CORPORATE OFFICE	FIELD OFFICE	REGIONAL DIRECTORATE
DMD - Finance Mr. Rameshwar Karmacharya	Director IT Directorate Mr. Lok Raj Sharma	Director - CRD, Birgunj Mr. Dev Narayan Yadav
DMD - Business Mr. Vishwanath Goel	Director Telecom Training Center Mr. Nara Narayan Manandhar	Director - ERD, Biratnagar Mr. Shyam Sunder Yadav
DMD - Development Mr. Kanhaiya Lal Gupta	Director Mobile Service Directorate Mr. Jeevan Ratna Shakya	Director - KRD, Sundhara Mr. Madhusudan Karmacharya
DMD - Change Management Mr. Badri Prasad Bastola	Director Wireless Service Directorate Mr. Bhagat Man Singh Pradhan	Director - WRD, Bhairahawa Mr. Amrit Prasad Shrestha
DMD - Operation & Maint. Mr. Hiranya Kumar Bhattarai	Director Satellite Service Directorate Mr. Shiv Bhushan Lal	Director - MWRD, Nepalgunj Mr. Khadga Bahadur Basnet
DMD, Company Secretariat Mr. Buddhi Prasad Acharya	Director PSTN Mr. Bishnu Prasad Kasaju	Director - FWRD, Dhangadi Mr. Bishnu Dhak
DMD - Planning Mr. Anoop Ranjan Bhattarai		
DMD - Human Resource Mgmt. Mr. Narayan Mahat		
DMD, Internal Audit Mr. Sudhir Prasad Aryal		

Organization Chart



1.3 Statement of the Problem

Nepal Telecom is most popular corporation in communication area. It is that organization which earns profit and pays highest tax to the government. Its collection of cash is too high than. This study focuses to know whether this kind of organization is managing cash properly or not? NTC is beating other corporation due to cash management or not? This study focuses to know Is cash management is the key factor for success or the corporation or not? For these Reasons this topic is chosen.

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."

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. This study will try to answer following questions of cash management.

- f. What is the liquidity and cash position of NTC?
- g. What is the position of cash inflow and outflow of NTC?
- h. What is the relationship between liquidity and total revenue and liquidity and profitability?

- i. What is the relationship between budgeted cash & Actual Cash in NTC ?
- j. Which technique of cash collection is using by NTC ?

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.

- h. To identify the liquidity position of NTC
- i. To review cash flow from operating, financing and investing activities.
- j. To study the relationship of approved cash budget & Actual cash
- k. To study the cash collection techniques of NTC
- l. To analyse the cash collection and disbursement of NTC
- m. To study the relationship of cash with total revenue and account receivable.
- n. To provide NTC suggestions and 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 organisation prominently 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 NTC provides crucial information about the cash management system. Management of NTC 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 study not only helps management of NTC Limited but also helps 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 NTC. Comprehensive study of cash management is not possible in this thesis due to its deadline of completion and availability of data and information.

The study is fully dependent on the information available on the webpage of NTC. Due to its internal rules it doesn't want to disclose its full information so that they don't want to give more information from the office side. That's why it is very much difficult to prepare the thesis. Another part is that they will disclose their yearly data of five years, i.e. working period of one management committee. The data will be of five year period. So the limitations of the study are as follows:

- f. The study is totally based on secondary data collected from NTC.
- g. The study covers the analysis of five years (2060/61 to 2064/65) i.e. one working period of management committee
- h. The accuracy of this study is based on the data available from NTC website i.e. www.ntc.net.np and various published documents of the organisation.
- i. Only financial and statistical tools are used for analysis of data.
- j. This study is focus only on NTC

1.7 Organization 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 NTC, statement of the problem, objective of the study, significance of the study and limitation of the study.

Review of literature deals with the literature review relating to cash management i.e. books, journal and thesis.

In third chapter, the research methodology employed for the study has been described. It includes introduction, research design, data collection and sources, data processing procedure and tabulation of financial tools and techniques.

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

At last, the summary, major findings, issues, constraints and some recommendations have been presented in the fifth chapter. A bibliography and appendix have also been included in the last part of the study.

CHAPTER II

REVIEW OF LITERATURE

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)**

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.

- f. 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.
- g. To delay payments as long as permitted without damaging the firm's credit rating by establishing controlled disbursement system.
- h. 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.
- i. To manage most inexpensive sources of financing for meeting short term cash deficiency by optimally balancing between cost and risk.
- j. 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.

c. 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.

- v. Mail float(Net)
- vi. Processing float
- vii. Transit float
- viii. 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 collected. 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 serviced by branches of the bank providing the lock-box arrangement, to the full advantage of a reduction in the float.

d. 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 outflows 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 reveal 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 result 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 can not 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 know 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 is 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.”

2.1.4 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.”

2.1.5 Cash Management Models

1. Baumol Model

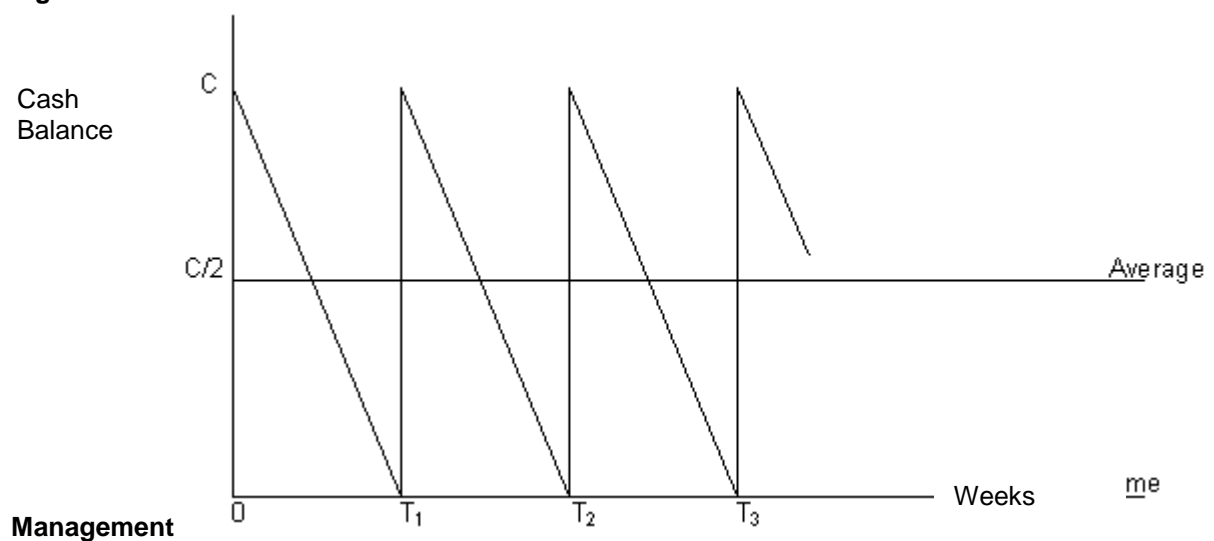
In view of minimizing the opportunity cost of holding cash and maximizing the return on the available funds, the cash balance should be maintained at a minimum level, and the funds not required for immediate use be invested in the marketable securities. What is the minimum size of cash to hold and how 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:

Baumol's Model of Cash Management

Figure 14 Baumol's Model of Cash



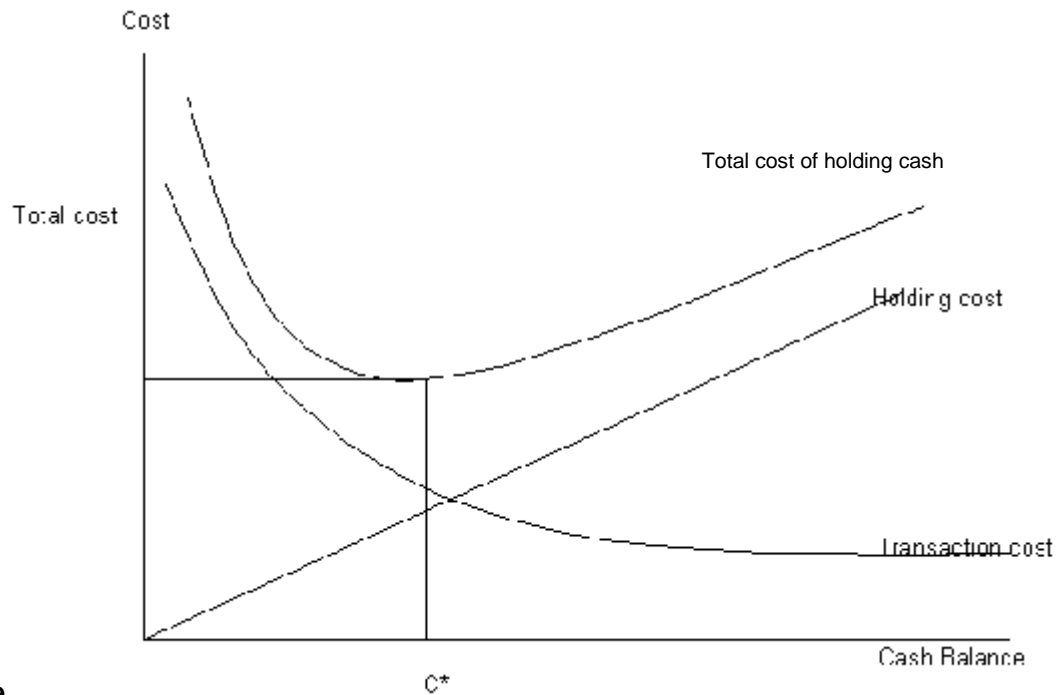
Unlike the case of inventory purchases, the cash transfer does not take time. Therefore, it is normally not required to maintain safety stock of cash.

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.

