CHAPTER – I

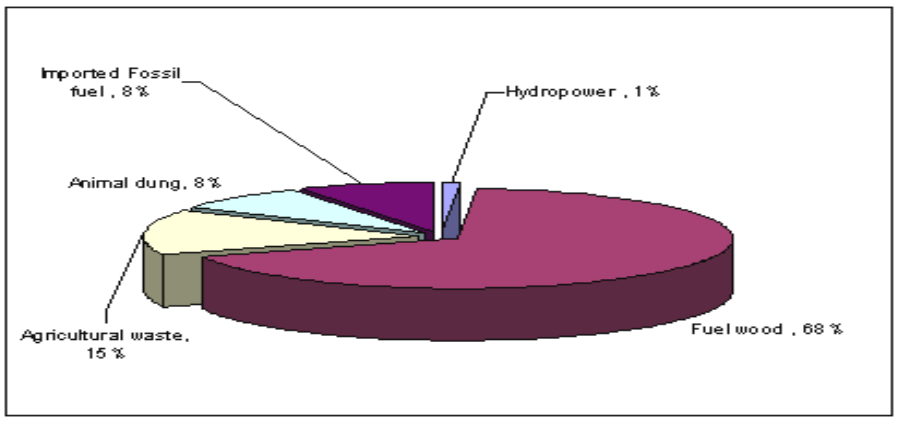
INTRODUCTION

1.1. Background of the Study

Hydropower is one of the major sources of Electricity in Nepal. Hydropower needs running water which comes from the mighty Himalayan Range. Hydropower electricity is environment friendly since it makes no pollution, and, is also the most efficient method of electricity generation.

Nepal's electricity generation is dominated by hydropower. The electricity in Nepal represents a tiny fraction because only 1% energy need is fulfilled by electricity though in the country the total potential capacity is 83000 megawatts. The bulk of the energy need is dominated by fuel wood (68%), agricultural waste (15%), animal dung (8%) and imported fossil fuel (8%). The other fact is that only about 40% of Nepal's population has access to electricity. With this scenario and having immense potential of hydropower development, it is important for Nepal to increase dependency on electricity by developing hydropower. This contributes to prevent deforestation, soil erosion and depletion, and increased flooding downstream in the Ganges plain. Shortage of wood also pushes farmers to burn animal dung, which is needed for agriculture. Not only this, the development of hydropower will help to achieve the millennium development goals by protecting environment, increasing literacy, improving health of children and women with better energy. Growing environmental degradation makes urgent need of hydropower development. The scenario of power generation is given below with the help of pie chart.

Figure No. 1.1
Energy Consumption in Nepal



(Source: http://www.ippan.org.np/HPinNepal.html)

Hydropower business is a great opportunity for Nepal to progress - It has the potential of poverty alleviation, possibility of electricity to every household and even allows Nepal to sell electricity to other countries.

1.1.1. Investment Potentials of Hydro-Power Business in Nepal

"Nepal has the capacity to generate more than 83,000 MW of electricity from hydro power. Of this, about 44,000 MW is considered economically feasible. At present, the installed capacity of hydro power is less than 1000 MW, less than 2 percent of the total economically feasible potential. Of this, 144 MW or about 26 percent, is produced by private sector Independent Power Producers (IPPs). Taking advantage of the new policy of welcoming private foreign investment in this sector, three joint-venture companies involved. Foreign investors have been generating and selling hydro power on the build-operate-transfer basis for since some years ago. Several IPP projects are under construction," (Interim Plan 2067/68-69/70:214).

There are excellent prospects for electricity exports of significant volume from Nepal to India (especially to the northern region). The time is right to explore the possibilities and invest in it. Moving in this direction would be in line with the increasing trade and economic cooperation between Nepal and India. There is also significant market for domestic consumption of electricity. Thus, investment potentialities in hydro-power in Nepal are high. Currently Nepal undergoes periodic load shedding in the dry season.

1.1.2. Independent Power producers (IPPs)

Independent Power Producers' Association, Nepal (IPPAN) was established in the year 2001 with the intention of encouraging the private sector to work in the area of hydropower in Nepal. It is a non-profit, non-government autonomous organization.

One of its main purposes is to act as a link between the private sector and government organizations involved in developing hydropower in the country so that Nepalese citizens can get the maximum benefit from the development effort.

Besides this, the organization also helps exchange technology, expertise, knowledge, financial and management information among the independent power producers in the country.

IPPAN is primarily a membership organization. The General Assembly comprises both institutional and individual members. The General Assembly elects the Board of Directors, which then formulates the plans and policies of the organization.

Corporate Members of IPPAN are listed below:

