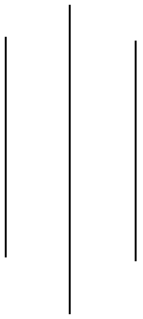
A CASE STUDY ON CASH FLOW AND RATIO ANALYSIS OF NEPAL ELECTRICITY AUTHORITY



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RECOMMENDATION

This is to certify that the thesis:

Submitted by

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Entitled

A Case Study on Cash Flows and Ratio Analysis of

Nepal Electricity Authority

Has been prepared as appeared by this department in the prescribed format of faculty of Management. This thesis is forwarded for examination.

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DECLARATION

I hereby declare that the work reported this thesis entitled **A Case Study on Cash Flows and Ratio Analysis of Nepal Electricity Authority**, submitted to Office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirements for the Master's Degree of Business Studies (MBS) under the Supervision of Mr. Rajan Bilas Bajracharya of Peoples's Campus, Tribhuvan University.

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Sanam Makaju

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LIST OF ABBREVIATION

GoN = Government

CFFA = Cash from Financing Activities

CFIA = Cash from Investing Activities

CFO = Cash from Operation

CFOA = Cash from Operating Activities

FFO = Fund from Operation

FY = Fiscal Year

MW = Mega Watt

NEA = Nepal Electricity Authority

NO. = Number

NRs = Nepalese Rupees

P.E. = Probable Error

S.D. = Standard Deviation

T.U. = Tribhuvan University

IPPs = Independent Power Producers

CL = Current Liabilities

CHAPTER -1
INTRODUCTION

1. Introduction of the study

This study will provide an overview of Nepal Electirity Authority. It will additionally contain generalize vision of Nepal Electicity past and comparable operational functions. The discover is aimed to investigate and scrutinize the cash flow arrangement of Nepal Electricity Authority. Cash flow analysis is an vital task as it helps to forecast upcoming cash flow and is encompassed in assorted commercial decisions.

Some research has concluded that the predictive ability of earnings outperforms that of cash flows in forecasting future cash flows. They concluded that every single accrual constituent imitated disparate data associating to upcoming cash flows. Moreover, most research has possesses concentrated barely on working cash flow, paycheck and accrual constituents of earnings. Those preceding studies possess flouted the possible of supplementary cash flow variables, chiefly cash flow ratios. Cash flow ratios are computed by employing data from both the cash flow statement coordinated on a cash basis and the income statement and balance piece established on the accrual basis. A cash flow ratio is a instrument for analyzing a firms' performance.

1.1 Background of the Study

Most of the researchers have estimated cash flows by adjusting income from income statements, whereas little research has used actual cash flow data from cash flow statement. To analysis cash flow, cash flow data directly derived from statements of cash flow should be taken. To investigate the usefulness of the cash flow statement, the cash flow data employed in research analysis should be directly derived from the cash flow statements instead of proxy cash flow measures calculated by using data from accrual based statements. Here, for the analysis and examine the cash flow of NEA, actual data from cash flow statement of NEA is obtained. NEA is one of the largest public enterprises in Nepal. It deals with generating and supplying of electricity.

The development of electricity in Nepal has been basically based on the development of hydropower. The development of this infrastructure has been essentially carried by the government but the private sector has recently also contributed and set

qualitatively important footing in this sector. There has been several government organizations through which the development has been co-ordinated.

1.2 An overview of Nepal Electricity Authority (NEA)

During the sixth five year plan (1980-1985), the government established Nepal Electricity Authority by introducing new corporation policy with the vision to boost up performance of public enterprises. Nepal Electricity Authority was established under the Nepal Electricity Authority Act 2041. Nepal Electricity Authority started its operations on 17th August 1985 (Bhadra 1, 2042) through the merger of the Department of Electricity of Ministry of Water Resources, Nepal Electricity Corporation and related Development Boards. Nepal Electricity Authority is responsible to generate and supply of electricity securely, efficiently, economically, and legally at reasonable price for the development of the nation.

The objectives of Nepal Electricity Authority are planning, construction, operation and maintenance of the electric power sub sector. Nepal Electricity Authority should ensure the availability of the resources necessary for the development of electricity supply by the most efficient and effective manner.

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 both interconnected and isolated.

1.2.1 Responsibility

In addition to achieving above primary objective, NEA's major responsibilities are

a. To recommend to Government of Nepal, long and short-term plans and policies in the power sector.
b. To recommend, determine and realize tariff structure for electricity consumption with prior approval of Government of Nepal.
c. 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

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

Table 1. Board of Directors of NEA

S. No.	Management of NEA	Board of Directors
1.	Honorable Minister, Minister of Energy	Chairman
2.	Secretary, Ministry of Energy GoN	Member
3.	Secretary, Ministry of Finance GoN	Member
4.	One prominent person from commerce, Industry or financial sector	Member
5.	One person from consumers group	Member
6.	Two prominent persons with experience in power sector from outside government	Member
7.	Managing Director, NEA	Member Secretary

Noted from: NEA Report

1.2.3 Corporate structure of Nepal Electricity Authority

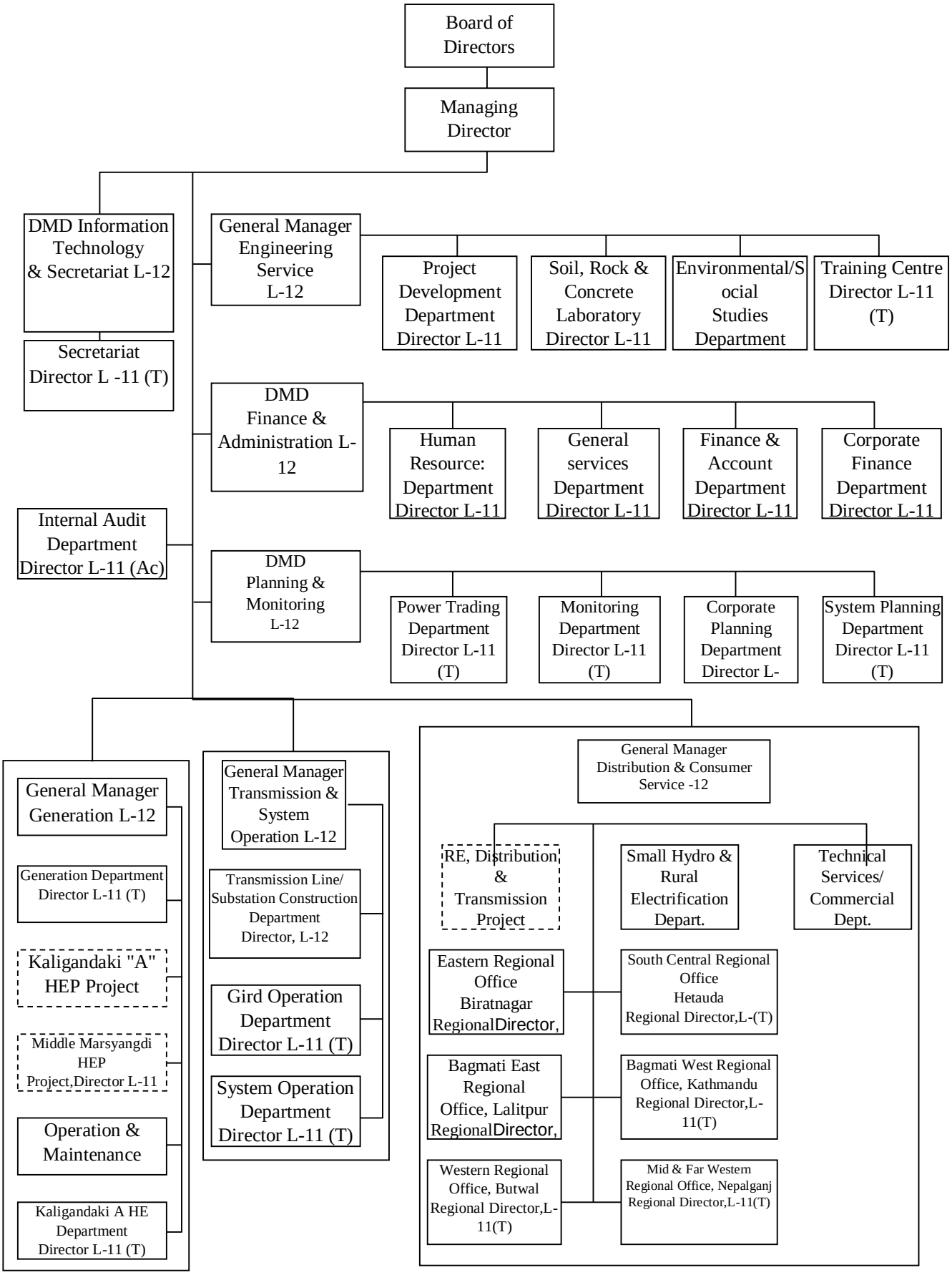

Figure 1. The Chart of Corporate structure of Nepal Electricity Authority

1.2.4 Present Performance

In FY 2018/19, NEA presently serves 3,909,641 customers (an increase of 10.09 percent over the last fiscal year). The number of electricity consumers of NEA has been increasing gradually over the years. The total number of consumers increased by 9.38 percent from 3.57 million to 3.91 million during the year under review. As has been in the past, the domestic consumer category with 3.66 million consumers remained the largest category with 93.56 percent share of the entire electricity consumers. Domestic and industrial consumer category contributed 37.69 percent and 39.95 percent to the gross electricity sales revenue respectively. Rest of the consumer category accounted for the remaining 22.36 percent of the gross sales revenue. The total population with access to grid electricity has reached about 78 percent in FY 2018/19. NEA's hydropower plants including small power stations generated a total of 2,548.11 GWh of electricity in FY 2018/19, an increase by 10.39 percent over the generation of 2,308.37 GWh in FY 2017/18. This is the all-time record high generation in NEA's history even though Kaligandaki A Hydroelectric Power Station (144 MW) had undergone plant shutdown for 10 days and unit shut down for 24 days for maintenance work in the months of October/November in the fiscal year under review. The total power purchased from Independent Power Producers (IPPs) within Nepal was 2,190.05 GWh, an increase by 1.03 percent from the figure of 2,167.76 GWh in the FY 2017/18. To meet the ever increasing demand, additional power had to be imported from India. The total energy imported from India was 2,813.07 GWh as compared to 2,581.80 GWh in FY 2017/18, an increase by 8.96 percent. The total energy available in NEA's system increased by 6.99 percent to 7,551.23 GWh over the corresponding figure of 7,057.93 GWh in FY 2017/18. Out of the total available energy, NEA's own generation contributed 33.75 percent, whereas those imported from India and domestic IPPs accounted for 37.25 percent and 29 percent respectively. Total energy consumption in FY 2018/19 was 6,394.38 GWh, an increase by 13.89 percent over the corresponding figure of 5,614.59 in the FY 2017/18. Annual system load factor has increased from 53.43 percent in FY 2017/18 to 65.29 percent in FY 2018/19. A nationwide drive launched a few years ago to reduce system losses continued unabated in the last fiscal year as well. This has produced remarkable results with the system loss shrinking to 15.32 percent in the FY 2018/19 over the previous figures of 25.78 percent, 22.90 percent and 20.45 percent in the FYs 2015/16, 2016/17 and 2017/18 respectively. The efforts to bring it down to the least possible figure will continue in the years ahead.

1.2.5 Available Energy and Peak Demand

The capacity balance at the time of system peak up to FY 2018/2019 incorporating the planned projects as given in the Generation Expansion Plan is presented in Table 2.

Table 2. Total Available Energy and Peak Demand

Particular	2011	2012	2013	2014	2015	2016	2017	2018	2019*
Peak Demand (MW)	946.10	1026.65	1094.62	1200.98	1291.10	1385.30	1444.10	1508.16	1320.28
NEA Hydro Generation	2122.08	2357.43	2273.11	2288.23	2366.88	2133.14	2305.17	2308.24	2547.99
NEA Thermal Generation	3.40	1.56	18.85	9.65	1.24	0.08	0.28	0.13	0.12
NEA Generation Total (GWh)	**2125.48**	**2358.99**	**2291.96**	**2297.88**	**2368.12**	**2133.22**	**2305.45**	**2308.37**	**2548.11**
Power Purchase from India	694.05	746.07	790.14	1318.75	1369.89	1777.68	2175.04	2581.80	2813.07
Power Purchase from IPPs	1038.84	1073.57	1175.98	1070.47	1268.93	1166.24	1777.24	2167.76	2190.05
Power Purchase Total (GWh)	1732.89	1819.64	1966.12	2389.21	2638.82	2943.92	3952.28	4749.56	5003.12
Available Energy (GWh)	**3858.37**	**4178.63**	**4258.08**	**4687.09**	**5005.70**	**5077.14**	**6257.73**	**7057.93**	**7551.23**

Note: - Peak demand is for all areas covered by integrated system including supply to India

*Provisional figure.

Noted from: Annual Report 2018/19 of NEA

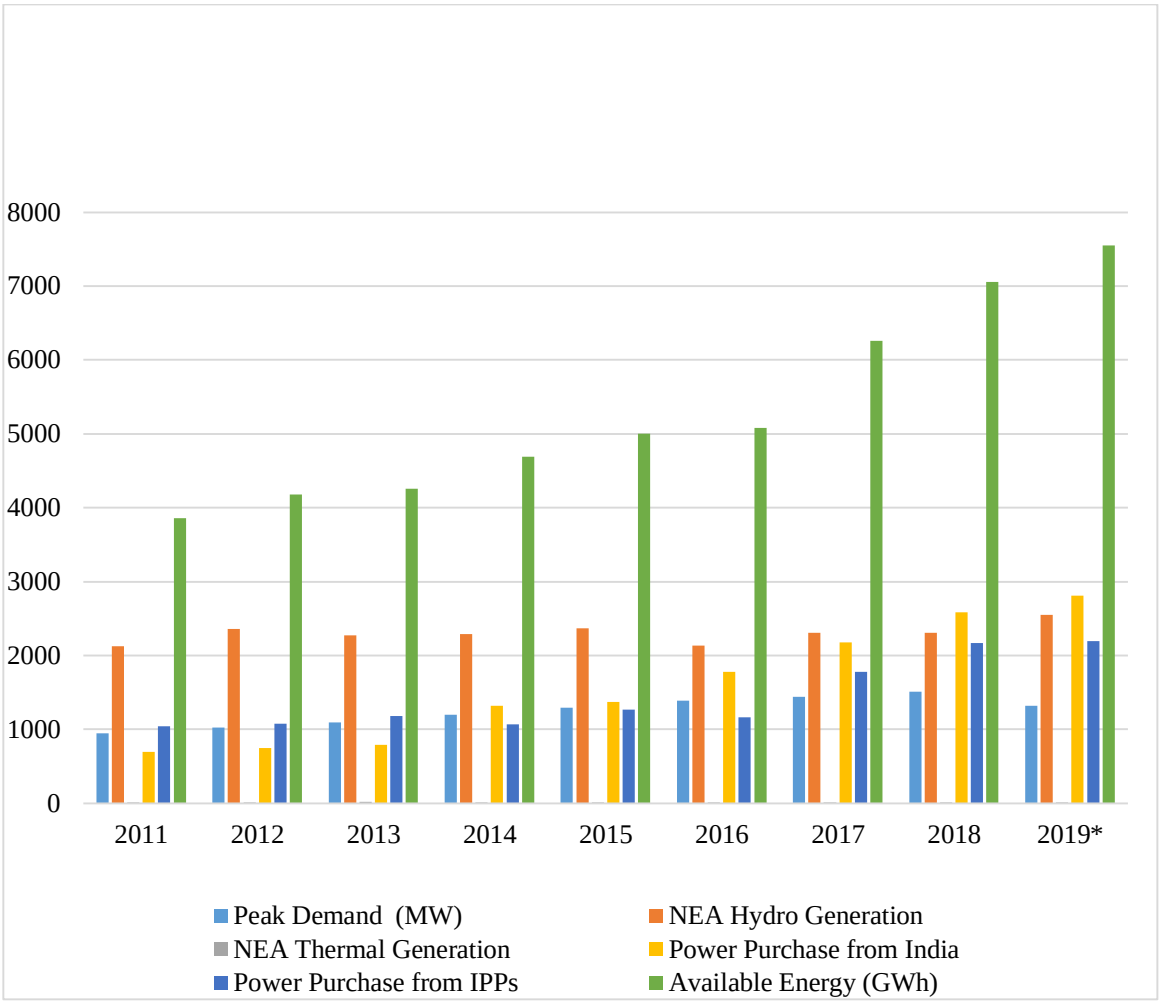

Figure 2. Total Energy Available and Peak Demand

1.2.6 Load Forecast

Table 3. Load Forecast

S. No.	Fiscal Year	System Peak (MW)	Total Generation Requirement (GWh)
1	2019/20	2,225.65	10,138.28
2	2020/21	2,638.29	12,017.96
3	2021/22	3,062.87	13,952.00
4	2022/23	3,365.97	15,332.65
5	2023/24	3,703.27	16,869.13
6	2024/25	4,078.75	18,579.53
7	2025/26	4,519.06	20,585.22
8	2026/27	5,011.11	22,826.63
9	2027/28	5,561.23	25,332.50
10	2028/29	6,171.26	28,111.30
11	2029/30	6,848.52	31,196.38
12	2030/31	7,542.04	34,355.49
13	2031/32	8,311.62	37,861.08
14	2032/33	9,166.27	41,754.21
15	2033/34	10,115.87	46,079.83
16	2034/35	11,171.28	50,887.42
17	2035/36	12,295.37	56,007.87
18	2036/37	13,540.05	61,677.62
19	2037/38	14,918.68	67,957.59
20	2038/39	16,445.72	74,913.54
21	2039/40	18,137.67	82,620.73

Noted from: Annual report 2018/19 of NEA

1.2.7 Sources of Financing NEA's Investment

The World Bank's strategy in the power sector was to support the Government of Nepal's vision to spearhead improvements and increase efficiency. In 2011, the Nepal-India Electricity Transmission and Trade Project began with an objective to help establish cross-border transmission capacity between India and Nepal. The commissioning of the 220kV Dhalkebar Substation supported under the project enabled an upgrade of the Nepal-India Dhalkebar-Mazaffapur Transmission Line from 132 kV to the 220 kV, doubling its transmission capacity.

The same year, in a notable move, the World Bank approved its first policy loan, Nepal Energy Sector Development Policy Credit (DPC), to strengthen finances and governance of Nepal's energy sector, to support the delivery of reliable, affordable and sustainable power to Nepali people.

The implementation of the financial structuring plan coupled with reduction of system losses, part of the prior actions of the DPC, was one of the key measures that helped turn around NEA's financial position.

The DPC is the first of a three-part operation that aims to implement policy and institutional measures to overcome challenges to establish large export-oriented hydropower projects and bring about structural reforms. These reforms will lead to loss reduction, increase in imports and domestic generation.

Most recently, the World Bank Group, through the International Finance Corporation (IFC) was among nine international lenders committing to finance the Upper Trishuli-1 Hydropower Project. Once complete, this project will increase Nepal's domestic energy production by one third from today's levels.

1.2.8 NEA's Investment Plan

Investment in subsidiaries, associates, joint ventures and others reached NRs. 34,591.55 million in the year 2018/19. During the year, NEA increased its investment in subsidiaries and other companies by NRs. 4,650.00 million. NEA holds 51 percent of equity investment at a cost of NRs. 489.60 million in Chilime Hydropower Co. Limited (CHPCL), a subsidiary company of NEA. NEA, being the promoter of three under construction generation projects with CHPL holds direct equity investment ranging from 10 percent to 18 percent.

Till the end of FY 2018/19, total equity investments in

Table 4. Total Equity Investment

S. No.	Project	Investment Amount (In million)
1	Middle Bhotekoshi Hydropower Co. Limited	NRs. 600.00
2	Sanjen Hydropower Co. Limited	NRs. 378.14
3	Rasuwagadi Hydropower Co. Limited	NRs. 1,231.58
4	Trishuli Hydro Power Co. Ltd.	NRs. 589.00
5	Tanahu Hydropower Company Ltd	NRs. 1,999.88
6	Cross Border Power Transmission Company Ltd.	NRs. 78.21

Noted from: Annual Report 2018/019 of NEA

NEA holds 41 percent share in equity share capital in Upper Tamakoshi Hydropower Co. Ltd. At the end of the FY 2017/18, total investment in Upper Tamakoshi Hydropower Co. Limited reached NRs. 4,341.90 million as equity and NRs. 16,535.70 million as long-term loan.

