CHAPTER - I

INTRODUCTION

1.1 Background of the Study

Nepal is one of the developing countries of the world. Majority of population are poor. The per capita income is estimated to be mere $473. Over 50 per cent of adults are illiterate. Infant and maternal mortality rates are high. According to the Human Development Index (HDI), Nepal ranks 144th of 182 countries.

More than ten years of political conflict had created an adverse effect on economy. Economic growth has been between 2 and 4 per cent in recent years and has not been sufficient to reduce the level of poverty.

Since the 1990s, the government has pursued a policy of market economics and has made efforts to liberalise and privatise the economy. However, the country's development is being held back by bureaucratic inertia, poor infrastructure, an inadequate education system, corruption, and a shortage of skilled labour.

The country's isolation too has long curved economic development. Despite important advances in other sectors of the economy, agriculture is still predominant in Nepal.

Nepal has few industrially usable raw materials. Consequently, alongside its agriculture, the country is forced to specialise in processing and services, where it faces strong competition from its neighbours, India and China. Since the domestic Nepalese market is small and purchasing power low, it is difficult to attract foreign investors. Nepal's export-based sectors are weak, with only carpets and textiles being internationally competitive. Remittances from migrant workers are becoming increasingly important for the economy and poverty reduction. Besides India, Nepalese migrant workers are to be found above all in the Gulf States, Malaysia, South Korea and Hong Kong.

Ninety per cent of enterprises are small. While they make an important contribution to job creation, these enterprises generate only four per cent of gross domestic product. Large public enterprises which are subsidised by the state continue to represent an obstacle to free competition.

If Nepal fails to take strong measures to re-start the privatisation process, the problem in the economy will deepen in the next seven eight years. Privatisation of Public Enterprises (PEs) is not a panacea for all economic intricacies; it is one of the best alternatives to accelerate economic growth in the country, remarked policy makers, bureaucrats, politicians and experts here today.

Dwelling upon the policy papers on State Owned Enterprises Reform and Private sector Development, they noted that the privatisation of the PEs should be carried out by reviewing the performance of privatised enterprises.

The study is concentrated in analyzing the cash management system in Nepalese public enterprises. For this reason Nepal Electricity Authority is taken for the purpose of the study.

1.1.1 A brief introduction to Public Enterprises

After 1956's Nepal started planned economic development, effort to obtain rapid economic growth. Then the development of modern industries in the public sector started with planned economic development. In our country various manufacturing, commercial, finance, service and trading companies have been established and developed through government efforts under various five year development plans. At present interim plan period or no plan period is running. But due to poor performance negative return, lack of efficiency, inefficient in management, government has emphasized on privatization, so that public enterprises could be competitive, efficient and profitable. By the help of private companies the government will reduce it's investment in public sector, which are incurring continuously at loss. More enterprises are in the pipeline for privatization in the government policy and programs.

Public enterprises is an institution operating a service of an economic character on behalf of the government, but as an independent legal entity, largely autonomous in its management, though responsible to the public through government and parliament and subject to some direction by the government. According to **Laxmi Narayan,** "Public enterprises are autonomous bodies which are owned and managed by the government and which provide goods and services for a price. The ownership with the government should be 51% or more to make entity public enterprises."

The term of PE has two directions namely 'public' and 'enterprise'. The term public considered as 'public ownership' implies that major decision would rest on distinctive social criteria to the exclusion of any personnel interest. Similarly, the surplus would not accrue to private group or individuals and it involves social accountability. Likewise, the term 'Enterprises' as business enterprises implies that the government expects a return on the capital invested in public enterprises and the goods and services are made available for a price, which may be adjusted from time to time to cover the cost of inputs. The business character is more likely to be found in the area of economic activity such as industrial, trading, services, social, utilities, financial etc.

According to **Fried man**, "Public enterprises is an institution operating a services of an economic or social character on behalf of the government, but as independent legal entity, largely autonomous in its management, through responsible to the public, through government and parliament and subject to some direction by the government, equipped on the other hand with independent and separate funds of its own legal and commercial attributer of a commercial enterprise."

1.1.2 Public Enterprises in Nepal

"Public enterprises are autonomous bodies which are owned and managed by the government and which provide goods and services for a price. The

ownership with the government should be 51% or more to make an entity public enterprise."

“Public enterprise can be define as an activity of the government whether central, state or local, involving manufacturing or production of goods, including agricultural or making available services for a price. Such activities being managed either directly, that is, departmentally or through an autonomous body with the government having a major ownership, which is more than 50 percent of equity."

“Public enterprises are neither new nor unique. In Nepal after the restoration of democracy in 2007 B.S., there emerged an environment in which the needs and aspiration of the people were given priority in the process of implementing government activities, Government has started a system of established and functioning of public enterprise and made large investment with an objective of public of rapid economic development, in addition to having direct participation in the production and distribution of goods and services. Government initiative was important at a time when private sector investment couldn’t be attractive in the provision of basic social and economic services and in such condition the institution of public enterprise was justified. As a result a number of public enterprises, covering different sector of economy were established with the help of donor countries.

On the basis of analysis and evaluation of the roles and performance of public enterprises in the national economy, the government ruled after reintroduction of multiparty democracy system. The conclusion was that the economic condition and financial efficiency of Government Corporation were not satisfactory. The lack of basic elements contributing to the development of a professional culture in their inherent structure and operating procedures was signed out as the main cause for their poor performance. Public enterprise faced with various problems and difficulties such as lack of managerial, autonomy, inefficient use of means and resources, short sightedness and

weakness on the part of political leadership, production of low quality goods and services, uncontrolled administrative expenses, lack of competitive ability, lack of motivation inefficient human resources, adoption of old technology and minimum use of professionalism, which brought about a progressive decline in their results and made the large amount of government, investment unproductive. Static's also show that the overall economic condition of public enterprise particularly those involved in industry and trade sector in very poor. Likewise, the performance of the public enterprise involved in social sector is also not satisfactory. Even through the overall state of public enterprise concerned service, public utility and finance sector is found comparatively better; it does not seem to be satisfactory.

Nepal is primarily an agricultural country and public sector enterprise has occupied a dominant role in the economy. Public enterprises constitute a large and rapidly growing sector of the economy in the majorities of countries in the world today, including Nepal.

Public enterprises are established for rapid socio-economic development of the country. Public enterprises in Nepal constitute a vital instrument for socio-economic development. It enjoys a strategic and crucial position in our mixed economy. They have been established in many sectors for the overall development of the country with different goals and objectives. Public enterprises can be classified as follows:

a) Manufacturing enterprises
b) Commercial enterprises
c) Financial enterprises
d) Public enterprises engaged in social services
e) Development or services enterprises
f) Trading enterprises

Role and objectives of Public Enterprises in Nepalese Economy:

- To substitute the rate of economic growth
- Development of infrastructure
- Success of economic planning
- Regional and balanced development
- Supply of essential commodities
- Contribute to essential commodities
- Generate employment opportunities
- Development of big industries
- Attaining social justice and social welfare
- Saving foreign exchange
- Strengthening economic stability
- Maintaining economic stability
- Acting as model entrepreneur
- Provision of public utilities

1.1.3 Necessities of Public Enterprises

Most commonly there are existences of two types of enterprises. Namely, first is private organization of which investment, management, etc are handled by private sector. Secondly, public enterprise, which is established as nation's desire and it, is affects directly in economic development of country and defends national interests. The reasons that the public enterprises are necessary for any countries are as follows.

- Government has specific development priorities and compulsions, which are unlikely to be met by private sector.
- Government initiations are necessary for speeding of economic developing through creating infrastructure, ensuring the managerial capabilities etc., and so on.
- Public enterprise one created because of land received from socialist country, in Nepal many enterprises were established by aid received some China, India & USSR.

- To restricts foreign dominations in home market.
- To rise domestic selling and to raise certain revenue for different development program.
- Public enterprises are also introduced as an agency for development of under developed region.

1.2 Historical Background of the development of Electricity Service in Nepal

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

The first pioneering project of Pharping was built in 1911 A.D. whose capacity is 500 K.W. and second project Sundarijal (1350 K.W.) in 1935 by government aid.

Until then, some of the industries were established in Terai of Nepal. The Morang Hydropower Co. Was established in 1940 and then Birgunj Electric Supply Co. And Dharan Electric Power Co. was established.

The planed development of electricity was started from second three year plan (1962-1965), by the establishment of Nepal Electricity Corporation (NEC) on August 16, 1962.

The small hydro development board was established to supply the hydro power in the remote and rural areas. Its aim was to develop hydro power within the range of 100 - 5000 K.W. electricity for the electrification of rural areas by overcoming the difficulties to link rural areas to electricity transmission line.

The water and energy commission (WEC) was established to co-ordinate and advise the government to form the policy for the development of water and energy resources. Power development boards were established to develop projects in the growing electrical system. The executive body "Water and energy commission Secretariat" (WECS) was formed in 1981, which is assisted by foreign organizations. 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.

1.3 Background of Nepal Electricity Authority

Nepal Electricity Authority (NEA) was established under the NEA Act 2041. NEA started its operations on 17th August 1985. NEA 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 NEA are planning, construction, operation and maintenance of the electric power sub sector. NEA Should ensure the availability of the resources necessary for the development of electricity supply by the most efficient and effective manner. In other words 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. The organization structures of NEA are as below.

The Organization Structure of NEA

1.4 Cash Management Practice of Nepal Electricity Authority

The cash management practice of NEA through the effort of various departments, financial performance; Loans, tariff level etc. are as follows:

1.4.1 Finance and Accounts Department

In FY 2007/08, NRs. 2,497.34 million worth of property, plant & equipment was capitalized. At the end of the FY 2007/08, property plant & equipment valued at historical cost reached NRs. 52,294.10 million as compared to NRs. 51,781.76 million in the beginning of the fiscal year. Similarly, the project work in progress was NRs. 35,930.74 million and NEA invested NRs. 9,894.58 million in capital works and projects of which NRs. 2,032.79 million comprised of government equity, NRs. 3,830.32 million through government loan and NRs.4,031.47 million was borne from NEA´s internal source.

Total revenue for FY 2007/08 amounted to NRs. 16,060.27 million, an increase of 3.84 % over preceding year's income. The average revenue rate of NRs. 6.70 per kWh in FY 2006/07 remained unchanged in FY 2007/08. Cost of service for providing electricity to consumers increased by 5.64 % to reach NRs. 7.49 per kWh, the primary reason for financial losses to NEA. If the tariff is not adjusted in the near future, the losses are bound to increase. The last tariff adjustment with an effect of 11 % increase was made in FY 2001/02.

Total operating expenses under generation, transmission, distribution and administration in FY 2007/08 stood at NRs. 9,645.88, NRs. 304.28, NRs. 2,080.42 and NRs. 593.91 million respectively. As compared to last fiscal year's figures, the expenses under the above headings increased by 9.69 %, 26.32 %, 13.41% and 23.84 % respectively, whereas the total expenses increased by 10.32 %.

Operating surplus of NRs 2,218.77 million in FY 2006/07 decreased to NRs 1,445.78 million in FY 2007/08. In spite of an operating surplus in FY2007/08,

NEA suffered a net loss of NRs. 1,522.46 million against previous year's profit of NRs. 314.19 million. The reasons for incurring losses are mainly attributed to high interest and appreciation of Japanese Yen vis-à-vis NRs. regarding loan repayment in Japanese Yen for Kulekhani Disaster Prevention Project.

NEA has invested NRs 1,602.05 million in subsidiaries and other companies till FY2007/08 of which NRs 489.60 million was for equity share in Chilime Hydro Power Co. Ltd. (CHPCL). In FY 2007/08, Upper Tamakoshi Hydropower Limited (UTKHPL) was incorporated as a subsidiary company of NEA and all assets and liabilities of Upper Tamakoshi Hydroelectric Project were transferred from the NEA's books of accounts to UTKHPL. Accordingly, an amount of NRs. 670 million was recorded as investment in UTKHPL. Other investments of NEA include equity investment in Nepal Engineering Consultancy (NRs 2.28 million), Khumbu Bijuli Company (NRs 20.65 million), Salleri Chaylsa Hydro Electric Company (NRs 11.63 million) and Butwal Power Company (NRs 8.86 million). NEA has not received any dividends from the above companies except Butwal Power Company in FY 2007/08, NEA received NRs 3.84 million as dividend from BPC. In addition to this, as of FY2007/08 end, NRs 399.00 million has been invested in Citizen Investment Trust (CIT) towards gratuity and pension liabilities.

NEA´s total borrowing stood at NRs. 52,762.18 million as of end of FY 2007/08. In FY 2007/08, NEA paid NRs. 552.56 million for interest, NRs.780.96 million for royalty and NRs. 668.24 million for repayment of loan to government. Likewise, NRs. 3,154.98 million was provided from NEA's internal source for financing in various projects.

NEA has initiated conversion of its manual accounting system by computerized system in a phased manner. Oracle based Customized Accounting and Inventory System (CAIS) was introduced and to date 100 budget centers are using financial accounting module. Out of 110 budget centers, inventory

module is used only in 75 budget centers. NEA is planning to go into full automation in all its budget centers including small hydro and project offices. This will facilitate to consolidate the accounts and complete the financial and tax audit at stipulated time as well as to help integrate data into a new IT based financial accounting system to be implemented in the near future.

This will help to prepare financial account in due course of time and it will facilitate to complete the financial a. It will help financial reporting system of NEA and also help to comply the loan covenants of donor agencies.

Interaction programs have been conducted in the regional offices on the subject of accounts, financial and audit issues. This program has helped to impart knowledge and create awareness in the issues of financial matters.

Customer Billing Process and Collection Practice in NEA

- Payment within 7 days of billing 4%discount on billed amount for industrial customers.
- Payment within 7 days of billing 3% discounts on billed amount for rest other categories.
- Payment between 8-22 days of billing payment will equal to billed amount.
- Payment between 23-30 days of billing, 5% surcharge will be charged.
- Payment between 31-40 days of billing 10% surcharge will be charged.
- Payment between 41 days and above of billing 25% surcharge will be charged.
- If payment is not made within 60 days electricity supply can be disconnected without notification.

Account Receivable Management

Electricity tariff receivable should be equivalent to three month of sales.

Method to Achieve Mandate

- Notify customers of their dues.
- Disconnect customer's electricity supply in case of non clearance of dues.
- Settle outstanding dues from Government and Municipalities.
- Introduce new billing and collection procedure.

Target: Bring down receivable period to 2.5 months.
Results: An increase in NEA's internal resources and financial position strengthened.

1.4.2 Financial Performance

Fiscal Year 2007/08 is marked as a successful year for NEA in bringing out its new debt instrument, NEA Power Bond, in the capital market. This is the first of its kind in Nepalese capital market and was overwhelmingly subscribed by the public as well as institutional investors. This has essentially provided comfort to NEA in managing its budget deficit. At the same time it opened up new horizon for mobilizing much needed financial resources from domestic market for funding power projects.

In FY 2007/08, NEA registered a total of 2,348.91 GWh as sales, which is equivalent to 96.98 % of the target and a growth of 6.57 % in comparison to sales of 2,204.20 GWh in FY 2006/07. In the reviewed period (FY 2007/08) total internal sales grew by 7.52 %, whereas export to India decreased by 19.99 % over last year's export. Total internal sales and export stood at 2,287.41 GWh and 61.50 GWh respectively in FY 2007/08.

Revenue from internal sales (net) and export amounted to NRs. 15,034.80 million and NRs. 370.23 million respectively in FY 2007/08. A modest increment of 7.05 % in internal sales over previous year's internal sales was recorded whereas export revenue declined by 13.69 % in the same period.

Strikes, bandhs and unrest in Terai restricted mobility leading to lapses in theft control, meter reading and maintenance etc. which substantially hampered NEA's efforts of controlling losses. In export side, India's curtailment in drawing power from Nepal in Thakurganj and Ramnagar are main causes of reduction in export sales revenue. As a result, overall sales income amounted to NRs. 15,405.03 million as against the target of NRs. 15,890.94 million in FY 2007/08. This is an increase of only 6.61 % in comparison to sales of NRs. 14,449.73 million in FY 2006/07.

NEA's total expenditure in FY 2007/08 in comparison to that of FY 2006/07 increased by NRs.1,949.75 million to reach a figure of NRs. 17,582.73 million. NEA spent NRs. 2,125.98 million in staff cost in FY 2007/08 which is equivalent to 12.08 % of the total cost and 13.23 % of the total income. The same was 11.53 % of the total cost and 11.65 % of total income in FY 2006/07. Reason behind this increase in staff cost by NRs. 323.54 million is attributable to a raise in staff salary in FY 2007/08. Operation and maintenance expenses also increased by 36.76 % over the previous year's operation and maintenance expenses and stood at NRs. 1,323.84 million in FY 2007/08. Major reason behind this steep increase in operation and maintenance cost is due to overhaul including runner replacement in large power generating stations such as Kulekhani and Marsyangdi.

In spite of the difficult situation, NEA has been investing in generation, transmission and distribution projects with a view of improving the supply situation, providing quality service as well as for catering electricity services to a larger population. For improving the supply situation, NEA is also encouraging the private sector by entering into power purchase agreements and taking initiatives to develop projects in other modalities. Considering the effectiveness of public private partnership for project development in lowering the cost of supply, NEA is going forward with firm commitment to develop Upper Tamakoshi Hydroelctric project with a capacity of 309 MW. Tamakoshi

Hydropower Limited (UTKHPL) has been incorporated for this purpose, with NEA as a sole promoter of the company holding 51 % of the equity share. Rest of the shares will be distributed to employees of NEA and UTKHPL, lenders, regular contributors of Employees' Provident Fund, locals of Dolakha district and the general public. For the financing of the project, NEA has signed a Memorandum of Understanding (MoU) with Employees' Provident Fund (EPF) and Himalayan Bank as the lead bank of consortium of commercial banks. In the mean time, funding for Rahughat Khola (30 MW) and Upper Trisuli3-A (60 MW) has been mobilized from India and Exim Bank of China respectively. Similarly, a MoU and a subsequent Joint Development Agreement is signed between NEA and Korean Electric Power Company (KEPCO) for developing Upper Modi "A" Hydropower Project (42 MW) in a joint venture modality.

1.4.3 Sources of Financing for NEA's Investment Plan

The investment required for the projects mentioned above is expected to be met through the following sources:

(i) Foreign Loan

(ii) Government of Nepal investment in shares, and

It is estimated that 80 percent of the investment shall be in foreign currency and the remaining 20 percent in local currency. The portion of investment in foreign currency shall be arranged through the foreign sources. Twenty five percent of the investment in local currency including interest during construction shall be borne by His Majesty's Government and the remaining 75 percent investment in local currency shall be borne through the internal sources of the NEA.

On the basis of the estimates of investments and the financial sources arrangements mentioned above, the total investment and investment allocation expected for the coming five years from fiscal year 2005/2006 through 2009/10 is presented as follows:

1.4.4 NEA Tariff and Financial Covenants

The main internal source of NEA is the amount received through electricity sales that remains with it after deducting the cash expenses. Out of the total amount, provision has to be made for working capital requirement. The balance amount remaining thereafter becomes available for NEA investments. In order to suffice the investments, NEA tariff level should be at a level sufficient to generate sales revenue covering cash operating expenses, working capital requirement, debt servicing as well as financing requirement of the investment program. Furthermore, it also has to achieve desired level of return on its investment to attain operational efficiency. Besides, NEA is also required to achieve desired level of Debt Service Coverage ratio to satisfy covenants of lending agencies. In line with these objectives, three basic financial covenants have been agreed between NEA and Donor agencies specially ADB, KFW and the World Bank.