1. Ankhu Hydropower Pvt. Ltd.
2. Annapurna Group Pvt. Ltd.
3. Annapurna Renewable Energy (P) Ltd
4. Alliance Power Nepal (P) Ltd.
5. Ambeshwor Engineering Hydropower Pvt. Ltd.
6. Balephi Hydropower Company Ltd.
7. Baishno Devi Hydropower Co. Pvt. Ltd.
8. Bhotekoshi Power Company (BKPC)
9. Butwal Power Company Ltd.(BPC)
10. Cemat Power Dev. Co (P) Ltd.
11. Chirkhwa Hydropower Pvt. Ltd.
12. Dordi Khola Jalabidyut Company Ltd.
13. Energy Engineering Pvt. Ltd.
14. Essel-Clean Solu Hydropower Pvt. Ltd.
15. Global Hydropower Associate Pvt. Ltd.
16. GMR Upper Karnali Hydropower Ltd
17. Grid Nepal Pvt. Ltd.
18. Himal Power Ltd. (HPL)
19. Himalayan Hydropower (P) Ltd.
20. Himalayan Power Partner Pvt. Ltd.
21. Himtal Hydropower Company
22. Hira Ratna Hydropower Pvt. Ltd.
23. IDS Energy Pvt. Ltd.
24. Jumdi Hydropower (P) Ltd.
25. Khudi Hydropower
26. Lamjung Electricity Development Company (P) Ltd. (LEDCO)
27. Liberty Energy Hydropower Co. Ltd.
28. Lower Arun Hydroelectric Pvt. Ltd.
29. Mai Valley Hydropower Pvt. Ltd.
30. Mailun Khola Hydropower Co. Pvt. Ltd.
31. Manang trade Link Pvt Ltd
32. Molnia Power (P) Ltd.
33. Muktishree Pvt. Ltd.
34. NASA Hydropower Pvt. Ltd.
35. Naulo Nepal Hydroelectric Pvt. Ltd.
36. Nepal Hydro Developer (P) Ltd.
37. Nyadi Group Pvt. Ltd.
38. Nimrung Hydropower Company Pvt. Ltd.
39. Numbur Himalaya Hydropower Pvt. Ltd.
40. PAN Himalaya Energy Pvt. Ltd.
41. Pashupati Energy Dev. Co.(P) Ltd.
42. Radhi Bidyut Company Ltd.
43. Rara Hydropower Devt. Co. Pvt. Ltd.

44. Rairang Hydropower
45. River Falls Hydropower Devt. Co. Pvt. Ltd.
46. Ru Ru Jalbidhyut Pariyojana Pvt. Ltd.
47. Sanima Hydropower Company (P) Ltd.
48. Sanima Mai Hydropower (P) Ltd.
49. Shikhar Hydropower Company
50. Sikles Hydropower Pvt. Ltd.
51. Sinohydro-Sagarmatha Power Co. (P) Ltd.
52. Super Khudi Hydropower Pvt. Ltd.
53. Synergy Power Devt. Pvt. Ltd.
54. Tara Energy Pvt. Ltd.
55. Tundi Power Co. Pvt. Ltd.
56. Unique Hydel Co. Pvt. Ltd.
57. Upper Madi Hydro Pvt. Ltd.
58. Upper Mai Hydro Devt. Pvt. Ltd
59. Upper Maiwa Hydropower Pvt. Ltd.
60. Welcome Energy Development Co. Pvt. Ltd.
61. Mount Kailash Energy Company Pvt. Ltd.
62. Daraudi Kalaika Hydro P. Ltd.
63. C.E.D.B. Hydro Fund Ltd.
64. Nepal Water & Energy Development Company
65. Kalanga Hydro Pvt. Ltd.

(Source: www.ippan.org.np)

1.1.3. Power Purchase Agreement (PPA)

A Power Purchase Agreement (PPA) is a legal contract between an electricity generator and a purchaser of energy or capacity (power or ancillary services). Such agreements play a key role in the financing of electricity generating assets. Under the terms of a PPA, the PPA provider typically assumes the risks and responsibilities of ownership when it purchases, operates, and maintains the turn-key facility. By clearly defining the output of a generating asset and the credit of its associated revenue streams, a PPA can be used by the owner of the asset to raise non-recourse financing from a bank or other financing counterparty.

It can be quite lengthy agreements that may exceed more than 100 pages and take several months to even years to finalize. The basic information contained in a Power Purchase Agreement includes the following items:

a) Definitions
b) Purchase and Sale of Contracted Capacity and Energy (such as steam, hot water and/or chilled water in the case of cogeneration and trigeneration plants)
c) Operation of the power plant

d) Financing of the power plant
e) Guarantees of performance
f) Penalties
g) Payments
h) Force majeure
i) Default and early termination
j) Miscellaneous
k) T&C's

(Source: www.powerpurchaseagreements.com)

Among various documents, mandatory to help resolve the ensuing confusion between power producers and purchasers, the Power Purchase Agreement (PPA) is the heart of any Independent Power Project (IPP). It guarantees market for power produced by IPP and the tariff at which it would be sold to the purchaser. The PPA creates legal obligation on both the parties to perform the previously accepted tasks in a predetermined manner.

1.2. Introduction of the Selected Independent Power Producers

1.2.1. Butwal Power Company Limited

Butwal Power Company (BPC) is one of the leading companies in Nepal's power sector with generation and distribution as its core business areas. Incorporated in 1966 AD as private company and converted into public limited company in 1993 AD, BPC has a track record of pioneering multi faceted capacity building initiatives in hydropower development.

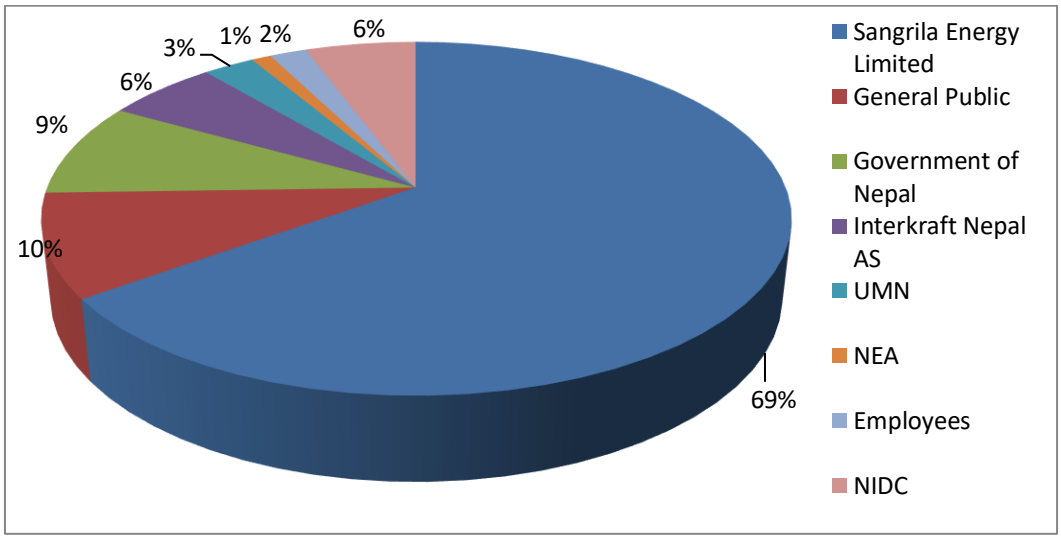
Pursuing the privatization process, in 2003 AD, the Government of Nepal handed over majority ownership and management control to private investors on public-private partnership model. BPC is registered with the Securities Board of Nepal and listed in Nepal Stock Exchange Limited. Starting off with electrification plan of a small city in the south central Nepal, BPC is the only enterprise which can look back to a four decade long history of success, sustained growth and capacity building in the country.

