A STUDY ON CASH FLOWS OF NEPAL ELECTRICITY AUTHORITY

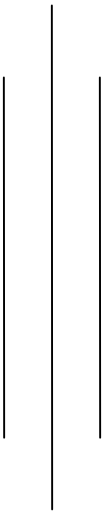
SUBMITTED BY:

ANIL MAHARJAN

SHANKER DEV CAMPUS

ROLL NO: 973/2062

TU REGISTRATION NO: 7-2-422-111-2002



A THESIS SUBMITTED TO:

OFFICE OF THE DEAN

FACULTY OF MANAGEMENT

TRIBHUVAN UNIVERSITY

In the partial fulfillment of the requirement for the degree of

Master of Business Studies (M.B.S)

KATHMANDU, NEPAL

JUNE 2009

RECOMMENDATION

This is to certify that the thesis

Submitted by:

Anil Maharjan

Entitled:

A STUDY ON CASH FLOWS 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.

_____	_____
Yamesh Man Singh	Dr. Kamal Deep Dakal
(Thesis Supervisor)	(Campus Chief)
Shanker Dev Campus	Shanker Dev Campus

VIVA- VOCE SHEET

We have conducted the viva- voce examination of the thesis

Presented by:

Anil Maharjan

Entitled:

A STUDY ON CASH FLOWS OF NEPAL ELECTRICITY AUTHORITY

And

found that this thesis is an original work of the student and written according to the prescribed format. We recommended the thesis to be accepted as partial fulfillment of the requirement for the degree of Master of Business Studies (M.B.S.).

Viva-voce Committee

Head of Research Department _____

Member (Thesis Supervisor) _____

Member (External Expert) _____

Date: ……

DECLARATION

I hereby declare that the work contained in this dissertation entitled **"**A STUDY ON CASH FLOWS OF NEPAL ELECTRICITY AUTHORITY**"** submitted to the office of the Dean, Faculty of Management, and Tribhuvan University is my original work done for partial fulfillment for the requirement for the degree of Master of Business Studies (M.B.S.) under the guidance and supervision of Mr. Yamesh Man Singh, Associate Professor of Shanker Dev Campus.

I also certify that to the best of my knowledge, the dissertation contains no material previously published or written by another person except where references have been given, and any help received has been acknowledged.

_____

Anil Maharjan
Shanker Dev Campus
Roll No: 973/2062
TU registration no: 7-2-422-111-2002

ACKNOWLEDGEMENT

The thesis entitled: “A Study on Cash Flows of Nepal Electricity Authority” has been prepared in the partial fulfillment of the requirement for the degree of Master of Business Studies(M.B.S). The study has analyzed and evaluated the performance and position of NEA with the view of cash flows. I hope the findings of this thesis will be valuable and informative. The thesis has been prepared under the direct guidance and supervision of Mr. Yamesh Man Singh, Associate Professor of Shanker Dev Campus.

I wish to express my profound gratitude to all who have supported the completion of this thesis. First, I would like to especially thank my supervisor, Yamesh Man Singh for his valuable advice, full support, patience and encouragement. Without him, this thesis would not have been completed.

My special thanks also go to the staff of the Shanker Dev Campus for their help.My sincere gratitude goes to my friends for editing earlier draft of this thesis.

I acknowledge the staff of Nepal electricity Authority for providing secondary data and corporate plan. I also acknowledge my friends in the MBS program for the good friendship and help during my study in Shanker Dev Campus.

Finally, my deepest gratitude goes to my parents for their caring and unbounded support. Without their support, I would have had no chance to complete this thesis.

_____

Anil Maharjan
Nayabazar-16, Kathmandu,
Nepal.

TABLE OF CONTENTS

Chapter – 2

Chapter – 3

Chapter – 4

Chapter – 5

List of Tables

List of Figures

List of Abbreviation

CFFA	Cash from Financing Activities
CFIA	Cash from Investing Activities
CFOA	Cash from Operating Activities
FY	Fiscal Year
NEA	Nepal Electricity Authority
NRs	Nepalese Rupees
FFO	Funds from Operation
CFO	Cash from Operation
MW	Mega Watt
P.E.	Probable Error

CHAPTER 1
INTRODUCTION

1.1 Background of the Study

Cash refers to cash on hand and demand deposits. Cash equivalents are short term, highly liquid investments that are readily convertibles into cash and which are subject to an insignificant risk of changes in value. Cash flows are movement and change in position of cash. A study of cash flows provides information about the inflows and outflows of cash in an accounting period. A cash flows study is an important task since it is taken as reference in various economic decisions. Investors, for example, need information about future cash flows, because the value of their investment is the present value of the future cash flows to them. In the same way, the ability of a company to generate cash flows reflects the value of its shares. Thus cash flows allow investors to predict stock prices. Cash flows play a pivotal role in all of these issues. A cash flows study provides useful information to evaluate a firm's ability to have sufficient cash in both short term and long-term basis. It is the analysis of events and transactions that affects the cash position of company. Cash flows studies are done through statement of cash flow. Cash flows studies help to evaluate financial policies and cash positions. It assesses a company's ability to generate positive future cash flows. It helps in evaluating firm's ability to meet its obligation, its ability to pay dividends and its need for external financing. Through past trends of cash flows, one can analyze, evaluate and predict future cash flows, which is the ultimate goal of the study. In terms of the importance of cash flows data, cash flows as a measure of a firm's performance is less subject to distortion than is the net profit figure, because the calculation of cash flows from operations removes the causes of the distortion such as depreciation methods, deferred taxes, and goodwill amortization, whereas the determination of net profit under accrual accounting requires approximations, deferrals, allocations and valuations. These procedures allow managers to manipulate their company's profits. That is, they can choose an accounting method, from among various methods of

calculating depreciation and valuing inventories, or produce high or low profit as they want. As a result, analysts usually consider cash flows to evaluate firm performance in addition to the profit.

Most researchers have attempted to investigate the predictive ability of cash flows. However, previous research findings have shown controversial results. Most research has focused narrowly on operating cash flows, earnings and accrual components of earnings. Those previous studies have ignored the potential of other cash flows variables, particularly cash flows ratios. A cash flows ratio is a tool for analyzing a firm's performance. Cash flows ratios are calculated by using data from both the cash flow statement prepared on a cash basis and the income statement and balance sheet prepared on the accrual basis. Hence, this study focuses on cash flows and cash flows ratios. Besides, this thesis provides an overview of Nepal Electricity Authority. It also includes generalize knowledge of Nepal Electricity history and similar operational functions.

1.2 An Overview of Nepal Electricity Authority (NEA)

NEA is one of the largest public corporation in Nepal. It deals with generating and supplying of electricity.The government of Nepal established Nepal Electricity Authority by introducing new corporation policy with the vision to boost up performance of public enterprises during the sixth five year plan (1980-1985). Nepal Electricity Authority (NEA) was created on Bhadra 1, 2042 under the Nepal Electricity Authority Act. 1984, by merging the Department of Electricity of Ministry of Water Resources, Nepal Electricity Corporation and related Development Boards.

1.2.1 Objective and Responsibility of NEA

The primary objective of NEA is to generate, transmit and distribute adequate, reliable and affordable power by planning, constructing, operating and maintaining all generation, transmission and distribution facilities in Nepal's power system.

Similarly, NEA's major responsibilities are:

- to recommend to Government of Nepal, long and short- term plans and policies in the power sector;
- to recommend, determine and realize tariff structure for electricity consumption with prior approval of Nepal Government.
- to arrange for training and study so as to produce skilled manpower in generation, transmission, distribution and other sectors.

1.2.2 Board of Directors of NEA

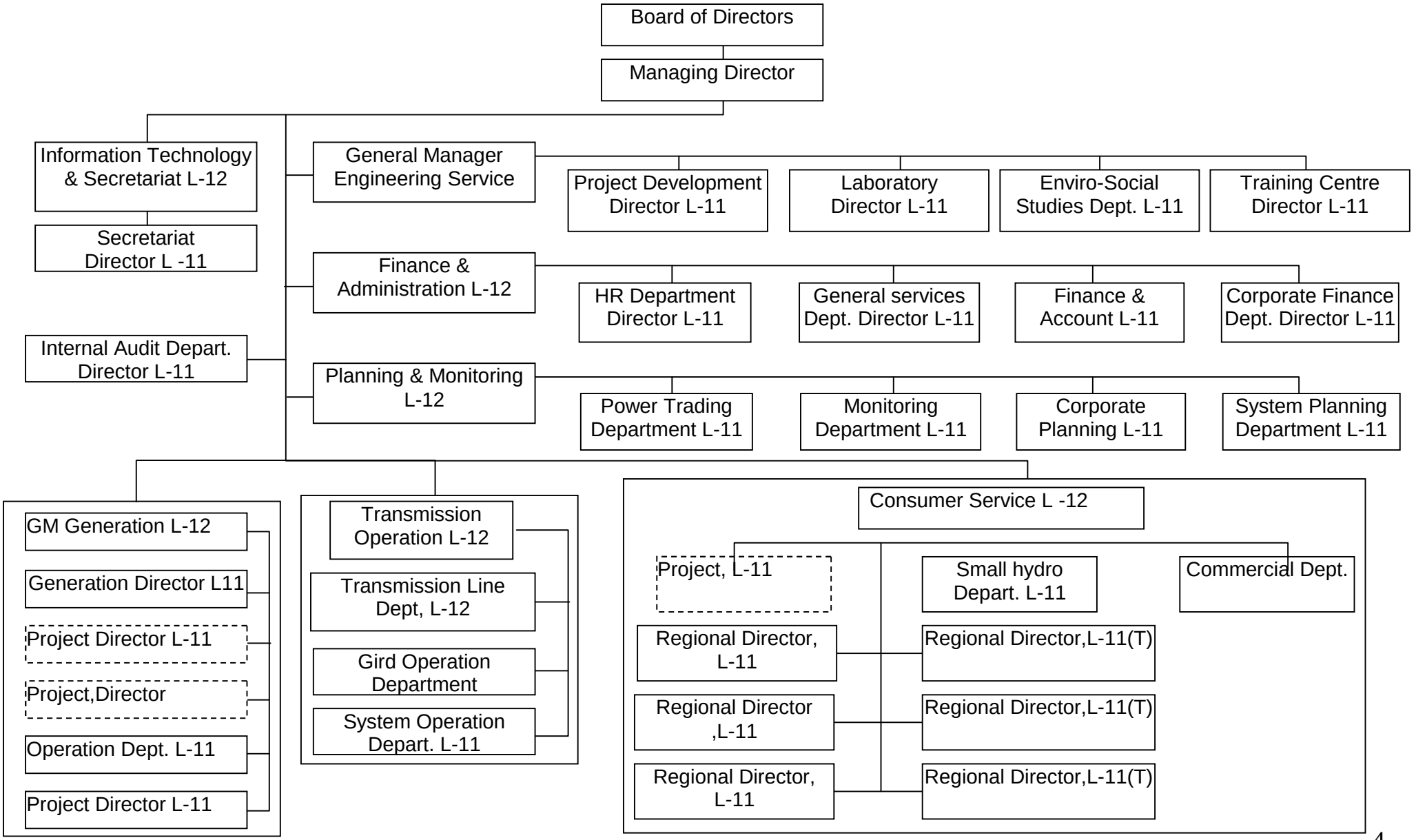
Management of NEA is entrusted to a Board of Directors, which is constituted as follows:

- The Minister/State Minister of Water resources or person appointed by Nepal Government: Chairman
- Secretary, Ministry of Water Resources : Member
- Secretary, Ministry of Finance : Member
- One prominent person from commerce, industry, or financial sector : Member
- One person from consumers group : Member
- Two prominent persons with experience in power sector from outside government : Member
- Managing Director, NEA : Member Secretary
- Managing Director, NEA : Member
- The Managing Director acts as member secretary as well as chief executive officer.

1.2.3 Corporate structure of NEA

Figure no 1.1

Chart of Corporate structure of NEA



1.2.4 Present Performance of NEA

NEA presently serves 1,060,700 customers (a growth of about 9.28% over that of the previous Fiscal Year) across all the 75 districts of the country. Electricity supply is provided through ten medium-sized and forty small hydropower plants owned by NEA and ten hydropower plants. Besides, four diesel and two multi-fuel thermal power plants under the ownership of NEA also cater to the demand. NEA continues to be the sole purchaser of IPP's power production.

1.2.5 Issues and Perspectives of NEA

The extremely limited investment capability of the country continues to remain one of the major impediments in the development of the Nepalese power sector. Resource mobilization in recent years to finance development plans in the public sector has been ineffective. Similarly the current trend of private sector investment in the power sector is also not very encouraging. The continuing investment of the private sector in only small capacity plants in the 1- 5 MW range does not provide any substantial relief in meeting the growing needs of the country's power system.

The dominance of run-off-river (ROR) and daily pond age hydropower plants in the Nepal power system has led to the creation of difficult periods of acute capacity shortage during the dry season when the demand rises sharply while the wet season sees a glut of energy available in the system which has yet to find a market.

1.2.6 Electricity Demand Forecast (Load Forecast)

The electricity demand forecast, covering the period up to the FY 2019/20 is prepared considering the country's macro- economic indicators and rural electrification expansion program. Power consumption data of the FY 2004/05 has been taken as a basis for this load forecast. Total energy requirement in Nepal is projected to grow by an average of 8 percent per annum over the forecast period, from 2,299.9 GWh in the FY 2003/04 to 7894 GWh in the FY 2019/20. Peak demand is projected to grow from 512.2 MW in the FY

2003/04 to 1733 MW in the FY 2019/20. The result of the Load Forecast Study-2004/05 is presented as follows:

Table no: 1.1

Table of Load Forecast Study FY 2004-05

Fiscal Year	Total Generation Requirement (GWh)	System Peak Load (MW)	Peak Load Growth (%)
2003-04	2299.9	512.2	
2004-05	2457.6	556.3	8.6
2005-06	2600.1	593.6	6.7
2006-07	2777.6	634.2	6.8
2007-08	3055.9	697.7	10.0
2008-09	3317.4	757.4	8.6
2009-10	3598.9	821.7	8.5

- **Power Demand and Supply Situation (till 2009/10):**

The capacity balance at the time of system peak up to FY 2009/2010 incorporating the planned projects as given in the Generation Expansion Plan is presented in Table 1.2.

Table no: 1.2

Table of Capacity Balance with Planned Projects and peak demand

MW/Year	2005/06	2006/07	2007/08	2008/09	2009/10
Peaking Capacity/Supply	530.24	532.74	536.34	621.64	648.64
Peak Demand	556.30	593.60	634.20	697.70	757.40
Surplus(Deficit)	(26.06)	(60.86)	(97.86)	(76.06)	(108.76)
Import Availability	50.00	50.00	50.00	50.00	50.00
Net Surplus(Deficit)	23.94	(10.86)	(47.86)	(26.06)	(58.76)

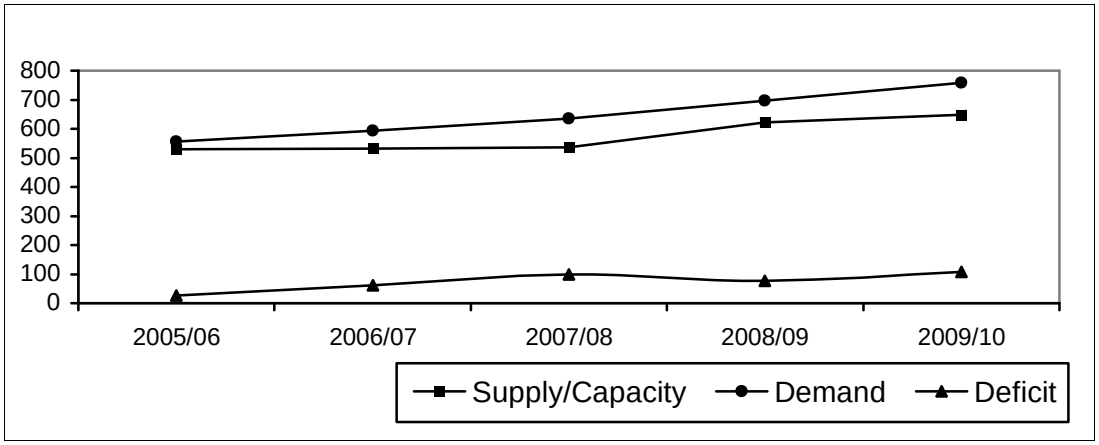
Source: Demand/supply forecasts on the FY 2005/2006 by NEA

The Capacity Balance presented above shows that there is shortfall of supply over demand from the FY 2005/06 even after utilizing the existing thermal generating capacity of NEA, the 50 MW import available under the Power

Exchange Agreement with India and the limited number of planned projects that could be made available for generation in the FY 2008/09 and 2009/10**.** Contingency measures such as increased import, utilization of available captive generation of industrial establishments and demand side management need to be explored in those years. It is note worthy that above data is reliable only if contingency is not taken into consideration. It can more clearly presented by a following trend chart.

Figure no: 1.2

Trend Chart of Demand, Supply and deficit from the FY 2005/06 to 2009/10

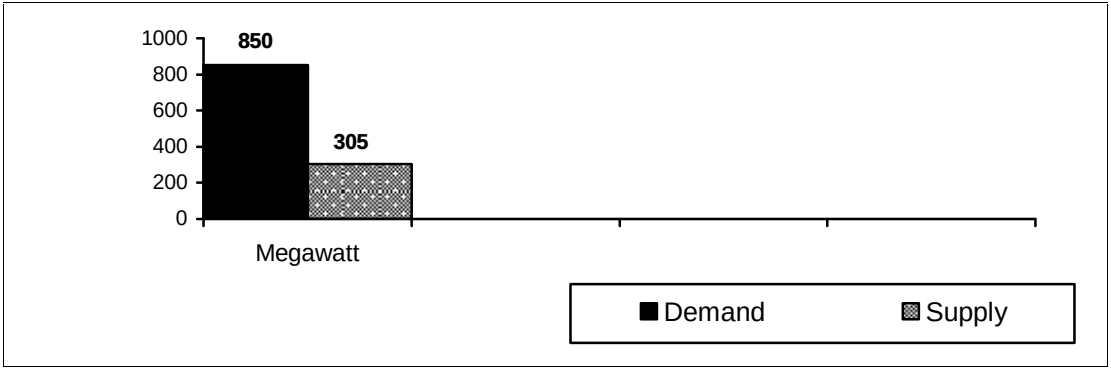


The above trend line pretends to present demand, supply and deficit in term of Mega Watt. It is note worthy that above chart is only reliable if contingency is not taken into consideration. For example, like in present scenario, if water level of river falls down or Indian government does not sell its power as per power agreement or transmission line is damaged, and then above data does not have any significance.

Despite of studies made on the FY2005/06, it is not significant till the FY 2008/09 due to a lot of obstacle. Recently, the change in political power is a major challenge to our Government of Nepal. Till to date, a lot of planning is going on but major step toward repair and construction has not been taken. Besides that due to winter season, the water level of damn has fallen sharply which leads to 16 hours a day load shedding everyday. It can be further presented in chart by demand and supply chart.

Figure no: 1.3

Chart of Demand, and Supply of Electricity at Beginning of Magh, 2065/66



The above chart shows clearly the demand and supply figure of present context. As per chart, NEA's supply capability is only 305MW while demand in the context of Nepal is 850MW. The major deficit is 545MW while is quite terrible power supply for Nepal and its economic and social elements.

1.2.7 Power Generation Expansion Plan

A new Generation Expansion Plan study for the planning period FY 2005/06 – 2019/20 was carried out. The results of the Study are presented in Table-1.3.

Table no: 1.3

Table of Generation Expansion Plan

Fiscal Year	Projects	Installed Capacity (MW)	Comments
2005/06	Chaku Khola	1.5	PPA concluded.
2006/07	Baramchi	0.98	PPA concluded.
	Khudi	3.5	PPA concluded.
	Sisne Khola	0.75	PPA concluded.
2007/08	Pheme	0.95	PPA concluded.
	Lower Nyadi	4.5	PPA concluded.
	Lower Indrawati	4.5	PPA concluded.
	Mailung	5	PPA concluded.
	Mardi	3.1	PPA concluded.
	Thoppal Khola	1.4	PPA concluded.
	Middle Marsyangdi	70	NEA, Under construction.

Fiscal Year	Projects	Installed Capacity (MW)	Comments
2008/09	Daram Khola	5	PPA concluded.
	Upper Modi	14	PPA concluded.
	Kulekhani – III	14	NEA, Planned.
2009/10	Madi-1	10	PPA concluded.
	Hewa	10	NEA, Planned.
	Mewa	18	NEA, Planned.
	Lower Modi	19	Private.
2010/11	Kabeli-A	30	Private.
	Upper Marsyangdi -A	50	Private.
	Rahughat	27	Private.
2011/12	Tamur	83	NEA, Planned.
	Likhu-4	51	Private.
	Upper Modi A	42	NEA-Private Joint Venture.
	Chameliya	30	NEA-Private Joint Venture.
	Budhi Ganga	20	Private.
2012/13	Upper Karnali -A	75	NEA-Private Joint Venture.
	Upper Seti (ST)	122	NEA, Planned.
2013/14	West Seti	75	Private.
2014/15	Upper Tamakoshi	309	NEA-Private Joint Venture.
2015/16	-	-	
2016/17	-	-	
2017/18	Dudh Koshi–1 (ST)	300	
2018/19	-	-	
2019/20	Andhi Khola (ST)	180	

Source: NEA corporate plan

1.2.8 Institutional Strengthening

The changing scenario in the country's power sector brought about by liberalization of policies by government of Nepal to attract private sector participation pressed NEA to earnestly reassess itself and prepare to confront a competitive environment in the near future. With this objective in mind NEA chose to mould itself to operate in a more commercial environment and embarked on the path of institutional strengthening by means of internal unbundling in its organizational structure by first restructuring NEA into key distinct business entities of Generation, Transmission and System Operation, Distribution and Customer Services, Electrification and Engineering Services, each headed by a General Manager. The functions of Planning, Monitoring

and Information Technology as well as Finance & Administration were retained as central services each of which is headed by a Deputy-Managing Director. Over the coming years, the functioning of NEA will therefore see significant changes in terms of development of a commercial culture within itself.

NEA will continue its efforts to introduce computerization to enhance efficiency in its operations. In this regard a separate Information and Technology Department established under the Deputy Managing Director of Planning, Monitoring and Information Technology with its broader vision of establishing a sound state of art IT infrastructure of hardware as well as software system, which is open, expandable, seamless and cost effective has been fully functional. In the area of customer services, computerization of the billing system completed in 9 Distribution Centres and branches in DBase format is undergoing up gradation into Oracle.

Realising that its human resources are most important assets and that training is a critical component of its institutional development, NEA is on the way to attaining self-sufficiency as a corporate body and has embarked on a corporate approach to training by focusing on technical and management skills for improved performance. The now well equipped NEA Training Centre, which is under the Engineering Services business group is to be strengthened each year to become an autonomous training institution capable to fulfil training requirements of power sector of the country. Training programs are being continuously developed with a view to meet training requirements of different levels of technicians, engineers, managers, finance and administrative personal working in the power sector. The upgraded computerized Personnel Data Bank that has come into operation will also contribute to realize a more efficient management of NEA's human resources.

1.2.9 Strategies for Improving NEA's Corporate Financial Performance

Payables to Government of Nepal are also increasing significantly due to the decrease in internal cash flows. For the FY 2003/04 the audited figures show outstanding payables to Government of Nepal at more than 5.5 billion rupees.

This continues to rise in coming years. A huge increase in tariff will be required to meet all the financial covenants and to bring down the outstanding payables to Government of Nepal at desirable level, which does not seem to be realizable in near future. There has been ever increasing trend in cost of service due to increase in power purchase price and operation and maintenance expenditures. At the same time, there is decreasing trend in realization of average revenue rate. This has resulted into continuous operational loss for the past three years. Overall, the financial statements of the past couple of years show that the financial performance of NEA is far below the satisfactory level. Hence the present financial condition of NEA urgently demands serious measures to be undertaken for turning around this deteriorating financial performance and improving financial health in future.