Optimum Cash Balance

Figure 15 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,

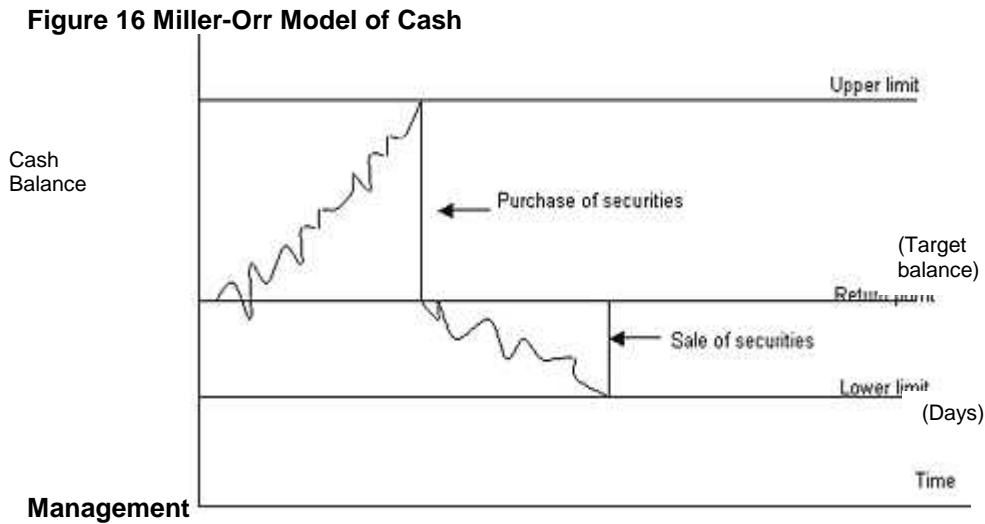
M = minimum balance of cash for precautionary purpose.

2. 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

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

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

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

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

$$C = \frac{4Z \Gamma L}{3}$$

Where

Z = target cash balance

F = Fixed transaction cost per transaction

I = daily rate of opportunity cost or daily interest rate

S² = variance of net daily cash flows

U = Upper limit

L = Lower limit

3. Orgler's Model

According to this model, an optimal cash management strategy can be determined through the use of multiple linear programming model. 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:

$$\text{Maximise profit} = a_1x_1 + a_2x_2$$

Subject to

$$b_1x_1 \quad \text{production}$$

$$b_2x_2 \quad \text{constraints}$$

$$C_1x_1 + C_2x_2 \quad \text{Cash available constraint}$$

$$8_1x_1 + 8_2x_2 > \quad \text{Currents assets requirement constraint}$$

$$X_i \geq 0, \quad \text{n non-negativity constraint}$$

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.

2.2 Review of Related Study

Cash management is regarded as an important part of working capital management, the thrust for a separate theory in this area was attempted by many economists, 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) introduced 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 Seldon, 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 year end cash holdings. According to him, the cost of holding money is much less for large firms than 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 Joseph C Schabacker (1960) University of Wisconsin. Several significant investigations have been conducted to explain the causes of failure among small businesses. 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 may 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 deduced 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 than 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 studied 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,

- vii. 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.
- viii. 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.
- ix. 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.
- x. 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 investing surplus in marketable securities. Those which did failed to consider the cost of administering such investments.

- xi. 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.
- xii. 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) conducted the study on Cash management of NTC 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 NTC, to examine the existing internal control policy in NTC 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

- vi. 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.
- vii. 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.

- viii. 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.
- ix. 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.
- x. 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 NTC 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 as follows:

- v. The lack of accurate and proper sales forecast is one of the important factors that affect the financial performance of the company.
- vi. Sales budget shows ISD sector’s sales revenue is main revenue sources of Nepal Telecom, which contributes more than 40% in average.
- vii. 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.
- viii. 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 funds 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 NTC's cash management. He has mainly done research on shortage or excess of cash in the NTC. Also he tried to analyze the gap between budgeted and actual sources of cash.

His major findings are as follows:

-) 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.

2.4 Research Gap

Most of the dissertation related to cash management has been reviewed. The previous researchers had conducted their research on NTC only using financial tools. But I have tried to analyse the effectiveness of Cash management of NTC using both financial as well as statistical tools.

So, this study will be fruitful to those people who have invested in NTC or who are interested to invest in NTC in future to know about cash position and cash management of it.

Previous researchers focus only on the following points

-) The 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.
-) It is 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.
-) 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

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. It is necessary for the researcher to know not only the research methods but also consider the logic behind the methods we used in the context of your research study and explain why we are using a particular method or technique and why we are not using others so that research results are capable of being evaluated either by the researcher himself or by others. The study of research methodology gives the student the necessary training in gathering materials and arranging them, participating in the field work which required, and also training in techniques for collection of data appropriate to particular problems, in the use of statistics, questionnaires and controlled experimentation and in recording evidence, sorting it out and interpreting it.

This chapter tries to focus on different research methods, frameworks, tools and conditions that will be used while conducting the study. Following are the major content of research methodology in course of this dissertation.

3.2 Research Hypothesis

Quantities statement about population parameter is called a hypothesis. It is an assumption that is made about population parameter and finally its validity is tested. The act of verification involves testing the validity of such assumption which whom undertaken on the basis of sample evidence is called statistical hypothesis. The hypothesis formulation for this study is as follows:

1) Is there any significance correlation coefficient between cash balance and revenue ?

Null Hypothesis;

H₀: $\rho = 0$, i.e. population correlation coefficient is zero. In other word cash balance and revenue of NTC are uncorrelated.

Alternative Hypothesis;

H1: $\rho \neq 0$, The variables in population (cash balance & revenue) are correlated.

2) Is there any significance correlation coefficient between cash balance and Account Receivable ?

Null Hypothesis;

H0: $\rho = 0$, i.e. population correlation coefficient is zero which means that the variables in population i.e. cash balance and Account Receivable of NTC are not correlated.

Alternative Hypothesis;

H1: $\rho \neq 0$, The cash balance & Account Receivable are correlated.

3.3 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 NTC. 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.

3.4 Nature and Sources of Data

For any research work, information and data plays vital role. Thus it is one of the major tasks of research work. This study is based upon the secondary data. Data have been mainly collected from following sources.

- e. Published and unpublished document and annual reports of the company.
- f. Journals, Government and non government publication
- g. Supportive books of related topic.
- h. Websites of related topic.

3.5 Method of Data Analysis

To find out the true picture of cash management of NTC, 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 predominately used to proponents of fundamental analysis.

d. 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.

- ii. **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.

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

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.

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.

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

e. 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.

$$\text{Absolute Liquidity Ratio} = \frac{\text{Cash} \Gamma \text{Bank} \Gamma \text{Marketable securities}}{\text{CurrentLiabilities}}$$

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.

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

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.

f. **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.

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

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 NTC, 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, PCC card 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:

f. 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.

$$Y_c = a + bx$$

Where,

Y_c = the dependent variable

a. = Y intercept

b = slope of the tendencies

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

g. 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 NTC, 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.

$$r = \frac{\sum uv}{\sqrt{\sum u^2} \times \sqrt{\sum v^2}}$$

Where

$$u = X - \bar{X}$$

$$v = Y - \bar{y}$$

h. 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.

$$SD = \sqrt{\frac{u^2}{N}}$$

$$SD = \sqrt{\frac{v^2}{N}}$$

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.'

i. **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.

j. 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 NTC, simple regression analysis is used to locate the relationship between total revenue on cash balance and net profit on cash balance.

CHAPTER IV

ANALYSIS AND PRESENTATION OF DATA

The basis objective of this study as stated in chapter one is to have true insight into cash management of NTC. For this purpose, most recent published financial statements and annual budget reports has been used. The data that are collected are 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'll look at here are the current, quick and cash ratios.

C. 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.

Stores & spare, sundry debtors, interest accrued, prepaid Exp/ Loans/ Adv. LC, Advances/ Loans to Employees, Inter-branch Balance, Bank Balance & Cash is included in current assets

Sundry creditors, interest accrued & due, others liabilities, deposit & advances and provisions is included in current liability.

Formula:

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

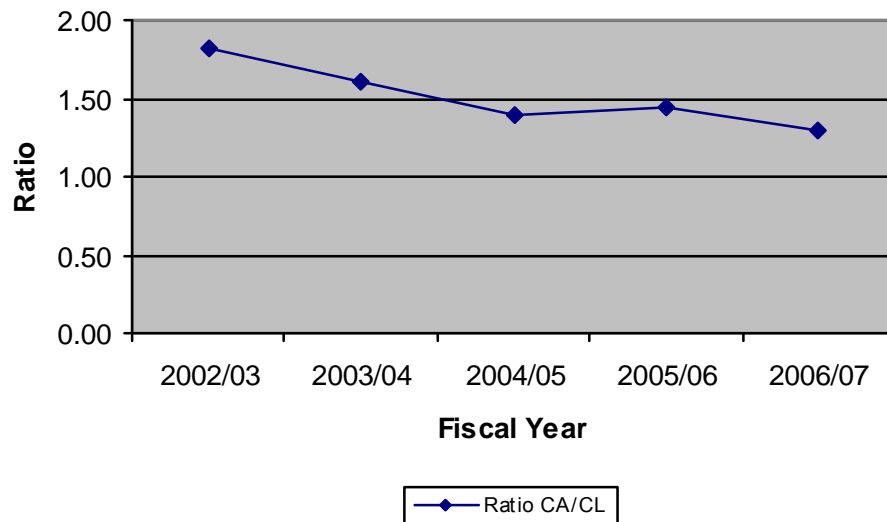
Analysis of Current Ratio of NTC

Table 18 Analysis of Current Ratio

Fiscal Year	Total Current Assets Rs. ('000')	Total Current Liabilities Rs. ('000')	Ratio CA/CL
2002/03	18424147	10137347	1.82
2003/04	20213763	12640965	1.60
2004/05	20598353	14722678	1.40
2005/06	22526522	15665379	1.44
2006/07	28648636	22199654	1.29
		Average	1.51

Figure 17 Current Ratio

Figure No. 4.1: Figure showing Current Ratio



The rule of thumb says that the current ratio should be at least 2, that is the current assets should meet current liabilities at least twice. Let's see what does the calculated ratio in table 1 tells us. In 2002/03, the NTC had 1.82 rupees worth of current assets for every rupee of liabilities. Similarly in the year 2004/05, this ratio was decreased and available current asset was 1.40 rupee for ever rupee of liability. Decreasing trend was shown on liquidity in this study period

with slight increment in ratio in the year 2005/06, which is 1.44. The ratio further decreased and became 1.29 in the year 2006/07.