NEA invested in newly formed following companies:

Table 5. Investment Portfolio

S. No.	Project	Investment Amount (In million)
1	Electricity Generation Co. Ltd	NRs. 330.00
2	Betan Karnali Sanchayakarta Hydropower Co. Ltd.	NRs. 70.00
3	NEA Engineering Co. Ltd.	NRs. 43.35
4	Tamor Power Co. Ltd.	NRs. 11.00
5	Aadhikhola Power Co. Ltd.	NRs. 11.00
6	Upper Arun Hydroelectric Co. Ltd.	NRs.11.00
7	Tamakoshi Jalbidyut Co. Ltd.	NRs. 161.70
8	Dudhkoshi Jalbidyut Co. Ltd.	NRs. 11.00
9	Modi Jalbidyut Co. Ltd.	NRs. 11.00
10	Uttar Ganga Power Co. Ltd.	NRs. 41.00
11	National Transmission Grid Co. Ltd	NRs. 20.00
12	Raghuganga Hydropower Co. Ltd	NRs.424.00
13	Nepal Power Trading Company Ltd	NRs. 7.65
14	Tower and Pole Utpadan Company Ltd.	NRs. 11.00

Noted from: Annual Report 2018/19 of NEA

Further, NEA maintained share investment of NRs. 225.00 million including bonus share and loan investment of NRs. 973.11 million in Power Transmission Company Nepal Ltd. at the end of FY 2018/19 in the capacity of joint venture and holds rest of the investments in various subsidiaries and associate companies.

1.2.9 NEA's major achievements

Nepal currently produces 1,260 MW of electricity. Within 10 years, the country hopes to produce up to 15,000 MW, for both in-country use and exports. This is a dramatic turnaround for a country that once struggled with constant power outages.

Residential load shedding ended since early 2017, and there has been no industrial load shedding since early 2018. NEA, the country's power provider became profitable after 10 years of continuous losses and declared profits of Rs. 7.20 billion in 2017/18.
Only fraction of the hydropower potential, rated at 43,000 MW, has been explored. The government has announced an ambitious plan generate 15,000 MW power in ten years. NEA is now embarking on an ambitious plan to connect all 77 districts to the national grid within two years.

1.3 Statement of Problems

Like other companies, Nepal Electricity Authority has also some weakness in maintaining cash flow. Cash flow guides in handling the cash. The study mainly aims to analyze and to solve the following research problems:

1. Are there any shortcoming with planning practice and its implementation?
2. What kinds of tools and technique are adopted for cash flow?
3. What are the problems faced by Nepal Electricity Authority in cash flow
4. What are the causes for the transmission loss?
5. How can cash flow be used to predict future cash flow of Nepal Electricity Authority?
6. Does Nepal Electricity Authority generate sufficient operating cash flows to meet its cash flows needs?
7. Does Nepal Electricity Authority is able to invest proper cash in investing activities?
8. 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 flow of public manufacturing enterprises of Nepal, on the basis of the case study of Nepal Electricity Authority. It will focus on the investment decision of the company and in particular the cash flow 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:

- To evaluate the change in net assets, its financial structure and its ability that affects the amounts of timing of cash flows.

- To provide information on liquidity and solvency and its ability to change cash flows in future circumstances of Nepal Electricity Authority.
- To validate or disprove the financing, investment and operatingdecisions and to summarize the financial statement into comparative figures, thus helping the management to compare and evaluate the financial position of Nepal Electricity Authority and the results of their decisions.

1.5 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 tittles 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, rout 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 problems, objectives 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.

Reference:

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

Appendix:

The relevant materials, which were, however, not much worth mentioning were presented in appendix. It Included Profit/Loss a/c, and balance sheets.

CHAPTER 2
REVIEW OF LITERATURE

Review of literature is one of the important part of study. The basic concern of this study is to focus on the investment decision of the company and in particular the cash flow in short run business operation of the firms and the study has been conducted through the study of journals, magazines, discussions and other related personnel.

2.1 Conceptual Framework

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.

Cash flow analysis 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 flow analysis is done through statement of cash flows. Cash flow 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 flow which is the ultimate goal of the study.

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 depredation 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.

2.4 Definition of Cash flow Statement

The statement of cash flows, or the cash flow statement, is a financial statement that summarizes the amount of cash and cash equivalents entering and leaving a company.

The cash flow statement (CFS) measures how well a company manages its cash position, meaning how well the company generates cash to pay its debt obligations and fund its operating expenses. The cash flow statement complements the balance sheet and income statement and is a mandatory part of a company's financial reports since 1987.

A cash flow statement is a valuable measure of strength, profitability, and of the long-term future outlook for a company. The CFS can help determine whether a company has enough liquidity or cash to pay its expenses. A company can use a cash flow statement to predict future cash flow, which helps with matters of budgeting.

For investors, the cash flow statement reflects a company's financial health since typically the more cash that's available for business operations, the better. However, this is not a hard and fast rule. Sometimes a negative cash flow results from a company's growth strategy in the form of expanding its operations.

By studying the cash flow statement, an investor can get a clear picture of how much cash a company generates and gain a solid understanding of the financial well-being of a company.

The CFS allows investors to understand how a company's operations are running, where its money is coming from, and how money is being spent. The CFS is important since it helps investors determine whether a company is on a solid financial footing.

Creditors, on the other hand, can use the CFS to determine how much cash is available (referred to as liquidity) for the company to fund its operating expenses and pay its debts.

In short, a cash flow statement is a financial statement that summarizes the amount of cash and cash equivalents entering and leaving a company. The cash flow statement measures how well a company manages its cash position, meaning how well the company generates cash to pay its debt obligations and fund its operating expenses. The cash flow statement complements the balance sheet and income statement and is a mandatory part of a company's financial reports since 1987.

2.5 Preparation of Cash flow statement

Analysis of cash flow is done through preparing cash flow statement. Cash flow statement is prepared on the cash basis of accounting. While preparing cash flow statement it is important to derive cash from operating activities, investing activities and financial activities very carefully so that true figure would come. While calculating

operating profits, adjustment for prepaid and outstanding expenses and incomes are made to convert the data from accrual basis to cash basis. The statement is prepaid by taking all the inflows of cash and deducting all outflows of cash from the total and adding opening balance of cash to it.

2.5.1 Cash from Operating Activities

The amount of cash flows arising from operating activities is a key indicator of the extent to which the operations of the enterprise have generated sufficient cash flows to repay loans, maintain the operating capability of the enterprise, paying dividends and make new investments without resources to external sources of financing. It relates to a company's primary revenue generating activities, operating activities are always within the management control and they provide base for management estimation of fund needed to rise from available sources. Cash flow from operating activities is generally the cash effects of transactions and economic events included in the determination of income. Cash from operating activities includes:

i. Cash receipts from sale of goods and rendering of services.
ii. Cash receipts from royalties, fees and other revenues.
iii. Cash payments to suppliers for goods and services.
iv. Cash payments to employees
v. Cash payment to insurance as a premium
vi. Cash receipt from claim of insurance
vii. Cash payment as interest expenses
viii. Cash payment for income tax

2.5.2 Cash from Investing Activities

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

2.5.3 Cash from Financing Activities

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

2.6 Types of cash flow statement

There are two methods of preparing cash flow statement:
Direct Method
Indirect Method

2.6.1 Direct Method

The statement of cash flows direct method uses actual cash inflows and outflows from the company's operations, instead of modifying the operating section from accrual accounting to a cash basis. Accrual accounting recognizes revenue when it is earned versus when the payment is received from a customer.

Conversely, the cash flow direct method measures only the cash that's been received, which is typically from customers and the cash payments or outflows, such as to suppliers. The inflows and outflows are netted to arrive at the cash flow. The direct method is also known as the income statement method.

Table 6. Format of Cash flow statement under Direct Method

Particulars	Amount
Cash from Operating Activities	
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	
payment to employee	
cash Operating expenses	
total cash operating expenses	
Add/Less Outstanding expenses	
interest expenses	
Total interest expenses	
Add/Loss: Outstanding interest	
Add/Less prepaid interest	
tax expenses	
Total tax payment Add/Less : provision for tax	
Cash from operating activities before extra-ordinary items (a-b-c-d-e)	
Add/Less Marketable securities Activities	
A cash from Operating Activities	
B. cash from Investing Activities	
Sales of fixed assets /Investment	
Less: Purchase of fixed assists /Investment	
B. cash from Investing	
c. cash From Financing Activates	
issue of 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	
Closing cash/bank balance	
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 / debenture	
Less: Redemption of performance shares/dentures	
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	

Listing out information this way provides the financial statement user with a more detailed view of where a company's cash came from and how it was disbursed. For this reason, the Financial Accounting Standards Board (FASB) recommends companies use the direct method.

Although it has its disadvantages, the statement of cash flows direct method reports the direct sources of cash receipts and payments, which can be helpful to investors and creditors.

2.6.2 Indirect Method

The indirect method is one of two accounting treatments used to generate a cash flow statement. The indirect method uses increases and decreases in balance sheet line items to modify the operating section of the cash flow statement from the accrual method to cash method of accounting. The indirect method is simpler than the direct method to prepare because most companies keep their records on an accrual basis.

The cash flow statement primarily centers on the sources and uses of cash by a company, and it is closely monitored by investors, creditors, and other stakeholders. It offers information on cash generated from various activities and depicts the effects of changes in asset and liability accounts on a company's cash position.

The indirect method presents the statement of cash flows beginning with net income or loss, with subsequent additions to or deductions from that amount for non-cash revenue and expense items, resulting in cash flow from operating activities.

Format of Cash Flow Statement under Indirect Method is:

Table 7. Format of Cash flow statement under Indirect Method

Particulars	Amount
Cash from Operating Activities (CFOA)	
Provision for dividend	
Interim dividend (if any)	
Profit transfer to balance sheet	
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	
Extra gain (if any)	
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 (CFOA)	
Cash from Investing Activities (CFIA)	
Add: Sale of fixed assets/investment	
Less: Purchase of fixed assets/investment	
B. Cash from Investing Activities (CFIA)	
C. Cash from Financing Activities (CFFA)	
Add: 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 (CFFA)	
Net Cash Increase/Decrease (A+B+C)	
Add: Opening cash/bank balance	
Closing cash/bank balance	

2.7 Analysis of cash flow statement in Finance

The analysis of a company's cash flows can provide useful information for understanding a company's business earnings and for predicting its future cash flows. There are various tools and techniques for analyzing the statement of cash flows, including the analysis of major sources and uses of cash flow, common size analysis, conversion of the cash flow statement from the indirect method to the direct method and computation of free cash flow and cash flow ratios.

2.8 Evaluation of the sources and uses of Cash:

Evaluation of cash flow statement should involve an overall assessment of the sources and uses of cash between the three main categories as well as an assessment of the main drivers of cash flow within each category.

- Evaluate where the major sources and uses of cash flow are between operating.
- Evaluate the primary determinants of operating cash flow.
- Evaluate the primary determinants of investing cash flow.
- Evaluate the primary determinants of financing cash flow.

Step 1:

The major sources of cash for a company can vary with its stage of growth. For a mature company, it is desirable to have the primary source of cash operating activities. Over the long term, a company must generate the cash from its operating activities. If operating cash flow were consistently negative, a company would need to borrow money or issue stock (financing activities) to fund the shortfall. Eventually, these providers of capital need to be repaid from operations or they will no longer be willing to provide capital. Cash generated from operating activities can either be used in investing or financing activities. If the company has good opportunities to grow the business or other investment opportunities, it is desirable to use the cash in investing activities.

Step 2:

Turning to the operating section, the analysts should examine the mostsignificant determinants of operating cash flow. Under the direct method, the increases and decreases in receivables, inventory and payables and so on can be examined to

determine whether the company is using or generating cash in operations and why. It is also useful to compare operating cash flow with net income. For a mature company, because net income includes non-cash flow exceeds net income.

Step 3:

Within the investing section, one should evaluate each line item. Each line item represents either a source of use of cash. This enables us to understand where the cash is being spent (or received). This will also tell us how much cash is being invested for the future in property, plant and equipment. How much is used to acquire entire companies and how much cash is being raised by selling these types of assets.

Step 4:

Within the financing area, we should examine each line item to understand whether the company is raising capital or repaying capital and what the nature of its capital sources are. If the company is borrowing each year, you should consider when repayment may be required.

2.9 Review of Books Journal, publication and research

Review of literature is an integral part of a research undertaking to enrich the knowledge. Therefore the literature review for the study has been organization as given.

Koirala (2007) has stated that

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

Dahal (2007), has presented that

- Sales of the BPC are increasing every year in fluctuating rate while sales has increased in lower rate than BPC. BPC forecasted sales for FY 2007/08 is Rs. 575.73 million and forecasted sales for NEA for FY 2007/08 is Rs. 14,518.6

million. The sales plan of both BPC and NEA are not systematic. So it is difficult to achieve their target of increasing operating income.

- Variable cost of BPC is less compare to its fixed cost. Contribution margin ratio of NEA is very less while it is satisfactory in place of BPC.
- BPC is running in profit while NEA is suffering from loss. BPC has earned reliable profit and has made it able to stand as one of the most successful enterprise of the country. In other hand, loss of NEA is gradually increasing. No any systematic plans have been implanted for preventing the loss and improve profit by NEA.
- BPC has high P/V ratio which reduces the break-even level of the company but in the case of NEA P/V ratio is very less which increase the BEP sales of the authority.
- BPC's margin of safety is in average above 50 percent which indicates the safety of the company. But NEA's margin of safety is negative due to higher BEP sales than actual sales or there is no safety margin in NEA.

Ozaki (2009) has presented that

- The total hydroelectric potential has been estimated at 83000 MW which approximately 42000 MW is considered as economically feasible potential.
- There is heavy load shedding up to 16 hours per day. So, Nepal should import the power from India.
- At present Nepal has only one seasonal storage project, Kulekhani -1 (60 MW).

Jha (2009), has presented that

- The first ever elected government of Nepal after the election of constituent Assembly had a vision of developing 10000 MW of Hydropower in following 10 years.
- The present government has done a step further and recently declared its vision of developing 25000 MW of hydropower in next 20 years.
- Acquisition of land of people by providing compensation is also another issue.

Bhandari (2010) has identified

- To identify the shortage or excess of cash in the company and the procedures of financing for the shortage and investment of excess cash.
- To observe devices of planning and control of cash in NTC.
- To study the liquidity position of the company.
- The findings of the study are as follows:
- To meet operating expenses, 25 percent of actual annual expenses can be provided as advance budget in case the budget is not approved.
- In regards to account operation, transaction should be done with Nepal Rastra Bank or other commercial banks as recommended by committee.
- Telecom offices should transfer the income amount from office fund account to central fund account keeping minimum balance amount in their offices.
- Deposits from customer of other parties received time to time should be deposited in deposit account.

Chapagain (2011) has stated that

- Nepal Electricity Authority has a challenge to operate in a manner that improves the key business processes, maximizes the revenue generation and profitability of the organization.
- The commercial goals of NEA should be financially viable, fully autonomous, and accountable and majority owned government business entity. In this sense, the research is made whether NEA is in the way to achieve those goals or not. If NEA is seen to be financially sick for 10 years continuously, it is very difficult to gain a faith of stakeholder in case of financial supports. So, this study is made to sketch a clear financial picture of NEA, which definitely supports the stakeholders and other researchers for their analytical purpose.
- NEA has been seriously facing the problems of outstanding debt collection. The account receivable of NEA is high so the average collection period is also high in each fiscal year.
- The capacity of assets in generating the revenue is not satisfactory and the revenue generated is very low in comparison to the investments made in assets of NEA.

- Increasing operating cost in each fiscal year is another issue in NEA. It has not adopted the cost control tools and techniques.
- NEA is not able to fulfill the requirements of funds from the successful operation of the corporation's activities. It has been taking considerable amount of loan to fulfill the requirements of the funds.
- Electricity leakage, theft and wastage have been the major reasons reducing the profit earning capacity of NEA.
- The feasibility study and the negotiation with the contractors in some of the projects have been poor.
- Electricity as such is a public good. So, the government can't withdraw form this sector all of sudden and deprive many rural people from electricity to seek the profitability. However, of later some of the private sector companies have entered the sector and have done pretty well too.

Haldorsen, Heiestad and Weum-Andersen (2016), stated that

- Dry season
- System loss
- Load shedding (Blackout)
- Accessibility

- Dry season has huge impact on the production of electricity in Nepal because all the hydro powers based on the river and in the dry season the volume of water is very low in the river so the storage type facility is needed to store.
- System loss also another factors in Nepalese electricity market such as technical loss and non-technical loss. Technical loss like resistance loss through distribution can be solved by replacing new and modern transmission and to solve the non-technical loss needs more study and research.
- Dry season, lack of storage type facility and system loss are the main reason behind load shedding (blackouts) in Nepal because NEA and GoN both are unable to solve the above problem. Load shedding will be eradicated if the supply of electricity is higher than the demand.

Karanjit (2016) has mentioned following major findings:

- Dynamic pricing match the demand and supply of electricity in the short run to eradicate blackouts from the country.
- Dynamic pricing increases the total revenue because in the peak hours the price of electricity is higher than the normal hours.
- This policy has created an opportunity for others to invest money to generate electricity.
- The consumer utility is higher than before the use of this policy.

Bhatt (2016), has pointed out following major findings:

- Nepal has endowed high potential of water resources, covering 395,000 ha (48 percent) area within 45,000 km in length of 6000 rivers with 170 billion m3 annual runoff and 45,610 MW feasible hydroelectricity generation.
- Since 1911, 500 kW power generation at Pharping, now reached 782.45 MW production in 2016. Nepal government has planned to increase its current 67.3 percent access in electricity to 1426 MW (87 percent), by 2022.
- Globally, 16.6 percent generation of hydroelectricity, 1,079 GW production, in 2015 will be increased to 1,473 GW by 2040 as projected. Although, hydropower is considered as a renewable clean energy, dam closure, influence within the downstream river and connected ecosystems have consequent impacts on hydropower production.
- Nepal's topography offered more RoR types of hydropower and has more risk of landslide, flooding, GLOFs, LDOFs, and flash floods. Despite, Nepal contributes 0.027 percent of total global Green House Gas (GHG) emissions; Nepal has focused on renewable energy, hydropower production, targeting 12000 MW by 2030 to fulfill its growing demand of 11,500 MW.
- Consequent development of clean energy, GHG reduction, and single Bhotekoshi hydropower can reduce 160092 tons CO2/year. The energy-related CO2 emissions increased 43.2 billion metric tons by 2040 globally, which can be reduced through promotion of clean energy.

Alama, et al. (2016) presents an article entitled "A review of hydropower projects in Nepal" pointed out following findings:

- Nepal have theoretical potential of nearly 90,000 MW hydropower at least 42,000 MW is technically and economically feasible but unfortunately Nepal is utilizing only 2 percent of it (i.e., 98 percent remains unutilized).
- On the other hand, over 60 percent population do not have access to grid connected power in Nepal. Moreover, the annual growth of power demand (grid connected) is over 10 percent. During the lean season, the power shortage becomes so acute that NEA needs to ration the power up to 12 hours each day.
- Nepal's prosperity is certainly dependent on the utilization of its hydro resources. However, it does neither have financial resources nor technical know-how to explore the full potential of hydro resources.
- For large scale investment in hydropower projects, Nepal needs to attract foreign sovereign and private investments as well as markets for power sale.
- Several countries led by India and China have been negotiating with Nepal for possible invest in large-scale hydropower projects.
- The economic development in the region (northern India, Bangladesh and central southern China) requires power especially green power. Nepal's hydropower suits their needs well.
- As hydropower projects require huge capital investment, Nepal should pursue joint venture hydro projects with India and Bangladesh. This will allow peacefully develop Nepal's hydropower as well secured power purchase agreement with India and Bangladesh for sustained power trade.
- Nepal can be one of the major green power exporters in the region. The revenue from power export will help to achieve economic prosperity and generate funds for education, healthcare, housing, agriculture and infrastructures.
- During hydropower developments in Nepal, some extra care is required to be undertaken. Nepal's topography is unstable due to seismic activities. Hence, all hydropower plants with dam must be well planned and designed to mitigate the environmental impact. Most Himalayan Rivers contain huge quantities of sediment with hard abrasive particles.
- The region's climate and tectonic conditions as well as human activities are highly conducive for erosion and sedimentation. Therefore, sediment

management is paramount for the safety, reliability and longer life of infrastructures (hydropower dam, equipment, roads, bridges, irrigation systems and drinking water).