One of such measures is to adjust the existing tariff to recover cost of service from its users. However, despite various efforts, NEA has not been able to get approval for tariff increment since September 2001. It is also true that tariff increment alone shall not be a single solution for eradicating the existing problem. In this context, action plan on financial management with focus on revenue increment, decrease in cost and proper working capital management as well as investment and financing decision for future project should be worked out properly. Experience shows that there is still room for increasing internal cash generation if improvement takes place in loss reduction, control of operating expenses and working capital management. Loss reduction shall contribute significantly in generating additional revenue. Similarly decrease in financing cost and IPP price is one of the major issues for decreasing cost of service of electricity. Moreover, creating market for the available power but not sold in the system could also generate additional revenue.

1.2.10 Electricity Loss Reduction

To avoid loss of revenue, NEA is putting concerted effort over the years to reduce non-technical losses. In the past, desired results could not be obtained for the reason that electricity theft was not legally accepted as a crime. Following the enactment of Anti-theft Act 2001 and promulgation and

enforcement of Anti-theft Regulation, NEA is more confident to tackle the problem of electricity pilferage and improve revenue base.

1.2.11 Mobilization of Local Resources

NEA's fund requirement for financing capital investment in new generation facilities, transmission and distribution system expansion and in the capacity up-gradation and maintenance of existing system is increasing day-by-day. Furthermore, future liabilities are likely to increase significantly due to debt repayment obligation as well as to meet power purchase obligation. Therefore, NEA is exploring alternative sources of financing to meet its future investment requirement.

1.2.12 Demand side Management

It was envisaged earlier that there would be more private sector participation at least in generation. But private sector participation has been slow and has not been able to generate as per the demand. So the alternatives to cope with the demand are few. One of the most important methods is to utilize the efficient consumption methodology. This will help reduce consumption from NEA's perspective. There will be less wastage of energy used thereby providing direct benefit to the consumers and indirect benefit to the economy.

The present expectation of load shedding can be avoided from partial to full level by application of this efficient consumption methodology. Innovative methods will be developed to make the consumption pattern positive.

1.3 Statement of the Problems

A Cash Flows study is an important part of the decision-making process, because decision-making reflects what will happen in the future. In economic decision-making, financial prediction is a prime activity. Every economic decision entails a choice among alternative means of achieving a given goal. Each alternative involves an expectation of receiving greater benefits in the future. The decision makers need to predict the consequences of the alternatives and choose the alternative, which is expected to provide the greater benefits in various economic decisions, because cash flows play a

vital role in almost all the decision making of many parties including security analysts, creditors and managers. Additionally, the decision makers are interested in a firm's cash flows because they expect that current cash flows may affect their future cash flows and they will have an interest in assessing the firm's future cash flows to the extent that these provide a clearer indication of the firm's cash flows in the future. The cash return includes cash from either share dividends or capital gains when shares are sold. This decision deals with which shares to buy, retain, or sell and the appropriate time for purchase or sale of those shares. The ability of a company to pay dividends is reflected by the ability of the company to generate its future cash flows. Therefore, in making investment decisions, predicting the cash flows of a company issuing shares is a primary task in indicating the company's ability to pay dividends for the future period. In creditors' lending decisions, predicting bankruptcy problems of a client or customer can help creditors prevent losses due to bad debts. There are a number of early warning signs indicating that a company is experiencing financial distress. Cash flows is an important financial indicator of a financial problem. A decline in cash flows can provide an early warning signal of a bankruptcy to creditors and other interested parties. With respect to business management, cash flows are viewed as the 'lifeblood' of a business as cash must be available when it is needed. Therefore, a company's ability to manage cash is vital to survival and wealth. Analyzing cash flows can help a manager identify future financial problems. Cash flows allow the company to know its cash position and to make the necessary expenditures for such items as debt repayment, acquisitions and payment of expenses. In addition, the difference between forecast and actual cash flows need to be analyzed to understand and measure a firm's performance. Hence, this research is trying to verify the needful of cash flows, which can be summarized as follows:

A. Does Nepal Electricity Authority generate sufficient operating cash flows to meet its cash flows needs?
B. What are the sources of NEA to generate sufficient cash flows?
C. Does Nepal Electricity Authority is able to invest proper cash in investing activities?

D. Where NEA is investing its source of fund?
E. Does Nepal Electricity Authority is able to create sufficient finance to meet its financing activities?
F. Can past earning helps to predict future cash flows of Nepal Electricity Authority?
G. What are the policy regarding investment and finance that affects cash flows of the corporation?

1.4 Objectives of the Study

The present study has been conducted to examine cash flows of public manufacturing enterprises of Nepal, based on the case study of Nepal Electricity Authority. It focuses on the investment and financing decision of the company and in particular, the cash flows in short run business operation of the firms, i.e. management of the individual current assets like; cash and bank balance, receivable and inventory in the short-run.

The specific objectives of the study are as follows:

A. To examine the cash flow statement of Nepal Electricity Authority.
B. To examine the sufficiency of cash flows to meet its basic cash need.
C. To check investing and financing activities of Nepal Electricity Authority to control cash flows.
D. To analyze the efficiency of generating cash flows.
E. To examine and critically analyze the cash flows practices in Nepal Electricity Authority.
F. To recommend viable suggestions about cash management in Nepal Electricity Authority.
G. To hypothesize future cash flows with help of past cash flows data and accrual component of earning.

1.5 Significance of the Study

Analysis of cash flows is a vital part of the business enterprise. Poor systems of cash flows adversely affect planning cash management of the organization. Thus, periodical analysis and review of cash flows is necessary in order to ensure smooth functioning of the organization. Cash flows are the key to

productive financial planning. The present study is intended to analyze and evaluate the cash flows system and its application in Nepal Electricity Authority. The study will be useful to provide information and to draw attention of Nepal Electricity Authority regarding what can be done for the future prediction of cash inflows and outflows.

1.6 Limitations of the Study

There were some possible limitations of this research. These limitations may affect the generalisability and validity of this research. These limitations were as follows:

A. The data employed in this research was obtained from the annual report of NEA. The period covered by the study extend to five years only. Data available for the FY 2007/08 was provisional figure.
B. This research focuses solely on Nepal Electricity Authority. Therefore, the results of this research cannot be generalized to all public companies.
C. The study was completely based on secondary data.
D. The study was concerned only with cash flows of NEA. However profit can be affected.
E. Simple regression analysis was used to construct a prediction model.
F. The figures after the decimal were kept as per requirement.
G. There was always a constraint of time and resource in the study.

1.7 Organization of the Study

The study was organized into five chapters, each devoted to the relevant aspect of the study on Cash flows of Nepal Electricity Authority. The titles of these chapters are as follows:

Chapter 1: Introduction

Background of the study was presented on the subject matter of the research to provide a general idea. This section included a brief introduction to Nepal Electricity Authority, role and objectives of Nepal Electricity Authority in Nepalese economy, then proceeding through an updated information of the

existing Nepalese Electricity Authority. The statements of the problem, objective of the study were followed by scope and limitation of the study.

Chapter 2: Review of Literature

This chapter included the review of the relevant previous writing and studies to find the existing gap. Reviews of textbooks, dissertations/ theses were included.

Chapter 3: Research Methodology

In this chapter, the method employed to gather data and the tools used in its interpretation was followed by research design, the population and sample, nature and sources of data and financial and statistical tools for analysis of data.

Chapter 4: Data Presentation and Analysis

This chapter is the one of the most important and core of the thesis. It dealt systematic presentation and analysis of financial statements employing financial and statistical tools. Then, the major findings were presented.

Chapter 5: Summary, Conclusion and Recommendations

This chapter dealt with summary, conclusion, and viable recommendations.

Bibliography:

Lists of published and unpublished books, articles, theses etc, were presented in bibliography.

Appendix:

The relevant materials, which were, however, not much worth mentioning were presented in appendix. It included cash flow statement, Profit/Loss a/c, and balance sheets. Resume is the last page of the thesis, which presents a brief biographical introduction of this researcher.

Chapter 2
Review of Literature

2.1 Conceptual Framework

Funds can be categorized in two types; either in the form of working capital or in cash. If the fund is considered as working capital then we have to prepare funds flow statement and if the fund is taken as cash then we have to prepare cash flow statement. Cash flow statement is the main body for the cash flows analysis. Fair analysis of cash can only be done with the cash flow statement. Funds flow statement describes the sources of funds, amount of funds and the use of funds. Cash flow statement is designed to convert the accruals basis of accounting used to prepare the income statement and balance sheet back to a cash basis.

Cash is the most important part of any business organization without which business cannot be operated. Cash is a ready money in the bank or in the business. It is not inventory, it is not accounts receivable and it is not property but they can be converted to cash at some point in time. A business must have an adequate amount of cash to operate. Therefore, analysis of liquidity position is an important aspect of business organization. Cash flow statement is the reconciliation of opening and closing of cash. It is a statement of company's ability to generate cash from various activities such as operating, investing and financing activities.

A cash flows study provides useful information to evaluate a firm's ability to have sufficient cash in both short term and long-term basis. It is the analysis of events and transactions that affects the cash position of company. Cash flows analysis is done through statement of cash flows. Cash flows analysis helps to evaluate financial policies and cash positions. It assesses a company's ability to generate positive future cash flows. It helps in evaluating firm's ability to meet its obligation, its ability to pay dividends and its need for external financing. Through past trends of cash flows, one can analyze,

evaluate and predict future cash flows, which is the ultimate goal of the study.

In terms of the importance of cash flows data, cash flows as a measure of a firm's performance is less subject to distortion than is the net profit figure, because the calculation of cash flows from operations removes the causes of the distortion such as depreciation methods, deferred taxes, and goodwill amortization, whereas the determination of net profit under accrual accounting requires approximations, deferrals, allocations and valuations. These procedures allow managers to manipulate their company's profits. That is, they can choose an accounting method, from among various methods of calculating depreciation and valuing inventories, or produce high or low profit as they want. As a result, analysts usually consider cash flows to evaluate firm performance in addition to the profit.

Cash flows from operations are used to calculate free cash flows. Free cash flows are money earned from operations after provision for capital expenditures at the end of an accounting period. It is basically defined as net cash flows from operating activities less capital expenditures and dividends on preferred stock. It shows the ability of the company to generate cash from its operations after spending money on the capital expenditures. Without free cash flows, it is difficult for a business to pursue new opportunities, acquire other businesses or pay dividends. Free cash flows analysis helps managers identify the capital available for reinvestment in enhancing the company's growth. In turn, analyzing free cash flows can separate the firms with a high ability to internally grow from firms with a low ability to grow. In addition to reinvestment, the company can distribute free cash flows to pay dividends to shareholders. As a result, the free cash flows may be considered to assess the ability of companies to pay dividends on common stock.

The importance of cash flows prediction is supported by statements of accounting standards. Both Institute of Chartered Accountant of Nepal (ICAN) and the International Accounting Standard Committee (IASC) provided a fundamental guideline for preparing and presenting financial statements, that the objective of reporting financial statements is to provide financial

information for users to predict the amount, timing and uncertainty of the future cash flows of a company. The primary objective of accounting data is to provide information to help present and potential investors, creditors and others assess the amounts, timing and uncertainty of prospective net cash inflows to the related enterprise. The statements suggest that accounting information from financial statements is useful in analyzing cash flows of a company. Here, income statements and balance sheets report information are on an accrual basis and cash flow statements are on a cash basis.

2.2 Concept of Accrual Accounting

The accrual accounting basis is a basic accounting assumption dealing with the accounting process of recognizing the effects of financial transactions in the period in which events occur, rather than focusing only on cash receipts or payments. The transactions are recorded and reported in financial statements of the period they occur whether or not cash has been received or paid. As a result, accounting information reported in financial statements consists of both the effect of credit and cash transactions.

2.2.1 Usefulness of Accrual Accounting

In practice, accounting financial information on an accrual basis is supported for many reasons. First, it is considered relevant in measuring a firm's performance. For example, a manager needs data on past transactions in order to evaluate past operating performance. Accounting information from past transactions can be used as a measure of the past performance. Secondly, the cost of assets recorded based on historical cost is derived from actual transactions, not estimated.

Thirdly, the concept of matching expenses and revenue reflects the uses of assets in generating revenue. This can measure the efficiency of utilizing the assets of the company. Fourthly, it reports assets or future benefits and liabilities or obligations of a company, allowing the company to estimate future cash receipts and payments. In addition, reporting financial statements on an accrual basis meets taxation requirements.

2.3 Concept of Cash flow Accounting

Cash flows were represented by profit and depreciation suggested that cash flows accounting might be helpful to investor decision-making. Cash flows accounting can avoid uncertain accounting allocations present in the accrual system, produce more objective financial information and provide users with fundamental and critical financial data because cash flows accounting does not involve allocation and matching problems. Payments and receipts are recorded when the transaction of receipts or payments are made. As a result, it is expected that cash flows are less vulnerable to manipulation than accrual information. For similar reasons, cash flows are seen as the superior instrument for predictive purposes, particularly for predicting future cash flows.

2.3.1 Definition of Cash flow Statement

The cash flow statement is the accounting report that provides information about cash receipts, cash payments and net change in cash balances during a period. Previously, companies were required to present a fund flow statement that reported sources and uses of funds. Funds can be defined in three ways, including cash, working capital and total resources (Henderson & Pearson, 1994:41). Funds presented on fund statements are interpreted as working capital, which is measured as current assets less current liabilities, whereas funds reported on cash flow statements refer to cash. The meanings of cash and cash equivalents presented on statements of cash flows are defined in *IAS (7)* as: “Cash comprises cash on hand and demand deposits. Cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value”.

Cash flow statements replaced the fund flow statement for two main reasons. First, it resolved disputes over the definition of funds, and the purposes and presentation of the fund flow statement. The fund flow statements were not considered to provide sufficient information for investors and other financial statement users due to form and the definition of funds used. Secondly, they improved the reliability and usefulness of reported financial information.

Moreover, they omit the effects of some transactions that may be very important.

2.3.2 Preparation of Cash flow Statement

Cash flows on the cash flow statement must be identified with three main activities of enterprises as required by *NAS No. 03 :10.*These are,

- Cash flows from operating activities,
- Cash flows from investing activities,
- And Cash flows from financing activities.

The basis for the classification is derived from finance theory, that is, enterprises derive the cash used for investing activities and settlement of outstanding financial obligations in an accounting period from internal and external sources. Therefore, the three main activities involve in cash flows are:

- **Operating activities**

Operating activities are the main activities involved in the revenue producing activities of the company. Cash flows from operations are often seen as the most important category among the three categories because it results from the main income-producing activity. Cash generated from the operating activity provides an indication of the capacity of the company to produce cash from its main activity. The company must generate sufficient cash from its operating activities to finance its daily activities. Moreover, cash flows from operations primarily support capital expenditures and dividends. If the company cannot generate any cash to repay loans, pay dividend or make new investment, the company would lend cash from external sources, causing future cash outflows. Cash available for investments and external financing shows the firm's ability to make new investments and external financing shows the firm's ability to make new investments. It also indicates to investors the dividend-paying ability of the firm.

In addition, the cash flows from operations can be used to evaluate the quality of profits on income statements. The difference between net cash flows from operations and net profit is helpful in interpreting the quality of earnings. A

large difference between net profits and cash flows from operations reflects a low quality of profits- perhaps net income has increased without an increase in cash flows from operations. This may result from increases in sales on credit, causing increases in accounts receivable, indicating that the company may have a cash collection problem in the future.

- **Investing Activities**

Investing activities involve the acquisition and disposal of long-term assets and other investment except short term investments. All the cash flows from investing activities can be determined by the long term assets and investment of two accounting periods. Any increase in assets shall be considered as having purchased and cash paid for it unless any information contrary to the same is provided. At the same time, decrease in assets accounts the sale of those assets and cash inflows unless information opposing to that is provided. The gain or loss on sale need to be adjusted to calculate the exact amount cash received. Cash from investing activities includes:

a. Cash receipt from sale of property, plant and equipment
b. Cash payment to acquire property, plant and equipment
c. Cash payment to purchase of equity and debenture
d. Cash receipt from sale of equity and debenture

- **Financing Activities**

Financing activities are activities that result in changes in the size and composition of the equity capital and borrowings of the enterprise *(IASC 2000)*. Cash flows from financing activities are calculated by analyzing the liabilities side of the balance sheet. The amounts of secured loans, unsecured loans, the amount of share capital and retained earnings accounts are analyzed to calculate the inflows and outflows from financing activities. The increase in these amounts can be taken as inflows and the decrease in these amounts can be taken as outflows. Besides capital and loan amounts, another financing activity is dividend paid or drawings by the owners. Dividend may be in the form of cash dividend or stock dividends. Since stock dividends do not deal with cash, only cash dividend should be considered for cash flow statement. Cash from financing activities includes:

a. Cash receipt from issue of shares/debentures
b. Cash payment to redeem preference shares/debentures
c. Cash receipt in terms of loan taken
d. Cash payment for borrowing of loan

2.3.3 Types of Cash flow Statement

Cash flows from operating activities can be reported by two methods, the direct or indirect method.

- **Direct Method**

The direct method shows cash receipts from customers and cash payments to suppliers, employees, government and other creditors. Under this method, cash flow statement is prepared by taking sales revenue. It shows cash collected from customer and deducted cash used for various expenses. Here, major class of gross cash receipt and gross cash payments are disclosed.. While deriving cash from operating activities, expenses related to purchase, operating activities, interest, tax etc are deducted from sales revenue and collection from customers. The derivation of cash from investing and financing activities are similar to the indirect method.

Table no: 2.1

Cash Flow Statement under Direct Method

Particulars	Amount
A. Cash from Operating Activities a. Sales and Collection from customers: Sales revenue (net) Add: Decrease in debtors Less: Increase in debtors Less: Doubtful debt written off Add: Bad debt recover b. Payments: Payment to employee c. Cash Operating expenses: Total cash operating expenses	

Add/Less: Outstanding expenses Add/Less: Prepaid expenses d. Interest expenses: Total interest expenses Add/Less: Outstanding interest Add/Less: Prepaid interest e. Tax expenses Total tax payment Add/Less: Provision for tax Add/Less: Prepaid tax Cash from operating activities before extra ordinary items:(a-b-c-d-e) Add/Less: Bank overdraft Add/Less: Marketable securities A. Cash from Operating Activities B. Cash from Investing Activities Sale of fixed assets/investment Less: Purchase of fixed assets/investment B. Cash from Investing Activities C. Cash from Financing Activities Issue of shares/debentures Less: Redemption of preference shares/debentures Less: Dividend paid Less: Interim Dividend (if any) C. Cash from Financing Activities Net Cash Increase/Decrease (A+B+C) Add: Opening cash/bank balance Closing cash/bank balance	

- **Indirect Method**

The indirect method starts with net profit or loss based on the accrual basis and adjusts for the effects of non-cash transactions such as depreciation and amortization expenses, and changes in current assets and liabilities. The indirect method is preferred over the direct method. The indirect method reflects conversion from accrual-basis profit to cash-basis profit. In other words, it shows the association between the cash flow statement and two financial statements based on accrual basis. That is, cash flows from operations relate to revenues and expenses on income statements, and current assets and liabilities on balance sheets. Therefore, a reason for supporting the indirect method is that it is more informative than the direct method because it emphasizes the difference between net income and operating cash flows, which can reduce the ability of management to manipulate the income statement numbers.

Table no: 2.2

Cash Flow Statement under Indirect Method

Particulars	Amount
A. Cash from Operating Activities	
Profit shown on balance sheet	
Provision for dividend	
Interim dividend (if any)	
Profit for the year	
Add: Non cash and non operating expenses:	
Depreciation for the year	
Amortization of intangible assets	
Amortization of fictitious assets	
Loss on sale of fixed assets	
Discount on issue of share/debenture	
Premium on redemption of preference share/debenture	
Less: Non operating gain:	
Gain on sale of fixed assets	
Premium on issue of share/debenture	
Discount on redemption of preference share/debenture	

Funds from Operation (FFO)	
Add: Decrease in working capital except cash (item wise)	
Decrease in current assets	
Increase in current liabilities	
Less: Increase in working capital except cash (item wise)	
Increase in current assets	
Decrease in current liabilities	
A. Cash from Operating Activities	
B. Cash from Investing Activities	
Sale of fixed assets/investment	
Less: Purchase of fixed assets/investment	
B. Cash from Investing Activities	
C. Cash from Financing Activities	
Issue of shares/debentures	
Less: Redemption of preference shares/debentures	
Less: Dividend paid (last year)	
Less: Interim Dividend (if any)	
C. Cash from Financing Activities	
Net Cash Increase/Decrease (A+B+C)	
Add: Opening cash/bank balance	
Closing cash/bank balance	

2.3.4 Usefulness of Cash flow data

Nowadays, the cash flows statement is accepted as a necessary component of complete financial reporting by national and international accounting standard, because financial statement users note that the balance sheet, income statement and retained earnings statement do not always show the whole financial condition of a company. The balance sheet show the variety of assets owned by a company and the manner in which they were financed at the end of period but the source of activity related to those items during the

period are not provided. In addition, profit in the income statement does not reflect an increase in cash. Moreover, the profitability and financing issues are reported separately on income statements and balance sheet respectively. This causes misleading and confusing results to users.

The requirements of cash flow statements are based on the assumption that past cash flows are useful for assessing future cash flows and the cash flow statement supplements and presents information differently to the information provided in the other financial statements. Accounting standard setters claimed that the cash flow statement used in conjunction with other financial statements, the balance sheet and income statement, provides so many benefits.

2.3.5 Type of Cash flows ratios

Financial ratio analysis is a tool used in financial statement analysis. Financial ratios can be used to predict financial variables and to evaluate relative performance such as predicting bankruptcy, stock prices and the probability of loan defaults. Ratios are developed to help users of financial statements compare performances of companies on a year-to-year basis and across companies. Cash flow statements provide new measures to evaluate firm performance. The concept of cash-based performance ratios had been used in financial analyses before the regulation of reporting cash flow statements. In that time, surrogates of cash flows were used, such as net income plus depreciation, resulting in a lack of uniformity and misdirected analysis. Currently, statements of cash flows have the ready availability of cash flows data with consistent performance measures of cash flows from operations.

Cash flows ratios are based on the cash flows from the operations (CFO) of the company. Also, ratios can contain accrual-based accounting data. The cash flows ratios provide a clearer picture of a company's performance, highlighting an organization's cash flows strengths and weaknesses. Cash flows ratios could be a better measure of firm performance than financial ratios from income statements and balance sheets, because cash flows from operations as a main component of the ratios, exclude the effect of non-cash

flows items such as depreciation expenses and gain or loss on the sale of operating assets. Profit reported on income statements may be a subjective distortion because it includes these items. It has been argued that traditional ratios from income statements and balance sheets such as the liquidity ratio and quick ratio may not provide a comprehensive measure of a company's ability to retire its debts because current assets, including accounts receivable and inventory, may not be converted into cash. Therefore, the cash flows ratios are advocated because they can give users better insight into the financial performance of a company. Cash flows ratios may be categorized into two groups; cash flows sufficiency and cash flows return ratios as described below.

1. Cash flows sufficiency ratios

These ratios are:

- Cash flows adequacy ratios,
- Debt coverage ratios,
- Repayment of borrowing ratios
- Reinvestment ratios

2. Cash flows return ratios

These ratios are as follows:

- Cash flows on revenues ratio
- Cash flows to net income ratio
- Cash flows return on assets ratio
- Cash flows return on stockholders' equity ratio

These ratios are advocated as being able to help users of financial statements in making decisions. For example, cash flows on revenue ratio assists credit managers in analyzing the credit risk of the firm. Generally, the higher the ratio, the better the credit risks. In addition, it is suggested that the cash flows on revenue ratio and the debt coverage ratio are considered in analytical procedures to detect financial statement fraud.

2.4 Review of Books, Journal, Review, and Publication

2.4.1 *"Water resources development; Nepalese perspective"*, published on 2000 A.D. by Bhekh B. Thapa and Bharat B. Pradhan is one of the important treatise in respect of the hydro power of Nepal. Some of the relevant finding are as follows.