Looking after theoretical aspect, NTC could not fully support its short-term debt from its current assets as rule says that the current ratio should be at least 2. But whether or not, a specific ratio is satisfactory depends on the nature of the business and the characteristics of its current assets and liabilities. The minimum acceptable current ratio is obviously 1:1, but that relationship is usually playing it too close for comfort.

D. 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 than 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.

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

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

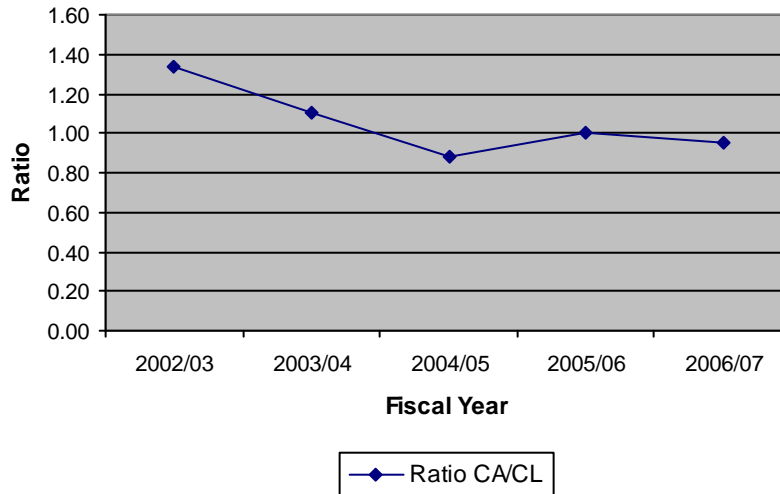
Analysis of Quick Ratio of NTC

Table 19 : Analysis of Quick Ratio

Fiscal Year	Total Quick Assets Rs. ('000')	Total Current Liabilities Rs. ('000')	Ratio CA/CL
2002/03	13571008	10137347	1.34
2003/04	13946011	12640965	1.10
2004/05	12958166	14722678	0.88
2005/06	15768952	15665379	1.01
2006/07	21176085	22199654	0.95
		Average	1.06

Figure 18 : Quick Ratio

Figure No.4.2: Figure Showing Quick Ratio



The table 4.2 shows the position of highly liquid assets to meet the current liabilities of the NTC. 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 2002/03, current ratio was 1.34 which slowly decreased to 1.10 in the year 2003/04. Decrease in trend still continued and in the year 2004/05 quick ratio become 0.88. Although ratio was in decreasing trend but quick assets were enough to meet its current liabilities until 2003/04. Till this period NTC was maintaining minimum generally acceptable ratio i.e. 1:1. But in the year 2004/05, ratio drastically decreased to 0.88 meaning that NTC got weaker liquidity position than it had before. But the year 2005/06 showed good performance in liquidity maintenance, increasing current ratio to 1.01

4.1.2 Cash Position Analysis

c) Absolute Cash Ratio

$$\text{Absolute cash ratio} = \frac{\text{Cash \& equivalent} \Gamma \text{ MarketableSecurities}}{\text{CurrentLiabilities}}$$

Table No: 4.3: Analysis of Absolute Cash Ratio of NTC

Rs. ('000')
Table 20 : Analysis of Absolute Cash Ratio

Fiscal Year	Cash + Bank Balances + Treasury Bill	Current Liabilities	Ratio
2002/03	11008439	10137347	1.09
2003/04	11755643	12640965	0.93

2004/05	9574501	14722678	0.65
2005/06	12021625	15665379	0.77
2006/07	16165920	22199654	0.73
		Average	0.83

Figure 19 : Absolute cash ratio

Figure No. 4.3: Figure Showing Absolute Cash Ratio

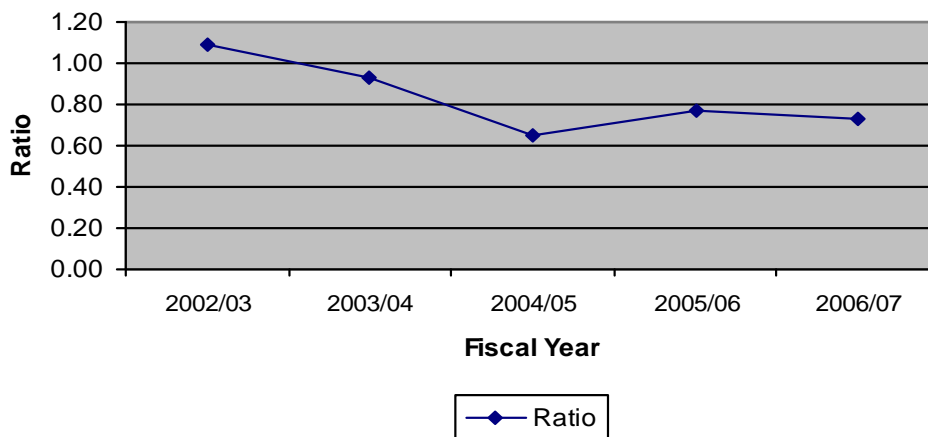


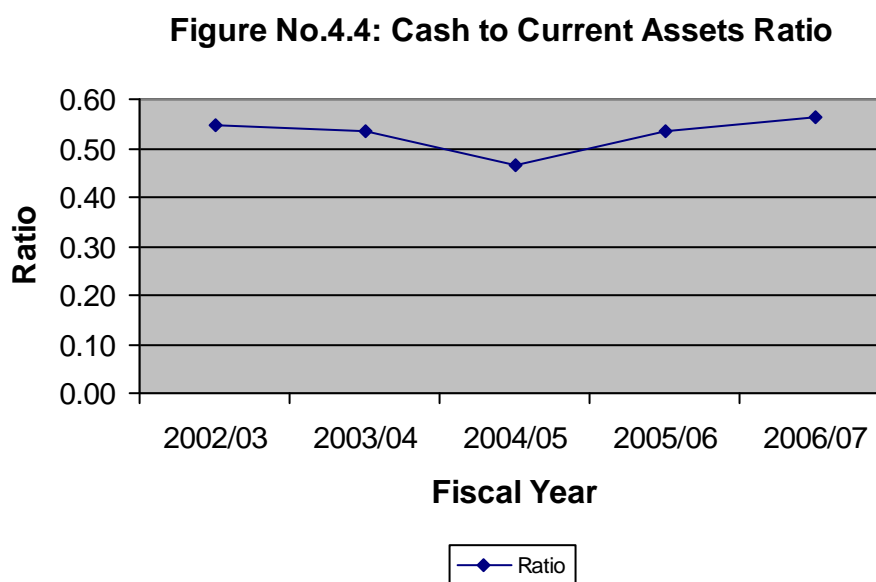
Table No 4.3 shows the absolute cash ratio of NTC over the study period. In the year 2002/03 absolute cash ratio of NTC was 1.09 which shows that company was better able to cover its obligation to creditors. This ratio has decreased in the year 2003/04 by 16%. There is to be noted that in the study period NTC did not held any marketable securities. In the year after 2003/04, absolute cash ratio started to decrease and became 0.65 in the year 2004/05. After 2004/05 ratio slightly increase and became 0.77 and 0.73 in the year 2005/06 and 2006/07 respectively. We can not say the ratio which NTC maintained in the study period was good or bad or enough as there is no industry standard and no rule of thumb.

d) Cash to Current Assets Ratio

Analysis of Cash to Current Assets Ratio of NTC

Table 21 : Cash to Current assets ratio

Fiscal Year	(Cash + Bank) Balance Rs. (‘000’)	Current Assets Rs. (‘000’)	Ratio
2002/03	10097738	18424147	0.55
2003/04	10780669	20213763	0.53
2004/05	9574501	20598353	0.46
2005/06	12021625	22526522	0.53
2006/07	16165920	28648636	0.56
		Average	0.53

Figure 20: Cash to Current asset ratio

During 1st year of study period cash portion of current assets was more than 50% i.e. cash to current assets ratio was 0.54. The ratio decreased in the year 2003/04 and became 0.53. It further decreased in the year 2004/05 and cash portion of current assets became less than 50% i.e. ratio became 0.46 in the year 2004/05. After this year, this ratio gradually increased and became 0.53 in the year 2005/06 and 0.56 in the year 2006/07. In this type of company, there is continues cash inflow and out flow because of which cash to current assets ratio keeps on fluctuating. But it makes no difference to company.

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.

Statement showing Cash Turnover Ratio

Table 22 :Cash Turnover Ratio

Fiscal Year	Total Revenue Rs. ('000')	Cash + Bank Balances Rs. ('000')	Cash Turnover
2002/03	7208087	10097738	0.71
2003/04	8312244	10780669	0.77
2004/05	8584144	9574501	0.90
2005/06	10413655	12021625	0.87
2006/07	14787475	16165920	0.91
		Average	0.83

Figure 21: Cash Turnover Ratio

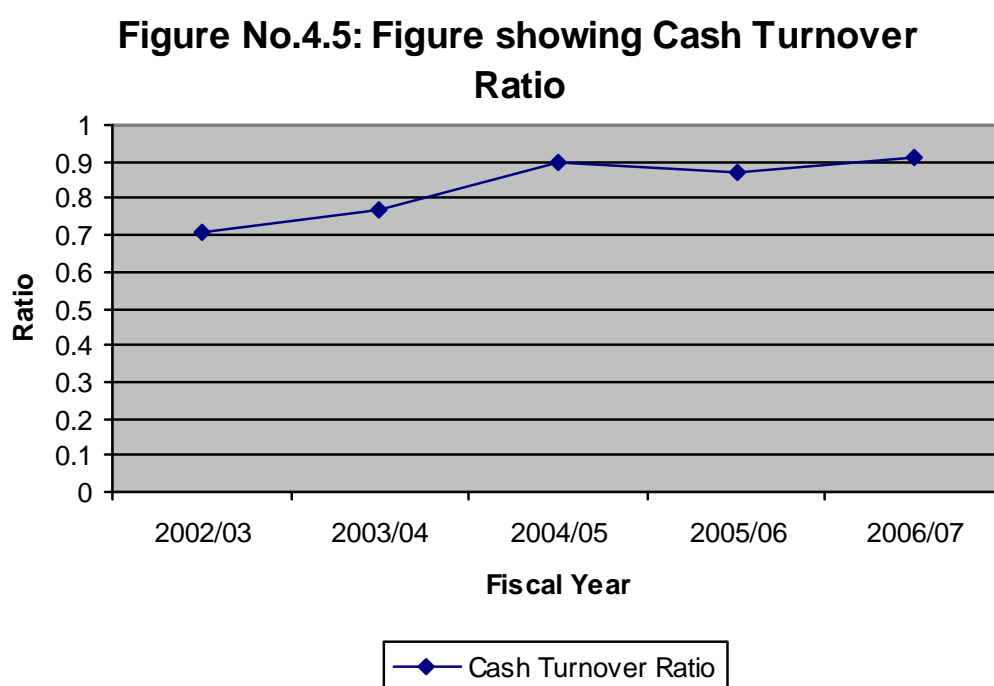


Table No 4.5 shows cash turnover ratio of NTC for the period between 2002/03 to 2006/07. It is found that cash turn over ratio was in increasing trend starting from 0.71 in year 2002/03, 0.87 and 0.91 in the year 2005/06 and 2006/07 respectively. In the study period NTC was able to utilize its cash in generating sales.

