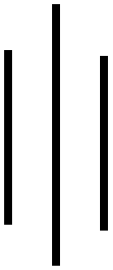
A STUDY ON CASH MANAGEMENT OF NEPAL ELECTRICITY AUTHORITY



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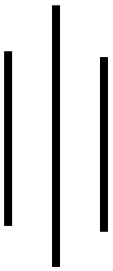

A Thesis Submitted to;
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RECOMMENDATION

This is to certify that the thesis:

Submitted by
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Entitled:

A STUDY ON CASH MANAGEMENT OF NEPAL ELECTRICITY AUTHORITY

has been prepared as approved by this department in the prescribed format of Faculty of Management. This thesis is forwarded for examination.

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Signature: _____ Signature:_____

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VIVA-VOCE SHEET

We have conducted the Viva-Voce Examination of the thesis presented by

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A STUDY ON CASH MANAGEMENT OF NEPAL ELECTRICITY AUTHORITY

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 requirement for Master's Degree in Business Studies (M.B.S.)

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DECLARATION

I heartily declare that this research work entitled "A STUDY ON CASH MANAGEMENT OF NEPAL ELECTRICITY AUTHORITY", submitted to the Faculty of Management, T.U. is my original work for the partial fulfillment of the requirements for the Degree of Master of Business Studies (MBS), conducted under the supervision of Dr.Shayam Bahadur Katuwal of Post graduate campus Biratnagar.

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Date: 2010/10/

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Ram Chandra Bhattarai

Researcher.

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LIST OF ABBREVIATION

%	:	Percent
σ^2	:	Variation
ACP	:	Average Collection Period
AM ($\bar{x}$)	:	Arithmetic Mean
AR	:	Account Receivables
B.S	:	Bikram Sambat
BEP	:	Break Even Point
C.V.	:	Coefficient of Variation
CA	:	Charter Account
CA	:	Current Assets
CAPM	:	Capital Assets Pricing Model
CCC	:	Cash Conversion Cycle
CDM	:	Central Department of Management
CL	:	Current Liabilities
CVP	:	Cost Volume Profit Analysis
DTC	:	Depository Transfer Cheques
EDTC	:	Electronic Depository Transfer Cheques
EOQ	:	Economic Order Quantity
FY	:	Fiscal Year
ICP	:	Inventory Conversion Period
KW	:	Kilowatt
Ltd.	:	Limited
MBA	:	Master of Business Administration

MBS	:	Master of Business Studies
MW	:	Megawatt
No.	:	Number
NEA	:	Nepal Electricity Authority
P.E.	:	Probable Error
PDP	:	Payable Conversion Period
PEs	:	Public Enterprises
r	:	Correlation Coefficient
RCP	:	Receivable Conversion Period
Reg.	:	Registration
S.D. (σ)	:	Standard Deviation
T.U.	:	Tribhuwan University
TA	:	Total Assets
VC	:	Variable Cost
VC	:	Variable Cost

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Nepal is known as agricultural country. The Nepalese economy is totally dominated by agriculture sector. About 80% of total economically active poplation of Nepal is involved in agriculture sector. However this sector has contributed only 36.1% to the total Gross Domestic Product (GDP) and the growth rate measured at current price level is 3.4% only. The present structure of economy with dominant dependency on traditional agriculture is need to be transformed through the process of industrialization so as to shape the country with the overall economic development.

Nepal has adopted mixed economic system where most of the industrial enterprises are established an operated under the ownership of the government. . The privatization has started its slow pace just few years after the restoration of democracy in 2046 B.S along with the adoption of policy of economic liberalisation.

The real history of industrial development begun after the establishment of democracy in 2007 B.S. During Rana regime only the handful of PEs existed-Biratnagar Jute mills,Nepal Bank Limited and Juddha Match Factory.After 2007B.S the democratic government realised the need for industrialization and established “Udhyog Parished” to encourage the process of industrialization.After some years it transformed into “Cottage and Village” industry department and formally begun the development of PEs. Now there are many enterprises which are under the process of privitzetion. But the enterprises relating to public utility concerns are still established and operated under the ownership of public authority.

Nepal Electricity Authority is the largest public enterprise established and operated under the ownership of government of Nepal. It is the one of the many pubic utility concerns, dealing with the production, transmision, operation and distribution electricity through out the country. It is the matter of everybody's concern to know the financial performance of the such enterprise of public nature. Same is the motive of the researcher.

The proposed study is based on the 'Cash management of Nepal Electricity Authority',carried out with the basic objective of examining the cash position of the company and is fully dependent on the informations provided by the concerned enterprise.

1.2 Historical Background of Electricity Development in Nepal

The development of electricity in Nepal has been basically based on the development of hydropower. The development of this infrastructure has been essentially carried by the government but the private sector has also contributed and set qualitatively important footing in this sector. There have been several government organizations through which the development has been coordinated.

The first pioneering projects Pharphing (500 KW) which was built in 1911 A.D. followed by Sundarijal (640 KW) in 1935 were is dated projects established upon the particular governmental agreements and were operated to supply domestic load to very limited areas without any significant planning giving the first taste of electricity to Nepal.

On the Terrain, some industries procured their own energy supply source and companies were formed to supply electricity to the developing industries. In 1940, with small utilities Morang Hydropower Co. was

established with the capacities of around 100 kw which began the isolated operations. It was then followed by the Birjung Electric Supply Co. and the Dharan Electric Power Co. Until the 1960's, the few established industries had to depend on their own sources of energy. The power demand increased with the slow growing of industries, the impact of population growth, the internal migration and surge of tourism.

In the first step of the institutional development within the ministry of water resources, the development of electricity was organized with the specific role to develop electricity. In the second three year plan (1962-1965) Nepal Electricity Corporation (NEC) was established on August 16, 1962 under Nepal Electricity Corporation Act, 1962 as a public enterprise to undertake marketing and development of electricity as well. NEC securely generated and distributed electricity in an efficient, economic and orderly manner in Bagmati Zone and Bhimphedi town in Makawanpur. In 1973, the small hydro development board was established to cover the specific sub sector of hydropower in the remote and rural areas. The aim was to develop hydropower within the range of 100-500 kw in isolated rural area promoting their electrification while over coming difficulties linked to electricity transmission to remote and difficult localities.

In 1976, the Water and Energy Commission (WEC) was constituted with direct dependence from the minister of water resources. This body had an advisory function towards the government in policy matters for the coordinated development of water and energy resources. Power development boards were established to develop specific parts and project in the growing electrical system. The electricity supply system of the complete central and western development region were transferred to NEC on 12th February of 1978. Before that Bijuli Adda which was under

the minister of water and power used to distribute the electricity in Kathmandu Valley. Bijuli Adda held monopoly in the matter of electricity management till 1962.

Another corporation of similar purpose emerged in the history of Nepal's PEs i.e. Eastern Electricity Corporation to bring

Uniformity, efficiency and regularity in the service of electricity distribution in the eastern development region.

Altogether there were agencies engaged in supplying the electricity to the consumers in the whole country as Nepal Electricity Corporation, Eastern Electricity Corporation and others like Nepal Government Electricity Department. Nepal Electricity Authority was created by Nepal Government through the NEA Act, 2041 and began its operation, supply of electricity securely, efficiently, economically and in an underlay manner at reasonable price for the overall development of country. At present NEA has total installed capacity of 613.557 MW.

1.2.1 Historical Background of Nepal Electricity Authority (NEA)

NEA is the largest government enterprise in Nepal with country highest capital investment, assets and human resources. It has undertaken the overall responsibility for planning, construction, operation and generation of electricity in the nation. The history of Nepal Electricity Authority (NEA) started as follows:

Nepal Electricity Corporation (NEC) was established on Bhadra, 2019 B.S, under Electricity Corporation Act 2019 B.S. to generate and distribute electricity in secured, efficiently, economic and orderly manner in Bagmati

Zone and Bhimphedi town in Makawanpur. Before 2019 B.S., Bijuli Adda, which was under the ministry of water and power used to distribute the electricity in Kathmandu vally. Bijuli Adda held monopoly power in the management of electricity till 2019 B.S. In fact, Nepal Electricity Corporation was the modified form of Bijuli Adda regarding operational areas. The responsibilities of the Nepal Electricity Corporation got increase in 1973 B.S. to supply power in Narayani zone. In 2031 B.S. Eastern Zonal Electricity Corporation was established in Biratnagar to facilitate electricity supply to the eastern part of Nepal. In 2039 B.S. however both Nepal Electricity Corporation and Eastern Zonal Corporation (EZEC) were merged into a single organization, mainly three agencies namely NEC, EZEC and other electricity department, division, committees etc.

Nepal Electricity Authority was incorporated on 7 Kartik 2041 B.S., under the Nepal Electricity Authority Act, 2041. All format divisions and committees concerning electricity production supply and distribution were (except Marshyandi Electricity Development Committee) amalgamated into Nepal Electricity Authority. Later Marshyandi Electricity Development Committee was also handed over to NEA after the completion of its construction work. NEA was established as a unified organization in Bhadra 1st 2042 B.S. The specific objectives of NEA were to make effective and economical production, transmission and distribution of electricity and to manage properly the electricity supply. NEA passed the responsibilities of planning, operating and maintaining of all facilities associated with the power sector.

In this way NEA was established as a unified organization in 2042 B.S. NEA was founded as an independent corporation owned entirely by the government and according to commercial principle.

1.2.2 Objectives for establishing NEA

Objectives for establishing Nepal Electricity Authority can be traced as follows:

a) To establish single organization that would work in all sector of electricity planning, survey, production, operation, maintenance and distribution of electricity.

b) To manage the generation, transmission and distribution in order to capability, reliability and accessibility to all people for supply.

c) To utilize and develop the huge amount of water resources of Nepal in a more coordinated way.

d) To provide equal and extensive skill development opportunities for all employees working in the field of electricity.

e) To over come the duplication of work being practiced formerly by extensive of several electricity agencies.

1.2.3 Functions and Duties of NEA

As per the Nepal Electricity Authority Act, 2041 B.S., the functions and duties of NEA are as follows:-

a) To recommend Nepal Government to determine the long term and short term policy relating to supply of electricity by generating, transmitting and distributing electricity pursuant to the prevailing low.

b) To prepare plan for the production, transmission and distribution system of electricity and other related works and to construct, conduct, preserve and promote the production lines and other related facilities, which are necessary for the implementation of the plan.

c) To average the production, transmission and distribution of electricity of adequate standard in the regions which are economically appropriate for the industrial and agricultural development and facility of the people.

d) To fix electricity fee and other service charges relating to the electricity.

e) To do necessary research works relating to production, transmission and distribution of electricity.

f) To make and cause to make arrangement for higher training and study with a view to prepare expert manpower relating to production, transmission and distribution of electricity.

g) To provide technical advice and consultancy relating to production, transmission or distribution of electricity.

h) To do and cause to do other works that are necessary for the achievement of the objective of the authority.

1.2.4 Rights of NEA

The rights of the authority shall be as follows:-

a) To raise loan from foreign government or foreign institution and international institution.
b) To raise loan from national institutions, banks and individuals.
c) To collect charge of electricity and service charges from the customers.
d) To sell and bur electricity to and from foreign countries.
e) To invest the amount, lying in the fund of the authority.
f) To check the authority consumption of electricity applied by the authority.
g) To do all work which seems to be inevitable and necessary for the fulfillment of the works and duties of its own.

1.2.5 Nepal Electricity Authority as a Public Utility

Nepal Electricity Authority as a public utility concern has a primary objectives of providing services that are basically important to the people in general. Since a public utility concern has a public interest, status, its profit planning system deserves the top most attention.

Nepal Electricity Authority has an endeavored to structure itself into an institution oriented towards self sustainable commercial operation and also meeting social obligations in the nation's interest. Nepal Electricity Authority is the largest government enterprises in Nepal. Being a public enterprise, it has been financed by the government and several bilateral and multilateral donor agencies. In this current pace of privatization also, government has rational to keep it under public sector. Thus, electricity, especially NEA becomes one of the main sectors of PEs, which the government will not privatize. At this juncture, it is apparent with the new environment of privatization.

1.3 Focus of the Study

As stated in the interim plan, the financial situation of the government corporation as a matter of a fact is in very poor shape. Apart from other measure required their performance; public enterprises may be expected to have better prospects with effective cash management.

The focus of the study is being on a critical examination of cash management techniques of NEA. The period covered by the study will be five years from 2061/62-2065/66.

1.4 Statement of Research Problem

NEA is the biggest public enterprise in Nepal with the huge investment. There is no market competition as other private enterprise and has higher future scope of production. Although it aims to produce and distribute electricity by service motives it most generate profit at least to cover its cost of capital. The success of failure of any enterprise is measured on the basis of profit ability or surplus and quality of service. These elements depends upon the systematic budgeting and efficient cash management the problems towards which this study is directed is to examine the cash management technique in NEA. So as to determine the cash situation of the company therefore this research study is interned to explore the following problems:

1. Whether the company maintains regular and optimum cash balance?
2. Whether the cash collection and disbursement in NEA is based on systematic way or not?
3. Whether company is facing the problem of cash deficit and surplus or not?
4. To what extend the dependent variable (cash and bank balance) are related to independent variables (sales, account receivable etc)

1.5 Objective of the Study

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

a. To study of the existing cash management system in NEA.

b. To critically review the cash management technique practiced by NEA.

c. To suggest appropriate cash management policy for the future

1.6 Significance of the Study

This study concern to the theoretical explanation and practicalapplication of cash management of NEA. Business transactions with out the investment of cash are mythical in this monetary world. The conflicting interest of that department is bound to create serious problem. The study of cash management is considered as an integratedapproach to management science. The idea behind cash management is therefore maintaining adequate liquid assets Whenever and wherever required by the firm. The maintenance the corporate liquidity therefore consists of determining the volume and timing of cash required by the firm.

Liquidity and technical solvency are two different terms always confused and misused in cash management. A company could be solvent and yet may not have enough cash to meet these current obligations. This is because the solvency of the company is known only after sale of its total assets. The technical solvency therefore does not mean that its current bills can be paid in cash on due date. Hence "liquidity" denotes the capability to meet its current obligation, where as "solvency" is the strength of the enterprise to meet its entire obligation including long-term loans. In conclusion every rupee reduce in the cash balance may contributed to the generation of additional profit. It does not mean that an enterprises.

Saving to zero cash balance but consideration of the cost of idle cash maintain minimum level of cash.

1.7 Research Methodology

Descriptive research design is used in this study. Analysis of the data is based on the development of various financial and statistical tools. All these are discussed in methodology chapter.

Secondary sources of data are collected. It constitutes mostly the annual report which compares profit and loss account, balance sheet and income statement. Thus these are the main sources of data.

1.8 Limitation of the Study

a) This study is limited to only cash management of NEA.

b) This covers the period of only five years beginning from 2004/05 to2008/09of NEA .so the conclusion drawn may not be suitable for other organizations having different condition and periods.

c) This study is mainly based on the secondary data. So the result may be defendant on the information obtained from the published source.

d) This study is for partial fulfillment of the requirement of Masters in Business studies.

e) The researcher could not get the essential materials such as information relating to cash budget and cash flow statements, so the findings and the conclusion drawn from this study may not reflect the perfect reality relating to the cash management in NEA.

f) This study is mostly based on the quantitative analysis where the qualitative aspect has been given secondary position .

1.9 Organization of the Study

This study has been organized into five chapters:

The first chapter is the introductory, which deals with background of the study. NEA, focus of the study, statement of the research problems, objective of the study, significance of the study, research methodology and limitation of the study.

The second chapter deals with the review of the literature relating to cash management .

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

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

At last, the summary, findings, conclusion 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-TWO
REVIEW OF LITERATURE

2.1 Introduction

Review of literature refers to the reviewing of the past studies in the concerned field. Such studies could be thesis/dissertations that are written earlier, books, articles, journals and any other publications concerning the subject matter, which were written prior by a person or an organization. The purpose of this literature review is to get acquainted with what has been accomplished in the concerned subject matter and what is yet to be studied and for tells worthiness of the study being undertaken.

2.1.1 Meaning of Cash Management

The term "cash" is defined in various ways as per context. For instance, from an economist's point of view, cash is the means to satisfy human wants, whereas a lawyer states that is the legal tender of money issued by the government of the state. On the contrary, when it comes to the financial literature, cash is defined in yet another fashion from earlier definitions.

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 p.31 It Is no doubt, very difficult to point out as to how much cash is needed by a particular company, but it is very essential to analyze and find out the

solution to make an efficient use of funds for maximizing the risk of loss to attain profit objectives.