1. Forest in Nepal provide more than 95 percent of the rural energy needs about 20–25 percent of the fodder for livestock and all the domestic timber needs.
2. Nepal's energy scenario refracts an imbalance between energy consumption and energy resources endowment.
3. The theoretical power potential of the water resources in Nepal is estimated to be about 83000 MW out of which 42,133 MW is estimated to be the output of technical and economically viable schemes. The installed capacity of hydro power station developed till now works out to less than one percent of the potential identified up to date. Thus, Nepal enormous potential of water resources to generate hydro power is in the early stage of exploitation.
4. Future development of agro industries and processing facilities would also need reliable supply of power. Storage type projects can substantially increase opportunities for large scale year round irrigation as well as hydro power generation for export and use in power intensive industries.
5. Development of water resources is essential in order to meet human needs like increasing agricultural and industrial production, meeting energy needs and earning foreign exchange from power export.
6. The strategy for power development in Nepal should aim at maximizing the economic benefits from hydro power development through an optimum development of country's river basins. Optimum utilization of this resources calls for meaningful co-operation among the rivarian countries.
7. High investment requirement for the development of hydro power and the lack of financial resources are the major constraints at present.

2.4.2 Arjun P. Shrestha's book on "*Hydropower in Nepal issues and concept of development*"(2003), has also noted the following major finding:

1. Major achievements in the economic development of Nepal could be realized through proper harvesting of the vast water resources. But a nearly hundred percent dependency on overseas professions and a failure to gradually develop our own manpower prevents realization of this goal.
2. The opportunities in hydropower development do not connote nearly approaching new projects but also commitment to maintaining and optimizing the efficiency such opportunities means institutional development, but this has been grossly overlooked for obvious reasons.
3. An alternative strategy for the hydropower development in Nepal would be to open the doors for privatization where there would be a chance for development through competition and decrease of bureaucratic control.
4. To demonstrate the assessments of conditions that have been made through out the history of development of hydro power in Nepal, facts and figures suggest that many past mistakes continue into the decision making process.
5. Because of improper information management, non-existent human resource : development and myopic decision making, we have made ourselves vulnerable to the dictates of outside help where terms are drawn up to the advantage of multi-national funding agencies.
6. As the development of hydro power in Nepal has always been dictated by many constraints and conditions, projects are selected by planning procedure which is deliberately designed to produce a 'no option' situation in decision making.

2.4.3 R.J HUGUS has presented an important report entitled "*towards a power sector strategy*" on 2004 A.D. The main findings of this reports are:

1. Existing power system in Nepal, is small, fragment and unable to meet the existing demand for Electricity.

2. Lack of an abundant power supply aggravates the energy problems which are characterized by a high usage of fuelwood and disappearance of forest cover , and by a growing dependence on imported hydro carbons which is exerting pressure on the country's balance of payments situation.
3. Nepal has abundant water resources which are largely untapped. The cost of hydroElectricity at optimally sized plants located in the accessible areas of the main river basins is low compared to thermal generation.
4. Development of hydro Electricity resources could mitigate the energy problems, contribute to industrial expansion and increase export by direct sales of energy or by selective development for energy intensive industries.
5. While there is obvious need to develop the hydro electric resources, there are a number of constraints. The main constrain is the high capital investment required relative to resource : available. Other constraints are lack of information for evaluation of alternative courses which could be followed in hydro power development, the need for international agreement on water sharing and the lack of trained manpower.

2.4.4 A comprehensive study done by the world bank on "*Nepal Power Subsection Review,2005:10*" is another useful document for the review. Some of the findings are as follows :

1. Nepal's power system is still in the early stages of development. The average consumption of Electricity is 25 kwh/month which is one of the lowest in the world.
2. The Nepal power sub sector faces numerous impediments to its development, chief of which are the lack of well defined tariff policy and institutional weaknesses in the sub-sector, primarily in the NEA (NEA)- the national public power utility.
3. His majesty's government of Nepal (HMG/N) views. The efficient exploitation of this resources as one of the Nepal's most important economic priorities because of the need to reduce substantially the

cost and improve the available power to the domestic market and the potential for export of competitively priced hydro power to India.

4. NEA needs to address three key issues,
    a. Improvement on NEA manager's understanding and application of basic utility management concepts and tools.
    b. Preparation of the corporate development plan.
    c. Improvement of conditions of service for its employees.
5. Electricity pricing should reflect the economic cost of supply to consumers while satisfying Nepal Government's social objectives and taking into account NEA's financial viability and financing requirement.
6. While load forecasting and generation planning are of a high standard at NEA, more attention needs to be paid to transmission, distribution and operational planning.
7. Although bulk export of competitively priced hydro power to India represents Nepal's most attractive medium and long term foreign exchange earning option, Nepal Government does not yet have a detailed strategy to achieve this goal.
8. Only two percent of the rural population has assess to Electricity, however Nepal Government does not give a master plan for rural electrification that should form part of a wider strategy of meeting rural energy need at least cost. Analysis indicates that carefully designated schemes can be cost effective, financially viable and competitive with alternative fuels.

2.4.5 According to *Jedry and chiston, 1976*: "Liquidity is the life blood of very corporation and want of cash is the only factor that may free it the liquidity requirement. Cash flows in the corporation through direct sales and it flows out in direct purchases, payment of wages and for overhead cost. In other hand, cash, too, flows out for interest on borrowed fund and dividend. The corporation manages current assets has the important bearing in the liquidity position and failure in maintaining sufficient liquidity may cause the interruption of regular operation besides corporate manager being able to pay the obligation on time. While each situation is unique, the common thread that runs

through all corporate, in crisis, is the lack of liquidity".

2.4.6 As pointed out by *Copeland & Weston,1975:266*, "Basically the need of cash will be for meeting the day-to-day needs, 'transaction motive' not to lose by lack of cash 'precautionary motive' for expansions and growth, 'future need' and for requirement of compensation balance maintained by commercial bank 'compensating balance requirement".

2.4.7 As per *Institute of chartered accountant of Nepal (NAS 3),* different terminology of cash flows has been defined as follows:

- Cash comprises cash on hand and demand deposits.
- Cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value.
- Cash flows are inflows and outflows of cash and cash equivalents.
- Financing activities are activities that result in changes in the size and composition of the contributed equity and borrowings of the entity.
- Investing activities are the acquisition and disposal of long-term assets and other investments not included in cash equivalents.
- Operating activities are the principal revenue-producing activities of the entity and other activities that are not investing or financing activities.

2.5 Review of the previous studies

2.5.1 Mr. Dilli Ram Bhattarai (2002) has submitted his research report on "*Profit Planning in Nepal Electricity Authority*" to Faculty of Management, Shanker Dev Campus in the partial fulfillment of the requirements for the degree of Master of Business studies. In his study, he has pointed out following major findings and recommendations:

Major Findings:

1. The authority fails to maintain its periodic performance report systematically. Goals and objectives are limited only to the high ranking officials.

2. Specific goals and objectives are not conveyed to lower level staffs and it denotes the absence of MBO principle of management in the organization.
3. Only the top level executives are involved in planning and decision making and participation of lower level staffs is not encouraged.
4. Return on sales, acid test ratio and return on net capital employed are not perfectly satisfactory though total assets turnover ratio seems better.
5. NEA is suffering from high fixed cost.
6. Overheads are not classified systematically and it creates problem to analyze its expenses properly.
7. NEA is suffering from the high rate of power loss. Sales is below than production in the range of 22-24% during the study period.

Recommendations:

1. NEA must restructure its capital structure and should emphasize the internal financing to minimize the burden of high interest of long term loans. For this, it can issue shares and can refund the debt.
2. Leakage of Electricity should be controlled. For this, meter reading and meter joining system should be improved. Rules and regulations should be strictly implemented to control the leakage and those staffs who are themselves engaged in encouraging power leakage should be investigated and strictly be demoralized.
3. The liquidity position is not satisfactory. So it should be corrected. NEA should try to maximize its operating profit. For this, cost control program can be launched in one respect and the alternative for the replacement of long term loans should be searched.
4. NEA should develop efficient system of revenue collection. In revenue collection, any kind of pressure and biases should strictly be undermined. Huge amount of account receivable especially of Municipality, metropolis, sub-metropolis consumed in street lights should be managed and receivable can be collected by imposing its expenditures to the neighbouring community people.

6. Cost volume profit relationship and flexible budgeting system should be considered while formulating profit plans.

2.5.2 Mr. Ghana Shyam Thapa (2004) has submitted his research report on "*Profit Planning in Nepalese Public Enterprise: A case study of Nepal Electricity Authority*" to Faculty of Management, Nepal Commerce Campus in the partial fulfillment of the requirements for the degree of Master of Business studies. In his study, he has pointed out following major findings and recommendations:

Major Findings:

1. NEA prepares both tactical and strategic profit plan but strategic plan is confined only to the level executives.
2. Achievement of capital expenditure budget is satisfactory.
3. Operating costs have not been controlled effectively during the study period.
4. NEA has not maintained sound liquidity during the study period.
5. NEA has not prepared plan and program for agriculture sector's consumption of Electricity.
6. NEA has not considered demand determinates such as family income, price of Electricity, connection charge, cost of alternatives available and reliability of NEA service while forecasting demand.

Recommendations:

1. A systematic approach to comprehensive profit planning and control is essential. To adopt these approach existing planners should be trained and new planner should be hired. These can contribute to increase the profitability of NEA.
2. NEA should reduce the long-term loan to reduce the high interest amount.
3. Cost volume profit relationship should be considered while developing the sales plan and pricing strategy. To maintain the breakeven point, NEA should control fixed and variable cost and should increase sales volume.

4. It is suggested that NEA should invest in small hydro project to ensure profitability. Such projects do not require much fund and start to give return in investment quickly.
5. NEA should adopt discounted cash flows techniques to evaluate the large projects.

2.5.3 Mr. Badri Nath Sharma (2005) has submitted his research report on "*Profit Planning in Nepal Electricity Authority*" to Faculty of Management, Nepal Commerce Campus in the partial fulfillment of the requirements for the degree of Master of Business studies. In his study he has pointed out following major findings and recommendations:

Major Finding:

1. Actual sales was favorable than budgeted sales. Rate of the Electricity per unit is cheaper in supply to India than internal sales price per unit.
2. There is absence of overhead budget.
3. NEA is paying huge amount of interest and is suffering from high fixed cost.
4. Revenue collection had also been one of the main problem as well as profitability and net profit ratio are not satisfactory.
5. Lack of the use of the concept of profit planning and control and lack of proper co-ordination among departments of NEA

Recommendations:

1. NEA should have an efficient management system to have control over costs. It must maintain fixed cost to minimum standard level.
2. NEA should restructure its capital structure and should emphasis the internal financing to avoid burden a high interest on long term loan by issuing shares.
3. NEA should give priority to domestic project invested by local investors rather than giving priority to foreign investors.
4. Sales budget should be prepared on the realistic gorund. It should be made after analyzing all variable that affect the sales of NEA.

5. NEA should follow tight collection policy to collect account receivable in time. Collection policy should not be influenced by political pressures.
6. Load shedding is a big issue in Nepal. Thus, authority should try to avoid load shedding by developing and investing in as many hydro projects as it can and controlling in its loopholes which help to increase its profit in long run.
7. NEA should maintain sound liquidity management by the help of increasing current assets and decreasing current liabilities.

2.5.4 Mr. Geha Nath Koirala (2006) has submitted his research report on "*Managerial Budgeting as the tool of increasing efficiency of Public enterprises (A case study of Nepal Electricity Authority)"* to Faculty of Management, Shanker Dev Campus in the partial fulfillment of the requirements for the degree of Master of Business studies. In his study he has pointed out following major findings and recommendations:

Major Findings:

1. Actual sales are more fluctuating than budgeted sales and budgeted production is more fluctuating than actual production.
2. Nepal Electricity Authority has been paying huge amount of interest on long term loan.
3. Actual sales are always less than actual production due to power loss which is a main problem of Nepal Electricity Authority, which affects its profit.
4. Overhead are not classified systematically which create difficulty to analysis expenses effectively.
5. Account receivable and average collection period are in increasing trend during study period.

Recommendations:

1. Nepal Electricity Authority should have an efficient management system to have control over costs. It must be maintain fixed cost to minimum standard level.

2. Nepal Electricity Authority should restructure its capital structure and should emphasis the internal financing to avoid burden a high interest on long term loan by issuing share capital.
3. Nepal Electricity Authority has been bearing hugh amount of losses due to obligatory purchase agreement made to foreign investors, such as Khimti and Bhotekoshi projects, Nepal Electricity Authority should avoid such type of obligatory purchase agreements and should give emphasis in domestic project invested by local investors.
4. Nepal Electricity Authority should consider cost volume profit relationship while developing production and sales plan and strategy.
5. Nepal Electricity Authority should follow tight collection policy to collect account receivable in time.

2.5.5 Mr. Mahendra Jung Shahi (2007) has submitted his research report on "*An analysis of revenue collection of Nepal Electricity Authority*" to Faculty of Management, Nepal Commerce Campus in the partial fulfillment of the requirements for the degree of Master of Business studies. In his study, he has pointed out following major findings and recommendations:

Major Findings:

1. NEA has not considered major demand departments of Electricity such as family income, price of Electricity, connection charges, and cost of alternative.
2. NEA has not adopted practice of preparing monthly budget
3. NEA has no practice of cost segregation.
4. NEA was unable to meet its BEP sales therefore, it faces loss every year.
5. NEA has not maintained its periodic performance report systematically.

Recommendations:

1. NEA should have an efficient management system to have control over costs.

2. NEA should utilize all its available capacity, which helps to increase its sales revenue by the help of effective capacity management.
3. Leakage of the Electricity should be controlled.
4. NEA should maintain sound liquidity management by the help of increasing current assets and decreasing current liabilities.
5. NEA should invest in various projects and utilize its available resources properly. It should consider cost benefit ratio while selecting and investing projects.

2.5 Research Gap

Research gap lies on research variety and lack of research on cash flows.Most of previous researchs are focused on cash management, and narrowly explain an essentail of cash flows studies.Therefore, this thesis will identify cash flows of the corporation, to analysed them and recommended viable suggestion to NEA.

Chapter 3
Research Methodology

3.1 Research design

A research design was aimed to ensure the research can clearly answer the research problem, and involved systematizing the research activity. Many research methods can be used to collect data such as survey, experimental and using secondary data. However, the use of secondary data in which data already exists, is the most appropriate for this research. The major purpose of this research is to examine historical cash flows. Descriptive and analytical research design was used in this study. To clarify conceptualization of the problem, descriptive research approach had been adopted, and analytical approach had been used to analysis accounting data and relationships among the variables.

3.2 Population and Sample

The existing number of public manufacturing enterprises in Nepal refers to the population and Nepal Electricity Authority (NEA) is the sample. Since NEA is the oldest public company, and it is most likely to represent all other public company, however, this is a descriptive case study, and thus the findings couldn't be extensively generalized to all other public company.

3.3 Nature and Type of Data

Since the aim of this study is to study cash flows of NEA, the nature of data had been primarily secondary data. Using secondary data has the advantage of saving time and costs.

3.4 Source of Data Collection

Data was collected from web site of Nepal Electricity Authority. The website of Nepal Electricity is www.nea.org.np. Besides, various magazines, journal of ICAN, Annual report, and personal experience had been always helpful. To focus on the statements of cash flows, cash flows from operating activities

were selected directly from the cash flow statements. Earnings were derived from income statements. Total assets, sales and other variables were selected from balance sheets and income statements.

3.5 Data Gathering Procedure

After the identification of sources of data, the required data for the study had been gathered by using following procedures:

- First of all nature of data had been identified
- For the collection of secondary data, yearly annual report of NEA had been taken for the period of five years.

3.6 Data Processing Procedure and Analysis

This research utilized quantitative methods in which the data were analyzed based on statistical techniques, which included descriptive statistics i.e. Pearson's correlation and regression analysis. These descriptive statistics provide an initial summary data of the essential features of the sample. The correlation analysis was used to fundamentally examine the relationship between dependent and independent variables. Regression analysis, both simple linear and multiple regressions, was applied to test the prediction models depending upon the ability of predictor variables to explain future cash flows. On the other hands, this research utilized financial and cash flow ratios to analyze secondary data.

3.7 Financial tools for analyzing cash flows

3.7.1 Cash flow sufficiency ratios

It shows the ability of a company to generate operating cash flows. All ratios indicate whether a company's cash flows are sufficient for the payment of debt, acquisitions of assets and payment of dividends. These ratios are

- Cash flows adequacy ratios,
- Debt coverage ratios,
- Repayment of borrowing ratios
- Reinvestment ratios

- **Cash flows adequacy ratio**

The cash flows adequacy ratio is an attempt to assess the entity's ability to produce sufficient operating cash flows to cover its main cash requirement, specifically, the payment of debt, the acquisition of assets, and the payment of dividends. Here,

$$\text{Cash flows cash adequacy} = \frac{\text{Cash flows from operation}}{\text{Repayment of borrowings} + \text{Assets acquired} + \text{Dividends paid}}$$

- **Debt coverage ratio**

The debt coverage ratio shows the ability of a company to generate cash flows from operating activities to pay its long-term debt commitment. Here,

$$\text{Debt coverage ratio} = \frac{\text{Total Debt}}{\text{Cash flow from operations}}$$

- **Repayment of borrowings ratio**

This ratio indicates the ability of a firm to generate cash from operating activities for covering long-term debt commitments in the current year. Here,

$$\text{Repayment of borrowings ratio} = \frac{\text{Repayment of borrowings}}{\text{Cash flow from operations}}$$

- **Reinvestment ratio**

The reinvestment ratio presents the ability of a company to generate cash from operating activities for covering asset acquisition payments. Here,

$$\text{Reinvestment ratio} = \frac{\text{Payment for property, plant and equipment}}{\text{Cash flow from operations}}$$

3.7.2 Cash flows returns ratios

This group is sometimes called efficiency ratios. It shows the ability of a company to generate operating cash flows. Cash flows efficiency ratios are used to assess the relationship between items in the income statement and balance sheet with cash flows from operations as disclosed in the cash flow statement. These ratios are as follows.

- Cash flows on revenues ratio

- Cash flows to net income ratio
- Cash flows return on assets ratio
- Cash flows return on stockholders' equity ratio

- **Cash flows on revenues ratio**

This ratio is aimed at showing the ability of the company to turn revenue into cash. The higher the ratio, the better the ability. This ratio employs information provided by the statement of cash flows and the income statement. It is computed by dividing cash from operating activities by revenues.

$$\text{Here, Cash flows to revenues} = \frac{\text{Cash flows from Operation}}{\text{Revenue}}$$

- **Cash flows to net income ratio**

This ratio is sometimes called the operating index. It compares the company's profit with cash flows from operations and attempts to provide an index of the cash-generating productivity of operations. It is calculated as cash flows from operations divided by profit after income tax.

$$\text{Here, Operations index} = \frac{\text{Cash flows from Operation}}{\text{Profit}}$$

- **Cash flows return on assets ratio**

This ratio attempts to measure the company's return on assets in term of the cash flows generated from operations. Here,

$$\text{Cash flows return on assets} = \frac{\text{Cash flows from Operation} + \text{Income tax} + \text{Interest}}{\text{Average total assets}}$$

- **Cash flows return on stockholders' equity ratio**

This ratio shows the ability of the company to generate a sufficient cash return for stockholders. Here,

$$\text{Cash flows return on stockholders' equity ratio} = \frac{\text{Cash flows from Operation}}{\text{Average stockholders' equity}}$$

3.7.3 Cash inflows to outflows ratio

Cash turnover ratio basically analyse the relation between cash inflows and outflows from operating, investing and financing activities overall. Higher the ratio higher will be the cash inflows and vice-versa.

Here, Cash turnover ratio = $\frac{\text{Cash Inflows}}{\text{Cash Outflows}}$

3.7.4 Cash flows liquidity ratio

This ratio is used to test the company's short-term debt paying ability. Here,

Cash flows liquidity ratio = $\frac{\text{Cash flows from Operation}}{\text{Current liabilities}}$

3.7.5 Cash turnover ratio

Cash flows margin ratio measures company's ability to turn sales revenue into cash. Here,

Cash flows margin ratio = $\frac{\text{Cash and Bank Balance}}{\text{Sales}}$

3.8 Statistical Tools for Analyzing cash flows

The statistical tools used for the quantitative analysis of secondary data were as follows:

3.8.1 Standard Deviation (S.D)

Standard deviation measures scatter, spread and provides idea of homogeneity or heterogeneity of the distribution. Out of various methods of studying dispersions such as; range, quartile deviation, mean deviation; standard deviation and variance are the most popular method.

S. D. = $\sqrt{\frac{1}{N}\sum(X-\overline{X})^2}$

Where;

N = Number of observations/time periods

$\overline{X}$ = Expected return of the historical data

3.8.2 The Least Square Method

A widely and most commonly used method to describe the trend is the method of least square. Under this method, a trend line is fitted to the data satisfying the following two conditions.

Let the trend line between the dependent variable y and the independent variable x be represented by:

y = a +bx..... (i)

Then for any given value of independent variable x, the estimate value of y denoted by y_c given by above equation is;

y_c =a +bx

Where,

a = y intercept or value of y when x =0.

b= slope of the trend line or amount of change that comes in y for a unit change in x.

To determine the straight-line trend, it is required to determine the values of a and b.

To find the values of a and b, solving the following two equations:

$\sum Y = na + b\sum x$.....(i)

And $\sum XY = a\sum X + b\sum X^2$.....$(ii)$

The equation (ii) is obtained by taking sum on both sides of equation (i),the equation (iii) is obtained by multiplying equation (i) by X and taking sum on both sides.

The values of a and b obtained by solving (ii) and (iii), are substituted in equation (i) gives the equation of the trend line.

To make calculation easier, the deviation of the independent variable are taken form the middle of the time period so that $\sum X = 0$

Then the above two equations change to

$$\sum Y = na$$

$$a = \frac{\sum y}{n}$$

and

$$\sum XY = b\sum X^2$$

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

3.8.3 Karl Pearson's Coefficient of Correlation (r)

Correlation analysis refers to the statistical technique, which measures the degree of relationship or association between the variables. To put it differently, it helps in analyzing the co variation of two or more variables. It is to be noted that a high degree of correlation between two variables doesn't always necessarily imply that changes in one variation cause changes in the other. Out of several methods of calculating correlation, Karl Pearson's coefficient of correlation is one of the best and popular methods. Karl Pearson's coefficient of correlation(r) measures the degrees of association between the two variables suppose X and y; given by:

$$r = \frac{\sum «V}{\sqrt{\sum «^2 . \sum v^2}}$$

Where;

r = Karl Pearson's coefficient of Correlation between X and Y.

« = X - $\overline{X}$

V = Y- $\overline{Y}$

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

N = Number of Years.

Interpretation of correlation coefficient (r)

The value of 'r' lies between +1.00 to -1.00

When r =+1, there is positively perfect correlation between the two variables.

When r = -1, there is a negatively perfect correlation between the two variables.

When r =0, the variables are uncorrelated i.e., increase or decrease in one variable results no impact on another variable and vice-versa. Together with Karl Pearson's coefficients of correlation, probable error (P.E.) of the

correlation coefficients is also computed. P. E is the measure of testing the reliability of the calculated value of 'r'. It is given by P. E. = 0. 6745 $\frac{1-r^2}{\sqrt{n}}$

Where, P. E. = Probable error of correlation coefficient

N= Number of pair of observations

r= correlation coefficient.

It is used in interpretation whether calculated value of 'r' is significant or not.

It r< P. E, it is insignificant. Therefore, perhaps there is no evidence of correlation.

It r > 6P. E., it is significant.

But when P. E< r< 6 (P.E), the value of 'r' is inconclusive as to statistically significant/ insignificant correlation.

The upper and lower limits within which the correlation coefficient is expected to lie are r + P. E (Upper Limit) and r-P. E (Lower Limit), respectively.

But when 'r' is of negative value, i.e. $-1.00 \leq r < 0$, in order to compare 'r' with P.E which is always in positive value's module or |r| is calculated. |r| is nothing but it is the positive value of 'r' itself.

For instance, if 'r' is calculated as r = -0.5, then |r| = 0.5.

This positive value of 'r' is compared with P. E. and 6 (P.E.) to derive to a conclusion of practically significant/insignificant correlation.