Regmi (2017) has conducted the following major findings:

- The fixed price on electricity is the main reason behind the load shedding in Nepal because it is not able to fulfill the gap between demand and supply of the electricity. The generation of the electricity is very lower than the demand and the demand is increasing faster than the production.
- The short sighted and defective policy and vision of Government of Nepal (GoN) and Nepal Electricity Authority (NEA) also another reason of load shedding in Nepal.
- Nepal has the huge potential of electricity with 83000 MW of them economically and technically 43000 MW is feasible but still more than 50 percent people do not have electricity access.
- Smart market policy is the best fit policy in the electricity market of Nepal because it helps to match the demand and supply to eradicate blackouts from the country.
- The dynamic pricing policy has the positive relation with the satisfaction of needs of the customer. It has better satisfaction of needs than the fixed pricing policy.
- This policy would encourage customers to adjust energy consumption to take the benefit of lower price energy in the off hours and to limit usage in peak hours; as a result customers should take advantage from a more efficient electric system.
- This policy can also attract the national and international investors to invest on hydro power electricity.
- Smart market pricing policy gives time to GoN and NEA to make new policy for the future electricity market.
- The main important thing is that this dynamic pricing policy able to fill the gap between demand and supply of the electricity in the short run.

Pradhan and Limmeechokchai (2017) presents an article on "Electric and Biogas Stoves as Options for Cooking in Nepal and Thailand" which focus on the following findings:

- Solid biomass accounts for 80 percent cooking share in Nepal whereas in Thailand it accounts for nearly 40 percent. With the increase in income of the people in urban as well as rural areas, fuel switching from biomass to LPG for cooking has been the most prevalent.
- Domestic hydropower resources in Nepal have remained unutilized. Electricity based cooking is one of the option to reduce fossil fuel consumption in Nepal. Likewise, the use of biogas in rural areas can be another option to reduce LPG consumption as well as fuel wood consumption.
- In the case of Thailand, nearly 60 percent cooking is attributed to LPG based cooking. Shift from LPG to electric and biogas based cooking can reduce its dependency on LPG as well as dependence on biomass resources.
- This study aims to develop a business as usual (BAU) scenario and various levels of electric and biogas based cooking scenarios to analyze its implication on primary energy use, energy mix, electricity generation requirement and GHG emissions during 2010-2050 in the case of Nepal and Thailand. The study uses Asia-Pacific Integrated Model (AIM)/Endues model, a long-term bottom-up energy system model as an analytical tool.
- In Nepal, fuel wood would remain the dominant source of energy during 2010-2050 in the residential sector in BAU.
- The consumption of imported fossil fuels would decrease with the use of electricity and biogas for cooking while that of domestic hydropower would increase.
- In the case of Thailand, the consumption of LPG would decrease while that of coal and natural gas would increase due to additional power generation. The national GHG emission level would decrease in the case of Nepal whereas it would increase in the case of Thailand.

Subedi (2018) has pointed out following major findings:

This study examined the determinants of fixed investment decisions of Nepalese hydro companies listed in the Nepal Stock Exchange. The descriptive and causal comparative research designs have been adopted for the study.

- Using pooled cross sectional data of NEPSE listed companies; a regression equation has been estimated to determine the effect of financing constraints on investment decisions of hydro companies.
- The study results confirm that internal cash flows and leverage are the major determinants of investment decisions in Nepalese hydro companies.
- The coefficient of internal cash flow is significantly strong and positive showing its interdependency in financing new investment projects of hydro companies. This relationship strongly supports the financing constraints hypothesis that indicates the capital market frictions as the major obstacle of hydro investment in Nepal. Although the companies have access to banks and foreign capital, still the financing gaps persist and they are highly dependent on their internal cash flows for investment.
- Additionally, the volatility of cash flows and sales of hydro companies along with their long gestation period pose a significant credit risk to banks and lending institutions that hinder them to provide as much credit as they demand. Besides, the cyclical variations of net worth and collateral values of hydro companies during the tough economic period also resist them to obtain enough finance for further investment. Hence, the government should ensure with appropriate policies, information systems and regulatory mechanism that enable well-functioning of capital markets to efficient flows of funds either in the form of equity or debt to boost up the hydropower investment in Nepal.

2.10 Research Gap

The present research is focused on cash flow and ratio analysis of NEA. No previous research was yet made on Cash Flow and ratio analysis of NEA and neither previous researchers had made a study on a relevant subject matter. However, the researcher have gone through few research made on NEA with a different title so that the researcher can evaluate the performance of NEA from the perspective of cash flow analysis.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Research design

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 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 relationship among the variables.

3.2 Nature and Source of data

The existing number of public manufacturing enterprise 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 company.

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

Data was collected from web site Nepal electricity Authority. The website of Nepal Electricity 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 directly from cash flow statements. Earnings were derived from income statement. Total assets, sales and other variables were selected from balance sheets and income statements.

3.3 Population and Sampling Technique

The existing number of public manufacturing enterprise in Nepal refer 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.

3.4 Methods of Analysis

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 nine years.
- This research utilized quantitative methods in which the data were analyzed based on statistical techniques which 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 liner and multiple regressions was applied to test the prediction models depending upon the ability predictor to explain future cash flows on the other hands this research utilized financial and cash flow ratios to analyze secondary data

3.5 Cash flow 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 flow were used, such as net income plus depreciation, resulting in a lack of uniformity and misdirected analysis. Currently, statements of cash flow have the ready availability of cash flow data with consistent performance measures of cash flow from operations.

Cash flow ratios are based on the cash flow from the operations (CFO) of the company. Also, ratios can contain accrual-based accounting data. The cash flow ratios provide a

clearer picture of a company's performance, highlighting an organization's cash flow strengths and weaknesses. Cash flow 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 flow items such as depreciation expenses and gain or loss on the sale of operating assets. 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.

Cash flow ratios may be categorized into two groups; cash flow sufficiency and cash flow return ratios as described below:

3.5.1 Cash flow sufficiency ratios

It shows the ability of generating operating cash flows. All ratios indicate whether a company's cash flows are sufficiency for the payment of debt acquisitions of assets and payment of dividends. These ratios are:

i. Cash flow adequacy:

The cash flow 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.

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

ii. Debt coverage ratios:

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

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

iii. Repayment of borrowings ratio

This ratio indicates the ability of a firm to generate cash operating activates for covering long –term debt commitments in the current year.

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

iv. Dividend payment ratio

The dividend payment ratio presents the ability of a company to generate cash from operating activities for the purpose of covering dividend commitments to both ordinary and preference shareholders. If the ratio is greater, it means that the company paid a smaller portion of its cash from operating activities in dividend payments.

$$\text{Dividend payment ratio} = \frac{\text{Dividends paid}}{\text{Cash flow from operations}}$$

v. Reinvestment Ratio

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

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

3.5.2 Cash flow return ratios

This group is sometime 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 as disclosed in the cash flow statement these are as follows.

a. Cash flow 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 am ploys information provided by the statement of cash flows and the income statement .it is computed by dividing cash from operating activities by revenues

$$\text{Here, cash flows on revenues} = \frac{\text{Cash flows from operation}}{\text{Revenue}}$$

b. Cash Flows to net income ratio

This ratio is sometime 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

Here, Cash flow to net income ratio = $\frac{\text{Cash flow from operations}}{\text{Net Profit}}$

c. 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,

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

d. Cash flows return on stockholders' equity ratio

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

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

e. Cash Flow per Share Ratio

This ratio indicates the operating cash flow attributable to each common share. It is defined as cash available to common stockholders divided by the weighted average number of common shares outstanding.

Here, Cash flow per share ratio = $\frac{\text{Cash flow from operations – Preferred Dividends}}{\text{Average number of shares of Common Stock outstanding}}$

3.5.3 Cash Inflow to Outflow Ratio

Cash turnover ratio basically analysis 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.

Cash inflow to outflow ratio = $\frac{\text{Total Cash inflow}}{\text{Total Cash outflow}}$

3.5.4 Cash flows liquidity ratio

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

$$\text{Cash flow liquidity ratio} = \frac{\text{Cash flows from operating activities + cash/ bank balance}}{\text{Current liabilities}}$$

3.5.5 Cash Turnover Ratio

Cash flow margin ratio measures company's ability to turn sales revenue into cash.

$$\text{Cash turnover ratio} = \frac{\text{Cash and bank balance}}{\text{Sales}}$$

3.6 Statistic Tools for Analyzing cash flows

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

3.6.1 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.

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

N=number of observations/ time periods

X= Expected return of the historical data

3.6.2 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. It is denoted by ' r '. Its value always lies between -1 and +1. The general rules for interpreting the value of r is :

i. When r = 1, there is positively perfect correlation between the two variables.
i. When r = -1, there is negatively perfect correlation between the two variables.
ii. When r = 0, the variables are uncorrelated.

Nearer the value of r to +1, closer will be the relationship between two variables and nearer the value of r to 0, lesser will be the relationship. 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 it is given 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< 6P.E. it is insignificant.

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 which the coefficient 'r' with but when is always in positive value's module or |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.

3.6.3 Regression Analysis:

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.

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

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

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

Where;

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

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

σ X = Standard deviation of X variable

σ 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;

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

3.6.4 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.

3.7 Limitation of the study

There are three possible limitations of this research, which call for clarification in thefollowing specific areas. These limitations may affect the generalisability and validity of this research.

1. Due to its focus on actual cash flow data from the statement of cash flows, this research studies Public institution of Nepalese market. The data employed in this research is only available for the fiscal years 2010/2011 AD to 2018/2019 AD. Therefore, this research may experience problems due to the inadequacy of the data.
2. This research focuses solely on Nepal Electricity Authority. Therefore, the results of this research may not be generalized to all public companies.
3. Regression analysis is used to construct a prediction model because it has been used in much of the prior research. However, time series analysis is another approach that can be used in prediction research.
4. The study was completely based on secondary data.

CHAPTER - 4

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The previous chapter described the research methodology employed for this research.. The chapter introduces the organization of the study. It summarizes the regression equation and model of this study and discusses the data preparation before the analysis, including data arrangement.

The data presentation and analysis is the important part of the study because all the information and ideas will be analyzed and presented in this chapter. The basic objectives of this study have been already mentioned in the first chapter. The cash flow management aspects have disused in the review of literature. In this chapter efforts have been made to process the obtained data analyzed and interpret them.The main purpose of this study is to highlight the cash flow system of NEA. To accomplish this objectives, this chapter of research paper will analyze the various aspect of cash flow and their related variances of the authority.

4.2 Analysis of Cash Flow

This statement of cash flow reflects the change in financial position from F/Y2010/2011 ADto 2018/2019 AD, classifying transactions into three categories; operating, investing and financing activities. NEA prepares cash flow statement under indirect method that is most often used in annual reports. Under indirect method, net profit/loss is adjusted for the effect of transaction of a non-cash nature, any 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 8. Cash Flow Statement of Nepal Electricity Authority (2010/11 - 2018/19)

Particulars	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2012/13	2011/12	2010/11
A. Cash Flow from Operating Activities (CFOA)									
Provision for dividend									
Interim dividend (if any)									
Profit transfer to balance sheet	7,204.67	2,897.08	1,502.27	(8,890.19)	(5,129.76)	(6,808.36)	(3,405.41)	(9,947.88)	(6,089.22)
Net Profit/(Loss) for the year	**7,204.67**	**2,897.08**	**1,502.27**	**(8,890.19)**	**(5,129.76)**	**(6,808.36)**	**(3,405.41)**	**(9,947.88)**	**(6,089.22)**
Add: Non cash and non-operating expenses:									
Interest on Long-Term Loans	**4,550.00**	**3,221.78**	3,546.15	5,079.73	4,670.21	4,234.51	4,039.65	3,885.49	3,594.01
Interest and other Income Adjustments								(11.74)	
Depreciation for the year	4,710.28	4,210.28	3,755.22	3,554.36	3,471.02	3,296.62	3,228.68	3,175.80	3,031.33
Deferred Revenue Expenditure Written Off	-	-	-	-	-	-	-	-	323.67
Prior Year's Income/(Expenses)	-	(311.63)	(274.48)	33.63	-	-	34.22	80.91	(76.61)
Street light dues written off	-	-	-	-	-	-	-	(549.79)	
Staff Loan and Property, Plant and Equipment Written Off	-	30.66	2.74	33.98	-	-	2.66	1.91	2.85
Bad Debt Written Off	-	-	-	0.14	-	-	0.32	-	0.72
Loss on Stock	-	-	0.45	0.47	-	-	2.25	0.24	0.01
Prior Year's Administrative Expenses	-	45.10	43.04	0.49	-	-	0.13	(5.57)	(2.49)
Loss/(Gain) on foreign exchange	165.71	277.54	(410.70)	746.48	(523.17)	(52.77)	(652.14)	896.57	85.02
Provision for Gratuity	-	31.81	26.91	10.56	-	-	(80.27)	(30.81)	(1.76)
Provision for Pension	-	2,077.78	1,703.78	1,703.78	-	-	1,892.06	3,481.47	1,601.65
Provision for Accumulated Leave& Medical Facilities	-	409.34	335.66	335.66	-	-	344.09	655.82	290.04
Provision for Employee Bonus	-	57.94	30.04	-	-	-	-	-	-
Interest on Loan and Deposits	-	(3,220.73)	(2,273.99)	(1,309.46)	-	-	(207.18)	(190.17)	(123.65)
Dividend Income	-	(209.28)	(162.28)	(148.04)	-	-	(122.63)	(132.38)	(280.95)
Funds Flow from Operation (FFO)	**16,630.66**	**9,517.67**	**7,824.81**	**1,151.59**	**2,488.30**	**670.00**	**5,076.43**	**1,309.87**	**2,354.62**
Adjustment for Working Capital Changes									
Decrease/(Increase) in Inventories	(2,018.95)	(3,325.73)	(842.02)	(207.10)	(310.34)	183.58	(11.44)	(531.12)	(70.95)
Decrease/(Increase) in Accounts Receivable	(438.96)	(1,961.13)	(2,399.02)	(1,259.52)	(911.84)	(1,085.58)	(1,237.17)	727.81	(774.17)
Decrease/(Increase) in Loan and Advance	(1,401.79)	(608.44)	(2,074.31)	(55.28)	(138.29)	(344.13)	919.41	(1,247.74)	1,605.94
(Decrease)/Increase in Current Liabilities	(11,802.33)	4,678.98	3,876.58	2,542.16	3,444.00	871.00	(2,323.28)	(221.84)	1,964.84

Cash Generated from Operation									
Payment of Interest on Loans	(4,550.00)	(3,210.72)	(1,745.68)	(2,040.35)	4,662.00	3,747.00	(134.24)	(1,142.52)	(799.94)
A. Cash Flow from Operating Activities (CFOA)	**(3,581.37)**	**5,090.63**	**4,640.36**	**131.50**	**9,233.83**	**4,041.87**	**2,289.71**	**(1,105.54)**	**4,280.34**
B. Cash Flow from Investing Activities (CFIA)									
Interest on Loan and Deposits	1,887.76	3,220.73	2,273.99	1,309.46	-	-	207.18	190.17	123.65
Dividend Income		209.28	162.28	148.04	-	-	122.63	132.38	280.95
Net Addition to Property, Plant and Equipment	(7,318.81)	(26,853.72)	(5,577.98)	(5,637.37)	(6,137.00)	(3,774.00)	(1,641.58)	(3,905.47)	(4,648.68)
Net Addition/(transfer) to Capital Work in Progress	(32,458.19)	2,665.33	(13,588.23)	(8,631.71)	(13,276.88)	(7,991.21)	(9,937.72)	(7,073.42)	(5,791.56)
Addition to Investment	(4,650.00)	(4,096.18)	(4,090.31)	(4,204.14)	(5,262.65)	(5,480.70)	(1,758.39)	(194.10)	(1,733.01)
B. Cash Flow from Investing Activities (CFIA)	**(42,539.24)**	**(24,854.56)**	**(20,820.25)**	**(17,015.72)**	**(24,676.53)**	**(17,245.91)**	**(13,007.88)**	**(10,850.44)**	**(11,768.65)**
C. Cash Flow from Financing Activities (CFFA)									
Increase in Share Capital	22,786.27	20,026.38	5,941.62	9,252.78	4,764.32	7,145.85	5,942.46	5,727.63	3,898.83
Increase/(Decrease) in Consumer Contribution	-	106.46	(290.98)	67.36	-	-	15.38	28.48	46.24
Increase/(Decrease) in Long Term Loan Borrowing	19,984.70	10,320.93	21,828.75	12,304.08	15,561.41	7,656.78	6,777.83	6,880.77	4,541.25
Repayment of Long-Term Loan	-	(1,019.00)	(1,837.31)	-	(383.00)	(192.00)	-	-	(226.08)
C. Cash Flow from Financing Activities (CFFA)	**42,770.97**	**29,434.77**	**25,642.08**	**21,624.22**	**19,942.73**	**14,610.63**	**12,735.67**	**12,636.88**	**8,260.24**
Net Cash Increase/Decrease (A+B+C)	(3,349.64)	9,670.84	9,462.19	4,740.00	4,500.03	1,406.59	2,017.50	680.90	771.93
Add: Opening cash/bank balance	34,494.63	24,823.79	15,361.60	10,621.60	6,121.57	4,714.98	2,697.48	2,016.58	1,244.65
Closing cash/bank balance	**31,144.99**	**34,494.63**	**24,823.79**	**15,361.60**	**10,621.60**	**6,121.57**	**4,714.98**	**2,697.48**	**2,016.58**

Noted from: Nepal Electricity Authority data

4.3 Analysis of Cash Flow from Operating Activities

Cash flows from operating activities include all those activities of the corporation which makes cash flows. If the cash inflow is greater than of the 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.

Table 9. Cash Flow from Operating Activities

Particulars	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2012/13	2011/12	2010/11
A. Cash Flow from Operating Activities (CFOA)	(3,581.37)	5,090.63	4,640.36	131.5	9,233.83	4,041.87	2,289.71	(1,105.54)	4,280.34

Noted from: NEA Data

Net cash from operating activities of NEA was Rs 4280.34 million in the F/Y 2010/11. In the F/Y 2011/12 it decreased to Rs. (1105.54) million It was increased to Rs 2289.71 million in the F/Y2012/13. It was due to increase in working capital i.e. increase in current assets and decrease in current liabilities. The highest cash from operating activities abstained was in 2014/15 and it was due to increase in current liabilities. However, NEA was in continuous loss till FY 2015/16. In 2018/19 cash from operating activities is in negative. It largely decreased to (3581.37) million.

The above interpretation to the data shows that NEA had maintained the positive cash flows from operating activating beside FY 2011/12 & FY 2018/19 but it was fluctuating during the study period. NEA was facing loss in each year except previous 3 years despite cash inflow from operating activities it largely decreased in 2011/12 and started too increased till 2014/15 and decreased in 2015/16 again and in 2018/19 it largely decreased to negative cash. It indicates that NEA failed to maintain increasing trend of cash flows from operating activities , The reason behind this is NEA failed to abstain profit every year and does' give much importance to current assets and current liabilities. However, the overall performance the enterprise was satisfactory since it generates positive cash inflow from operating activities except the FY 2011/12 & FY 2018/19 which ensures the ability of paying debts. The cash flows operating activities of NEA during the study period can be shown in a graphical representation as follows:

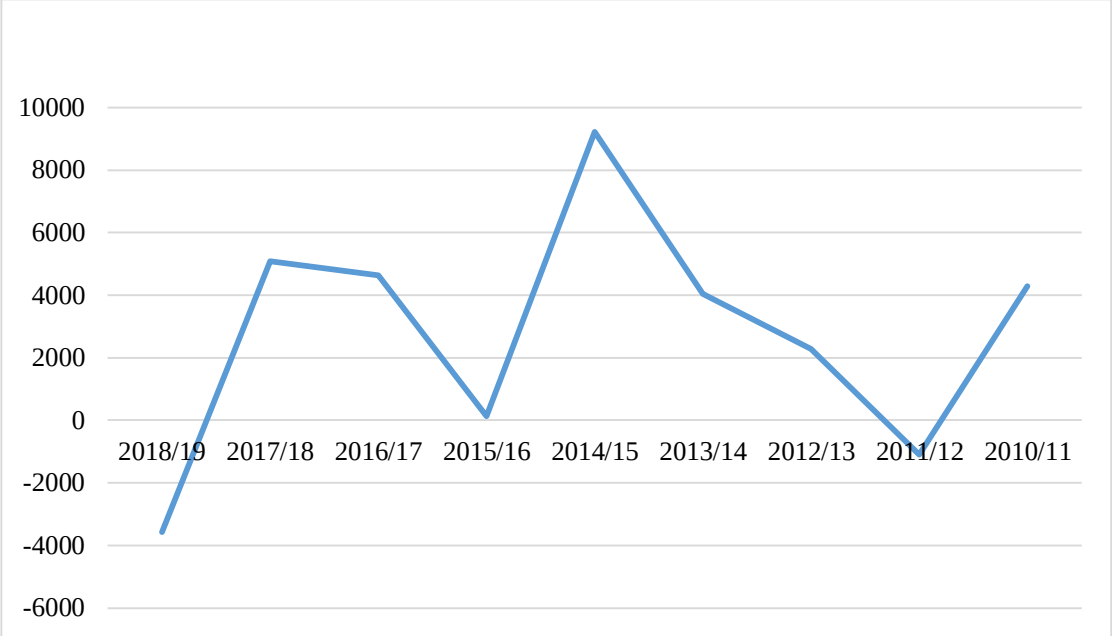

Figure 3. Cash Flow from Operating Activities (CFOA)

4.4 Analysis of cash flows from Investing Activities

Table 10. Cash Flow from Investing Activities

Particulars	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2012/13	2011/12	2010/11
B. Cash Flow from Investing Activities (CFIA)	(42,539.24)	(24,854.56)	(20,820.25)	(17,015.72)	(24,676.53)	(17,245.91)	(13,007.88)	(10,850.44)	(11,768.65)

Noted from: NEA Data

CFIA of NEA was observed negative during the study period. It was Rs.(11,768.65), Rs(10,850.44), Rs(13,007.88), Rs.(17,245.91), Rs(24,676.53), Rs. (17,015.72), (20,820.25), Rs.(24,854.56) and Rs.(42,539.24) million respectively in the following respective fy 2010/11, 2011/12, 2012/13, 2013/14, 2014/015, 2015/016, 2016/17, 2017/18 and 2018/19. From the above figure it is seemed that CFIA was decreased in fy 2011/12 by 7.80 percent than in fy 2010/11. It indicated that in fy 2011/12, lessinvestment was made in property, plant and equipment than in 2010/11. CFIA then started to increase from 2011/12 to 2018/19.It is due to the more purchase of plant and machinery as well as investments in capital work in progress were made. But in 2015/16 CFIA was decreased by 31.04 percentit is due to decrease in investment in capital work in progress.