Cash is the money, which the firm can disburse immediately without any restriction. The term cash with references to cash management is used in two senses. In a narrow sense it is used broadly to cover cash currency and generally accepted equivalents of cash such as cheques drafts and demand deposit in bank. The broader view of cash also includes near cash assets, such as, marketable securities and time deposits in bank. "Cash is both the beginning and end of the working capital cycle Cash, Inventories, receivables and cash. Its effective management is the key determinant of efficient working capital management. Cash like the blood stream in the human body gives vitality and strength to a business enterprise. The steady and healthy circulation of cash throughout the entire business operation is the business solvency"[1] According to J. M. Keynes "it is cash, which keeps a business going. Hence, every enterprise has to hold necessary cash for its existence. In a business firm ultimately, a transaction results in either an inflow or an outflow of cash. In an efficient managed business, static cash balance situation generally does not exist. Adequate supply of cash is necessary to meet the requirement of the business. Its shortage may stop the requirement of the business. Its shortage may stop the business operations and may degenerate a firm into a state of technical insolvency and even of liquidation. Through idle cash is sterile; its retention is not without cost. Holding of cash balance has an implicit cost in the form of its opportunity costs."[2] If cash holding is bad for inefficient corporations, cash shortage is dangerous for efficient corporations. As for inefficient corporations it does not matter weather cash increases or decrease if they are not in a position to utilize them. But efficient corporations due to undertaking of more

[1] (P. Kent, 1964, p. 123).
[2] J. M. Keynes

operations need more cash besides having profit. Therefore, for its smooth running and maximum profitability, Proper and effective cost management in a business is of paramount importance.

2.1.2 Efficiency of Cash Management

Cash performs a number of functions as it makes payment possible and serves to meet emergencies. But if cash is kept idle it contributes directly nothing to the as such, policy that makes optimum cash management possible. "The financial managers of the corporations should try to minimize the corporation holdings of cash while still maintaining enough to insure payment of obligations. For improving the efficiency of cash management, effective methods of collection and disbursement should be adopted"[3] (Manohar Krishna, 1980). Then the knowledge of some methods is necessary to insure their usefulness in course of time as corporate manager become more conscious to adopt these methods. Some methods are discussed below (Manohar Krishna, 1980).

i) Speedy Collections of Cash

On method of optimum cash management is to speed collection of usable cash from customer's payments of receivables. Reducing the lag for gap between the times a customer pays his bill can accelerate cash collection and the time the cheque is collected and funds become available for use. Within this time gap, the delay is caused by the mailing time. The amount of cheques sent by customers but not yet collected are called deposit float. The greater the deposit floats, the longer time taken in converting cheques into usable funds. There are manly two techniques, which can be used to save mailing and processing time concentration banking and lock box system.

[3] Manohar Krishna, 1980).

ii) Concentration Banking

The establishment of a strategic collection centre also helps the corporation to fasten the time when the customer pays the bill and the time when the corporations have the use of funds. In this system, the firm will have a large number of bank accounts orated in the area where the firm its branches. All branches may not have the collection centers. The collection centers will be required to collect cheques form customers and deposit them in their local bank accounts. The collection centre will transfer funds above some predetermined minimum to control generally at the firm's head office, each day. A concentration bank is one where the firm has major bank account usually the disbursement.

iii) Slowing Disbursement

The general policy of every corporation is to collect sundry debtors and accounts receivables as quickly as possible but while making payments to sundry creditors and account payables it wants to pay as slowly as possible. It may be recalled that a basic strategy of cash management is account payable. It may be recalled that a basic strategy of cash management is to delay payment as long as possible without impairing the credit rating of the firm. In fact, slow disbursement represents a source of funds requiring no interest payments. There are some technique to delay payments avoidance of early payment centralized disbursement, floats and accruable.

iv) Cash Velocity

Efficiency in the use of cash depends upon the cash velocity i.e. level of cash over a period of time.

$$\text{Cash Velocity} = \frac{\text{Annual Sales}}{\text{Average Cash Balance}}$$

v) Synchronized Cash Flows

Situation in which inflow coincides without flows, thereby permitting a firm to hold transaction balance to a minimum.

vi) Using Float

Cheque written by firm and not deducted from bank records until they are actually received by the bank, possible a matters of several days the lag between the time check is written unit the time and bank receives it is known as float.

Vii) Over Draft System

A System whereby depositors my write cheque in excess of their balances with their banks automatically extend loans to cover the shortage. Most of the foreign countries are over draft system.

Viii) Minimum Cash Balance

Corporations are required to keep a minimum cash balance requirement of a bank either for the service it renders or in consideration of a lending arrangement. In practice the cash balance of the corporations with the bank is higher than cash in hand. It is because corporations always find it safe to keep large funds with bank otherwise it may be misutilized or misappropriated it kept in hand.

ix) Transferring Funds

There are two principle method–wire transfers and electronic depository transfer cheque. With a wire transfer funds are immediately

transferred from one bank to another with and electronic depository transfer cheque (DTC) arrangement in the movement of funds, an electronic cheque image is processed through an automatic clearing house. The funds become available on business day later. From small transfers, a wire transfer may be too costly.

2.1.3 Different Techniques of Cash Management

i. Cash Planning

The forecasts may be based on the present operation or anticipated future operation. Cash planning can help anticipate future cash flows and needs of the firm and reduces the possibility of ideal cash balance and cash deficits. Cash plan are very crucial in developing the overall operation plans of the firm. Cash planning may be done on daily, Weekly or monthly basis. It depends upon the size of the firm and philosophy of management. "The cash planning is a technique to plan for and control the use of cash."

ii. Cash Budget

Cash budgeting is an effective way to plan and control the cash flows, assess cash needs and effectively use excess cash. Cash budget is the most significant device to plan for and control cash receipt and payment. "A Cash budget is a summary statement of the firm expected cash inflows and outflows over a projected time period"[4] (IBID). This information helps the financing of these needs and exercise control over the cash and liquidity of the firm.

The time horizon of cash budget may differ from firm. A firm whose business is affected by seasonal variations may prepare monthly cash budget. Daily or weekly cash budget should be prepared form determining

[4] (IBID)

cash requirements it cash flows show extreme fluctuation cash budget for longer interval may be prepared of cash flows are relatively sable.

iii. Short Term Cash Forecasting

There are most two common used methods of short term cash forecasting are as follows:

a. Cash Receipts and Disbursement Method

This method is also known as direct or cash account method. This method is based on a detailed analysis of the increases and decreases in the budgeted cash account that would reflect all cash inflows and outflows from such budgets as sales, expenses, and capital expenditures. The prime aim of receipt and disbursement forecasts is to summarize these flows during a predetermined period. In cash of those companies where cash items of income and expenses involves flow of cash, this method is favored to keep a close control over cash.

b. Financial Accounting Method

This method is also known as indirect or income statement method. The starting point in this method is the planned net income shown in the budgeted net income statements. Basically, planned net income is converted from on accrual basic to a cash basis. Next, the other cash sources and requirements are identified. This method of cash forecasting involves the tracing of working capital flows. Sometime it is also called the sources and uses approach. In preparing the adjusted net income forecasts items such as net income depreciation taxes, dividend etc. can easily be determined from the company annual operating budget.

iv. Long Term Cash Forecasting.

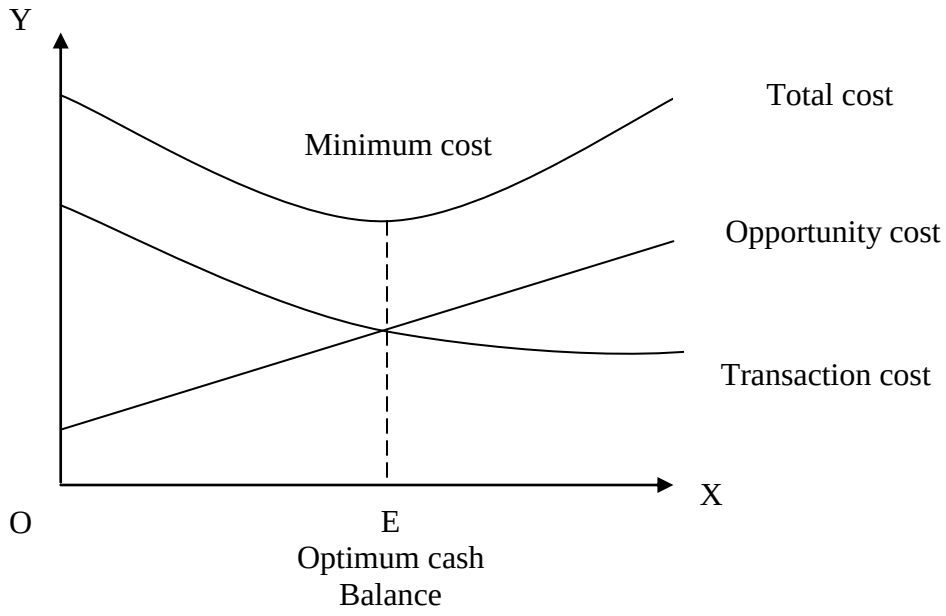
The long term cash forecasting is fundamental to sound financial decision and to optimum use of cash and long term credit. It prepares to give and idle of the company financial requirement of distant future. Once a company has developed long term cash forecast, it can be to evaluate the impact of say new product development on the firm financials condition three, five or more years in futures. The major uses of the long term cash forecasts are company's future financial needs especially, for it working capital requirements, to evaluate proposed capital projects and it help to improve corporate planning long term cash forecasting not only reflects more accurately the impact of any recent acquisitions but also foreshadows financing problems these new additional may put for the company.

2.1.4 Determining the Optimum Cash Balance

The way how corporations manage current assets has an important bearing on the overall liquidity position, and failure to maintain sufficient degree of liquidity caused to stop regular operations besides making corporate managers unable to play obligation in time. The financial managers are to maintain a sound liquidity position of the firm. So that deeps may be settled in time. The firm needs cash not only to purchase raw materials and pay wages but also for payment of dividend interest, taxes and countless other purpose. The test of liquidity is really the availability of cash to meet the firm obligations when they become due. Thus the cash balance is maintains for transition purpose and an additional amount may be maintained as a safety stock. The financial manger should determine the appropriate amounts of cash balance. A tradeoff between risk and return influences such a decision. If the firm maintains small cash balance, its liquidity position becomes weak and suffers from capacity of cash to make payment. But investing released funds in some profitable opportunities can

attain a higher profitability. It the form maintains a 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. The figure shows this trade of graphically.

Figure no: 2.1 Determination of Optimum Cash Balance



Source: Pandey, Financial Management, p.311

2.1.5 Cash Management Models

There are different types of analytical model for cash management.

i. Baumol Model

ii. Miller-Orr Model

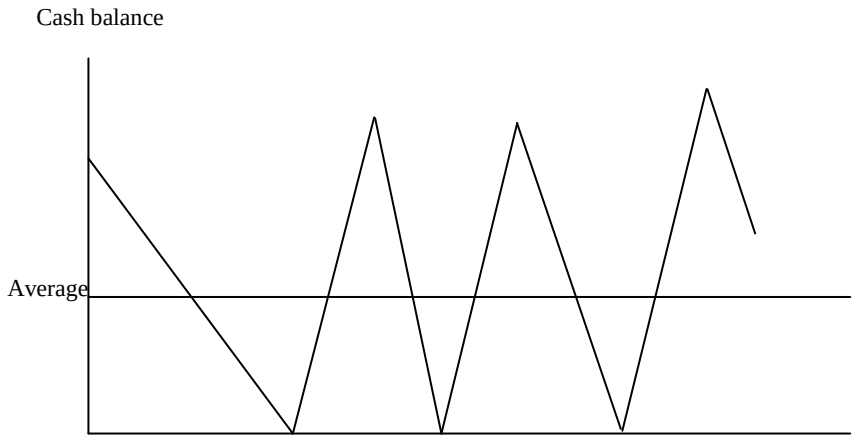
iii. Orgeler's Model

i. Baumol Model: Boumol (1952 p.p. 445-456)

In view of minimizing the opportunity cost of holding cash and maximizing the return, on the return on the available funds, the cash balance should be maintained at a minimum level and the fund not required firm immediate use be invested in the marketable securities.

Baumol model is onto the methods that can be used for this purpose. Baumol identities the cash maintenance as analogies to inventory maintenance and demonstrates that the model of economic order quantities that is applicable to inventory management is perfectly applicable in cash management too. Boumol model is based on the assumptions that

i. The cash is used at a constant rate
ii. The periodic cash requirements is more on less and
iii. There are some costs such as opportunity costs that increase and other costs such 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:
iv. Figure no: 2.2 EOQ Model of Cash Balancing



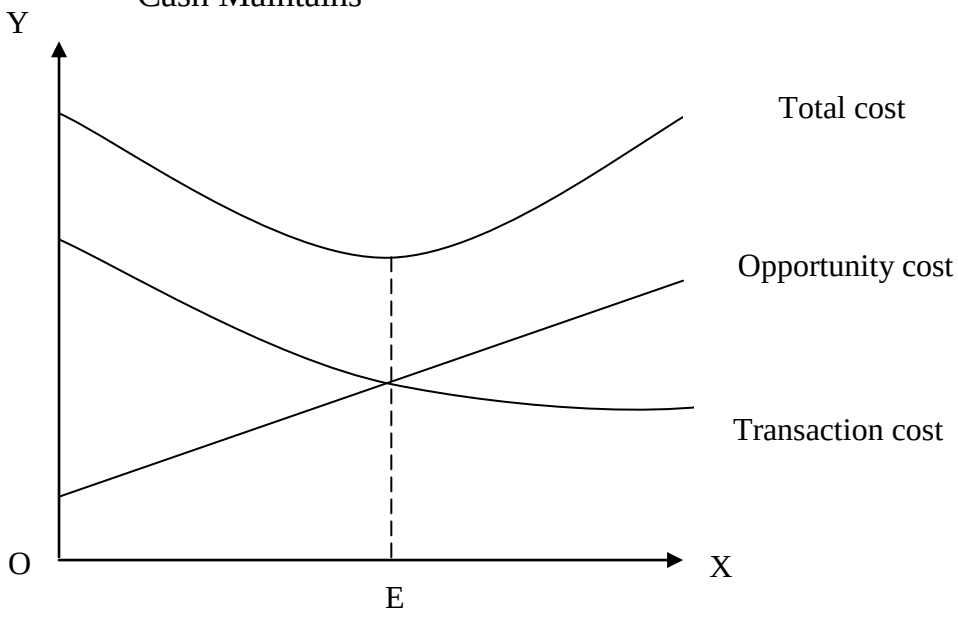
Source: Boumol, "The transaction demand for cash"

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

Given it assumption, the model prescribes an optimal size of cash balance and the optimal size of cash transfer from marketable securities to cash account on borrowing. What matter for a firm is the total of opportunity cost and the transition 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 and various costs associated with the cash maintenance.

Figure no: 2.3 Relationship between Average Cash Balance and Cost of Cash Maintains



Source: Boumol "The transaction demand for cash"

Mathematically, the optimal size of cash transfer from investment accounts or line of credit,

E is determined as follows:

$$E = \sqrt{\frac{2FR}{K}}$$

Where,

F = Fixed transaction cost per transaction

R = Requirement of cash per period

K = opportunity cost of holding cash or interest rate on borrowing

The Baumol mode can be appropriately applied in case at 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:

$$C = \frac{E}{2} + M$$

Where,

M = Minimum balance or cash for precaution are purpose.

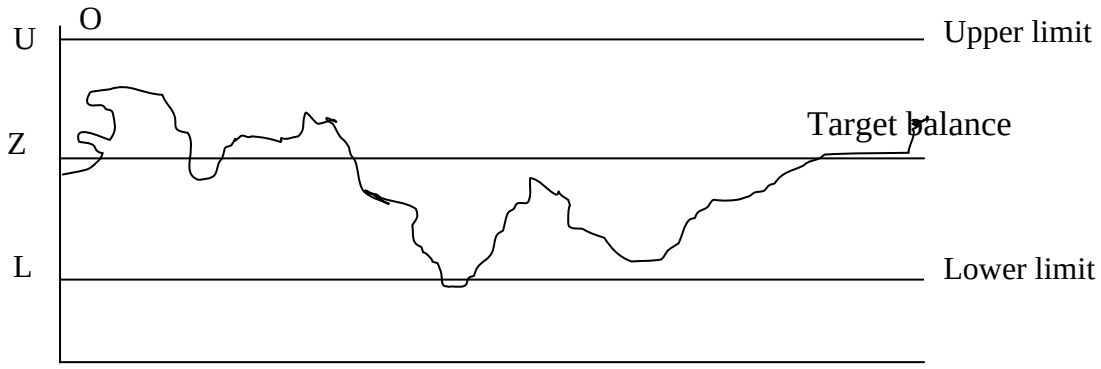
ii. Miller–Orr Model: (Miller-Orr, PP. 413-435)

The size of cash need depends on the pattern and degree of irregularity of inflow and outflows. The Baumol model does not consider the possible inflow and outflows. The Baumol mode does not consider the possible irregularity and uncertainty of receipt and payments. Merton Miller Dainel ORR have developed a model known as Miller-ORR model, that takes into account the realistic pattern of cash Flows and prescribed when and how much to transfer from cash to investment account and vice versa.