3.8.4 Regression Analysis

Regression is the statistical tool, which is used to determine the statistical relationship between two (or more) variables and to make estimation of one variable based on the other variable(s). The closer the relationship between the two variables, the more accurate the estimated value is. The unknown variable to be estimated is called dependent variable and the known variable is called independent variable.

Noteworthy here is that correlation analysis indicates to what degree the variables are related and regression analysis indicates how the variables are related.

Regression line of X variable on Y variable is given by;

$$(X - \overline{X}) = r\frac{\pm X}{\pm Y}(Y - \overline{Y})$$

Where, $\overline{X}$ = Mean of X variable

$\overline{Y}$ = Mean of Y variable

± X = Standard deviation of X variable

± Y = Standard deviation of Y variable

r= Karl Pearson's coefficient of Correlation.

Likewise, the regression line of Y variable on X variable is given by;

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

3.9 Research Hypothesis

Testing of hypothesis is one of the most important aspects of the theory of decision-making. It consists of decision rules required for drawing probabilistic inferences about the population parameters. Hypotheses are an assumption that is made about the population parameter and then its validity is tested. The act of verification involves testing the validity of such assumption which when undertaken based on sample evidence is called statistical hypothesis or testing of hypotheses or test of significance. By testing the hypothesis, it can be found out whether it deserves the acceptance or rejection of the hypothesis. Generally, two complementary hypotheses were set up at one time. If one of the hypotheses was accepted, then the other hypothesis was rejected and vice versa. The two complementary hypotheses that were set up in the testing of hypothesis were the null hypothesis and the alternatives hypothesis.

- **Procedure of the testing of hypothesis (test of significance)**

The following steps should be considered while testing a hypothesis:

Step 1: Set up the hypothesis

Step 2: Compute appropriate test statistic or test criterion i.e. for large sample (n>30), z test is applied and for small samples (n<30), t-test can be applied.

Step 3: Choose level of significant i.e. determining the level of significant, at which the hypothesis is to be tested,

Step 4: Find the critical value of test statistic i.e. identifying significant value of test statistic

Step 5: Make conclusion i.e. if calculated value of test statistic is less than or equal t the tabulated value, then null hypothesis is accepted and vice versa. Similarly, if calculated value of test statistic is greater than the tabulated value, then alternative hypothesis is accepted.

3.10 Diagrammatic and Graphical Representation

Presentation of statistical data using diagram is known as diagrammatic presentation. Data was presented through diagrams and graphs provide information at a glance. Picture speaks itself; there is no need to explain. They show visual indications of magnitudes, grouping, strengths, trends and patterns of presented data. Diagrams generally provide fixed information about the data whereas graphs provide more precise and accurate information than diagrams.

.

Chapter-4

Data Presentation and Analysis

4.1 Presenatation of Cash flow Statement of NEA

The cash flow statement below reflects the change in financial position from the F/Y 2003/04 to 2007/08 by classifying transactions into operating, investing and financing activities. NEA prepares cash flow statement under indirect method. Under indirect method, net profit/loss is adjusted by the transactions of a non-cash nature, deferrals or accruals of past or future operationg cash receipts or payments and items of income or expenses associated with investing or financing cash flows. The following table shows the Cash flow statement of NEA during the study period.

Table no: 4.1

Cash Flow Statement of Nepal Electricity Authority (2003/04 -2007/08) (NPRs. In million)					
Particulars	2003/04	2004/05	2005/06	2006/07	2007/08
A. Cash from Operating Activities					
Profit transfer to balance sheet	-1760.3	-1312.8	-1267.8	314.19	-1312.16
Net Profit/(Loss) for the year	-1760.3	-1312.8	-1267.8	314.19	-1312.16
Add: Non cash and non operating expenses:					
Depreciation for the year	1686	1733.5	1816.9	1856.47	1920
loss on foreign exchange	59.1	0	42.7	0	480.61
Provision for losses on property, plant and equipment	0	40	65	60	30
Deferred revenue expenditure written off	320.1	123.3	105.4	42.56	70
Less: Non operating gain:					
Gain on foreign exchange	0	-230	0	-493.39	0
Funds from Operation (FFO)	304.9	354	762.2	1779.83	1188.45
Add: Decrease in working capital except cash (item wise)					
Inventory			17.9		
Debtors		38.01			
Prepaid/Advance	153.64			68.37	
Creditors	2262.92	2912.08	2375.7	2974.61	3498.71

Less: Increase in working capital except cash (item wise)					
Inventory	-30.79	-324.69		-143.65	-20
Debtors	-355.51		-390.3	-1063.41	-1625.29
Prepaid/Advance		-35.33	-195.3		-49.94
A. Cash from Operating Activities	2335.16	2944.07	2570.2	3615.75	2991.93
B. Cash from Investing Activities					
Sale/(Purchase) of Property, Plant & Equipment	-1320.39	-751.42	423.18	-38.38	-512.34
Decrease in Capital	-1964.07	-5440.85	-5931.1	-7153.69	-6785.55
Increase in Investment	-100	-63.99	-42.9	-62.15	-720
B. Cash from Investing Activities (CFIA)	-3384.46	-6256.26	-5550.8	-7254.22	-8017.89
C. Cash from Financing Activities					
Add: issue of shares/debentures	1238.98	1945.95	2951.3	3269.08	2032.81
Add: Secured Long Term Loan Borrowed	1466.03	3434.37	1950.4	1128.24	5146.03
Less: Repayment of borrowing	1695.44	1781.95	1985.08	569.87	2779.62
C. Cash from Financing Activities	1009.57	3598.37	2916.62	3827.45	4399.22
Net Cash Increase/Decrease (A+B+C)	-39.73	286.18	-64	188.98	-626.74
Add: Opening cash/bank balance	1076.15	1036.42	1322.6	1258.6	1447.58
Closing cash/bank balance	1036.42	1322.6	1258.6	1447.58	820.84

4.2 Analysis of Cash Flow from Operating Activities

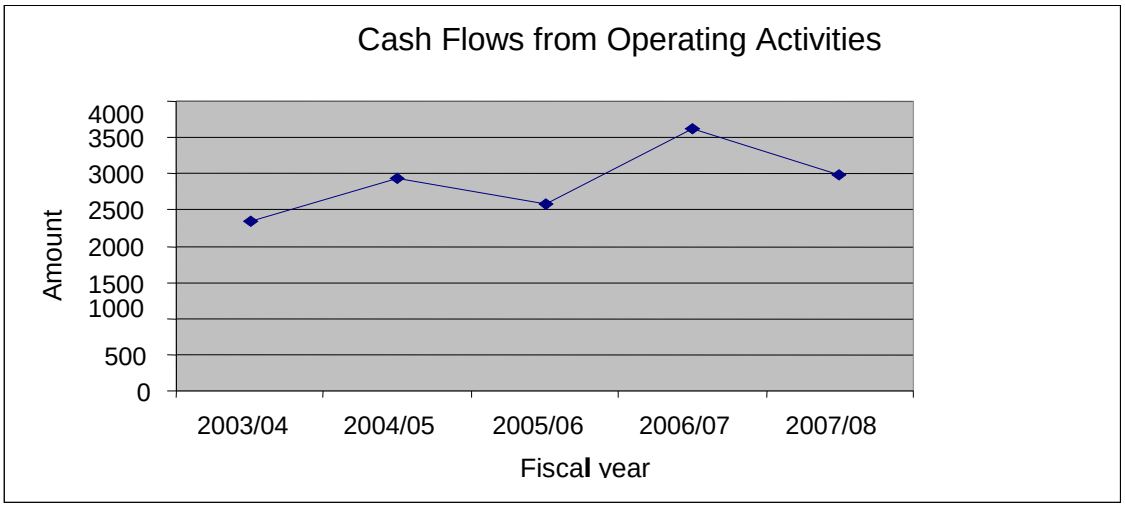
Cash flows from operating activities includes all those activities of the corporation which makes cash flows. If the cash inflow is greater than outflow, it is considered satisfactory because it shows the company have sufficient cash to bear all the expenses and overhead but if cash outflow is greater than inflow then it is considered poor performance.

Net cash from operating activities of NEA was Rs.2335.16 million in the F/Y 2003/04. In the F/Y 2004/05, it increased to Rs.2944.07 million i.e it increased by 26.08% but it decreased to Rs.2570.2 million in the F/Y 2005/06 i.e decreased by 12.7%. It was due to increase in working capital i.e increase in current assets and decrease in current liabilities. Again in the F/Y 2006/07 cash from operating activities increased by 40.67% to Rs.3615.75 million. It was the highest cash from operating activities obtained in the last 5 yrs and it

was due to achieving net profit after a long period of time and also due to increase in current liabilities. However, NEA was again in loss in the FY 2007/08 and in the same year, current assets increased. Thus Cash flows from operating activities had been decreased by 17.25% to Rs.2991.93 million in the FY 2007/08 though there had been increased in current liabilities.

The above interpretation of the data shows that NEA had maintained the positive cash flows from operating activities but it was fluctuating during the study priod. NEA had excessive amount of non operating expenses. That is why NEA was facing loss in each year despite cash inflow from operating activities. It increased in the FY 2004/05 but decreased in 2005/06 and again increased in 2006/07 and decreased in 2007/08. It indicates that NEA failed to maintain increasing trend of cash flows from operating activities. The reason behind this is NEA failed to obtain profit every year and does't give much importance to current assets and current liabilities. However, the overall performanceof the enterprise was satisfactory since it generates positive cash inflow from operating activities which ensures the ability of paying debts and investing in a hydro projects.The cash flows from operating activities of NEA during the study period can be shown in a graphical representation as follows:

Figure no: 4.1



4.3 Analysis of Cash Flows from Investing Activities

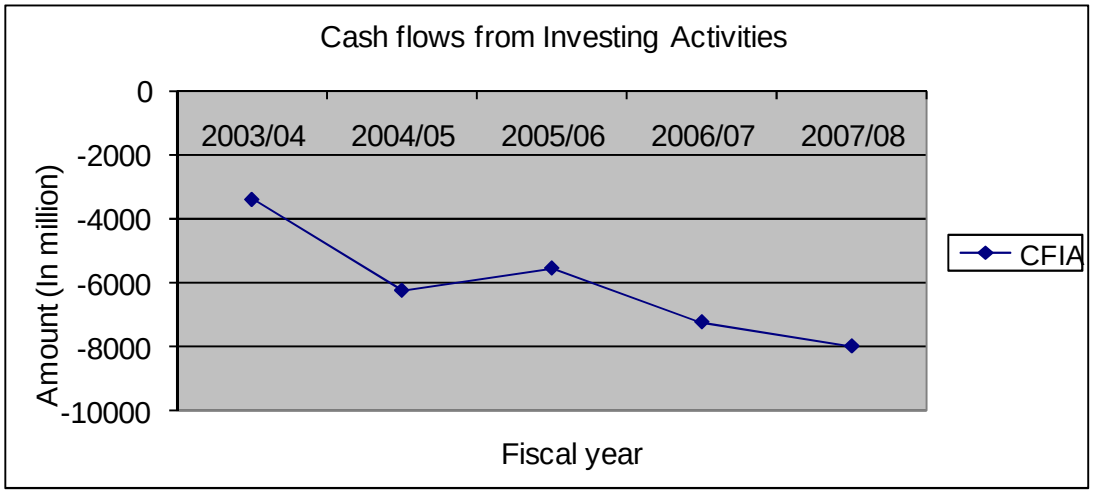
Cash flows from investing activities of NEA were observed negative during the study period. The pattern of cash flows were Rs.(3384.46), Rs(6256.26),

Rs(.5550.82), Rs.(7254.22) and Rs(.8017.89) million respectively in respective the FY 2003/04, 2004/05, 2005/06, 2006/07 and 2007/08. From the above figure it is seemed that cash flows from investing activities was increased in the FY 2004/05 by 84.85% than in FY 2003/04. It indicated that in the FY 2004/05, more fixed assets and investments purchased. In the FY 2005/06, CFIA decreased by 11.28% and it is due to the sale of plant and machinery. However, more purchase of plant and machinery as well as investments were made in the FY 2006/07 and 2007/08 and thus CFIA was increased by 30.69% and 10.53% respectively.

During the study period the main investing activities involved was acquisition of plant & machinery and investments. It states that NEA has enhanced future growth opportunities and was able to expand its services.

The CFIA during the study period can be shown in graphical representation as follows:

Figure no: 4.2



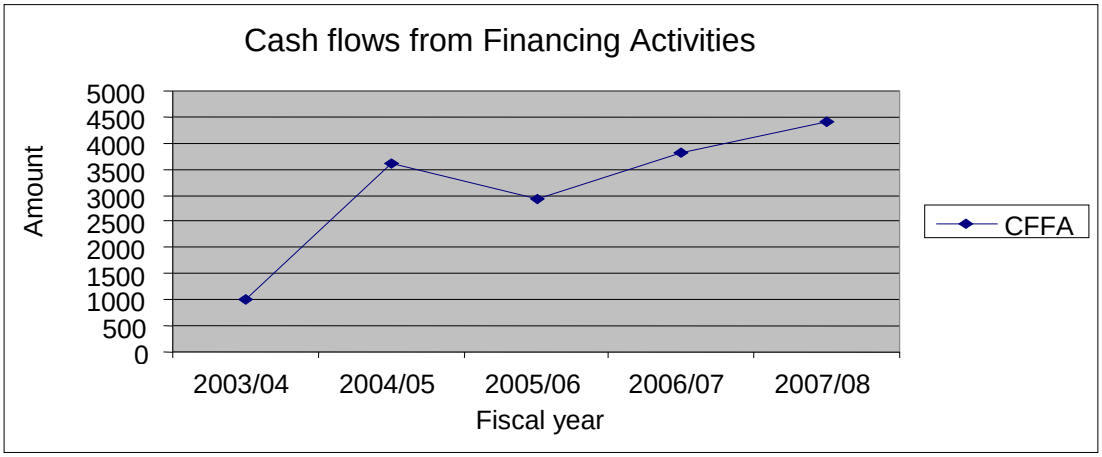
4.4 Analysis of Cash Flow from Financing Activities

Cash flows from financing activities of NEA were Rs.1009.57, Rs.3598.37, Rs.2916.62, Rs.3827.45 and Rs.4399.22 in the FY 2003/04, 2004/05, 005/06, 2006/07 and 2007/08 respectively. The amount increased by 256.43% in the Fy 2004/05 but it decreased by 18.95% in the Fy 2005/06. It again increased by 31.23% in the FY 2006/07 and by 14.94% in the FY 2007/08. The reason behind decrease in cash flows from financing activities

were redemption of preference shares/debentures and repayment of loan. Since NEA had not issue preference shares and debentures yet, the reason for decrease in cash flows from financing activities in the FY 2005/06 was repayment of loan. In that year, NEA had repayed huge amount of borrowing. In the remaining years, NEA had issued share capital every year and the proportionate of borrowing of loan was higher than repayment of loan. That is why, cash flows from financing activities was in increasing trend except in the FY 2005/06.

It can be shown in graphical representation as follows:

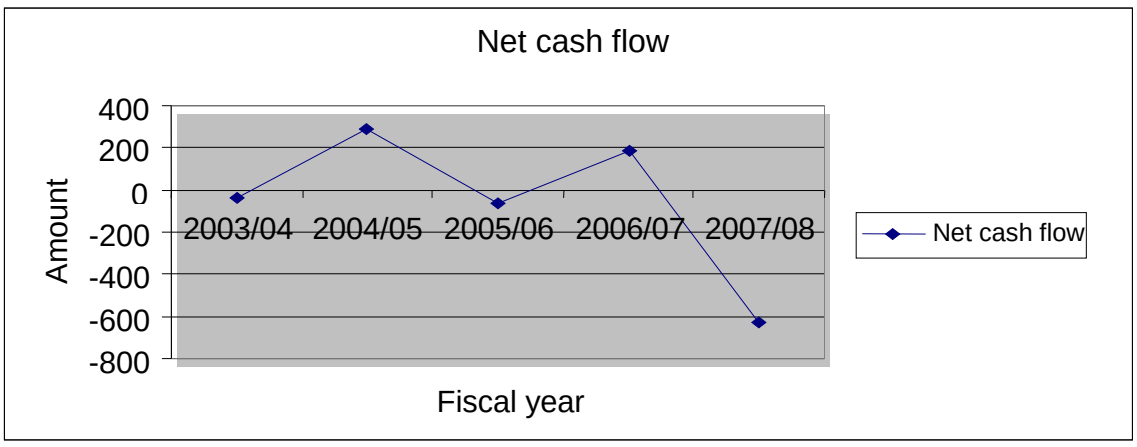
Figure no: 4.3



4.5 Analysis of Net Cash Flow

The net cash flows of NEA was calculated from accumulating net cash flow from operating, investing and financing activities. The net cash flows of NEA was very fluctuating during the study period. It can be shown with the following trend line:

Figure no: 4.4



From the above trend line, it seemed that in the FY 2007/08 net cash flow decreased in a heavy amount. It was due to the loss suffered by the corporation.

4.6 Analysis of Profit and Loss

Profit is the positive difference between income and expenses. If income is greater than expenses,there is profit and vice-versa. Profit is the amount of money expected to make if all customers paid on time on and if expenses were spread out evenly over the time being measured. Profits of the firm depend on many factors such as depreciation, non-operating gains, and losses. Simply it can be said that when manufacturing, selling, distribution and administrative cost are subtracted from sales revenue then occurred either profit or loss. Profit and loss can be computed either by using profit and loss a/c or by income statement. Profit and loss a/c generally used by trading company and manufacturing company uses income statement. Thus, NEA had used income statement, which ascertained profit or loss.

However, profit has less value if the firm has negative cash flow. It is the cash not the profit which is required to operate the business. Profits are accounting measures that may not reflect the economic reality of the firm.

The following table shows the profit and loss of NEA.

Table 4.2

Profit and loss of NEA

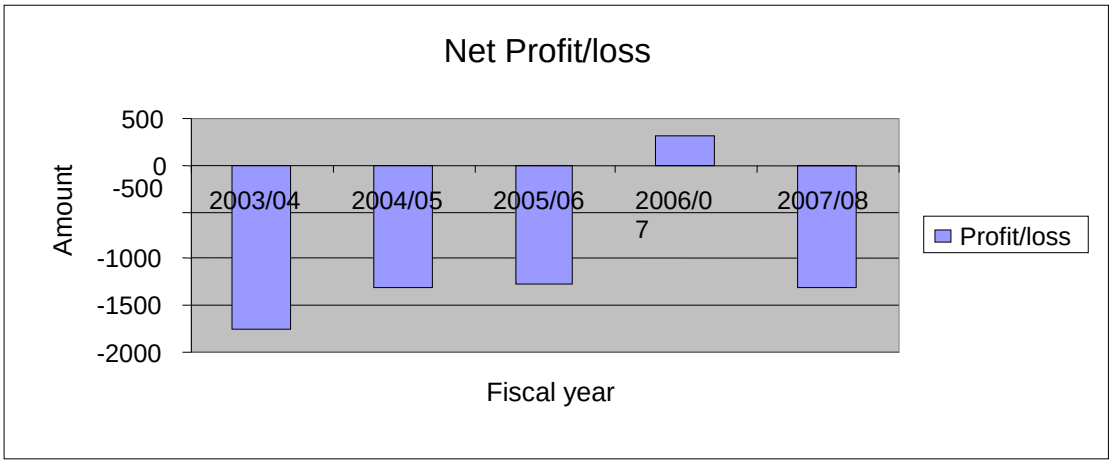
NRs. in million

Fiscal year	Profit/(loss)
2003/04	-1760.3
2004/05	-1312.8
2005/06	-1267.8
2006/07	314.19
2007/08	-1312.16
Average	-1067.77

In the FY 2003/04 NEA had loss of Rs1760.1 million which was reduced to Rs.1312.8 million in the FY 2004/05 and again it reduced to Rs.1267.8 million in the FY 2005/06. In the FY 2006/07 NEA was able to get profit of Rs.314.19 million but again in the FY 2007/08, NEA suffered from loss of Rs.1312.16 million due to weakness of managerial control and receivable collection.The corporation had average loss of Rs.1067.77 million which shows NEAs' financial position was very weak.

It can be shown with the following diagram:

Figure no: 4.5



The above diagram shows that NEA had been suffering from loss in every fiscal year except in the FY 2006/07. It showed that NEA had poor financial status.Though it has monopoly in the market, it failed to collect its revenue. It failed to collect its electricity charges from its customers from the begining. NEA didn't have tight collection policy. That is why it was forced to suffer from loss. However, NEA was able to minimize the loss in the FY 2006/07 because of reduction in loss on foreign exchange.

The net profit/loss not only includes operating expenses but also includes non operating expenses. Operating expenses directly deals with cash such as expenses related to generation of electricity, power purchase, transmission, distribution expenses, administrative expenses etc. On the other hand, non operating expenses is the expenses that excludes non cash expenses.For example, depreciation, profit/loss on foreign exchange, deferred revenue expenditure written off, loss on sale of fixed assets etc. Since non-operating

expenses are also treated while computing profit, it can be said that profit is not the correct base for the decision making about the firm's performance. After adjusting or adding back these non operating expenses and non operating gain, the Cash flows from operating activities before change in working capital which is shown in the below table:

Table no: 4.3

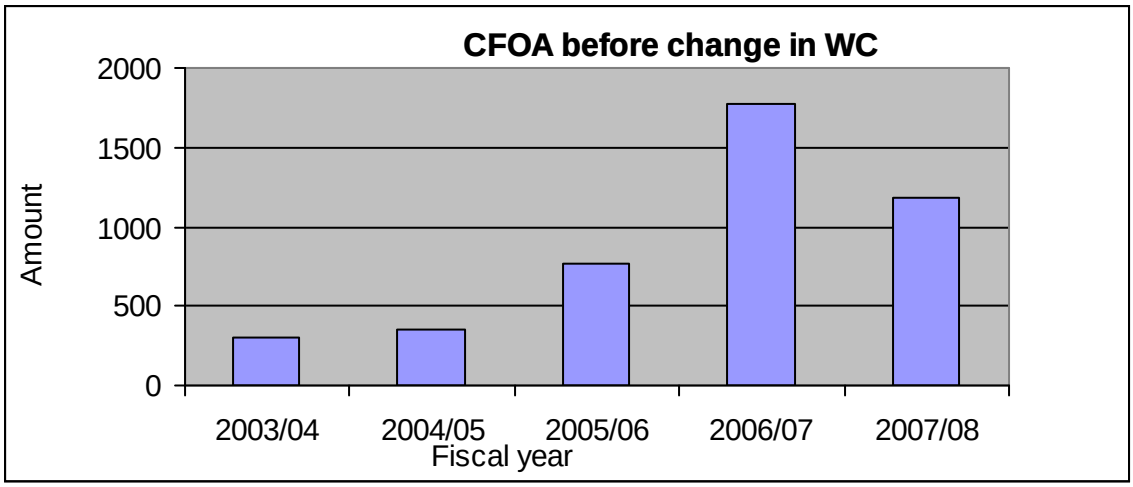
Cash flows from operating activities before change in Working Capital

NRs. in million

Fiscal year	Cash flows from operating activities before change in working capital
2003/04	304.9
2004/05	354
2005/06	762.2
2006/07	1779.83
2007/08	1188.45
Average	877.87

It can be said that NEA has obtained profit each year because it had positive cash flows from operating activities before change in working capital. NEA had average Rs.877.87 million cash flows from operating activities before change in working capital. The profit after adjusting non operating expenses/income from the FY2003/04 to 2007/08 were Rs.304.9 million, Rs.354 million, Rs.762.2 million, Rs.1779.83 million and Rs.1188.45 million respectively. Here, profits after adding back non operating expenses and deducting non operating gain were in increasing trend. Thus it can be said that NEA was able to provide its satisfactory services. The following trend line clearly shows its actual operating profit:

Figure no: 4.6



The diagram indicates that NEA has increasing trend of actual operating profit except in the FY 2007/08 and it is because the distribution cost and administrative cost increased and other income decreased in the FY.