During the study period the main investing activities involve in 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 study period can be shown in graphical representation as follows:

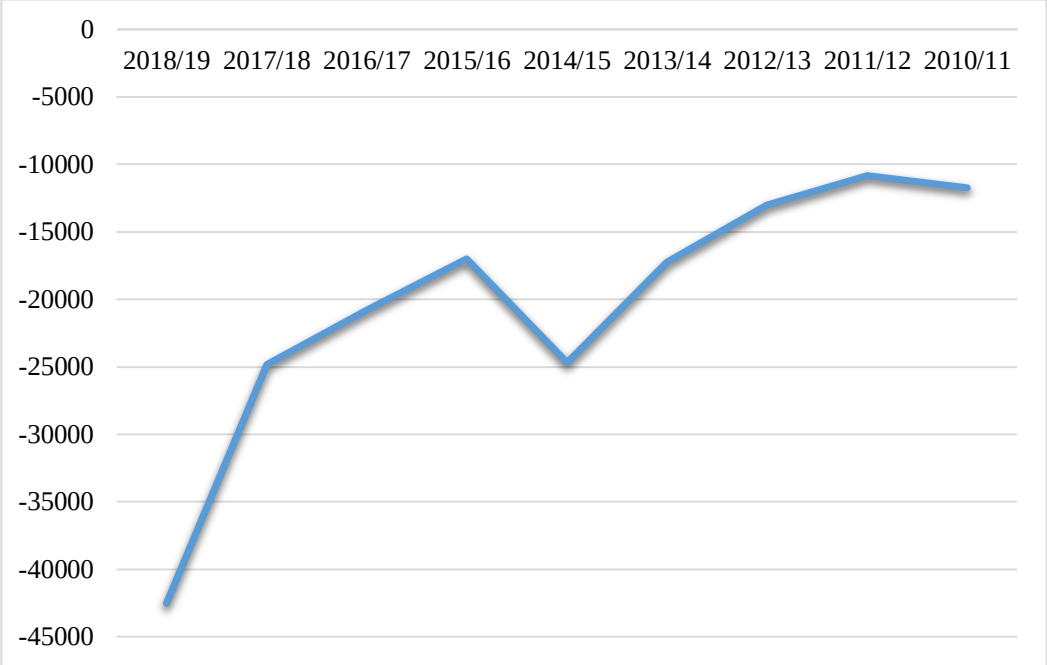

Figure 4. Cash Flow from Investing Activities (CFIA)

4.5 Analysis of cash flow from financing Activities

Table 11. Cash Flow from Financing Activities

Particulars	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2012/13	2011/12	2010/11
C. Cash Flow from Financing Activities (CFFA)	42771	29434.77	25642.08	21624.22	19942.73	14610.63	12735.67	12636.88	8260.24

Noted from: NEA Data

CFFA of NEA was Rs.8260.24, Rs. 12636.88, Rs. 12735.67, 14610.63, Rs. 19942.73, Rs. 21624.22, Rs. 25642.08, Rs. 29434.77 and Rs.42771 million in fy 2010/11, 2011/12, 2012/13, 2013/14, 2014/15, 2015/16, 2016/17, 2017/18 and 2018/19 respectively. The amount increased by 52.98 percent in 2011/12and againincreased by 0.78 percent in 2012/13. It again increased by 14.72 percent and 36.49 percent in 2013/14 and 2014/15 respectively. The reason behind increase in cash flow from financing activities can be increase in share and increase in long term borrowing. In

the remaining years, NEA has issued share capital every year and the proportionate of borrowing of loan was higher than repayment of loan. That is why, CFFA was in increasing trend in the whole study period.

It can be shown in graphical representation as follows:

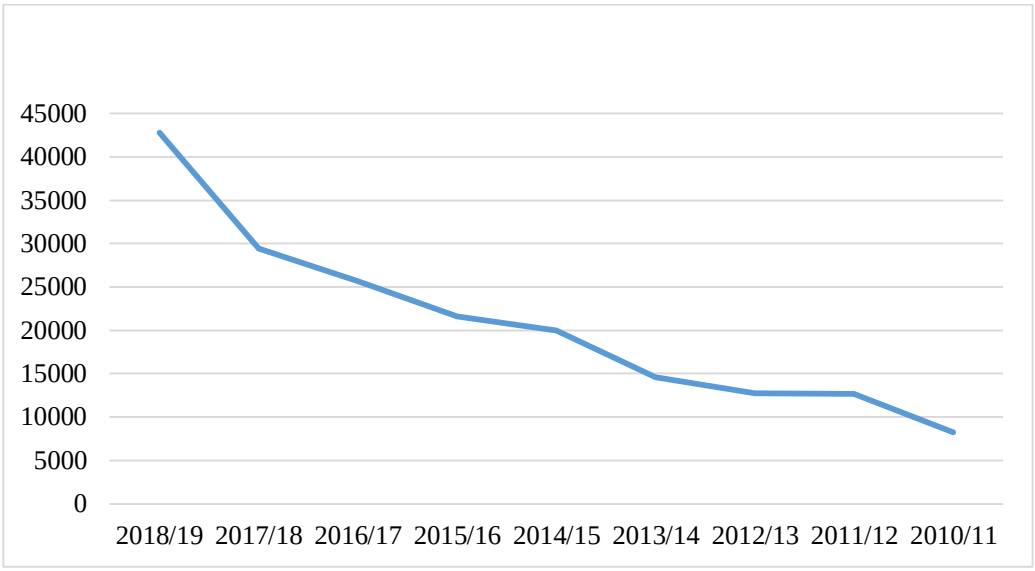

Figure 5. Cash Flow from Financing Activities (CFFA)

4.6 Analysis of Net cash Flow

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

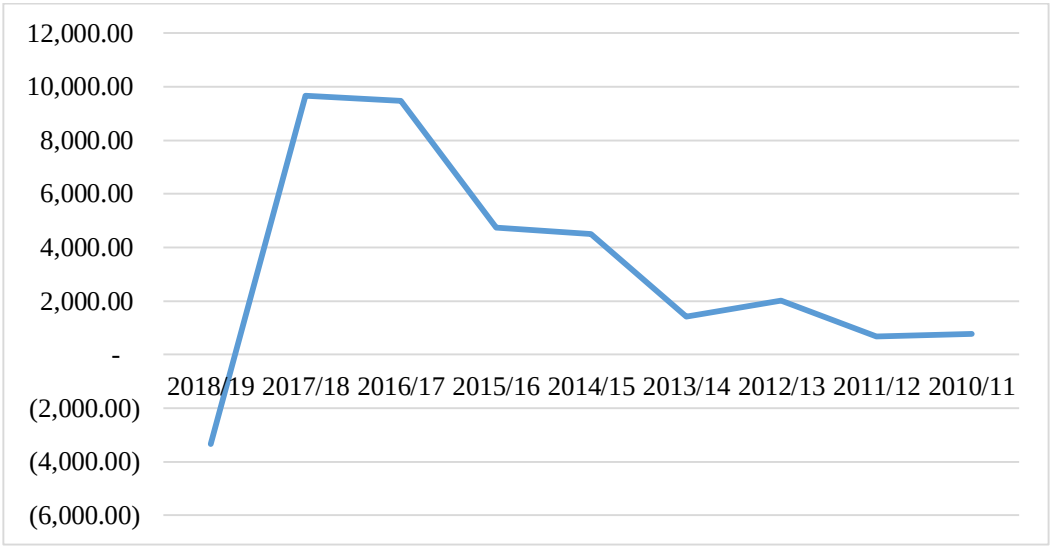

Figure 6. Net Cash Increase/Decrease (A+B+C)

From the above trend line, it seemed that from 2010/11 though the company was suffering from loss it succeed to increase the net cash flow through out the study period. Though in 2018/19 the enterprise was in huge profit but couldnot maintain positive cash flow in that year could be due to huge increase in long term borrowing.

4.7 Analysis of profit and loss

Profit refers to the amount which we get from income after deducting all the expenses. If income is greater than expenses, we obtain 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 period 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 we achieve profit/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 has used income statement to calculate profit and 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

Following table shows the profit and loss of NEA:

Table 12. Profit and loss of NEA

Fiscal year	Net profit After Tax (loss)
2010/11	-6089.22
2011/12	-9947.88
2012/13	-3405.41
2013/14	-6808.36
2014/15	-5129.76
2015/16	-8890.19
2016/17	1467.25
2017/18	2848.11
2018/19	7114.04

Noted from: NEA Data

From above table we can say that from fiscal year 2010/11 NEA was suffering from continuos loss till 2015/016. In 2010/11 NEA bear Rs. 6,089.22 million loss and was increased in 2011/12 to Rs. 9,947.88 million which was to be the huge amount of loss till 2015/016. In 2015-16, the fiscal, the company had recorded a loss of Rs 8,890.19million. In 2016-17, the power utility had booked profit of Rs 1,467.25 million, while in fiscal 2017-18, it made profit worth Rs 2,848.11million.Due to strong managerial policy, tight collection policy as well as control in electricity leakage, NEA is able to increase the profit amount to Rs 7,114.04 million in 2018/19. It can be shown with the following diagram:

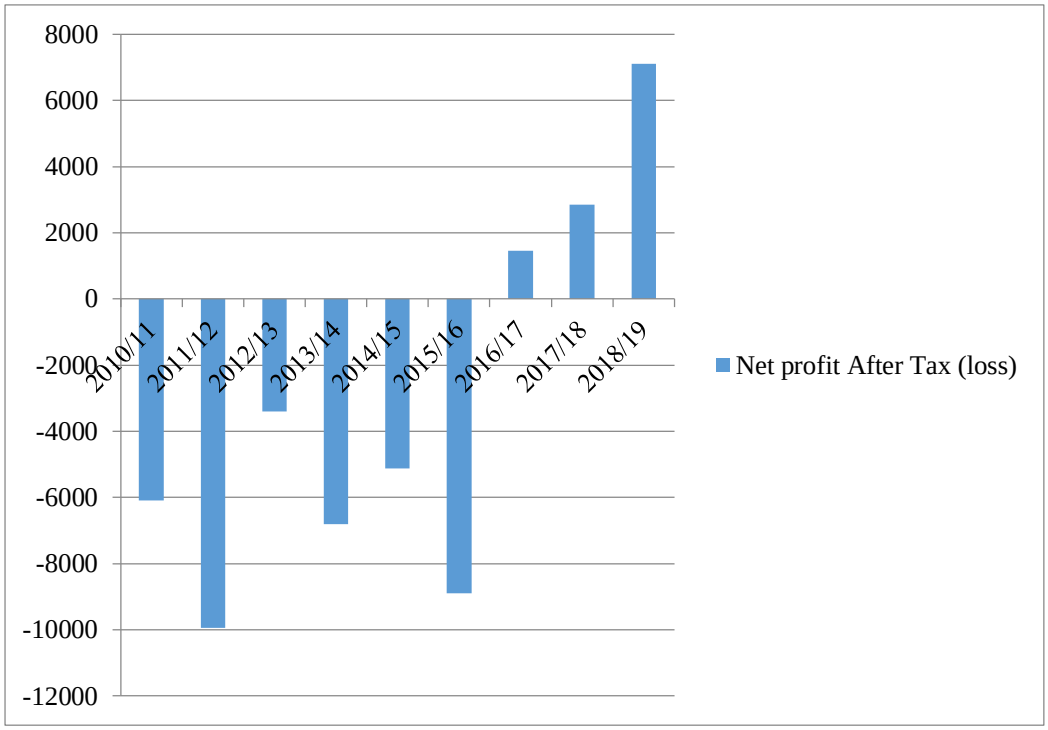

Figure 7. Net profit After Tax (loss)

The above diagram shows that NEA has suffered loss in each fiscal year until 2015/16. It shows that NEA has poor management.Though it has monopoly in the market, it fails to collect its revenue. It is failing to collect its electricity charges from its customers from the begining. NEA doesn't have tight collection policy as well as could not reduce electricity leakage. That is why it is forced to suffer from loss. However, NEA was able to generate profit due to the end to load-shedding, reduction in the average price of imported and domestic electricity, control of administration and technical expenses, and implementation of financial reform measures.

The very important thing that we should note is above profit/loss not only includes operating expenses but also includes non operating expenses. Operating expenses means the expenses that directly deals with cash such as expenses related to generation of electricity, power purchase, transmission, distribution expenses, administrative expenses etc. Where as non operating expenses is the expenses that doesn't directly deal with cash expenses. It indirectly deals with the cash. Such as depreciation, profit/loss on foreign exchange, deferred revenue ecpenditure 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 table.

Table 13. Adjustment Profit/loss NRs. in Million

Fiscal year	CFOA before change in working capital
2010/11	-1,088.98
2011/12	-2,214.86
2012/13	2,494.66
2013/14	-2,573.85
2014/15	-459.55
2015/16	-3,183.84
2016/17	4,477.1
2017/18	4,999.19
2018/19	11,754.67

Noted from: Researcher's calculation

From the above table it can be said that NEA has obtained profit in some year and loss in some. The profit after adjusting non operating expenses/gain from 2012/13,

2016/17, 2017/18 and 2018/19 was Rs. 2,494.66 million, Rs. 4,477.10 million, Rs. 4,999.19 million and Rs.11,754.67 million respectively. Here, profit after adding back non operating expenses and deducting non operating gain was in fluctuating trend. Thus it can be said that NEA is able to provide its services well.

The following trend line clearly shows its actual operating profit:

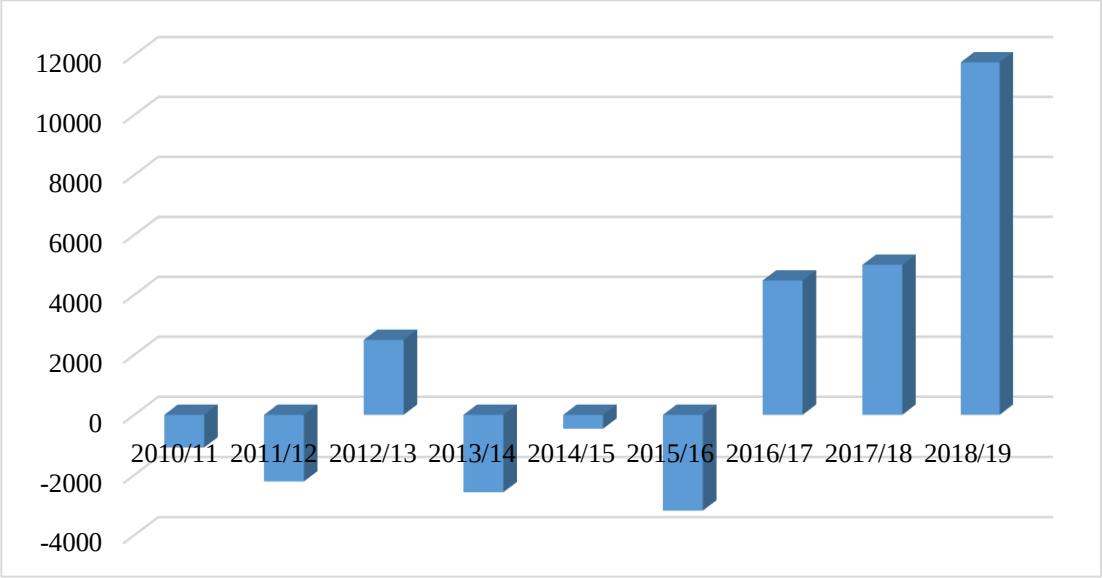

Figure 8. CFOA before change in working capital

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

4.8 Comparision of Profit/loss computed from Income statement and the profit/loss computed after adjustment of non operating gain/expenses

We have already discussed above about the non operating gain and expenses. Profit derived from income statement is after deducting non operating expenses and adding non operating gain. Thus here we are trying to compare the profit/loss that is obtained after deducting non operating expenses(profit/loss from income statement) and before deducting non operating expenses and trying to analyse whether these expenses affects our decision or not.

The below table shows both the profit:

Table 14. Comparision of profit/loss

Fiscal year	CFOA before change in working capital	Net profit(loss)
2010/11	-1,088.98	-6,089.22
2011/12	-2,214.86	-9,947.88
2012/13	2,494.66	-3,405.41
2013/14	-2,573.85	-6,808.36
2014/15	-459.55	-5,129.76
2015/16	-3,183.84	-8,890.19
2016/17	4,477.1	1,467.25
2017/18	4,999.19	2,848.11
2018/19	11,754.67	7,114.04

Noted from: Researcher's calculation

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 from the beginning of its operation. The below diagram clearly shows the difference between the two profit/loss.

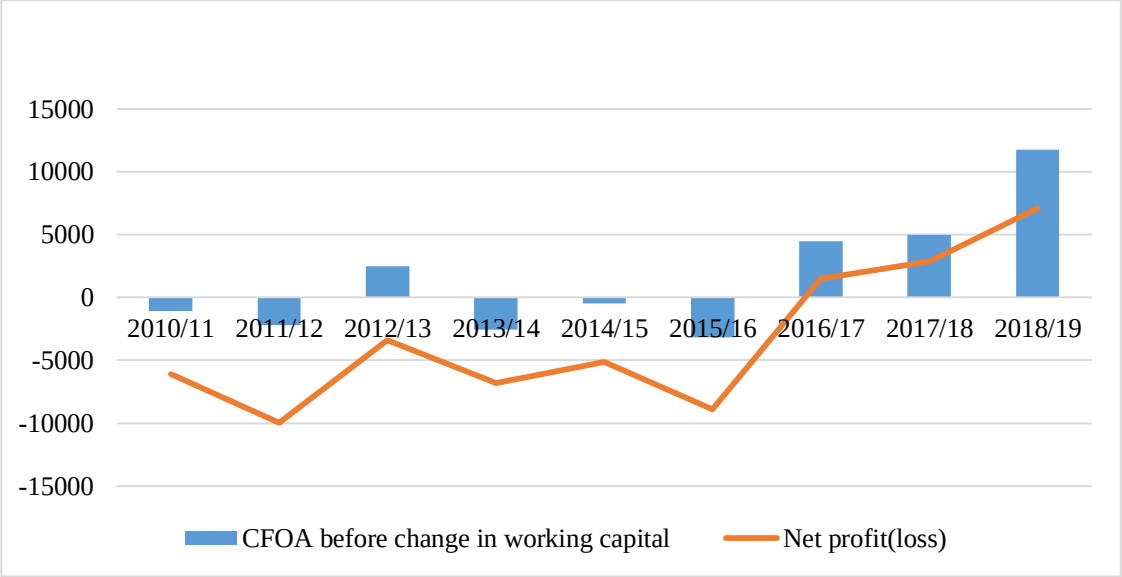

Figure 9. Comparison of Profit and Loss

The above diagram, NEA could not obtain any profit after adjusting non-operating expenses such as depreciation, provision for loss, deferred revenue expenditure and loss on foreign exchange until 2015/16. As it was suffering from huge loss even after adjusting the non-operating expenses it could not recover the loss except in 2012/13. After 2015/16 NEA started to gain profit. After adjusting as funds from operation, the enterprise suffered from operating loss.