Through its subsidiary companies, this company owns and operates the 12 MW Jhimruk Hydropower Plant and the 5.1 MW Andhikhola Hydropower plant. Besides

supplying power to the national electricity grid, the company owns 14.9% of the share in Khimti I Hydropower Plants (60MW) and 48.6% of the share in Nepal Hydro and Electric Pvt. Ltd. BPC is engaged in operation & maintenance of power plants, consulting engineering of hydropower and infrastructure projects, manufacturing and repair of hydro-mechanical and electro-mechanical equipment for power plants.

Butwal Power Company was privatized in 2003 AD. The main shareholders of BPC are Shangri-la Energy Limited, Interkraft Norway, the public, Government of Nepal, United Mission to Nepal. The distribution of shares of BPC are Shangri-la Energy limited 68.95%, General public 10%, Government of Nepal 9.09%, Interkraft Nepal AS 6.05%, United Mission to Nepal 2.79%, NEA 1.06%, Employees 2%, Nepal Industrial Development Co operation 0.06%. BPC is a very good example for being a company jointly owned by the public, private, government and Employees.

Figure No. 1.2
Equity Structure of BPC



BPC has the vision to provide quality and competitive service to its customers. Similarly the mission of the company is to supply electricity within its distribution areas in Nepal and expand its distribution to feasible areas. It will plan, build, acquire, own and operate electric power plants as well as purchase electricity to meet its electricity needs; make strategic investment to support its interest; supply affordable electricity; and render professional service in its areas of expertise.

BPC is committed to operational excellence and believes in good governance, corporate citizenship and creating value for stakeholders.

Figure No. 1.3
Power Plant of BPC

Being a leading and responsible hydropower of Nepal, BPC has aligned its hydropower development plans as demanded by the ambitious hydropower goals of the nation.

BPC has a number of projects under development which sums up to more than 100 MW.

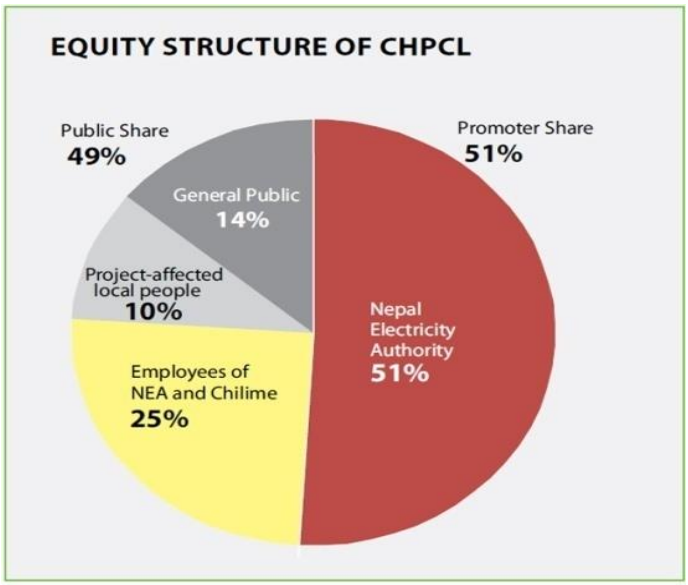
- Andhikhola Upgrading Project
- Kabeli 'A' Hydro Electric Project
- Khudi Hydropower Project
- Lower Manang Marsyangdi
- Nyadi

(Source: www.bpc.com.np)

1.2.2. Chilime Hydropower Company Limited

Chilime Hydropower Company Limited (CHPCL) was incorporated in 1995 AD with an objective of hydroelectricity generation through optimal utilization of resources within the country. Nepal Electricity Authority (NEA) holds majority ownership with 51% share holding. Remaining 49% shareholdings are from the general public including 10% equity ownership of local people.

Figure No. 1.4



Chilime owns and operates 22.1 MW power plant commissioned on August 25, 2003 AD in Rasuwa district, 133 km north of capital city Kathmandu. It sales bulk electricity to NEA at the long term PPA price. The annual energy generation from the plant is about 150 GWh.

Figure No. 1.5
Power Plant of CHPCL

Chilime has established following three subsidiaries:

Rasuwagadhi Hydropower Company Limited

Rasuwagadhi Hydropower Company Limited (RGHPCL) is a subsidiary of Chilime Hydropower Company Limited (CHPCL) and was incorporated in August 2011 AD as a public limited company. It has planned to develop a new project -

Rasuwagadhi Hydroelectric Project (RGHEP) having capacity of 111MW in Rasuwa district of Central Development Region.

The cost of the project is estimated to be NRs. 13,684.20 million excluding financial cost. A 50:50 debt-equity structure will be employed for financing this project.

The company will manage the debt requirement of the project from the Employer's Provident Fund (EPF) for which tri-partite loan arrangement has been signed between EPF, CHCPL and RGHPCL on 2068/08/22. The equity investment will be made through 51% promoter share and 49% public share. Chilime has 33% shareholding in RGHCL. The promoter share will be raised first then after public share.