4.7 Comparision of Profit/loss and CFOA before change in Working capital

Profit/loss is derived after deducting non operating expenses and adding non operating gain. And cash flows from operating activities before change in working capital is obtained by adding non operating expenses.Here it is trying to analyse whether these expenses affects our decision or not.

The below table shows both the profit:

Table no : 4.4

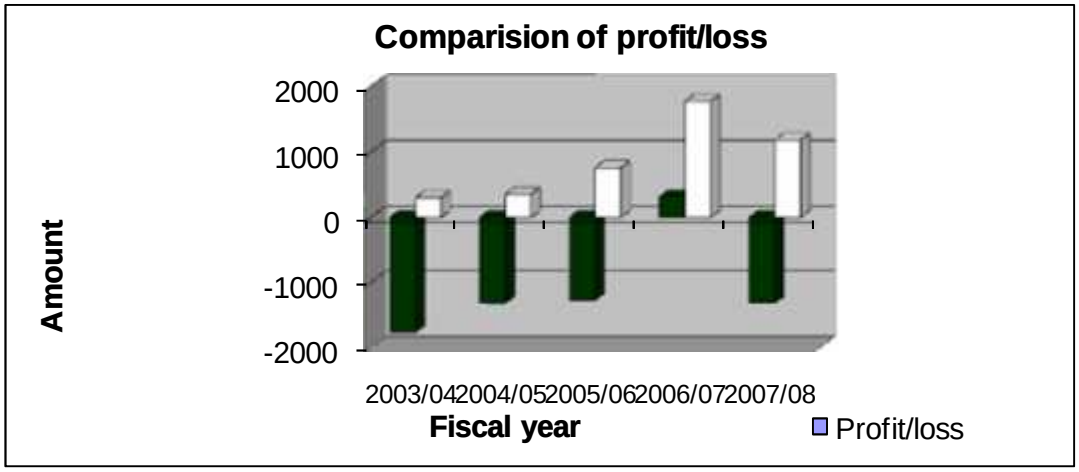
Comparision of profit/loss and cash flows from operating activities before change in working capital

NRs. in million

Fiscal year	Profit/loss	CFOA before change in WC
2003/04	-1760.3	304.9
2004/05	-1312.8	354
2005/06	-1267.8	762.2
2006/07	314.19	1779.83
2007/08	-1312.16	1188.45

The above table showed there was significant difference in the profit derived after deducting non operating expenses and before deducting non operating expenses. It is observed that from the income statement, NEA suffered loss but actually NEA has been gaining operating profit from the beginning of its operation. The below diagram clearly shows the difference between the two profit/loss:

Figure no: 4.7



The above diagram, shows NEA was actually able to obtain operating profit. NEA had been succeeded to achieve its profit. NEA showed loss due to deduction of depreciation, provision for loss, deferred revenue expenditure and loss on foreign exchange. Becuase of non operating and non cash expenses, NEA was in loss. But in fact, NEA had been operating successfully. After adjusting non operating and non cash expenses apperaing in cash flow statement as funds from operation, the enterprise earned operating profit of Rs.304.9 million in the FY 2003/04 but income statement showed the loss of Rs.1760.3 million. It is because while preparing income statementthere was deduction of depreciation of Rs.1686 million, loss on foreign exchange of Rs.59.1 million and deferred revenue expenditure written off Rs.320.1 million. When non operating expenses are added back, profit of Rs.59.1 million had been found. Similarly, cash flow statement showed operating profit of Rs.354 million, Rs.762.2 million, Rs.1779.83 million and Rs.1188.45 million from the Fy 2004/05 to the FY 2007/08 whereas income statement showed the loss figures except in the FY 2006/07.

Thus, the above interpretation and analysis of the datamake clear that non operating and non cash expenses very much affect in the decision making. These expenses give wrong information about the corportion. That is why, net profit/loss should be analysed on the basis of the operating profit derived from cash flow statement. In fact, operating profit obtained through cash flow statement is the most genuine figure to be used for the important decision.

4.8 Analysis of Cash/Bank balance

Cash is the most important component of current asset for the operation of a business. No enterprise can operate without cash. It is the cash from which all transaction are done. Manufacturing or trading of products or services are held through cash. Thus cash is the most important component of current assets of every organization. However, company should keep only sufficient cash. More cash balance reduces rate of return on equity and less cash balance reduces investment opportunities. So every company shoud be very careful while holding cash.

The following table shows the cash/bank balance of NEA during the study period:

Table no : 4.5

Cash and bank balance

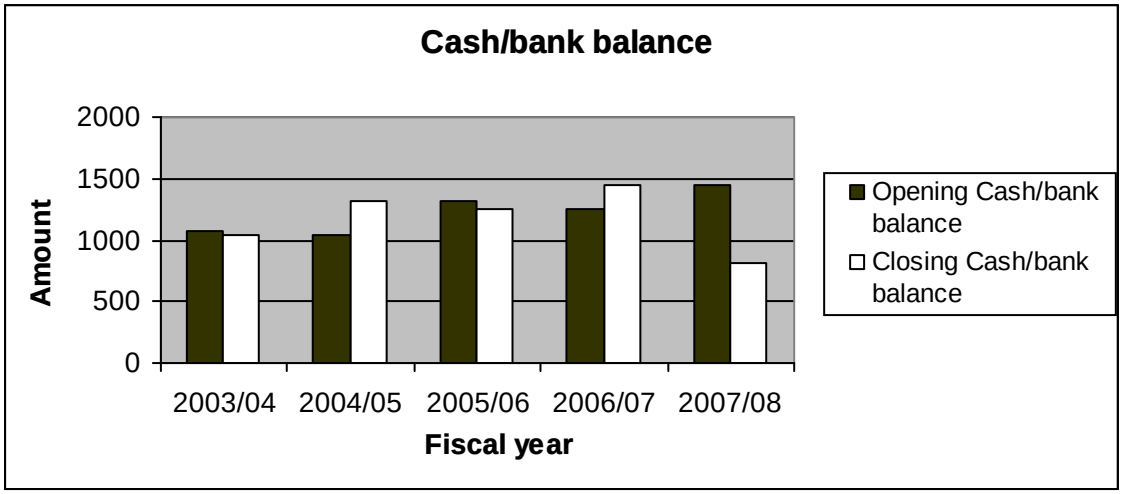
NRs. in million

Fiscal year	Opening Cash/bank balance	Closing Cash/bank balance	Increase/(decrease) %
2003/04	1076.15	1036.42	(3.69)
2004/05	1036.42	1322.6	27.61
2005/06	1322.6	1258.6	(4.84)
2006/07	1258.6	1447.58	15.02
2007/08	1447.58	820.84	(43.30)

The above table shows the cash/bank balances of NEA. The opening cash/bank balance were Rs.1076.15 million, Rs.1036.42 million, Rs.1322.6 million, Rs.1258.6 million & Rs.1447.58 million and closing cash/bank balance

were Rs.1036.42 miilion, Rs.1322.6 million, Rs.1258.6 million, Rs.1447.58 million & Rs.820.84 million from the FY 2003/04 to 2007/08 respectively. Cash balances were fluctuate trend as revealed by the following diagram.

Figure no: 4.8



Closing cash balances were derived by adding opening cash balances to the net cash generation shown by cash flow statement. Increase in net cash increases makes increase in closing cash balance and vice-versa. In the FY 2003/04, closing cash balances were lesser than opening balance. It decreased by 3.69% than the previous fiscal year. It is because in that fiscal year net cash flow was in negative figure due to huge investment of cash as well as purchase of plant & machinery. Therefore it can be said that the movement of cash were good in the NEA during the study period. In the FY 2004/05, the closing cash balances were increased by 27.61%. It means there was positive cash generation and it was due to more cash inflow from operating activities but again in the FY 2005/06 there was negative cash generation and closing cash balance decreased by 4.845%. In the FY 2006/07 it increased by 15.02% and in the last year it again decreased by 43.3%.

It can be concluded that NEA was holding cash inconsistently and utilizing it not properly. There was very fluctuation in the cash which might not be in the favor of corporation.

4.9 Analysis of cash flow ratios

Various *cash flow ratios* had been used for the analysis of performance of NEA. Cash flow ratios are generally generated from cash from operation since cash generated from operating activities excludes non cash and non operating expenses. The cash flow ratios used in this study are:

4.9.1 Cash flow sufficiency ratio

Cash flow sufficiency ratios aim at assessing a company's relative ability to generate sufficient cash to meet its cash flow needs. All ratios indicate whether a company's cash flows are sufficient for the payment of debt, acquisitions of assets and payment of dividends. These ratios are :

A. Cash flow adequacy ratio

Cash flow adequacy ratio measures the cash from operating activities with respect to the repayment of borrowing and assets required. In the present study, the ratio is calculated and analyzed to measure the entity's ability to produce sufficient operating cash flows to cover its main cash requirement, specifically, for the payment of debt, the acquisition of assets, and the payment of dividends. It is calculated by using the following formula:

$$\text{Cash flow adequacy} = \frac{\text{Cash flow from operations}}{\text{Repay borrowings} + \text{Assets acquired} + \text{Dividends}}$$

Table no : 4.6

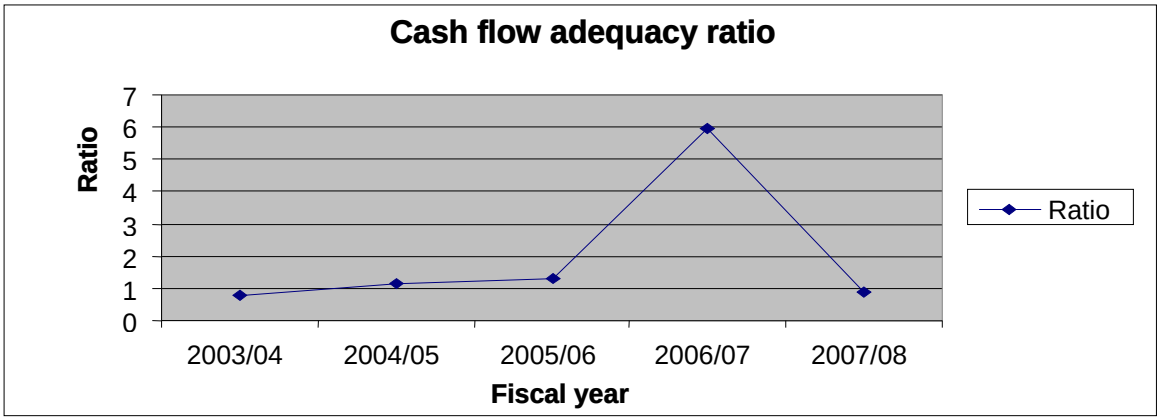
Cash flow adequacy ratio NRs. in million

Fiscal year	CFOA	Repayment of borrowing	Assets acquired	Dividend paid	Ratio
2003/04	2335.16	1695.44	1320.39	0	0.77
2004/05	2944.07	1781.95	751.42	0	1.16
2005/06	2570.2	1985.08	0	0	1.29
2006/07	3615.75	569.87	38.38	0	5.94
2007/08	2991.93	2779.62	512.34	0	0.90
				Average	2.012

Assets acquired refers to the assets purchased. Dividend payment is nil because NEA didn't pay dividend. It was owned by the government and that is why all the capital contributions were made of the government. The cash flow adequacy was in increasing trend in the first four years and decreasing in the last year of the study period. It indicated that NEA had obtained sound cash inflow from operating activities and it was able to repay its debt and able to purchase needed assets except in the FY 2003/04 and in the FY 2007/08. In FY 2003/04, cash flow adequacy ratio was 0.77 which was below the requirement. The requirement level of the ratio was above 1. Since, the ratio falled below 1 i.e 0.77, it indicates that in that year NEA had to borrow from outsiders to repay its old borrowing and to acquire assets. Then in the subsequent years, NEA was able to maintain its cash flow adequacy ratio above 1 for three years. However NEA couldn't maintain its increasing trend of cash flow ratio and it falls to 0.90 in 2007/08. It is because in that year, the corporation bear a huge loss as well as there was increase in debtors with a large amount which made ratio to fall to 0.90 from 5.94.

The following trend line shows the ratio of cash flow adequacy:

Figure no: 4.9



It can be clearly defined that cash flow ratio was below one in the first year of the study. Then it started to increase till the FY 2006/07 having the ratio above

one and finally in the final year it again downfell to below one. From this interpretation it can be said that an corporation was able to generate cash inflow to repay the borrowings and to acquire assets to some extent but it was not satisfactory since there was up and down in the ratio.

B. Debt Coverage ratio

The debt coverage ratio shows the ability of a company to generate cash flow from operating activities to pay its total debt commitment. Total debt includes long-term debt and short-term debt. Short term debt usually means current liabilities which involves sundry creditors, a/c payable etc.

$$\text{Debt coverage ratio} = \frac{\text{Total Debt}}{\text{Cash flow from operations}}$$

Table no: 4.7

Debt coverage ratio

NRs. in million

Fiscal year	Total Debt	Cash flow from operation	Ratio
003/004	54959.75	2335.16	23.5
004/005	61306.2	2944.07	20.82
005/006	65632.3	2570.2	25.53
006/007	69735.15	3615.75	19.28
007/008	78379.89	2991.93	26.19
Average			23.06

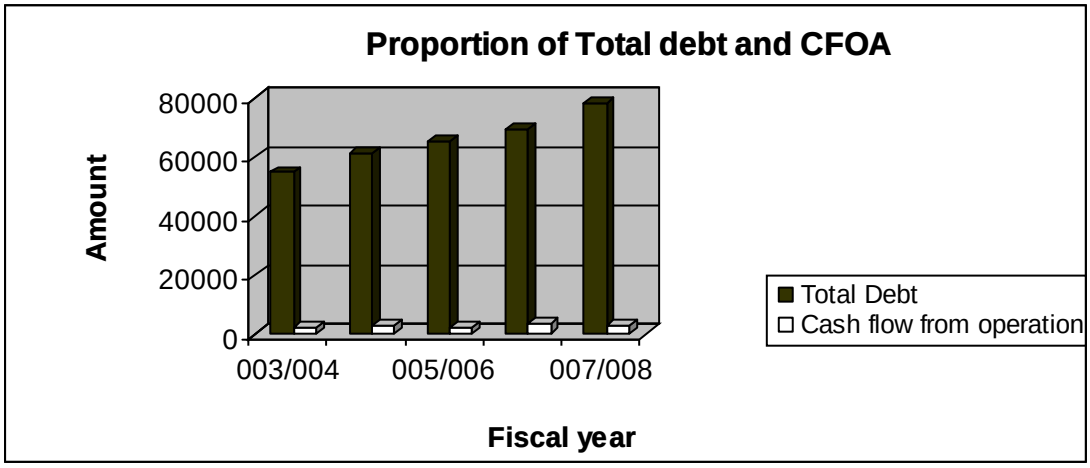
Debt coverage ratio is decreasing in the second year and increasing in the third year but decreased in fourth year and again increased in the fifth year. It indicates that NEA had fluctuating debt coverage ratio in relation to the cash from operations. It also indicates that NEA was not able to generate adequate amount of cash from operating activities to pay its total debt but to some extent it was being able to improve its cash position.

Since debt coverage ratio was computed dividing total debt by cash from operation, it is better to have the ratio below one. But the table indicates the

ratio of debt coverage was average 23.06 which means total debt commitment is 23.07 times higher than cash inflows. NEA was far behind to pay its total debt. NEA depended on foreign loans to pay its local debt and therefore its long term loan had been increasing.

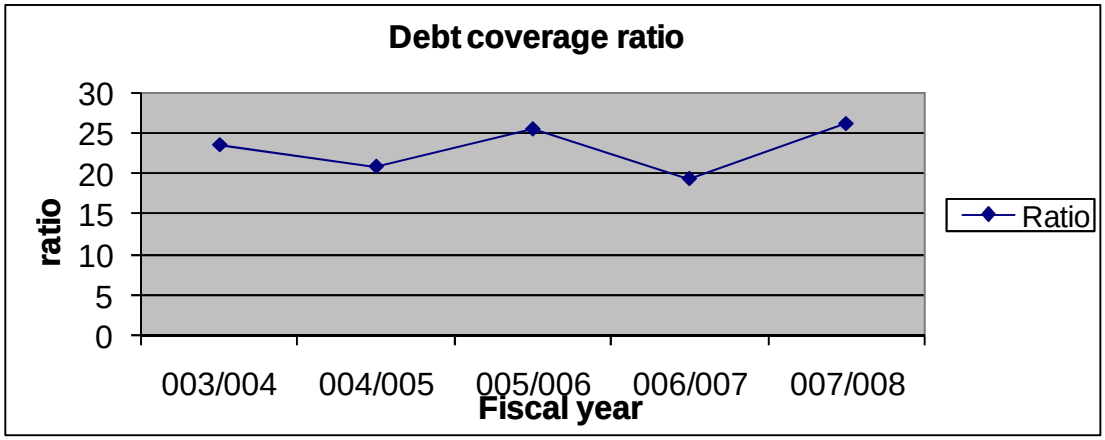
The below diagram clearly defines the proportion of cash from operation and the total debt:

Figure no: 4.10



In the diagram, the dark shadowed represent total debt and white shadowed represent cash from operation. Above diagram clearly shows that the amount of total debt is very much higher than the cash from operation. The below trend line represents the ratio between total debt and cash from operation:

Figure no: 4.11



The trend line shows the fluctutation in the debt coverage ratio and which was below than the requirement. It is better for the enterprise to have debt coverage ratio below than one. If the enterprise could maintain the ratio below

one, it signifies the enterprise has the ability to pay its all the debt through cash from operation. But unfortunately, debt coverage ratio the NEA maintained was above one which indictes NEA was not able to generate needes cash flow from operation to pay the debts. Furthermore the trend line shows NEA couldn't maintain consistent debt coverage ratio. It was in the increasing and decreasing trend which signifies NEA's performace is not well deserved and has to improve a lot.

C. Repayment of borrowing ratio

This ratio indicates the ability of a firm to repay its borrowing out of long term debt. In other words, the ratio is calculated for the purpose of covering long-term debt commitments in the current year..

$$\text{Repayment of borrowings ratio} = \frac{\text{Repayment of borrowings}}{\text{Cash flow from operations}}$$

The following table shows the repayment of borrowing ratio:

Table no: 4.8

Repayment of borrowing ratio

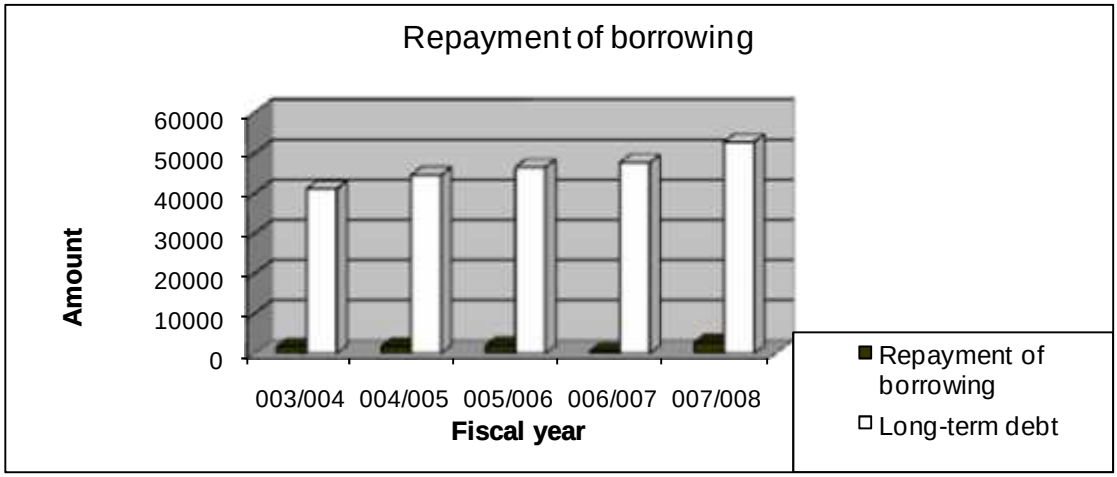
NRs. in million

Fiscal year	Repayment of borrowing	Long-term debt	Ratio %
003/004	1695.44	41103.14	4.12
004/005	1781.95	44537.51	4.00
005/006	1985.08	46487.91	4.27
006/007	569.87	47616.15	1.20
007/008	2779.62	52762.18	5.27
Average			3.77

Higher the ratio higher will be the repayment of borrowing and vice-versa. The table shows the repayment of borrowing ratio of NEA was 4.12%, 4%, 4.27%, 1.2% and 5.27% from 2003/04 to 2007/08 respectively. The average repayment of borrowing ratio was 3.77%. The ratio indicates NEA had been paying very little amount of debt out of its total amount of long-term debt. It

signified long term debt of NEA was increasing every year which was not good for the corporation. To show healthy position, NEA should minimize its long term debt by paying it. Holding these long term debt increases more cost to the enterprise because more you delayed to repay the loan more you had to pay the interest amount and which ultimately decreased net profit as well as cash inflow.It can be presented by the diagram as follow:

Figure no: 4.12



The diagram shows there was very less contribution in paying the debt. Borrowing was taken by the NEA in huge value but there was low repayment capacity, which showed NEA was not able to generate enough cash from operating activities to pay its debt.

D. Reinvestment ratio

The reinvestment ratio presents the ability of a company to generate cash from operating activities for the purpose of covering asset acquisition payments.

$$\text{Reinvestment ratio} = \frac{\text{Payment for property, plant and equipment}}{\text{Cash flow from operations}}$$

Table no: 4.9

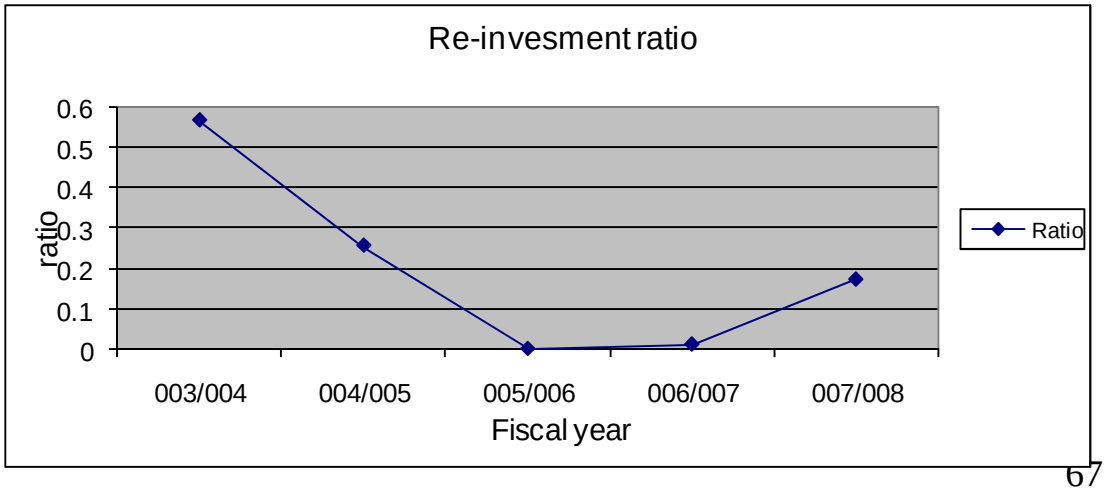
Reinvestment ratio

NRs. in million

Fiscal year	Purchase of property, plant & equipment	Cash flow from operation	Ratio
003/004	1320.39	2335.16	0.57
004/005	751.42	2944.07	0.26
005/006	0	2570.2	0
006/007	38.38	3615.75	0.01
007/008	512.34	2991.93	0.17
Average			0.20

The main purpose of computing this ratio was to figure out how much money the NEA had spent in purchasing or investing in property, plant and equipment. Higher ratio signifies higher purchase of property, plant and equipment and vice-versa. The average of reinvestment ratio was 0.20 which is equivalent to 20%. The table shows in the FY 2003/04, more than 50% of cash was spent on purchase of fixed assets. In that year the ratio was 0.57 i.e 57%. In the subsequnet years, NEA slowed down its purchasing capability. In the FY 2005/06, NEA didn't purchase any fixed assets and that is why the ratio was zero. Moreover, in that year, NEA sold its assets for Rs.423.18 million. However, in the following years the reinvestment ratio increased from 0.01 to 0.17 which indicated NEA had invested some of its cash to acquire plant and equipment. It signifies, NEA was expanding its operation. Reinvestment ratio can be shown by the following trend line:

Figure no: 4.13



The trend line shows the reinvestment ratio decreases heavily from the second year during the study period, which refers investment done in purchasing plant and equipment was decreasing. Thus, NEA had to invest more and purchase more advanced plant and equipment to expand its operation so that it would be able to reduce problem of loadshedding that we people are facing.