The model is based on the assumption that the daily net cash flows are random in size as well as in the negative or positive flows and are normally distributed in the long run. The model sets arrange of high and low limits within when 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 when ever its drifts away to the limit sin either direction. The rule is to transfer the amount of cash is necessary to

bring the cash positions to its target balance from the investment account whenever the balance slides down to the lower limit (L) 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 mountain compensating balance in the account. The graphical representation of this model is as follows:

Figure no: 2.4 Graphical Presentation of Millet-Orr Model of Cash Balance



Source: Pandey, 1964, p.929

Mathematically, the model is set as follows:

$$Z = \left(\frac{3F\sigma^2}{4i} \right)^{1/3} + L$$

The lower L is given, the model calculate the Z and U.

$$U = 3\left(\frac{3F\sigma^2}{4i} \right)^{1/3} + L$$

$$= 3Z\text{-}2L$$

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

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

Where,

Z = target cash balance

F = Fixed transaction cost per transactions

I = Daily interest/opportunity cost

$\sigma 2 =$ Variance of net daily cash flows

L = Lower limit

iii) Orgler's Mode: (Orgler "Cash management Method and model" 1970)

According to this model, on optimal cash management strategy can be determined through the use of a multiple linear programming model comprises three societies (i) Selection of the appropriate planning horizon (ii) Selection of the appropriate decision variables (iii) Formulation of the cash management strategy with the other operations of the firm such as production and with less restriction on working capital balance.

The model basically uses one year planning horizon with twelve monthly periods because of its simplicity. It has four basic sets of decisions variables which influence cash management of a firm and which must be incorporated into the linear programming model of the firm. These area (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 manger 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 revenues from the cash budget over the entire planning period using the assumption that all revenue generated is immediately re-invested and that any cost is

immediately financed. The objective function recognizes each operation of the firm that generates cash inflow or cash out flows as adding or subtracting profit opportunities for the firm is cash management operations. In the objective function decision variables which cause inflow such as payment on receivable which cause inflow such as payment on receivable have positive co-efficient, while decision variables which generate cash outflows, such as interest on short term borrowings have negative co-efficient. The purchases of marketable securities would for example produce revenue and there have a positive co-efficient while the sale of those securities would incurred conversion costs and have a negative co-efficient.

The constraints of the model could be (i) institutional (ii) Policy constraints. The institutional constraints are those imposed by external factors, for instance, the financial manager may be prohibited from selling securities before maturity. Either constrain can occur in the model during on monthly period or over several or all the months in the one year planning horizon.

An example of linear programming model is as follows:

Objectives function: max. Profit = $a_1x_1 + a_2x_2$

Subject to constraints:

$c_1x_1 + c_2x_2 \leq$ Cash available constraints

$b_1x_1 + b_2x_2 >$ Current assets requirement constraints.

Very important feature of the model is that it allows the financial mangers to generate cash management with production and other aspects of the firm.

2. 1.6 Cash Cycle

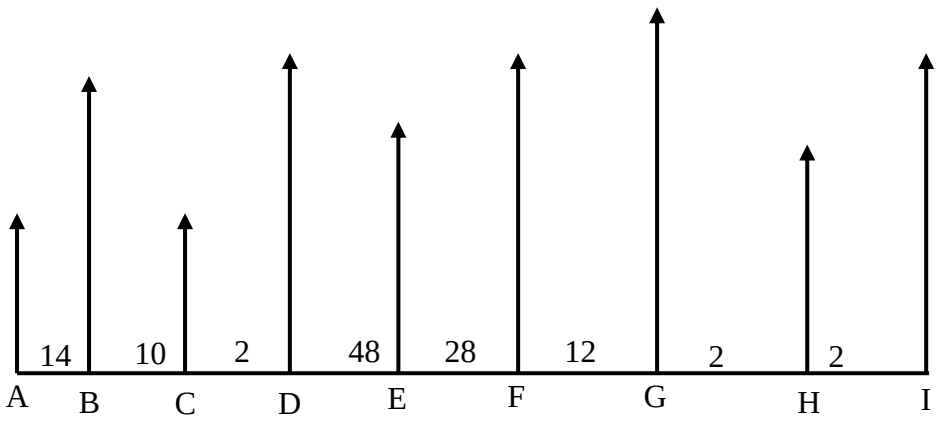
The financial needs of the corporations are affected by the details of the cash cycle involved in the process of conversion form purchase, production and sale to ultimate collection. Opportunities to improve cash cycle help in best management of cash. The two important questions that the corporate managers should born in mind are as given below.

How the collection and disbursement of cash balance should be effectively managed through careful insight into the cash needs of the consolations.

Given as total pool of cash, how would it be appropriate to determine the size of cash and how is it possible to make best use of idle funds by investing in gilt edged securities?

The cash cycle of the corporation is given below:

Figure no: 2.5 Cash cycle



Source: Solomon and Pingle, p. 197

Details of cash cycle

Where,

A = Materials ordered

B= Materials received

C= Payment

D= Cheque Clearance

E= Goods sold

F= Customer mails payments

G= Payments received

H=Cheques deposited

I= Funds collected

In addressing ourselves to the cash management strategies, we concerned with the time periods involved in stages A,B, C, D, E, F, G, H, I. It may be mentioned that a firm has no control over the time involved between stages A and B. the lag between D and E is determined by the production process and inventory policy. The time period between I and F is determined by credit terms and the payments policies of customers. The hypothetical example explains that the corporation needs 60 day or two months to collect funds from the beginning of materials ordered to have ultimate cash. It takes 14 days to receive materials from supplies and adding 20 days for payment and still two days assumed for clearing the cheques. Sales inventory takes 48 days to have complete clearing off stocks and customers might pay only after 28 days by mailing cheque. Moreover, six additional days are taken for payment receipt, cheque deposit and ultimate collection. This is applicable only for direct selling of consumer goods but in a manufacturing concern the time lag may be still grater. Some of the time lags can be controlled to have speedy collection of cash through minimizing time periods BCD and FGHI. Time period AB is beyond the control of the corporation and does not directly affect the financial statement although they have much to do with production schedules of corporations. Time period DE depends upon the production processes and inventory policy and to a great extent affects the total investment in inventory. This is

applicable only for direct selling of customer's goods but in a manufacturing concern the time lag may be still grater.

2.1.7 **Motives for Holding Cash: (Khan and Jain, 2003)**

The economic theory as developed by Keynes in relation to the question why people in general maintain liquid cash because of various motives also apply to the policies of corporations except the motives of speculation in mist at the case. "Keynes" identified their motives for hiding cash: "The transaction motives Precautionary motive and speculative motive". All corporations regardless of sizes type, locations etc have the same motives in holding cash. We discuss briefly these motives at corporations to hold cash below.

2.1.7.1 Transaction Motive

This refers to holding of cash to meet routine cash requirement to finance the transaction which a firm carries in the ordinary course of business. A firm enters in to a variety of translation to accomplish its objectives which have to pay in the form of cash. The requirement of cash balance to meet is known as transaction motive and such motive refers to the holding of cash to meet anticipated obligation whose timing is not perfectly synchronized with cash receipt.

2.1.7.2 Precautionary Motive

The cash balance hold in reserves for random unforeseen fluctuation in cash flows are called as precautionary balances. In other word precautionary motives of holding cash implies the need to hold cash to meet unpredictable obligation. Thus precautionary cash balance serves to provide a cushion to meet unexpected contingences. The most unpredictable are the cash how the larger is the need or such balance.

Another factor which has a bearing as the levels cash balances is availability of short term credit. If a firm borrows a short notice to pay for unforeseen obligation, it will need to maintain are a relatively small balance and vice versa

2.1.7.3 Speculative Motive:

It refers to the desire of firm to take advantage of opportunity which presents themselves at unexpected movement and which is typically outside the outside normal course of business. While the precautionary motive is defensive in nature in that firm must make provision to tide over unexpected contingencies, the speculative motive represents a positive and aggressive approach. The firms aim to exploit profitable opportunities and keep cash in reserve to do so. The speculation motive helps to take advantages of

- An opportunity to purchase raw materials at a reduced price on payment of immediate cash.
- A change to speculate on interest rate movement by buying securities when interest rates are expected to decline.
- Delay purchase of raw materials on the anticipation of decline in prices and
- Make purchases at favorable prices.

2.1.7.4 Compensating Motive:

It is to compensate banks for providing certain services and loans. Usually, clients are requested to maintain a minimum balance of cash at the bank. Since this balance cannot be utilized by the firm for transaction purchase, the banks. Themselves can use of amount to earn a return. Such balances are comprehending balance.

Compensating balance is also required by some loon management between a bank and its customer. During periods when the supply credit is restricted and interest rates are rising, banks required a borrower to maintain a minimum balance in his account as a condition precedent to the grant of loon. This is presumably to 'compensate' for a rise in the in the rate during the period when the loon will be pending if four primary motives of holding cash balances the two most important are transaction motive and the compensation motive. Business firm do not normally speculate and need not have speculated balances. The requirement of precautionary balances can be made out of short term borrowing.

2.1.7 Definitions of Key Terms

To avoid ambiguity confusion and misunderstanding the key terms used in this study have been defined as follows:

a. Sales:

Sales including only trading sales ignore the miscellaneous sales.

b. Average Collection Period:

This indicates number of days entertained by sundry debt or credit period allowed to sundry debt on.

$$\text{Average Collection period} = \frac{\text{TimeReveiv able turnover}}{\text{No, ct day in a year}}$$

c. Account Receiving to Cash Balance:

It is an indicator of the liquidity of cash. it measure the relationship between cash and volume of account receivable a period of time.

$$\text{Account receivable to cash balance} = \frac{\text{Cash and bank balance}}{\text{Accountreceiveable}}$$

d. Cash Budget:

Cash budget is the most important tools of cash management it is a plan of future Cash received and payment.

2.2 Introduction and Purpose of Cash Management

One of the major responsibilities of management is to plan, control and sales guard the resources of the enterprises. Two kinds of resources how through many business cash and non- cash assets. This chapter focuses on the cash planning and control of the cash in (i.e. cash received) and cash out and the related financing is important in all enterprises. The cash budgeting is an effective way to plan and control of the cash how assess cash made and effectively use excess cash" A primary objective is to plan the liquidity position of the company as a basis for determining future borrowings ad future investments. For example excess cash is not invested incurs an opportunity "cost that is loss of the interest. That could be earned in the excess cash. The timing of cash flows can be controlled in many ways by management. Such as increasing the effectiveness of credit and collection activities. Making payment by time draft rather than by cheque, making payment and last day of discount periods batching payments and giving discount on cash sale. Cash management is important in enterprises, whether large on small. Many lending agencies require cash flows projections before granting loan" (Glenn A. Welch. Ronald W. Hilton Paul N. Garden, p. 433).

The focus of cash planning, time horizons in cash planning and control approach used to develop a cash budget, financial accounting approach to compute cash flows, planning and controlling cash in a non manufacturing company.

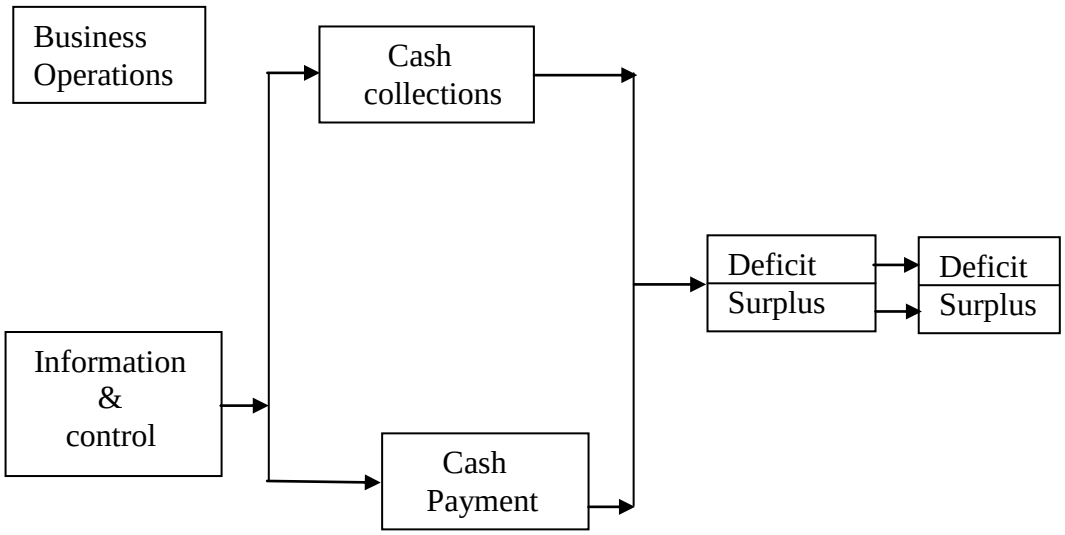
2.2.1 Review of Books

Various scholars as well as authors have given different views about cash management some of have to be taken as review of books for cash management. According to Batty (1972) cash in only one constituent of what is essentially a combination of a business resource. It is the part of working capital and as such provides the means of earning a profit investment for business. The objective should aim to obtain an optimum level for each component of current assets figure and a smooth and rapid conversion of these assets to cash both of these lead to improve earning power. He again suggested that if cave is taken for crash programme for improving cash may have unexpected consequences. In the short term it will be possible to cut back expenditure on marketing and other functions, but future sales will probably suffer and, consequently, there will possible to cut back expenditure on marketing and other functions, but future sales will probably suffer and, consequently, there will be further deterotions in cash flow. Further, he defined cash management as the process involve in the effective planning and control of cash requirement of a business.

Similarly, Pandey (1999) suggested that the firm should keep sufficient cash neither nor less. Cash shortage will disrupt the firm's manufacturing operations while excessive cash will simply remain idle, without contributing anything towards the firm's profitability. According to him, the major function of financial manager is to maintain sound cash position. Some theoretical insights about cash management has presented by him. He said that cash management is concern with the managing of, (i) cash flows into and out of the firm, (ii) cash flow within firms, and (iii) cash balance hold by the firm at point of time by financing deficit or investing surplus cash. It can be represented by a cash management cycle. Sales generated cash which has to be disbursed out. The surplus cash has to be invested while deficit has to be borrowed cash management seeks to

accomplish this cycle at a minimum cost. At the sometime, it also seeks to achieve liquidity and control. Cash management assumes more important that other current assets because cash is the most significant and the least productive assets that the firms hold it is significant because it is used to pay the firm's obligation. However, cash is unproductive. Unlike, fixed assets or inventories, it doesn't produce goods for sale. Therefore, the aim of cash management is to maintain adequate control over cash position to keep the firms sufficiently liquid and to use excess cash in some profitable way. The cash management cycle is shown as follows:

Figure No. 2.6: Cash Management Cycle



Source: Pandey, Financial Management, p. 912

The management of cash is also important because it is difficult to predict cash flows accurately, the inflows, and there is no perfect coincidence between inflows and out flows of cash. During some period cash outflows will exceed cash inflows because payment of taxes, dividend or seasonal inventory builds up. At other times, cash inflows will be more than cash payment because there may be large cash sales and debtors may be realized in large sums promptly. Cash management is also important because cash constitutes the smallest portion of the total

current assets. Yet management's considerable time is devoted in managing it. In current past, a number of innovations have been done in cash management techniques. An obvious aim of the firm now-a-days is to manage its cash affairs in such a way as to keep cash balance at a minimum level and to invest the surplus cash in profitable investment opportunities.

Jain & Narang (1993) have described about cash management. He said that cash is crucial component of working capital of a concern. Cash like blood stream of human body, gives strength to human body, gives strength to business unit. He explained that cash is ultimate resource for a business, so management of each business unit should endeavor to secure larger cash at the end of each working capital cycle than what it had at the beginning of working capital cycle. Further, the important objective in managing cash should be trade off liquidity and profitability in order to maximize profits. By keeping larger amount of cash, the firm is able more to meet its obligation when they fall due and the risk of technical insolvency is reduced. However, cash is non earning assets, so unnecessary cash should not be kept as and then the optimum required to continue the operation of the business efficiency. Liquidity and profitability must be balanced in such a way that the organization retains its liquidity and at the same time maximizes its profitability. They also stressed that business transaction, without involvement of cash is mythical in this monetary world. Today the importance of cash management in recognized by all segments of organizations activities. If some of departments are bound to create serious problem. The study of cash management is therefore considered as an integrated approach to management science.

Simons & Kerrenbrock (1964) expressed that cash is more often than other assets is the item involved in business transaction. This is due to nature of business transactions which include a price and condition calling for

settlement in terms of medium of exchange. In striking contrast to activity of cash it is unproductive in nature. Since cash is measure of value, it cannot expand to grow unless it is converted in to other properties Excessive balance of cash on hand are often referred to as "idle cash". To be most useful to a business enterprise, cash must be kept moving.