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.” (Kishore, 2003)

Table No. 4.6: Calculation of Cash Flow from Operating Activities for the Year Ended 2002/03 to 2006/07

Source: Annual Report of NTC (2002-2008)

Table 23 : Cash flow from operating activities

	2002/03	2003/04	2004/05	2005/06	2006/07
Particulars	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.
Cash Flow from Operating Activities					
<i>Net Operating profit before tax</i>	4093118353	4550667734	4921528988	6843726817	11298722582
Adjustment:					
Depreciation	940224526	1027922573	1050485813	1196136319	1498861408
Deffered Expenses	34435417	32770817	40817764	40029002	71161566
Foreign Exchange Gain/loss	162000231	28442774	251124356	-280005092	-86939175
Provision for staff bonus and incentive	301638899	309211605	281711261	322040673	620118387
Provision for Pension	62526226	234993917	312606943	241389693	331238763
Interest on loan		3291470	696200	1107992	10303949
Bad debts	662011				
Provision for Bad debts	21072345	225979927			
Fixed asset written off	2972544	33932265	1224800		
Income from investment & bank deposit	-419546350	-490270207	-463827650	-596837682	-822066146

Special charge	124371534	7004544			
Expenses on loss of goods	42084932	163489179		8530000	
Royalty	405266600	126574376	491301830	591807155	1007248557
Provision for earned leave		37602296	24236908	65980439	87041391
Operating profit before working capital change	5770827268	6291613270	6911907213	8433905316	14015691282
Adjustment for working capital change					
Increase in account receivable	-562197346	135354808	-157001491	-273552303	-176215868
Increase in stock	82447002	50620115	-54606668	-34258671	-39187088
Increase/ Decrease in interest accrued	-7126509	-18066728	5457834	2463849	-36247684
Increase in Advance	-732608582	-247063386	221484011	382510564	-222017727
Increase in Advance-Tax		-1315698127	-1602051292	-1684603393	-3171335436
Branch Account (Ad)	-12437486	12182199	-4041036	2798001	-400228
Increase in payables	684847704	332544285	226452780	618496246	1225052666
Increase in Provision	219326976				
Payment of interest/Adjustment				-2335181	-10303949
Payment of Royalty				-370641219	-1003349005
Payment of Earned leave				-22011777	-28156853
Payment of Pension				-30048819	-47309251
Gratuity Received				8251	351
Pymt of last year dividend, bonus, incentive tax etc	-1372145408	-418560065	-878193785	-301638899	-281711261
Last year adjustment		-48339283	158089940	1268656	-102479633
Working Capital Changes	-1699893649	-1517026182	-2084409707	-1711544695	-3893660966
(1+2)Net cash flow from Operating Activities (a)	4070933619	4774587088	4,827,497,506	6722360621	10122030316

Figure 22 : Cash from operating activities

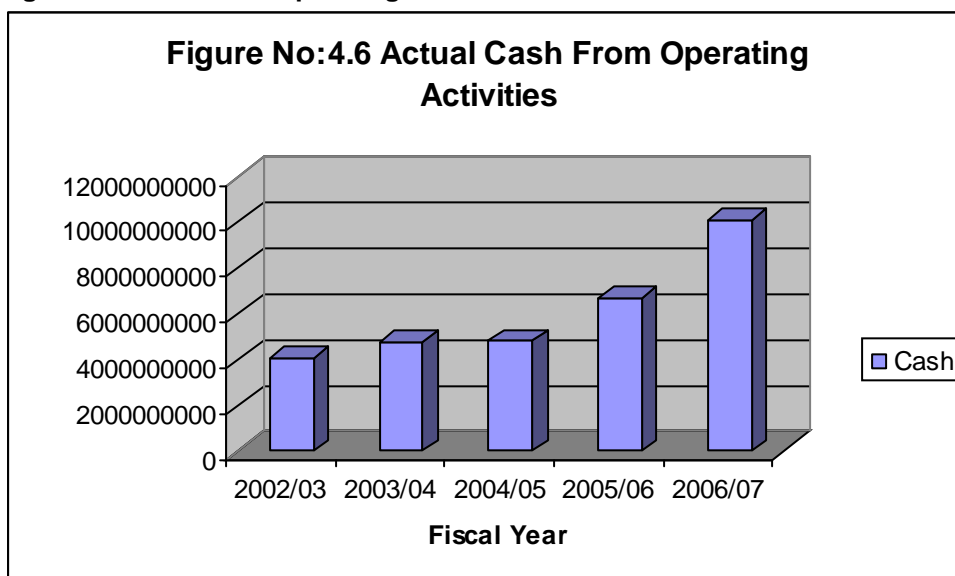


Table No 4.6 represents the trend of net cash flow from operating major items. Operating cash flow, often referred to as working capital, is the cash flow generated from internal operations. In Nepal Telecom, cash from operating activities are generated from sales of the product services. Operating profit before working capital includes adjustment, depreciation, foreign exchange gain or loss provision for staff bonus, incentive, gratuity and pension, 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. 4093118358, 4550667734, 4921528988, 6843726817 and 11298722582 for F/Y 2002/03 to 2006/07 respectively.

From above analysis, it can be said that amount of operating profit before change in working capital is in increasing trend for the study period. It is Rs. 5770827268 1 in F/Y 2002/03 and reached to Rs. 14015691282 in F/Y 2006/07.

Adjustment of working capital includes increase in A/R, increase in stock, increase / decrease in interest accrued, increase in advance, branch account (adj), 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. 4070933619 to Rs. 10122030316. 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.

**Calculation of cash flow from investing activities for the Year ended
2002/06 to 2006/07**

Table 24 Cash from investing activities

	2002/03	2003/04	2004/05	2005/06	2006/07
--	---------	---------	---------	---------	---------

Particulars	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.
Cash Flow from Investing Activities					
Purchase of Fixed Assets	-1768641894	-1549122679	-1997745812	-2243645653	-3048075299
Purchase of Investment (Decrease in CWIP)	-976527465	-41500006	-1075339893	15787272	-382629316
Increase in deferred expenses		-5320767	-42097104	-34287106	-3242822
Increase in Investment		-383816890	55824025	-818214722	-3486326383
Sale of Investment	282500000				
Income from investment & bank deposit	419546350	490270207	463827650	596837682	822066146
Net cash flow from Investing Activities (b)	-2043123009	-1489490135	-2595531134	-2483522527	-6098207674

Figure No. 4.7: Actual Cash Flow from Investing Activities

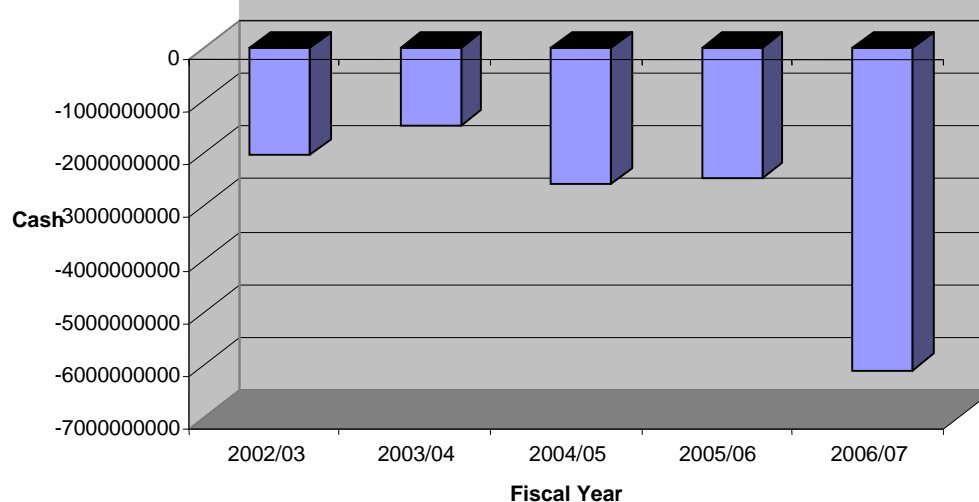


Figure No. 4.7: Actual Cash Flow from Investing Activities

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, or other sources and used outside of normal operations.

Cash flow from financing activities was also in increasing trend except for the year 2003/04 which was very low than other study period. CFIA(cash from investing activities) was negative through out the study period which shows that company has purchased more assets and invested in fixed assets. CFIA has become fluctuating in the study period but it has drastically increased in the year 2006/07. This was because NTC has spent huge money in its new investment like installation of towers.