Madhya Bhotekoshi Jalavidhyut Company Limited

Madhya Bhotekoshi Jalavidhyut Company Limited (MBJCL) is another subsidiary company of Chilime, registered as public company in July 2010 AD. MBJCL has planned to develop Middle Bhotekoshi Hydroelectric Project (MBKHEP) with an installed capacity of 102 MW in Sindhupalchowk district of Central Development Region.

Tri-partite loan agreement has been signed between EPF, Chilime and MBJCL for debt portion. The equity investment will be made through 51% promoter share and 49% public share. Chilime is a leading company with 38% share.

Sanjen Jalavidhyut Company Limited

Sanjen Jalavidhyut Company Limited (SJCL) is also another subsidiary of Chilime and was incorporated in March 2010 AD as a public limited company. SJCL has planned to develop two new projects–Sanjen Hydroelectric Project (SHEP) having capacity of 42.5 MW and Sanjen (Upper) Hydroelectric Project (SUHEP) of capacity 14.8 MW in Rasuwa district of Central Development Region.

The company will manage the debt requirement of the project from the EPF for which tri-partite loan arrangement has been signed between EPF, Chilime and SJCL. The equity investment will be made through 51% promoter share and 49% public share. Chilime has 38% shareholding in SJCL. The promoter share will be raised first then after public share.

Chilime, through its three subsidiaries, is developing four hydropower projects with aggregate capacity of 270.3 MW.

1.3. Statement of the problem

Nepal is the second richest country in water resource in the world and it has an enormous hydropower potential. The prospects of becoming a prosperous country can be realized utilizing this energy source prudently and efficiently at the earliest. As a leader of the country's power sector, NEA has the prime responsibility of taking necessary steps towards achieving this goal.

Considering NEA's limited resources for capital investments, financial resources available in the local market should be tapped for the equity contribution. The successful commissioning of the Chilime Hydropower Company under NEA –private partnership was indicative of the beginning of a new era of public – private sector cooperation in Nepal's electricity sector. This should act as a springboard for NEA to adept an effective joint business investment policy to meet the growing demand of energy in the country.

It is very difficult to assess the efficiency of IPPs in view of their economic as well as socio-development goals. Different objectives of various parties involved with IPPs ought to be fulfilled in a competitive environment by the management of respective IPPs. In order to realize these objectives, IPPs needs to be efficient in the utilization of their resources.

Finance is one of the most important functional areas of a business. It is concerned with generation, transmission, distribution and other function of any business including IPPs. The problem towards which this study is directed is to identify and analyze the financial strengths and weakness of IPPs of Nepal, taking the basis BPC and CHPCL. The study also attempted to seek answers of the following questions.

Do the financial ratios best describe the performance of BPC and CHPCL?

What are the main Strengthens and weakness of the BPC and CHPCL?

What level of satisfaction is provided to the stakeholders by these BPC and CHPCL?

What types of contemporary steps are essential for performance improvement of BPC and CHPCL?

1.4. Objectives the study

The study basically aims to evaluate the financial performance of BPC and CHPCL; and to suggest recommendation based upon it. The specific objectives of the study will be:

- To analyze the financial performance of BPC and CHPCL and draw comparative conclusions through financial analysis taking relevant variables.
- To identify major strength and weakness of BPC and CHPCL.
- To analyze the dividends provided to shareholders.
- To find out the past and present challenges undergone by IPPs in Nepal.

1.5. Significance of the study

Analysis of financial position and statement is a crucial part of financial decision making process of a business enterprise. Poor financial management affects adversely on liquidity, turnover and profitability. It is required to measure the financial position of the business periodically in order to ensure smooth functioning of a business, big or small. CHPCL is one of the promising names in the sector of power generation business and the first NEA- private partnership business.

Nepal, as a developing country, needs more and more new energy sources to meet the ever-increasing demand for socio-economic development and industrialization of the country. In this backdrop, hydropower is the only resource available abundantly in all hilly and mountainous part of the country. Access to electricity promotes new economic activities, empowers women by reducing domestic drudgery in firewood collection, improves health and education services and provides a cleaner and healthier home environment.

This study attempted to provide information and draw the attention of private and non-governmental agencies that are willing to invest in hydropower projects in Nepal. This study also attempted to provide some appropriate measures to solve financial problems of Nepalese IPPs if any. Researchers who are interested in the study of the financial performance of similar hydro power business may find this study more useful.

1.6. Limitation of the study

Every field of activity has its own limitations. The main limitation of the study is that, this study is mainly based on secondary data, published books, unpublished reports and annual reports of BPC and CHPCL. The study is subject to the following limitations.

a) The study was based on data and information provided by BPC and CHPCL and their annual reports.
b) The research was based on data and information of only five fiscal years from 2007/08 to 2011/12.
c) This research was based on the financial reports of BPC and CHPCL.

1.7. Organization of the study

The aim of the thesis is to explain the financial position of the BPC and CHPCL. The research work was divided into five chapters. The major chapters of the study are as follows:

Chapter I: Introduction

This chapter dealt with various aspects of the study like general background, introduction of the selected IPPs, statement of the problem, objectives of the study, significance of the study, limitation of the study and organization of the study.

Chapter II: Review of literature

The second chapter was linked with review of theoretical and related literature regarding the subject matter.

Chapter III: Research Methodology

The third chapter contained the research methodology used in the study, which included research design, source of data, and method of data analysis with different statistical and financial tools used in the study. It provided guidelines and gives a roadmap to analyze the collected data.

Chapter IV: Data Presentation and Analysis

This chapter covered analysis, presentation and interpretation of the acquired data, which was collected through the designed methodology. Data were presented in tabular, graphic or in an equation form to achieve the objective of the study.