4.9 Analysis of cash /bank balance

Cash is the most important current asset for the operation of a business. None of the company or an enterprise can operate without cash. It is the cash from which all transaction are done. Manufacturing or trading of any products or services are held through cash. Thus cash is the most important component of the organization. However, company should keep only sufficient cash. More cash balance reduces rate of return on equity and less cash balance reduces investment opportunities. That is why company shoud be very careful while holding cash.

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

Table 15. Cash/Bank Balance

Fiscal year	Opening Cash and Bank (Rs.)	Closing Cash and Bank (Rs.)	Increase(decrease) percent
2010/11	1,244.65	2,016.58	7.72
2011/12	2,016.58	2,697.48	6.81
2012/13	2,697.48	4,714.98	20.18
2013/14	4,714.98	6,121.57	14.07
2014/15	6,121.57	10,621.60	45.00
2015/16	10,621.60	15,361.60	47.40
2016/17	15,361.60	24,823.79	94.62
2017/18	24,823.79	34,494.63	96.71
2018/19	34,494.63	31,144.99	-33.50

Noted from: Researcher's calculation

The above table shows the cash/bank balance of NEA was fluctuating. The above it shows that opening cash/bank balance was Rs.1,244.65, 2,016.58, 2,697.48, 4,714.98 6,121.57, 10,621.60, 15,361.60, 24,823.79 and 34,494.63 million and closing cash/bank balance was Rs. 2,016.58, 2,697.48, 4,714.98, 6,121.57, 10,621.60, 15,361.60, 24,823.79, 34,494.63 and 31,144.99 million from 2010/11 to 2018/19

respectively. Cash balance was increasing and decreasing trend subsquently which can be shown with the following diagram.

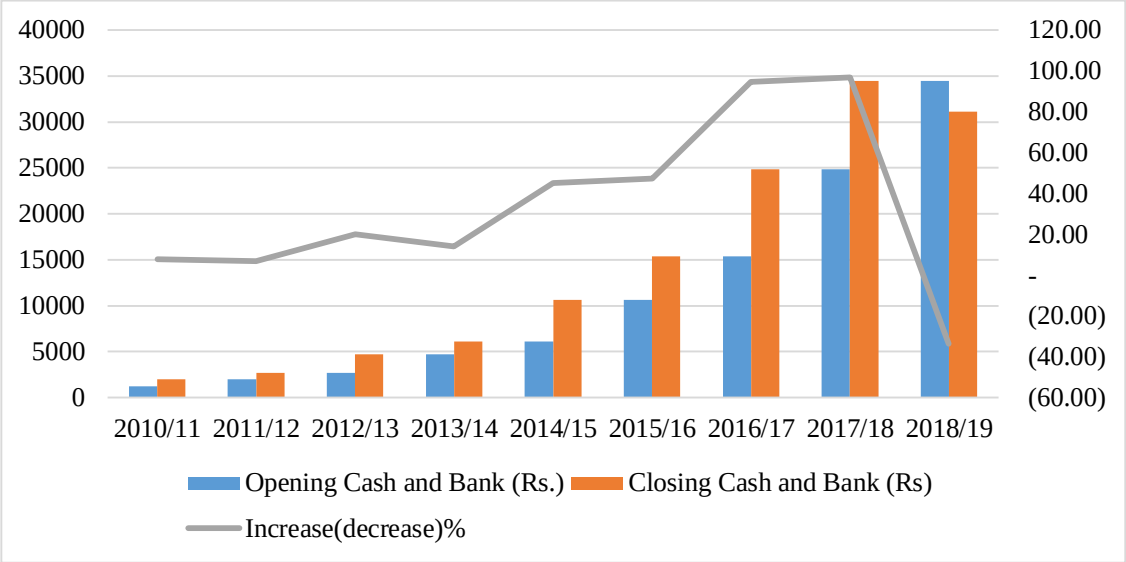

Figure 10. Cash/Bank Balance

Closing cash balance was derived by adding opening cash balance to the net cash increase/decrease i.e cash generation (CFOA+CFIA+CFFA). If net cash increases i.e if there is positive cash generation, closing cash balance will be greater than opening cash balance and vice-versa. In 2010/11, closing cash balance was greater than opening balance. It increased by 7.72 percent than previous year. The company posted a loss for the period but received enough cash from borrowing to offset the loss, more cash inflow from operating activities and create positive cash flow. Since 2010/11 to 2017/18 there is positive cash generation. The cash increased by 6.81, 20.18, 14.07, 45.00, 47.40, 94.62, and 96.71 percent in 2010/11, 2011/12, 2012/13, 2013/14, 2014/15, 2015/16, 2016/17 and 2017/18 respectively. Therefore we can say that it was good move by the NEA. In 2018/19, closing cash balance was lower than opening balance. It decreased by 33.50 percent than previous year. It is because, from cash flow statement we found that in that year net cash flow was in negative figure due to huge investment of cash as well as purchase of plant & machinery that is operated from operating activities and financing activities.

4.10 Analysis of cash flow ratios as a accounting tools

As a accounting tools, various ***cash flow ratios*** have been used for the analysis of the data. Cash flow ratios are generally generated from cash from operation since cash

generated from operating activities excludes non cash and non operating expenses and gives true figure to analyse the data. The cash flow ratios used in this study are:

4.10.1 Cash flow sufficiency ratio

Cash flow sufficiency ratios are aimed 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 :

i. 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, the payment of debt, the acquisition of assets, and the payment of dividends. It is calculated using the following formula:

$$\text{Cash flow adequacy ratio} = \frac{\text{Cash flow from Operations}}{\text{Repayment of borrowings} + \text{Assets acquired} + \text{Dividends paid}}$$

Table 16. Cash flow adequacy ratio

Fiscal year	CFOA	Repayment	Assets acquired	Dividend paid	Ratio
2010/11	4,280.34	226.08	4,648.68	-	0.88
2011/12	(1,105.54)	-	3,905.47	-	(0.28)
2012/13	2,289.71	-	1,641.58	-	1.39
2013/14	4,041.87	192.00	3,774.00	-	1.02
2014/15	9,233.83	383.00	6,137.00	-	1.42
2015/16	131.50	-	5,637.37	-	0.02
2016/17	4,640.36	1,837.31	5,577.98	-	0.63
2017/18	5,090.63	1,019.00	26,853.72	-	0.18
2018/19	(3,581.37)	-	7,318.81	-	(0.49)

Noted from: Researcher's calculation

Assets acquired refer to the assets purchase. Dividend payment is nil because NEA didn’t pay dividend. It owned by the government. That's why all the capital contributions were made of the government. The cash flow adequacy was in decreasing trend from FY 2010/11 to 2018/19. In 2011/12, it was negative then after 2012/13 it was in decreasing trend and reach to negative in 2018/19. Negative ratios of FY 2011/12 and 2018/19 indicates that NEA couldn't pay for purchase of needed assets and for repayment of borrowing. The cause of negative adequacy ratio is that there was largely increased in debtor and purchase of plant and machinery was also in large amount. Cash flow adequacy should be 1 or more than 1. Following trend line shows the cash flow adequacy ratio of different years.

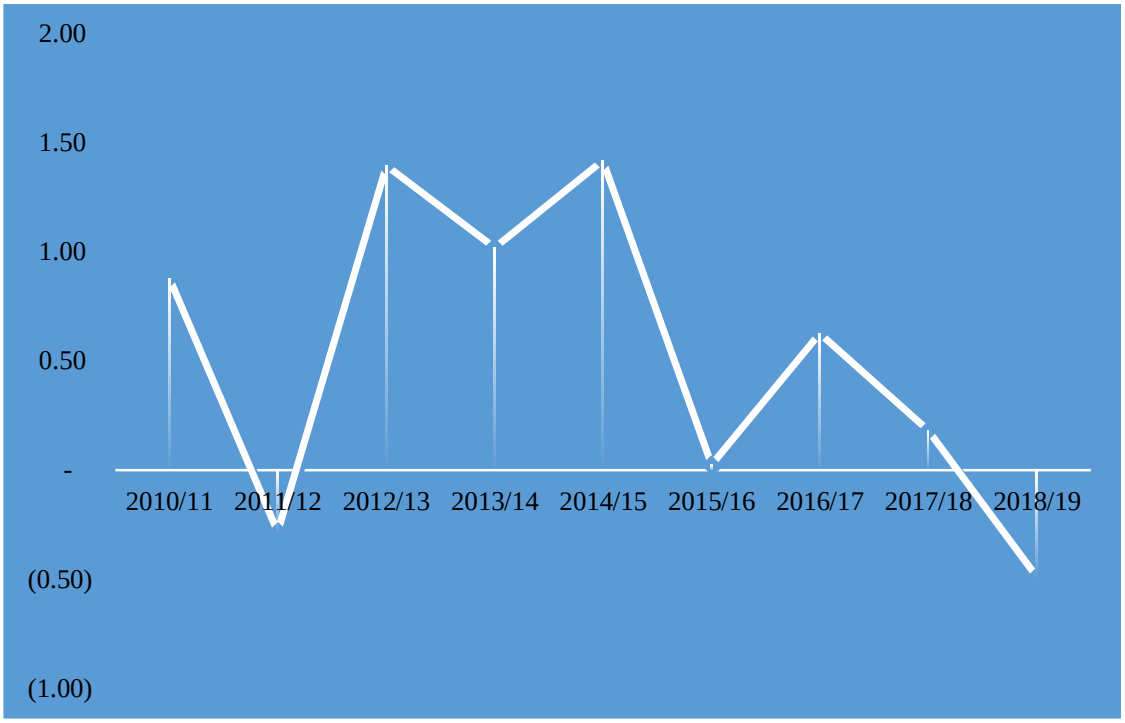

Figure 11. Cash flow adequacy ratio

It can be clearly defined that cash flow adequacy ratio was below one in the first year of the study. Then it attracted to decrease in second year. After that it increase till the FY 2014/15 having the ratio above one and finally in the final year, it again downfall 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. We found the satisfactory cash flows adequacy ratio is in fiscal years 2012/13, 2013/14 and 2014/15 i.e. 1.39, 1.02, and 1.42 respectively.

ii. Debt coverage ratios:

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

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

Table 17. Debt Coverage Ratio

Fiscal year	Total Debt	Cash flow from operation	Debt Coverage Ratio
2010/11	90,457.80	4,280.34	21.13
2011/12	98,046.29	(1,105.54)	(88.69)
2012/13	108,054.11	2,289.71	47.19
2013/14	120,328.89	4,041.87	29.77
2014/15	143,995.98	9,233.83	15.59
2015/16	162,628.09	131.50	1,236.72
2016/17	164,766.97	4,640.36	35.51
2017/18	179,094.42	5,090.63	35.18
2018/19	187,276.79	(3,581.37)	(52.29)

Noted from: Researcher's calculation

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

Since debt coverage ratio is computed dividing total debt by cash from operation, it is better to have the ratio below one. But above table indicates the ratio of debt coverage was above one except in 2011/12 and 2018/19 which explains NEA has to do lots of things to increase its cash inflows. NEA is far way back to pay its total debt. It is very much dependent on foreign loans to pay its local debt and that is why its long term loan has been increasing.

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

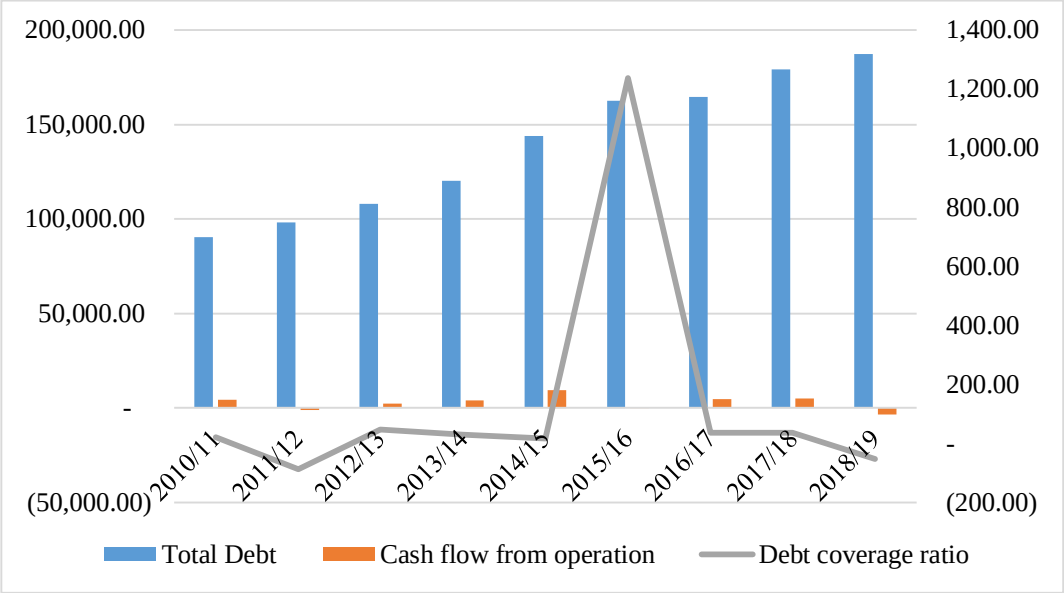

Figure 12. Debt coverage Ratio

The above trend line obiviously 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 needed 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.

iii. Repayment of borrowings ratio

This ratio indicates the ability of a firm to generate cash operating activates for covering long –term debt commitments in the current year. Here

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

The following table shows the repayment of borrowing ratio:

Table 18. Repayment of borrowing ratio

Fiscal year	Repayment of borrowing	Long-term debt	Ratio percent
2010/11	226.08	62,631.85	0.36
2011/12	-	68,909.20	-
2012/13	-	75,034.89	-
2013/14	192.00	82,691.67	0.23
2014/15	383.00	98,253.08	0.39
2015/16	-	111,303.64	-
2016/17	1,837.31	110,681.69	1.66
2017/18	1,019.00	120,261.15	0.85
2018/19	-	140,245.85	-

Noted from: Researcher's calculation

Higher the ratio higher will be the repayment of borrowing and vice-versa. Above table shows the repayment of borrowing ratio of NEA was 0.36 percent in 2010/11, 0 percent in 2011/12 and 2012/13, 0.23 percent in 2013/14, 0.39 percent in 2014/15, 0 percent in 2015/16, 1.66 percent in 2016/17, 0.85 percent in 2017/18 and 0 percent in 2018/19. The above ratio indicates NEA has been paying very little amount of debt out of its total amount of long-term debt and in some years NEA failed to pay any debt at all. It signifies long term debt of NEA is increasing every year which is not good for the enterprise. 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 have to pay the interest amount and which ultimately decreases net profit as well as cash inflow.

It can be presented by the diagram as follow:

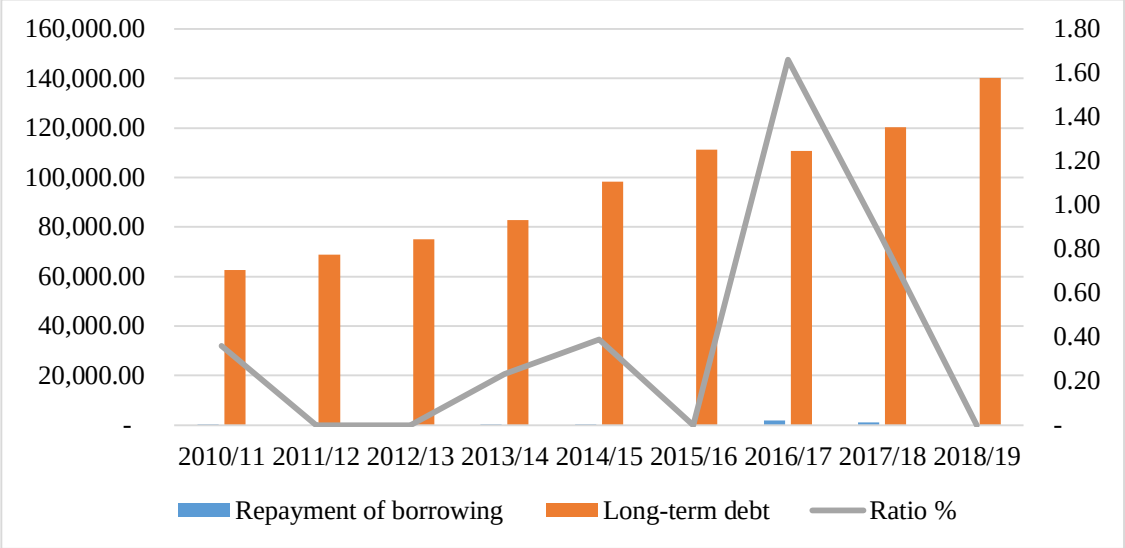

Figure 13. Repayment of Borrowing Ratio

From the above diagram, we can say that there was very less contribution by the repayment in paying the debt. Borrowing was taken by the NEA in huge value and there was not much of repayment, which shows NEA is not able to generate enough cash from operating activities so that it can pay its all the debt as soon as possible.

iv. Reinvestment Ratio

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

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

Table 19. Reinvestment ratio

Fiscal year	Purchase of property, plant & equipment	Cash flow from operation	Ratio
2010/11	4,648.68	4,280.34	1.09
2011/12	3,905.47	(1,105.54)	(3.53)
2012/13	1,641.58	2,289.71	0.72
2013/14	3,774.00	4,041.87	0.93
2014/15	6,137.00	9,233.83	0.66
2015/16	5,637.37	131.50	42.87
2016/17	5,577.98	4,640.36	1.20
2017/18	26,853.72	5,090.63	5.28
2018/19	7,318.81	(3,581.37)	(2.04)

Noted from: Researcher's calculation

The main purpose of computing this ratio is to figure out how much money the NEA has spent in purchasing or investing in property, plant and equipment. Higher ratio signifies higher purchase of property, plant and equipment and vice-versa. From above table, we can say that in 2015/16, highest cash was spent on purchase of fixed assets. In that year the ratio was 42.87. In the subsequent years, NEA slows down its purchasing capability. However, in 2011/12 and 2018/19 the reinvestment ratio tends to be in negative, this is due to its depreciation exceeds its capital expenditures and if the working capital declines substantially during the course of the year. It signifies, NEA is expanding its operation.

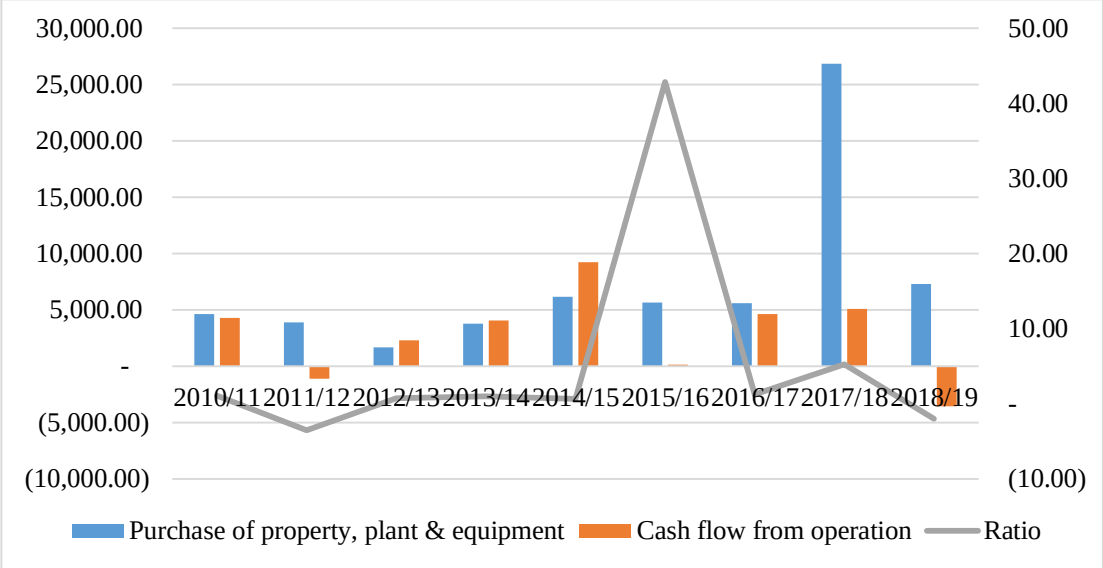

Figure 14. Reinvestment Ratio

The above trend line shows the reinvestment ratio decreases heavily from the second year till 2014/15 during the study period, which refers investment done in purchasing plant and equipment is decreasing. Thus, NEA has to invest more and purchase more advanced plant and equipment to expand its operation and that has been somewhat achieved in 2015/16. After that year NEA succeed to reduce the problem of loadshedding people were facing in past days. Thus, NEA needs to invest more on purchasing plant and equipment to expand or build new hydro powers.