Table No. 4.8: Calculation of cash flow from Financing Activities for the Year ended 2002/03 to 2006/07

Table 25 : Cash from Financing activities

Particulars	2002/03 Amt. in Rs.	2003/04 Amt. in Rs.	2004/05 Amt. in Rs.	2005/06 Amt. in Rs.	2006/07 Amt. in Rs.
Cash Flow from Financing Activities					
Increase in Equity Share Capital					
Long term Borrowing	233906064				
Repayment of long term loan	-300116190				
Receipt in long term debt		11249585	24238654		
Pymt of long term debt		-233780333	-11249585	-24238654	-1191680000
Pymt of dividend		-496814035	-300000000	-433510216	-1499500000
Pymt of last year dividend		-92395927			
Repayment of retained earning to Nepal Govt		-1000000000	-2,900,000,000	-1611651503	
Receipt of Share Capital		5000000			
Capital Reserve Adjusted to retained earnings				-2318742	
Net cash flow from Financing Activities ©	(66,210,126)	(1,109,541,895)	(3,187,010,931)	(2,071,719,115)	(2,691,180,000)

Figure 23 Cash flow from financing activities

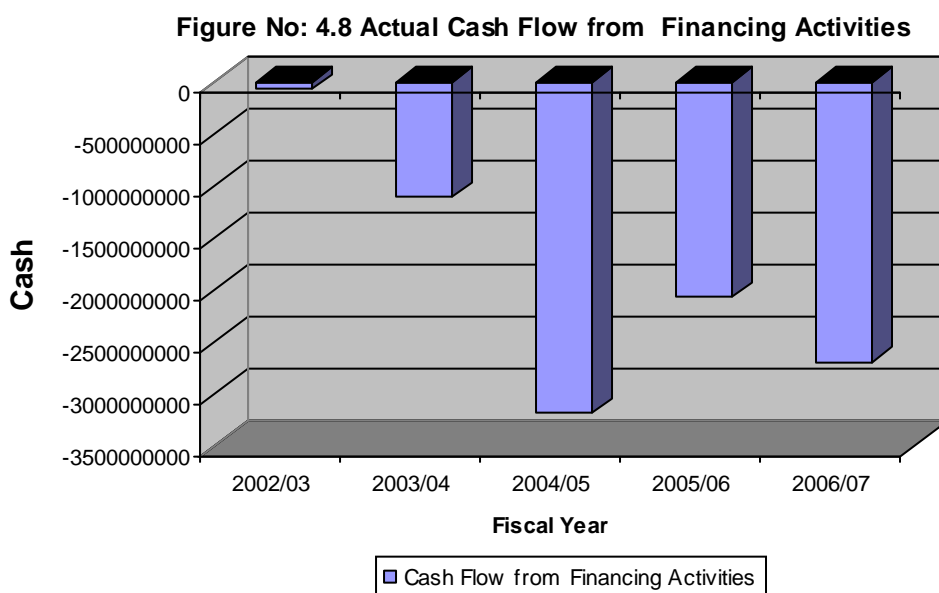


Table no 4.8 shows cash flow from financing activities. Like NTC CFIA, its CFFA also had negative cash flow. This means that company was paying its long term liabilities.

There was drastic increment in CFFA in the year 2003/04. It was because payment of long term debt, payment of investment and repayment of retained earning to Nepal Govt was 0 in the year 2002/03 which increased to 2 million, 4million and 1 billion respectively in the year 2003/04. During the study period, CFFA was highest in the year 2004/05 which was because of repayment of retained earning to Nepal Govt which was 2 billion.

Company was paying back its loan and investing its fund simultaneously which become possible because of retained earning.

Table No. 4.9: Calculation of actual cash flow for the Year ended 2002/03 to 2006/07

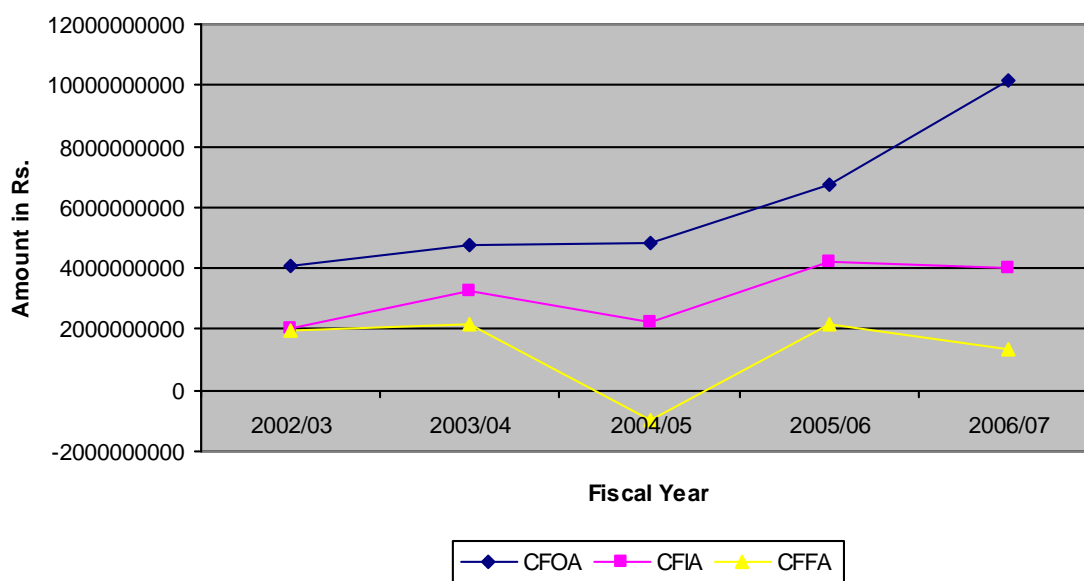
S

Table 26 : Actual cash Flow

Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
CFOA	4070933619	4774587088	4827497506	6722360621	10122030316
CFIA	2,043,123,009	1,489,490,135	2,595,531,134	2,483,522,527	- 6,098,207,674
CFFA	-66210126	1,109,541,895	-3187010931	-2071719115	-2691180000
Net increment in cash (a) + (b) + ©	2017599085	9578049	-955044559	2167118979	1332642642
Cash at the beginning of the year	8242138736	10548112205	10780669711	9574500796	14746337952
Foreign Exchange Adjustment Gain/(Loss)	-162000231	222979457	-251124356	280005092	86939175
Cash at the end of the year (I + ii + iii)	10,097,737,590	10,780,669,711	9,574,500,796	12,021,624,867	16,165,919,769

Figure 24 : Actual cash flow

Figure No. 4.9 Trend showing Cash Flow position from Various Activites



The table 4.9 indicates that net cash flow from operating activities is in increasing trend. Similarly cash flow from financing activities is also in increasing trend. This however is not in the case of cash flow from investment activities. There is erratic fluctuation in the CFIA. 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 fluctuating. 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 but it did not perfectly followed cash flow management of avoiding extended cash shortage.

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)

Table 27 : Cash Budget and Actual cash

Fiscal Year	Approved cash Budget	Actual cash	Deviation	% Change
2002/03	5176317	10097737	4921420	48.74
2003/04	7375201	12417486	5042285	40.61
2004/05	5936374	9574500	3638126	38.00
2005/06	3399304	12021625	8622321	71.72
2006/07	6590307	14746338	8156031	55.31

Figure 25 : actual cash budget

Figure No: 4.10 Trend Line showing percentage change in Approved and Actual Cash Budget

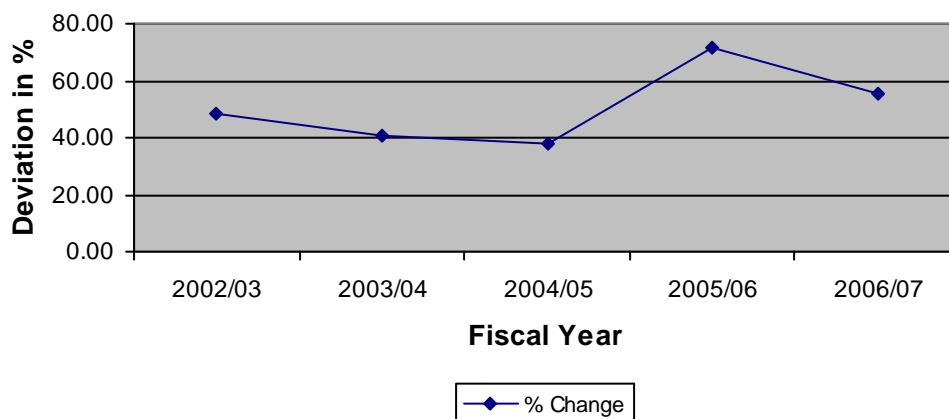


Table 4.10 shows the approved cash budget and actual cash of NTC over the study period. Analysis showed that actual cash balance is higher than approved budget which means that budget has not been properly implemented. Highest deviation is found in the year 2005/06 which was due to improper planning. Overall cash balance of NTC fluctuated a lot during study period.

4.1.5.2 Revised Cash Budget and Actual Cash

Table No. 4.11: Statement Showing Revised Cash Budget and Actual Cash

Rs. ('000')

Table 28 : Revised Cash Budget and actual cash

Fiscal Year	Revised Budget	Actual	Deviation	% Change
2002/03	9392113	10097737	705624	6.99
2003/04	10829362	12417486	1588124	12.79
2004/05	10655130	9574500	-1080630	-11.29
2005/06	8195242	12021625	3826383	31.83
2006/07	11030579	14746338	3715759	25.20

Figure 26 : Revised Cash budget and actual cash

Figure No: 4.11 Trend Line showing percentage change in Revised Cash Budget and Actual Cash

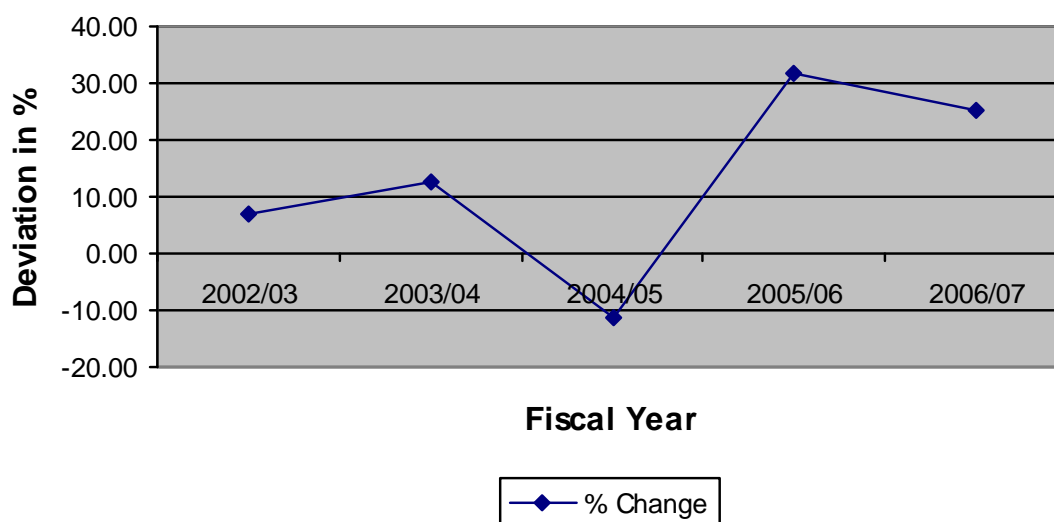


Table 4.11 shows revised and actual cash budget of NTC for the period 2002-2008. Like approved budget, this budget also has deviation but deviation is smaller. NTC revise its budget in its last quarter. In the study period actual cash balance is higher than revised budget except for the year 2004/05.