Shrestha (1998) has described some conceptual ingredients about cash management which is based on his various research studies. We can learn lessen from it and also helpful for this study indeed. He suggested that if cash holding is bad for inefficient corporations. He suggested that if cash holding is bad for inefficient corporation, cash shortage is dangerous for efficient corporations. As for inefficient corporations, it does not matter whether cash inverses or devisees if they are not in a position to utilize them. But efficient corporation due to undertaking of more operations need more cash besides having profit.

Hampton (1990) has given more suggestion for effective management of cash. He explained that net working capital is the measure of liquidity, which is defined and the adequacy of near term cash to meet the firm's obligation. The highly liquid firm has sufficient cash to pay its bills at all time. An illiquid firm is unable to pay its bills when due. The investment of excess cash, minimizing of inventory, speedy collection of receivables, and elimination of unnecessary and costly short term financing all contribute to maximizing the value of firm. In a periled of high interest rate, customer may be slow in paying their bills, a fact that will be cause an increase in receivable. If the level of cash is linked to the level of sales, variable working capital may be changed.

Khan and Jain (2003) explained that cash management linkage with working capital management. He expressed that cash management is one part of the key areas of working capital management. A part from the fact that is the most liquid current asset, cash is the common denominator to

which all current assets can be reduced because the other major liquid assets, that is, receivables and inventories get eventually converted into cash. This underlines the significance of management. He presented a detail account of the problem involved in managing cash, i.e. motive for holding cash, objective of cash management, factors determining cash needs, cash management models, cash budgets, basic strategies for efficient management of cash, and specific techniques to manage cash subsequently.

Van Horne (2002) has prescribed the knowledge about cash management. He said that cash management involves managing the monies of the firm to maximize the cash availability and interest income to any idle funds. At one end the function starts when a customer writes a check to pay the firm on its account receivable. The function ends when a supplier, an employee or government realizes collected fund from the firm as an amount payable or accruals. All activities between these two points fall within the realm of cash management. The firm's efforts to get customers to pay their bills at a certain time fall within account receivable management on other hand, the firm's decision about when to pay its bills involves account payable and accrual management. He again described an idea of effective collection and disbursement of cash, we should attempt to accelerate collection & handle disbursement so that maximum cash is available. Collection can be accelerated by means of concentration banking, a lock-box system and certain other procedures. Disbursement should be handled to give maximum transfer flexibility and the optimum timing of payment, being mind-full, however, of supplier relations. Methods of controlling disbursement i.e. electronic fund transfer is becoming increasingly, and most corporation use such transfer in one way or another.

Weston and Brigham (1999) have poured some views about cash management after their various studies on it. The bond conceptual findings of their studies provide sound knowledge and guide lines for the future

studies in the field of cash management. They explained in the beginning the motives for holding cash, specific advantage of adequate cash, synchronization of cash flows, expanding collection and cheque clearing, using float, cost of cash management, determining minimum cash balance, compensating balance, marketable securities. Substitute for cash criteria for setting securities investment alternatives.

Brigham and Friends (2001) have described some conceptual insights which are based on various research studies. They believed that cash is often called 'non earning assets'. It is need to pay for labour and raw materials, to buy fixed assets, to pay taxes, to service debt, to pay dividend and so on. However, cash itself earn no interest. Thus, the goal of the cash manager is to minimize the amount of cash the firm must hold for use in conducting its normal business activities. Yet, the same time, to have sufficient cash (i) to take trade discount, (ii) to maintain its credit rating, and (iii) to meet unexpected cash needs.

Pradhan (2004) explained about cash and it management. He told that cash includes coins, currencies, cheque hold by a firm, and balances in its bank account, this money is immediately useable to pay bills. Some times “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. The financial manger will purchase low risk, high liquidity money market instrument that can be converted back to cash without delay if the need arises. The securities provide a small profit on cash that may not be needed immediately for the firm's operation. These securities are widely used as short term investment by the firm's operation. These securities are widely used as short term investment by the firm in developed countries. Each security offers different characters that make it suitable for different firms. He said cash management is also called management of money position because cash includes not only the cash or current in hand but also he

readily convertible securities or other near cash items, e.g. time and demand deposit, readily available credit and so on.

Acceding to him concerning area of cash management areas of cash management are,

- ❖ Management of cash flows into and out of the firms
- ❖ Management of cash flow within the firm
- ❖ Management of cash balance held by the firm at a point of time.

Weston & Copeland (1992) suggested about cash management firm various study and research. They said that relatively high level of interest rates have increase the impotence of cash management, while at same time advance in technology have changed the nature of cash management function. Financial manager have developed new techniques for optimizing cash balance and determine the appropriate relation between holding investment in marketable securities.

2.2 Review of Previous Research Work

The Cash Management seem to be new subject of study for researcher. The researcher could find only few researches made in the related topic in the partial fulfillment of the requirement for Master's Degree in Business Studies. But many researches have been made in the area of profit planning and control of NEA and other public manufacturing enterprises. As profit planning and control covers some aspects of cash management, researches made on these areas are taken into consideration for the sake of review to examine how efficiently they apply Profit Planning & Control tools. An attempt is made here to review some of the researches which have been conducted earlier and are presented as:

2.2.1 MR. JOGINDAR GOET (1999)

Mr. Goet has made research on "Revenue Planning and Cash Management in Nepal, a case study of Nepal Electricity Authority", submitted to faculty of management Shanker Dev Campus for the partial fulfillment of M.B.S. on April, 1999. Using secondary sources to collect the data and other necessary information Mr. Goet has pointed out following objectives and major findings.

Objectives:-

i) To make a comparative study of revenue generation of NEA;
ii) To examine revenue planning, policies and practices of NEA;
iii) To analyze the relationship between sales, production and loses in transmission;
iv) To examine credit policy of NEA;
v) To examine revenue management aspect of NEA;

Major Findings:-

i) No plan and program has been made about possible consumption of electricity in agricultural sector.
ii) The revenue plans prepared by the branches and sub branches are not used to prepare central revenue plan.
iii) NEA has not considered demand determinates such as family income, price of electricity, connection charges, cost of alternatives available, cost of auto generation of electricity, and reliability of NEA service while forecasting demand.

iv) NEA has a practice to increase 10% in past year's figure to forecast next year's figures as a basis for forecast.

v) Planned sales unit and sales revenues is highly and positively correlated, the correlation of actual sales unit and revenue is also positive and high.

vi) NEA overdue amount of receivable is increasing year by year.

2.2.2 MR. CHIRANJIBI ACHARYA (2000)

Mr. Acharya has made research on "Profit Planning in Nepalese Public Enterprise, a case study of Nepal Electricity Authority", submitted to faculty of management Shanker Dev Campus for the partial fulfillments of M.B.S on July, 2000. In this study Mr. Acharya has pointed out following objectives and major findings

Objectives:-

i) To examine the profit planning system applied in NEA;

ii) To analyze the various functional budgets those are prepared by NEA;

iii) To analyze the variance between budget and actual achievements of NEA;

iv) To access the financial performance analysis of NEA, by applying financial tools;

v) To make relevant suggestions and recommendation to the management of NEA on the basis of findings from the above analysis;

Major Findings:-

i) There is perfect positive correlation between the planned sales and actual sales.
ii) The authority is unable to sell the electric services to its customer according to the production or total energy available.
iii) Leakage, outage and theft is one of the major considerations in NEA. Due to this leakage there is a vast gap between sales and production and this leakage is reducing the NEA's profit annually.
iv) Strengths and weaknesses are not analyzed in depth by NEA because of the monopoly situation or the obscene of competitors and it is not alert toward its possible threats and opportunity.

2. 2.3 MR. GHANA SHYAM THAPA (2004)

Mr. Thapa has made research on "Profit Planning in Nepalese Public Enterprise, a case study of Nepal Electricity Authority," submitted to faculty of management Shanker Dev Campus for the partial fulfillments of M.B.S. on August,2004. In this study Mr. Thapa has pointed out following objectives and major findings.

Objectives:-

i) To examine the present profit planning premises adopted by NEA;
ii) To highlight the various functional budgets of NEA;
iii) To evaluate the variances between planning and actual performance of NEA;
iv) To provide valuable suggestions and recommendations on the basis of study;

Major Findings;

i) NEA prepares both tactical and strategic profit plan but strategic plan is confined only to the level executives.
ii) NEA is not successes to achieve sales target during the study period except in FY 2055/056.
iii) Achievement of capital expenditure budget is satisfactory.
iv) Operating costs have not been controlled effectively during the study period.
v) NEA has no maintained sound liquidity during the study period.
vi) NEA has not prepared plan and program for agriculture sector's consumption of electricity.
vii) NEA has not considered demand determinates such as family income, price of electricity, connection charge, cost of alternatives available, cost of auto generation of electricity and reliability of NEA service while forecasting demand.

2.2.4 MR. MAHENDRA RAI (2004)

Mr. Rai has made research on Profit Planning in Public Utility Sector of Nepal – A case study of NEA; submitted to faculty of management, Shanker Dev Campus for the partial fulfillments of M.B.S. on May, 2004. In this study Mr. Rai has pointed out following objectives and major findings.

Objectives:-

i) To examine profit planning system applied by NEA;
ii) To analyze the financial performance of NEA by using various financial tools;

iii) To observe the various functional budgets of NEA associated with comprehensive profit planning;
iv) To evaluate budgeted and actual achievement of NEA;
v) To provide a package of recommendations and suggestions to be taken instantly and further to be encountered with identified budgeting & profit planning problems on the basis of findings;

Major Findings:-

i) Budgeted sales are more variable than actual sales.
ii) Budgeted production is more fluctuating than actual production.
iii) Authority formulates various functional budgets as a part of comprehensive profit plan.
iv) NEA has been paying a large amount of interest on long term loan.
v) Power leakage is significantly high in NEA.

2.2.5 MR. KAMAL RAJ JOSHI (2004)

Mr. Joshi has made research on Revenue Planning and Cash Management of NEA; submitted to faculty of management, Shanker Dev Campus for the partial fulfillments of M.B.S. on November, 2004. In this study Mr. Joshi has pointed out following objectives and major findings

Objectives:-

i) To examine revenue planning, policies and practices of NEA;
ii) To analyze the relationship between sales and production;
iii) To make comparative study of revenue generation of NEA from different sector;

iv) To review cash flow from operating, financing, and investing activities;

v) To make suggestion effective of revenue mobilization of NEA;

Major Findings:-

i) NEA has a practice to increase 10 percent in past year figure to forecast next year's figure as a basis for forecast.

ii) Average achievement of actual sales unit is consistent with internal sale but higher in external sales. In indicates that the budgeted sales planning is less consistent with external sales market. Similarly, average achievement of sales revenue is also satisfied and highly consistent with internal and very small difference in external.

iii) Category-wise revenue analysis of NEA shows that the achievement in domestic, non-commercial, commercial, streetlight, temple categories are more heterogeneous than budgeted. Community sale achievement is too high. It means there is some problem in planning.

iv) Category-wise analysis of NEA shows that the major contribution of domestic and industrial categories to consumption of sales unit and increased in sales revenue.

v) Cash position of NEA shows that the cash from operating activities is in decreasing trend. It means, operating cost of NEA is too high. Similarly, the cash from investment activities is in highly increased up to 2057/58. Thereafter decreased but its return is very poor. It indicates that the utilization of assets is very poor. The cash from financing activities is highly increased in F.Y 2056/57. Thereafter, it is decreased.

2.2.6 MR. RABIN DAHAL (2005)

Mr. Dahal has made research on Profit Planning System & Financial Conditions of NEA; submitted to faculty of management, Shanker Dev Campus for the partial fulfillments of M.B.S. on January, 2005. In this study Mr. Dahal has pointed out following objectives and major findings.

Objectives:-

i) To examine the present planning premises adopted by NEA on the basis of budgeting;
ii) To observe the NEA's profit planning on the basis of overall managerial budgeting;
iii) To analyze the variances between budgets & actual achievement of the authority;
iv) To assess the financial performance of NEA;
v) To recommend measures to be taken instantly and further to encounter with the identified budgeting and profit planning problems;

Major Findings:

i) There is positive and perfect correlation between budget and achievement of NEA is higher than the budgeted sales.
ii) NEA ahs a practice of preparing both strategic long-range and tactical short-range profit plan.
iii) Actual sales are less than actual production and it indicates the remarkable loss of power in NEA.
iv) Total assets turnover ratio, profitability ratio and return on net capital employed ratio are not perfectly satisfactory.

v) There is perfect positive correlation between actual sales and actual production.

2.3 Research Gap

This topic is also called the difference between the previous researches and the current research. Most of the past research studies are about profit planning system of NEA. But these research studies did not analyze the cash management system of NEA. So, there exists a research gap between the present and past researches. This research is conducted to fill up this research gap.

This research is a case study. It is mainly based in secondary data. This study has tried to explore cash management system in NEA. This study has analyzed the cash position of NEA by applying the tools of ratio analysis and statistical tools. Finally it concludes the various findings of research and recommendations for NEA.

CHAPTER THREE
RESEARCH METHODOLOGY

In the preceding chapter, we have overviewed briefly on cash management concept; the basic purpose of this chapter is to enlighten the research design, nature and source of data collection procedures and methods of analysis of data in brief.

3.1 Introduction

Methodology states the method with which data have been extracted and discuss the tools of that have been used in interpretation of such data to fulfill the objectives. More specifically, it describes about the research design. The population and sample, nature and source of data and tools that will be used to analyze data are presented here.

The main purpose of this chapter is to focus on different research method and condition, which are used while conducting this study. Every study needs a systematic methodology to show the better results of the research. In this study, a cash management of Nepal Electricity Authority also needs an appropriate research method. For the purpose of this study only secondary data have been used which was available from Nepal Electricity Authority, Head office Durbar Marga, Kathmandu.

3.2 Research Design

The research study attempts to analyze the cash management techniques adopted by the public companies like NEA. Hence, analytical and descriptive research is applied.

A well settled research design is necessary to fulfill the objective of this study. It means definite procedures and techniques that guide to study and propounds way for research viability. This study aim to evaluate

managerial efficiency and performance regarding cash management of NEA. This study tries to make comparison and to establish relationship between two or more variables. So as to facilitate the assessment, the researcher collected five years data of NEA and have tabulated and different financial accounting tools are used to analyze and to find out needed result.

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 the process of micro-analysis and appraisal to the data.

3.3 Population and Sample

There are many manufacturing and trading companies, which are actively operating their business in market. It is not possible to study all of them regarding the research topic. Therefore among them, NEA is taken as a sample company from population for this research study.

3.4 Source of Data

This study is based upon secondary data, published by the NEA. For this study more than four years balance sheet, profit and loss account, related appendix and auditor's reports have been collected. Other related information has been collected through the direct interview and questionnaire with companies.

3.5 Data Gathering Instruments

Data recording system of NEA is scientific and systematic type of record keeping has been found because most of the personnel are trained and effective directions from the general manager.

The published data relating to the cash management position of NEA have been obtained from account department. The balance sheet and profit and loss account and other related documents, which are secondary nature, are directly collected from the company's account department.

3.6 Data Collections Procedure

The main sources of data are the head office of NEA. This study is found a mentally based on secondary sources of data, the annual financial statement have been collected directly from the account department. Five years balance sheet, profit and loss account and other related documents were not published in books of account simultaneously. However the annual general meeting audited prospectus was taken through the account department and administrative department. The data were collected from the fiscal year 2004/05 to 2008/09 and were in the form of pointed books balance sheet other related data are also collected and used in this thesis from the head office. An opinion survey with the some employees of NEA is also taken into account for the purpose of this study.

3.7 Data Processing Procedure

The collected new data are processed and presented in tabular form with the help of simple arithmetic rules. The entire raw data are converted into approximate and condensed in the form of balance sheet and profit and loss account; most of the data have been complied in one form and processed and interpreted as per the need of the study. The secondary type data are presented for the analytical purpose after the tabulation of the data.

3.8 Methods of Data Analysis

Only financial and statistical tools are used for the analysis of data which is already stated in the limitations of the study. The producers of analyzing data are described as follows:

3.8.1 Financial Analysis

3.8.1.1 Ratio Analysis

Ratio analysis is a widely used tool of financial analysis. The ratio reveals the relationship in a more meaningful way so as to enable one to draw conclusion from it. As the case study of cash management involves ratio analysis for operational efficiency, the rate of return on total assets and capital employed and activity, efficiency ratio would be particularly meaningful for management and investing, although there is no hard and fast rule.

a. Analysis of Cash Turnover:

This ratio indicates the number of times average cash balance is turned over during the year. It is computed as follows:

$$\text{Cash turnover} = \frac{\text{Sales}}{\text{Cash in hand/bank}}$$

It measures the speed with which cash moves through as enterprise's operation.

b. Account Receivable Turnover:

This ratio is computed by dividing sales by account receivables.