4.9.2 Cash Flow Return Ratio

Cash flow return ratio is also called efficiency ratios. It shows the ability of a company to generate operating cash flows. Cash flow efficiency ratios are used to assess the relationship between items in the income statement and balance sheet with cash flow from operations as disclosed in the cash flow statement. These ratios are as follows:

A. Cash flow on revenue ratio

This ratio aims at showing the ability of the company to turn revenue into cash. The higher the ratio, the better the ability. This ratio employs information provided by the statement of cash flow and the income statement. It is computed by dividing cash from operating activities by revenues.

$$\text{Cash flow to revenues} = \frac{\text{Cash flows from Operation}}{\text{Revenue}}$$

The following table shows cash flows on revenue ratio as:

Table no: 4.10

Cash flow on revenue ratio

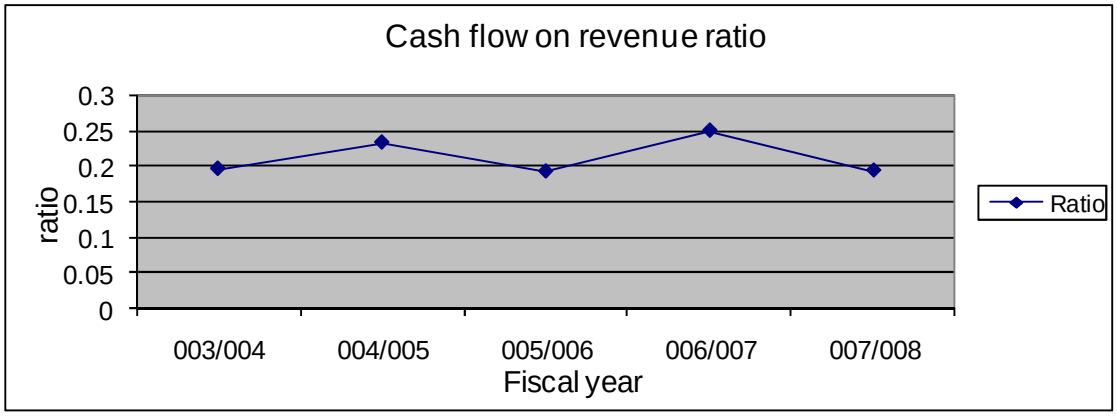
NRs. in million

Fiscal year	Cash flow from operation	Revenues	Ratio
003/004	2335.16	11874.7	0.20
004/005	2944.07	12605.2	0.23
005/006	2570.2	13331.9	0.19
006/007	3615.75	14449.73	0.25
007/008	2991.93	15405.03	0.19
Average			0.21

Revenue refers to the total cash generation from sale of electricity and cash from operation refers to the net cash generation from operating activities. Under direct method, cash from operating activities is computed from revenue. Cash from operation also can be called as operating profit. Thus, it is important to know how much cash from operation generated out of total revenue since revenue excludes all the expenses.

The below trend line shows the cash flow on revenue ratio as:

Figure no : 4.14



The table and trend line shows cash generated from revenue were less than 0.5 that is 50%. The average of cash flows on revenue was only 0.21 that is 21%. In the Fy 2003/04, the ratio was 0.2 which indicates only 20% cash was

generated out of 100% which showed the NEA's weak ability to turn revenue into cash. In the Fy 2004/05, 23% cash was generated which is 3% more than that of previous year but still not satisfactory performance. The ratio fell to 19% in the FY 2005/06 which indicates NEA was not improving in its performance. The ratio however increased to 25% in the Fy 2006/07 showing some positive sign but again it decreased to 19% in the last year of the study period.

Thus, NEA was not fully able to convert its revenue to cash. Moreover, it was not consistent in generating cash from revene which can be seen in the above trend line. The line moves upward and downward in each year which signifies the fluctuation in the generating cash from revenue.

- **Statistical tool:**

The relation between sales revenue and cash from operating activities (CFOA) also can be shown by using some statistical tools. Here, correlation between sales revenue and CFOA are tested.

- **Correlation:**

Correlation analysis refers to the statistical technique, which measures the degree of relationship between two or more variables. It is to be noted that a high degree of correlation between two variables doesn't always necessarily imply that changes in one variation cause changes in the other. Out of several methods of calculating correlation, Karl Pearson's coefficient of correlation is one of the best methods.

Since CFO is directly dependent on revenue, revenue is considered as independent variable and CFO as dependent variable.

Table no: 4.11

Correlation between sales revenue and CFOA

NRs. in million

Sales(X)	CFOA(y)	x = (X-13331.9)	xy	x^2	y^2
11874.7	2335.16	-1457.2	-3402795.152	2123431.84	5452972.226
12605.2	2944.07	-726.7	-2139455.669	528092.89	8667548.165
13331.9	2570.2	0	0	0	6605928.04
14449.73	3615.75	1117.83	4041793.823	1249543.909	13073648.06
15405.03	2991.93	2073.13	6202659.841	4297867.997	8951645.125
	$\sum y$=14457.11	$\sum x$ = 1007.06	$\sum xy$ = 4702202.842	$\sum x^2$ = 8198936.636	$\sum y^2$ = 42751741.62

Here, $r = \dfrac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 n\sum y^2 - (\sum y)^2}}$

$$= \frac{5 * 4702202.842 \; 1007.06 * 14457.11}{\sqrt{(5 * 8198936.636 \; (1007.06)^2)(5 * 42751741.62 \; (14457.11)^2)}}$$

$$= \frac{8951837.013}{6323.0146 * 2179.605}$$

$$= 0.65$$

Since the value of r is 0.65, it can be said that there is positive and close relationship between the two variables; sales revenue and CFOA. It signifies, if sales revenue increases, CFOA also increases and vice-versa.

Here, it can be used *probable error* (P.E.) of the correlation coefficient to test the reliability of correlation (r) in the following way:

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

$$= 0.6745 * \frac{1 - (0.65)^2}{\sqrt{5}}$$

$$= 0.17$$

Now,

6 P.E. = 6*0.17

=1.02

B. Cash flow to net income ratio

Cash flow to net income ratio compares the company's profit with cash flow from operations and attempts to provide an index of the cash-generating productivity of operations. The main purpose to calculate this ratio is to find out whether the ratio is capable enough to carrry out certain decisions.

Net income and cash from operation are two different elements. Net income is computed preparing income statement where as cash from operation is derived from cash flow statement. When cost of good sold, selling and administrative expenses and all the non operating and non cash expenses are deducted from sales revenue,net income/profit is obtained. Cash from operation excludes all the non operating and non cash expenses and includes working capital. In other words, when non operating expenses are added back and non operating income are decucted from net profit, funds from operation (FFO) is obtained and when decrease in working capital is added except cash and deduct increase in working capital except cash, cash from operating activities is ascertained which is already discussed in review of literature. It is calculated as cash flows from operations divided by profit after income tax.

Here, Operations index = $\frac{\text{Cash flows from Operation}}{\text{Profit}}$

Table no: 4.12

Cash flow to net income ratio

NRs. in million

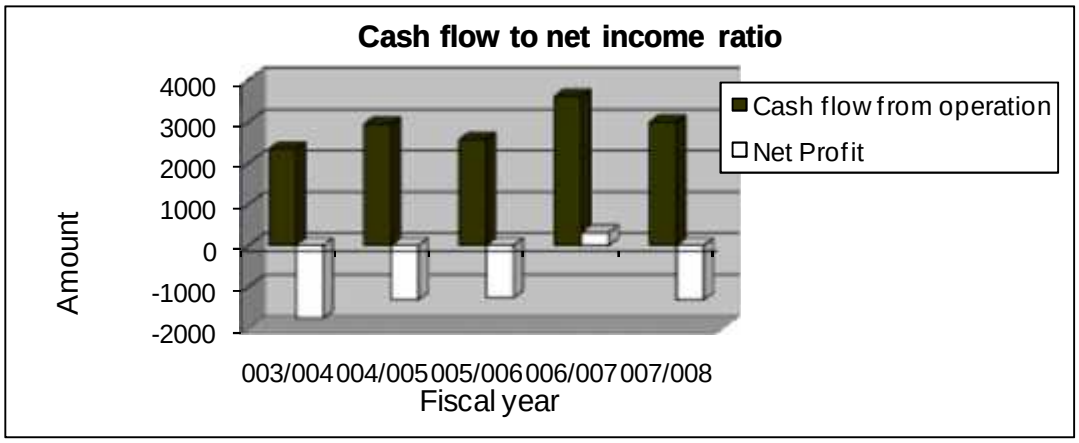
Fiscal year	Cash flow from operation	Net Profit	Ratio
003/004	2335.16	-1760.3	-1.32
004/005	2944.07	-1312.8	-2.24
005/006	2570.2	-1267.8	-2.02

006/007	3615.75	314.19	11.50
007/008	2991.93	-1312.16	-2.28
		Average	0.72

In the table, it is found that the ratio was in negative in the first three years and in the last year of the study.The average of cash flow to net income ratio was 0.72. Since net profit was in negative figure i.e there was loss. However, cash flow from operation was positive in the all years. It signifies that though the corporation was bearing loss, it can generate positive cash inflow. It also signifies that non operating expenses very much affects net profit. In addition to it, net profit is not the only source of cash inflow, cash inflow also can be obtained from working capital. That is why cash from operating activities is a strong tool than net profit for decision making. When cash is received from the debtors or creditors, it is cash inflow for the firm. Since such activity do not affect in computation of net profit, decision should't based on net profit of the firm, it is also require to analyse the cash flow from operating activities.

The ratio can be shown with the following diagram:

Figure no: 4.15



The above diagram clearly shows that cash was generated by NEA even it beared loss in subsequent years.

- **Statistical tool:**

The relation between net profit and cash flows from operating activities was ascertained by using correlation which is as follows:

Table no: 4.13

Correlation between net profit and CFOA

NRs. in million

Net profit(X)	CFOA(y)	X=X-(-1267)	xy	x^2	y^2
-1760.3	2335.16	-492.5	-1150066.3	242556.25	5452972.226
-1312.8	2944.07	-45	-132483.15	2025	8667548.165
-1267.8	2570.2	0	0	0	6605928.04
314.19	3615.75	1581.99	5720080.343	2502692.36	13073648.06
-1312.16	2991.93	-44.36	-132722.0148	1967.8096	8951645.125
	∑y=14457.11	∑x = 1000.13	∑xy =4304808.878	$\sum x^2$ = 2749241.42	$\sum y^2$ = 42751741.62

$$R = \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 n\sum y^2 - (\sum y)^2}}$$

$$= \frac{5 * 4304808.878 - 1000.13 * 14457.11}{\sqrt{(5 * 2749241.42 \ (1003.13)^2)(5 * 42751741.62 \ (14457.11)2)}}$$

$$= \frac{7065054.96}{3570.147 * 2179.605}$$

$$= 0.91$$

Since the value of r is 0.91, we can say that there is highly positive correlation between two variables.

Again,P. E. = 0. 6745 $\frac{1-r^2}{\sqrt{n}}$

$$= 0.6745 * \frac{1 - (0.91)^2}{\sqrt{5}}$$

=0.05

Now, 6 P.E. = 6 * 0.05 = 0.3

Since r > 6 P.E. i.e 0.91 > 0.3, We can say that above ascertained value of correlation coefficient, r is significant. It means, when if profit increases CFOA also increases and vice-versa.

C. Cash flow return on assets ratio

This ratio attempts to measure the company's return on assets in term of the cash flow generated from operations. It evaluates how much cash has been generated before deducting interest expenses and income tax expenses from using certain amount of total assets. Total assets includes both current and fixed assets. Current assets is the assets which can be converted into cash within a year such as sundry debtors, a/c receivable, inventories, cash and bank balance etc and fixed assets is long term assets such as plant & machinery, furnitures & fixtures, investments etc.

The formula for computing cash flow return on assets ratio is:

$$\text{Cash flow return on assets} = \frac{\text{Cash flows from Operation} + \text{Income tax} + \text{Interest}}{\text{Average total assets}}$$

Table no: 4.14

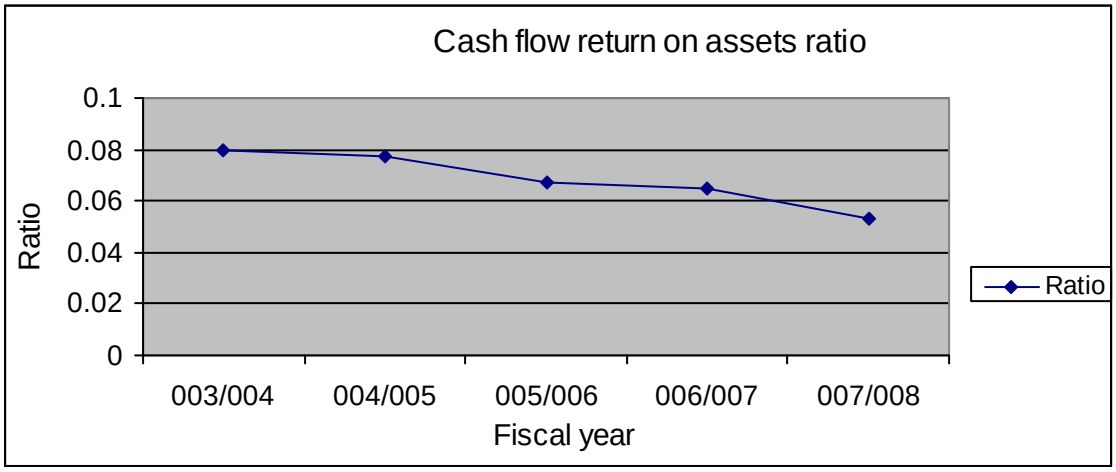
Cash flow return on assets

NRs. in million

Fiscal year	Cash flow from operation	Income tax paid	Interest paid	Total Assets	Ratio
003/004	2335.16	274.2	2991.5	70631.11	0.085
004/005	2944.07	-	3079.8	77495.56	0.078
005/006	2570.2	-	3050.9	83550.08	0.067
006/007	3615.75	-	2385.41	92131.97	0.065
007/008	2991.93	-	2368.41	101218.35	0.053
Average					0.069

The table shows that cash flow return on assets ratio were 0.085, 0.078, 0.067, 0.065 and 0.053 from the FY 2003/04 to the FY 2007/08 respectively. The average of cash flow return on assets ratio was 0.069 that is 6.9%. Higher ratio implies higher cash generation from the utilization of total assets. Thus it can be said that the highest cash was generated in the FY 2003/04 since the ratio obtained was higher than the rest.Then it gradually started to fall down which showed NEA's inability to utilize its assets properly. It can be presented with the following trend line:

Figure no: 4.16



The above trend line shows that the ratio moved in a decreasing trend. It signifies, NEA was unable to use its resources to the fullest. A higher ratio usually indicates efficiency in the utilization of its available resources and vice-versa. From above derivation, it was found that NEA had failed consistently to generate cash from its resources. It also tells that NEA had a poor management and weak strategic source of property management.

D. Cash flow return on stockholders' equity ratio

This ratio shows the ability of the company to generate a sufficient cash return for stockholders. The ratio evaluates the amount of cash generation by utilizing stockholders' equity. It helps to ascertain the amount that it has to repay to its stockholders. Since there was only Nepal government's capital contibution in NEA and it is totally controlled by the government, profit is taken as a part of return.

Cash flow return on stockholders' equity ratio = $\frac{\text{Cash flows from Operation}}{\text{Average stockholders' equity}}$

Table no: 4.15

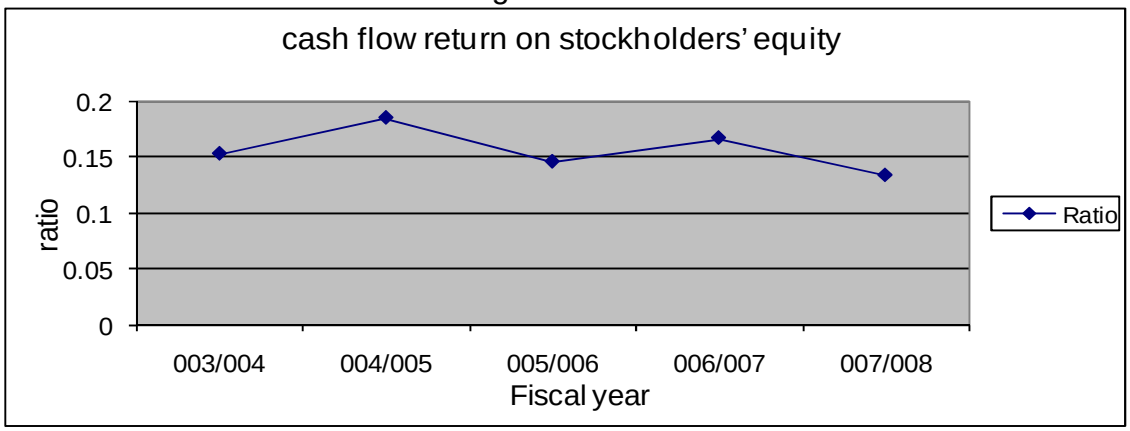
Cash flow return on stockholders' equity ratio

NRs. in million

Fiscal year	Cash flow from operation	Stockholder's equity	Ratio
003/004	2335.16	15218.16	0.15
004/005	2944.07	15867.66	0.19
005/006	2570.2	17567.78	0.15
006/007	3615.75	21579.46	0.17
007/008	2991.93	22300.11	0.13
Average			0.15

The above table it is observed that cash flow return on stockholders' equity was 0.15, 0.19, 0.15, 0.17 and 0.13 from the FY 2003/04 to the FY 2007/08 respectively. The average of cash flow return on stockholders' equity ratio was 0.15 that is 15% which means cash inflow on stockholders' equity was only 15%. NEA was not consistent in utilizing the available sources of fund so that it couldn't repay its stockholders. Since there was only government's capital contribution and it is totally owned by the government, government took cash instead of dividend. Above table signifies, NEA was inefficient to generate required cash. It can be presented with the following trend line:

Figure no: 4.17



The trend line of cash flow return on stockholders' equity shows the fluctuation in the ratio. That means NEA was not consistent in maintaining cash flow return on stockholders' equity as well.

4.9.3 Cash inflows to outflows ratio

Cash turnover ratio basically analyse the relation between total cash inflow and total cash outflow from operating, investing and financing activities overall. Higher the ratio higher will be the cash inflow and vice-versa.

$$\text{Cash turnover ratio} = \frac{\text{Cash Inflows}}{\text{Cash Outflows}}$$

It can be shown with the following trend line as:

Table no: 4.16

Cash inflow to outflow ratio

NRs. in million

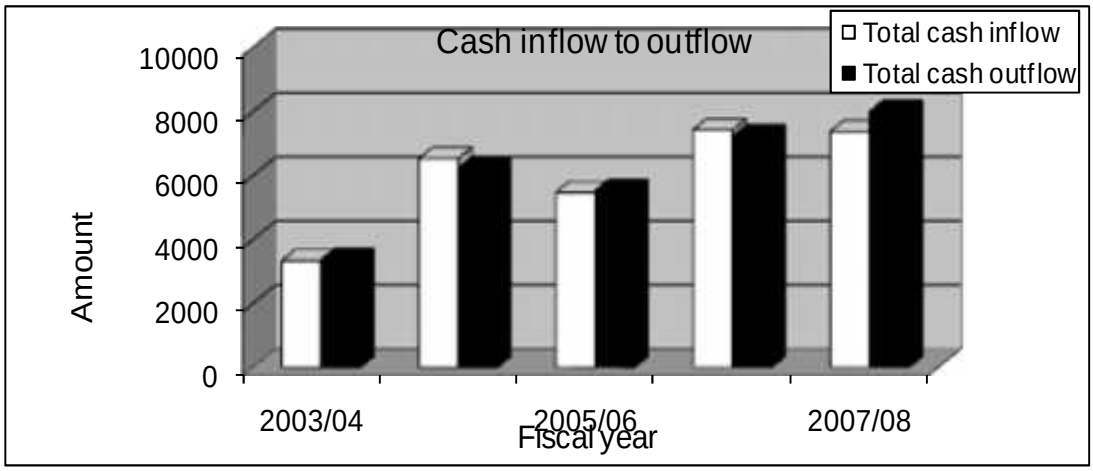
Fiscal year	Total cash inflow	Total cash outflow	Ratio
2003/04	3344.73	3384.46	0.98
2004/05	6542.44	6256.26	1.045
2005/06	5486.82	5550.82	0.99
2006/07	7443.2	7254.22	1.026
2007/08	7391.15	8017.89	0.92
Average			0.99

The above table, it is observed that the ratio of cash inflow to outflow is 0.98, 1.045, 0.99, 1.026 and 0.92 from the FY 2003/04 to the FY 2007/08 respectively. The ratio above one signifies cash inflow is greater than cash outflow but if the ratio is below one then there is cash outflow more than inflow. The average ratio of cash inflow and cash outflow was 0.99 which means cash inflows and cash outflows were almost in equal.

Here, cash inflow and outflow is taken from cash flow statement. Cash flow statement perfectly shows the sources and uses of the cash. From cash flow statement, it can said that what is source of cash and where it is being used. NEA had obtained cash inflow basically from operating activities and financing activities and cash was outflowed to investing activities. The reason behind obtaining cash from operating activities is operating profit and working capital. When working capital decreases i.e current assets decreases and current liabilities increases except cash, there is inflow of cash. Similarly, under financing activities, issue of shares and borrowing makes cash inflow. More cash was seen outflowed from investing activities. It is because to operate and expand services, an corporation had to purchase more plant and machinery as well as it had to invest in other hydro project too. Thus, there was cash outflow due to investment purpose.

The following diagram shows the proportion between cash inflow and outflow:

Figure no: 4.18



The above table and diagram shows there was likely equal proportion of cash inflow and outflow. That means, cash obtained from operating and financing activities were utilized in investing activities. In the FY 2003/04, 2005/06 and 2007/08, cash outflow was greater than cash inflow. It indicates, NEA used excess cash from cash and bank balance. In remaining years, cash inflow was a bit greater than cash outflow and excess cash inflow was added in cash and bank balance.

4.9.4 Cash flows liquidity ratio

This ratio is used to test the company's short-term debt paying ability. Short term debt refers to account payable, sundry creditors, bills payable etc.

$$\text{Here, Cash flow liquidity ratio} = \frac{\text{Cash flows from Operation}}{\text{Current liabilities}}$$

Table no: 4.17

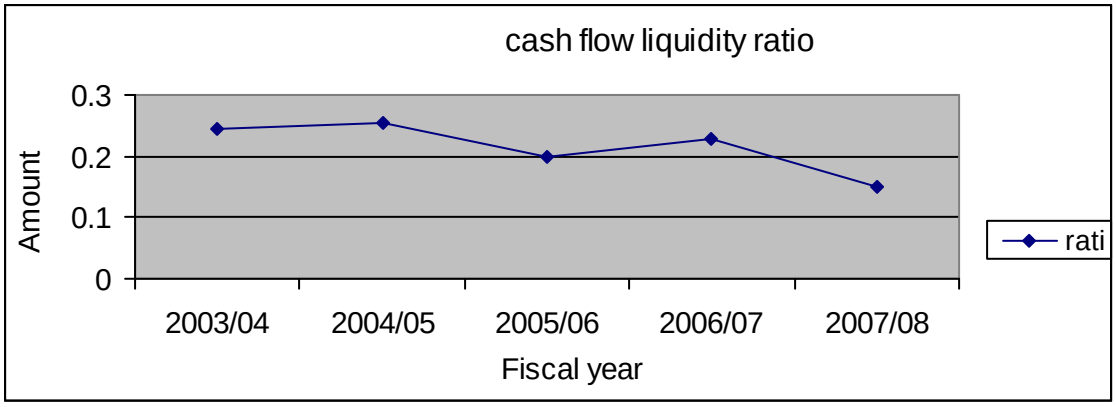
Cash flow liquidity ratio

NRs. in million

Fiscal year	CFOA	cash/bank balance	Current Liabilities	ratio
2003/04	2335.16	1036.42	13856.61	0.24
2004/05	2944.07	1322.6	16758.69	0.25
2005/06	2570.2	1258.6	19144.39	0.19
2006/07	3615.75	1447.58	22119	0.222
2007/08	2991.93	820.84	25617.71	0.14
Average				0.086

The above table shows the ability to pay short-term debt which identified very poor capacity. The average of the ratio was 0.086. Since, the ratio was observed positive which indicated that the company had ability to pay short-term debt to some extent but it was not satisfactory due to low liquidity ratio. Moreover the ratio was fluctuating which indicates NEA was not consistent in increasing its cash flow liquidity ratio. It can be shown with following trend line:

Figure no: 4.19



The above trend line shows the inability of NEA to pay its short term debt because the ratio fell below one. The ratio above one signifies the ability of NEA to pay its short term debt . So, the company should extend its operation effectively to generate more cash inflow and should maintain optimum cash and bank balance at the end of each year.