These covenants are:

- Self Financing Ratio (SFR) Covenant
- Rate of Return (ROR) Covenant
- Debt Service Coverage Ratio

However, covenant agreed with IDA in recent financing agreement for proposed power development project does not include SFR as a binding covenant.

(i) SFR Covenant

As stated above, NEA is required to make arrangements of around 75 percent of the local cost investment. Besides, interest during construction (IDC) has to be managed by NEA through its internal resources. Accordingly, NEA is required to bear 23 percent of the 3 years average investment requirement and an understanding to this effect has been made with the donor agencies. NEA always faces a challenging responsibility to generate internal funds required to

meet the investment needs. Due to high cost of supply contributed to higher power purchase cost, financially not viable rural electricity distribution and lower revenue rate in comparison to cost of supply, NEA has incurred loss in every unit of energy sold during the past few years. This has resulted into a net loss as well as a negative impact on internal cash generation. As a result NEA's financial forecast shows that SFR will be the driving covenant in future years, if 23 % SFR is to be maintained.

(ii) ROR Covenant

NEA has always been striving to establish itself as an efficient organization while competing with the private sector. NEA was operating in profit till a few years back. However, profitability turns out to be negative in recent years. The profitability is in the decreasing trend. This suggests that NEA should initiate effective programs to improve its financial health to halt further deterioration. ROR on the NEA's average revalued fixed assets for the past few years has been negative. The target ROR of 6 percent, which is agreed with IDA for Power Development Project on historical fixed assets, could not be achieved in this fiscal year also. ROR will not be improved unless tariff is increased in near future.

(iii) Debt Service Coverage Ratio

It is one of the basic covenants of interest to the lending agencies for securing guarantee for repayment of loan and corresponding interest. The agreed ratio is 1.2. There was no difficulty with NEA in the past with respect to this covenant. However at present, due to continuous loss and negative cash flows, NEA is in difficult situation in meeting this covenant also. As these covenants are not attainable for NEA in near future, it has become necessary to revise them with the consent of the donor agencies. Consequently, a discussion was held in FY 2007/08 with the mission of World Bank and the Bank has agreed in principle to revise it. In F/Y 2007/08 NEA achieved a ROR of 1.70 %, SFR of 10.88 %,

DSCR of 1.00 times and ACP of 5.35 months. However, these covenants have been removed by the Bank as mandatory covenants for the time being.

1.4.5 Financial Projection and Required Tariff Level for NEA

A corporate financial projection of NEA for a period up to 2009/2010 is carried out to determine the required tariff level to comply with SFR and ROR covenants. Significant tariff increase is required to meet all three covenants. Financial forecast shows that an increase of about 14 percent for the fiscal year 2005/06 is required to meet 20.2% SFR covenant in the following fiscal year. This will give an ROR of 5.1 percent in revalued cost and 8.8 percent on historical cost, which lies on the lower side of the agreed covenant. The Debt Service Coverage will be at 1.2 times, which will meet the required covenant of 1.2 times. In FY 2005/06, only a marginal increase (3.9%) is required to meet all the agreed covenants for FY 2006/07.

The requirement for such an increment in tariff is obvious as the average revenue rate with present tariff is not sufficient to cover even the cost of service. There has been significant increase in cost of service in comparison to the year since the effectiveness of present tariff, i.e. September 2001. Moreover, slowing down of economic activities as a result of present adverse situation in the country has also negatively affected the average revenue rate (ARR) of NEA causing negative impact on the profitability and the liquidity.

It is agreed with the World Bank that the tariff rate should be at a level that will generate revenue sufficient to achieve 6 percent ROR on historical assets and Debt Service Coverage Ratio of 1.2.

A proposal for interest rate reduction has been submitted to the Government of Nepal and negotiation is underway. It will have material impact on the financial health of NEA. If the proposal for interest rate reduction is materialized, a small increment in present tariff will be sufficient to meet the

ROR and Debt Service Coverage Ratio. In order to avoid uncertainty and higher tariff increment in future, it is desirable to go for semi-automatic tariff adjustment in the succeeding years. Existing provision of ETFC rules has made a provision for adjustment in existing tariff not exceeding 5 percent per annum. However, this will be applicable only after approval by ETFC of a formula for such increase. In this context, NEA has already forwarded a proposal to ETFC and is in expectation that such a formula shall be devised and approved by ETFC in near future.

1.4.6 Strategies for Improving NEA's Corporate Financial Performance

The loss figure stood at more than 1.7 billion rupees in the past fiscal year. Similarly payables to Government of Nepal are also increasing significantly due to the decrease in internal cash flow. For FY 2003/04 the audited figures show outstanding payables to Government of Nepal at more than 5.5 billion rupees. This will continue to rise in coming years if the present financial performances continue in similar fashion. A huge increase in tariff will be required to meet all the financial covenants and to bring down the outstanding payables to Government of Nepal at desirable level, which does not seem to be realizable in near future. There has been ever increasing trend in cost of service due to increase in power purchase price and operation and maintenance expenditures. At the same time, there is decreasing trend in realization of average revenue rate. This has resulted into continuous operational loss for the past three years. Overall, the financial statements of the past couple of years show that the financial performance of NEA is far below the satisfactory level. Hence the present financial condition of NEA urgently demands serious measures to be undertaken for turning around this deteriorating financial performance and improving financial health in future.

One of such measures is to adjust the existing tariff to recover cost of service from its users. However, despite various efforts, NEA has not been able to get approval for tariff increment since September 2001. It is also true that tariff

increment alone shall not be a single solution for eradicating the existing problem. A huge increment in tariff required for significant improvement in financial performance is not realistic at present considering the fact that the average tariff of NEA is considered to be among one of the highest in the region. Therefore, considering the limited scope for significant increase in tariff, exploration of other alternatives is required to lessen the pressure on tariff increment to some extent. Various alternatives requiring minimum tariff increment is under constant research within the corporate umbrella of NEA. However, some increment in tariff is unavoidable in near future and is required at least to recover cost of service and to run the business in commercially viable manner.

In this context, action plan on financial management with focus on revenue increment, decrease in cost and proper working capital management as well as investment and financing decision for future project should be worked out properly. Experience shows that there is still room for increasing internal cash generation if improvement takes place in loss reduction, control of operating expenses and working capital management. Loss reduction shall contribute significantly in generating additional revenue. Similarly decrease in financing cost and IPP price is one of the major issues for decreasing cost of service of electricity. Moreover, creating market for the available power but not sold in the system could also generate additional revenue.

1.5 Statement of the Problem

Development of hydro-power which is known as infrastructure plays a vital role for all round development of the nation through industrialization process. Studying such a concrete fact, Nepal Government has established a number of PEs in different sectors. But the financial performances of such enterprises in Nepal are quite dismal and have not been able to contribute towards the generation of surplus. The main causes of failure of such enterprises are less utilization of capacity, mismanagement, lack of integration of activities and

lack of motivated skilled employees. Majority of enterprises prepare long range and short range plans on the adhoc basis. The poor performance of PEs because of above mentioned reason should be investigated and should be taken corrective measures for their improvement in performance.

Nepal Electricity Authority is one of the public enterprises established in 2042 B.S. The NEA is suffering from many problems which are as follows

- Leakage of electricity is one of the problems.
- The hostile conditions of rampant destruction of its assets and operations resulting from internal conflict and open state of insurgency.
- Due to lack of proper planning interference corruption; and political interference causes high cost of production which compels the Nepalese consumer to purchase electricity at high rate.
- Unfair agreement to purchase power generated from private sector due to lack of proper planning system and political interference.
- The accumulated amount of account receivable which is being increased year by year shows the poor performance of NEA.

Cash management is one of the most important tools for the effective formulation and implementation of strategic as well as tactical plans.

1.6 Objectives of the Study

The present study has been conducted to examine cash management of public service enterprises of Nepal, on the basis of the case study of Nepal Electricity Authority.

The specific objectives of the study are as follows:

- T
  o examine the cash management practices in Nepal Electricity Authority through ratio analysis.

- T
  o examine and analyze the liquidity position of Nepal Electricity Authority.
- T
  o analyze the profitability position of NEA.
- T
  o examine the cash flow statement of Nepal Electricity Authority.
- T
  o recommend viable suggestions to cope up with cash management short comings in Nepal Electricity Authority.

1.7 Scope and Limitation of the Study

The study is limited to profit planning system of NEA. The limitation of the study can be mentioned under the following points.

- The study covers the analysis of NEA performance of only 8 years i.e. Form F.Y 2001 to F.Y.2008.
- The study is limited only to cash management and its analysis i.e. Concerns only with managerial, financial and accounting aspects.
- The accuracy and the reliability of the study is based on the secondary data available from NEA.

1.8 Organization of the Study

The study has been organized into five chapters, each devoted to some aspect of the study on "cash management" of Nepal Electricity Authority. The titles of these chapters are as follows:

Chapter I: Introduction

Background information on the subject matter of research undertaking has been presented under this section to provide a general idea of its history. So, this section includes a brief introduction to public enterprises in Nepal, role and objectives of public enterprises in Nepalese economy, then proceeding through

an updated information and introduction to Nepal Electricity Nepal. Likewise, the statement of the problem, objectives of the study comes next followed by scope and limitation of the study.

Chapter II: Review of Literature

This cheaper includes the reviews of relevant previous writing and studies to find the existing gap. Review of dissertations/ theses has been included.

Chapter III: Research Methodology

In this chapter, the method employed to gather data and the tools used in its interpretation has been described under the headings; research design the population and sample, nature and sources of data and financial and statistical tools for analysis of data.

Chapter IV: Data Presentational and Analysis

This chapter is the one of the most important and core of the thesis. Since, it consists of systematic presentation and analysis of financial statements employing financial and statistical tools.

Chapter V: Summary, Conclusion and Recommendations

This chapter is also important part of the study where major findings has been summarized, viable recommendations suggested and conclusions drawn.

CHAPTER - II

REVIEW OF LITERATURE

2.1 Conceptual Review

A literature review is an essential part of all studies. It is a way to discover what other researchers have covered and left in the area. A critical review of the literature helps the researcher to develop a through understanding and insight into previous research works that relates to the present study. It is also a way to avoid investigation problems that have already been definitely answered. Thus a literature review is the process of locating, obtaining, reading and evaluating the research literature in the area of the student's interest the purpose of literature review is to find out what research studies have been conducted in one's chosen field of study and what remains to do. The primary purpose of literature review is to learn not to accumulate. It enables the researcher to know.

- What research has been done in the subject?
- What others have been done in the study?
- What theories have been advanced?
- The approach taken by the other researchers
- Area of agreement or disagreement
- Whether there are gaps that can fill through the proposed research?

Thus literature review is basically a "stock taking" of available literature in one's field of research. The literature survey thus provides the students with knowledge of the status of their field of research.

2.1.1 Meaning of Cash Management

Cash is the most important current assets for the operations of the business. It is an idle and non earning asset. Therefore the firm should keep sufficient cash,

neither more, nor less. More cash balance reduce the rate of return on equity and hence the value of the firm's stock.

The term “cash” constitutes the most readily acceptable item of current assets to a firm. It includes currencies, coins, cheques and also some near cash items such as marketable securities and bank time deposits. Some items of cash whereas, other items such as Treasury bills, commercial papers and other marketable securities are readily convertible in to cash. The financial manager must ensure that there is sufficient cash in the business. If there is excessive cash, the financial manager must seek to invest a low-risk highly liquid money market instruments that are conveniently convertible into cash. If there is inadequate cash the financial manager must manage it to avoid payment problems.

Cash is regarded as both input and output of a business operation. Cash serves as input of a sense that all business activities are carried on without any obstruction with the availability of cash. All business works begin with the provision of sufficient cash to do business. At the same time, the cash is the thing that a businessman ultimately wants to achieve through the sales of goods and services. Cash as a means and ends of business operation must be held in sufficient quantity. Holding of cash both in excess and insufficient amount may lead a firm to problems shortage of cash puts obstruction in the production process whereas excessive cash then requirement contributes nothing to the profitability of the firm as idle cash earn nothing .Therefore, a financial manager faces a challenge of maintaining optimum level of cash, which bypass the risk and also does not put negative impact on firm’s profitability. The basic issue in cash management is to maintain the investment in cash as low as possible while still keeping the firm operating efficiently and effectively.

2.1.2 Significance of Cash Management

Cash management is concerned with management of cash in such a way as to achieve the generally accepted objectives of the firm maximum profitability consistent with maximum liquidity of the firm. It is the management’s ability

to recognize cash problems before they arise, to solve them when they arise and having made solution available to delegate someone to carry them out.
Emphasizing the significance of cash management, Cooke and Bomeli states that cash itself is not an asset capable of causing the profit differential for the firm, it is desirable that cash balances be minimized as much as possible. Yet the maintenance of adequate cash balances is an obvious requirement if a firm's solvency is to be maintained. Cash management consists basically of having a sufficient quantity of cash yet maintaining a balance at the lowest figure adequate to meet current obligation.

Emphasizing studies show that average holding of cash by firm differs significantly. A notable study conducted on Nepalese non finance sectors enterprises emphasizes that cash management is great significance of the size of investment of the form of canuy by Nepalese enterprises is not negligible. Average cash holding of Nepalese non finance sector's firm constitute 4 to 6 percent of total assets investment. With such a relatively high quantum of cash investment proves the significance role of cash management in Nepalese enterprises as well.

An effective and efficient cash management is considered to be significant for the following reasons;

a. It ensures that the firm has sufficient cash during peak times for purchase s and for other purpose.
b. It helps to meet obligatory cash out flows when they fall due.
c. It assists in planning capital expenditure s projects.
d. It helps to arrange for outside financing at favourable conditions, if necessary.
e. It helps to allow the firm to take advantage of discounts, special purchases and business opportunities.
f. It helps to overcome the emergencies like strikes, fire or competitor's marketing campaign.

g. It helps to invest to surplus cash for short or long term periods to keep the idle funds fully employed.

2.1.3 Functions of Cash Management

There are various functions of Cash Management, they are as follows:

1. To cash planning: Cash flow (inflows and outflows) should be planned to project cash surplus or deficits for the period. Cash budget is prepared for this purpose
2. To maintain cash and marketable securities in amounts close to optimal level: The firm should try to maintain the appropriate level of cash balance. The cost of excess cash and the danger of cash deficiency should be matched to maintain the optimal level of cash balances.
3. To design and managing cash flows: The cash flows (inflows and outflows) should be properly managed. The inflows of cash should be decelerated as possible.
4. To place the cash and marketable securities in the proper institutions and in the proper forms: The idle cash or precautionary cash balances should be properly invested in earn profits. The firm should take the appropriate decision about the division of such cash balances between bank deposits and marketable securities.

2.1.4 Objectives of Cash Management

The basic objectives of cash management are two-fold, (a) meeting payment schedule and (b) minimizing funds committed to cash balances. These are conflicting and mutually contradictory and the task of cash management is to reconcile them.

(a) Meeting Payment Schedule

In the normal course of business, firms have to make payment of cash on a continuous and regular basis to suppliers of goods, employees and so on. At the same time, there is a constant inflow of cash through collations from debtors. To meet the payment schedules, a firm should maintain an adequate amount of cash balance. The advantages of maintaining adequate cash

balances are, (i) the relationship with the bank is not strained; (ii) it prevents insolvency or bankruptcy arising out of the inability of a firm to meet its obligations; (iii) it helps in fostering good relations with trade creditors and suppliers of raw-material, as prompt payment may help their own cash management, (iv) a cash discount can be availed of if payment is made within the due date; (v) it leads to a strange credit rating which enables the firm to purchase goods on favorable terms and to maintain its line of credit with banks and other sources of credit. (vi) to take advantage of favorable business opportunities that may be available periodically; and (vii) finally, the firm can meet unanticipated cash expenditure with minimum of strain during emergencies, such as; strikes, fires, or a new marketing campaign by competitors.

(b) Minimizing Funds Committed to Cash Balances

The second objective of cash management is to minimize cash balances. In minimizing the cash balances, two conflicting aspects have to be reconciled. A high level of cash balances will, as shown above, ensure prompt payment together with all the advantages. But it also implies that large funds will remain idle, as cash is a non-earning asset and the firm will have to forego profits. A low level of cash balances, on the other hand, may mean failure to meet the payment schedule. The aim of cash management, therefore, should be to have an optimal amount of cash balances.

2.1.5 Efficiency of Cash Management

Cash use a number of functions as it makes payment possible. It serves to meet emergencies. But if cash is kept idle it contributes directly nothing to the earning of the corporation. As such corporation must adopt such a policy that optimum cash management possible. The financial manager of the corporation should try to minimizing the corporations holding of cash wide still maintaining enough to ensure payment of obligation. For improving the efficiency of cash management, effective method of collection and

disbursement should be adopted. Some methods for efficiency of cash management are briefly described below.

(1) Speedy Cash Collections

A firm can conserve cash and reduce its requirement for cash balance if it can speed-up its cash collection. Reducing the lag for gap between the times a customer pays his bill can accelerate cash collection and the time the cheque is collected and funds become available for use. Within this time gap, the delay is caused by the mailing time. The amounts of cheques sent by customers but not yet collected are called deposit float. The greater the deposit floats, the longer the time taken in converting cheques into usable funds.

(2) Concentration Banking

Concentration banking is a system of operating through number of collection centers, instead of a single collection center centralized at the firm head office. To this system, the firm will have a large number of bank accounts operated in the area the firm its branches. All branches may not have the collection centers. The collection centers will be required to collect cheques from customers and deposit them in their local bank accounts. The collection center will transfer funds above some pre-determined minimum to a control generally at the firm's head office, each day. A connection bank is one where the firm has a major bank account usually the disbursement.

(3) Slowing Disbursement

Apart from speedy collection of account receivable the operation cash requirement can be reduced by slow disbursement of account payable. It may be recalled that a basic Strategy of cash management is to delay payment as long as possible without imparting the credit rating of the firm. In fact, slow disbursement represents a source of funds requiring no interest payments. There are some technique to delay payment; avoidance of early payment, centralized disbursement, floats and accruable.

(4) Using Float

Float is the difference between the balance shown in a firm (or individuals) check book and the balance on the bank's records. Firms' net float is a function of its ability to speed-up collections on checks received (collection float) and to slow down collections on checks written (disbursement float).

(5) Transferring Funds

A transferring fund is a system for moving funds among accounts at different banks. There are two principal method- wire transfer cheques. With an electronic depository transfer, funds are immediately transferred from one bank to another. With an electronic depository transfer cheque (EDTC) arrangement in the movement of funds, an electronic cheque image is processed through an automatic clearing house. The funds become available on business day later. From small transfers, a wire transfer may be too costly.

(6) Overdraft System

A system where depositors may write cheques in excess of their balances with their banks automatically extend loans to cover the shortage. Most of the foreign countries use overdraft system.