Thus,

$$\text{Receivable turnover} = \frac{\text{Sales}}{\text{Account Receivable}}$$

It indicates the no. of time the receivables are turned over during the year. It gives the general measure of the productivity of the receivable measurement. If the ratio is high the working capital becomes higher and if the ratio is low the working capital becomes lower.

c. Collection of Account Receivable:

$$\text{Collection of account} = 1 - \frac{\text{Receivables}}{\text{Sales}} \times 100$$

d. AR to Cash/Bank Balance:

$$\text{AR to Cash/Bank balance} = \frac{\text{Cash/Bank balance}}{\text{Account Receivables}}$$

e. Analysis Cash to Current Liabilities:

$$\text{Cash to current liabilities} = \frac{\text{Cash/Bank balance}}{\text{Current liabilities}}$$

ii. Average Collection Period (ACP):

It indicates the no. of days it takes on an average to collect account receivables. It is computed as

a) $$\text{Average Collection Period} = \frac{\text{Days in a years}(360)}{\text{Receivable turnover}}$$

b) $$\text{Average days of five years} = \frac{\text{Total dauys of five years}}{\text{Five years}}$$

3.8.2 Statistical Analysis

i. Straight line trend, correlation and regression:

a) Straight line trend (Y_c) = a + bx

b) Correlation (r):

"Correlation analysis is the statistical tools that we can use to describe the degree to which one variable is linearly related to another"

(Richard and David 1991). It does not tell as anything about causes and effect relationship. Correlation analysis helps in determining the degree of relationship between two or more variable. "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 guesswork can be removed from decisions when the relationship, between variables to be estimated and the one or more other variables to be estimated and the one or more other variables on which it depends are closed and reasonably in variant" (Gupta, p. 103).

For the purpose of analysis of cash management in NEA the correlation analysis is applied in same related topics. In these topics it can be seen the correlation between dependent and independent variables of cash management the formula applied on the correlation is as follows:

$$r = \frac{\Sigma uy}{\sqrt{\Sigma u^2 \times \Sigma v^2}}$$

c) Standard deviation

The standard deviation of a series of value is defined as the square root of the mean of the square deviation from mean of the distribution. It may be found by finding the differences between each individual frequency and the mean of the distribution, squaring these differences individually adding the square deviation and dividing by N and then extracting the square of the results. The fundamental formula for the standard deviation is as follows:

$$S.D = \sqrt{\frac{\Sigma d^2}{N} - \frac{(\Sigma\Sigma^2)}{N}}$$

"The S.D or the root mean square deviation is the square root of the mean of the square deviation from their mean of a set of values" (Monga).

"The standard deviation measures the absolute variability the greater the SD, for the greater from their mean. A small S.D means a high degree of uniformity of the observation as well as homogeneity of a series" (Ibid). In NEA standard deviation is applied where it is necessary.

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

If 'r' is less than its PE, it is not all significant. If 'r' is more as PE there is correlation. If 'r' is more than 6 times it's PE and greater than is ± 0.5, than it is considered significant.

e) Regression line of sales (x) on cash balance Y

"Regression is the determination of statistical relationship between two or more variables. One is independent variable that affects the behavior of dependent variable. Regression can only be interpreted of what exists physically i.e. there must be physical way in which independent variable x can effect dependent variable (Y)" (Kothari, 1989).

For the analysis of cash management of NEA simple regression analysis is applied to locate the relationship between sales on cash balance. The computation of regression line of sales (x) on cash balance (Y) is as follows:

$$(x - \bar{x}) = r \frac{\sigma_x}{\sigma_y} (y - \bar{y})$$

The regression line of cash balance (Y) on actual

$$Sales_{(X)} = (Y - \overline{Y}) = r \frac{\sigma_y}{\sigma x} (X - \overline{X})$$

CHAPTER FOUR

PRESENTATION OF DATA AND ANALYSIS OF DATA

The basic objective of this study as stated in chapter one is to have true insight into "Cash Management" of NEA. For the accomplishment of this objective a definite course of research methodology has been followed which is described in chapter three. Now in this chapter the effort has been made to analyze and interprete the presented data to disclose the actual position of cash in NEA.

4.1 Analysis of the Data by Financial Tools

4.1.1 Analysis of Cash and Bank Balance

Management of cash plays a vital role in current assets of any company. The total cash include cash in hand and cash at bank. The table below shows the cash position of the company during the study period

Table 4.1:

Analysis of Cash and Bank Balance

Fiscal year	Cash and Bank Balance (NRs.in million)	Increase (Decrease) %
2004/2005	1,322.60	-
2005/2006	1,258.60	(4838)
2006/2007	1,447.58	15.01
2007/2008	1,337.15	(7.628)
2008/2009	697.11	(47.865)

Source: Appendix II

The above table shows that there fluctuation in the cash holding of the company. The greatest shortfall of cash is seeing in the fiscal year

2008/2009 .The cash and bank balance is decreased by 4.838 Percent in the fiscal year 2005/2006 as compare to 2004/2005. But there is largest change occurred in the fiscal year 2006/2007, there is cash balance increased by 15.01 percent. In fact it shows that company could not make the best use of available cash balance productively. Again there is decline of cash balance by 7.628 Percent in the fiscal year 2007/2008 which is more as compare to fiscal year 2005/2006. still it is seen continues decline in the cash balance in the fiscal year 2008/2009, it is decline by 47.865 Percentage which is much more as compare to fiscal year 2007/2008.

4.1.2 Analysis of Cash Turnover

Table 4.2

Analysis of Cash Turnover

Fiscal year	cash and bank balance(NRs in Millions)	sales (NRs in Millions)	Cash Turnover (Times)
2004/05	1,322.60	12605.20	9.530
2005/06	1,258.60	13331.90	10.592
2006/07	1,447.58	14449.73	9.981
2007/08	1,337.15	15041.49	11.248
2008/09	697.11	15220.87	21.834
Average	-	-	12.637

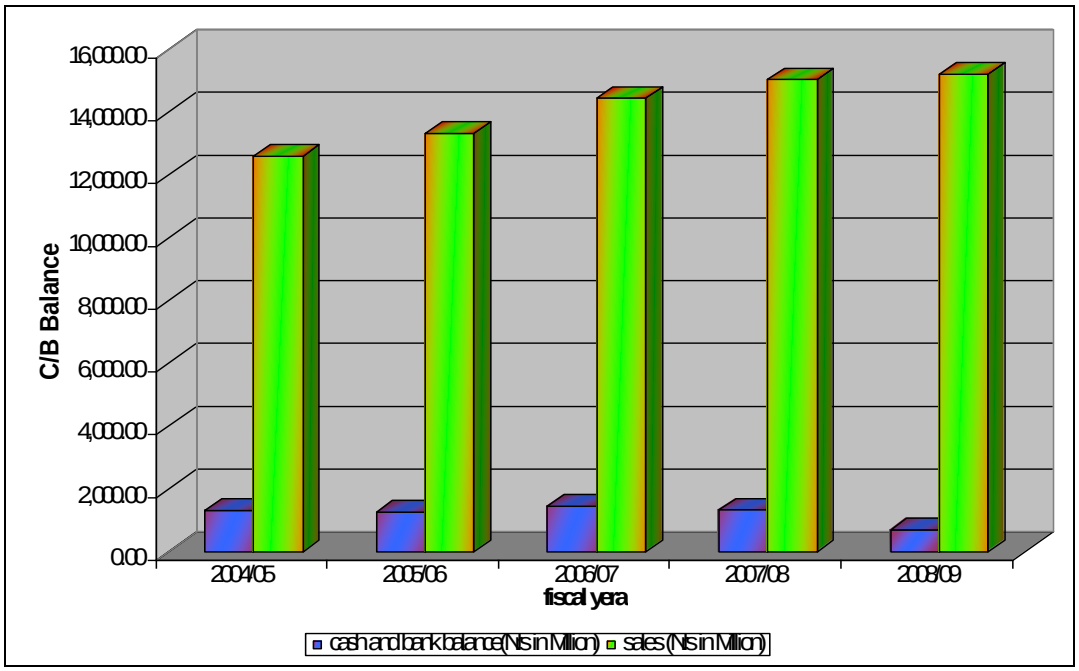
Source: Appendix II and III

Cash turnover ratio represents how quickly the cash is received from its sale. Higher turnover is the signal of good liquidity and vice versa. The above table shows that the highest cash turnover is 21.834 times in the FY 2008/09 while average being 12.637 times. In the

FY2004/05, 2005/06,2006/07 and 2007/08 the cash turnover is less than that of the averages. This whole figure shows that cash turnover in the company is not homogeneity that is there is fluctuating trend. In some years it takes more times while in some other years it takes very less times than that of average times. This indicates that in the years 2004/05 to 2007/08company was unable to collect cash from its credit sales timely.

From the above calculation it is observed that the collection efficiency in NEA is very low.

Figure 4.1: Graphical Presentation between Cash and Bank Balance and Sale



The above bar diagram shows that the graphical presentation of the relation between cash and bank balance and sales. The graph shows that the sales are maximum in the fiscal year 2008/09 and minimum in the year 2004/05. The figure also shows that cash and bank balance is

maximum in the fiscal year 2006/07 and minimum in the fiscal year 2008/09. The whole figure clearly shows that the cash and Bank balance comparison with sales is very minimum.

4.1.3 Analysis of Cash Conversion Cycle (CCC)

Liquidity is the most important factor in determining firm's working capital policy. Liquidity has two aspects ongoing liquidity and protective liquidity, out of which, ongoing liquidity refers to the inflows and outflows of cash. So it is important to go through the cash flow of the company with the help of analyzing firm's cash conversion cycle.

A cash conversion cycle reflects the net time interval in days between actual cash expenditure of the firm on conversion period indicates resources and ultimate recovery of the cash. The cash conversion cycle is calculated as follows:

Cash conversion cycle = Inventory conversion period + conversion period- payable deferral period

To analyze the cash conversion cycle first of all it should be analyzed inventory conversion period, receivable period and payable deferrable deferral period.

i. Inventory Conversion period:

Inventory conversion period indicates efficient of the firms in selling its product. The short period indicates fast conversion of inventory to sales and the long period indicates fast conversion of inventory to sales and the long period indicates slow conversion period of inventory to sales. It can be calculated as follows:

$$\text{Inventory turnover} = \frac{\text{Sales}}{\text{Inventory}}$$

$$ICP = \frac{360}{\text{Invontory Turnover}}$$

Table 4.3:

Analysis of Inventory Conversion Period(ICP)

Fiscal Year	Days in a year	sales (NRs in Millions)	inventory (NRs in Millions)	Inventory turnover time	I.C.P. (days)
2004/05	360	12605.20	1372.70	9.182	39.207
2005/06	360	13331.90	1354.80	9.840	36.585
2006/07	360	14449.73	1498.45	9.643	37.332
2007/08	360	15041.49	1800.13	8.355	43.087
2008/09	360	15220.87	1856.41	9.200	43.902
Average					40.022

Source: Appendix II and III

The above analytical table shows that there is fluctuating trend of inventory conversion period of NEA but the variation is so large. It varies from maximum 43.902 days in the FY 2008/09 to minimum of 36.585 days in the fiscal year 2005/06.The maximum period refers to the slow inventory turnover and the minimum period refers to fast inventory turnover. The average ICP is found to be 40.022 days which is more than that of FY 2004/05, 2005/06, 2007/08 and less than that of FY 2007/08 and 2008/09.

ii. Analysis of Receivable Conversion Period:

Receivable conversion period indicates the number of days debtor turnover into cash. It analyzes collectable of debtors. The longer

collection period, more efficient is the management of credit policy or it refers to the liberal credit policy and short period refers to the strict credit policy. The receivable conversion period is calculated as follows:

$$\text{Receivable turnover} = \frac{\text{Sales}}{\text{Receivable}}$$

$$\text{RCP} = \frac{\text{Days in a year}}{\text{receivable turnover}}$$

Table 4.4:

Analysis of Receivable Conversion Period

Fiscal Year	Days in a year	sales (NRs in Millions)	Receivables (NRs in Millions)	Receivable turnover Times	RCP days
2004/05	360	12605.20	3697.70	3.408	105.63
2005/06	360	13331.90	4088.00	3.261	110.395
2006/07	360	14449.73	5151.41	2.805	128.342
2007/08	360	15041.49	5721.08	2.629	136.934
2008/09	360	15220.87	4765.88	3.193	112.746
Average					118.809

Source: Appendix II and III

The calculation of receivable conversion period (RCP) of NEA in the above table has shown fluctuating trend in the study Period. It varies from the minimum 105.63 days in the year 2004/05 to maximum of 136.934 days in the year 2007/08. The average receivable conversion period of NEA is 118.809 days. Low collection period indicates fast conversion of receivable and long collection period indicates slow conversion period. Here in the year 2004/05, 2005/06 and 2008/09 collection period is less than average and in the year 2006/07 and 2007/08 the collection period is

higher than average collection

period. The whole analysis of RCP in the study period shows that there is no standard and uniform cash collection policy in the company.

iii. Analysis of Payable Conversion Period:

Payable conversion Period indicates that speed of creditors payable. A high payable conversion period is favorable for the company. Payable differed (conversion) period is calculated as follows:

$$\text{PDF} = \frac{\text{Creditors} \times \text{Days in a year}}{\text{Purchases}}$$

Table 4.5:

Analysis of Payable Conversion Period

Fiscal year	Creditors (NRs in Millions)	Purchase (NRs in Millions)	Days in a year	PDP (days)
2004/05	1255.228	5766.31	360	78.365
2005/06	1421.668	6391.95	360	80.060
2006/07	1775.682	6967.57	360`	91.745
2007/08	2283.430	7437.04	360	110.530
2008/09	2341.876	8423.09	360	100.090
Average				92.158

Source: Appendix II and III

The calculation of payable deferral period of NEA in the above table also indicates fluctuating trend in the study period. During the study period PDP varies from maximum of 110.530 days in the year 2007/08to the minimum of 78.365 days in the year 2004/05. The average payable period of 92.1507 days has taken by company for the payment of trade

creditors.

iv. Calculation of Cash Conversion Cycle (CCC)

Cash conversion cycle shows how many time does it take to convert the receivable into cash, inventory turnover into cash and how much time it takes to repay its obligation. Shortly, it refers the cash inflow and outflow of the company. The cash conversion cycle is calculated as follows:

CCC = ICP + RCP – PDP

Table 4.6:

Analysis of Cash Conversion Cycle (Days)

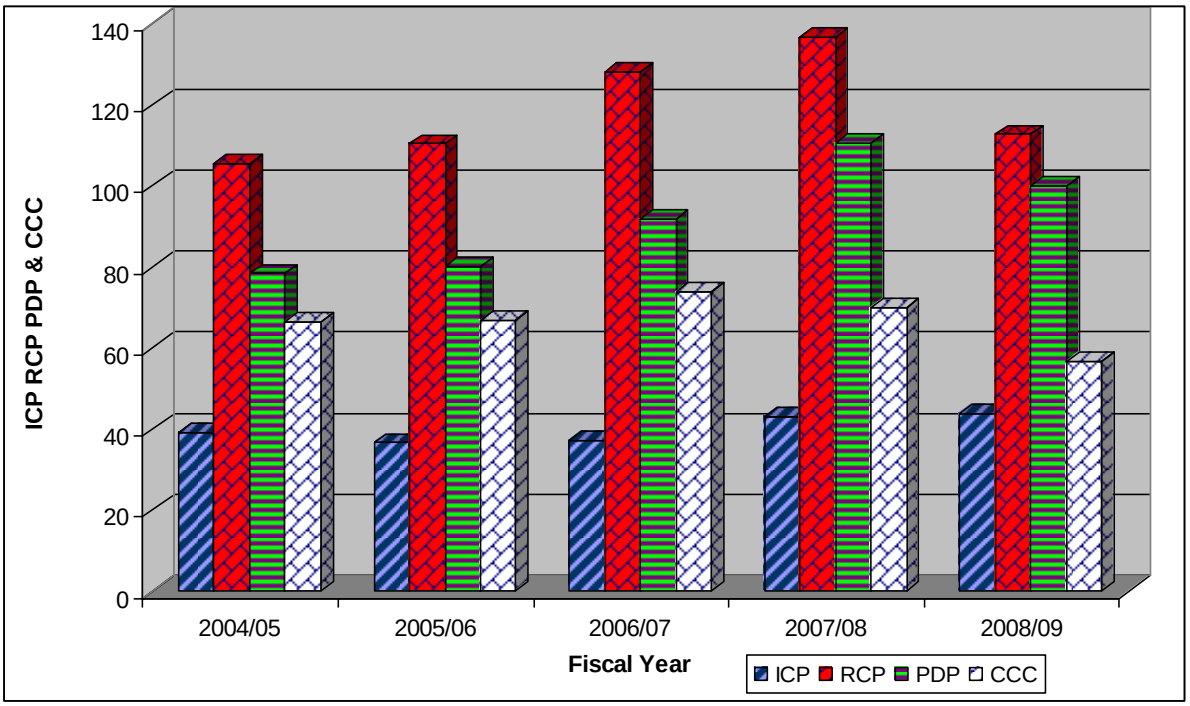
Fiscal year	ICP	RCP	PDP	CCC
2004/05	39.207	105.63	78.365	66.472
2005/06	36.585	110.395	80.060	66.920
2006/07	37.332	128.342	91.745	73.929
2007/08	43.087	136.934	110.530	69.900
2008/09	43.902	112.746	100.090	56.640
Average				66.7734

Source: Appendix II and III

The above table shows the cash conversion cycle (CCC) of NEA for the study period of five years from the fiscal year 2004/05 to 2008/09. Above table shows fluctuating trend in the company during the study period. The average cash conversion cycle of NEA during the study period is nearly equal to 67 days which seem to be not satisfactory because it has greater RCP than PDP which has adversely affected the cash management policy. However its credibility is good. The average inventory conversion period is about 40 days and average RCP and PDP

are nearly 119 days and 92 days respectively. This indicates that NEA takes average 40 days to convert raw materials to finished goods and sell them in the market. Similarly it has taken average of 119 days to convert receivables in to cash and it takes average of 92 days to make the payment of credit purchase of gods. The above analysis shows that the company has not been able to follow the effective cash management policies. It is important for the business firms to follow effective cash management policies, which is not seen in NEA. However increasing trend in the PDP shows positive signals in shortening the cash conversion cycle, which is the basic requirement of maintaining optimum cash balance.