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 NTC by Least Square Method

Rs. ('000000')

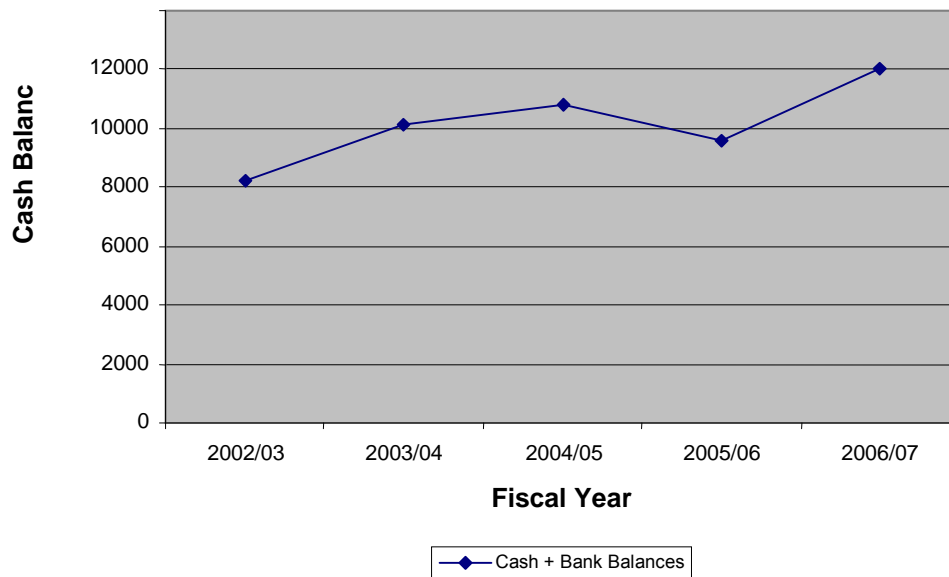
Source: Audited Balance Sheet of NTC (2002-2008)

Table 29 : Trend analysis

Fiscal Year	Cash/Balance	x	x ²	xy
-------------	--------------	---	----------------	----

(x)	Balance (y)			
2002/03	10097	-2	4	-16484
2003/04	10780	-1	1	-10087
2004/05	9574	0	0	0
2005/06	12021	1	1	9574
2006/07	16165	2	4	24042
	$\Sigma y = 58637$	0	$\Sigma x^2 = 10$	$\Sigma xy = 13377$

Figure No: 4.12 Trend Line showing Cash Balance



e

X= Time

Y= Cash Balance

N= Number of observation

Straight Line trend (Y_c) = a + bx

$$a = \frac{y}{N} = \frac{58637}{5} = 11727.4$$

$$b = \frac{xy}{N} = \frac{13377}{10} = 2675.4$$

$$(Y_c) = 11727.4 + 2675.4x$$

This trend line shows the positive figure of cash balance for future. The annual rate of increment of cash balance is seemed to be $2675.4 \times 100000 = 267540000$.

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 modeling 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 Telecomm

Correlation (r) Between Cash Balance and Revenue

Rs.(‘000000)

Table 30 : Correlation Between Cash and Revenue

Year	Cash Balance (x)	Revenue (y)	u=x- 11727.4	v=y- 10261	U ²	V ²	uv
2002/03	10097	7209	-1630.4	-3052	2658204.16	9314704	4975980.8
2003/04	10780	8312	-947.4	-1949	897566.76	3798601	1846482.6
2004/05	9574	8584	2153.4	-1677	4637131.56	2812329	36112513.8

2005/06	12021	10413	293.6	152	86200.96	23104	44627.2
2006/07	16165	16787	-4437.6	6526	19692293.76	42588676	28959777.6
Total	$\sum x = 58637$	$\sum y = 51305$	0	0	27971397.2	58537414	39438120

Source: Audited balance sheet of NTC 2002-2008

$$\bar{x} = \frac{\sum x}{N} = \frac{58637}{5} = 11727.4$$

$$\bar{y} = \frac{\sum y}{N} = \frac{51305}{5} = 10261$$

$$u = x - \bar{x} \quad v = y - \bar{y}$$

$$\sigma_x = \sqrt{\frac{\sum u^2}{N}} = \sqrt{\frac{27971397.2}{5}} = 2365.2$$

$$\sigma_y = \sqrt{\frac{\sum v^2}{N}} = \sqrt{\frac{58537414}{5}} = 3421.6$$

Since,

	x	y
Mean	11727.4	10261
SD	2365.2	3421.6

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 increase as cash increases or vice-versa. It means there should be positive correlation between cash balance and actual sales.

$$r_{xy} = \frac{uv}{\sqrt{u^2 v^2}} = \frac{39438120}{\sqrt{27971397.2 \times 58537414}} = 0.97$$

Correlation coefficient between cash balance and revenue (r_{xy}) = 0.974

The value of 'r' shows that there are highly positive correlation between cash and revenue. 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.

$$P.E (r) = \frac{0.6745(1 - Zr^2)}{\sqrt{N}} = \frac{0.6745(1 - Z0.97 * 0.97)}{\sqrt{5}} = 0.017$$

From we have probable error of 'r' = 0.017. 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

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

Since,	x	y
Mean	11727.4	10261
SD	2365.2	3421.6

$$r_{xy} = 0.97$$

$$X - 11727.4 = 0.97 \frac{2365.2}{3421.6} (Y - 10261)$$

$$X - 11724.4 = 0.674y - 6874.87$$

$$X = 4849.53 + 0.674y$$

This equation shows that revenue will be increased by 0.67 per unit.

4.2.2.1 Cash and Account Receivable of Nepal Telecomm

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

Rs. ('000000')

Table 31 : Correlation Between cash balance and account receivable

Year	Account Receivable (x)	Cash Balance (y)	u=x-3572.8	y=y-11727.4	u ²	v ²	uv
2002/03	3030	10097	-542.8	-1630.4	294631.84	2658204.16	884981.12
2003/04	5279	10780	5279	-947.4	27867841	897566.76	-5001324.6
2004/05	2825	9574	2825	-2153.4	7980625	4637131.56	-6083355
2005/06	3099	12021	3099	293.6	9603801	86200.96	909866.4
2006/07	3631	16165	3631	4437.6	13184161	19692293.76	16112925.6
Total	17864	58637	0	0	58931060	27971397.2	6823093.52

Source: Audited balance sheet of NTC 2002-2008

$$\bar{x} = \frac{\sum x}{N} = \frac{17864}{5} = 3572.80$$

$$\bar{y} = \frac{\sum y}{N} = \frac{58637}{5} = 11727.4$$

$$u = x - \bar{x} \quad v = y - \bar{y}$$

$$\sigma_x = \sqrt{\frac{\sum u^2}{N}} = \sqrt{\frac{58931060}{5}} = 3433.1$$

$$t_y = \sqrt{\frac{v^2}{N}} = \sqrt{\frac{27971397.2}{5}} = 2365.22$$

Since,

	x	y
Mean	10142.8	11727.4
SD	3433.1	2365.22

Again, Karl Pearson's Coefficient of Correlation (r) is used to determine the 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 increase as cash increases or vice-versa. It means there should be positive correlation between cash balance and account receivable.

$$r_{xy} = \frac{uv}{\sqrt{v^2 u^2}} = \frac{6823093.52}{\sqrt{27971397.2 \times 58931060}} = \frac{6823093.52}{40600296.49} = 0.16$$

Correlation coefficient between cash balance and revenue (r_{xy}) = 0.16

The value of r shows that there is a 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.

$$P.E (r) = \frac{0.6745(1 Z r^2)}{\sqrt{N}} = \frac{0.6745(1 Z 0.16)}{\sqrt{5}} = 0.29$$

We have a probable error of 'r' = 0.16. Since $r < 6 P.E. (r)$, the value of r is not 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

$$x - \bar{x} = r \frac{\sum X}{\sum Y} (y - \bar{y})$$

Since,

	x	y
Mean	10142.8	11727.4
SD	3433.1	2365.22

$$r_{xy} = 0.16$$

$$X - 10142.8 = 0.16 \frac{3433.1}{2365.22} (Y - 11727.4)$$

$$X - 10142.8 = 0.11(Y - 11727.4)$$

$$X = 0.11y + 10142.8 - 11727.4$$

$$X = -1574.6 + 0.11y$$

Thus, for unit increase in cash, A/R increases by 0.11 per unit.

4.2.2.1 Cash Collection Technique of NTC

Nepal Telecom is using following technique for cash collection:–

A) Direct Cash Collection:– This is the system which is providing services, direct sales through office that is direct cash collection. Registration fee, SMS charge, Service fee & selling of recharge card fee are collected in center, regional offices of NTC. Collected cash is deposited day by day in Bank account.

B) Cash Collection through Bank

Nepal Telecom has been started online Bill payment through Bank. PSTN Telephone Bill can payment by online through NMB Bank, Machhapuchhre Bank, Laxmi Bank, Bank of Kathmandu, Nepal Investment Bank Ltd. & Bank of Asia Nepal Ltd.

4.3 Analysis of Hypothesis

We know that hypothesis is quantities statement about population parameter. It is an assumption that is made about population parameter and finally its validity is tested. The act of verification involves testing the validity of such assumption which whom undertaken on the basis of sample evidence is called statistical hypothesis.