4.10.2 Cash flow return ratios

This group is sometime 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 as disclosed in the cash flow statement these are as follows.

a. Cash flow 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 am ploys information provided by the statement of cash flows and the income statement .it is computed by dividing cash from operating activities by revenues

Here, cash flows on revenues $= \frac{\text{Cash flows from operation}}{\text{Revenue}}$

Table 20. Cash Flow on Revenue Ratio

Fiscal year	Cash flow from operation	Revenues	Ratio
2010/11	4,280.34	19,329.76	0.22
2011/12	(1,105.54)	21,784.06	(0.05)
2012/13	2,289.71	27,222.99	0.08
2013/14	4,041.87	30,362.60	0.13
2014/15	9,233.83	33,285.03	0.28
2015/16	131.50	35,073.54	0.00
2016/17	4,640.36	51,703.11	0.09
2017/18	5,090.63	61,973.74	0.08
2018/19	(3,581.37)	73,460.39	(0.05)

Noted from: Researcher's calculation

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. When purchase and payments to the creditors, cash operating expenses, interest expenses, tax expenses are deducted from sales revenue and adjusted marketable securities and bank overdraft in the result amount, we obtain cash from operation which we have already discussed in the literature of review with a table format. 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:

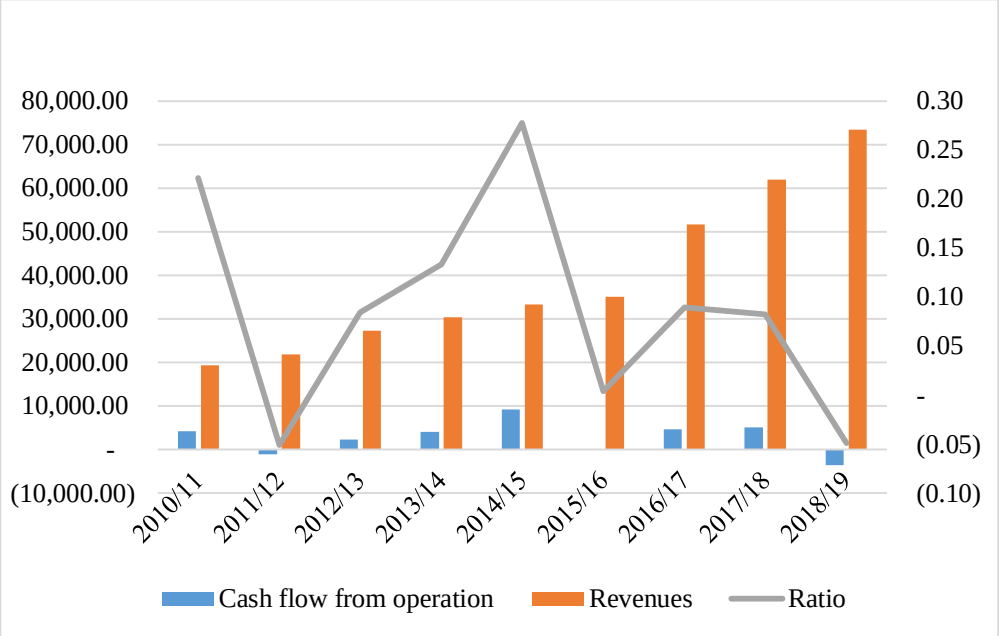

Figure 15 Cash Flow on Revenue Ratio

From above table and trend line, we can say that less than 0.5 i.e 50 percent cash was generated from revenue. In 2010/11, the ratio was 0.22 which indicates only 22 percent cash was generated out of 100 percent which shows the NEA's weak ability to turn revenue into cash. In 2011/12, the ratio is in negative. In 2012/13, 8 percent, 13 percent, 28 percent, 0.3 percent, 9 percent and 8 percent cash was generated in 2013/14, 2014/15, 2015/16, 2016/17 and 2017/18 respectively. And in 2018/19 the ratio was in negative again. The low or negative cash flow on revenue ratio may not necessarily mean that a company is experiencing business challenges. Instead, it may indicate that it is in the middle of a period of significant capital investments to meet expected higher demand for its products in the future.

Thus, NEA is not fully able to convert its revenue to cash. Moreover, it is 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.

b. Cash Flows 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, we get net income/profit. 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, we obtain funds from operation (FFO) and when we add decrease in working capital except cash and deduct increase in working capital except cash we ascertain cash from operating activities which we have already discussed in review of literature. It is calculated as cash flows from operations divided by profit after income tax.

Here, Cash flow to net income ratio = $\frac{\text{Cash flow from operations}}{\text{Net Profit}}$

Table 21. Cash flow to net income ratio

Fiscal year	Cash flow from operation	Net Profit	Ratio
2010/11	4,280.34	(6,089.22)	(0.70)
2011/12	(1,105.54)	(9,947.88)	0.11
2012/13	2,289.71	(3,405.41)	(0.67)
2013/14	4,041.87	(6,808.36)	(0.59)
2014/15	9,233.83	(5,129.76)	(1.80)
2015/16	131.50	(8,890.19)	(0.01)
2016/17	4,640.36	1,467.25	3.16
2017/18	5,090.63	2,848.11	1.79
2018/19	(3,581.37)	7,114.04	(0.50)

Noted from: Researcher's calculation

In the above table, it is found that the ratio was in negative in the first year but the ratio in second year was positive. After the sencond year again the ratio was in negative till 2015/16 and positive in 2016/17 and 2017/18. In the last year of the study it was negative again. Since net profit was in negative figure i.e there was loss from

2010/11 to 2015/16 However, cash flow from operation was positive in all years except in 2011/12. It signifies that though the enterprise is bearing loss, it can generate positive cash inflow. It also signifies that non operating expenses very much affects net pofit 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, we should't based our decision only on net profit of the firm, we also have to analyse the CFOA.

The ratio can be shown with the following diagram:

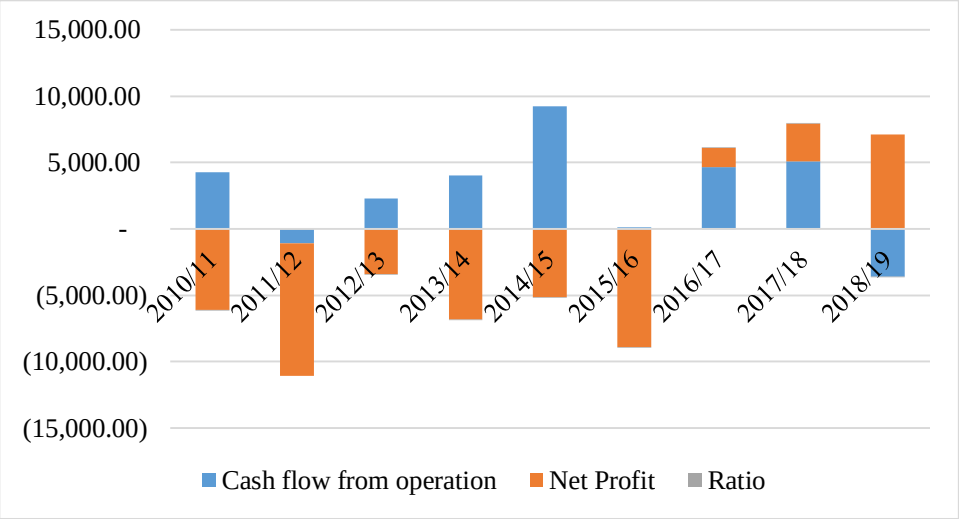

Figure 16. Cash Flow to Net Income Ratio

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

c. Cash flows 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:

Here, Cash flow return on assets = $\frac{\text{Cash flow from operations + Income tax +Interest paid}}{\text{Average total assets}}$

Table 22. Cash flow return on assets

Fiscal year	Cash flow from operation	Income tax paid	Interest paid	Total Assets	Ratio
2010/11	4,280.34	-	3,594.01	126,780.09	0.062
2011/12	(1,105.54)	-	3,885.49	137,062.46	0.020
2012/13	2,289.71	-	4,039.65	149,512.80	0.042
2013/14	4,041.87	-	4,234.51	165,162.24	0.050
2014/15	9,233.83	-	4,670.21	189,544.17	0.073
2015/16	131.50	-	5,079.73	210,689.37	0.025
2016/17	4,640.36	-	3,546.15	244,962.38	0.033
2017/18	5,090.63	-	3,221.78	284,572.05	0.029
2018/19	(3,581.37)	-	4,550.00	329,509.12	0.003

Noted from: Researcher's calculation

From above table it is observed that cash flow return on assets ratio was 0.062, 0.020, 0.042, 0.050, 0.073, 0.025, 0.033, 0.029 and 0.003 from fiscal year 2010/11 to 2018/19 respectively. Higher ratio implies higher cash generation from the utilization of total assets. Thus we can say that highest cash was generated in 2014/15 since the ratio obtained was higher than the rest. Then it gradually starts to fall down which shows NEA's inability to utilize its assets properly. It can be presented with the following trend line:

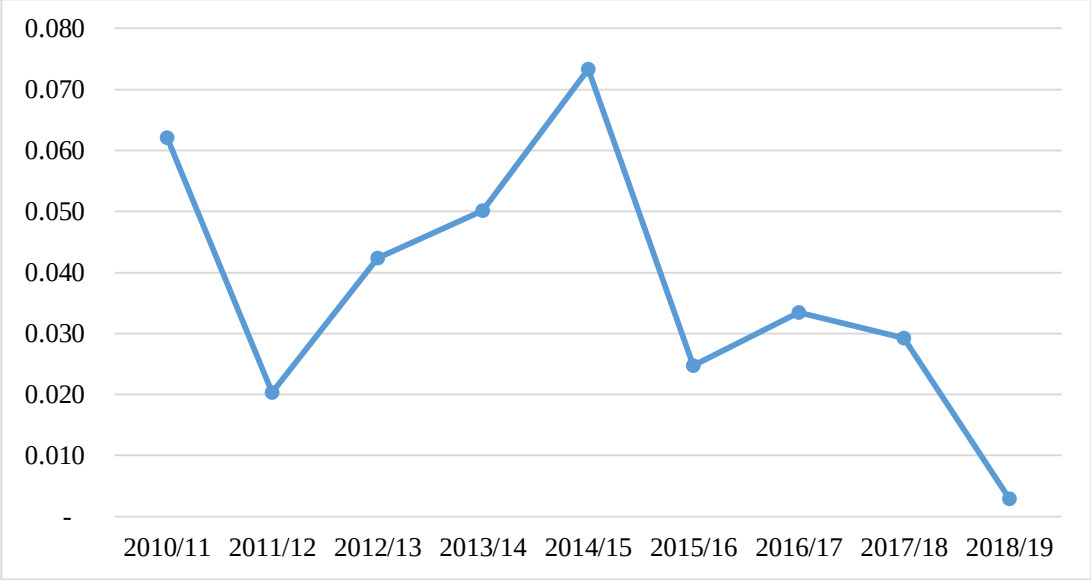

Figure 17. Cash Flow Return on Asset

From the above trend line we can say that the ratio was in fluctuating trend. It signifies, NEA was unable to use its resources to the fullest. A Higer ratio usually indicates efficiency in the utilization of its available resources ans vice-versa. From above derivation, we found that NEA has failed consistently to generate cash from its resources. It also tells that NEA has a poor management and strategic policy.

d. Cash flows 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 shares in NEA and it is totally controlled by the government, profit is taken as a part of return.

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

Table 23. Cash flow return on stockholders' equity ratio

Fiscal year	Cash flow from operation	Stockholder's equity	Ratio
2010/11	4,280.34	27,372.36	0.16
2011/12	(1,105.54)	23,261.50	(0.05)
2012/13	2,289.71	25,848.15	0.09
2013/14	4,041.87	26,180.69	0.15
2014/15	9,233.83	25,545.52	0.36
2015/16	131.50	26,008.62	0.01
2016/17	4,640.36	56,076.41	0.08
2017/18	5,090.63	78,839.70	0.06
2018/19	(3,581.37)	112,094.39	(0.03)

Noted from: Researcher's calculation

From above table it is observed that cash flow return on stockhloders' equity was 0.16, (0.05), 0.09, 0.15, 0.36, 0.01, 0.08, 0.06 and (0.03) from fiscal year 2010/11 to 2018/19 respectively. From this derivation, we can say that there was fluctuation in maintaining the ratio. NEA was not consistent in utilizing the available sources of fund so that it can repay to its shareholder. Since there was only government's share and it is totally owned by the government, government takes cash that generated by the NEA instead of dividend. Above table signifies, NEA is inefficient to generate required cash. It can be presented with the following trend line:

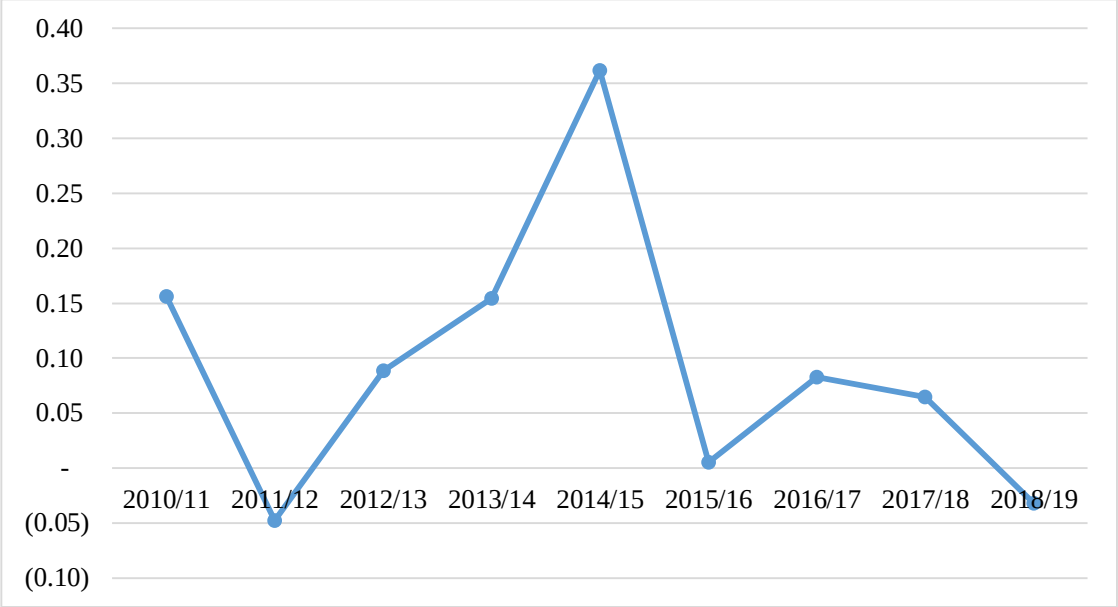

Figure 18. Cash Flow Return of Stockholder's Equity

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.

4.10.3 Cash Inflow to Outflow Ratio

Cash turnover ratio basically analysis 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.

$$\text{Cash inflow to outflow ratio} = \frac{\text{Total Cash inflow}}{\text{Total Cash outflow}}$$

Table 24. Cash inflow to outflow ratio

Fiscal year	Total cash inflow	Total cash outflow	Ratio
2010/11	12,540.58	11,768.65	1.07
2011/12	13,742.42	10,850.44	1.27
2012/13	15,025.38	13,007.88	1.16
2013/14	18,652.50	17,245.91	1.08
2014/15	29,176.56	24,676.53	1.18
2015/16	21,755.72	17,015.72	1.28
2016/17	30,282.44	20,820.25	1.45
2017/18	34,525.40	24,854.56	1.39
2018/19	46,352.34	42,539.24	1.09

Noted from: Researcher's calculation

From the above table, it is observed that the ratio of cash inflow to outflow is 1.07, 1.27, 1.16, 1.08, 1.18, 1.28, 1.45, 1.39 and 1.09 from 2010/11 to 2018/19 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 is more than inflow.

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, we can say that from where cash is obtained and where it is being used. NEA has 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 and it is because to operate and expand services, an enterprise has to purchase more plant and machinery as well as it has to invest in other hydro project too. Thus, there is cash outflow due to investment purpose.

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

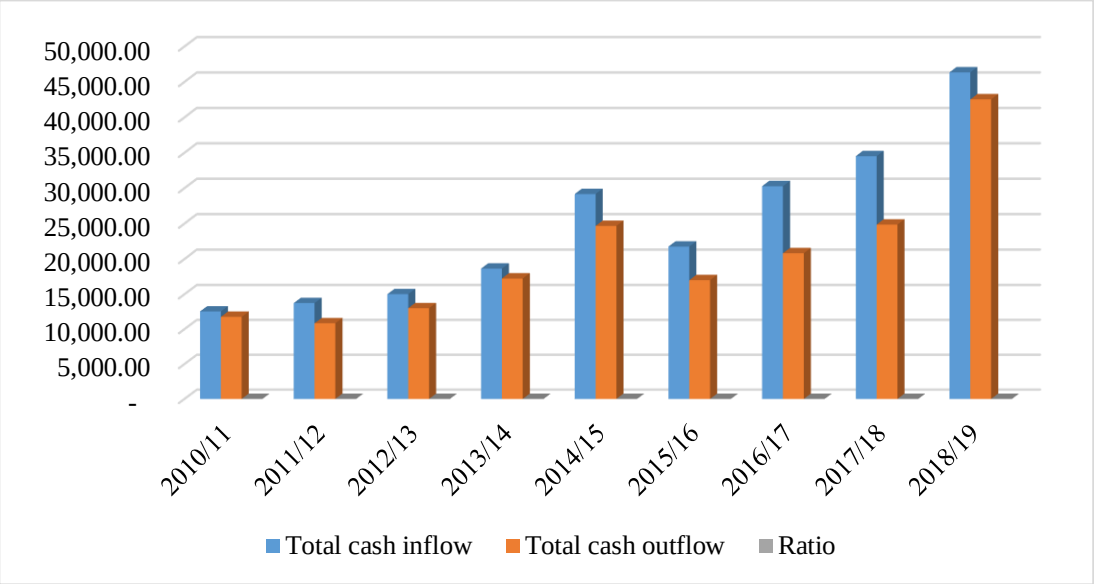

Figure 19. Cash Inflow to Outflow Ratio

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 are utilized in investing activities. In the study period, cash outflow was greater than cash inflow. It indicates, NEA used excess cash from cash and bank balance.

4.10.4 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.

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

$$\text{Cash flow liquidity ratio} = \frac{\text{Cash flows from operating activities + cash/ bank balance}}{\text{Current liabilities}}$$

Table 25. Cash Flow Liquidity Ratio

Fiscal year	CFOA	Cash/bank balance	CL	ratio
2010/11	4,280.34	2,016.58	36,082.68	0.17
2011/12	(1,105.54)	2,697.48	44,198.56	0.04
2012/13	2,289.71	4,714.98	47,936.56	0.15
2013/14	4,041.87	6,121.57	55,596.67	0.18
2014/15	9,233.83	10,621.60	65,052.36	0.31
2015/16	131.50	15,361.60	72,683.90	0.21
2016/17	4,640.36	24,823.79	77,511.09	0.38
2017/18	5,090.63	34,494.63	84,778.00	0.47
2018/19	(3,581.37)	31,144.99	76,475.67	0.36

Noted from: Researcher's calculation

From above table, the ability to pay short-term debt had identified very poor during the study period. 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:

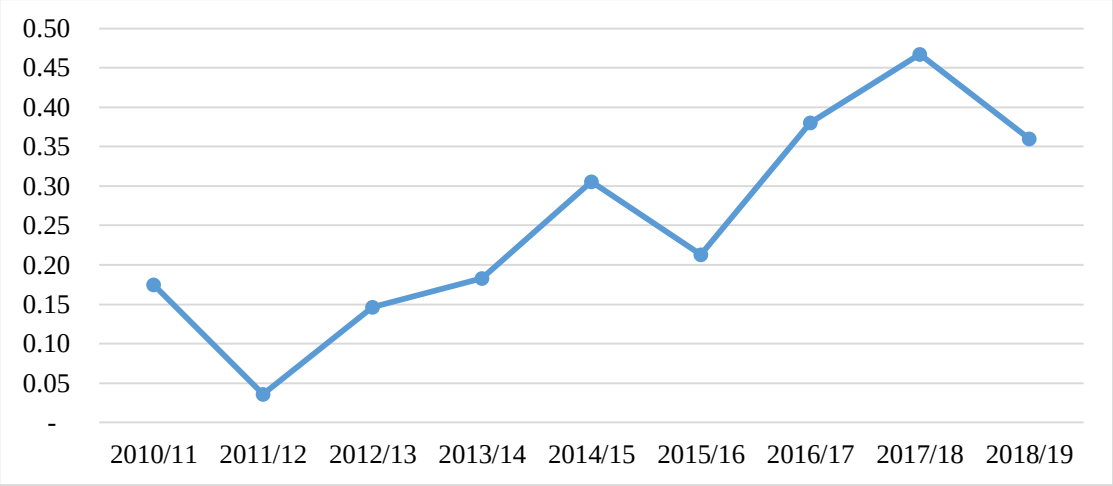

Figure 20. Cash Flow Liquidity Ratio

The above trend line shows the inability of NEA to pay its short term debt because the ratio falls below one. The ratio above one signifies the ability of NEA to pay its short term debt which we did not find. So, the company should extend its operation effectively to generate more cash inflow and should maintain more cash and bank balance at the end of each year.