Chapter V: Summary, Conclusion and Recommendations

The fifth or final chapter dealt with summary and conclusions of the research and recommendations and suggestions given to the concerned organization for the further improvement. Besides this bibliography and appendices were also included.

CHAPTER – II
REVIEW OF LITERATURE

2.1. Financial Analysis

"Financial analysis is designed to determine the relative strength and weakness of a company whether the company is financially sound and profitable relative to other companies in its industry and whether its position is improving or deteriorating over time. Investors need such information in order to estimate future cash flows from the company and to evaluate the riskiness of these flows. Managers need to be aware of their companies' financial positions in order to detect potential problems and to strngthen weakness", (Western and Brigham, 1987:259).

"Financial analysis is the key tool for financial decision and starting point for making plan before using sophisticated forecasting and budgeting procedures. The value of this approach is the quantitative relation that can be used to diagnose strengths and weaknesses in a company's performance. Financial performance is the main indicator of the success or failure of a company. The focus of financial analysis is on the key figures in the financial statements and the significant relationship that exists between them", (Khan and Jain, 1999:4.1).

"Financial performance analysis involves the use of various financial statements. The financial statements contain summarized information of a company's financial affairs, organized systematically by the top management. These statements are used by investors and financial analysts to examine the company's performance in order to make investment decisions", (Pandey, 1999:29).

Financial statements are prepared from the accounting records maintained by the company. They disclose financial information of a company for a fiscal year and, explain what has actually happened to earnings and dividend over the past few years, in the form of income statement and balance sheet.

2.1.1. Financial Statement Analysis

"The financial statement analysis reveals how far the dreams and ambitions of the top management have been converted into reality during each financial year. It involves a comparison of a company's performance with that of other companies in the same line of business, which is often identifying the company's classification. An analysis of financial statements should provide analysts with better understanding of the financial condition and performance of a company, than they can obtain from analysis of the financial data alone", (Van Horne, 2004:350).

"Essentially, the function of financial statements is to convey to the reader, in summary from, certain fundamental information regarding the financial health of the company at a particular point in time, the economic results of its operations for a given period of time, together with a review of the causes for change in components of the company's financial structure over a period of time. There are three major financial statements in common use at the present time. They are the following", (Lynch and Williamson, 1983:465)

a) Balance Sheet

The Balance Sheet, or Statement of Financial Position, portrays the financial structure of the company in terms of its economic resources and the respective interests or claims on such resources. A balance sheet shows the financial position of a company by detailing the source of communications information about the assets and liabilities and owners' equity of a company as on specific date, usually at the end of each fiscal year.

b) Income Statement

The Income Statement, or Operating Statement, summarizes in economic terms the results of the company's activities for a specified period of time. It is the "scoreboard" of a company's performance during a particular period of time such as a year, semester or a quarter. The generally accepted conversion is to show one year events in the income statement. The income statement or profit and loss account presents the summary of revenues, expenses and net income (or net loss) of a company for the period covered by the account.

c) Statement of Change of Financial Position

The statement of changes in financial position provides in summary from the results of the transactions over a given period of involving the assets (or fund) of the firm. Basically, it measures changes in key segments of the firm's capital structure in terms of sources of funds acquired during the period and the important uses to which such funds were put. Used in conjunction with the balance sheet and income statement, its importance lies in its ability to supply an item which represents a deficiency in each of the other statements.

2.1.2. Objectives of Financial Statement analysis

Financial statement analysis, being an information processing system designed to provide data for decision making, thus involves a study of relationship among various financial factors in a company as disclosed by a single set of statement and a study of trends of these factors as shown in series of statements. It aims to provide a clear understanding of changing profitability and financial condition of a company (More: 1961:4)

However, objectives of financial statement analysis differ as per the need of different parties involved in a company. In broad sense, there could be two major possible objectives of financial statement analysis (Needles; 1989:63)

a) Assessment of Past Performance and Current Position

Past performance is often a good indicator of future performance. Therefore, an investor or creditor looks at the trend of past sales, expenses, net income, cash flow, and return on investment not only as a means for judging management's past performance but also as a possible indicator of future performance. In addition, an analysis of current position will tell, for example, what assets the business owns and what liabilities must be paid. It will also tell what the cash position is, how much debt the company has in relation to equity, and what levels of inventories and receivable exist.

b) Assessment of Potential and Related Risk

Information about the past and present is useful only to the extent that it bears on decisions about the future. An investor judges the potential earning ability of a company because that ability will affect the market price of the company's stock and

the amount of dividends the company will pay. A creditor judges the potential debt-paying ability of the company.

The risk of an investment or loan depends on how easy it is to predict future profitability or liquidity. If an investor can predict with confidence that a company's earnings per share will be between $2.50 and $2.60 in the next year, the investment is less risky than if the earnings per share are expected to fall between $2.00 and $3.00.

2.2. Reviews of Related Acts and Plans

Basically, to regulate and promote the efficiency effectiveness and transparency of generating, transmission and distribution of electricity service as well as to deliver the quality service to stakeholders, the following act and policies were initiated.

- Electricity Development Policy 2058
- Electricity Act 2049
- Electricity Regulation 2050
- Electricity Leakage Control Act 2058
- Electricity Tariff Fixation Rules 2050

Electricity Development Policy -2058 was introduced to consolidate the various acts linked with electricity generation in Nepal.

Electricity Development Policy 2058

Government of Nepal envisaged achieving the following by 2007 in its "Electricity Development Policy-2058"

- A dominant private sector contributing 75% of total investment in hydropower.
- Boosting of industrial consumption's by 125%
- Establishment of hydropower development fund and infrastructure development banks.
- Boosting of hydro capacity to meet a demand of 820 MW of which 70 MW to be exported.
- Privatization of NEA.