2.1.6 Different Techniques of Cash Management

(1) Cash Budget

The cash budget shows the firm's projected cash inflows and outflows over some specified period. It is the most significant device to plan for and control cash receipt and payment. It provides much more detailed information concerning a firm' future cash flows. It is the most important tools for managing cash. It is useful in determining when cash surpluses or shortages will occur. Plans can then, be made to borrow to cover shortages or to invest surpluses.

(2) Cash Planning

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

(3) Long-term Cash Forecasting

Long-term cash forecasting are prepared to give an idle of the company's financial requirement of distant future. Once a company has developed long term cash forecast, it can be used to evaluate the impact of say new product development on the firm financials condition three, five or more years in future. The major uses of the long-term cash forecast are company's future financial needs, especially for its working capital requirements, to evaluate proposed capital projects and it help to improve corporate planning. Long term cash forecasting not only reflects more accuracy the impact of any recent acquisitions but also foreshadows financing problems, these new additional may past for the company.

(4) Short-term Cash Forecasting

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

a. Receipt and Disbursement Forecasting

The prime aim of receipt and disbursement forecasts is to summarize these flows during a predetermined period. In case of those companies where cash

items of income and expenses involve flow of cash; this method is fovoured to keep a close control over cash.

b. Adjusted Net Income Method

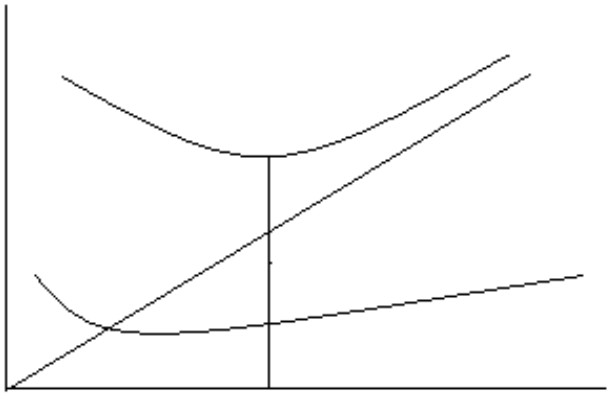
This method of cash forecasting involves the tracing of working capital flows. Sometime, it is also called the sources and uses approach. Two objectives of this method are; to project the company's need for cash at some future date and to show whether the company can generate this money internally or not, how much give will either borrow or rise in the capital market.

2.1.7 Determining the Optimum Cash Balance

Financial manager responsibilities are to maintain a sound liquidity position of the firm, so that dues may be settled in time. The firms need cash not only to purchase raw materials and pay ways but also for payment of dividend, interest, taxes and countless other purpose. The test of liquidity is really the availability of cash to meet the firm obligations when they become due. Thus, the cash balance is maintained for transaction purpose and an additional amount may be maintained as a safety stock. The financial manager should determine the appropriate amounts of cash balance, a trade-off between risk and return influences such a decision. If the firm maintains a small cash balance, its liquidity position become weak and suffers from a capacity of cash to make payment. But investing released funds in some profitable opportunities can attain a higher profitability. If the firm maintains a high level of cash balance it will have a sound liquidity position but forego the opportunity to earn interests. Thus, the firm should maintain an optimum cash balance to find out the optimum cash balance the transaction costs and risk of too small a balance should be matched with the opportunity costs of too large a balance. The figure shows this trade-off graphically.

Figure 2.1

Determination of Optimum Cash Balance



2.1.7.1 Optimum Cash Balance under Certainty; Baumol's Model

In view of minimizing the opportunity cost of holding cash and maximizing the return on the available funds, the cash balance should be maintained at a minimum level and the funds not required by firm should be invested in the marketable securities. Baumol is an economic model that determines the optimal cash balance by using ecomomic order quantity concepts of inventory management. Baumal mode is based on the assumptions that;

1. The cash is used at a constant rate,
2. Receipts, or cash in-flows, come in lump sums at periodic intervals.
3. There are some costs such as opportunity costs that increase and other costs such as transaction costs that decrease as cash balance increase. Because of the assumption (1) and (2) the graphical representation of cash position looks like as follows:

Figure 2.2

Baumol's Model for Cash Balance

Given its assumptions, the model prescribes an optimal size of cash balance and the optimal size of account or borrowing. What matter for a firm is the total of opportunity cost and the transaction cost? Therefore, the objective of this model is to minimize the total cost.

The figure below shows the relationship between the average size of cash balance and various costs associated with the cash maintenance.

Figure 2.3

Relationship between Average Cash Balance and Cash Maintain

2.1.7.2 Optimum Cash Balance under Uncertainty; The Miller-Orr Model

The limitation of the Baumol model is that it does not allow the cash flows to fluctuate. Firms in practice do not use their cash balance uniformly nor are they able to predict daily cash inflows and outflows. The Miller-Orr model cash flow variation. It assumes that net cash flows are normally distributed with a zero value of mean and a standard deviation. As shown in figure below, the Miller-Orr model provides for two control limits- the upper control limit as well as lower control limit and return point**.** If the firm's cash flows fluctuate randomly and hit the upper limit, then it buys sufficient marketable securities to come back to a normal level of cash balance (the return point). Similarly, when the firm's cash flows wander and hit the lower limit, it sells sufficient marketable securities to bring the cash balance back to the normal level (the return point).

2.1.8 Motives for Holding Cash

The firm holds cash for various motives, they are;

1. Transaction Motives

The principle motive for holding cash is to conduct day to day operations. A cash balance associated with routine payments and collections. Like payments of purchases, labour, taxes, and dividends etc. Likewise, in the course of daily business transactions, cash are generated from sales of goods or services, return on outside investments etc.

2. Precautionary Motives

Cash held in reserve fro random, unforeseen fluctuation in cash inflow and outflow. For example; flood, strike, inefficiency in collection of debtors, cancellation of order failure of important customers, sharp increase in cost of raw-materials etc.

3. Speculative Motives

A cash balance that is held to enable the firm to purchase that might arise. For example; purchasing of raw-material at a reduced price on payment of immediate cash falls in price of shares and securities, purchasing at favorable price.

4. Compensating Balance/Compensative Motives

A cash balance that a firm must maintain with a bank to compensate the bank for services rendered or for granting a loan. Firm often maintains bank balance in excess of transactions needs as a means of compensating for the various services. These balance are called compensating balance. Bank provides various services to the firm like; payment of check information of credit, loan etc.

Out of the four motives for holding cash, the most important ones are the transaction motive and the compensation motive. This is because precautionary balance can be met by short-term borrowings and business firms normally do not speculate and thus doesn't require speculative balances.

2.2 Introduction and Purpose

One of the major responsibilities of management is to plan; control and safe guard the resources of the enterprises. Two kind of resources flow through many business-cash and non-cash assets. This chapter focuses on the cash planning and control of the cash inflows (i.e., cash received) and cash outflows (i.e. payment of cash). The planning and controlling of the cash inflows, cash

outflows and the related financing is important in all enterprises. The cash budgeting is an effective way to plan and control of the cash flows and effectively use excess cash.

"A primary objective is to plan the liquidity position of the company as a basis for determining future borrowings and future investments. For example excess cash is not invested incurs an opportunity cost that is loss of the interest. That could be earned and the excess cash. The timing of cash flows can be controlled in many ways by management, such as increasing the effectiveness of credit and collection activities. Making payment by time draft rather than by chequed, making payments and the last day of discount periods batching payments, and giving discount on cash sale. Cash management is important in enterprises, whether large or small. Many lending agencies require cash flows projections before granting loan."

The focus of cash planning, time horizons in cash planning and central approach used to develop a cash budget, financial accounting approach to compute cash flows, central of the cash position, technique for improving cash flows, planning and controlling cash in a non-manufacturing company.

2.2.1 Review of Thesis/Dissertations

In this section the review of thesis relating to cash management have been considered. There were only few theses/dissertations written on cash management when browsed through computer records of theses reports presented earlier in Tribhuvan University Central Library.

One of the thesis report reviewed was presented by **Dr. Subarna Lal Bajracharya** in 1990, entitled "Cash management in Nepalese public enterprises" as partial fulfillment of the degree of Doctor of Philosophy, Department of Commerce.

The objectives of his study are:

a. To critically review the cash management techniques practice by Nepalese public enterprise.
b. To examine the demand for cash in the case of Nepalese public enterprise.
c. To suggest appropriate cash management policy for the future.

The major findings of his studies are:

1. From the survey of cash management policies and practices it was observed that there has been no uniformity among the enterprises, with regard to cash budgeting, forecasting, credit terms, payment behavior of customers and investing excess cash balance.
2. With regard to the sale of goods and services most enterprises have the practice of selling on both cash and credit basis.
3. Still, majority of enterprises did not face any serious liquidity problem. This is because most of the enterprises could afford to delay payments to creditors, even as the debtors delayed payments. As a result, there was not attempt at availing cash discount offered by the creditors.

Despite, excess holding of cash, very few enterprises find it practicable to invest surplus cash in marketable securities

One of these thesis report reviewed was presented by **Bijaya Pradhan** in (1997) entitled "A study of cash management of salt trading corporation Ltd", as partial fulfillment of the requirements for the degree of master's of business administration. The thesis was based on the secondary data of the company for the past six years.

The major finding of his study has been presented as under:

a. Salt trading corporation Ltd could not make the best use of available cash balance prudently.
b. The cash collection efficiency in this corporation is very low.

c. The collection of trade credit in the corporation is low during the three years of the study period.
d. Management has taken liberal credit policy to sales of goods. Hence the cash and bank balance of the study period is minimum of account receivables.
e. No optimum cash balance is maintained.

Bijaya Pradhan has provided some recommendations to improve cash management.

a. Efficient management of cash.
b. Design effective account receivable management.
c. Adopt effective credit policy.
d. Maintain optimum cash balance.
e. Prepare cash budget.
f. Invest in marketable securities.

Another thesis report reviewed was presented by **Naresh Kunwar**, entitled 'A Study on Working Capital Management of Pharmaceutical Industry of Nepal with Special reference to Royal Drug Limited' presented as partial fulfillment for the requirements of the master's of business administration in the year 2000.

Major findings of his research work were:

a. Company is following conservative working capital policy.
b. It is found hat inventory holds the largest portion of current assets.
c. It shows that investment in current asset is high with respect to total assets.
d. The company has not been able to convert current asset quickly in cash in order to meet current liabilities.

e. Overall return position of company is negative, not in favourable condition. It is because of inefficient utilization of current assets, total assets and shareholder wealth.

Kunwar has provided some recommendations to improve working capital management:

a. There must be compulsory formulation of appropriate working capital policy not only conservative. Besides, there should be policy to prevent the holding of excessive and inadequate current assets n the company.
b. It should adopt modern inventory system.
c. Adaptation of standard and marginal cost techniques will also be a good measure in controlling and classifying the cost as well as for identifying the responsibility centers for the losses.
d. There should be proper co-operation interaction between different sales agents, production, marketing and sales department during the planning of sales.
e. Positive attitude towards risk through providing training, participation in management etc for the managerial level employees.

Another dissertation was presented by **Sabin Prakash Sainju**, entitled "Cash Management in Nepalese Public Enterprises, a case study of Royal Drugs Limited," presented as partial fulfillment for the requirements of the master degree in the year 2003.

Major findings of his research work were:

a. Company doesn't have any definite policy regarding how much of cash balance to hold each fiscal year.
b. Company has not been forecasting cash balance taking into consideration the sales volume.
c. Company fails to maintain an adequate proportion of cash in its current assets.

d. Cross analyses revealed that company fails to collect receivables from its sundry debtors timely.
e. Company has not been precisely meeting its current liabilities payment.

Sainju has provided some recommendations to improve cash management system of Royal Drugs Limited;

a. Maintain optimum cash balance every year**.**
b. Prepare trial balance.
c. Prepare cash budget on the basis of cash flow analysis.
d. Prepare cash flow statements.
e. Determine minimum level of cash balance to hold every year, maintain such minimum level of cash balance as a requirement of precautionary, speculative and compensation motive, besides for daily transactions.
f. Use extensively financial and statistical tools as required.

One of these thesis report reviewed was presented by **Yagna Prasad Acharya** in 2003, entitled "Cash Management Practices of Manufacturing Companies in Nepal" as partial fulfillment of the requirements for the degree of master's of business administration. The thesis was based on the secondary data of the company for the past five years.

The major objective of his study has been presented as under:

a. Determining the structure and utilization of cash.
b. Estimate of demand for cash from slope of regression.
c. Reviewing the cash management practiced by manufacturing companies.
d. Determining the average level of cash holding of the manufacturing companies.

The major findings of his study has been presented as under

a. The average size of cash is higher in government enterprises than non government manufacturing enterprises.
b. From the result of structure and position of cash, non-government sector has more efficient practice on cash management than government manufacturing enterprises.
c. Lower ratios on cash to quick assets, cash to current liabilities on non-government sector which refers efficient cash management.
d. Average collection period is lower for government than non-government manufacturing enterprises.
e. Cash conversion cycle is favorable for non-government manufacturing enterprises because of lower time takes to cash cycle.

Another thesis report reviewed was presented by **Kamal Raj Joshi** (2004), entitled "Revenue planning and Cash Management of Nepal Electricity Authority" as partial fulfillment of the requirements for the degree of master's of business administration. The thesis was based on the secondary data of the company for the past five years.

The main objective of his thesis is as follows:

a. To examine revenue planning, policies and practice of NEA.
b. To analyze the relationship between sales and production.
c. To evaluate financial performance.
d. To review cash flow from operating, financing and investing activities.

The major findings of his study are:

a. NEA has not succeeded in expansion of the sales unit in internal and external market, due to in- actual forecast of demand and lack of capital.
b. Target sales revenue is increased by small figure but the actual sales revenue is highly increased than budgeted both internal and external sales market in FY 2056/57.

c. Profitability ratio indicates that the higher operating expenses, as a result of operating profit and Net profit are not sufficient.
d. Cash position of NEA shows that the cash from operating activities is in decreasing trend. The cash from investing activities is in highly increased up to 2057/58. There after decreased, but its return is very poor. The cash from financing activities is highly increased in FY 2056/57. Thereafter it has decreased.

One more thesis report reviewed presented by **Sabita Mulepati** entitled "A study of Cash Management in Nepalese Public Enterprises" A case study of Royal Drugs Limited, presented as partial fulfillment for the requirements of the master degree in the year 2005.

Major findings of her research work were

Miss Sabita finding were similar with Miss Sanju and her recommendation were**:**

a. Responsibility should be clearly defined
b. Familiar with strengths and weaknesses of the enterprise
c. Efficient management of cash
d. To prepare monthly trial balance

2.3 Research Gap

This thesis is based on the cash management in Nepalese Public Enterprises. And Nepal electricity Authority is chosen as a sample of study. This sample is chosen because no enough research has been done by taking Nepal Electricity Authority.

Most of the thesis of cash management in Nepalese Public Enterprises are done by taking sample of Nepal drugs Limited which is related to manufacturing enterprises, while some have taken sample of Salt trading Limited which is related to trading enterprises, but there is very few thesis on Nepal Electricity

Authority which is a service enterprise and only one electricity supplier and have a great important role for each and every sector of Nepal. And this enterprise has become center of attention because of inadequate supply of electricity. And an institution like World Bank, ADB has been providing loans to avoid this problem. This thesis has taken seven years data from secondary source, while other thesis reviewed has taken about five years data only. This thesis shows how Public Enterprise (NEA) speed up cash collection by providing various types of discount scheme while other do not have shown how public enterprise speed up cash collection .

CHAPTER - III

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a systematic way to solve the research problem. In other words, research methodology describes the methods and process applied in the entire aspect of the study. Research methodology refers to the various sequential steps (along with a rational of each steps) to be adopted by a researcher in studying a problem with certain objectives in view (Kothari; 1994: 9). Thus the overall approach to the research is presented in this chapter. This chapter consists of research design, sample size and selection process, data collection procedure and data processing techniques and tools.

3.2 Research Design

Research design is an overall framework or plan for the activities to be undertaken during the course of a research study. The research design serves as a framework for the study, guiding the collection and analysis of the data, the research instruments to be utilized and sampling plan to be followed. A research design is the specification of methods and procedures for acquiring the information needed. It is the overall operational pattern of framework for the project that stipulates what information is to be collected, form which sources and by what procedures. Thus a research design is a plan for the collection an analysis of data. For research there exits different types of research design like; Historical research, Descriptive research, Case study research, Field study research, analytical research, True experimental research and so on. This study mainly concerned with historical research. If applicable, sometime descriptive and analytical approach may also be used. But generally, to show the cash management of Nepal Electricity Authority**,** past historical data are used. The relevant and needed data has been collected from various publications such as annual report of Nepal Electricity authority, website of National planning commission, Ministry of Finance etc.,

3.3 Data Collection Procedure

Collecting data is the connecting link to the world of reality for the researcher. The data collection activity consists of taking ordered information from reality and transferring it into some recording system so that it can later be examined and analyzed for patterns. Research as a media can be interpreted as having a content of data and process of methodology.

3.3.1 The Population and Sample

The term “population” or universe for research means the universe of research study in which the research is based (Wolf & Pant; 2000: 75). Since the research topic is about cash management practices of public enterprises, all the manufacturing enterprise, commercial enterprises, financial enterprises, public enterprises engaged in social service, service enterprises and trading enterprises are included in the population of the study. Due to unavailability of data from all sectors, only service enterprise is chosen for study. So precisely saying 1 service enterprise is chosen as sample.

Service Enterprises: Nepal Electricity Authority

The general introduction and major objective of this sample is presented in the first chapter.

3.4 Sources of data and Collection Procedure

For this study, mainly secondary data are used. These secondary data are collected mainly from published sources like annual report, prospectus, balance sheet, newspaper, journal, Internet and other sources. Besides this in some case, if needed, primary data can also be used. They can be collected through direct interview and observation.

Secondary data published on annual reports of concern organization.

3.5. Financial and Statistical Tools for Analysis of Data

The financial analysis tools have been used for the quantitative analysis of secondary data as follows:

3.5.1 Ratio Analysis

3.5.1.1 Analysis of Cash Turnover

The cash turnover Ratio explains how quickly the cash is received from the sales; or in words it measures the speed with which cash move through an enterprise's operation Cash turnover ratio is obtained by following formula:

$$\text{Cash Turnover} = \frac{\text{Sales}}{\text{Cash in hand and Bank}}$$

3.5.1.2 Analysis of Current Ratio or Current Assets to Current Liabilities

This ratio examines the liquidity position of the company. It examines the position of the company as to its holding of current assets against to current liabilities. The current ratio measures the extent to which the claims of short term creditors are covered by short term assets. Higher ratio indicates satisfactory position and vice versa. However, too high ratio is indication of poor cash management indicating high inventory and/or poor credit management. The ideal current ratio is 2:1; however for a public enterprises, the ratio tend to be little lower than 2:1 as these enterprise general require very little current assets. But nevertheless any company should maintain this ratio above 1:1, since ratio lower than this definitely indicates poor liquidity position.