4.9.5 Cash Turnover Ratio

Cash turnover ratio is similar to cash flow on revenue ratio. Cash flow revenue ratio measures the company's ability to turn sales revenue into cash from operating activities where as cash turnover ratio measures the company's ability to turn sales revenue into cash and bank balance.

Here, Cash flow margin ratio = $\frac{\text{Cash and Bank Balance}}{\text{Sales}}$

Table no: 4.18

Cash turnover ratio

NRs. in million

Fiscal year	cash/bank balance	Sales	ratio
2003/04	1036.42	11874.7	0.08
2004/05	1322.6	12605.2	0.11
2005/06	1258.6	13331.9	0.09
2006/07	1447.58	14449.73	0.10
2007/08	820.84	15405.03	0.05
Average			0.86

The cash balance of the company should be optimum to meet its current obligations. The cash turnover ratio explains how quickly cash was recovered from sales.Higher ratio indicates the company's sound liquidity position and vice-versa. However, high ratio though considered as good, it also signifies excess cash balance held idle which decreases the opportunity to generate more cash.

The above table shows that NEA had fluctuating cash turnover ratio. Higher ratio was obtained in the fiscal year 2004/05 i.e 0.11 which indicates in that year more sales revenue turned into cash and lowest ratio was obtained in fiscal year 2007/08 i.e 0.05 which indicates NEA made more expenses and spent more cash on investment which ultimately result to lower cash and bank balance.

- **Statistical Tool**:

Table no: 4.19

Correlation between cash balance and sales

NRs. in million

Sales(X)	cash balance (y)	x = X-13331.9	xy	x^2	y^2
11874.7	1036.42	-1457.2	-1510271.224	2123431.84	1074166.416

12605.2	1322.6	-726.7	-961133.42	528092.89	1749270.76
13331.9	1258.6	0	0	0	1584073.96
14449.73	1447.58	1117.83	1618148.351	1249543.909	2095487.856
15405.03	820.84	2073.13	1701708.029	4297867.997	673778.3056
	$\sum y$= 5886.04	$\sum x$ = 1007.06	$\sum xy$ =848451.736	$\sum x^2$ = 8198936.636	$\sum y^2$ = 7176777.298

Here,

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 \, n\sum y^2 - (\sum y)^2}}$$

$$= \frac{5 * 848451.73 - 1007.06 * 5886.04}{\sqrt{(5 * 8198936.63 - (1007.06)^2)(5 * 7176777.29 - (5886.04)^2)}}$$

$$= \frac{-1685336.76}{6323.015 * 1112.843}$$

$$= -0.24$$

Since the value of r is -0.24, there is negative correlation between sales revenue and cash/bank balance. It means, higher the sales revenue lower will be the cash/bank balance. It might be due to more investment of cash.

4.10 Regression and Trend analysis

Above correlation had been used as a statistical tool to analyse the data. Here are some more statistical tools that are used in the study.

- **Regression:**

Regression is a statistical tools used to define relationship between two (or more) variables and to make estimation of one variable on the basis of the other variable(s). The closer the relationship between the two variables, the more accurate the estimated value is. The unknown variable to be estimated is called dependent variable and the known variable is called independent

variable. Correlation analysis indicates to what degree the variables are related and regression analysis indicates how the variables are related

- **Trend line:**

A series formed from a sequence of statistical data arranged in accordance with their time of occurrence is said to be a time series. Mathematically, a time series is defined by the functional relationship y=f(t) where y is the value of the variable under consideration in time t. The time t is taken yearly. *Trend line* is taken as an example of time series. The information in statement of cash flows also assists in prediciting the ability to generate future cash flows. Here an effort is made to find out the future cash flows of NEA for the F/Y 2003/04 to 2007/08. For this, cash from operating, investing and financing activities were calculated by fitting the straight trend line considering operating, investing and financing activities as dependent variable and sales revenue as independent variable.

4.10.1 Estimation of sales revenue using trend analysis

Fitting the trend line taking fiscal year (x) as independent variable and sales revenue (y) as dependent variable, future sales revenue can be predicted as follows:

Table no: 4.19

Trend analysis of sales revenue

NRs. in million

Fiscal year (X)	Sales revenue(y)	x=X-2006	xy	x^2
2004	11874.7	-2	-23749.4	4
2005	12605.2	-1	-12605.2	1
2006	13331.9	0	0	0
2007	14449.73	1	14449.73	1
2008	15405.03	2	30810.06	4
	∑y=67666.56	∑x =0	∑xy =8905.19	$\sum x^2$ =10

In the above table, the fiscal year 2004 refers to the FY 2003/04. Similarly, the FY 2005 refers the FY 2004/05, 2006 refers to 2005/06, 2007 refers to 2006/07 and 2008 refers to 2007/08.

The trend line of dependent variable sales revenue (y), and independent variable variable fiscal year (x) is expressed by,

Y = a + bx .....equation i

We know that,

$$b=\frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2}}$$

$$\mathbf{a} = \frac{\sum y}{n} - \frac{b\sum x}{n}$$

Now, $b=\frac{44525.95}{50} = 890.519$

again, $a=\frac{67666.56}{5} - \frac{890.519 * 0}{5} = 13533.312$

Now, substituting the value of a and b in equation i,

Y= 13533.312 + 890.519 x

The above trend line shows the sales revenue for the next year.

Thus, estimation of the sales revenue for the coming three years are:

1. For the FY 2009 (2008/09),

   x = X – 2006 = 2009 – 2006 = 3

   and,

   Y = 13533.312 + 890.519 * 3

   =16204.869

2. For the FY 2010 (2009/10),

   x = X – 2006 = 2010 – 2006 = 4

   and,

   Y = 13533.312 + 890.519 * 4

   = 17095.388

3. For the FY 2011 (2010/11),

   x = X – 2006 = 2011 – 2006 = 5

   and,

Y = 13533.312 + 890.519 * 5

= 17985.907

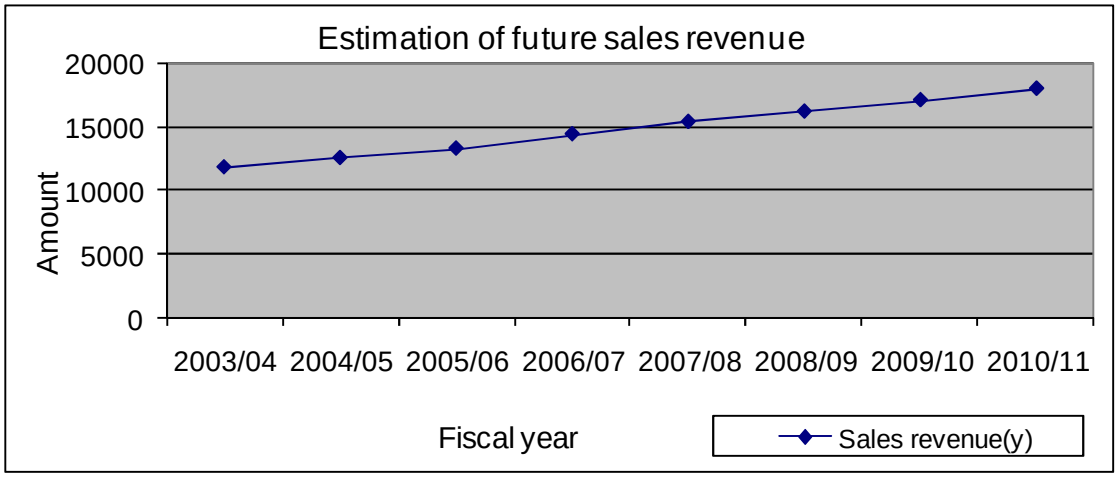
The above computation of future sales revenue can be shown with following table and trend line:

Estimated sales revenue

In Million

Fiscal year	Esimated sales revenue
2008/09	16204.86
2009/10	17095.38
2010/11	17985.90

Figure no: 4.20



The above trend line observes that sales revenue is in increasing trend in the future as well. But the most important fact it should be acknowledged about is, the above trend line is possible only when there is no any risk factors exists. Risk factors refers load shedding, strike etc. If there exists such a risk factors, then the above calculated future sales revenue will be difficult to achieve. In the present scenerio, NEA is suffering from 16hr of load shedding daily. In this context, it will be very difficult to get above mentioned revenue. Thus, it can said that, if all the risk factors do not exists then above trend of sales revenue can be achieved.

4.10.2 Estimation of CFOA using Regression analysis

Here, CFOA is directly dependent on revenue. Revenue is considered as independent variable and CFOA as dependent variable.

Table no : 4.21

Regression analysis of CFOA

NRs. in million

sales (X)	CFOA (Y)	x = X - 13331.9	y = Y - 2570.2	xy	x^2	y^2
11874.7	2335.16	-1457.2	-235.04	342500.288	2123431.84	55243.8016
12605.2	2944.07	-726.7	373.87	-271691.329	528092.89	139778.7769
13331.9	2570.2	0	0	0	0	0
14449.73	3615.75	1117.83	1045.55	1168747.157	1249543.909	1093174.803
15405.03	2991.93	2073.13	421.73	874301.1149	4297867.997	177856.1929
		$\sum x$ =1007.06	$\sum y$ = 1606.11	$\sum xy$ =2113857.23	$\sum x^2$ =8198936.636	$\sum y^2$ = 1466053.574

Here, no. of year (n) = 5

Mean, $\bar{x} = d1 + \frac{\sum x}{n}$

$= 13331.9 + \frac{1007.06}{5}$

$= 13533.312$

Mean, $\bar{y} = d2 + \frac{\sum y}{n}$

$= 2570.2 + \frac{1606.11}{5}$

$= 2891.422$

$$b_{yx} = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2}}$$

$$= \frac{5 * 2113857.23 - 1007.06 * 1606.11}{5 * 8198936.63 - (1007.06)^{\wedge} 2}$$

= 0.22

Now, Regression equation on y on x is,

$y - \bar{y} = b_{yx} (x - \bar{x})$

y - 2891.422 = 0.22 (x - 13533.312)

y = 0.22x – 85.907

From this equation it can be forecast the CFOA based on sales as follows:

1. For the FY 2008/09,

   x = sales = 16204.869 (From calculation of estimation of sales revenue)

   y = 0.22 * 16204.869 – 85.907

   = 3479.164

2. For the FY 2009/2010,

   X = sales = 17095.388 (From calculation of estimation of sales revenue)

   Y = 0.22 * 17095.388 – 85.907

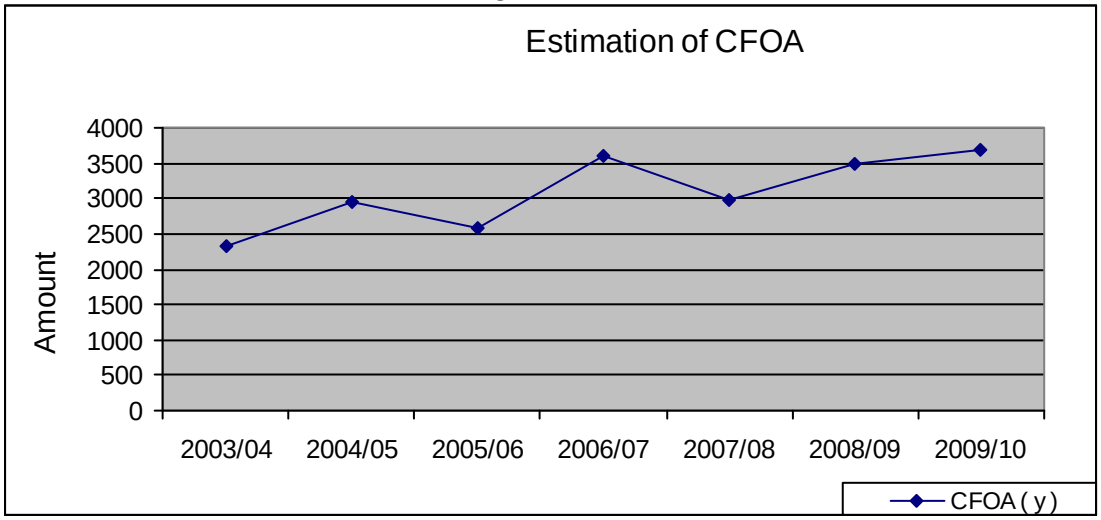
   = 3675.078

Above mentioned future CFOA can be shown with the following table and trend line:

Estimation of cash flows from operating activities

Fiscal year	Cash flows from operating activities
2008/09	3479.164
2009/10	3675.078

Figure no: 4.21



The above trend line showed that if all the risk factors do not exists, then the future CFOA would be Rs3479.164 million in the Fy 2008/09 and Rs.3675.078 million in the FY 2009/10.

4.10.3 Estimation of CFIA using regression analysis

Table no: 4.22

Regression analysis of CFIA

NRs. in million

sales (X)	CFIA (Y)	x = X - 13331.9	y=Y-(-6256.26)	xy	x^2	y^2
11874.7	-3384.46	-1457.2	2871.8	-4184786.96	2123431.84	8247235.24
12605.2	-6256.26	-726.7	0	0	528092.89	0
13331.9	-5550.82	0	705.44	0	0	497645.5936
14449.73	-7254.22	1117.83	-997.96	-1115549.627	1249543.909	995924.1616
15405.03	-8017.89	2073.13	-1761.63	-3652088.002	4297867.997	3103340.257
		$\sum x$ =1007.06	$\sum y$ = 817.65	$\sum xy$ =-8952424.589	$\sum x^2$ =8198936.636	$\sum y^2$ = 12844145.25

Here, no. of yr (n) = 5

Mean, $\bar{x} = d1 + \frac{\sum x}{n}$

$$= 13331.9 + \frac{1007.06}{5}$$

$$= 13533.312$$

Mean, $\bar{y} = d2 + \frac{\sum y}{n}$

$$= -6256.26 + \frac{817.65}{5}$$

$$= -6092.73$$

$$b_{yx} = \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2}}$$

$$= \frac{5 * 8952424.58 - 817.65 * 1007.06}{5 * 8198936.63 - (1007.06)^{\wedge}2}$$

$$= 1.10$$

Now, Regression equation on y on x is,

$y - \bar{y} = b_{yx} (x - \bar{x})$

$y - (-6256.26) = 1.10 (x - 13533.312)$

$y = 1.1x - 21142.90$

From this equation we can forecast the CFIA based on sales as follows:

1. For the FY 2008/09,

x = sales = 16204.869 (From calculation of estimation of sales revenue)

y = 1.1 * 16204.869 – 21142.90

= -3317.544

2. For the Fy 2009/2010,

X = sales = 17095.388 (From calculation of estimation of sales revenue)

Y = 1.1 * 17095.388 – 21142.90

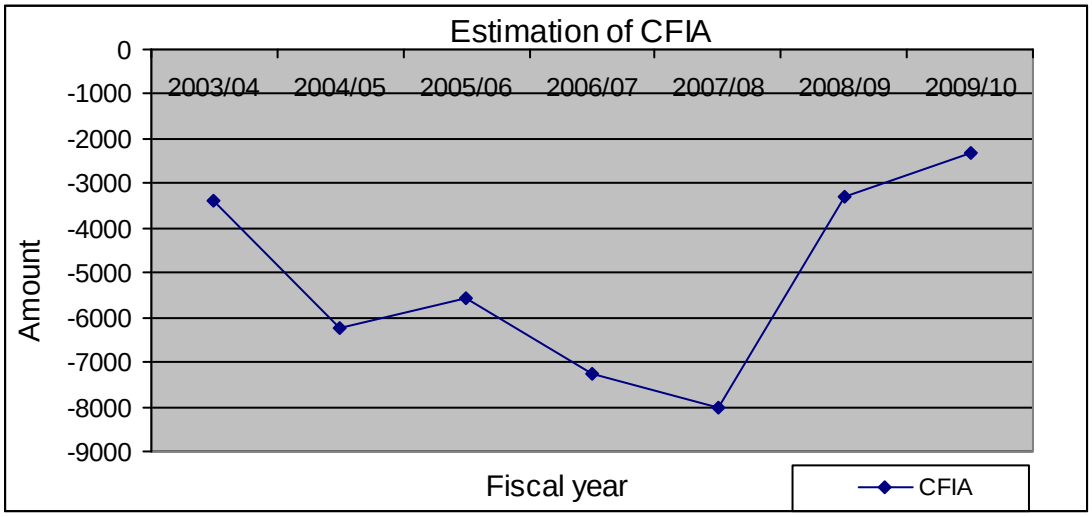
= -2337.97

The above computed future CFIA can be shown with following table and trend line:

Estimation of cash flow from investing activities

Fiscal year	Estimated CFIA
2008/09	-3317.54
2009/10	-2337.97

Figure no: 4.22



The above estimation and the trend lines observed that cash flow from investing activities in the Fy 2008/09 would be Rs.3317.544 million and in the Fy 2009/10 it would be Rs.2337.97 million. It indicates, the investment is likely going to be decreased in the coming years.

4.10.4 Estimation of CFFA using regression analysis

Table no: 4.23

Regression analysis of CFFA

NRs. in million

sales (X)	CFFA (Y)	x = X - 13331.9	y= Y- 2916.62	xy	x^2	y^2
11874.7	1009.57	-1457.2	-1907.05	2778953.26	2123431.84	3636839.703
12605.2	3598.37	-726.7	681.75	-495427.725	528092.89	464783.0625
13331.9	2916.62	0	0	0	0	0
14449.73	3827.45	1117.83	910.83	1018153.099	1249543.909	829611.2889
15405.03	4399.22	2073.13	1482.6	3073622.538	4297867.997	2198102.76

		∑x	∑y =	∑xy	$\sum x^2$	$\sum y^2$ =
		=1007.06	1168.13	=6375301.172	=8198936.636	7129336.814

Here, no. of year (n) = 5

Mean, $\bar{x}$ = d1 + $\frac{\sum x}{n}$

= 13331.9 + $\frac{1007.06}{5}$

= 13533.312

Mean, $\bar{y}$ = d2 + $\frac{\sum y}{n}$

= 2916.62 + $\frac{1168.13}{5}$

= 3150.246

$$byx = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2}}$$

$$= \frac{5*6375301.172 - 1168.13*1007.06}{5*8198936.636 - (1007.06)^2}$$

= 0.768

Now, Regression equation on y on x is,

$y - \bar{y} = b_{yx} (x - \bar{x})$

y – 3150.246 = 0.768 (x - 13533.312)

y = 0.768x -7243.338

From this equation it can forecast the CFFA based on sales as follows:

1. For the FY 2008/09,

   x = sales = 16204.869 (From calculation of estimation of sales revenue)

y = 0.768 * 16204.869 – 7243.338

= 5202.001

2. For the FY2009/2010,

X = sales = 17095.388 (From calculation of estimation of sales revenue)

Y = 0.768 * 17095.388 – 7243.338

= 5885.920

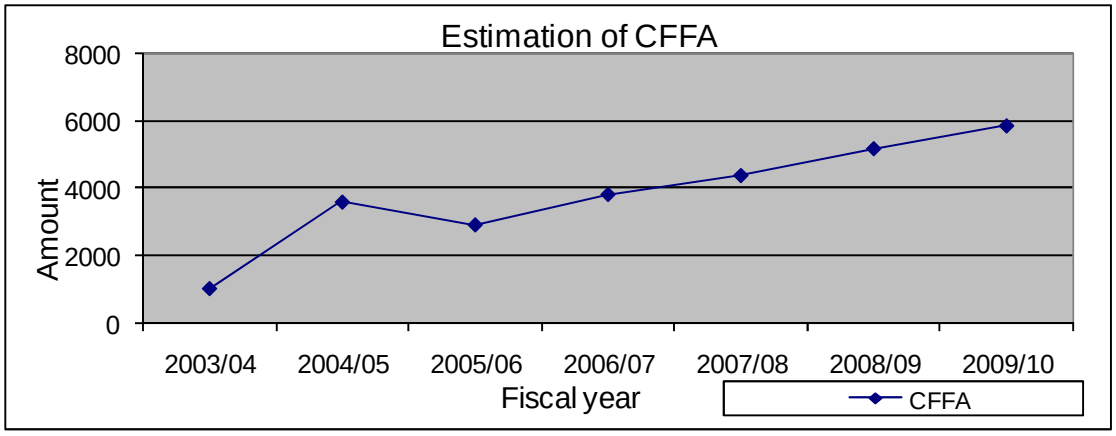
It is shown with the following table and trend line:

Estimation of cash flows from financing activities

In million

Fiscal year	Estimated Cash flows from financing activities
2008/09	5202.001
2009/10	5885.92

Figure no: 4.23



The above figure noted that cash flow from financing activities in the Fy 2008/09 would be Rs.5202.001 million and in the Fy 2009/10 would be Rs.5885.92 million. It signifies, more cash is going to be generated in the future from financing activities the thing that is to be noted is above value are determined without considering the risk factors. It excludes all the risk factors. Thus, if there exists any risk factors then above ascertained value might be changed.

4.11 Research hypothesis

Testing of hypothesis is one of the most important aspects in the theory of decision-making. It consists of decision rules required for drawing probabilistic inferences about the population parameters. Hypotheses are an assumption that is made about the population parameter and then its validity is tested. The act of verification involves testing the validity of such assumption which when undertaken based on sample evidence is called statistical hypothesis or testing of hypotheses or test of significance. In this section, it is best tried to create some hypothesis regarding cash flows and earning, so as it is tested. It is known fact that Karl's Pearson correlation co-efficient is not always reliable even if it shows perfectly significant because it doesn't consider surrounding risk. Due to some limitation occurs in correlation coefficient, it is best tried to guess research hypothesis and so being tested.

The following research hypotheses have been formulated in relation to the research questions.

4.11.1 Research Hypothesis 1:

- Past earnings have significant predictive power in analyzing cash flows of Nepal Electricity Authority.

Table of testing of research hypothesis-1

Table No: 4.24

Amount in Millions

Year	Revenue(x)	x=X-12654.82	x^2
2002/03	11,012.60	-1,642.22	2,696,886.52
2003/04	11,874.70	-780.12	608,587.21
2004/05	12,605.20	-49.62	2,462.14
2005/06	13,331.90	677.08	458,437.32
2006/07	14,449.73	1,794.91	3,221,701.90
	∑X=63,274.13	∑x=0.03	$\sum x^2$ =6,988,075.12

Here, n= 5,

u= RS.15154.26 million (From table no: 18 figures estimated for the FY 2008/09)

$\overline{X}$ = 15405.03 million, (provisional figure taken from income statement of NEA)

σ = 1182.20 million,

Where,n = sample size

u= mean of population (Budgeted)

$\overline{X}$ =sample mean

σ= standard deviation of population

Ho: u = 15154.26, that is population mean has significant value. In other words, there is no significant different between populations mean (derived from past earning) and sample mean. I.e. Past earnings have significant predictive power in analyzing cash flows of Nepal Electricity Authority

H1: u $\neq$ 15154.26 that is population mean is not equal to 15154.26. In other words, there is significant different between populations mean (derived from past earning) and sample mean. I.e. Past earnings doesn't have significant predictive power in analyzing cash flows of Nepal Electricity Authority

Test statistic: Under H0, the test statistic is

$$t = \frac{\overline{x} - u}{\sigma / \sqrt{n}} = 0.47$$

Hence, t=0.47

Degree of freedom (d.f) = n-1 = 5-1 = 4

The tabulated value of t for 4 d.f. for two tailed test at 5% level of significant is 2.776.Thus, the tabulated value $t_{0.05(4)}$=2.776

Decision: Since the calculated value of t i.e. t = 0.47 is lesser than tabulated value of t i.e. $t_{0.05(4)}$ = 2.776, it is not significant and ho is accepted. It means population mean has significant value. In other words, there is no significant different between populations mean (derived from past earning) and sample mean. I.e. Past earnings have significant predictive power in analyzing cash flows of Nepal Electricity Authority.