Figure 4.2: Graphical Presentation among ICP, RCP, PDP andCCC



The above figure shows that the graphical representation among ICP, RCP, PDP and CCC. In the above multiple bar diagram it is seen that ICP are in increasing trend except in the fiscal year 2005/06 over the

study period. Both RCP and PDP are in increasing trend except in the fiscal year 2008/09, and the CCC is more fluctuating trend.

4.1.4 Analysis of Account Receivable of NEA

The comparison sells its goods on credit and cash basis. When the corporations extend credit to its customers, book debts are credited. Debtors or account receivables are to be converted into cash over a short period in included in correct assets. The liquidity position of the corporation depends on the quality of debtors to a great extent.

Account receivables turnover in the relationship between credit sales and collection period. If turnover is high, there will be little congestion of fund in turnover and vice versa.

Table 4.7:

Analysis of Account Receivable Turnover

Fiscal Year	Receivables (NRs in Millions)	Sales (NRs in Millions)	Ratio in (Time)	Total Collection (%)
2004/05	3697.70	12605.20	3.408	70.665
2005/06	4088.00	13331.90	3.261	69.336
2006/07	5151.41	14449.73	2.805	64.349
2007/08	5721.08	15041.49	2.629	61.964
2008/09	4765.88	15220.87	3.193	68.688
Average				67.000

Source: Appendix II and III

From the above analytical table we find that receivable turnover time of NEA in the given study period of five years is more or less uniform or homogenous. The table also shows that the percentage of total

collection out of the total sales made during the year. The account receivable of the company ranges from 29.335 to 38.036 percent. However it is not quite satisfactory as the total collection has not exceeded 71 percent which cannot be taken as positive signals for the company with respect to effective cash management.

4.1.5 Analysis of Account Receivable to Cash and Bank Balance

Cash and bank balance measures the relationship between level of cash and bank to AR over a period of time. The greater the AR the better the turnover would be provided that, cash and bank balance can be maintained at a desirable level. The following table shows the relationship of AR to cash and bank balance.

Table 4.8:

Analysis of Account Receivable to Cash and Bank Balance

Fiscal year	Receivables (NRs in Millions)	cash and bank Balance (NRs in Millions)	% of C/B on AR
2004/05	3697.70	1,322.60	35.768
2005/06	4088.00	1,258.60	30.787
2006/07	5151.41	1,447.58	28.100
2007/08	5721.08	1,337.15	23.372
2008/09	4765.88	697.11	14.627
Average		-	26.530

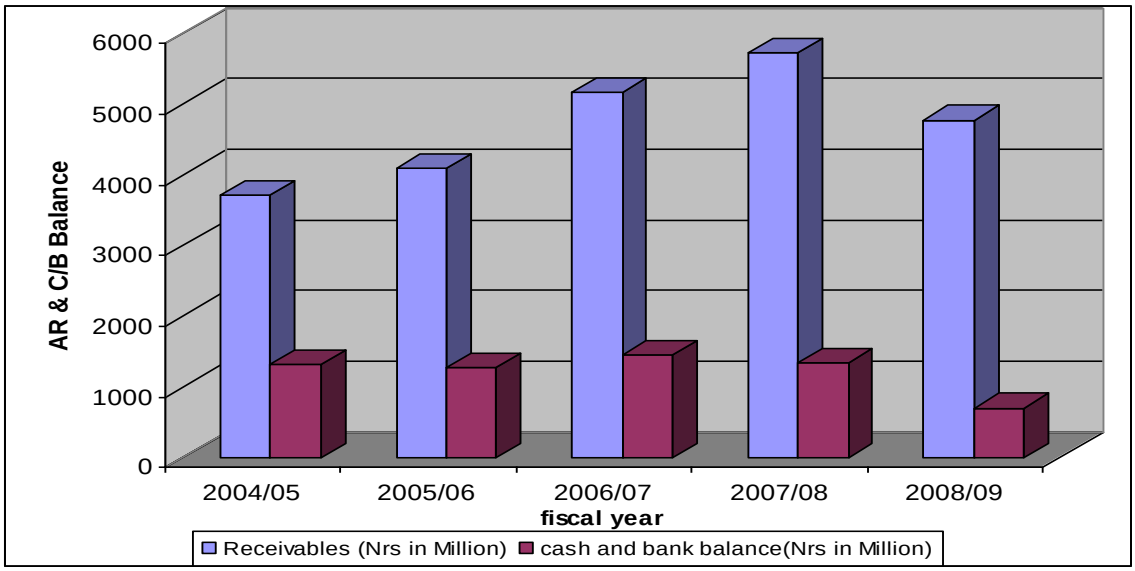
Source: Appendix II and III

The analysis of the above table shows the analysis of account receivable to cash and bank balance in the given study period. The percent of cash and bank balance of account receivable for each fiscal

year is not uniform. It varies from minimum percentage of 14.627 in the fiscal year 2008/09 to the maximum percentage of 35.768 in the fiscal year 2004/05. the ratios are less than the average of 26.530 percent in the fiscal years 2007/08 and 2008/09 where as greater in the fiscal years 2004/05, 2005/06 and 2006/07, the amount of cash and bank balance with respect to account receivables is minimum which shows that management is less concerned to the speed of collection of account receivables. By this situation it shows that company is suffering from deficit of cash balance to meet its short term liabilities and also shows that management has taken liberal credit policy to its customers.

Evaluating this situation, cash management of NEA is found to be not satisfactory because the increasing or decreasing trends of cash and bank balance is inconsistent with the account receivables. Thus, management should adopt and appropriate policy to increase cash balance to maintain at optimum level.

Figure 4.3: Graphical Presentations between Account Receivable and Cash and Bank Balance



The above bar diagram shows that the relation of account

receivable with cash and bank balance. In the figure it is seen that the account receivable except in the year 2008/09 is in increasing trend. But cash and bank balances are in fluctuating trend. It decreases from Rs.1322.60 million to Rs 1258.60 million in the fiscal year 2005/06 and again increases to Rs 1447.58 million in the fiscal year 2006/07, and goes on decreasing in increasing rate in the later years of the study period.

4.1.6 Analysis of Cash and Bank Balance to Current Assets

The diverse ratios of cash and bank balance to current assets directly effects the cash management of the company Lower ratio shows the sound liquidity management of the company and vice-versa. It is calculated by dividing cash and bank balance by current assets, which is shown in the following table.

Table 4.9:

Analysis of Cash and Bank Balance to Current Assets

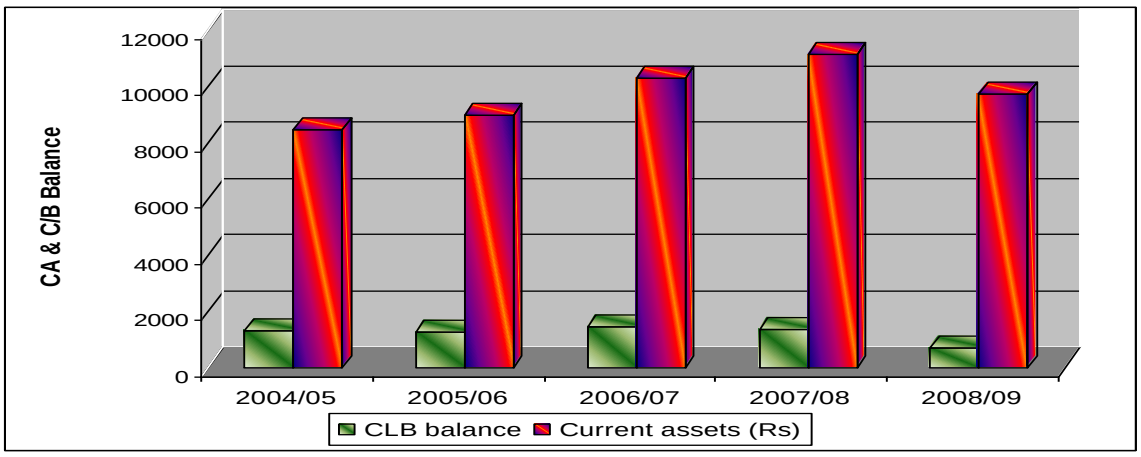
Fiscal year	C/B balance	Current assets (Rs)	% of C/B on CA
2004/05	1322.60	8491.60	15.575
2005/06	1258.60	8995.30	13.991
2006/07	1447.15	10322.97	14.022
2007/08	1337.15	11178.08	11.962
2008/09	697.11	9736.55	7.159
Average			12.54

Source: Appendix II and III

Above table shows the percentage of cash and Bank balance with respect to current assets has been in fluctuating trend. During the study period it has the lowest percent of 7.159 in the FY 2008/09 and the

highest percent of 15.575 in the FY 2004/05 while average being 12.54 percent. While comparing with the average it is found that the percentage of cash and bank balance to the current assets for the fiscal year 2007/08 and 2008/09 are lower and higher in the fiscal year 2004/05 to 2006/07. This shows that NEA has not adopted consistent cash management policies. Thus the cash position of the company is not satisfactory.

Figure 4.4: Graphical Presentations between Cash Balance and Current Assets



The above diagram shows that the graphical relation between current assets and bank balance. In the figure it is seen that the current assets are in fluctuating trend over the study period whereas the cash and bank balance also in the fluctuating trend. The figure also clearly shows that portion of cash and bank balance with comparing to its current assets are very low.

4.1.7. Analysis of Cash and Bank Balance to Total Assets

The higher ratio indicates the lower risk and profitability whereas lower ratio indicates higher risks and higher profitability. It is calculated dividing cash and bank balance by total assets which is shown in below.

Table 4.10:

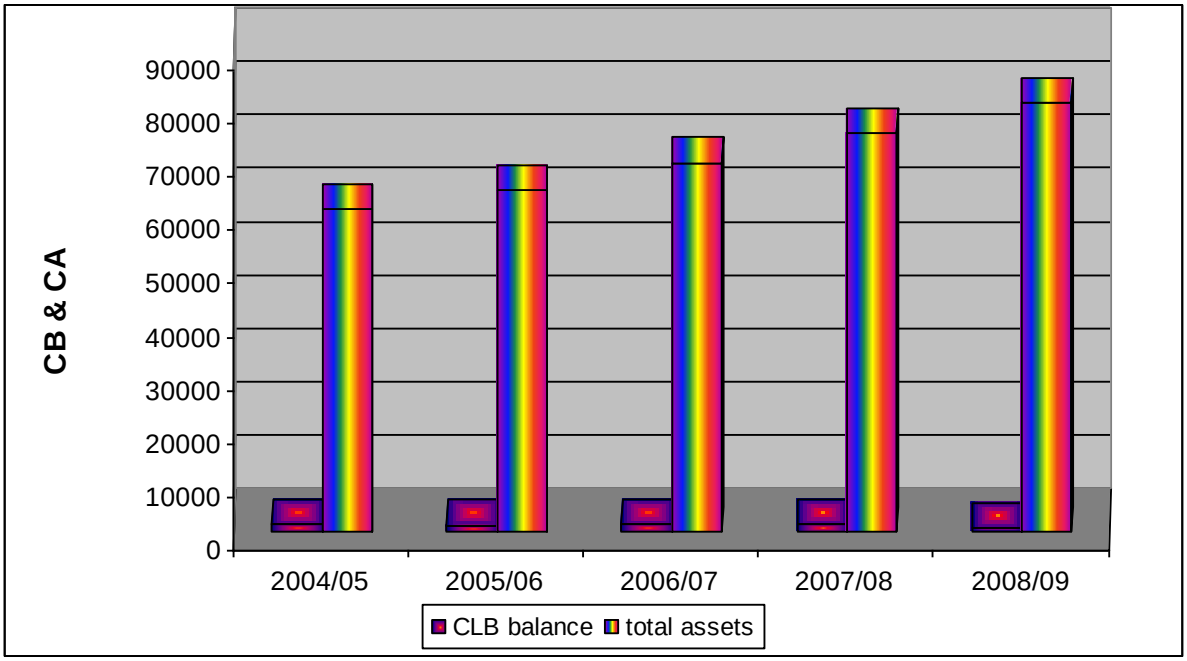
Analysis of Cash and Bank Balance to Total Assets

Fiscal year	C/B Balance	Total assets	% of C /B Balance on T.A.
2004/05	1322.60	60405.17	2.189
2005/06	1258.60	64055.69	1.964
2006/07	1447.15	69195.61	2.092
2007/08	1337.15	74546.04	1.793
2008/09	697.11	80377.50	0.0086
Average			1.609

Source: Appendix II and III

The above table shows the percentage of cash and bank balance to total assets of NEA. The ratio represents the proposition of cash and bank balance to total assets investments of NEA during the given study period. The percentage of cash and bank balance to total assets of NEA is not uniform during the whole study period. The ratio varies from minimum 0.0086 in the FY2008/09 to maximum of 2.189 in the FY 2004/05. It has average ratio of 1.609 percent which seems to be very low for the company. However ratios are greater than average in the FY 2004/05 to 2007/08. Among the components of current assets cash and bank balance hold the minimum proportion. Cash is required for day to business operation. Cash shortage for the firm means firm is not able to invest in golden opportunities. Here NEA seems not to be able to make better use of opportunities due to the lake of sufficient cash.

Figure 4.5: Graphical Presentation between Cash and Bank Balance and Total Assets



Above bar diagram shows that, the relation between cash and bank balance and total assets. In the figure it is seen that the total assets are in increasing trend over the whole study period. Whereas cash and bank balances are in fluctuating trend. The figure clearly shows that the proportion of cash and bank balance with comparing to its total assets are very low.

4.1.8 Analysis of Cash and Bank Balance to Current Liabilities

Among the techniques of measuring company's liquidity the ratio of cash to current liabilities may also be used as index of cash management. This ratio indicates the amounts of cash (in percentage) available to pay the current obligation of the firm. In general a low percentage of cash to current liabilities may be regarded as a favorable indicator. However, a very ratio is also not desirable as it may lead to corporate solvency. The table shows the level of cash in relation to current liabilities of Nepal Electricity Authority.

Table 4.11:

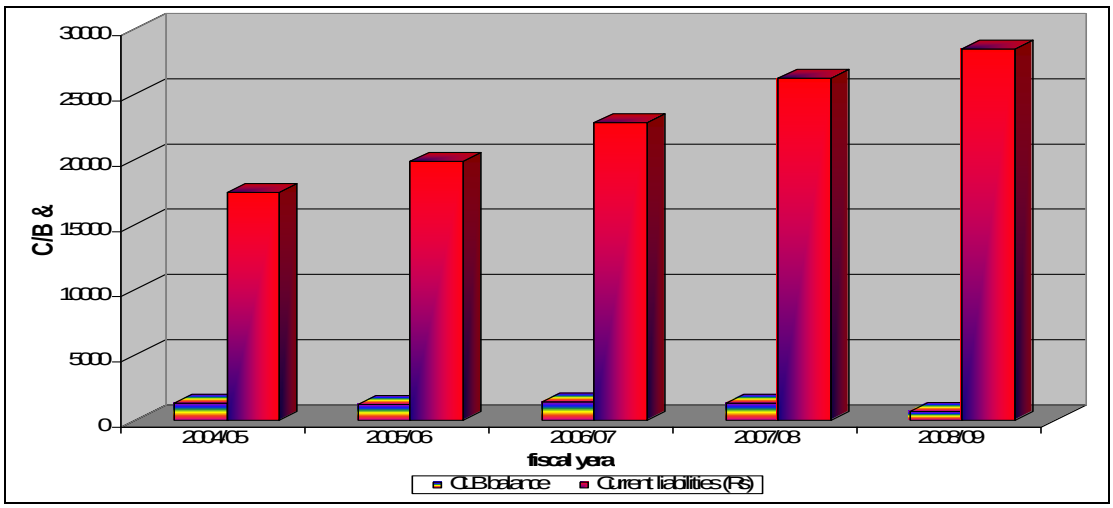
Analysis of Cash and Bank Balance to Current Liabilities

Fiscal year	C/B Balance	Current liabilities (NRs in millions)	% of C & B on CL
2004/05	1322.60	17466.39	7.572
2005/06	1258.60	19854.19	6.339
2006/07	1447.15	22812.13	6.345
2007/08	1337.15	26213.39	5.100
2008/09	697.11	28480.84	2.447
Average			5.560

Source: Appendix II and III

The above analytical table shows that fluctuating trend in the percentage of cash and bank balance to current liabilities during the given study period. The ratio varies from the minimum of 2.447 in the FY 2008/09 to the maximum of 7.572 in the FY 2004/05. In the FY 2005/06, 2006/07 and 2007/08, the levels of cash in relation to current liabilities are 6.339, 6.345 and 5.01 percent respectively, although the ratios are higher then average in the mid-period there is larger variation between first and last year of given study period. Thus, it indicates that NEA has faced the problem of cash management.