This ratio computed as follows:

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

3.5.1.3 Analysis of Quick Ratio or Acid Test Ratio

The purpose of this ratio is to test the ability of the firm for immediate payment of current liabilities. This ratio is superior to Current ratio, for it excludes inventory (which is the least liquid current asset) from the net current assets and compares it with current liabilities. Comparing this ratio with current ratio gives a clearer idea as to if current assets have been tied-up inventory or not. Though current ratio of a firm is satisfactory on the other hand if quick ratio is not convincing, the situation suggest current assets being tied-up in unassailable inventory. The ideal Quick ratio is 1.1 Formula for computing quick ratio is given by:

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

(Quick Assets = Current Assets- Inventory)

3.5.1.4. Receivables/ Debtors Turnover ratio:

Receivables turnover ratio gives an idea as to how quickly receivables are converted into sales. The ratio can be computed as follows:

$$\text{Receivable Turnover in Time} = \frac{\text{Total Sales}}{\text{Receivable}}$$

With computation of this ratio, average collection period of receivables is also calculated. Shorter average collection period suggests that the company has a very rigid cerdit policy and thus sales curtail would be he consequence as the sales transaction is only target to parties marking payments promptly.

The average collection period can be calculated as follows:

$$\text{Average collection Period} = \frac{\text{Days in a year}}{\text{Receivable Turnover in times}}$$

3.5.1.5. Inventory (or Stock) Turnover Ratio

Analysis of inventory (or stock) Turnover Ratio gives idea on how quickly the least liquid current asset, i.e. inventory is converted into sales. This is yet

another method of studying liquidity position of the firm. It measures the efficiency of inventory utilization .Increasing ratio is favourable which shows that the firm is very efficient on inventory management. Following is the formula for calculation of inventory (or Stock) Turnover Ratio

$$\text{Inventory Turnover Ratio or Stock Turnover Ratio} = \frac{\text{Sales}}{\text{Inventory}}$$

3.5.1.6. Cash and Bank Balance to Account Receivable

This ratio measures the cash and Bank Balance in relation with Accounts receivables (or sundry debtors) of the firm. Higher ratio refers to sound liquidity position and vice versa. However, too high ratio is indicative of the fact that the business dealings are restricted to only those parties making quick payments. There by limiting its scope of sales volume. It is computed by:

$$\text{Cash Balance to Account Receivable} = \frac{\text{Cash and Bankbalances}}{\text{Account Receivable}}$$

3.5.1.7. Cash and Bank Balance to Current Assets

This ratio is also supportive to analysis the liquidity position of the firm. It measures the proportion of cash and bank balance, the most liquid current asset in the total current assets. Higher ratio implies sound liquidity position and vice versa. It is complies as follows:

$$\text{Cash and Bank Balance to Current Assets} = \frac{\text{Cash and bank balances}}{\text{Current Assets}}$$

3.5.1.8. Cash and Bank Balance to Current Liabilities

It calculates the cash balance available with the firm in meeting payments of current liabilities. Moderately higher ratio indicates good liquidity, too high and too low ratio are unfavorable for the firm since too high indicates excess cash balance held idle and too low ratio means the firm unable to meet current liabilities. It is calculated as follows:

$$\text{Cash and Bank Balances to Current Liabilities} = \frac{\text{Cash and Bank balances}}{\text{Current Liabilities}}$$

3.5.1.9. Gross Profit Margin Ratio

Gross profit is the ratio of gross profit of net sales expressed as a percentage. It express the relationship between gross profit and Sales. Gross profit ratio may be indicated to what extent the selling price of goods per unit may be reduced with out incurring losses on operations. It reflects efficiency with which a firm produces its product

$$\text{Gross Profit Margin Ratio} = \frac{\text{Gross Profit}}{\text{Sales}}$$

3.5.1.10. Net Profit Margin Ratio

This ratio is computed to analyze profitability position of a firm. Higher ratio indicates high profitability and vice versa. In simple terms, this ratio gives the percent profit or loss with respect to its sales.Net profit margin ratio is calculated using the formula below:

$$\text{Net Profit Margin Ratio} = \frac{\text{Net Profit After Tax}}{\text{Sales}}$$

3.5.1.11. Total Assets Turnover Ratio

Total Asset turnover ratio is the amount of sales generated for every dollar worth of assets. It is calculated by dividing sales by total assets. It measures a firm efficiency at using its assets in generating sales or revenue. The higher the number the better it is.

$$\text{Total Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Total Assets}}$$

3.5.1.12. Interest Coverage Ratio

Interest Coverage ratio measures the extent to which interest on debt capital is covered by EBIT. It measures the ability of the firm to meet its annual interest payment. The interest coverage ratio is very important from the lender's point of view. It indicates the number of times interest is covered by the profits available to pay interest charges:

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

3.5.1.13. Basic Earning Power Ratio

It is the ratio of EBIT to Total Assets. This ratio measures the ability of the firm assets to generate operating income. The increasing ratio is favorable which shows the company profitability is increasing.

$$\text{Basic Earning Power Ratio} = \frac{\text{EBIT}}{\text{Total Assets}}$$

3.5.1.14. Return on Working Capital Ratio

This is yet another ratio to examine profitability of a firm. The ratio is aimed at analyzing the proportion of current assets employed to earn the profit amount. Higher ratio is favourable and vice versa. This ratio is calculated by employing the formula below:

$$\text{Return on Working Capital Ratio} = \frac{\text{Net Profit After Tax}}{\text{Current Assets}}$$

3.5.1.15. Net Profit After Tax to Quick Assets Ratio

This ratio also examines profitability of a firm; analyses proportion of Quick assets (i.e. current Assets- Inventory) in earning the profit amount. It is calculated by using the formula below:

$$\text{Net Profit After Tax to Quick Assets} = \frac{\text{Net Profit After Tax}}{\text{Quick Assets}}$$

3.5.2 The Statistical Analytical Tools Used for the Quantitative Analysis of Secondary Data are as follows:

3.5.2.1. The Least Square Method, Straight Line Trend,

$y_c = a + bx$

This is one of the time series analyses which forecasts future events of a variable over a regular interval of time based on the past trend of the variables. In this method a trend line, $y_c = a + bx$ is fitted to the given data such that

$(y-y_c)=0$ and $(y-y_c)^2$ is least.

Where,

y = Actual values of Y

y_c = Computed values of Y

a = Constant which is the computed Y- value when

b = Constant which is the change in Y

X= 0 corresponding to the change in X by one unit.

X = Time in case of time series analysis

The value of 'a' and 'b' can be found out by solving the following normal equation:

$Y = Na + b\ x$

$Y = a\ X + b\ X^2$

Where

N is the number of years or any period for which the data are given.

The normal equations are obtained by using above two conditions and some mathematical manipulations. To simplify the calculation the mid point in time is taken as origin, so that X= 0.Then the above two normal equations will be reduce to:

$Y = Na$

$\ldots a = \frac{\Sigma Y}{N}$

$\ldots b = \frac{\Sigma XY}{\Sigma X^2}$

3.5.2.2. Karl Pearson's Coefficient of Correlation, (r) = $\frac{\Sigma uv}{\Sigma u^2 \Sigma v^2}$

If two variables (say X and Y) was such that change in one accompanies the change in other, then these two variables are said to be correlated. Such correlations are said to be positively correlated if increase in X results increase in Y and decrease in X follows decrease in Y. Likewise, such correlations are said to be negatively correlated if increase in Y results decrease in X and decrease in X follows increase in Y.

Correlation analysis refers to the statistical technique, which measures the degree of relationship or association between the variables. To put it differently, it helps in analyzing the covariation of two or more variables.

It is to be noted that a high degree of correlation between two variables doesn't always necessary imply that change in one variation cause change in the other, i.e. correlation doesn't necessarily imply causation while causation always implies correlation. Out of several methods of computing correlation, Karl Pearson's Coefficient of Correlation is one of the best and popular methods. Karl Pearson's coefficient of correlation (r) measures the degrees of association between the variable suppose X and Y, given by:

$$r = \frac{\Sigma uv}{\Sigma u^2 \Sigma v^2}$$

Where,

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

$u = X - X$

$v = Y - Y$

and

$$X = \frac{\Sigma X}{N}$$

$$Y = \frac{\Sigma Y}{N}$$

Where

N = No, of years/time period.

However, in this thesis work, computing correlation coefficient, the above formula has been used only manually. For rest of the computations, Microsoft excel worksheet tool has been employed directly from the computer.

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

Value of +1.00 refers to highly positive correlation between the variables, i.e. one variable is directly proportional to another, or in other words. Increase in

one variable leads to inverse in another and vice-versa. Value of –1.00 refers to highly negative correlation between the variables; i.e. one variable is indirectly proportional to another, or in other words, increase in one variable leads to decrease in another variable and vice- versa. Likewise, value nearing to zero "0" refers to existence of no correlation between the variables, i.e. inverse or decrease in one variable result no impact on another variable and vice-versa .Together with Karl Person's Coefficient of Correlation, probable error (P.E.) of the correlation coefficient is also computed. This probable error of the correlation coefficient is the basis for the interpretation of its value. It is given by:

$$P.E = \frac{(1-r^2)}{N} \times .6745$$

Where,

P.E = Probable error of correlation coefficient

N = Number of pair of observations.

r = correlation Coefficient

- When r < P.E, the value of r is not statistically significant at all; i.e. there is no evidence of correlation.
- When r > 6(P.E), the value of r is significant; i.e practically the correlation is certain.
- When P.E. <r < 6(P.E), the value of r is inconclusive as to statistically significant/ insignificant correlation.

The upper and lower limits within which the correlation coefficient is expected to lie are given by:

R+P.E (Upper Limit), and

R-P.E. (Lower limit), respectively

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

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

/r/ = 0.5

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

3.5.2.3. Standard Deviation, (S.D)

$$S.D.= \sqrt{\frac{\sum x^2}{N}}$$

or

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

Standard Deviation (S.D) measure scatter, spread, or variation, and provides idea of homogeneity (compactness) or heterogeneity (scatter) of the distribution. Out of various methods of studying dispersion such as Range, Interquartile range and Quartile deviation, Mean deviation, Standard deviation and Variance, Lorenz curve, the most popular method is the standard deviation and variance method.

Standard deviation is represented by the symbol sign '0' and given by,

$$S.D.\ (\sigma) = \frac{\Sigma x^2}{N}$$

Where,

x = X-X

N= Number of years/observations/time periods.

It can be also be computed as follows:

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

Where,

d = X-A

and

A=Assumed means

In this thesis work, while computing standard derivations, the above formula has been employed only once manually. For rest of the computations, Microsoft excel worksheet tools has been employed directly from computer.

In conjunction with standard deviation, coefficient of variation (C.V) is also computed which is the relative measure based on standard deviation and is defined as the ratio of the standard deviation to the mean expressed in percent. Coefficient of Variation (C.V) is given by

$$C.V = \frac{\sigma}{\bar{x}} \times 100\%$$

The ratio $\frac{\sigma}{\bar{x}}$ is called the coefficient of Standard deviation, C.V has no units, Distribution with lower C.V. is said to be less variable (or more consistent or more uniform) and the distribution with higher C.V is indicative of more Variable (or less consistent or less uniform) The limitation of using C.V. is that when the distribution being compared have negative observation, it provides unreliable way to compare variability across data sets.

3.5.2.4. Regression Analysis and Regression Line

In correlation analysis, the closeness of relationship between two variables is established. In regression analysis the nature of relationship between two variables is established and the unknown variable is established on the basis of other known variable. Thus regression analysis is the statistical method for determining the nature of relationship that exists among two or more variables and then using that relationship to make estimates or predictions. 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 (or explained variable) and the known variable is called independent variable (or explanatory variable).

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

Regression line of X variable (X) on Y variable (Y) given by:

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

Where,

X = Mean of X variable

Y = Mean of Y variable

σx=Standard Deviation of X variable

σy = Standard Deviation of Y variable

r= Karl Pearson's Coefficient of Correlation

Likewise, the regression line of Y variable (y) on X variable (X) is given by,

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

CHAPTER - IV

DATA PRESENTATION AND ANALYSIS

The purpose of analyzing the data is to change it from an unprocessed form to an understandable presentation. The analysis of data consists of organizing, tabulating performing statistical analysis and drawing inferences. This is the section where, the filtered data are presented and analyzed. This is the one of the major chapter of this study because it includes detail analysis and interpretation of data from which concrete result of cash management practices of NEA can be obtained. In this chapter, the relevant data and information necessary for the study are presented and analyzed keeping the objectives set in mind. To make our study effective and precise as well as easily understandable, this chapter is categorized in three parts; presentation, analysis and interpretation. The analysis is fully based on secondary data available. In presentation section data are presented in terms of table, graph chart of figures, according to need. The presented data are then analyzed using different statistical tools mentioned in chapter three. At last the results of analysis are interpreted. Though there is no distinct line of demarcation for each section (like presentation section, analysis section & interpretation section) but the arrangement of writing is made by aforementioned way. Similarly it is also noted that almost all data used for analysis are of secondary type.

The main purpose of this study is to highlight the cash management system in the context of planning in public utility concern and Nepal Electricity Authority has been selected for this purpose. To accomplish these objectives, this chapter of research paper will analyze the various aspect of cash management and their achievement and their related variances of the authority.

4.1. Analysis of the Data by "Financial Tools"

4.1.1. Analysis of Cash and Bank Balance

Holding of optimum cash and bank balance is the rational cash management practice of a business firm. Management of cash plays a significant role in current assets of NEA. Total cash balance refers to the cash in hand, cash at bank, and cash in transit, near cash assets such as; marketable securities and time deposit in bank.

Table-8 below shows the amount of cash and bank balance of NEA during the period under study. The cash and bank balance of each fiscal year end has been compared to preceding years to analyze fluctuations.

Table 4.1

Analysis of Cash and Bank Balance

(Rs in million)

Fiscal Year	Cash and Bank	Increase (decrease)%
2001	1039.3	
2002	664.6	-36.05
2003	1076.2	61.93
2004	1036.4	-3.70
2005	1322.6	27.61
2006	1258.6	-4.84
2007	1447.58	15.02
2008	820.84	-43.3
Total	8666.12	
Average	1083.27	

Source: Appendix

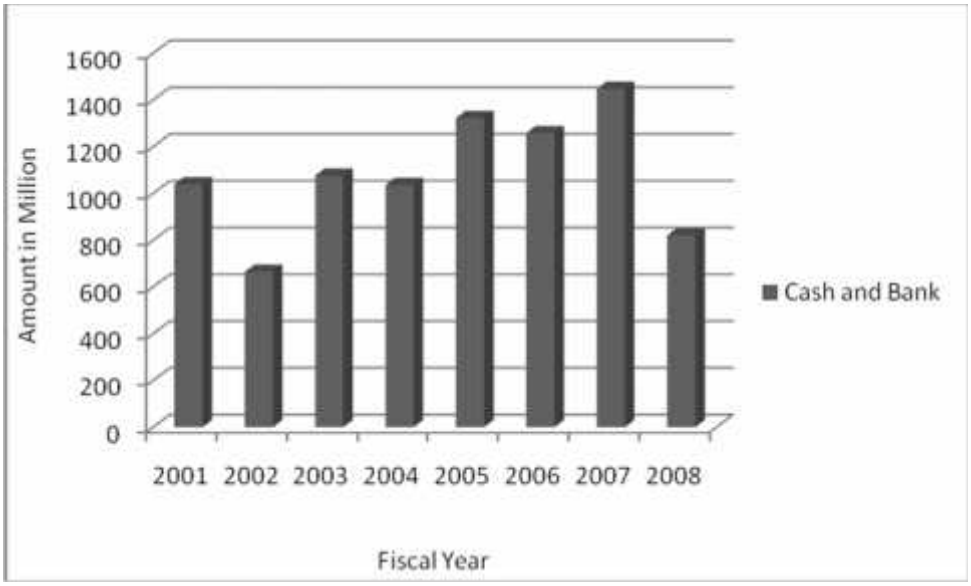
In fiscal year 2001, the cash balance of the company was Rs 1039.3million, which is decrease by 36.05% to Rs 664.6 million, in the following year. However, it sharply increased by 61.93% in fiscal year 2003 like wise, it declined in the fiscal year 2004. In the fiscal year 2005 it was increased by 27.61% and decreased by 4.84% in the following year. In the fiscal year 2007 the cash and bank balance was Rs.1447.58 million which was decreased to Rs 820.84 million by 43.3%.

However, sharpest deviation in increments of cash balance occurred in fiscal year 2003 when the company held cash balance of Rs1076.2 million compared to Rs 664.6 million only in the previous year. Like wise the sharpest deviation in the decrement of cash balance occurred in the fiscal year 2008 which was decreased to Rs. 820.84 million by 43.3% from the cash balance of Rs. 1447.58 million in 2007.

It can be presented with the help of graph to show the variation in cash balance held at the end of each fiscal year. The figure suggested that the cash balance held is quite consistent in nature except in FY 2002 which has drastically decreased from 1039.3 to 664.6 and in the fiscal year 2008 which was again decreased from Rs. 1447.58 million to Rs.820.84 million. Such fluctuation states that the company has not been following a definite policy regarding the amount of cash to hold at end of year. Similarly the cash balance of NEA has come to Rs.820.84 Million from Rs.1039.3 which can be viewed as NEA is trying to maintain the appropriate level of cash balance.

Figure 4.1

Cash and Bank Balance



4.1.2 Analysis of Cash Turnover Ratio

The cash balance of the company should be optimum to meet its current obligations in course of daily business transaction. The cash turnover ratio represents how quickly the cash is received from its sale be formulated to find out. Higher turnover is the signal of good liquidity and vice-versa. However, too high ratio indicates excess cash balance being held idle.

Table 4.2

Analysis of Cash Turnover Ratio

(Rs in Million)

Fiscal year	Sales	Cash and Bank	(Times)Ratio	Cash conversion days
2001	8160.8	1039.3	7.85	46.48
2002	9476.2	664.6	14.26	25.60
2003	11012.6	1076.2	10.23	35.67
2004	11874.7	1036.4	11.46	31.86
2005	12605.2	1322.6	9.53	38.30
2006	13331.9	1258.6	10.59	34.46
2007	14449.73	1447.58	9.98	36.57
2008	15405.03	820.84	18.77	19.45
Total	96316.16	8666.12		
Average	12039.52	1083.27	11.11	32.84

Source: Appendix

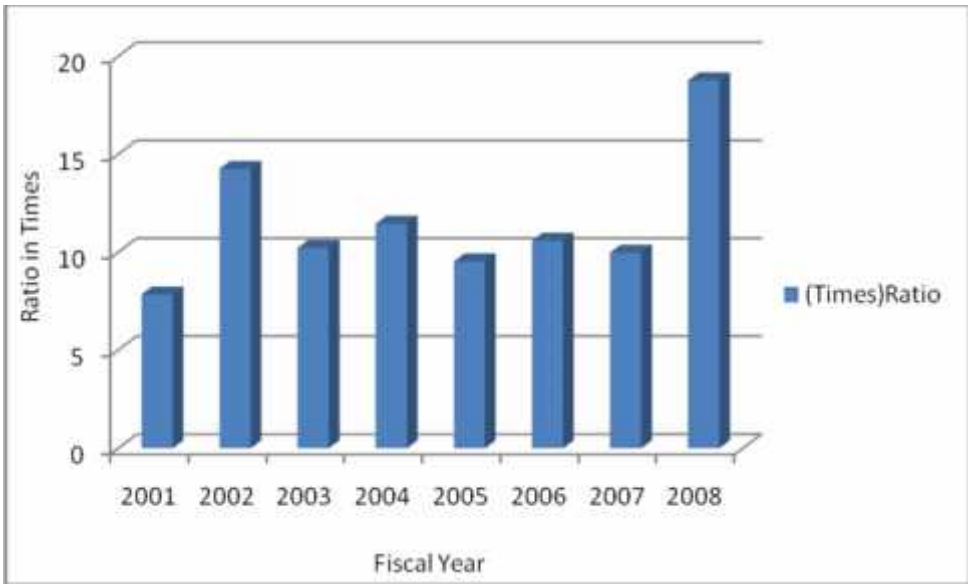
The above table shows medium fluctuations have been observed in cash turnover analysis .The ratio's fluctuation high or low, indicative of no definite policy of holding cash balance in relation to sales volume . Above table shows that the highest ratio of 18.77 times has been observed in FY 2008. Likewise, the lowest ratio of 7.85 has been observed in FY 2001. Overall average ratio has been calculated 11.11 times. Likewise the average cash turnover cycle has been found 32.84 days. However due to the unavailabity of information regarding credit policy of the company, the credit days allowed its debtors was not known. So, no pure analysis could be carried out for cash turnover cycle.