Electricity Development Policy 2058 was imposed with the following objectives:

- ❖ To utilize the existing water resources of the country and produce electricity at a low cost.
- ❖ To make the electricity service dependable, reliable and extend qualitative service within the whole kingdom at a reasonable rate.
- ❖ To tie up the electrification with the economic activities.
- ❖ To extend the rural electrification in order to support rural economic development.
- ❖ To development hydropower as an exportable commodity.

Electricity Development Policy – 2058 adopted the following policies to achieve above objectives:

- ❖ Efforts shall be made to maximize the use of country's hydropower potential in order to meet the domestic demand of electricity.
- ❖ Construction and implementation of hydropower projects shall be encourage to promote on the principles of build own operate transfer (BOOT).
- ❖ For making the electricity service dependable, reliable and extension of qualitative service delivery within the country at reasonable cost; the existing public sector institutions shall be restructured to promote the participation by creating competitive environment of community/corporations, institutions, local agencies and private sector in hydropower production, transmission and distribution.
- ❖ Small and medium hydropower projects shall be developed and promoted for domestic use in order to strengthen the situation of domestic power supply. The priority shall be given to develop hydropower projects on a competitive basis suitable to the electricity.
- ❖ The hydropower projects shall be identifies for export purpose. The private sector shall export the electricity by developing such projects.
- ❖ The major multipurpose storage projects shall be developed in a way to render the maximum downstream benefit to the country.
- ❖ The electrification program in the rural areas shall be encouraged.
- ❖ The rural electrification program shall be expanded in order to make the electricity services available to maximum people. A "Rural Electrification Fund" shall be established for this purpose.

- The rural electrification development program shall be based on mobilization of people's participation.
- To deliver reliable and dependable electricity services and make it easily available to consumers' proper attention shall be given to safeguard their interests.
- For supplying the electrical energy at a reasonable rate, the electricity tariff fixations process shall be made transparent and reasonable.
- The unauthorized leakage of electricity shall be controlled. For this purpose necessary technical measures shall be adopted and legal arrangements shall be formulated besides these measures, emphasis shall be given to mobilized people participation to control the leakages.
- Incentives shall be provided for the proper utilization of electrical energy. In this context, incentives shall be provided for the use of electrical energy for village water supply, irrigation, industry and tourism sectors when electricity demand is low (when supply is in excess of demand)
- The appropriate incentive provisions shall be made to attract national and foreign investment for the development of hydropower and transparent process shall be followed.
- Capital market shall be operated for investment in the electricity sector.
- The use of local labour and skill shall be given priority in implementing the hydropower projects.
- The industry producing the construction materials and equipments to be used in the electricity sector shall be encouraged to develop the industry.
- Proper arrangements shall be made to provide appropriate benefits at the local level while operating hydropower projects.
- The adverse effects on environmental shall be minimized caused due to the development and operation of hydropower projects and proper arrangements shall be made to resettle the displaced families.
- Hydropower shall be developed to replace the biomass and thermal energy in order to contribute towards environmental conservation.
- Regarding multipurpose projects, the government could become a partner with private sector looking at the responsibility of irrigation development.

Three Year Interim Plan (2007/08-2009/10)

The planned development in Nepal initiated since 1956 has completed five decades. Up to now nine five-year plans and two three-year plan have been implemented. The Three-Year Interim Plan 2007/08-2009/10 (TYIP) was completed by mid-July 2010. Reviewing the priorities of the past periodic plans, it is observed that areas of importance have been changing from time to time such as infrastructure development, social development, integrated rural development, and the fulfillment of basic needs of the people. Since this interim Plan, development of hydro-power has been given much importance.

At the end of interim plan, installed capacity of national grid connected hydropower production is reached to 639.7 MW. Among them, 472.9 MW was produced from NEA and 166.8 from private sector. Despite of approaching such volume of power in national electricity grid, the country has been facing the problem of load shedding due to misbalancing the supply and demand of energy since few years.

National electricity grid has been approached to all the districts of nation except Karnali zone. In three years interim plan, 77 MW is produced in against of producing 105 MW as its goal. During this plan, 44 km transmission line is expanded in against of expanding 174 as its goal. In plan, electricity distribution line has been expanded to 5600 km in against of expanding 9800 km as its goal. In this plan, 3 lakhs population has been added as beneficiaries of electricity in against of 4 lakhs 50 thousands population to be added as customer as its goal. In the same way, 800 V. D. C. are benefited by the facility of electricity in against of getting benefit of 2500 V. D. C. About 185000 household are electrified. In during this plan, it is estimated that energy consuming rate has been reached to 86 kW per hour. And during this plan, 42% of populations are supposed to get the facility of electricity from the national electricity grid.

Three Year Interim Plan (2010/11-2012/13)

After the completion of the Three-Year Interim Plan 2007/08–2009/10, the government has launched this Three Year interim plan (2010/11–2012/13) from mid July 2010. It has been completed by mid July 2013. In Three Year Interim Plan 2010/11-2012/13, the government has set the objective to assist in economic progress

and social development by developing access to everyone in modern energy through the production and distribution of hydropower. To fulfill this objective, the government has formulated the following strategies regarding the hydropower.

1. Increase public, private, community/cooperative investment in electricity generation and transmission for domestic use.
2. Extend electricity transmission line with high priority.
3. Increase electricity generation capacity to minimize load shedding.
4. Make hydropower projects sustainable and cost effective by making them environment friendly and climate change adaptation.
5. Develop electricity access as an inseparable part of poverty alleviation.
6. Prepare investment friendly environment for construction and development of hydropower projects.