4.10.5 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.

Cash flow margin ratio measures company's ability to turn sales revenue into cash.

$$\text{Cash turnover ratio} = \frac{\text{Cash and bank balance}}{\text{Sales}}$$

Table 26. Cash Turnover Ratio

Fiscal year	Cash and Bank	Sales	Cash turnover ratio
2010/11	2,016.58	17,946.82	11.24
2011/12	2,697.48	20,088.64	13.43
2012/13	4,714.98	25,354.62	18.60
2013/14	6,121.57	28,205.70	21.70
2014/15	10,621.60	30,168.77	35.21
2015/16	15,361.60	31,824.21	48.27
2016/17	24,823.79	46,795.78	53.05
2017/18	34,494.63	55,358.22	62.31
2018/19	31,144.99	65,951.27	47.22

Noted from: Researcher's calculation

The cash balance of the company should be optimum to meet its current obligations. The cash turnover ratio explains how quickly cash is 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 has fluctuating cash turnover ratio. Higher ratio was obtained in fiscal year 2017/18 i.e. 62.31 which indicates in that year more sales revenue turned into cash and lowest ratio was obtained in fiscal year 2010/11 i.e. 11.24

which indicates NEA made more expenses and spent more cash on investment which ultimately result to lower cash and bank balance.

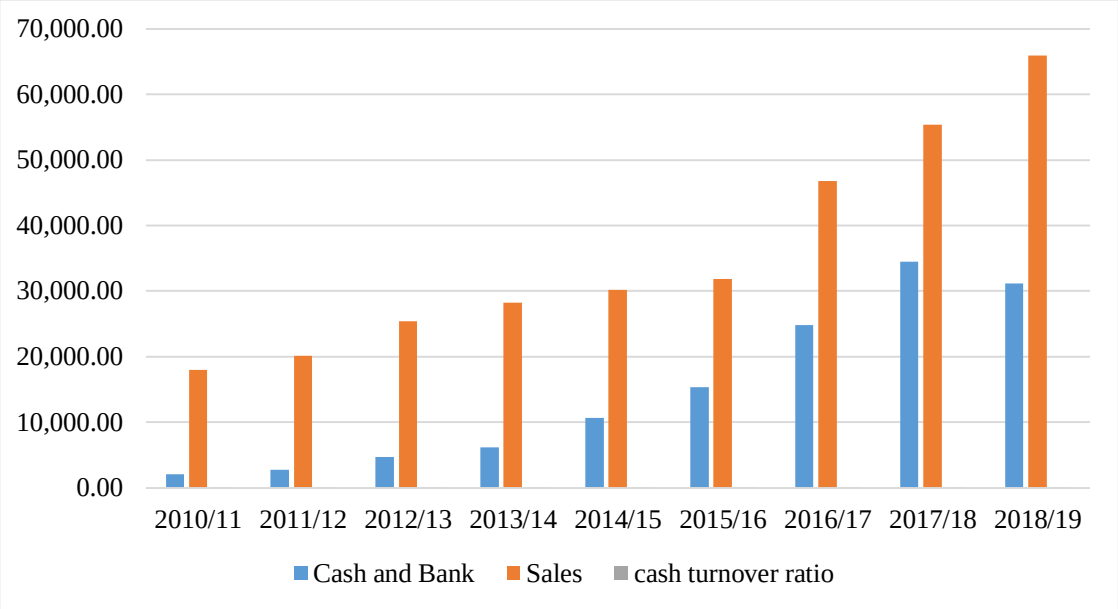

Figure 21. Cash Turnover Ratio

Statistical Tool:

4.11 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. It is denoted by ‘ r ’. Its value always lies between -1 and +1. The general rules for interpreting the value of r is :

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

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

iv. When r = 0, the variables are uncorrelated.

v. Nearer the value of r to +1, closer will be the relationship between two variables and nearer the value of r to 0, lesser will be the relationship.

Table 27. Correlation between cash balance and sales

Sales(x)	cash balance (y)	x = x- 30168.77	xy	x2	y2
17,946.82	2,016.58	(12,221.95)	(24,646,539.93)	149,376,061.80	4,066,594.90
20,088.64	2,697.48	(10,080.13)	(27,190,949.07)	101,609,020.82	7,276,398.35
25,354.62	4,714.98	(4,814.15)	(22,698,620.97)	23,176,040.22	22,231,036.40
28,205.70	6,121.57	(1,963.07)	(12,017,070.42)	3,853,643.82	37,473,619.26
30,168.77	10,621.60	-	-	-	112,818,386.56
31,824.21	15,361.60	1,655.44	25,430,207.10	2,740,481.59	235,978,754.56
46,795.78	24,823.79	16,627.01	412,745,404.57	276,457,461.54	616,220,549.96
55,358.22	34,494.63	25,189.45	868,900,757.65	634,508,391.30	1,189,879,498.84
65,951.27	31,144.99	35,782.50	1,114,445,604.68	1,280,387,306.25	970,010,402.10
		∑x	**∑xy**	**∑x2 =**	**∑y2 =**
	∑y=131,997.22	**=50,175.10**	**=2,334,968,794**	**2,472,108,407**	**3,195,955,241**

Noted from: Researcher's calculation

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x2 - (\sum x)2} * \sqrt{n\sum y2 - (\sum y)2}}$$

$$= \frac{9*2,334,968,794 - 50,175.10*131,997.22}{\sqrt{9*2,472,108,407 - (50,175.10)^2}\ \sqrt{9*3,195,955,241 - (131,997.22)^2}}$$

$$= \frac{14,391,745,429.27}{140,468.63*106,490.99}$$

$$= 0.96$$

Since the value of r is 0.96, there is positive correlation between sales revenue and cash/bank balance. It means, higher the sales revenue higher will be the cash/bank balance.

Again,

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

$$= 0.6745 * \frac{1-(0.96)^2}{\sqrt{9}}$$

$$= 0.018$$

Now,

9 P.E. = 9 * 0.018

= 0.162

Since r >9 P.E. i.e 0.96>0.162, We can say that the ascertained value of correlation coefficient, r is significant.

4.12 Regression and Trend analysis

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

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 asists 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 2010/11 to 2018/19. For this, cash from operating, investing and financing activities are calculated by fitting the straight trend line considering operating, investing and financing activities as dependent variable and sales revenue as independent variable.

4.12.1 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, we can predict future sales revenue as follows:

Table 28. Trend analysis of sales revenue

Fiscal year (X)	Revenue (y)	x=X-2015	xy	x^2
2011	17,946.82	-4.00	-71,787.28	16.00
2012	20,088.64	-3.00	-60,265.92	9.00
2013	25,354.62	-2.00	-50,709.24	4.00
2014	28,205.70	-1.00	-28,205.7	1.00
2015	30,168.77	0.00	0	-
2016	31,824.21	1.00	31,824.21	1.00
2017	46,795.78	2.00	93,591.56	4.00
2018	55,358.22	3.00	166,074.66	9.00
2019	65,951.27	4.00	263,805.08	16.00
	∑y=321,694.03	**∑x =0**	**∑xy =344,327.37**	**∑x2 =60**

Noted from: Researcher's calculation

In the above table, fiscal year 2011 refers to 2010/11. Similarly, 2012 refers 2011/12 and so on.

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,

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

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

Now,

$$b = \frac{344,327.37}{540}$$

$$= 637.64$$

again,

$$a = \frac{321{,}694.03}{9} - 637.64 * \frac{0}{9}$$

$= 35{,}743.78$

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

$Y = 637.64 + 35743.78\ x$

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 2020 (2019/20),

$x = X - 2015$

$= 2020 - 2015$

$= 5$

and,

$Y = 637.64 + 35{,}743.78\ x$

$= 179{,}356.54$

2. For 2021 (2020/21),

$x = X - 2015$

$= 2021 - 2015$

$= 6$

and,

$Y = 637.64 + 35{,}743.78\ x$

$= 215{,}100.32$

3. For 2022 (2021/22),

$x = X - 2015$

$= 2022 - 2015$

$= 7$

and,

$Y = 637.64 + 35{,}743.78\ x$

$= 250{,}844.10$

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

Table 29. Estimated sales revenue

Fiscal year	Estimated sales revenue
2019/020	179,356.54
2020/021	215,100.32
2021/022	250,844.10

Noted from: Researcher's calculation

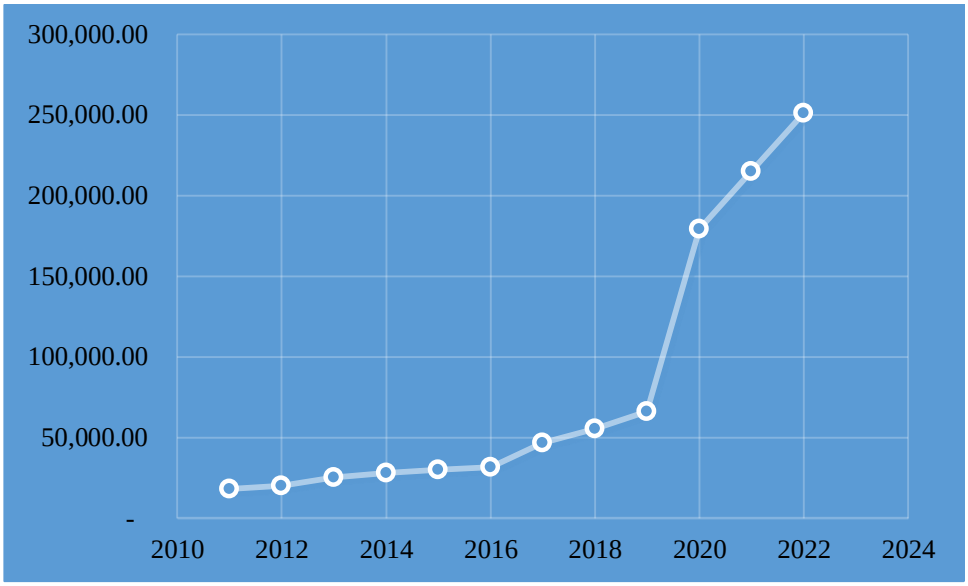

Figure 22. Revenue

From above trend line, it is observed that sales revenue is in increasing trend in the future as well. But the most important fact we 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, as NEA declared no load shedding, it is possible to get above mentioned revenue.

Thus, we can say that, if all the risk factors do not exists then above trend of sales revenue can be achieved.

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

A series formed from a sequence of statistical data arranged in accordance with their time of occurrence is called to be a time series Mathematical , a time series is defined by the function relationship y=(t) where is the value of lines is taken as an example of time series . the information in statement of cash flows also assists in predicating the ability to generate future cash flows here an effort is made to out the future cash from flows of NEA for the F/Y 2010/11 to 2018/19 for this cash from operating investing and financing activate were calculated by fitting the straight trend line considering operating, investing and financing activities as dependent variable and sales revenue as independent variable.

4.12.2 Estimation of CFOA using Regression analysis

Here CFOA is directly dependent revenue is considered as independent variable and CEOA as dependent variable.

Table 30. Estimation of CFOA using Regression Analysis

Sales(X)	CFOA (Y)	d1 = X-30168.77	d2=Y-9233.83	d1*d2	$d1^2$	$d2^2$
17,946.82	4,280.34	(12,221.95)	(4,953.49)	60,541,307.11	149,376,061.80	24,537,063.18
20,088.64	(1,105.54)	(10,080.13)	(10,339.37)	104,222,193.72	101,609,020.82	106,902,572.00
25,354.62	2,289.71	(4,814.15)	(6,944.12)	33,430,035.30	23,176,040.22	48,220,802.57
28,205.70	4,041.87	(1,963.07)	(5,191.96)	10,192,180.92	3,853,643.82	26,956,448.64
30,168.77	9,233.83	-	-	-	-	-
31,824.21	131.50	1,655.44	(9,102.33)	(15,068,361.18)	2,740,481.59	82,852,411.43
46,795.78	4,640.36	16,627.01	(4,593.47)	(76,375,671.62)	276,457,461.54	21,099,966.64
55,358.22	5,090.63	25,189.45	(4,143.20)	(104,364,929.24)	634,508,391.30	17,166,106.24
65,951.27	(3,581.37)	35,782.50	(12,815.20)	(458,559,894.00)	1,280,387,306.25	164,229,351.04
∑x =321,694.03	**∑y=25,021.33**	**∑d1 =50,175.10**	**∑d2= (58,083.14)**	**∑d1 d2=(445,983,139.00)**	**∑d12= (2,472,108,407.35)**	**∑d22 =491,964,721.74**

Noted from: Researcher's calculation

Here, no. of year (n) = 9

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

$= 30{,}168.77 + \frac{50{,}175.10}{9}$

$= 35{,}743.78$

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

$= 9{,}233.83 - \frac{58{,}083.14}{9}$

$= 2{,}780.15$

$byx = \frac{n \sum d1d2 - \sum d1 \sum d2}{n \sum d12 - (\sum d1)2}$

$$= \frac{9*-445,983,139.00 - 50,175.10 *- 58,083.14}{9*2,472,108,407.35 -(50,175.10)\ 2}$$

= (0.06)

Now,

We know that,

Regression equation on y on x is,

$y - \overline{y} = byx(x - \overline{x})$

y – 2,780.15 = -0.06 (x – 35,743.78)

y = -0.06x +4,924.78

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

For 2019/20,

X = sales = 179,356.54 (From calculation of estimation of sales revenue)

Y = - 0.06 * 179,356.54+4,924.78

= -5,836.61

For 2020/21,

X = sales = 215100.32 (From calculation of estimation of sales revenue)

Y = - 0.06 * 215,100.32+4,924.78

= -7,981.24

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

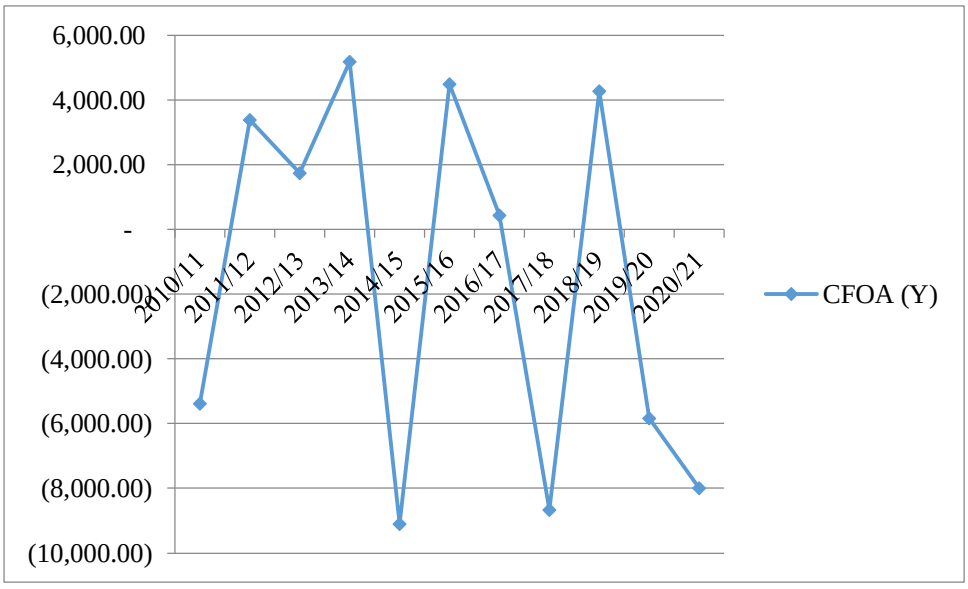

Figure 23. Cash Flow from Operating Activities

From above trend line, it is observerd the future CFOA would be both in negative i.e. Rs. -5,836.61 million in 2019/20 and Rs. -7,981.24 million in 2020/21. A negative operating cash flow would mean the company could not continue to pay its bills without borrowing money (financing activity) or raising additional capital (investment activity).

4.12.3 Estimation of CFIA using regression analysis

Table 31. Estimation of CFIA using Regression Analysis

Sales(X)	CFIA (Y)	d1 = X-30168.77	d2=Y-(-24676.53)	d1*d2	$d1^2$	$d2^2$
17,946.82	(11,768.65)	(12,221.95)	12,907.88	(157,759,463.97)	149,376,061.80	166,613,366.09
20,088.64	(10,850.44)	(10,080.13)	13,826.09	(139,368,784.59)	101,609,020.82	191,160,764.69
25,354.62	(13,007.88)	(4,814.15)	11,668.65	(56,174,631.40)	23,176,040.22	136,157,392.82
28,205.70	(17,245.91)	(1,963.07)	7,430.62	(14,586,827.20)	3,853,643.82	55,214,113.58
30,168.77	(24,676.53)	0.00	0.00	0.00	0.00	0.00
31,824.21	(17,015.72)	1,655.44	7,660.81	12,682,011.31	2,740,481.59	58,688,009.86
46,795.78	(20,820.25)	16,627.01	3,856.28	64,118,406.12	276,457,461.54	14,870,895.44
55,358.22	(24,854.56)	25,189.45	(178.03)	(4,484,477.78)	634,508,391.30	31,694.68
65,951.27	(42,539.24)	35,782.50	(17,862.71)	(639,172,420.58)	1,280,387,306.25	319,076,408.54
∑x =321,694.03	**∑y=-(182,779.18)**	**∑d1 =50,175.10**	**∑d2=39,309.59**	**∑d1 d2= (934,746,188.09)**	**$\sum d1^2$= 2,472,108,407.35**	**$\sum d2^2$ =941,812,645.71**

Noted from: Researcher's calculation

Here, no. of year (n) = 9

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

$= 30,168.77 + \frac{50,175.10}{9}$

$= 35,743.78$

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

$= -24,676.53 + \frac{39,309.59}{9}$

$= -20,308.80$

$byx = \frac{n \sum d1d2 - \sum d1 \sum d2}{n \sum d12 - (\sum d1)2}$

$= \frac{9 * -934,746,188.09 - 50,175.10 * 39,309.59}{9 * 2,472,108,407.35 - (50,175.10)\ 2}$

$= (0.53)$

Now,

We know that,

Regression equation on y on x is,

$y - \overline{y} = byx(x - \overline{x})$

$y - -20,308.80 = -0.53 (x - 35743.78)$

$y = -0.53x + 39,253.00$

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

For 2019/20,

X = sales = 179,356.54 (From calculation of estimation of sales revenue)

Y = -0.53 * 179,356.54+39,253.00

= -55,805.97

For 2020/21,

X = sales = 215100.32 (From calculation of estimation of sales revenue)

Y = -0.53 * 215100.32+39,253.00

= -74,750.17

Above mentioned future CFIA can be shown with the following trend line:

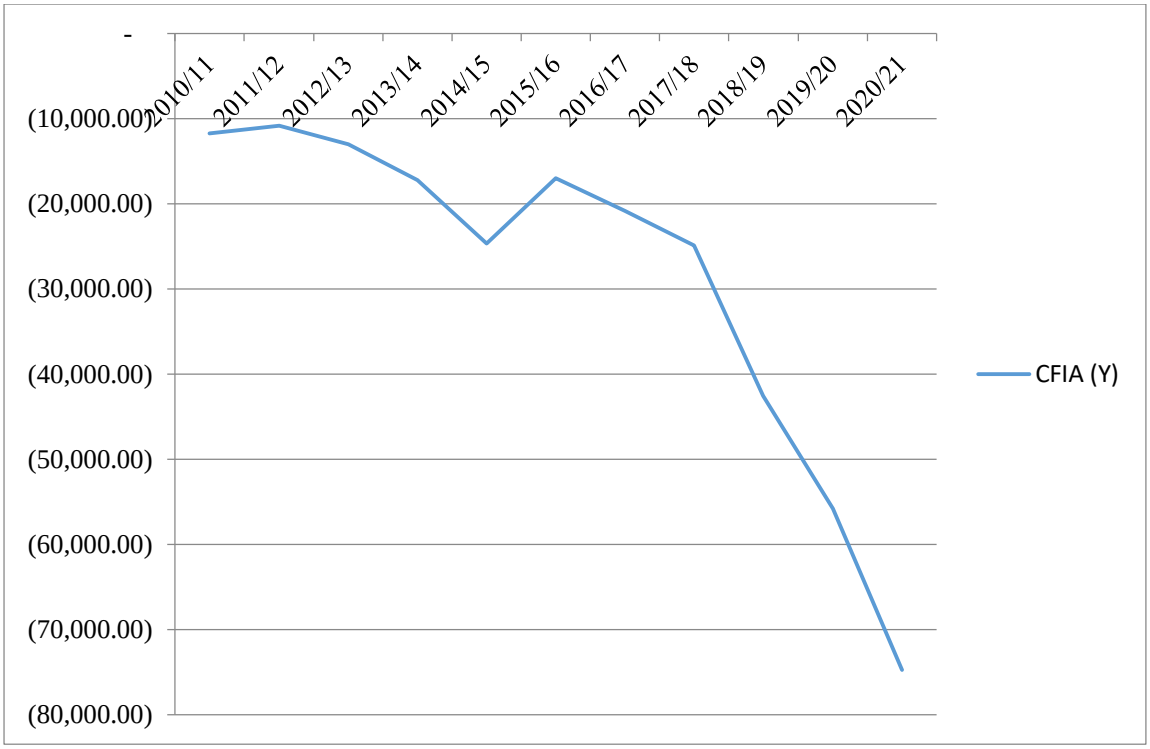

Figure 24. Cash Flow from Investing Activities

From the above estimation and the trend line, it is observed that the CFIA in 2019/20 would be Rs. (55,805.97) million and in 2020/21 it would be Rs. (74,750.17) million. It indicates, the investment is going to be decreased in the coming years.