Generally, a high sale implies high cash balance to hold and vice versa. But the above table shows the NEA has not applying any definite policy on holding cash balance in relation to sales volume .It can be observed that in the fiscal year 2001 ,Ratio was 7.85 with cash conversion days of 46.48 which is increased to 18.77 with cash conversion days of 19.45 which indicates that NEA has been maintaining increasing trend of cash turnover ratio over the years reducing cash conversion days but has not been applying any definite policy on holding cash balance in relation to sales volume.

It can be presented with the help of graph to show the cash turnover ratio in relation with sales and cash balance.

Figure 4.2

Cash Turnover Ratio



4.1.3. Analysis of Current Ratio

One of the reliable methods to examine liquidity position of an enterprise is by means of current ratio i.e. current Assets to current liabilities.

The conventionally accepted current ratio 2:1 is the standard ratio, a company should maintain. However, depending upon the nature of the company, the

development of capital market and availability of long-term funds to finance current assets; the satisfactory ratio varies. As stated by Khan and Jain, taking into consideration the nature of a company, satisfactory current ratio for a public enterprise is generally very low, as normally these companies have very little need for current assets. So, satisfactory ratio for NEA, a public enterprise is therefore between 2:1 and higher than 1.5:1. But in general, ratio less than 1:1 is certainly undesirable for any enterprise.

Table 4.3

Analysis of Current Ratio

(Rs in Million)

Fiscal year	Current Assets	Current Liabilities	Ratio (times)
2001	6313.6	5070.8	1.25
2002	7322	8852.79	0.83
2003	7690.5	11593.69	0.66
2004	7883.4	13856.61	0.57
2005	8491.6	16768.69	0.51
2006	8995.3	19144.39	0.47
2007	9391.8	22119.00	0.47
2008	11391.46	25617.61	0.44
Total	56088.2	123023.68	5.19
Average	8012.6	15377.96	0.65

Source: Appendix

The above figure shows that the current ratio varies from 1.25:1 in the FY2001 to 0.44:1 in the FY 2008 indicating moderate fluctuations. Observing the figure, the ratios in FY 2001 is near about 2:1 which is satisfactory and in fiscal year 2002,2003,2004, 2005, 2006, 2007 and 2008, all of the ratios are below 1:1 which indicates that the NEA does not have a sound or satisfactory liquidity position . The most favorable current ratio was observed in FY 2001 when the when the ratio is 1.25:1.

4.1.4 Analysis of Quick Ratio

The ratio conveys the most precise information on liquidity position of a firm, since; it excludes the inventory, the least liquid asset from the current assets and compares it with current liabilities. Inventory when excluded from current assets is called quick assets. The preceding ratio analysis, i.e. the current ratio analysis fails to convey information regarding composition of the current assets of a firm. Current assets are composed of cash and bank balance, Short- time marketable securities, receivable and inventory. However, inventory is not capable of readily converting into cash and therefore it is the less liquid compared to other composition of the current assets. Thus this quick ratio is more reliable measure of liquidity than current ratio. Quick ratio is so called because it measures the capacity of a firm to convert its current assets quickly into cash in order to meet its current liabilities.

Table 4.4

Analysis of Quick Ratio

(Rs in Million)

Fiscal year	Quick Assets	Current Liabilities	Ratio (times)
2001	5352.7	5070.8	1.06
2002	6263.9	8852.79	0.71
2003	6673.3	11593.69	0.58
2004	6835.4	13856.61	0.49
2005	7118.9	16768.69	0.42
2006	7640.5	19144.39	0.40
2007	8824.52	22199.00	0.40
2008	9873.01	25617.71	0.39
Total	58582.23	123023.68	4.44
Average	7322.78	15377.96	0.56

Source: Appendix

The acceptable quick ratio to be maintained by the company is 1:1. From the above table, in FY 2001 the ratio is 1.06 which is satisfactory for the company but in FY 2002,2003, 2004,2005, 2006 ,2007 and 2008 the ratios are 0.70:1, 0.58:1, 0.49:1, 0.42:1 .0.40:1,0.40:1 and 0.39:1 respectively which are below the standard ratio and unsatisfactory for the company.

A note worthy point of observation here is, in the FY 2001 where the current ratio is 1.25:1 suggested liquidity position to be satisfactory. On the contrary, the quick ratio calculated for the same FY that is 1.06:1 which is satisfactory. So, it is clear that NEA does not have sound or satisfactory liquidity position.

4.1.5. Analysis of Receivables Turnover Ratio

This ratio shows how quickly receivables are converted into cash. The ratio shows how well the debtors have been handled by the company. In connection with this ratio, average collection period is also calculated. Higher ratio and shorter average collection period indicates better trade credit management and better liquidity of debtors, and consequently better liquidity of the enterprise. Likewise, lower ratio and longer average collection period signals delayed payments by the debtors

Table 4.5

Analysis of Receivables Turnover Ratio

(Rs in million)

Fiscal year	Sales	Receivables	Ratio (times)	Average Collection days
2001	8160.8	1678.5	4.86	75.07
2002	9476.2	2284.9	4.15	88.01
2003	11012.6	3380.2	3.26	112.03
2004	11874.7	3735.71	3.18	114.83
2005	12605.2	3697.70	3.41	107.07
2006	13331.9	4088.00	3.26	111.92
2007	14449.73	5151.41	2.81	130.12
2008	15405.03	6776.70	2.27	160.56
Total	96316.16	30793.12		
Average	12039.52	3849.14	3.40	112.45

Source: Appendix

From the above table shows that the ratios are having low fluctuating and vary from the lowest of 2.27 times to the highest of 4.86 times and average collection days vary far from 75 days to 161 days and overall, the average ratio is 3.40 and the average collection period is 112.45 days. Since the information regarding credit days extended to customers are not available, and moreover,

such credit days are likely to vary depending upon the nature of debtors, there is no absolute means of comparison available to compare the average collection days. Here the lowest ratio is 2.27 but the average collection days are 160.56. It shows that the credit management of NEA is not satisfactory. But it's depend upon with the nature of debtors.

However, it should be noted that too short average collection days doesn't necessarily imply that the firm is functioning well, for it indicates a very restrictive credit and collection policy thereby restricting its sales only to those debtors whose financial conditions are sound and who make their payments readily. Such restrictive policy would definitely avoid bad debts but the sales volume is likely to be curtailed by large proportion. Consequently, the overall profitability of the firm goes down.

4.1.6. Analysis of Inventory Turnover Ratio

This ratio is yet another way of analyzing the liquidity of an enterprise. This ratio shows how effectively a firm is managing its assets and whether or not the level of those assets is properly related to the level of operations as measured by sales. High inventory turnover ratio signals better inventory management and vice-verse. However, very high inventory turnover ratio is indicative of under-investment in, or very low level of inventory; and as such implies that the firm has not been meeting customer demand. So, a firm should go for an optimum inventory turnover ratio, which signifies sound inventory management.

Table 4.6

Analysis of Inventory Turnover Ratio

(Rs in Million)

Fiscal year	Sales	Inventory	Ratio (times)
2001	8160.8	960.9	8.49
2002	9476.2	1058.1	8.96
2003	11012.6	1017.2	10.83
2004	11874.7	1048	11.33
2005	12605.2	1372.7	9.18
2006	13331.9	1354.8	9.84
2007	14449.73	1498.45	9.64
2008	15405.03	1518.45	10.15
Total	96316.16	9828.63	
Average	12039.52	1228.58	9.80

Source: Appendix

The above table shows that the ratio fluctuates from 8.49 times to 11.33 times and these occur at 2001 and 2004. The ratio for the fiscal year 2004 is 11.33, the highest of all ratios, has definitely suggested that during the period, either the company should have undergone underinvestment or the inventory held was comparatively lower. The ratios are 8.96,10.83 and 11.33 at the fiscal year 2002,2003 and 2004 respectively which are increased as compare to previous year .But in the fiscal year 2005,2006 and 2007 the ratios are decreased to 9.18,9.84 and 9.64 times.

4.1.7. Analysis of Cash and bank Balance to Account Receivable

This ratio measures the relationship between the cash balance on hand to account receivable. The higher ratio indicates better liquidity position and vice-versa. However, too high ratio indicates excessive cash balances are held idle and that the transactions are limited only to parties making prompt payments.

Table 4.7

Analysis of Cash and Bank Balance to Account Receivable

(Rs in Million)

Fiscal year	Cash & Bank	Account Receivable (AR)	Percentage of A.R.
2001	1039.3	1678.5	61.92
2002	664.6	2284.9	29.09
2003	1076.2	3380.2	31.84
2004	1036.4	3735.7	27.74
2005	1322.6	3697.7	35.77
2006	1258.6	4088.0	30.79
2007	1447.58	5151.41	28.10
2008	820.84	6776.70	12.11
Total	8666.12	30793.12	
Average	1083.27	3849.14	28.14

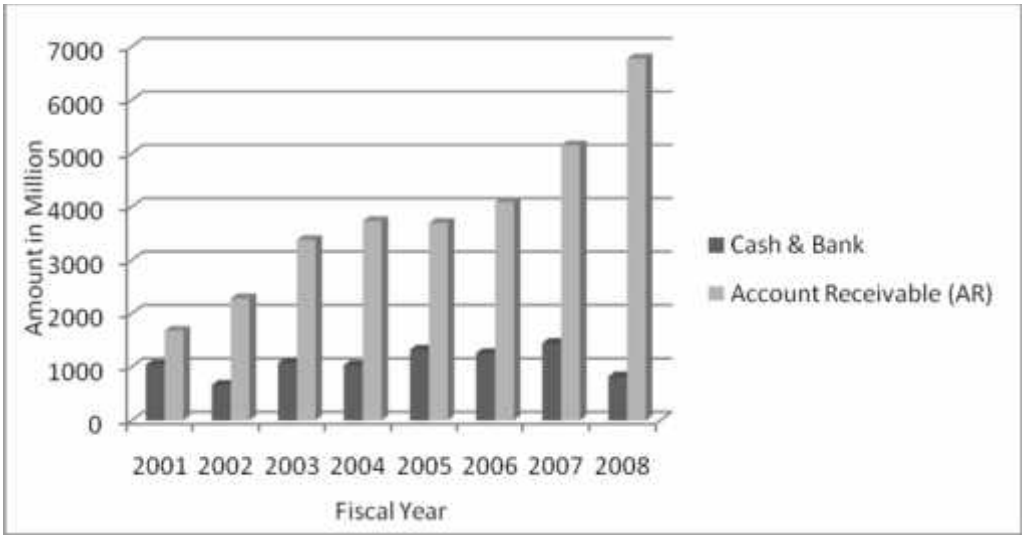
Source: Appendix

The above table shows the ratio or percentage of account receivable which fluctuate from 12.11% to 61.92 %. The percentage of account receivable is highest in FY 2001 (61.92%).This shows that the liquidity position is good in FY 2001. But the % of A/C receivable in 2008 is 12.11 which is lowest at all and shows that the liquidity position is not good in FY 2008 in comparison to other FYs.

It can be presented with the help of graph to show the relationship between cash and bank balance and account receivable.

Figure 4.3

Cash and Bank Balance to Account Receivable



4.1.8 Analysis of Cash and Bank Balance to Current Assets

As we know that the cash is the most liquid current asset and as such more the amount of cash balance in an enterprise, more liquid the enterprise in meeting its current obligations. However, bearing excess cash signifies cash balance being held idle without any motive.

The ratio of cash and Bank to current assets indicate the proportion of cash balance in the current assets. Stable pattern of ratio for different fiscal years indicate that the company has been following a systematic policy regarding how much cash balances to hold at the fiscal year end.

Table 4.8

Analysis of Cash and Bank Balance to Current Assets

(Rs. in million)

Fiscal year	Cash & Bank	Current Assets	Ratio (%)of cash and bank to current Assets	Difference Ratio(%)
2001	1039.3	6313.6	16.46	-
2002	664.6	7322	9.08	-7.38
2003	1076.2	7690.5	13.99	4.92
2004	1036.4	7883.4	13.15	-0.85
2005	1322.6	8491.6	15.58	2.43
2006	1258.6	8995.3	13.99	-1.58
2007	1447.58	10322.97	14.02	0.03
2008	820.84	11391.46	7.21	-6.82
Total	8666.12	56088.2		
Average	1083.27	8551.35	12.67	

Source: Appendix

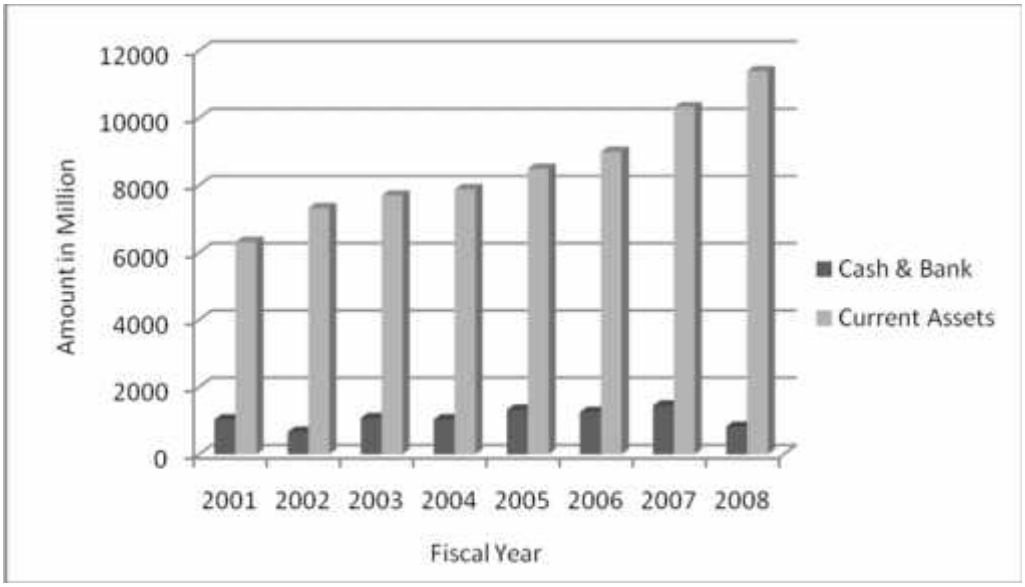
The above table shows the % of cash and bank balance to C.A of the NEA. From the above table it is observed that the cash and bank balance with respect to C.A has fluctuating trend. During the study period the % of cash and bank balance to C.A range from the lowest of 7.21 to the highest of 16.46 in the FY 2008 and 2001. In FY 2001 the ratio is 16.46 which decrease in FY 2002 to 9.08, However In FY 2003 % increase to 13.99. In FY 2004 decrease in to 13.15 But in FY 2005 increase in to 15.58. Like wise in fiscal year 2006 it decreased to 13.99 and again increase to 14.02 in fiscal year 2007. Attention has been drawn in the FY 2008 where the % of cash and bank balance to C.A is low with 7.21. These data shows that the company has undergone cash scarcity to meet short-term payments during these FY. On an average the projection of cash and Bank Balance to C.A for the study period is 12.67.These data shows that the liquidity position of NEA is decreasing in succeeding year as its cash to current ratio is decreasing .It also indicates that that the contribution of cash and bank balance to current assets is decreasing in relation to the increasing trend of current assets of NEA. Overall cash to current ratio is

12.67% which is considered not satisfactory to meet current obligation from cash and bank balance.

It can be presented with the help of graph to show the relationship between cash and bank balance and C.A.

Figure 4.4

Cash and Bank Balance to Current Assets



4.1.9. Analysis of Cash and Bank Balance to Current Liabilities

Among the technique of measuring corporate liquidity, the ratio of cash and Bank Balance to current liabilities many also be used as index of cash management. This ratio indicates the amount of cash (in percentage) available to pay the current obligation of the firm. A moderate ratio is considered satisfactory, too high ratio indicates excess cash balance held idle and too low ratio is indicative of company being unable to meet its payment of current liabilities in time.

Table 4.9

Analysis of Cash and Bank Balance to Current Liabilities

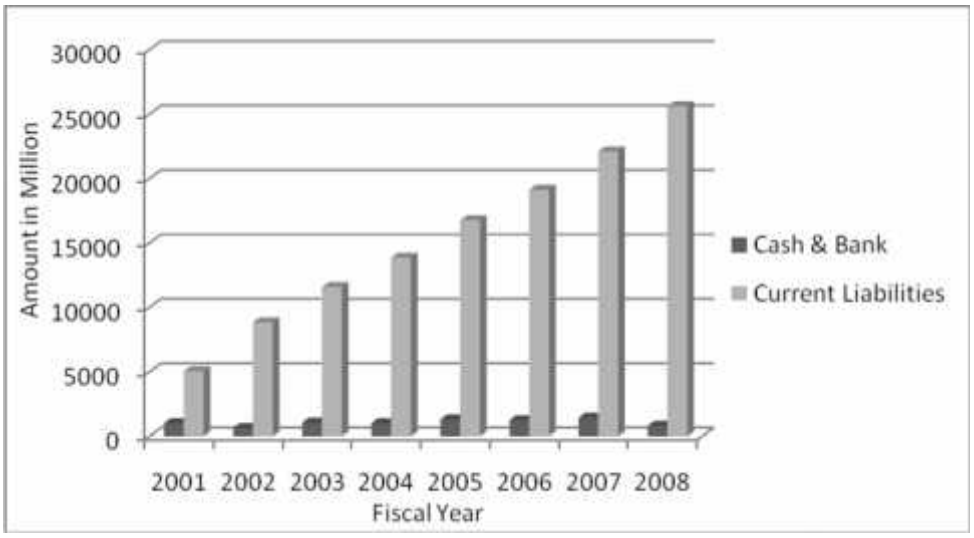
(Rs in million)

Fiscal year	Cash & Bank	Current Liabilities	Ratio (%)
2001	1039.3	5070.8	20.50
2002	664.6	8852.79	7.51
2003	1076.2	11593.69	9.28
2004	1036.4	13856.61	7.48
2005	1322.6	16768.69	7.89
2006	1258.6	19144.39	6.57
2007	1447.58	22119.0	6.54
2008	820.84	25617.21	3.20
Total	8666.12	123023.18	
Average	1083.27	15377.90	7.04

Source: Appendix

Above table shows that the ratios fluctuate from the lowest of 3.20 % to the highest of 20.50 % in FY 2008 and 2001. The ratio in FY 2001 is 20.50% and the rest are in decreasing trend i.e. 7.51%,9.28%,7.48%,7.89% 6.57%,6.54% and 3.20% in 2002, 2003, 2004, 2005, 2006,2007 and 2008 respectively. The above table has clearly indicated that the company hasn't been following a systematic cash management practice. The company being unable to meet its payment of current liabilities in time. The average ratio has been found calculate 7.04. It indicates that cash and bank balance was less than current liabilities in each fiscal year. This balance of cash is not sufficient to pay current liabilities and NEA should manage other sources to pay short term obligation. It can also be presented with the help of graph to show the relationship between cash and Bank Balance and C.L.