Figure 4.6: Graphical Presentations between Cash and Bank Balance and Current Liabilities



Above bar diagram shows that he graphical presentation between current liabilities and cash and bank balance. In the figure it is seen that the current liabilities are in increasing trend. It is minimum in the fiscal year 2004/05 and maximum in the fiscal year 2008/09. There is also fluctuating trend in cash and bank balance. The portion of cash and bank balance with comparison to current liabilities is very low.

4.2 Analysis of Data by Statistical Tools

4.2.1 Fitting the Straight Line Trend by Least Square Method

Spreadsheet for variations in cash balance to analyze the data by using least square method. Let us assume that the fiscal year be X and cash balance be Y. if we keep the fiscal year ranking from 1 to 5 then number of observation would be 5.

So that the straight line trend Yc = a + bx

$$\overline{X} = \frac{\sum X}{N}$$

$$a = \frac{\sum Y}{N}$$

$$b = \frac{\sum XY}{\sum X^2}$$

Where, $X = (X - \overline{X})$

Table 4.12:

Least Square Spreadsheet between FY and Cash and Bank Balance

Fiscal Year	CLB balance	$X - \overline{X}$	X^2	XY
2004/05 (1)	1322.60	-2	4	-2645.2
2005/06 (2)	1258.60	-1	1	-1258.60
2006/07(3)	1447.15	0	0	0
2007/08 (4)	1337.15	1	1	1337.15
2008/09 (5)	697.11	2	4	1394.22
$\overline{X} = \frac{\sum X}{N}$	$\sum Y =$ 6062.61	$\sum X = 0$	$\sum X^2 = 10$	$\sum XY =$ (1172.43)

Source: Appendix II

$\overline{X} = \Sigma x/N = 15/5 = 3$

$a = \Sigma y/N = 6062.61/5 = 1212.608$

$b = \Sigma XY/\Sigma X^2 = -1172.43/10 = -117.243$

$Y_c = 1212.608-117.243x$

This trend ling shows the negative cash balance for the future. The annual rate of decrease of cash is equals to be 117.243 millions

To predict the future cash balance by fitting the above calculated cash trend line in the following table for future four year, by taking FY 2004/05 as a base year.

Table 4.13:

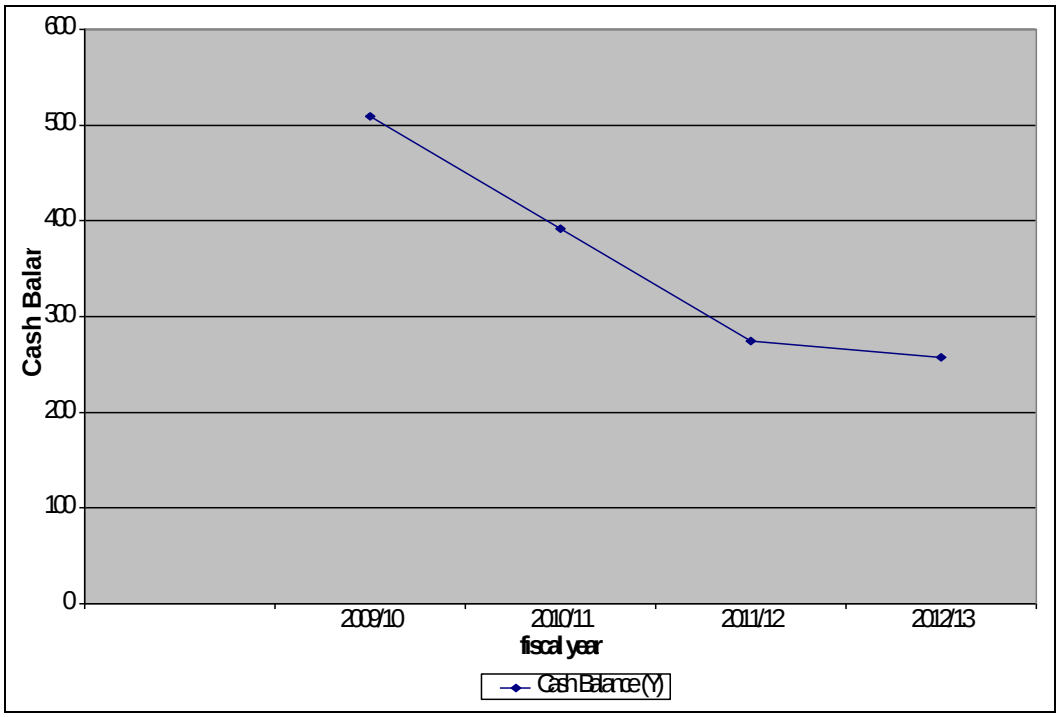
Future Trend Line of Cash Balance

Fiscal Year	X	Trend line Y_c =1212.608-117.243X	Cash Balance (Y)
2009/10	(2004/05-2009/10)=6	Yc=1212.608-117.243x6	509.15
2010/11	(2004/05-2010/11)=7	Yc=1212.608-117.243x7	391.907
2011/12	(2004/05-2011/12)=8	Yc=1212.608-117.243x8	274.664
2012/13	(2004/05-2012/13)=9	Y_c=1212.608-117.243x9	157.421

By the help of fitting line trend the cash balance will be Rs.509.15 million in FY 2009/10. Similarly Rs.391.907, Rs. 274.664 and Rs.157.421million for the years 2010/11, 2011/12 and 2012/13 respectively.

In the conclusion the cash generating trend is decreasing slope, which implies cash and bank balance will be lesser than in the current period.

Figure 4.7: Graph for future Trend of Cash Balance (NRs.in million)



The trend line shows that cash balance will be decreasing trend in future.

4.2.2 Correlation Coefficient between Cash/Bank Balance and Actual Sales

To find the correlation between sales and cash/bank balance, Karl Pearson's coefficient of correlation (r) is determined. For this purpose sales (X) are assumed to be independent variables and cash and bank balance (Y) are assumed to be dependent variable. At first, it is assumed that cash and bank balance will increase as sales increase and vice versa. Whether there exists positive or negative correlation between cash & bank balance and the sales will be determined in the following table. The significance of correlation 'r' is tested with probable error (P.E)

Table 4.14:

Correlation 'r' between Sales and Cash Balance (in Rs. millions)

Fiscal Year	sales (NRs in Millions) (X)	cash and bank balance(NRs in Millions) (Y)	$X-\overline{X}$ (U)	$Y-\overline{Y}$ (V)	U^2	V^2	UV
2004/05	12605.20	1,322.60	-1524.638	109.992	2324521.00	12098.24	-167697.98
2005/06	13331.90	1,258.60	-797.938	45.992	636705.00	2115.26	-36698.76
2006/07	14449.73	1,447.58	319.892	234.972	102330.89	55211.84	75165.66
2007/08	15041.49	1,337.15	911.652	124.542	831109.36	15510.7	113538.96
2008/09	15220.87	697.11	1091.032	-515.498	1190350.80	265738.00	-562424.81
Total	Σx =70649.19	ΣY=6,063.04-	ΣU=0	ΣV=0	ΣU^2= 5085017.084	ΣV^2= 350674.22	Σ UV =-578116.93

Source: Appendix II and III

$$\overline{X}=\frac{\sum X}{N}=\frac{70649.19}{5}=14129.838$$

$$\overline{Y}=\frac{\sum Y}{N}=\frac{6063.04}{5}=1212.608$$

$$r=\frac{\sum UV}{\sqrt{\sum U^2\times\sum V^2}}=\frac{-578116.9}{1335359.29}=-0.43292$$

$\therefore$ r = -43.292%

We have standard deviation of sales X

$$\sigma_X=\sqrt{\frac{\sum(X-\overline{X})^2}{n}}=\sqrt{\frac{5085017.084}{5}}=1008.465$$

Similarly, standard deviation of cash balance Y

$$\sigma_Y=\sqrt{\frac{\sum(Y-\overline{Y})^2}{n}}=\sqrt{\frac{350674.228}{5}}=264.829$$

The value of 'r' equals to -0.43292 shows that there are lower negative correlations between cash and sales. But this negative correlation is not only due to chances. The test of significant of the value or 'r' is shows that there is either significant positive relationship or not between the cash balance and sales.

i.e. P.E. of 'r'

The probable error (P.E) is defined by,

$$\text{P.E} = 0.6745x\frac{1-r2}{\sqrt{\sqrt{N}}}$$

$$= 0.6745x\frac{[1-187428]}{\sqrt{5}}$$

$$=0.245$$

Since, r < P.E. (PE of r) that is -0.4329<0.245.the value of 'r' is not significant. So there is no evidence of correlation between sales and bank and cash balance. There is doubt to say that whether cash and bank balance increases as sales increases and vice-versa or not. So my assumption is found to be wrong.

A regression line can also be fitted to show the degree of relationship between sales and cash and bank balance. Cash balance can be forecasted by the value of sales. For this purpose cash balance and actual sales have been assumed interrelated economic variables. So, the regression line of sales (X) on cash balance (Y) is given by:

$$X - \overline{X} = r.\frac{\sigma_X}{\sigma_Y}(Y - \overline{Y}), \quad \overline{X} = 14129.838, \qquad \overline{Y} = 1212.608$$

$$X - 14129.838 = -.4329 \times \frac{1008.465}{264.829}(Y - 1212.608)$$

or, X-14129.838 =-1.648(Y-1212.608)

$\therefore$ X = 16128.2 – 1.648Y

This equation shows that sales will be decreased by -1.648 per Rs. increases in cash balance.

Next the regression line of cash balance (Y) on actual sales (X) or Y on X is as under:

$$Y - \vec{Y} = r.\frac{\sigma_Y}{\sigma_X}(X - \overline{X})$$

$$Y - 1212.608 = -0.4329 \times \frac{264.829}{1008.465}(X - 14129.838)$$

or, Y-1212.608 = -0.1136(X – 14129.838)

$\therefore$ Y = 2818.9 – 0.1136X

This equation shows that cash and bank balance will be decreased by -0.1136 per Rupee increase in sales. There is inverse relationship between cash and bank balance and the sales. Here both the variables (X) and (Y) move in opposite direction. Hence there is negative correlation between sales and the bank and cash balance.

4.2.3 Fitting the Straight Line Trend by Least Square Method for Sales and Receivables

Time element is also important factor because with the passage of time sales achievements account receivables changes, which can be expressed by the component of time series. A straight line trend by the method of least square will show the relationship between years (time) and ratio in time of account receivables and sales.

Table 4.15:

Fitting the Straight Line Trend by Least Square for Sales and Receivables.

Fiscal Year (X)	Receivable turnover Times (Y)	$(X - \overline{X})$	X^2	ΣXY
2004/05 (1)	3.408	-2	4	-6.816
2005/06 (2)	3.261	-1	1	-3.261
2006/07 (3)	2.805	0	0	0
2007/08 (4)	2.629	1	1	2.629
2008/09 (5)	3.193	2	4	6.386
ΣX = 15	ΣY=15.296	ΣX = 0	$\Sigma X^2 = 10$	ΣXY= -1.062

Source: Appendix II and III

$$\overline{X} = \frac{\Sigma X}{N} = \frac{15}{5} = 3$$

X = No. of observation

Y = Time in ratio of AR and sales straight line trend

$Y_c = a + bx$

$$a = \frac{\Sigma Y}{n} = \frac{15.296}{5} = 3.059$$

$$b = \frac{\Sigma XY}{\Sigma X^2} = \frac{-1.062}{10} = -0.106$$

Therefore, $Y_c = 3.059 - 0.106X$

This trend line shows that account receivable turnover ratios will be in decreasing trends in future years. To predict the future trend for sales and receivable, fitting the above calculated sales and receivable trend in the following table for future four years by taking FY 2060/61 as a base year.

Table 4.16:

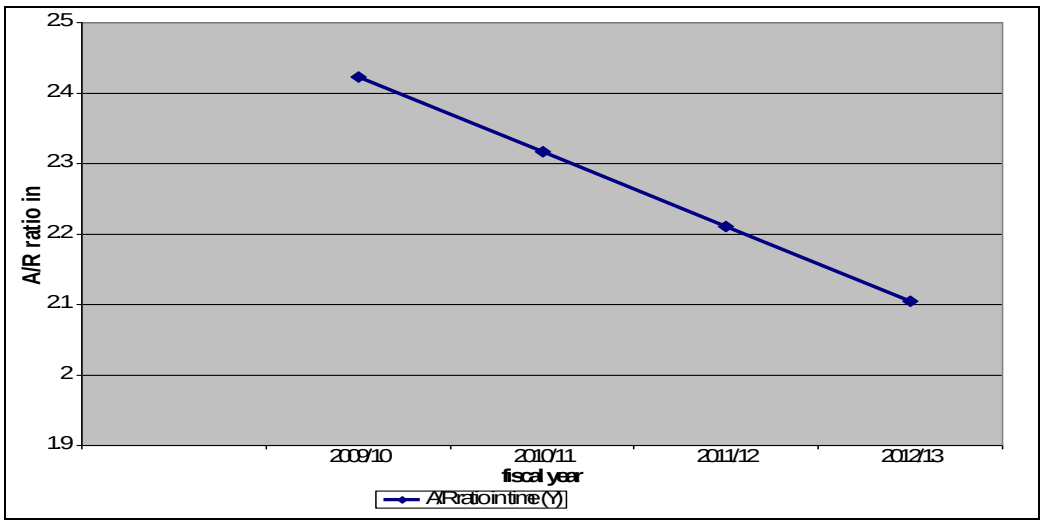
Future Trend line for Sales and Receivable

Fiscal year	X	Trend line Yc=3.059-0.106X	A/R ratio in time (Y)
2009/10	2004/05 - 2009/10 = 6	Y_c = 3.059-0.106x6	2.423
2010/11	2004/05 - 2010/11 = 7	Y_c = 3.059-0.106x7	2.317
2011/12	2004/05 -2011/12 = 8	Y_c = 3.059-0.106x8	2.211
2012/13	2004/05 –2012/13 = 9	Yc=3.059-0.106x9	2.105

Source: Appendix II and III

The above data presentation indicates that both sales and receivables are in increasing in diminishing rate. Though the ratios are in decreasing trend, it is not highly affected by the increase or decrease in sales

Figure 4.8: Future Trend Line of A/R and Sales by A/R Turnover Ratio



The trend line shows that A/R turnover ratio in future will decreasing trend that means sales and receivable are increasing in future.

4.2.4 Analysis of Correlation Coefficient between Sales and Account Receivables

To find out the correlation between sales and receivable, Karl Pearson's communities-efficient of correlation 'r' is determined. For this purpose sales and receivables are assumed to be interrelated economic variables. So both receivables relations are explored. Its assumed receivables (X) are dependent variables and sales (Y) are independent variables. It is assumed that sales will increase as receivables increases or vice-versa. It means that there should be positive relationship between sales and receivables.

Table 4.17:

Correlation 'r' between Receivables and Sales (NRs.in million)

Year	Receivables (NRs in Millions) (X)	sales (NRs in Million(Y))	$Y - \overline{Y}$ (y)	Y^2	$X - \overline{X}$ (x)	Σxy	X^2
2004/05	3697.70	12605.20	-1524.6	2324405.16	-987.10	1504932.60	974366.40
2005/06	4088.00	13331.90	-797.9	636644.41	-596.80	476186.70	356170.00
2006/07	5151.41	14449.73	319.93	102355.20	466.61	149282.50	217715.50
2007/08	5721.08	15041.49	911.69	831178.65	1036.28	944766.00	1073876.00
2008/09	4765.88	15220.87	1091.07	1190433.70	81.08	88463.90	6573.96
	ΣX=23424.07	ΣY=70649.19	Σy = 0	Σy^2 =5085017.12	Σx = 0	Σxy =3163631.70	ΣX^2 = 2628701.865

Source: Appendix II and III

The value of 'r' =0.8653 shows that, there is higher

positive correlation between sales and account receivables. But this positive correlation is not only due to chances. The test of significant of the above computed value of correlation coefficient 'r' is measured by probable error (P.E). It is defined by,

$$P.E = \frac{(1-r^2)\times 0.6745}{\sqrt{n}} = \frac{[1-(.8653)^2]\times 0.6745}{\sqrt{5}} = 0.0757$$

Here 'r' is greater than P.E. Now, 6xP.E=6x0.0757=0.4542. hence the correlation coefficient 'r' is greater than P.E and also greater than 6 P.E, that is the 'r' >6x P.E. so the value of 'r' is higher. Therefore there is significant correlation between sales & account receivables. So here we can say that it sales will increase in sales leads to increase in account receivables and vice-versa.