In this three years plan, the following objectives have been set in the sector of hydroelectric:

- ❖ To increase the investment as PPP model in electricity production and transmission for domestic consumption.
- ❖ To build the electricity transmission line in most priority.
- ❖ To minimize the load shedding, electricity production and transmission system will be managed.
- ❖ Hydro power projects will be sustainable and cost effective which can be environment friendly and climate oriented.
- ❖ Excess to electro power will be developed as a main key to alleviation the poverty.
- ❖ Investment friendly environment will be conducted to built and develop the hydro power projects.
- ❖ To develop the mega and multipurpose hydropower projects by promoting foreign aid and investment.
- ❖ At the end of this plan, the work of construction of additional 184 MW hydro power project will be completed.
- ❖ The projects of having capacity about 1743 MW will be begun.
- ❖ 55% of population will be benefited from national electricity grid.

- 735000 house hold will be added as electro power consumer.
- During this plan, 404 km new electricity transmission line will be built up.
- Electricity leakage will be minimized to 21%.

Budget Speech of Fiscal Year 2013/14

The budget speech of fiscal year 2013/14 has added the following point in the sector of hydropower:

- The investment has been increased by Rs. 30 billion on the energy sector in order to contribute remarkable improvement in the generation of hydroelectricity, construction of transmission line, and distribution system.
- The construction of the Second Reservoir type Tanahu Hydropower Project (140 MW) will be started from next year. The government has allocated Rs. 1.05 billion for the project.
- The Government has provisioned budget for Detailed Project Report and Construction of the Tamakoshi 5th (87 MW) and Budhiganga Hydropower Project (20 MW) to be commenced from the coming fiscal year.
- The construction of the transmission line will be carried out as a campaign. The government has appropriated Rs. 13.50 billion for the transmission line projects. The construction of cross border transmission lines, north-south corridor transmission lines and east west transmission lines will be accelerated.
- The government has Provisioned Rs. 1.58 billion for the ongoing Dhalkebar-Mujaffarpur 400 KV and Kattaiya-Kushaha 132 KV cross border transmission lines.
- The construction of the Koshi, Solu and Marsyangdi Corridor transmission Lines will be started from next year. The detailed Feasibility Study of the Kaligandaki Corridor Transmission Line will be started. After the completion of these projects, 465 KM long north-south transmission line will be constructed. This will contribute to the improvement in the transmission and

distribution system allowing the electricity generated in the different areas to be connected with the national grid.

- The Government has provisioned the necessary budget for the transmission lines namely Khimti-dhalkebar and Hetauda-Bharatpur 220 KV transmission lines, and 132 KV Singati-Lamosaghu, Dumre-Damauli-Marsyangdi, Butwal-Kohalpur, Modi-Lekhnath, Hetauda-Kulekhani-Syuchatar, Bharatpur-Bardaghat and Kohalpur-Mahendranagar Transmission Line Projects.

- The government has appropriated Rs. 390 million for Detailed Design and the Environmental Impact Assessment of reservoir type Budhigandaki (600 MW), Tamor (530 MW), Nalsinghgadh (400 MW), Dudhkoshi (300 MW), Uttarganga (300 MW) projects.

- The Detailed Feasibility Study will be carried out immediately for construction of Upper Arun (335 MW) and Upper Trisuli 3 'B' (40 MW) hydroelectricity projects.

- The Feasibility Study of the Bardhaghat-Gorakhpur 400 KV 2nd Cross Border Transmission Line will be completed.

- The priority will be given for the construction of small and medium hydropower projects to supply electricity to the remote areas where there is no national grid connection. Large reservoir type projects will be constructed for avoiding the imbalance between the generation and demand in the rainy and dry season.

- The government has allocated Rs 1.09 billion for the generation of electricity in full capacity through rehabilitation and upgradation of 12 Hydropower projects including Kaligandaki A and Marsyangdi.

- The license information system based on geo-information will be implemented to make electricity generation licensing transparant and well managed.

- The construction of Rolpa-Khungri-Harigaun Hydropower Project will be initiated.

- ❖ Study will be carried out to find out the mitigation of carbon emission contributed by the solar energy and micro-hydro projects.

- ❖ The government has allocated Rs. 540 million for the continuation of subsidy for micro-hydro projects up to 1 megawatt capacity implemented by the community, cooperatives or firms. This programme will generate 4,500 KW of electricity benefitting 30 thousand households of remote and most remote areas.

(Source: Public Statement on Income & Expenditure of Fiscal Year 2013-14: Page 8)

2.3. Review of the Related Articles

Hydropower development has always been vital issues for lots of Nepalese writers and journals. This section is devoted to the review of some major articles published in journals, reports, newspaper articles concerning state and problems of hydropower development in the country and financial performance of private hydropower companies.

Mr. Madhav Prasad Koirala (Manager, Rasuwagadi Hydropower) published an article ***'Hydropower Development in Nepal: Opportunities and Challenges'*** in Vidyut magazine (2069 Bhadra, Page 76). He has written about hydropower potential, hydropower generation, existing status, and different opportunities and challenges regarding the hydropower development in Nepal.

He has concluded that we can change the face of the country through the proper utilization of the available hydro potential. He has also added that clear plans and policies should be made in an integrated manner to face the challenges and grasp the opportunities.

Here, the writer is trying to point out the following opportunities as well as challenges of hydropower development in Nepal:

Opportunities:

1. Nepal has plenty of hydro power potentialities that can be used sufficiently for domestic requirement and also for export purposes. Underdevelopment of these sectors has provided a lot of opportunities for their developments.
2. It has already proven from the past experiences that Nepalese engineers are now capable for planning, designing, construction and operation of medium sized hydropower projects, except mega ones. Numbers of experienced,

skilled and semi-skilled manpower are also increasing year by year. It is a positive sign for the development of the hydropower projects.