Figure 4.5
Cash and Bank Balance to Current Liabilities



4.1.10. Analysis of Gross Profit Margin Ratio

Gross profit is the ratio of gross profit of net sales expressed as a percentage. It express the relationship between gross profit and Sales. Gross profit ratio may be indicated to what extent the selling price of goods per unit may be reduced with out incurring losses on operations. It reflects efficiency with which a firm produces its product.

Table 4.10

Analysis Gross Profit Margin Ratio

(Rs in million)

Fiscal year	Gross Profit	Sales	Ratio (%)
2001	3680.1	8160.8	45.09
2002	3589.5	9476.2	37.88
2003	5664.6	11012.6	51.44
2004	5109.3	11874.7	43.03
2005	5142.8	12605.2	40.80
2006	4999.2	13331.9	37.50
2007	5415.17	14449.73	37.48
2008	5475.18	15405.03	35.54
Total	39075.85	96316.16	
Average	4884.48	12039.52	40.57

Source: Appendix

Above table shows that the company has been maintaining satisfactory gross profit margin ratio under all the F/Y under observation.. The gross profit margin ratio observed in the fiscal year 2003 is the highest of all with a ratio of 51.44.. Overall the company has been operating gross profit. It can be observed that in the fiscal year 2008, the gross profit margin is 35.54% at the highest sale of Rs.15,405.03 Million while there is gross profit margin of 45.09% at the lowest sale of Rs.8160.8 Million. This shows that though there is positive margin ratio the trend over the year is not good as it is in the decreasing trend as compare to the increasing trend of sales. There is no standard GP ratio for evaluation. It may vary from business to business. However, the gross profit earned should be sufficient to recover all operating expenses and to build up reserve after paying all fixed interest charges and dividends. It is to be noted that the reason behind the decrease in gross profit margin is increase on cost of goods sold without increasing in selling price.

4.1.11. Analysis of Net Profit Margin Ratio

Net profit Margin ratio measures the relationship between net profits and sales of a firm. A high profit margin indicates adequate return to the firm and thus enables in with standing in adverse economic situations when sales price is declining, cost of production is rising and demand for the product is falling.

Table 4.11
Analysis of Net Profit Margin Ratio

(Rs in million)

Fiscal year	Net profit After Tax (loss)	Sales	Ratio (%)
2001	-51	8160.8	-0.62
2002	-860.7	9476.2	-9.08
2003	-1953.7	11012.6	-17.74
2004	-1760.3	11874.7	-14.82
2005	-1312.8	12605.2	-10.41
2006	-1267.8	13331.9	-9.51
2007	314.19	14449.73	2.17
2008	-1312.16	15405.03	-8.52
Total	-8832.65	96316.16	

Average	-1104.08	12039.52	-8.52

Source: Appendix

Above table shows that the company has been operating under loss in all of the FYs. The net profit margin ratios observed in FY 2001 to 2006 are -0.62, -9.08, -17.74, -14.82, -10.41, -9.51 respectively. Overall the company has been operating under loss. In the fiscal year 2007 the ratio is positive with the figure 2.17.But in the fiscal year 2008 the ratio is -8.52 The average net profitability margin has been calculated -8.52.The sales amount are in increasing trend but the company is bearing loss in all FY which does not meet theory.

4.1.12. Analysis of Total Assets Turnover Ratio

Asset turnover ratio is the amount of sales generated for every dollar worth of assets. It is calculated by dividing sales by total assets. It measures a firm efficiency at using its assets in generating sales or revenue. The higher the number the better it is .It also indicates pricing strategy, company with low profit margin tend to have high asset turnover ratio while those with high profit margin have low assets turnover ratio.

Table 4.12

Analysis of Asset Turnover Ratio

(Rs in million)

Fiscal year	Sales	Total Assets	Ratio
2001	8160.8	58708.96	0.14
2002	9476.2	63793.31	0.15
2003	11012.6	67053.74	0.16
2004	11874.7	70631.10	0.17
2005	12605.2	77495.56	0.16
2006	13331.9	83550.08	0.16
2007	14449.73	92131.97	0.16
2008	15405.03	101218.35	0.15
Total	96316.16	614583.47	
Average	12039.52	76822.93	0.16

Source: Appendix

Above table shows that the company has been maintaining average assets turnover ratio of 0.16.The highest asset turnover ratio is 0.17 in the fiscal year 2004 when the sales is Rs. 11874.7 million and total assets is valued at Rs.70631.1.Observing ratios in each fiscal year reveals there is stability in the assets turnover ratio as the ratios have never gone down from 0.14.But while looking as a whole, the efficiency has not been improved since the ratio has not moved remarkably as there is noticeable changes in the volume of sales and total assets as compared to fiscal year 2001.This indicates that the company is not generating sufficient revenue for the size of its total assets investment or the sales has not justified its total assets. Therefore the company should increase its sale and some inefficient/unutilized assets should be disposed off.

4.1.13 Analysis of Interest Coverage Ratio

Interest Coverage ratio measures the extent to which interest on debt capital is covered by EBIT. It measures the ability of the firm to meet its annual interest payment. The interest coverage ratio is very important from the lender's point of view. It indicates the number of times interest is covered by the profits available to pay interest charges.

It is an index of the financial strength of an enterprise. A high debt service ratio or interest coverage ratio assures the lenders a regular and periodical interest income. But the weakness of the ratio may create some problems to the financial manager in raising funds from debt sources.

Table 4.13

Analysis of Interest Coverage Ratio

(Rs in million)

Fiscal year	EBIT	Interest	Ratio
2001	1186.3	1188.2	1
2002	678.1	1395.5	0.49
2003	2517.5	2973.4	0.85
2004	1505.4	2991.5	0.50
2005	1767	3079.8	0.57
2006	1783.1	3050.9	0.58
2007	2699.6	2385.41	1.13
2008	1056.25	2368.41	0.45
Total	13193.25	19433.12	
Average	1649.16	2429.14	0.68

Source: Appendix

Above table shows that NEA has average interest coverage ratio of 0.68.The highest coverage ratio is 1 in the fiscal year 2001 which has decreased to 0.45 in the fiscal year 0.45.This indicates that NEA is not efficient in using its funds and has undergone through bad performance resulting unable to pay interest charges from its profit. The NEA will face some difficulties if it attempted to borrow additional fund. Ineffective use of more debt has resulted above condition. Therefore NEA management is suggested to analyze marginal productivity while using additional debt.

4.1.14. Analysis of Basic Earning Power Ratio

It is the ratio of EBIT to total assets. This ratio indicates the ability of the firm's assets to generate operating income.

Table 4.14

Analysis of Basic Earning Power Ratio

(Rs in million)

Fiscal year	EBIT	Total Assets	Ratio
2001	1186.3	58708.96	0.02
2002	678.1	63793.71	0.01
2003	2517.5	67053.74	0.04
2004	1505.4	70631.1	0.02
2005	1767	77495.56	0.02
2006	1783.1	83550.08	0.02
2007	2699.6	92131.97	0.03
2008	1056.25	101218.35	0.01
Total	13193.25	614583.47	
Average	1649.16	76822.93	0.02

Source: Appendix

Above table shows that the NEA has on average the Basic Earning Power ratio of 0.02.The highest Basic Earning Power Ratio is 1 in the fiscal year 2001 when the total assets is valued at Rs.58708.96.Observing the trend over the year ,NEA is not successful in increasing operating income as per the company's investment in total assets. This indicates that the company is not generating sufficient operating income for the size of its total assets investment or the EBIT has not justified its total assets. Therefore the company should increase its EBIT and some inefficient/unutilized assets should be disposed off.

4.1.15. Analysis of Return on Working Capital

This is yet another ratio to examine profitability of a firm. The ratio is aimed at analyzing the proportion of current assets employed to earn the profit amount. Higher ratio is favorable and vice-versa.

Table 4.15

Analysis of Return on Working Capital

(Rs in million)

Fiscal year	Net Profit After Tax (loss)	Current Assets	Ratio (%)
2001	-51	6313.6	-0.81
2002	-860.7	7322	-11.75
2003	-1953.7	7690.5	-25.40
2004	-1760.3	7883.4	-22.32
2005	-1312.8	8491.6	-15.45
2006	-1267.8	8995.3	-14.09
2007	314.19	10322.97	3.04
2008	-1312.16	11391.46	-11.52
Total	8832.65	68410.83	
Average	1104.08	8551.35	-11.99

Source: Appendix

Above table shows that the company has not been utilizing its C.A effectively in earning profit. Besides the overall ratio is also dissatisfying indicating loss in 2001 to 2006. There is no positive return on working capital ratio except in the fiscal year 2007. Overall, the return on working capital is disappointing indicating down fall of the company. The average return of working capital has calculated as -11.99.

4.1.16. Analysis of Net Profit after Tax to Quick Assets

This ratio also examines profitability of a firm; analyses proportion of quick assets in earning the profit amount. Higher ratio indicates higher utilization of quick assets in earning profit and vice-versa.

Table 4.16

Analysis of Net Profit after Tax to Quick Assets

(Rs in million)

Fiscal year	Net Profit After Tax (loss)	Quick Assets	Ratio (%)
2001	-51	5352.7	-0.95
2002	-860.7	6263.9	-13.74
2003	-1953.7	6673.3	-29.28
2004	-1760.3	6835.4	-25.75
2005	-1312.8	7118.9	-18.44
2006	-1267.8	7640.5	-16.59
2007	-314.19	8824.52	3.56
2008	-1312.16	9873.01	-13.29
Total	-8832.65	58582.23	
Average	-1104.08	7322.78	14.00

Source: Appendix

Above table shows that the ratio has been found dissatisfactory. The figures clearly indicate that utilized quick assets have not been earning profit in average rather incurring average loss of 1104.08 million.

All FYs the ratio is of negative value ranging from the lowest of 0.95 to the highest of 29.28. Situation is worsening in recent all FY which definitely signifies decimal situation.

4.2. Analysis of the Data by "Statistical Tools"

4.2.1. Analysis of Dispersion in Cash and Bank Balance

Table 4.17 shows the dispersion in the cash balances at the year ends under study. ‘Standard deviation’ is the measures of dispersion used for the analysis.

Table 4.17

Analysis of Dispersion in Cash and Bank Balance

(Rs in million)

Fiscal year	Cash and Bank (X)	$(X - \bar{X})$	$(X - \bar{X})^2$
2001	1039.3	-43.97	1933.36
2002	664.6	-418.67	175284.60
2003	1076.2	-7.07	49.98
2004	1036.4	-46.87	2196.80
2005	1322.6	239.33	57278.85
2006	1258.6	175.33	30740.61
2007	1006.7	364.31	132721.80
2008	820.84	-262.43	68869.50
Total	8666.12		469075.5
N=8	1083.27		

Mean $(\bar{X}) = \frac{X}{N} = \frac{8666.12}{8} = 1083.27$

Standard Deviation $= \sqrt{\frac{1}{N} (X - \bar{X})^2}$

$= \sqrt{\frac{469075.5}{8}}$

= Rs. 242.15 million

Interpretation

Computed standard deviation has been found Rs 242.15 million, which indicates high degree of uniformity in holding cash balance in the fiscal year end.

Calculation of coefficient of variation (C.V) further shows that the uniformity of cash balances held is high.

Coefficient of variation (C.V.) $= \frac{\pm}{\bar{X}} = \frac{242.15}{1083.27} \times 100$

= 22.35%

Interpretation

Lower C.V. indicates higher consistency or highly stable cash balance where as higher C.V. indicates just the opposite. C.V. of 22.35% definitely signifies that holding cash balance is highly consistence and stable.

4.2.2. Fitting the Straight Line Trend by Least Square Method for Variations in Cash and Bank Balance

This is one of the time series analyses, where future events of a variable (s) are forecasted over a regular interval of time based on the past events of the variables (s). Here, an effort has been made to forecast cash balance of NEA in future fiscal years, based on its past trend.

Table 4.18

Fitting the Straight Line Trend by Least Square Method for Variations in Cash Balance

(Rs in million)

Fiscal year	(Y) Cash and Bank	Deviation from (2004) (X)	XY	X^2
2001	1039.3	-3	-3117.9	9
2002	664.6	-2	-1329.2	4
2003	1076.2	-1	-1076.2	1
2004	1036.4	0	0	0
2005	1322.6	1	1322.6	1
2006	1258.6	2	2517.2	4
2007	1447.58	3	4342.7	9
2008	820.84	4	3283.4	16
Total	8666.12	0	5942.6	44

The equation of straight line trend is given by $Y_c = a + bx$

Here, $a = \frac{Y}{N} = \frac{8666.12}{8} = 1083.27$

$$b = \frac{XY}{X^2} = \frac{5942.6}{44} = 135.05$$

$Y_C = a + bx$

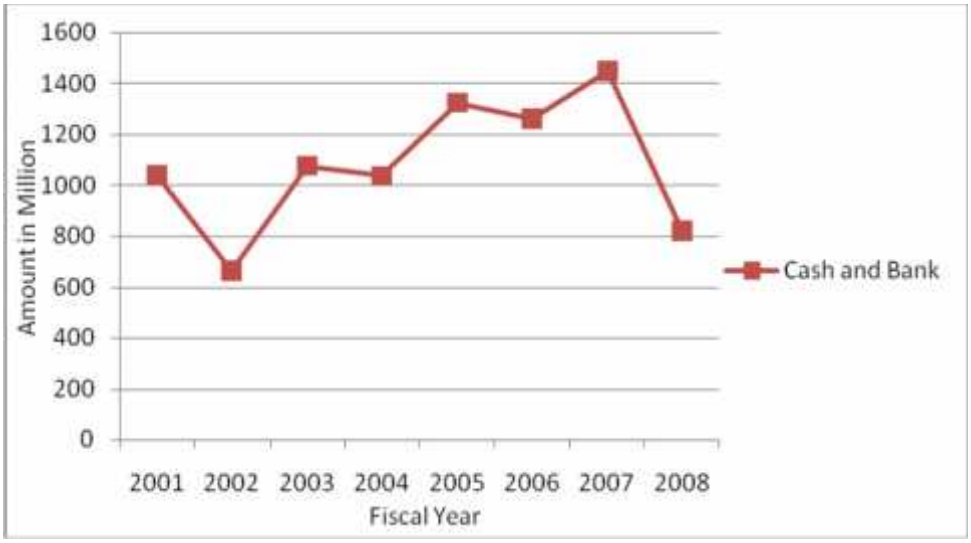
= 1083.27 + 135.05X

Interpretation

The trend line shows positive figure of cash balance in future. The annual rate of cash balance has been calculated Rs 135.05×1000,000=Rs 135050000

Figure 4.6

Trend Line for the Variation in Cash Balance



4.2.3. (A): Analysis of Karl Pearson's Coefficient of Correlation (r) between Sales and Cash Balance

Table 4.19

Analysis of Karl Pearson's Coefficient of Correlation (r) between Sales and Cash Balance

(Rs in Million)

Fiscal year	Sales(X)	Cash Balance(X)	X Z$\overline{X}$ Xμ	*Y* Z$\overline{Y}$ X¬	«¬	« ²	¬²
2001	8160.8	1039.3	-3878.72	-43.97	170527.9248	15044468.84	1933.36
2002	9476.2	664.6	-2563.32	-418.67	1073172.368	6570609.422	175284.57
2003	11012.6	1076.2	-1026.92	-7.07	7255.1898	1054564.686	49.98
2004	11874.7	1036.4	-164.82	-46.87	7724.2893	27165.6324	2196.79
2005	12605.2	1322.6	565.68	239.33	135387.0228	319993.8624	57278.85
2006	13331.9	1258.6	1292.38	175.33	226599.4473	1670246.064	30740.61
2007	14449.73	1447.58	2410.21	364.31	878075.6561	5809112.244	132721.78
2008	15405.03	820.84	3365.51	-262.43	-883193.9618	11326657.56	68869.51
Total	96316.16	8666.12	0	-0.04	1615547.94	26778349.5	469075.5

$$\text{Mean}(\overline{X}) \text{ X} \frac{X}{N} \text{ X} \frac{96316.6}{8} \text{ X} 12039.52$$

$$\text{Mean}(\overline{Y}) \text{ X} \frac{Y}{N} \text{ X} \frac{8666.12}{8} \text{ X} 1083.27$$

Karl Pearson's Correlation (r) = $\frac{\text{«¬}}{\sqrt{\text{«}^2 . \quad v^2}}$

$$= \frac{1615547.94}{\sqrt{26778349.5 \mid 469075.5}}$$

$$= 0.4558$$

This shows that there exists positive correlation between sales volume and cash balance. The correlation should be statistically significant to ascertain that there practically exists correlation between the two variables. For this purpose, probable error has been calculated as follows:

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

$$= \frac{0.6745(1 \text{ Z} 0.4558^2)}{\sqrt{8}}$$

$$= 0.1889$$

6 x (P.E.) = 6 x 0.1889 = 1.1334

Now, if r> 6 (P.E), it is indicative of statistically significant positive correlation. Likewise, if r< (P.E), it is indicative of statistically insignificant positive correlation.

But in this case, P.E. < r <6 (P.E). i.e. 0.1889 <0.4558 <1.1334. this implies, though there exists positive correlation between the two, no conclusion could be derived as to statistically significant/ insignificant.

This shows that the company has not been practically following the general rule of higher sales volume, higher cash balance and vice-versa.

The upper and lower limits within which the correlation coefficient is expected to lie are given by;

r+P.E. = 0.4558 + 0.1889 = 0.6447 (upper limit)

r= P.E. = 0.4558-0.1889 = 0.2669 (lower limit)

So, the coefficient of correlation is expected to lie between 0.6447 and 0.2669 between sales and cash balance

4.2.3 (B) Regression Analysis

A regression line can also be fitted to show the degree of relationship value of sales. For this purpose, cash balance and sales have been assumed interrelated economic variables.