A regression line can also be fitted to show the degree relationship between sales and account receivables. For this purpose receivables have been assumed to be dependent on sales.

So that, the regression line of receivable (y) on sales (x) is as follows:

$$X - \bar{X} = r\frac{\sigma_X}{\sigma_Y}(Y - \bar{y})$$

$$\sigma_X = \sqrt{\frac{\sum(X-\bar{X})^2}{n}}, \sqrt{\frac{2628701.86}{5}} = 725.07$$

$$\sigma_Y = \sqrt{\frac{\sum(Y-\bar{Y})^2}{n}} = \sqrt{\frac{5085017.16}{5}} = 1008.46$$

$$X - 4684.8 = 0.8653 \times \frac{725.07}{1008.46}(y - 14129.8)$$

$$X - 4684.8 = 0.622(Y\text{-}14129.8)$$

X = 01.622y-8790.7+4684.8

$\therefore$ X = 0.622y-4105.9

Thus, for Re 1.increase in sales, the amount receivable increases by Rs. 0.018

Again, the regression line of sales y on receivable X is as follows:

$$Y - \overline{Y} = r.\frac{\sigma_Y}{\sigma_X}(X - \overline{X})$$

Or, $$Y - 14129.8 = 0.8653 \times \frac{1008.46}{725.07}(X - 4684.8)$$

Or, Y-14129.8 = 1.203 (X – 4684.8)

$\therefore$ Y = 1.203x+8491.65

4.2.5 Analysis of Correlation Coefficient between Account Receivables and Cash and Bank Balance

To find out the correlation between receivables, cash and bank balance Karl Pearson's coefficient of correlation r is determined. For this purpose account receivable and cash and bank balance are assumed to be interrelated economic variables let us assume receivables X is dependent variable and cash and bank balance are independent variables.

Table 4.18:

Correlation between Account Receivable and Cash & Bank Balance

(NRs. in millions)

Fiscal year	Receivables (NRs in Millions) (X)	cash and bank balance (NRs in Millions) (Y)	$X - \overline{X}(U)$	$Y - \overline{Y}$ (V)	U^2	V^2	UV
2004/05	3697.70	1,322.60	-987.1	109.992	974366.41	12098.24	-108482.00
2005/06	4088.00	1,258.60	-596.80	45.992	356170.00	2115.36	-27356.40
2006/07	5151.41	1,447.58	466.61	234.972	217715.50	55211.84	109606.70
2007/08	5721.08	1,337.15	1036.28	124.542	1073876.00	15510.70	129016.80
2008/09	4765.88	697.11	81.08	-575.498	6573.96	265738.00	-41747.40
Total	ΣX=23424.07	ΣY=6,063.04-	ΣU = 0	ΣV = 0	ΣU^2 = 2628701.87	ΣV^2 = 350674.14	ΣUV =61037.70

Source: Appendix II and III

$$\overline{X} = \frac{\sum X}{N} = \frac{23424.07}{5} = 4684.8$$

$$\overline{Y} = \frac{\sum Y}{N} = \frac{6063.04}{5} = 1212.608$$

$$r = \frac{\sum UV}{\sqrt{\sum U^2 \times \sum V^2}} = -\frac{61037.7}{\sqrt{2628701 \times 350674}} = 0.06357$$

The value of 'r' is 0.06357 shows that there is positive correlation between account receivables and cash and bank balance. But the positive correlation is not only due to chances. The test of significance of above computer value of correlation coefficient 'r' is measured by probable error (P.E). it is defined by,

The probable error P.E. (r) = $\frac{0.6745(1 - r^2)}{\sqrt{n}} = \frac{0.6745\ [1 - (0.006357)^{\ 2}]}{\sqrt{5}}$ = 0.3004

And ,

P.E. (r) = 6 × 0.3004 = 1.80

Since the value of r is less then 6P.E. (r<6.P.E), there is no significant correlation between account receivables and cash and bank balance. So it is still doubt to say that weather increases in account receivable will increases cash and bank balances and vice-versa. So that there is no extra evidence to prove that increases in account receivable increases cash and bank balance

CHAPTER- FIVE

SUMMARY, CONCLUSION, FINDINGS AND RECOMMENDATIONS

5.1 Summary

Nepal Electricity Authority is the largest government enterprise in Nepal with the country's highest capital investment, assets and human resources; established on Bhadra 1st 2042 B.S , under the Nepal electricity Authority Act 2041 B.S. It was established for development of electricity as a major infrastructure requirement for overall development. It has undertaken all the responsibility of planning, construction, generation, transmission and operation of power all over the country. The main objective of NEA is to provide nation-wide low cost and reliable electricity resources as a whole. Though NEA's market is purely monopoly it is continuously facing problems of liquidity, transmission loss and under capitalization.

The case work study taken to examine the "Cash Management" techniques in NEA shows that the company is suffering from effective and scientific approach of cash management. An effort has been made in the study to provide a possible suggestive framework for the better cash management of NEA.

For the purpose of conducting this study, mainly secondary data are used. It contributes mostly the balance sheet and Income statement. Besides, the performance has also been supplemented form the information collected through mailed questionnaires. As per the nature of the study data are used with descriptive and analytical approach, and the study is based on five years data from fiscal year 2004/05 to 2008/09.

Data are tabulated as per the requirement of the study.

This study is carried out using both financial and statistical tools. Financial tools like ratio analysis and the statistical tools like arithmetic mean, standard deviation, coefficient of correlation, probable error of correlation, regression analysis, bar graphs and diagrams have been used to analyze the data.

This study has been organized into five main chapters. It consists of Introduction, Review of Literature, Research methodology, Presentation and Analysis of Data, and Summary, Conclusion and Recommendations sequencly in the First, Second, Third, Fourth and Fifth chapters.

5.2 Conclusion

In conclusion, it can be said that cash management is an important part of the financial decision making variable.

Many factors or determinants such as nature of business, level of sales, credit terms, quality of customers, economic condition etc. have to be considered in cash management. Apart from the level of purchase, method of cash management, establishment of credit terms, types of credit policy, motives for holding cash, efficiency of cash management, cash cycle etc. are to be considered. Corporation or Company must prepare cash budget to plan for and control cash flow.

Thus, after having analyzed the cash management approach in NEA, it is concluded that the cash management in the company lacks efficient policy. Efficient cash management policy is concerned with reducing the account receivables collection time and delaying the payment of account payable along with the maintenance of the firms

credit standing with suppliers. Making the best utilization of surplus cash and keeping the regular optimum cash balance to ensure normal business operation is the essence of overall cash management in the corporation. But this basic approach has not been practiced in NEA.

Therefore, for NEA it is necessary to highlight the importance of developing appropriate strategies for cash management in respect of :

1. Cash planning and cash budgeting in a way to make best utilization of surplus cash or to meet cash deficit for a period not exceeding one year and broken up into shorter intervals.

2. Managing of cash flows so as to accelerate the inflows and as for as possible to decelerate out flows.

3. Optimizing the level of cash balances by matching the cost of holding excess cash and the danger of cash deficiency.

4. Making suitable collection plans of next year on the basis of previous years collection.

5.3 Major Findings

The major findings of the research study are presented below:

1. Cash management in the NEA is primarily based on practices lacking scientific approach, which is must for efficient cash management. There is absence of formalized system of cash planning and cash budgeting in NEA.

2. NEA could not make best use of available cash balance productively in the relevant year of the study period (2006/07)

3. Modern practices with respect to debt collection monitoring the payment behavior of customers and relevant banking arrangements in

connection with the collection of receivables have been virtually ignored in NEA. (Less collection speed)

4. There is higher fluctuation in the yearly cash holding of the company and it is in decreasing trend.

5. The average cash turnover time in the whole given study period is found nearly 13 times which is in the fluctuating trend over the study period. The collection efficiency is very low.

6. The average inventory conversion period into cash is found more than 40 days. However variation over the study period is not large.

7. The average receivable conversion period is nearly 119 days which shows slow collection from the customers.

8. The average payable deferral period is found to be 92 days which is faster than account receivable period, which shows that NEA has good creditability but not following scientific approach in collection.

9. The average cash conversion period is nearly 67 days which is faster than average receivable conversion period. Which is not good signal for the purpose of managing cash? (RCP>ICP, Also RCP>PDP)

10. The average cash collection over the study period from the sales is not more than 69% which is also cannot be taken as positive signal with respect to effective cash management.

11. Management has taken liberal credit policy to the sales of goods. Hence the ratio of cash and bank balance on account receivable is minimum over the study period. It has average of 26.53% only.

12. No optimum cash balance is maintained. The cash and bank balance with respect to currents has been in fluctuating trend and similar is the case that NEA has failed to maintain/ follow consistent cash

management policy.

13. There is no consistency in the ratio of cash and bank balance on current liabilities too. It is found to be in decreasing trend in the later years of the study period.

14. The fitting of trend line between fiscal years and cash & bank balance of NEA over the study period is found to be yc=1212.608-117.243 which shows that there will be decreasing trend of cash & bank balance in the future years. Calculation made with the help of trend line shows that cash and bank balance will be Rs 509.15, Rs 391.907, 274.664 and Rs 157.421 million for the fiscal years 2009/10, 2010/11, 20011/12 and 2012/13 respectively.

15. The Correlation coefficient ® of sales and cash & bank balance is -0.43292 which shows that there is lower negative correlation. The probable error is 0.245 which is greater than 'r' i.e. r<PE. Hence the correlation coefficient is not significant.

16. The regression line X=16128.2-1.648y; shows that negative relationship between sales and account receivables. Also regression line Y=2818.9-0.1136X; shows that cash/bank balance (Y) will be decreased by 0.1136 per rupee increase in sales (X).

17. The correlation coefficient ® of sales and cash & bank balance (y) is 0.8653; which shows that there is higher positive correlation between sales and account receivables. The probable error is 0.0757and 6.P.E = 0.4542 which is less than 'r' i.e. 'r'>6.P.E. Hence there is significant correlation between sales and account receivable.

18. The regression line Y=1.203X+8491.65; shows positive correlation between sales (x) and account receivable (y). That is account receivable

increase by 1.203 for one rupee increase in sales.

19. The correlation coefficient between account receivable (x) and cash & bank balance (y) is found to be 0.06357. The probable error (P.E) of 'r' is 0.3004 which is higher that 'r'. Also 6.PE=1.80. So there is no significant correlation between A/R and cash & bank balance. (i.e. r<6.PE).

20. Although, NEA aims to produce and distribute electricity by service motives, it must generate profit at least to cover its cost of capital. But the company has been undergoing loss in the recent years which also have negative impact in the maintenance of regular optimum level of cash balance(as per Annual financial reports)

21. In-sum-up of all the above findings made through financial and statistical analysis, the cash management in NEA is not found to be satisfactory as per modern scientific approach.

5.3 Recommendations

Based on the findings of the analysis and the issues and constraints mentioned above, some practicable recommendations have been provided in the following page.

1 Efficient Management of Cash.

Nepal Electricity Authority should have proper cash planning to estimate the cash receipts and payments. It helps to minimize the problem of excess and deficit cash balance. The company should first identify the cash needs for operation. For this company should consider the various expenses it has to incur such as, power purchase, generation, transmission, interest payment, raw materials, payment to be made for wages, salaries, rent and power etc. The company should adopt proper cash forecasting system to forecast the need for cash meeting various expanses in the near future. After identifying the cash need, company should estimate the cash to be received.. It could be estimated with the proper budgeting of cash sales and collection of credits. When the cash flows are forecasted, the company should determine the optimum level of cash balance needed to run the daily operation. At the same time the seasonal requirement should also be considered. For efficient cash management, NEA should have properly trained planner for budgeting and cash management.

2. Accelerating Collection Efforts

Account receivable management is one of the basic components of current assets management. It should be given top priority by the top management of the company since major share of current assets has been occupied by account receivables. Account receivable can be managed

efficiently by designing an appropriate receivable management program. For this program first of all company should try to minimize the account receivable by selling only in cash term. Secondly, it should try to maximize collection efforts by different process resorting to various measures.

Not only that the NEA should follow suitable credit terms, specially providing discount that is attractive to encourage payments earlier and at the same time make a comprehensive study of character, capacity, capital, collateral and conditions of all those customers or institutions that request credit from the company.

3 Adopt Effective Credit Policy:

The company should have suitable credit policy to handle the cash management effectively. It should adopt liberal credit policy to increase the sales. Next, it should adopt strength credit policy especially for its staff and workers for effective credit collection performance as low total receivable. One of the reasons of lower turnover and high collection period arise due to more advances to company's employees.

4 Adoption of Basic Strategy of Cash Management :

The basic strategy of cash management is delayed payment as long as possible without impairing the credit rating of the company and at the same time maximum acceleration in collection. Slow disbursement represents sources of fund requiring no interest payment. In other words quick collection and slow disbursement accomplishes the company with adequate cash in hand for longer period. Effective control of disbursement of cash results in a faster turn over of cash.

5. Invest the Surplus Cash in Profitable Opportunities:

Company should manage its cash affairs in such a way as to keep cash balances at a minimum level and to invest the surplus cash funds in profitable opportunities.

6. Maintain Optimum Cash Balance

NEA is found to be not maintaining optimum level of cash balance during the whole study period. Therefore it should establish the practice of maintaining regular and optimum cash balance by matching between surplus and deficiency of cash balance.

7. Planned Collection:

NEA should forecast planned collection for the next fiscal year on the basis of actual collection of the previous year.

8. Incentive Plan:

NEA should try to reduce the amount of account receivables for maximizing the collection. For this, company should establish the plan for incentive to staffs to encourage them for fast collection of overdue amount of account receivable. In revenue collection, any kind of pressure, threats, favoritism, nepotism and personal biases should strictly be discouraged.

9 Prepare Cash Budget:

For an estimation of closing balance of cash, receipt of cash and payment of cash a cash Budget has to prepare. The following steps are considered for construction of a cash budget.

Step 1: To identify the sources of cash inflows (receipt) is the first step of cash budget. Normally the sources of a business are as follows:

a) Beginning cash in hand and at bank

b) Cash sale

c) Cash collection from debtors

d) Cash sales of fixed assets

e) Interest and dividend received

f) Issue of share and debenture

g) Bank loan

h) Loan from financial institutions

Step 2: To determine the cash out flow (payment) is the second step.

Following is the list of payment of a firm:

a) Cash purchase

b) Payment of the credit purchase

c) Wages and salary payment

d) Payment of manufacturing administrative and selling expenses

e) Repayment of borrowed capital

f) Payment for purchase of fixed assets

g) Payment of other expenses

Step 3: To find out the closing balance: The closing balance of cash can get by the following way:

Closing balance of cash = Opening balance of cash + Receipt of cash- Payment of cash.

The specimen of a cash budget is given below:

Cash Budget for the Month……

Beginning balance of cash		Xxxx
Add: Receipt	xxx	
Collection from debtors	xxx	
Sales of fixed assets	xxx	
Interest received	xxx	
Dividend received	xxx	
Collection from issuing shares	xxx	
Collection from issuing debentures	xxx	
Loan received	xxx	
Total receipt (A)		Xxxx
Less: Payment		
Cash purchase	xxx	
Wages and salaries	xxx	
Manufacturing overhead	xxx	
Administrative overhead	xxx	
Administrative overhead	xxx	
Selling overhead	xxx	
Interest	xxx	
Dividend	xxx	
Fixed assets purchases	xxx	
Repayment of borrowed capital	xxx	
Total Payment (B)		Xxxx

10. Investment in Marketable Securities:

There is close relationship between cash and marketable securities. Excess cash should normally be invested in marketable securities which can be conveniently and promptly converted into cash. The excess cash may build up during slack season but it would be needed

when the demands pick up. This excess cash during slack season is idle temporarily, but has predictable requirement later on next excess cash may be held as a buffer to meet unpredictable financial needs. The financial manager must decide about the portfolio of marketable securities in which the firm's surplus cash should be invested. A firm can incest its temporary transaction balance or precautionary balance of both, it primary criteria in selecting a security will be its quickest convertibility in to cash when the need for cash arises. In choosing these securities are safety maturity and marketability.