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

Rs. ('000000')

Table 32 : Table for hypothesis Test

Year	Account Receivable (x)	Cash Balance (y)	u=x-3572.8	y=y-11727.4	u ²	v ²	uv
2002/03	3030	10097	-542.8	-1630.4	294631.84	2658204.16	884981.12
2003/04	5279	10780	5279	-947.4	27867841	897566.76	-5001324.6
2004/05	2825	9574	2825	-2153.4	7980625	4637131.56	-6083355
2005/06	3099	12021	3099	293.6	9603801	86200.96	909866.4
2006/07	3631	16165	3631	4437.6	13184161	19692293.76	16112925.6
Total	17864	58637	0	0	58931060	27971397.2	6823093.52

Source: Audited balance sheet of NTC 2002-2008

$$\bar{x} = \frac{x}{N} = \frac{17864}{5} = 3572.80 \quad \bar{y} = \frac{y}{N} = \frac{58637}{5} = 11727.4 \quad u = x - \bar{x} \quad v = y - \bar{y}$$

$$\dagger_x = \sqrt{\frac{u^2}{N}} = \sqrt{\frac{58931060}{5}} = 3433.1 \quad \dagger_y = \sqrt{\frac{v^2}{N}} = \sqrt{\frac{27971397.2}{5}} = 2365.22$$

Since,	x	y
Mean	10142.8	11727.4
SD	3433.1	2365.22

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 increase as cash increases or vice-versa. It means there should be positive correlation between cash balance and account receivable.

$$r_{xy} = \frac{uv}{\sqrt{v^2 u^2}} = \frac{6823093.52}{\sqrt{27971397.2 \times 58931060}} = \frac{6823093.52}{40600296.49} = 0.16$$

let focus on Alternative Hypothesis once again

H1: $\rho \neq 0$, The cash balance & Account Receivable are correlated.

Here correlation coefficient between cash balance and revenue (r_{xy}) = 0.16

As mentioned above the hypothesis is done on the base of coefficient correlation between cash and revenue. Correlation coefficient between cash balance and revenue (account receivable) is 0.16 so alternate hypothesis is accepted that means correlation between cash and revenue (account receivable) is correlated .

4.3 Major Findings

- Current Ratio of NTC through out the study period was in decreasing trend with the average ratio of 1.65. In the 1st three year of study period, current ratio was above average ratio and the last two year of study period, it was below the average ratio. The data reveal that NTC have current ratio less than two in the study period indicating that there is cash shortage and poor management of cash. This was especially critical in the 5th year of the study.
- Quick ratio of NTC was 1.06 on an average for the study period. The ratio was in decreasing trend. Although ratio was in decreasing trend but was not below 1 except for 4th and 5th year

It is not uncommon for a quick ratio to be under 1, with number between 0.8 and 1.0 most common. Ratio lower than 0.8 might indicate that company is running short on its available cash, which could create problem soon after the purchase.

- The Absolute cash ratio for the five years was 0.83 on an average. The ratio was in decreasing trend. It was found that cash position of company was bit weak over the study period but was worst in the year 2004/05. In the 1st two year of study, cash was almost sufficient to pay its current liabilities but in later years it was not. So it shows that cash was not managed properly.
- Average cash to current assets ratio is 0.53. This indicated that 53% of current assets comprises of cash which shows good liquidity position of NTC.
- The above analysis of cash turnover of NTC revealed that there is no any fixed trend of cash turnover over the study period. Cash turn over ratio was 0.83 on an average. This indicates that NTC is unable to utilize its idle cash in generating revenue. The company's position of liquid cash that remained 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.
- Table 10 has shown the summary of cash flow from operating, financing and investment activities. Cash at the end of each year of study period is in increasing trend which shows good position of cash in NTC.
- Cash budget of the study period showed that there is high deviation in budgeted and actual cash budget. It shows that there was no effective implication of budgeted amount and also shows improper planning of cash. Had there been a proper planning of cash, deviation would have been minimum and cash available would have been utilised in effective and productive way. NTC always revise its budget in last quarter of its fiscal year. There is still deviation in revised and actual cash balance which is shown by table no 4.12. Actual cash balances were higher than revised budgeted cash however deviation of revised and cash budget was insignificant.
- Correlation coefficient between cash balance and revenue of NTC found to be highly positive. Cash balance & revenue of NTC are correlated. This means when revenue increases cash balance will increase or vice versa.
- There is low degree of correlation between cash and A/R receivable. Cash balance & Account receivable of NTC are correlated. The actual cash will change in the same direction as account receivable changes.
- NTC is using direct cash collection & cash collection through Bank technique.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

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 dissolved 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 and Spice Nepal(N Cell) now a days.

Now to compete with market, NTC has to do best in every aspect of its transaction. One of its aspects of NTC'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 NTC, review cash flow from operating, financing and investing activities and to analyse the cash collection and disbursement of NTC.

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.

5.2 Conclusion

Analysis of current ratio showed that average ratio of NTC is 1.51 which is below traditional 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 NTC to have current ratio equals to 2.

Analysis of quick ratio showed that NTC is able to maintain minimum acceptable liquidity ratio i.e. 1:1. This means that NTC has enough cash to pay current obligation of the firm.

Cash and bank balance with respect to current assets has been in fluctuating trend. On an average, 50% of current assets consist of cash which shows the greater safety of funds of short-term creditors.

Cash flow statement of NTC 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 NTC showed that there is high deviation in Budgeted and actual cash balance. This shows the improper planning of Budget. Also it showed that only total internal sources are not enough for NTC to meet its operating and non operating expenditure. So NTC took loan from external sources. But this however was not required as there is always surplus cash held by NTC.

5.3 Recommendation

Cash management is one of 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 liquidity is satisfactory. However, it is important for the company to estimate how much fund is necessary to maintain liquidity position and to invest the surplus cash funds in marketable securities or profitable opportunities to generate some income. It seems the quick ratio is in smooth and good. so the the company should focus to maintain current assets to get the ratio at least 2 .
- 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 or to invest that surplus cash in profitable sector. Like, it could use in marketable securities or bonds or hydropower sectors.

- NTC should have proper cash planning to estimate the cash receipts and payments which helps to control the efficient management of cash. Similarly, Nepal Telecom should analyze various cash management techniques and models so that it can predict the optimal cash balance. For example direct cash collection & cash collection through bank techniques and Baumol's model or Miller –orr model of cash management. Baumol approach to determine the level of cash balances based on Economic Order Quantity of early inventory model. it assumes that the firm faces fixed cash inflow and outflow patterns and sought to minimize the cost of holding cash necessary for its transaction. The ratio of total outlays including tax, and dividend payments but excluded capital expenditures debt retirement and securities purchases from year end cash holdings. According to it, the cost of holding money is much less for large firms than for small firms. So this kind of technique should be followed.
- Preparation of realistic budget: while preparing budget company should analyze the actual past data and present needs of the programs applying systematic and scientific method of data analysis. Actual total uses of budget amount were not matching with budgeted target for expenses purpose.
- Use internal source in full capacity: Internal source is sufficient to finance whole budgeted expenses of the company. It should not borrow loan from foreign institution because it involves cost. Because there is enough internal source. and internal fund is possible to invest for internal improvement.
- NTC have good liquidity position in study period so it should also maintain in coming year. But it must try to maintain the current ratio to 2 and should keep up the quick ratio.
- NTC should require giving quality services to customers by effectively managing cash. Quick and effective methods should follow where there shouldn't be any chance to wait customer to in queue to pay the bill.

- NTC should need to analyze the mail float, processing float, transit float & disbursement float in money collection & disbursement.
- NTC should minimize the deviation of revised budget & actual cash balance for earning more profit.
- NTC should require making reduced cash balance plan amount for each next yearly increment revenue and account receivable because Cash balance & revenue & Account receivable of NTC are correlated

- NTC should provide facility to deduct the cash directly from the account of customer account directly. they can keep the relation with different local banks and give the facility to customer
- NTC has to adapt a new technology for the cash management which is suitable for the Nepalese perspective. All the part of Nepal are not fully developed . Nepal is landlocked country with agro-based economy. The country is divided into three parts (i.e. Mountains, Hills, Terai region) with its geographical nature. Nepal is one of the least developed and very poor country in the world. More than 90 % of the people are still in rural areas and most of them are deprived minimum physical facilities, which is necessary for human being. Agriculture is still the backbone of Nepalese economy. Economy development is not possible with out agriculture development. National planning commission has given more emphasis to this sector. But the real picture of this sector is very poor. This is because Nepal has not been able to provide basic facilities to the farmers like irrigation, electricity and transportation. So this company should focus on this should get credit through social services also.

BIBLIOGRAPHY

Books and Journals

- Bhusan, Y.K. (1976); **Fundamentals of Business Origination and Management**, (Sultan Chand and Sons Publisher, New Delhi) 8th Edition,
- Fern ends Dray, (1982); **Central System For Public Enterprise in Developing Countries**, ICPE,
- Garrison, Ray H.(1985); **Management Accounting Concept For Planning Control and Decision Making**,(Business Publication Inc.,Plano,Texas,4th Ed.,).
- Armstrong, J. Scott (1978); **Long Range Forecasting From Crystal Ball to computer** (New York.)
- Bajarachary, Puskar** Opt Cit pp 3
- Joel, Dean (1992); **Managerial Economics**, (Prentice Hall of India Pvt. Ltd.,).
- Kulkarni, P.V.,(1992); **Financial Management**, (Himalayan Publishing House, Bombay. 4th Edition,).
- Memorial, C.B.,(1990) ; **Personnel Management**, (7th Edition,).
- Pandey, I.M.(1999); **Financial Management**, (7th Edition, Printed at Godson Paper Ltd., Maida).
- Sultan, C.F.,(1953) **Business Forecasting**, A Paper Present at the 24th National Conference, Held at London
- Terry, George R., **Principle of Management**, 5th Edition.
- Van Horne James C.,(1976); **Financial Management and Policy**, (Prentice Hall of India Pvt. Ltd., 8th Edition,).
- William B. Pierce,(1978); '**International Telecommunication**', Seminar on Rural Telecom, (New Delhi, 11-22 Sep.).
- Willsenore, A.W., **Business Budgets and Budgeting Control**, Edition London.
- Wolf Howard K. and, Prem Raj, (1975); **Social Science Research and Thesis Writing**, (University Press, T.U., Kathmandu).
- Gupta, S. P. (1989). **Statistical Methods**. New Delhi: Sultan Chand & Sons
- Khan, M.Y, & Jain, P. K. (2003). **Financial Management**. New Delhi: Tata Mc Graw-Hill Publishing Company Ltd
- Orgler, Y.E. (1970). **Cash Management Method and Model**. California: Wands worth Publishing Company
- Friedman, M (1959). The Demand for Money: Some Theoretical Empirical Results. **The Journal of Political Economy**. VOL LXVII. pp. 327-351
- Pradhan, R. S. (2004). **Financial Management**. Kathmandu: Buddha Academic Publishers and distributor Pvt. Ltd
- Pradhan, S. (2002). **Basics of Financial Management**. Kathmandu: Educational Enterprise (P) Ltd
- Saksena, R. M. (1974). **Towards More Efficient Cash Management**. Kathmandu: Nepal Journal of Management, quarterly no .5
- Sthapit, A.B., Gautam, H., Joshi, P. R., & Dangol, P.M. (2003). **Statistical Methods**. Kathmandu: Buddha Academic Publishers and Distributors Pvt Ltd
- Van H., & James, C. (2003). **Fundamentals of Financial Management**. USA: Prentice Hall Inc.