The regression line of sales (X) on cash balance (Y) is given by,

$$(X \; Z\overline{X}) \; X r.\frac{\pm X}{\pm Y}(Y \; Z\overline{Y})$$

Where,

$\overline{X}$ = Mean sales= 12039.52

$\overline{Y}$ = Mean cash balance = 1083.27

6x= standard deviation of sales

$$= \sqrt{\frac{(X \; Z\overline{X})^2}{N}}$$

$$= \sqrt{\frac{26778349.5}{8}}$$

=Rs. 1829.56 million

6y= Standard deviation of cash.

$$= \sqrt{\frac{(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{469075.5}{8}}$$

=Rs. 242.15 million.

r = Karl Pearson's coefficient of correlation = 04558

Now,

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

Or, $(X-12039.52) = 0.4558 \mid \frac{1829.56}{242.15}(Y - 1083.27)$

Or, (X-12039.52) = 3.444 (Y- 1083.27)

Or, X-12039.52 = 3.444Y - 3730.78

X = 12039.52- 3730.78 + 3.444Y

… X= 8308.74 + 3.444Y

This equation shows that sales are estimated to increase by 3.444 per unit increase in cash balance.

Likewise, the regression line of cash balance (Y) on sales (X) can be computed as follows.

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

or, $(Y -1083.27) = 0.4558 \mid \frac{242.15}{1829.56}(X - 12039.52)$

or, Y – 1083.27= 0.0603 (X -12039.52)

or, Y -1083.27 = 0.0603X - 726.31

Y = 356.96+ 0.0603X

This shows that cash balance is estimated to increase by 0.0603 per unit increase in sales.

4.2.4. (A) Analysis of Karl Pearson's Coefficient of Correlation (r) between Account Receivables and Cash Balance

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

Table 4.20

Analysis of Karl Pearson's Coefficient of Correlation between Account Receivables and Cash Balance

(Rs in million)

Fiscal year	Account Receivable (X)	Cash Balance (Y)	$X - \bar{X}$	$Y - \bar{Y}$			
2001	1678.5	1039.3	-2170.64	-43.97	95443.04	4711678.01	1933.36
2002	2284.9	664.6	-1564.24	-418.67	654900.36	2446846.77	175284.57
2003	3380.2	1076.2	-468.94	-7.07	3315.41	219904.72	49.98
2004	3,735.71	1036.4	-113.43	-46.87	5316.46	12866.36	2196.79
2005	3,697.70	1322.6	-151.44	239.33	-36244.13	22934.07	57278.85
2006	4,088.00	1258.6	238.86	175.33	41879.32	57054.09	30740.61
2007	5151.41	1447.58	1302.27	364.31	474429.98	1695907.15	132721.78
2008	6,776.70	820.84	2927.56	-262.43	-768279.57	8570607.55	68869.51
Total	30793.12	8666.12	0	-0.04	470760.87	17737798.8	469075.5

$$\text{Mean } (\bar{X}) = \frac{X}{N} = \frac{30793.12}{8} = 3849.14$$

$$\text{Mean } (\bar{Y}) = \frac{Y}{N} = \frac{8666.12}{8} = 1083.27$$

… Karl Pearson's Correlation (r) $= \frac{\text{«}v}{\sqrt{\text{«}^2 . \; v^2}}$

$= \frac{470760.87}{\sqrt{17737798.8 \mid 469075.5}}$

=0.16

This shows that there exists positive correlation between account receivable and cash balance.

Since, correlation r is positive in order to compare it with probable error r has been calculated as follows.

r = 0.16

Now,

Calculation of probable error (P.E.)

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

$$= \frac{0.6745(1 \text{Z} 0.16^2)}{\sqrt{8}}$$

= 0.2321

6(P.E.) = 6 | 0.2321

= 1.3926

Now, if r> 6 (P.E), it is indicative of statistically significant positive correlation. Likewise, if r< (P.E), it is indicative of statistically insignificant positive correlation.

But in this case, r< (P.E) ie 0.16< 0.2321, this implies, though there exists positive correlation between the two, there is statistically insignificant positive correlation between Account Receivable and cash balance.

This shows that the company has not been practically following the general rule of higher account receivable, higher cash balance and vice-versa.

The upper and lower limits within which the correlation coefficient is expected to lie are given by;

r + P.E = 0.16+0.2321 = 0.3921 (Upper Limit)

r – P.E = 0.16- 0.2321 = -0.0721 (Lower Limit)

So, the correlation coefficient is expected to lies between0.3921 and -0.0721

4.2.4. (B): Regression Analysis

A regression line can also be fitted to show the degree relationship between account receivables and cash balance.

The regression line of receivable (X) on cash balance (Y) is given by,

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

Where,

$\overline{X}$ = Mean receivables = 3849.14

$\overline{Y}$ = Mean Cash balance = 1083.27

$\pm x$ = standard deviation of receivables

$$= \frac{\sqrt{(X - \overline{X})^2}}{N}$$

$$= \sqrt{\frac{17737798.8}{8}}$$

=Rs. 1489.03 million

$\pm y$ = Standard deviation of cash balance

$$= \sqrt{\frac{(Y - \overline{Y})^2}{N}} = \sqrt{\frac{469075.5}{8}}$$

= Rs. 242.15 million

r = Karl Pearson's coefficient of correlation = 0.16

Now,

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

or, $(X-3849.14) = 0.16\frac{1489.03}{242.15}(Y-1083.27)$

or, $(X-3849.14) = 0.9839\ (Y-1083.27)$

or, $X - 3849.14 = 0.9839Y - 1065.83$

$\therefore X = 2783.31 + 0.9839Y$

This equation shows that receivables are estimated to increase by 0.9839 per unit increase in cash balance.

Likewise, the regression line of cash balance (Y) on receivables (X) can be computed as follows.

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

or, $(Y-1083.27) = 0.16 \cdot \frac{242.15}{1489.03}\ (X-3849.14)$

or, $(Y-1083.27) = 0.026\ (X-3849.14)$

or $Y-1083.27 = 0.026X - 100.15$

$\therefore Y = 983.12+0.026X$

This shows that cash balance is estimated to increase by 0.026 per unit increase in receivable.

4.2.5. Analysis of Karl Pearson's Coefficient of Correlation (r) between 'Current Assets and Cash Balance

To find – out the correlation between current assets and cash balance, Karl Pearson's coefficient of correlation (r) is determined. For this purpose current assets and cash balance are assumed to be interrelated economic variables. Let us assume current assets as 'X' are dependent variables and cash balance 'Y' are independent variables.

Table 4.21

Analysis of Karl Pearson's Coefficient of Correlation (r) between Current Assets and Cash Balance

(Rs in million)

Fiscal Year	Current Assets(X)	Cash Balance(Y)	$X - \bar{X}$	$Y - \bar{Y}$	$(X-\bar{X})(Y-\bar{Y})$	$(X-\bar{X})^2$	$(Y-\bar{Y})^2$
2001	6313.6	1039.3	-2237.76	-43.97	98394.31	5007569.82	1933.37
2002	7322	664.6	-1229.36	-418.665	514690.01	1511326.01	175280.38
2003	7690.5	1076.2	-860.86	-7.065	6081.98	741079.94	49.9142
2004	7883.4	1036.4	-667.96	-46.865	31303.94	446170.56	2196.33
2005	8491.6	1322.6	-59.76	239.335	-14302.66	3571.26	57281.24
2006	8995.3	1258.6	443.94	175.335	77838.22	197082.73	30742.36
2007	10322.97	1447.58	1771.61	364.315	645424.09	3138601.99	132725.42
2008	11391.46	820.84	2840.1	-262.425	-745313.24	8066168.01	68866.88
Total	68410.83	8666.12	-0.04	-0.005	614116.65	19111570.3	469075.5

$$\text{Mean } (\bar{X}) = \frac{X}{N} = \frac{68410.83}{8} = 8551.35$$

$$\text{Mean } (\bar{Y}) = \frac{Y}{N} = \frac{866.12}{8} = 1083.27$$

$$\therefore \text{ Karl Pearson's Correlation (r)} = \frac{\sum xy}{\sqrt{\sum x^2 . \sum y^2}}$$

$$= \frac{614116.65}{\sqrt{1911570.3 \times 469075.5}}$$

$$= 0.2051$$

This shows that there exists positive correlation between current assets and cash balance. But according to the theory a increase in current asset should be followed by a decrease in cash balance and vice –versa. So, the above calculation of NEA is not applicable according to the theory. The correlation should be statistically significant to ascertain that there practically exists correlation between the two variables. For this purpose, probable error has been calculated as follows.

Probable Error (P.E) = $\frac{0.6745(1 Z r^2)}{\sqrt{N}}$

$= \frac{0.6745(1 Z 0.2051^2)}{\sqrt{8}}$

$= 0.2288$

6 x (P.E) = 6× 0.2288 = 1.373

Now, If r> 6 (P.E), it is indicative of statistically significant positive correlation.

Likewise, If r< (P.E), it is indicative of statistically insignificant positive correlation.

But in this case, r < P.E, i.e. 0.2051 < 0.2288. This implies, though there exists positive correlation between the two, the relationship is statistically insignificant.

This shows that the company has not been practically following the general rule of higher current-assets, higher cash balance and vice-versa.

The upper and lower limits within which the correlation coefficient is expected to lie are given by,

r + P. E = 0.2051+ 0.2288= 0.4339 (Upper Limit)

r – P. E = 0.2051 – 0.2288= -0.0237 (Lower Limit)

So, the coefficient of correlation is expected to lie between 0.4339 and -0.0237

4.2.6. Analysis of Karl Pearson's Coefficient of Correlation (r) between 'Current Liabilities and Cash Balance'

To find-out the correlation between current liabilities and cash balance, Karl Pearson's coefficient of correlation (r) is determined. For this purpose current

liabilities and cash balance are assumed to be interrelated economic variables. Let us assumed current liabilities as 'X' are dependent variables and cash balance 'Y' are independent variables.

Table 4.22

Analysis of Karl Pearson's Coefficient of Correlation (r) between Current Liabilities and Cash Balance

(Rs in Million)

Fiscal year	Current Liabilities (X)	Cash Balance (Y)	$X - \bar{X}$	$Y - \bar{Y}$	$(X-\bar{X})(Y-\bar{Y})$	$(X-\bar{X})^2$	$(Y-\bar{Y})^2$
2001	5070.8	1039.3	-10307.16	-43.97	453205.82	106237547.3	1933.36
2002	8852.79	664.6	-6525.17	-418.66	2731860.29	42577843.53	175280.38
2003	11593.69	1076.2	-3784.27	-7.065	26735.86	14320699.43	49.9142
2004	13856.61	1036.4	-1521.35	-46.87	71298.06	2314505.82	2196.33
2005	16768.69	1322.6	1390.73	239.34	332850.36	1934129.93	57281.24
2006	19144.39	1258.6	3766.43	175.34	660387.004	14185994.94	30742.36
2007	22119	1447.58	6741.04	364.31	2455861.98	45441620.28	132725.42
2008	25617.71	820.84	10239.75	-262.43	-2687166.39	104852480.1	68866.88
Total	123023.68	8666.12	0	-0.005	4045033.02	331864821	469075.5

$$\text{Mean } (\bar{X}) = \frac{X}{N} = \frac{123023.68}{8} = 15377.96$$

$$\text{Mean } (\bar{Y}) = \frac{Y}{N} = \frac{8666.12}{8} = 1083.27$$

$$\therefore \text{Karl Pearson's Correlation (r)} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 . \Sigma y^2}}$$

$$= \frac{4045033.02}{\sqrt{(331864821 \times 469075.5}}$$

$$= 0.3242$$

Since, correlation coefficient is positive, it indicates that there exists positive correlation between current liabilities and cash balance.

As correlation r is positive, in order to compare it with probable error (P.E), r has been calculated as follows.

r= 0.3242

Calculation of probable error (P.E)

Probable Error (P.E) = $\frac{0.6745(1 Z r^2)}{\sqrt{N}}$

$= \frac{0.6745(1 Z 0.3242^2)}{\sqrt{8}}$

= 0.2134

6 x (P.E) = 6x 0.2134 = 1.2804

Now, if r>6(P.E), it is indicative of statistically significant positive correlation. Likewise, if r<(P.E), it is indicative of statistically insignificant positive correlation.

But in this case, r<6(P.E)>P.E. i.e. 0.3242<1.2804 >0.2134 this implies, though there exists positive correlation between the two , no conclusion could be derived as to statistically significant/insignificant.

Upper and lower limit within which the correlation coefficient is expected to lie is given by.

r + P.E = 0.3242+0.2134= 0.5376 (Upper Limit)

r – P.E = 0.3242-0.2134 = 0.1108 (Lower Limit)

Hence, the correlation coefficient is expected to lie between 0.5376 and 0.1108.

4.3. Analysis of "Cash Flow Statement"

Cash flow statement of the company signifies the movements of cash in and out of company. Inflow of cash is known as sources of cash and outflow of cash is known as uses of cash. This statement also depicts the factors for such inflow and gets flow of cash. It virtually takes the nature and character of cash

receipt and cash payments, through the basic information used in the preparation of this statement differs from that which is used in recording cash receipts and cash payments in cash inflow and outflow are explained and shown in cash flow statement before highlighting nature and utility. The actual cash flow statement is presented on the heading of cash flow from operating activities, cash flow from financing activities and cash flow from investing activities for the fiscal year 2001 to 2008

Cash Flow Statement of Nepal Electricity Authority

From FY 2001 to 2004

Fiscal Year	**2001**	**2002**	**2003**	**2004**
A. Cash Flow from Operating Activities				
Profit carried forward to Balance Sheet Less Depreciation	-1092.43	-2350.55	-3623.08	-3413.82
Adjustment for				
a. Depreciation	1119.3	1420.1	1656.7	1686
b. Changes in B/S of Deffered Revenue expenses	432	172.8	289.3	409.1
	458.87	**-757.65**	**-1677.08**	**-1318.72**
Operating profit before changes in working capital				
(Increase)/Decrease in current assets	-834.3	-1383.1	43.1	-232.7
Increase/(Decrease) in current liabilities	636.3	3983.29	2250.01	2191.09
Cash generated from Operations	-198	2600.19	2293.11	1958.39
Cash flow from operating activities	260.87	1842.54	616.03	639.67
B. Cash flow from Investing Activities				
(Purchase)/ Sales of fixed assets,CWIP & Investment	-7820.77	-4076.35	-2891.53	-3384.46
Cash flow from investing activities	-7820.77	-4076.35	-2891.53	**-3384.46**
C. Cash flow fom Financing Activities				
Increase in Capital	726.3	1241	375.6	1239
Increase in long term loan	6551.8	618.11	2311.5	1466.03
Cash flow from financing activities	**7278.1**	**1859.11**	**2687.1**	**2705.03**
Net Increase/(Decrease) in cash and equivalent	-282	-374.7	411.6	-39.8
Opening Cash and equivalent	1321.3	1039.3	664.6	1076.2
Closing cash and equivalent	**1039.3**	**664.6**	**1076.2**	**1036.4**
As per balance sheet	1039.3	664.6	1076.2	1036.4

Cash flow Statement of Nepal Electricity Authority

From FY 2005 to 2008

Fiscal Year	**2005**	**2006**	**2007**	**2008**
A. Cash Flow from Operating Activities				
Profit carried forward to Balance Sheet Less Depreciation	-3029.95	-3068.08	-1113.87	-3232.16
Adjustment for				
a. Depreciation	1733.5	1816.9	1856.47	1,920.00
b. Changes in B/S of Deffered Revenue expenses	-147.72	16.2	484.03	-399.01
	-1444.17	**-1234.98**	**1226.63**	**-1711.17**
Operating profit before changes in working capital				
(Increase)/Decrease in current assets	-322	-567.7	-1138.69	-1695.23
Increase/(Decrease) in current liabilities	2,928.30	2,387.80	2957.94	3618.71
Cash generated from Operations	2606.3	1820.1	1819.25	1923.48
Cash flow from operating activities	1162.13	585.12	3045.88	212.31
B. Cash flow from Investing Activities				
(Purchase)/ Sales of fixed assets, CWIP & Investment	-6256.26	-5550.82	-7254.22	-8017.89
Cash flow from investing activities	-6256.26	**-5550.82**	**-7254.22**	**-8017.89**
C. Cash flow fom Financing Activities				
Increase in Capital	1945.95	2951.3	3269.08	2032.81
Increase in long term loan	3434.37	1950.4	1128.24	5146.03
Cash flow from financing activities	**5380.32**	**4901.7**	**4397.32**	**7178.84**
Net Increase/(Decrease) in cash and equivalent	286.18	-64	188.98	-626.74
Opening Cash and equivalent	1036.4	1322.6	1258.6	1447.58
Closing cash and equivalent	**1322.58**	**1258.6**	**1447.58**	**820.84**
As per balance sheet	1322.6	1258.6	1447.58	820.84

4.3.1. Analysis of Operating Activities

Overall, the operating activities of NEA have been observed to be moderate on account of the fact that there occurred regular cash inflow in the fiscal year 2001 to 2008.However, there have been high fluctuations observed in such cash inflows ranging from the highest inflow of NPR 3045.88 Million in fiscal year 2007 to the lowest inflow of NPR 212.31 million in the fiscal year 2008. A moderate fluctuation is favored in view of sound operating activities.

4.3.2. Analysis of Investing Activities

Investing activities of NEA have been observed to be the poorest of all three activities involved in cash flow statement. This activity has incurred cash outflows every year ranging from 2891.53 million in the fiscal year 2003 to NPR.8017.89 million in the fiscal year 2008. These negative figures are cash outflows under the heading investing activities.Net cash flow from investing activities in all FYs verify the fact that there never occurred cash inflow from investing activities. Only a small portion of surplus cash has been found invested in short – term investments, and as such, there never occurred cash inflow from investing activities.

4.3.3. Analysis of Financing Activities

Financing activities has been observed to be the idlest of all the three activities. This activity has been stated the idlest activity on the grounds that it has neither generated remarkable cash inflows nor outflows in the most of the FYs under study. FYs 2001, 2002, 2003, 2004, 2005, 2006, 2007 and 2008 has generated insignificant cash inflow of Rs.7278.1, 1899.11, 2687.1, 2705.03, 5380.32, 4901.7, 4397.32 and 7178.84 million respectively. Thus, the financing activity of the company has been seen the most passive activity, and hence the company should increase its financing activity by various financial activities such as, loan borrowings, issue of shares debentures etc.

4.4 Major Finding of the Study

Basically, in this research work, all data has been obtained from secondary sources. Data has been analyzed by using financial & statistical tools. The study mainly focuses on two objectives. First one is to determine the liquidity position. Similarly, second objective is to determine profitability of NEA. The major finding of the study derived from the analysis of financial and statistical tools of NEA. are given below:

- **Overall Cash Management**

(1) Liquidity position of NEA

- The cash and bank balance shows greater fluctuation in FY 2002 and 2003 but after FY 2003, fluctuation was quite low in comparison to the previous FYs. Holding of optimum cash and bank balance is the rational cash management practice of a business firm. There is lower coefficient of variation of NEA which signifies that holding cash balance is highly consistence and stable. The trend line shows positive figure of cash balance in future.
- In case of cash turnover ratio, due to the unavailability of information regarding credit policy of the company the credit days allowed its debtors was not known. So, no peruse analysis could be carried out for cash turnover cycle. Karl Pearson's Correlation shows that there exists positive correlation between the two ie cash or sales. But according to PE, no conclusion could be derived as to statistically significant/ insignificant.
- In case of current ratio, the ratios in FY 2001 is near about 2:1 which are satisfactory and in 2002,2003, 2004, 2005, 2006, 2007 and 2008 all of the ratios are below 1:1 which indicates that the NEA does not have a sound or satisfactory liquidity position .
- In case of quick ratio, in FY 2001 the ratio is satisfactory for the company but in FY 2002,2003, 2004,2005, 2006,2007 and 2008, the ratios are below the standard ratio and unsatisfactory for the company
- In case of receivable turnover ratio, Since the information regarding credit days extended to customers are not available, and moreover, such credit days are likely to vary depending upon the nature of debtors, there is no absolute means of comparison available to compare the average collection days.
- In case of inventory turnover ratio, the highest ratio is in FY 2008 which indicates better inventory management and better liquidity position. The lowest ratio is in FY 2001 which indicate poor inventory management and poor liquidity position.