4.11.2 Research Hypothesis 2:

Past cash flows have significant predictive power in analyzing cash flows of Nepal Electricity Authority.

Table of testing of research hypothesis-2

Table No: 4.25

Amount in Millions

Year	CFO(x)	x=X-2910.93	x^2
2002/03	3,089.47	178.54	31,876.5316
2003/04	2,335.16	-575.77	331,511.0929
2004/05	2,944.07	33.14	1,098.2596
2005/06	2,570.20	-340.73	116,096.9329
2006/07	3,615.75	704.82	496,771.2324
	$\sum X$ =14,554.65	$\sum x$ =0.00	$\sum x^2$ =977,354.0494

Here, n= 5,

u=Rs.3334.49million (From table no: 22 figures estimated by regression equation for the FY 2008/09)

$\overline{X}$ = Rs2, 991.93million (mean of x)

σ = 315.21 million,

Where,

n = sample size

u= mean of population (Budgeted)

$\overline{X}$ =sample mean

σ= standard deviation of population

Ho: u = 3334.49, that is population mean has significant value. In other words, there is no significant different between populations mean (derived from cash flows) and sample mean. I.e. Past cash flows have significant predictive power in analyzing cash flows of Nepal Electricity Authority

H1: u $\neq$ 3334.49 that is population mean is not equal to 3334.49. In other words, there is significant different between populations mean (derived from past cash flows) and sample mean. I.e. Past cash flows doesn't have

significant predictive power in analyzing cash flows of Nepal Electricity Authority

Test statistic: Under H0, the test statistic is

$$t = \frac{\bar{x} - u}{\sigma / \sqrt{n}} = -2.4$$

Hence, t=2.4

Degree of Freedom (d. f) = n-1= 5-1= 4

The tabulated value of t for d.f. 4 for two tailed test at 5% level of significant is 2.776. Thus, the tabulated value $t_{0.05(4)}$ =2.776

Decision: Since the calculated value of t .i.e. /t/=2.4 is lesser than the tabulated value of t i.e. $t_{0.05(4)}$ =2.776, it is not significant and Ho is accepted. It means population mean has significant value. In other words, there is no significant different between populations mean (derived from cash flows) and sample mean. I.e. Past cash flows have significant predictive power

4.12 Major Findings

The major findings drawn after detail analysis of cash flow of NEA are presented below:

1. Analysis of cash flows from operating activities showed NEA had sufficient cash inflows to operate its daily activities.
2. Analysis of cash flows from investing activities showed NEA had excessive investment in underconstructed hydropower plant and nonperforming fixed assets.
3. Analysis of cash flows from financing activities showed that NEA had been dependent on long term loan and performed low repayment of debt.
4. Analysis of net cash flows showed that NEA hadn't maintained optimum cash balance.
5. Analysis of profit and loss showed NEA had been continously in loss for the study period.

6. NEA was suffering from loss except in 2006/07 as shown by income statement however, cash flow statement indicates there was cash inflow from operating activities. It is because, income statement includes non operating expenses where as cash flow statement excludes all such items.
7. Loss on sale of fixed assets, discount on issue of shares etc are non operating expenses. High amount of these expenses were reason for loss every year.
8. Studies of cash flow adequacy ratio of NEA showed it had average 2.012 ratio which means ability to produce cash flows from operating activities were 2.012 times higher than cash requirement for payment of debt and acquisition of assets.
9. Average ratio of debt coverage ratio was 23.07:1 which means total debt of NEA is 23.07 times higher than cash flows from operation.
10. Average ratio of repayment of borrowing ratio was 3.7 which means NEA had 3.7 times ability to repay its borrowing out its long term debt.
11. Average ratio of reinvestment ratio was 0.202 which means NEA had 20% capability to purchase its fixed assets out of its cash flows from operations.
12. Average of cash flow on revenue ratio was 0.212 which means cash outflow for operation was 78.8% of revenue.
13. There was positive and close relationship between sales and cash flows from operating activities which means if sales increases, cash flow from operating activities also increases.
14. Average ratio of cash flow to net income ratio was 0.72 which means cash inflow was partially possible despite of the net loss.
15. The correlation between net profit and cash flows from operation was highly positive and significant which means if profit increase, then cash flow from operation is also increase.
16. Average ratio of cash flow return on assets ratio was 0.069 which means cash inflow from utilisation of its assets was only 6.9%.
17. Average ratio of cash flows return on stockholders' equity ratio was 0.158 which means cash inflows on stockholders was only 15.8%.

18. Average ratio of cash inflow and cash outflow was 0.99 which means cash inflows and cash outflows were almost in equal.
19. Average ratio of cash flow liquidity ratio was 0.208 which means NEA's ability to pay short term debt was only 20% of total current liability.
20. Average ratio of cash turnover ratio was 0.086 which means cash generated out of sales was only 8%.
21. Past earnings of NEA have significant predictive power in analyzing cash flows.
22. Past cash flows of NEA have significant predictive power in analyzing cash flows.

Chapter – 5
Summary, Conclusions and Recommendations

5.1 Summary

NEA is one of the largest public monopoly organization of Nepal. It had been supplying electricity for decade. NEA had been trying to improve itself as a capable institution by investing into new hydroplant across the country.

For effective performance, NEA needs to generate sufficient amount of cash which is considered as the lifeblood of business enterprise. Without cash no activities can take place. So the business must have an adequate amount of cash to operate. It is also important to know the cash position of the firm and to know the cash position, it is important to analyze cash flow of the firm. Cash flow studies provide useful information to evaluate a firm's ability to use sufficient cash in both short term and long term basis. It is the analysis of events and transactions that affects the cash position of company. Cash flow studies were done through statement of cash flows. The cash flow statement is the accounting report that provides information about cash receipts, cash payments and net change in cash balances during the period. The main objective of the cash flow statement is to convey information about the cash receipts and cash payments of an enterprise during the accounting period, It is important and useful to every firm, short and long term creditors, investors and management.

The balance sheet, income statement and retained earnings statement do not always show the whole financial condition of a company. The balance sheets show the variety of assets owned by a company and the manner in which they were financed at the end of period but the source of activity related to those items during the period are not provided. Also profit in the income statement does not reflect an increase in cash. Moreover, the profitability and financing issues are reported separately on income statements and balance sheets respectively. This causes misleading and confusing results to users. That is why, it is important to prepare cash flow statement to ascertain true and fair

figure of cash inflow and outflow and important to analyse it to find out the actual cash position of the organization.

For the purpose of conducting this study, data covering from the FY 2003/04 to 2007/08 were used. Cash flow statements for every fiscal year were prepared to find out cash inflow and outflow from operating, investing and financing activities. From cash flow statement, it was observed that net cash from operating and financing activities were positive and due to more investment in plant and equipment, net cash from investing activities were negative. Furthermore various cash flow ratios and statistical tools were used to evaluate cash. The cash and bank balances of NEA was not satisfactory during the study period. The corporation was not able to generate sufficient cash inflows from its operating activities. The amount of net cash provided by operation was not adequate to support the planned business operation and capital expenditure. Due to poor cash inflows from operating activities, the company had depended on long-term borrowing and unsecured borrowing . The company had paid huge amount of interest due to more long-term debt. So, the company needed to change its strategies and replace its high interest rate of debt by lower interest rate of debt. On the other hand it could call the money by issuing shares to the public which will reduce debt and interest. Due to inefficiency of generating sufficient operating cash flow and more investing in fixed assets with a lower rate of return, it was unable to pay both the short term and long-term debt. During study period, it was observed that NEA had been facing many problems such as more amount of account receivable, less utilization of capacity, power loss etc. which were the major causes of low profit. If it can be properly controlled , then there would be more profit.

5.2 Conclusions

After analyzing cash flow of NEA, the following conclusions are made:

Though income statement of NEA showed loss figure, cash flow statement showed NEA had been achieving operating profit. It was because income statement included non operating expenses while cash flow statement excluded such expenses. NEA was not fully able to convert its revenue into

cash.It was not consistent in generating cash from revenue because it was found that non operating expenses had been increasing every year corresponding to decreasing operating income. Electricity leakage, theft and wastage was one of the remarkable problem of NEA which reduced earning capacity of the authority. NEA was not able to generate adequate amount of cash from operating activities to pay its total debt but to some extent it was able to improve its minimum cash position. It was so because NEA was unable to use its resources to the fullest capacity. NEA had a poor management and strategic policy. Due to weak control over purchasing of fixed assets, total assets had been increasing but cash flows from operating activities were not increasing proportionately which indicates return from its total assets was not satisfactory. NEA had maintained positive cash flow from operating activities but it was fluctuating. Likewise,the accumulated amounts of account receivable which was increasing year by year denotes the inefficiency of the authority to collect its revenue in time. NEA had invested its huge amount of cash purchasing property, plant and equipment. NEA had high amount fixed assets but the return from it is very low. Cash flow adequacy ratio indicates that the corporation was able to generate enough cash to acquire assets. Proportion of borrowing of loan by NEA was very high than repayment of borrowing of loan. NEA was very much dependent on foreign loans to pay its local debt and interest. Therefore, its long term loan had been increasing every year. So, there was enough cash inflow from cash flow from financing activities. On the other hand, NEA had ability to pay short-term debt to some extent but it was not satisfactory due to low liquidity ratio. Ultimately it can be concluded that NEA didn't maintain long run planning and policy regarding financing and investment. That is why, long-term debt of was increasing and in other hands it failed to invest where there would be high return. NEA was holding cash inconsistently and utilizing it improperly. There was very fluctuation in handling the cash which might not be in the favor of the corporation. The coperation was not holding optimum level of cash balance at the end of each year. Shortage of cash may provide difficulties in operation of the services and excessive cash contribute nothing to the profit since idle cash earns nothing

Increasing trend of cost in every fiscal year was another remarkable point for NEA. It hadn't adopted the cost control measures.NEA failed to analysis its strengths, weakness, opportunities and threat deeply though it has been facing competition from independent power producers and it had not yet made assessment of its present prospects and future potentiality seriously. Though NEA had monopoly market, it was not able to achieve high return on its goal due to due to unstable government and political interference of Nepal government.

5.3 Recommendations

After the datail analysis of cash flow of NEA, the following recommendation can be made:

1. The balance sheet and income statement are not able to show cash inflows and outflows of the corporation. That is why, it is important to prepare cash flow statement to ascertain true and fair figure of cash inflows and outflows.
2. Cash sufficiency wasn't satisfactory. NEA has a low capability to repay its borrowing. Assets acquisition was over hauled. Beacause of excessive cash outflow, NEA's cash position was very weak. To maintain cash sufficiency , NEA should give first priority in collecting its receivable. Collection policy should not be affected by political pressure.
3. To control cash inflow from revenue, leakage of electricity should be controlled.
4. Purchase of assets was the main aspect of cash outflow. NEA should stress on overhauled acquisition of assets and emphasized on efficient utilization of its assets. NEA should develop and apply capital budgeting technique to control it. NEA should do a complete package of fesibility studies of project and evaluate with alternative before making capital investment.
5. NEA relied on loan instead of its internal source of finance. Interest on loan had been overdued. NEA's capability of repayment of its borrowing was signifiactly low. NEA should focus on its internal source of finance than collecting loan from outsiders.

6. NEA is in loss. Excess of non operating expenses were reason behind this. Controllable expenses should be controlled strictly.NEA should control its expenses on the basis of allocated budgeted through out the year.
7. Most of capital investment of NEA came from long term loan. Timely completion of underconstructed project is highly recommended to repay its loan.
8. Cash flows return were inefficient. Cash generated out of net profit was almost negative. To control cash return on net profit, it is utmost required to control administrative and distributive expenses.
9. Cash flows return on assets and stockholders' equity were very low. It might affect investors' decision.
10. Cash liquidity was poor. To control it, payable to creditors must control.
11. Past earning and cash flows have predictive power to predict future cash flows. There fore, the concerned authority must have a knowledge of past earning and cash flows to operate future cash flows.

BIBLIOGRAPHY

A. Books

Bajracharya, B.C. (2057 BS). **Business Statistic and Mathematics.** Kathmandu: M.K publishers and Distributors.

Dangol, Ratna M. (2001 AD). **Accounting for Financial Analysis and Planning.** Kathmandu:Taleju Prakashan.

Dangol, Ratna M. and Dangol Jeetendra (2061BS). **Management Accounting.** Kathmandu: Taleju Prakashan.

Henderson, S. & Peirson, G. (1994 AD). **Issues in Financial Accounting.** Longman, Australia

Joshi, Shyam (2060 BS). **Economic Policy Analysis**. Kathmandu: Taleju Prakasan .

Pandey, I.M. (1999 BS). **Financial Management**. New Delhi: Vikash Publishing House Private Limited.

Sharma, P.K. and Chaudhary, A.K. (2003 AD). **Statistical Methods.** Kathmandu: Khanal Books Prakashan.

Thapa, Kiran and Koirala Narayan (2062 BS). **Corporate Finance Management.** Kathmandu: Kanal Books and Stationary.

Van Horne, James C. (1997 AD). **Financial Management and Police.** New Delhi: Prentice Hall of India Private Limited.

Welsch, Glenn A., Hilton, R.W. and Gorden, Paul (1992 AD), **Budgeting: Profit Planning and Control.** Delhi: Prentice Hall of India.

Weston, J. Fred and Brigham, Eugene F. (1973 AD). **Essentials of Managerial Finance.** Illionis: the Dryden Press.

Weston, J. Fred and Copeland, T.E (1975 AD). **Managerial Finance**. Illionis: the Dryden Press.

B. Unpublished Master level thesis

Bhattarai, Dilli Ram (2002). **Profit planning in Nepal Electricity Authority**. A thesis submitted to Faculty of Management, Shanker Dev Campus in partial fulfillment of requirements for the degree of Master of Business studies.

Chotkunakitti, Porntip (2005). **Cash Flows and Accrual Accounting in Predicting Future Cash Flows of Thai Listed Companies**. A thesis submitted to the Graduate College of Management of Southern Cross University, Australia, in partial fulfillment of the degree of Doctor of Business Administration.

Koirala, Geha Nath (2006). **Managerial Budgeting as the tool of increasing efficiency of public enterprises (A case study of Nepal Electricity Authority).** A thesis submitted to Faculty of Management, Shanker Dev Campus in partial fulfillment of requirements for the degree of Master of Business studies.

Shahi, Mahendra Jung (2007). **An analysis of revenue collection of Nepal Electricity Authority**. A thesis submitted to Faculty of Management, Nepal Commerce campus in partial fulfillment of requirements for the degree of Master of Business studies.

Sharma, Badri Nath(2005). **Profit planning in Nepal Electricity Authority**. A thesis submitted to Faculty of Management, Nepal Commerce Campus in partial fulfillment of requirements for the degree of Master of Business studies.

Thapa, Ghana Shyam(2004). **Profit planning in Nepalese Enterprise: A case study of Nepal Electricity Authority**. A thesis submitted to Faculty of Management, Nepal Commerce Campus in partial fulfillment of requirements for the degree of Master of Business studies.

C. Reports, Journals and Periodicals

Hugus, R.J. **"Towards a power sector strategy**".

Institute of chartered accountant of Nepal (NAS 3). Mandatory compliances.

Jedry, E. Glodress and Roger, W. Chiston. **Management in Crises Management.** Review of American Management Association.

Nepal Electricity Authority**. Annual Reports**. FY 2003/04 to 2007/08

Shrestha, Arjun P. **"Hydropower in Nepal issues and concept of development".**

Thapa, Bheka B. & Pradhan,Bhart B**, "Water resources development; Nepalese perspective"**, published report.

World Bank **"Nepal Power Subsection Review".**

D. Website

www.nea.org.np

www.google.com.np

www.wikipedia.com

Appendix-1

Nepal Electricity Authority Balance sheet as of July 2003/04 to July 15, 2007/08					
					(NPRs in Million)
Particular	2004/03	2005/04	2006/05	2007/06	2008/07
Capital and liabilities					
Share Capital	18,215.85	20,161.80	23,113.10	26,382.18	28,414.99
Accumulated Profit	(3475.20)	(4808.00)	(6095.80)	(5801.61)	(7133.77)
Other loan	477.51	513.86	550.48	998.89	1018.89
Secured Long Term Loan	41,103.14	44,537.51	46,487.91	47,616.15	52,762.18
Grand Total	56,321.30	60,405.17	64,055.69	69,195.61	75,062.29
Asset					
Property, Plant, And Equipment	51,415.14	52,166.56	51,743.38	51,781.76	52,294.10
Capital Work-in Progress	10,619.55	16,060.40	21,991.50	29,145.19	35,930.74
Investment	713.01	777.00	819.90	882.05	1,602.05
Sub total	62,747.70	69,003.96	74,554.78	81,809.00	89,826.89
Current Asset					
Inventories	1,048.01	1,372.70	1,354.80	1,498.45	1,518.45
Sundry Debtors and Other Receivable	3,735.71	3,697.70	4,088.00	5,151.41	6,776.70
Cash and Bank Balance	1,036.42	1,322.60	1,258.60	1,447.58	820.84
Prepaid , Advance, Loan and Deposits	2,063.27	2,098.60	2,293.90	2,225.53	2,275.47
Total Currents Assets	7,883.41	8,491.60	8,995.30	10,322.97	11,391.46
Less: Current Liabilities and Provision					
Sundry Creditors and payables	13,856.61	16,768.69	19,144.39	22,119.00	25,617.71
Provision	681.48	697.70	709.80	693.13	813.13
Total Current Liabilities and Provision	14,538.09	17,466.39	19,854.19	22,812.13	26,430.84
Net Currents Assets	(6,654.68)	(8,974.79)	(10,858.89)	(12,489.16)	(15,039.38)
Deferred Expenditures (to be written off)	250.01	126.70	32.40	130.94	60.00
Inter Unit Balance(net)	(21.73)	249.30	327.40	(255.17)	214.78
Total Def. Exp and Inter	228.28	376.00	359.80	(124.23)	274.78
Grand Total	56,321.30	60,405.17	64,055.69	69,195.61	75,062.29

Appendix-2

Nepal Electricity Authority					
Income Statement For the FY ending July 2003/04 to July 15, 2007/08					
					(NPRs in Million)
Particular	2004/03	2005/04	2006/05	2007/06	2008/07
Sales	11874.70	12605.20	13331.90	14449.73	15405.03
Less: Cost of Sales	6765.40	7462.40	8332.70	9034.56	9929.85
Generation(Inc Power Purchase)	6565.90	7246.50	8100.60	8793.68	9626.57
Transmission	199.50	215.90	232.10	240.88	304.28
Gross profit	5109.30	5142.80	4999.20	5415.17	5475.18
Add: Other Income	671.40	617.50	639.90	1016.61	655.24
Less: Distribution expenses	1376.10	1484.20	1703.70	1834.39	1947.42
Less: Administrative expenses	489.10	622.40	419.50	479.59	576.14
Add/less :(Other Income)/misc exp	344.90	219.90	(297.20)	(47.44)	50.00
Profit from operation	3570.60	3433.80	3813.10	4165.24	3556.86
Less: Interest	2991.50	3079.80	3050.90	2385.41	2368.41
Depreciation	1686.00	1733.50	1816.90	1856.47	1920.00
(Profit) Loss On foreign Exchange	59.10	(230.00)	42.70	(493.39)	480.61
Provision for losses on Property, plant & equipment		40.00	65.00	60.00	30.00
Deferred revenue expenditure written off	320.10	123.30	105.40	42.56	70.00
Sub total	5056.70	4746.60	5080.90	3851.05	4869.02
Profit (Loss) from operation in the current year	(1486.10)	(1312.80)	(1267.80)	314.19	(1312.16)
Less: Provision for tax	274.20				
Net Profit (Loss) after tax	(1760.30)	(1312.80)	(1267.80)	314.19	(1312.16)
Balance of the profit as per last account	(1694.90)	(3475.20)	(4808.00)	(6095.80)	(5801.61)
Total profit available for appropriation	(3455.20)	(4788.00)	(6075.80)	(5781.61)	(7113.77)
Insurance fund	20.00	20.00	20.00	20.00	20.00
Profit (Loss) transferred to balance sheet	(3475.20)	(4808.00)	(6095.80)	(5801.61)	(7133.77)

Appendix-3

Nepal Electricity Authority Cash Flow Statement for year ending FY July 2003/04 to July 15, 2007/08 (NPRs in Million)						
A	Cash Flow from operating activities	2004/03	2005/04	2006/05	2007/06	2008/07
	Net Profit/(Net loss) after Tax	(1,760.30)	(1,312.80)	(1,267.80)	314.19	(1,312.16)
Add:	Depreciation	1686.00	1733.50	1816.90	1856.47	1920.00
Add:	(Profit) Loss On foreign Exchange	59.10	(230.00)	42.70	(493.39)	480.61
Add:	Provision for losses on Property, plant & equipment		40.00	65.00	60.00	30.00
Add:	Deferred revenue expenditure written off	320.10	123.30	105.40	42.56	70.00
A.1	CF from OA before changes in working capital	304.90	354.00	762.20	1,779.83	1,188.45
A.2	(Increase)Decrease In Current Assets					
	Inventories	(30.79)	(324.69)	17.90	(143.65)	(20.00)
	Sundry Debtors and Other Receivable	(355.51)	38.01	(390.30)	(1,063.41)	(1,625.29)
	Prepaid , Advance, Loan and Deposits	153.64	(35.33)	(195.30)	68.37	(49.94)
A.2	Total	(232.66)	(322.01)	(567.70)	(1,138.69)	(1,695.23)
A.3	Increase(Decrease) in current liabilities					
	Sundry Creditors and payables	2,262.92	2,912.08	2,375.70	2,974.61	3,498.71
A.3	Total	2,262.92	2,912.08	2,375.70	2,974.61	3,498.71
A	Cash flow from operating activities (A.1+A.2+A.3)	2,335.16	2,944.07	2,570.20	3,615.75	2,991.93
B	Cash flow from Investing activities					
	Property, Plant, And Equipment Purchased	(1,320.39)	(751.42)	423.18	(38.38)	(512.34)
	Capital Work-in Progress Done	(1,964.07)	(5,440.85)	(5,931.10)	(7,153.69)	(6,785.55)
	Investment made	(100.00)	(63.99)	(42.90)	(62.15)	(720.00)
B	Cash flow from Investing Activities	(3,384.46)	(6,256.26)	(5,550.82)	(7,254.22)	(8,017.89)

C	Cash Flow From Financing Activities					
	Share issued	1,238.98	1,945.95	2,951.30	3,269.08	2,032.81
	Long term loan taken	1,466.03	3,434.37	1,950.40	1,128.24	5,146.03
	Repayment of Borrowing	(1,747.92)	(1,818.30)	(2,021.70)	(1,018.28)	(2,799.62)
	Other loan taken	52.48	36.35	36.62	448.41	20.00
C	Cash Flow From Financing Activities	1,009.57	3,598.37	2,916.62	3,827.45	4,399.22
D	Total cash generated in the year (A+B+C)	(39.73)	286.18	(64.00)	188.98	(626.74)
E	Cash at the beginning of the year	1,076.15	1,036.42	1,322.60	1,258.60	1,447.58
F	Cash & cash equivalent at end of the year (D+E)	1,036.42	1,322.60	1,258.60	1,447.58	820.84