Dissertations

- Bhatt, L. R (2006). **Revenue Planning and Cash Management of Public Utility of Nepal (A case study of Nepal Telecom)**. An unpublished Master Degree Thesis, submitted to faculty of management, Tribhuvan University
- Chalise, P. (2006). **Cash Management of Nepal Telecommunication**. An unpublished Master Degree Thesis, submitted to faculty of management, Tribhuvan University

- Chataut, B. R. (2008). ***A study on Cash Management in Nepal Telecom***. An unpublished Master Degree Thesis, submitted to faculty of management, Tribhuvan University
- Rayamajhi, D. (2006). ***Cash Management of Nepalese Commercial Banks***. An unpublished Master Degree Thesis, submitted to faculty of management, Tribhuvan University
- Schabacker, J. C. (1989). ***A Study of Cash Planning in Small Manufacturing Companies***. Los Angeles: An unpublished dissertation completed at the University of California
- Bajracharya, S. L. (1990). ***Cash Management in Nepalese Public Enterprises***. New Delhi: An unpublished PHD Thesis submitted to University of Delhi

WEBSITES

www.ntc.net.np

www.nepjol.info

www.ebscohost.com/titlelists/bu-journals.pdf

www.allbusiness.com/accounting-reporting/cash-flow-management-cash-statement/737-1.html

www.answers.com/topic/cash-management?cat=biz-fin

www.books.google.com/books

www.jstor.org

www.referenceforbusiness.com

www.sbinfocanada.about.com/cs/management/g/cashflowmgt.htm

www.stat.lsa.umich.edu/~faraway/book/

www.studyfinance.com/lessons/workcap/index.mv?page=01

www.surveysystem.com/correlation.htm

www.tscpa.com

www.ntc.net.np

APPENDEX –1

Calculation of Ratio

Calculation of Current Ratio of NTC

Rs. ('000')

Fiscal Year	Total Current Assets	Total Current Liabilities	Ratio CA/CL
2002/03	18424147	10137347	1.82
2003/04	20213763	12640965	1.60
2004/05	20598353	14722678	1.40
2005/06	22526522	15665379	1.44
2006/07	28648636	22199654	1.29
		Average	1.51

Source: NTC Annual Report 2008

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

Current Ratio(02/03)= 18424147/10137347 = 1.82

Current Ratio(03/04)= 20213763/12640965 = 1.60 and so on.

Calculation of Quick Ratio of NTC

Rs. ('000')

Fiscal Year	Total Quick Assets	Total Current Liabilities	Ratio CA/CL
2002/03	13571008	10137347	1.34
2003/04	13946011	12640965	1.10
2004/05	12958166	14722678	0.88
2005/06	15768952	15665379	1.01
2006/07	21176085	22199654	0.95
		Average	1.06

Source: NTC Annual Report 2008

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

Here, Quick Ratio(02/03) = 13571008/10137347 = 1.34 and so on

Calculation of Absolute Cash Ratio of NTC

Rs. ('000')

Fiscal Year	Cash + Bank Balances + Treasury Bill	Current Liabilities	Ratio
-------------	--------------------------------------	---------------------	-------

2002/03	11008439	10137347	1.09
2003/04	11755643	12640965	0.93
2004/05	9574501	14722678	0.65
2005/06	12021625	15665379	0.77
2006/07	16165920	22199654	0.73
		Average	0.83

Source: NTC Annual Report 2008

$$\text{Absolute cash ratio} = \frac{\text{Cash \& equivalent} \Gamma \text{ Marketable Securities}}{\text{Current Liabilities}}$$

Absolute cash ratio(02/03) = 11008439/10137347 = 1.09 and so on

Calculation of Cash to Current Assets Ratio of NTC

Rs. ('000')

Fiscal Year	(Cash + Bank) Balance	Current Assets	Ratio
2002/03	10097738	18424147	0.55
2003/04	10780669	20213763	0.53
2004/05	9574501	20598353	0.46
2005/06	12021625	22526522	0.53
2006/07	16165920	28648636	0.56
		Average	0.53

Source: NTC Annual Report 2008

Cash to Current Assets Ratio = (Cash+Bank) balance/Current Assets
= 10097738/18424147 = 0.55 and so on

Calculation of Cash Turnover Ratio

Rs. ('000')

Fiscal Year	Total Revenue	Cash + Bank Balances	Cash Turnover
2002/03	7208087	10097738	0.71
2003/04	8312244	10780669	0.77
2004/05	8584144	9574501	0.90
2005/06	10413655	12021625	0.87
2006/07	14787475	16165920	0.91
		Average	0.83

Source: NTC Annual Report 2008

Cash Turnover Ratio(02/03) = (Total Revenue)/(Cash+ Bank) Balances
= 7208087/10097738 = 0.71 and so on

PPINDEX –2

Calculation of Cash Flow from Operating Activities for the Year Ended 2002/03 to 2006/07

	2002/03	2003/04	2004/05	2005/06	2006/07
Particulars	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.	Amt. in Rs.
Cash Flow from Operating Activities					
<i>Net Operating profit before tax</i>	4093118353	4550667734	4921528988	6843726817	11298722582
Adjustment:					
Depreciation	940224526	1027922573	1050485813	1196136319	1498861408
Deferred Expenses	34435417	32770817	40817764	40029002	71161566
Foreign Exchange Gain/loss	162000231	28442774	251124356	-280005092	-86939175
Provision for staff bonus and incentive	301638899	309211605	281711261	322040673	620118387
Provision for Pension	62526226	234993917	312606943	241389693	331238763
Interest on loan		3291470	696200	1107992	10303949
Bad debts	662011				
Provision for Bad debts	21072345	225979927			
Fixed asset written off	2972544	33932265	1224800		
Income from investment & bank deposit	-419546350	-490270207	-463827650	-596837682	-822066146
Special charge	124371534	7004544			
Expenses on loss of goods	42084932	163489179		8530000	
Royalty	405266600	126574376	491301830	591807155	1007248557
Provision for earned leave		37602296	24236908	65980439	87041391
Operating profit before working capital change	5770827268	6291613270	6911907213	8433905316	14015691282
Adjustment for working capital change					
Increase in account receivable	-562197346	135354808	-157001491	-273552303	-176215868
Increase in stock	82447002	50620115	-54606668	-34258671	-39187088
Increase/ Decrease in interest accrued	-7126509	-18066728	5457834	2463849	-36247684
Increase in Advance	-732608582	-247063386	221484011	382510564	-222017727
Increase in Advance-Tax		-1315698127	-1602051292	-1684603393	-3171335436
Branch Account (Ad)	-12437486	12182199	-4041036	2798001	-400228
Increase in payables	684847704	332544285	226452780	618496246	1225052666
Increase in Provision	219326976				
Payment of interest/Adjustment				-2335181	-10303949
Payment of Royalty				-370641219	-1003349005
Payment of Earned leave				-22011777	-28156853
Payment of Pension				-30048819	-47309251
Gratuity Received				8251	351
Pymt of last year dividend, bonus, incentive tax etc	-1372145408	-418560065	-878193785	-301638899	-281711261
Last year adjustment		-48339283	158089940	1268656	-102479633

Working Capital Changes	-1699893649	-1517026182	-2084409707	-1711544695	-3893660966
(1+2)Net cash flow from Operating Activities (a)	4070933619	4774587088	4,827,497,506	6722360621	10122030316

Source: Annual Report of NTC (2002-2008)

APPENDIX –3

Calculation of Deviation & Percentage Change

Approved Cash Budget and Actual Cash

Fiscal Year	Approved cash Budget	Actual cash	Deviation	% Change
2002/03	5176317	10097737	4921420	48.74
2003/04	7375201	12417486	5042285	40.61
2004/05	5936374	9574500	3638126	38.00
2005/06	3399304	12021625	8622321	71.72
2006/07	6590307	14746338	8156031	55.31

Source: Budget and Policy Program (2002-2008)

Here,

Deviation = Actual Cash - Approved Cash Budget = (10097737 - 5176317)

= 4921420 and so on

And % change = Deviation / Actual Cash x 100 = 4921420 / 10097737 x 100 = 48.74

And so on

Revised Cash Budget and Actual Cash

Fiscal Year	Revised Budget	Actual	Deviation	% Change
2002/03	9392113	10097737	705624	6.99
2003/04	10829362	12417486	1588124	12.79
2004/05	10655130	9574500	-1080630	-11.29
2005/06	8195242	12021625	3826383	31.83
2006/07	11030579	14746338	3715759	25.20

Source: Budget and Policy Program (2002-2008)

Here,

Deviation = Actual - Revised Budget = (10097737 - 9392113)

= 705624 and so on

And % change = Deviation / Actual x 100 = 705624 / 10097737 x 100 = 6.99

And so on