- In case of analysis of cash and bank balance to account receivable ratio .The percentage of account receivable is highest in FY 2001 (61.92%) .This shows that the liquidity position is good in FY 2001. But the % of A/C receivable in 2008 is 12.11 which is lowest percent, this shows the liquidity position is not good. Analysis of Karl Pearson's coefficient of correlation between Account receivables and cash balance shows there is positive relation. But according to PE, there exists statistically insignificant correlation between them.
- In case of analysis of cash and bank balance to current assets, the company has undergone cash scarcity to meet short-term payments during the all FY. Analysis of Karl Pearson's coefficient of correlation (r) between 'current Assets and cash balance shows positive correlation. But according to PE, there exist statistically insignificant correlation, this shows that the company has not been practically following the general rule of higher current-assets, higher cash balance and vice-versa.
- In case of analysis of cash and bank balance to current liabilities, the company being unable to meet its payment of current liabilities in time. Analysis of Karl Pearson's coefficient of correlation (r) between 'current liabilities and cash balance shows the positive correlation. But according to PE, no conclusion could be derived as to statistically significant/insignificant.
- Overall Cash Management.

(2) Profitability Position of NEA

- Analysis of net profit margin shows the relation between net profit and sales. The ratios are all negative which indicate the company has been operating under loss in all of the FYs.
- Analysis of return on working capital, all the ratios are in negative figure in every FY. The company has not been utilizing its current

assets effectively in earning profit. Overall, the return on working capital is disappointing indicating down fall of the company.

- Analysis of net profit after tax to quick assets, In FY 2001 to 2008 all ratios are negative, The figures clearly indicate that utilized quick assets have not been earning profit in average rather incurring average loss.

(3) Cash Flow Statement

- Overall, the operating activities of NEA have been observed to be moderate on account of the fact that there occurred regular cash inflows from such operating activities in FYs under study. However, there have been high fluctuations observed in such cash inflows ranging from the highest inflow of Rs 3045.88 million in FY 2007 and the lowest inflow of Rs 212.31 million in FY 2008. A moderate fluctuation is favored in view of sound operating activities.
- Investing activity of NEA is the poorest of all three activities. This activity has incurred cash outflows of Rs.-7820.77,-4076.35,-2891.53, -3384.46,-6256.26,-5550.82,-7254.22 and 8017.89 respectively. These negative figures, i.e. cash outflows.
- Financing activity of NEA is almost best. Financing activities has been observed to be the idlest of all the three activities. This idlest been stated on the grounds that it has neither generated remarkable cash inflows nor outflows in the most of the FYs under study. Thus, the financing activity of the company has been seen the most passive activity, and hence the company should increase its financing activity by various financial activities such as, loan borrowings, issue of shares debentures etc.

CHAPTER - V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This is the final chapter that involves summary, conclusion and recommendations of the research work. The fact and findings from secondary data analysis are presented in this chapter. Beside summarizing and concluding research work, recommendations are made to concerned persons and organization.

5.1 Summary

The perception of the government and its role in public welfare has helped to establish public enterprises engaged in public utilities. Role of the government owned enterprises is supposed to be undermined in the present context of worldwide privatization, liberation and globalization. But in developing country like Nepal where private sector is not strong and in sound position to provide public utilities to the people, public utility concern's role can not be undermined.

Though Nepal is rich in water resources, we Nepalese people are in the condition of "shadow under light". There is consensus that development of its abundant water resources could largely benefit the nation. Though hydro-electric potentiality of Nepal is 83000 M.W, only about 544 M electricity is generated including from diesel and multifuel plant. Many changes are taking place in the power sector in the concept of competition, choice in the process of commercialization and management are being changed. In such situation, the proper utilization and management of our available water resources is essential for the all round development of the nation. In this regard, Nepal electricity authority is only an institution engaged for the development of power sector of our country. Sound and effective management of NEA is essential for the better utilization of available water resources of the country.

NEA 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 also be financially viable, fully autonomous, accountable and majority owned government business entity. In this sense, this study is conducted to identify whether some of the theories of cash management are applicable or not in the Nepalese public enterprise. For this reason brief introduction about public enterprises, public enterprises in Nepal, role and objectives of PEs, historical background of NEA, cash management which is the most important part of company, statement of problem, objectives, scope and limitation of the study, plan of study and so on are made in first chapter.

In second chapter, theoretical review as well as review of previous research has been made. And so on are reviewed on that chapter .Different views about cash management, function of cash management, efficiency, different techniques, of cash management And so on are reviewed on that chapter. Determining the optimum cash balance, motives for holding cash where precautionary motives, transaction motives, speculative motives are reviewed.

In third chapter, there is research methodology which will be helpful for the fourth chapter in data presentation and analysis. Out of the total financial system one service Enterprise is chooses for sample purpose, mainly financial tools & statistical tool are set for the analysis.

Lastly on fourth chapter, collected data are presented in tabular and graphic form and analyzed using various financial tools like cash & bank balance, cash turnover ratio, current ratio, quick ratio, receivable turnover ratio, cash & bank balance to account receivable , cash & bank balance to current assets and current liabilities. inventory turnover ratio , return on working capital ratio, gross profit margin ratio, net profit margin ratio , assets turnover ratio, Interest coverage ratio, Basic earning power ratio net profit after tax to quick assets and

statistical tools like mean, standard deviation, correlation coefficient, covariance, probable error. These all are analyzed whether or not the relationship between variables matches with the theories that have been studied on literature review part.

5.2 Conclusions

Based on the above summary and findings of the research, following conclusion can be point out after detail analysis of cash management. In conclusion, it can be said that cash management is an important part of the financial decision making variable. Many factors or determinants such as nature of business, level of sales, credit terms, quality of customers, economic condition etc have to be considered in cash management. Apart from the level of purchase, method of creating cash management, establish of credit terms, types of credit policy, motives for holding cash, efficiency of cash management, different technique of cash management etc. are to be considered.

- The cash and bank balance shows greater fluctuation in FY 2002, 2003, 2005 and 2008. Such fluctuation states that the NEA has not been following a definite policy regarding the amount of cash to hold at end of year. Holding of optimum cash and bank balance is the rational cash management practice of a business firm. There is lower coefficient of variation of NEA which signifies that holding cash balance is highly consistence and stable. The trend line shows positive figure of cash balance in future.
- In case of cash turnover ratio, the highest cash turnover ratio is 14.26 where the cash conversion period is 25.60 days. And the lowest cash turnover ratio is 7.85 where the cash conversion days is 46.48.Generally a high sales implies high cash balance to hold and vice versa. But in this case the NEA has not been applying any definite policy on holding cash volume in relation to sales volume. Due to the unavailability of information regarding credit policy of the company the credit days

allowed to its debtors was not known. So, no peruse analysis could be carried out for cash turnover cycle. Analysis of Karl Pearson's Correlation shows that there exists positive correlation between the two ie cash or sales. But according to PE, no conclusion could be derived as to statistically significant/ insignificant. Correlation coefficient between cash and bank balance and sales being positive of 0.4558 and the relation P.E <r <6 (P.E), suggested statistically inconclusive positive correlation as to significant/ insignificant, showing little complicity of cash and bank balance with sales variable.

- In case of current ratio, the ratios in FY 2001 i.e. 1.25:1 is near about 2:1 which is satisfactory and in 2002, 2003, 2004,2005,2006,2007 and 2008 all of the ratios are below 1:1 which indicates that the NEA does not have a sound or satisfactory liquidity position .
- In case of analysis of cash and bank balance to account receivable ratio .The percentage of account receivable is highest in FY 2001 (61.92%) .This shows that the liquidity position is good in FY 2001. But the % of A/C receivable in 2008 is 12.11 which is lowest percent, this shows the liquidity position is not good. Analysis of Karl Pearson's coefficient of correlation between Account receivables and cash balance shows there is positive relation i.e. 0.16 which suggests increase in Cash and Bank balance follows increase in account receivable and vice versa, which is theoretically not exist. It proves that in practical, theory in not applicable. But according to PE, no conclusion could be derived as to statistically insignificant/significant.
- In case of analysis of cash and bank balance to current assets, the highest ratio is 16.46 and the lowest ratio is 7.21. The company has undergone cash scarcity to meet short-term payments during the all FY. Analysis of Karl Pearson's coefficient of correlation (r) between 'current Assets and cash balance shows positive correlation i.e. 0.2051. But according to PE i.e. 0.2288 and 6P.E is 1.373, where it shows r <

P.E, i.e. 0.2051 < 0.2288 This implies, though there exists positive correlation between the two, the relationship is statistically insignificant This shows that the company has not been practically following the general rule of higher current-assets, higher cash balance and vice-versa.

- NEA has not been precisely meeting its current liabilities payment: In case of analysis of cash and bank balance to current liabilities, the company being unable to meet its payment of current liabilities in time. This is yet another indication of mismanagement of cash. The highest ratio of cash and bank to current liabilities is 20.50% and the lowest ratio is 3.20 in the fiscal year 2008.This decreasing trend of ratio over the year indicates the cash balance of NEA is not sufficient to meet current liabilities and NEA should manage other sources to pay short term obligation. Analysis of Karl Pearson's coefficient of correlation (r) between 'current liabilities and cash balance is 0.3242 shows the positive correlation. But according to PE i.e. 0.2134 and 6PE is 1.2804 which indicate PE<r<6PE, no conclusion could be derived as to statistically significant/insignificant. In short, the NEA is not following the rule of higher current liabilities implies higher cash and bank balance and vice versa.
- A large portion of NEA's current assets has been tied-up in the most illiquid asset; i.e. inventory
- The cross examination of the liquidity position suggested that current assets have been tied-up in slow moving and unsaleable inventories. Analyses show that the average current ratio was found to be dissatisfying and calculated to be 0.65:1, which is lower than the conventionally accepted current ratio of 2:1. The average quick ratio was also found to be dissatisfying and calculated to be 0.56:1, which is lower than the conventionally accepted quick ratio of 1:1. This indicated the possibility of current assets being tied-up in slow moving and unsaleable inventories.

- Current assets and Quick assets are not being maintained accordance with current liabilities: Current assets are not maintained in the accepted pattern of i.e. increase in current assets following increase in current liabilities and vice-versa. Likewise, neither the quick assets has been maintained in the accepted pattern of i.e., increase in quick assets followed by increase in current liabilities and vice-versa.
- NEA is operating under gross profit in all the fiscal year .But due to the large expenses on depreciation, interest and other maintenance, NEA is bearing Net loss in all the fiscal year under observation. Profitability of NEA being in worsening trend, liquidity does not practically increase with increase in profitability and vice-versa: Average Net profit Margin Ratio i.e. average ratio of Net profit after tax to sales in – 8.52%; Average ratio of Net profit after tax to current assets is -11.99%; and Average ratio of Net profit after tax to Quick assets is – 14%. These analyses indicate that profitability position of NEA is worsening in an alarming rate
- The Assets Turnover Ratio of 0.16 shows the NEA is not generating sufficient revenue for the size of its total assets investment of the sales has not justified its total assets.
- NEA is not efficient in using its fund and is unable to pay interest charges from the profit .The company is inefficient in improving its basic earning power ratio despite of huge investment in its total assets.
- Overall, the operating activities of NEA have been observed to be moderate on account of the fact that there occurred regular cash inflow from such operating activities in FYs under study. Overall, the operating activities of NEA have been observed to be moderate compare to other three activities. In the fiscal year 2001 to 2008 cash inflows are 206.87, 1842.54, 616.03, 639.67, 1162.13, 585.12, 3045.88 and 212.31 million respectively. There is no cash out flow in Operating activities

- Investing activities of NEA is poorest of all three activities.. Surplus cash and cash equivalent has not been invested in short- term investment opportunities. This activity has incurred cash outflows every year ranging from (Rs 2891.53) million to (Rs 8017.89) million in FYs 2003 and 2008. These negative figures are cash outflows under the heading of investing activities.
- Financing activity of NEA is almost best**.** Financing activities has been observed to be the idlest of all the three activities. This activity has been stated the idlest activity has been stated the idlest on the grounds that it has neither generated remarkable cash inflows nor outflows in the most of the FYs under study. FYs 2001, 2002, 2003, 2004, 2005, 2006, 2007 and 2008 has generated insignificant cash inflow of Rs 7278.10, 1859.11, 2687.10, 2705.03, 5380.32, 4901.70, 4397.32 and 7178.84 million respectively. Thus, the financing activity of the company has been seen the most passive activity, and hence the company should increase its financing activity by various financial activities such as, loan borrowings, issue of shares debentures etc.

Conclusively, it can be stated that NEA's cash management is very poor. Liquidity position is dissatisfactory, Negative profitability of the company adds much to the worsening financial position of the company. The accumulated amounts of account receivable which is increasing year by year denotes the inefficiency of the authority to collect its revenue in time. There is the absence of effective utilization of capital employed and liquidity position is also not satisfactory. The authority fails to analyze its strength and weaknesses in depth. Because of the absence of the competitors, authority has become monopolistic and, hence, it is not alert towards its possible threats and opportunities. Different statistical tools show the positives relationship with two variables like cash and sales, cash and account receivable, current assets and cash, current liabilities and cash. The authority is not able to maintain a proper co-ordination among various directorates in regards of the goals,

objectives and strategies of the organization. The authority has been facing some problems in cash management. Management has the lack of adequate knowledge about the following facts nature and content of cash management. So, there is the necessity of change in the management system of the authority. Besides, cash management being one of the important elements in financial function, there are other numerous aspects of finance involved in the overall financial performance of the company. In addition to this, the overall performance of the company counts for other managerial aspects such as; human resource management, organizational structure, marketing management etc. However, above all disappointing down-falling trend of the financial position is indicative of the fact that NEA should immediately seek for drastic change in its managerial structure. So far cash management is concerned, the recommendations suggested above could, to a greater extent, uplift NEA's cash management situation.

5.3 Recommendations

Suggestion is the output of the whole study. It helps to take corrective action in their activities in future. Different analysis were done till arrive this step. On the basis of above analysis, findings of the study, summary and conclusion, following suggestions may be referred to overcome weakness, inefficiency. The following suggestions are recommended to improve the formulation and implementation of cash management system of NEA.

- NEA must restructure its capital structure and should emphasize the internal financing to minimize the burden of high interest of long term loans. For this, it can issue shares and can refund the debt.
- Leakage of electricity should be controlled. For this, meter reading and meter joining system should be improved. The most important aspect is to motivate its employees who engaged in transmission and distribution line to control the leakage. Rules and regulations should be strictly implemented to control the leakage and those staffs who are themselves

engaged in encouraging power leakage should be investigated and strictly be demoralized.

- The liquidity position is not satisfactory. So it should be corrected.
- NEA should develop efficient system of revenue collection. It should make well defined rules and regulations in regard of revenue collection and if the customer of any category delays or denies, it should be charged penalty. In revenue collection, any kind of pressure and biases should strictly be undermined. Huge amount of account receivable especially of Municipality, metropolis, sub-metropolis consumed in street lights should be managed and receivable can be collected by imposing its expenditures to the neighboring community people.
- The enterprise should be well familiar with its strengths and weaknesses and it should not be indifferent about its competitors. Because of the liberalized economic policy of the government. That's why the enterprise should be aware of effective corporate planning system and strategic management. Hence, a systematic approach should be developed towards comprehensive cash management. This can considerable contribute to increase the profitability of the NEA
- Responsibility center should be clearly defined. Reward and punishment system for the performance of related responsibility center should be maintained. NEA should develop the systematic periodic performance reports detailed by assigned responsibility center for the accomplishment of the establishment objectives.
- The company should have suitable credit policy to handle the cash management effectively. It should adopt liberal credit policy to increase the sales. Next, it should adopt strength credit policy especially for its staffs and workers for effective credit and collection performance as low total receivable. One of the reasons of lower turnover and high collection period arise due to more advances to company's employees.
- NEA should develop its overhead budget in a well classified and scientific way. All expenses related with production and purchase of

power should be included in direct overhead or in manufacturing overhead and similarly, administrative overhead and selling and distribution overhead should be classified systematically.

- NEA must follow the immediate measure to control staff cost and operation, maintenance and administrative cost. Though the operation of NEA is expanded, it should be inclined to control these expenses. Appointment of staff under political recommendation, unnecessary expenses in the name of office management and other recreation and refreshment expenses should be avoided. And overstaffing should be discouraged.
- NEA should stress on efficient utilization of fixed assets. Amount should not be tied up haphazardly in plant and high cost assets. For this, NEA should develop and apply capital budgeting technique more effectively. The sales revenue is to be generated in comparison with the amount tied up in assets.
- NEA should try to maximize its operating profit. For this, cost control program can be launched in one respect and the alternative for the replacement of long term loans should be searched.
- Variance analysis should be effective. Variance should be classified as favorable and unfavorable and causes for unfavorable variances should be controlled in time and the respective officials should be made responsible for any deficiency.
- The installed capacity of NEA should be utilized fully. If it utilizes its full capacity, the operating expenses will down.
- There should be proper co-ordination among various directorates of the authority in regard of budget formulation and implementation of the budget.
- Democratic style of management should be followed while formulating plans, policies of the organization. Participation of lower level management should be encouraged in profit planning and similarly,

there should be proper communication to all levels of management about the tactical and strategic plan of authority.

- Highly qualified, dynamic, energetic and skilled manpower inventory should be made available by the authority and staffs should be property and unwisely trained and motivated.
- Vehicles of NEA shouldn't be provide to unconcerned persons of the authority especially in the interest of political party due to political pressure.
- There is inadequate electricity in the time of peak demand which creates the problem of load shedding and there is surplus of electricity in the rainy season due to the sufficient flow of water which helps to generate more. It is due to the lack of proper management and planning. This problem can be solved timely.
- Tariff rate for internal sales and external sales should be made equal so that all types of consumer can be benefited.
- Though NEA is an independent body, the political pressure is increasing which adversely affected the performance of NEA. So, government should not interfere its activities.
- Finance and the budget directorate of the authority should be more involved in planning of the company's activities. It should build up a management information system to help top management to take timely and appropriate action.
- There should be timely evaluation of strengths and weaknesses. Different aspects such as managerial involvement, organizational adoption, responsibility accounting, full communication, realistic expectations, time dimensions, flexible application, behavioural point of view and follow up programs should be made more effective, productive and result oriented for the successful operation of the organization.

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