4.12.4 Estimation of CFFA using regression analysis

Table 32. Estimation of CFFA using Regression Analysis

Sales(X)	CFFA (Y)	d1 = X-30168.77	d2=Y-4500.03	d1*d2	$d1^2$	$d2^2$
17,946.82	771.93	(12,221.95)	(3,728.10)	45,564,651.80	149,376,061.80	13,898,729.61
20,088.64	680.90	(10,080.13)	(3,819.13)	38,497,326.89	101,609,020.82	14,585,753.96
25,354.62	2,017.50	(4,814.15)	(2,482.53)	11,951,271.80	23,176,040.22	6,162,955.20
28,205.70	1,406.59	(1,963.07)	(3,093.44)	6,072,639.26	3,853,643.82	9,569,371.03
30,168.77	4,500.03	-	-	-	-	-
31,824.21	4,740.00	1,655.44	239.97	397,255.94	2,740,481.59	57,585.60
46,795.78	9,462.19	16,627.01	4,962.16	82,505,883.94	276,457,461.54	24,623,031.87
55,358.22	9,670.84	25,189.45	5,170.81	130,249,859.95	634,508,391.30	26,737,276.06
65,951.27	(3,349.64)	35,782.50	(7,849.67)	(280,880,816.78)	1,280,387,306.25	61,617,319.11
∑x =321,694.03	**∑y=29,900.34**	**∑d1 =50,175.10**	**∑d2=-10,599.03**	**∑d1 d2=34,358,072.8**	**∑$d1^2$= 2,472,108,407.35**	**∑$d2^2$ =157,252,022.43**

Noted from: Researcher's calculation

Here, no. of year (n) = 9

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

$= 30,168.77 + \frac{50,175.10}{9}$

$= 35,743.78$

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

$= 4,500.03 + \frac{-10,599.03}{9}$

$= 3,322.36$

$byx = \frac{n \sum d1d2 - \sum d1 \sum d2}{n \sum d12 - (\sum d1)2}$

$= \frac{9*(-34,358,072.8) - 50,175.10 *(-10,599.03)}{9*2,472,108,407.35 -(50,175.10)\ 2}$

$= 0.01$

Now,

We know that,

Regression equation on y on x is,

$y - \overline{y} = byx(x - \overline{x})$

$y - 3,322.36 = 0.01 (x - 35,743.78)$

$y = 0.01x + 2,964.92$

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

For 2019/20,

X = sales = 179,356.54 (From calculation of estimation of sales revenue)

Y = 0.01 * 179,356.54+2,964.92

= 4,758.49

For 2020/21,

X = sales = 215,100.32 (From calculation of estimation of sales revenue)

Y = 0.01 * 215,100.32+2,964.92

= 5,115.92

Above mentioned future CFIA can be shown with the following trend line:

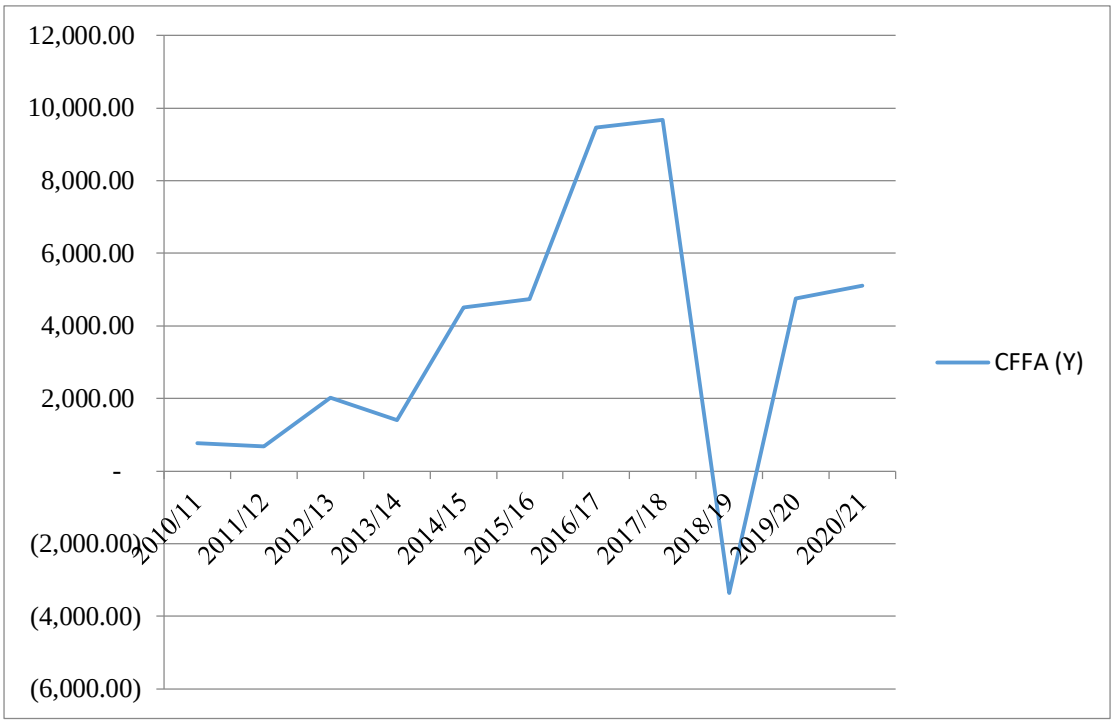

Figure 25. Cash Flow from Financing Activities

From the above figure, it is noted that CFFA in 2019/20 would be Rs. 4,758.49 million and in 2020/21 it would be Rs. 5,115.92 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.

4.12 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 maintained the positive cash flows from operating activating beside FY 2011/12 & FY 2018/19
2. Analysis of cash flows from investing activities shows NEA had excessive investment in under constructed hydropower plant and nonperforming fixed assets. It states that NEA has enhanced future growth opportunities and was able to expand its services.

3. Analysis of cash flows from financing activities shows that NEA and been dependent on long term loan and performed low repayment of debt.
4. Analysis of net cash flows showed that though NEA was suffering from loss it succeed to increase the net cash flow throughout the study period.
5. Analysis of profit and loss showed NEA had been continuously in loss till 2015/16 and is in profit since last three years.
6. NEA was suffering from loss except in past three years i.e. 2016/17, 2017/18 and 2018/19 as shown by income statement however, after adjusting non-operating expenses it is in fluctuating trend.
7. Studied of cash flow adequacy ratio of NEA showed that the 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. It had average 0.53 ratio
8. Average ratio of repayment of borrowing ratio was 0.39 which means NEA had 0.39 times ability to repay its borrowing out its long term debt.
9. Average ratio of reinvestment ratio was 5.24 which means NEA had 5.24 times capability of purchase its fixed assets out of its cash flows from operations.
10. Average of cash flow on revenue ratio was 0.09 which means cash outflow for operation was 8.80 percent of revenue.
11. There was negative and close relationship between sales and cash flows from operating activities which means if sales increase, cash flow from operating activity is decreases but no perhaps there is no evidence.
12. Average ratio of cash flow to net income ratio was 0.09 which mean cash inflow was partially possible despite of the net loss.
13. Average ratio of cash flow return on assets ratio was 0.04 which means cash inflow utilization of its assets was only 3.76 percent.
14. Average ratio of cash flows return on stockholders' equity ratio was 0.83 which means cash inflows on stockholders equity was only 83.37 percent.
16. Average ratio of cash inflow and cash outflow was 1.22 which means cash inflows and cash outflows were slightly greater.
17. Average ratio of cash flow liquidity ratio was 0.25 which means NEA's ability to pay short term debt was only 25.17 percent of total current liability.
18. Average ratio of cash turnover ratio was 34.56 which means cash generated out of sales was 34.56 times.

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 improve itself as a capable institution by investing into new hydro plant across the country for effective performance NEA needs to generated sufficient amount of cash which is considered as the lifeblood of business enterprise .Without cash no activates 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 of cash to operate. It is also important to know the cash position 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 flows 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 of an enterprise during the accounting period it is important and useful to every firm, short and long term creditor's 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 as 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 separately on income statement and balance sheets respectively. This cause misleading and confusing results to users. That is why, it important to prepare cash flow statement to ascertain true and fair figure of cash inflow and outflows and important to analyses it to find out the actual cash position of the organization.

For the purpose of conducting this study, data covering from the F/Y 2010/11 to 2018/19 were used cash flow statement 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 balance 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 supports the planned business operating activities ,the company had depend 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 it could call the money by issuing shares to the public which will reduce debt 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 in past years. But since previous three years, profit margin has increased. Similarly, in ratio with liability and total spending, the losses in employees spending and distribution ratio have declined. Along with ending decade long chronic load shedding, NEA is in profit due to good management. NEA has been taking several efforts to control electricity loss and administrative and financial reforms. Progress made in controlling electricity loss, import from India, declining of ratio of electricity purchase from private sector, control in maintenance and administration cost, ending load shedding and effective implementation of financial restructuring are the reasons to run NEA in profit.

5.2 Conclusions

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

Though income statement of NEA showed loss figure, after adjusting non-operating expenses from cash flow statement, NEA has obtained profit in some year and loss in some. Here, profit after adding back non operating expenses and deducting non operating gain was in fluctuating trend. Thus it can be said that NEA is able to provide its services well.

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 their mark able problems 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 had a poor management and strategic policy. Due to weak control over purchasing of fixed 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 except in F/Y 2011/12 and 2018/19. 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 in property, plant and equipment but the return from it is very low. Studied of cash flow adequacy ratio of NEA showed that the 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. 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 inflows 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 and investment. That is why, long term debt 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 flotation in handing the cash which might not be in the favor of the corporation of the services and excessive cash contribute nothing to the profit since idle cash earns nothing increasing trend of cost in every was another remarkable point for NEA. It hadn't adopted the cost control measures. But now NEA started to analysis its strengths weakness, opportunities and threat deeply though it has been facing competition from independent power producers and it started to made assessment of its present prospect and future potentiality seriously.

5.3 Recommendations

After the detail analysis of cash flow of NEA, the following recommendation can be made.

1. Cash sufficiency wasn't satisfactory. NEA has a low capability to repay its borrowing. Asset acquisition was over hauled. Because of excessive cash outflows, NEA should give first priority in collecting its receivable collation policy should not be affected by political pressure
2. To control cash inflow from revenue, leakage of electricity should be controlled.
3. Purchase of assets was the main aspect of outflow. NEA should stress on overhauled acquisition of assets and emphasized on efficient utilization of its assets. NEA should do a complete package of feasibility studies of project and invaluable with alternative before making capital investment.
4. NEA relied on loan instead of its internal source of finance. Interest on loan had been overdue. NEA's capability of repayment of its borrowing was significantly low. NEA should on its internal source of finance than collecting from outsiders.
5. NEA was in excessive loss, hence it could not maintain profit even after adjusting non-operating expenses. Controllable expenses should be controlled strictly. NEA should control its expenses on the basis of allocated budgeted out the year.
6. Most of capital investment of NEA came from long term loan. Timely completion of under constructed project is highly recommended to repay its loan.

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APPENDIX

Appendix - 1

Income Statement for the year ended July 16, (2011-2019)

Particulars	2019*	2018	2017	2016	2015	2014	2013	2012	2011
Net Sale Revenue	65,951.27	55,358.22	46,795.78	31,824.21	30,168.77	28,205.70	25,354.62	20,088.64	17,946.82
Cost of Sales									
Generation	1,852.01	1,678.52	1,463.94	1,333.13	1,383.95	1,886.51	1,604.31	1,147.69	929.56
Power Purchase	37,161.40	34,130.74	28,332.84	22,332.39	19,210.19	17,041.53	13,572.46	11,948.41	10,493.74
Royalty	1,437.55	1,428.79	967.37	883.13	892.46	888.67	890.49	941.60	854.76
Transmission	1,996.62	1,883.09	1,822.83	1,094.58	579.63	519.45	416.74	421.38	345.96
Gross profit	**23,503.70**	**16,237.08**	**14,208.80**	**6,180.97**	**8,102.54**	**7,869.54**	**8,870.62**	**5,629.56**	**5,322.80**
Other Income	7,509.12	6,615.52	4,907.33	3,249.33	3,116.26	2,156.90	1,868.37	1,695.42	1,382.94
Distribution Expenses	8,691.45	7,645.52	7,041.57	5,671.35	5,341.48	4,575.15	4,087.97	3,685.15	3,004.18
Administrative Expenses	2,190.72	2,042.95	1,601.57	1,218.58	1,339.02	1,239.19	1,327.50	973.38	866.74
Interest Expenses	4,550.00	3,221.78	3,546.15	5,079.73	4,670.21	4,234.51	4,039.65	3,885.49	3,594.01
Depreciation	4,710.28	4,210.28	3,755.22	3,554.36	3,471.02	3,296.62	3,228.68	3,175.80	3,031.33
Loss/(Gain) on Foreign Exchange	165.71	277.54	(410.70)	746.48	(523.17)	(52.77)	(652.14)	896.57	85.01
Provisions & write offs	-	-	-	-	-	-	-	549.79	323.68
Provision under Employees Benefits Plan	3,500.00	2,500.00	2,050.00	2,050.00	2,050.00	3,542.11	2,112.74	4,160.68	1,890.01
Provisions for Employees' Bonus	**-**	**57.94**	**30.05**	**-**	**-**	**-**	**-**	**-**	**-**
Net Profit/(Loss)before Tax	7,204.67	2,897.08	1,502.28	(8,890.19)	(5,129.76)	(6,808.36)	(3,405.41)	(9,947.88)	(6,089.22)
Provision for Income Tax**	-	-	-	-	-	-	-	-	-
Total Profit Available for Appropriation	7,204.67	2,897.08	1,502.28	(8,890.19)	(5,129.76)	(6,808.36)	(3,405.41)	(9,947.88)	(6,089.22)
Appropriation for Corporate Social Responsibility Fund	70.63	28.97	15.02	-	-	-	-	-	-
Appropriation for Insurance Fund	**20.00**	**20.00**	**20.00**	**-**	**-**	**-**	**-**	**-**	**-**
Profit/(Loss) transferred to Statement of Financial Position	**7,114.04**	**2,848.11**	**1,467.25**	**(8,890.19)**	**(5,129.76)**	**(6,808.36)**	**(3,405.41)**	**(9,947.88)**	**(6,089.22)**

**Note: - ***Provisional figures

** No tax provision has been made due to unrelieved accumulated losses

Appendix - 2

Statement of Financial Position as at July 16, (2011-2019)

Particulars	2019*	2018	2017	2016	2015	2014	2013	2012	2011
Assets									
Non-Current Assets									
Property, Plant & Equipment	120,303.35	112,984.54	90,341.20	88,521.09	86,439.05	84,238.72	83,873.47	85,460.71	84,725.47
Capital Work in Progress	110,065.19	77,607.00	80,272.33	66,684.09	58,052.39	46,993.93	39,843.17	29,905.45	22,832.03
Investments	34,591.55	29,941.55	25,845.37	21,755.05	17,550.91	12,288.26	6,807.56	5,049.17	4,855.07
Total Non-Current Assets	**264,960.09**	**220,533.09**	**196,458.89**	**176,960.24**	**162,042.34**	**143,520.91**	**130,524.20**	**120,415.33**	**112,412.57**
Current Assets									
Inventories	9,562.67	7,543.72	4,217.99	3,376.41	3,169.78	2,859.44	3,043.02	3,033.83	2,502.93
Trade and other Receivables	15,985.95	15,546.99	13,585.86	11,186.84	9,927.45	9,015.61	7,930.03	6,693.17	6,871.19
Cash and Cash Equivalents	31,144.99	34,494.63	24,823.79	15,361.60	10,621.60	6,121.57	4,714.98	2,697.48	2,016.58
Prepaid, Loans and Advances and Deposits	7,855.42	6,453.63	5,875.85	3,804.28	3,782.99	3,644.70	3,300.57	4,222.65	2,976.82
Total Currents Assets	**64,549.03**	**64,038.96**	**48,503.49**	**33,729.14**	**27,501.82**	**21,641.33**	**18,988.60**	**16,647.13**	**14,367.52**
Total Assets	**329,509.12**	**284,572.05**	**244,962.38**	**210,689.37**	**189,544.17**	**165,162.24**	**149,512.80**	**137,062.46**	**126,780.09**
Equity and Liabilities									
Capital and Reserves									
Share Capital	125,223.90	102,437.63	82,411.25	58,527.86	49,275.07	44,510.75	37,364.90	31,422.44	25,694.81
Reserves and Accumulated Profits									
Reserve	2,090.61	1,988.71	1,833.28	2,089.24	2,021.87	1,908.53	1,721.41	1,706.03	1,677.55
Accumulated Profits(Loss)	(15,220.12)	(25,586.64)	(28,168.13)	(34,608.47)	(25,751.42)	(20,238.58)	(13,238.16)	(9,866.97)	0.00
Total Reserve Accumulated Profits	**(13,129.51)**	**(23,597.93)**	**(26,334.85)**	**(32,519.23)**	**(23,729.55)**	(18,330.06)	**(11,516.75)**	**(8,160.94)**	**1,677.55**
Total Equity	112,094.39	78,839.70	56,076.41	26,008.62	25,545.52	**26,180.69**	25,848.15	23,261.50	27,372.36
Non-Current Liabilities									
Borrowings	140,245.85	120,261.15	110,681.69	111,303.64	98,253.08	82,691.67	75,034.89	68,909.20	62,631.85
Deferred Tax	**693.20**	**693.20**	**693.20**	**693.20**	**693.20**	**693.20**	**693.20**	**693.20**	**693.20**
Total Non-Current Liabilities	**140,939.06**	**120,954.35**	**111,374.89**	**111,996.85**	**98,946.28**	**83,384.87**	**75,728.09**	**69,602.40**	**63,325.05**
Current Liabilities									
Borrowings	-	-	-	-	-	700.00	1,200.00	3,500.00	790.00
Sundry Creditors and Other Payables	47,030.94	58,833.27	54,085.28	51,324.45	45,742.9	37,637.22	33,019.22	29,137.09	27,825.95
Provisions	**29,444.73**	**25,944.73**	**23,425.81**	**21,359.45**	**19,309.45**	**17,259.45**	**13,717.34**	**11,561.47**	**7,466.73**
Total Current Liabilities	**76,475.67**	**84,778.00**	**77,511.09**	**72,683.90**	**65,052.36**	**55,596.67**	**47,936.56**	**44,198.56**	**36,082.68**
Total Liabilities	**217,414.73**	**205,732.35**	**188,885.98**	**184,680.75**	**163,998.64**	**138,981.55**	**123,664.65**	**113,800.96**	**99,407.73**
Total Equity and Liabilities	**329,509.12**	**284,572.05**	**244,962.38**	**210,689.37**	**189,544.17**	**165,162.24**	**149,512.80**	**137,062.46**	**126,780.09**

**Note: - ***Provisional figures