3. The Financial Institutions of Nepal, like Employees Provident Fund (EPF), Investment Trust (CIT), Bankers and others are providing the loan for the development of hydropower project under the "project financing concept".
4. For hydropower development a clear vision is necessary to take by the planner and the politician keeping in the back of the mind the socioeconomic conditions of the people. In the present context, almost all the political parties have realized that for raising the living standards of the Nepalese people, development of hydro electricity is a must. Political commitment to provide access of electricity by all in 10 years, to generate 10 thousand MW of hydropower in 10 years and so on, is encouraging when viewed from hydropower development aspect.
5. The neighboring countries such as China and India are having double digit economic growth rates. We cannot remain in isolation from the rest of the world. To exist as a country, we have to follow fast track hydropower developmental plans and policies. Without hydropower development, the country's economic sectors cannot grow. Development of hydropower projects has, thus, become the national need for the country's overall development.
6. Exporting hydroelectricity is an attractive idea, but Nepal still has a long way to go before it is a reality. Specifically, relations with India should be made stronger because it is the major market that Nepal can sell to, and even for exporting electricity to Bangladesh that has shown interest in importing electricity from Nepal.
7. Hydropower is not only about energy production or productive sectors but also a powerful means of bringing in socio-economic transformation and development of villages. Hydropower leads to development activities in villages mostly as hydropower projects need to be constructed in the villages. The poor, the target group can participate in the benefit from this because the socio-economic benefit from a hydropower project to the rural population is extensive. The one of the good example on this local people's participation in the hydropower benefit sharing model can be seen in Chilime Hydropower Company Limited.

Challenges:

1. Due to the political instability, the country is unable to give due attention to the hydropower production in efficient manner and Nepalese are facing a painful load shedding problem. As hydropower is the backbone of economic development, policy level improvements need to be strengthened by reviewing the progress made so far and learning from past shortfalls. Without political stability and strong political will, no development process can move ahead. The foremost important political task of the present time has, therefore, become to form the national concessional government and to make the 'acceptable constitution'. Let us hope, once the ongoing political instability is settled, economic development will be the national agenda.
2. As we know, major Indian rivers are generally interstate involving more than one state, requiring concurrence of all the involved states for taking up hydro project. It has been observed that a number of hydropower projects are still languishing due to interstate disputes. We are currently in the process of demarcation of the boundaries of the federal states. The most of the developmental works of the state will highly influence with the available water resources and that the task carrying water resources development and management is easier if we carried these activities in watershed basis. It is high time to demarcate the state boundaries on watershed basis as much as possible considering the fact of fast development of the federal states in the future. Similarly, the jurisdiction of the state and central government must be clearly spelled out in the constitution on the types and scale of the water resource and their development.
3. Nepal's own resources cannot meet the financial investment needed for the large scale hydropower development. Today, it is not easy to obtain assistance from the international financial institutions for the hydropower development due to the insecure environment of the country. The government instability might be the reason behind it. Proper arrangement of international funds required for hydropower development of the country is one of the major challenges at the current scale of Nepalese economy.
4. Nepal does not have sufficient numbers of technically sound manpower even now when we talk about large sized hydropower development projects. On the other hand, the significant numbers of trained and skilled manpower are

leaving the country due the hopeless environment of the country. Similarly, most of the local contractors are labor based contractors and do not have equipments and manpower for big jobs. Hiring of foreign contractors increases the cost and the money goes outside. Therefore, a clear policy is required to retain the skilled and trained professionals within the country and in-house human resources development become essential if we want to develop our hydro-project within an affordable limit.

5. Decision making processes in Nepal are very slow and lethargic in the hydropower sector. This has resulted in increasing project costs and has halted the entry of additional entrepreneurs. Therefore, restructuring at all policy levels is required. Policies need to benefit consumers and investments must be competitive. Institutional restructuring is essential to develop hydropower as a national industry. Policies concerning customs and tax, as well as on forest area have to be reviewed.
6. Clear information on power purchase and pricing policy, where PPA can be done, must be given appropriately in order to attract public and private sector investment on hydropower investment.
7. Reliability of Feasibility Study Report needs to be enhanced. There are a number of examples of large variations from estimated costs primarily on account of differences between the outcomes of investigations and ground realities. Both in respect of hydrology and geology, the quality of studies, investigations, analysis and findings need substantial improvement.
8. Most of the hydropower projects are being delayed because of lengthy Environmental Impact Assessment (EIA) approval process and land acquisition (private and Government owned land) problem. Ministry of Environment, Ministry of Forest, Ministry of Energy, Ministry of Land Reform and Management and other concerned authorities have to formulate new guidelines for simplified solutions for this problem.
9. The law and order problem in project areas lead to delay in execution of the project as well as cost over runs. Executing agencies face security problems resulting delays in execution of the project due to difficulties in arranging manpower deployment. Government needs to make necessary arrangement to strengthen the existing security system.

10. As hydro projects are located in hilly terrain, landslides, hill slope collapses, road blocks etc. particularly during monsoon season because of heavy rains and unprecedented floods cause severe setbacks in construction leading to time and cost over-runs. A comprehensive support from the concerned governmental authorities is required for necessary precautions and actions if happen.

Mr. Ram Chandra Pandey (General Manager, NEA) has written an article **"*Whither Hydropower Development in Nepal"*** in Vidyut magazine (2069 Bhadra: page 56). He has written about hydropower potential in Nepal, Nepal's power supply /demand scenario, Nepalese power system and participation of private sector in hydropower development.

He said about the review of existing hydropower policy which gives more emphasis to private sector in hydropower development especially in light of its performance during the past one decade. According to him public private partnership is most suited for medium and large projects in Nepal.

Mr. Pandey also mentioned that, electricity demand in Nepal grew at an annual rate of 9% during last decade and the same trend is expected to continue for some time in future also. Now the total installed capacity in Integrated Nepal Power System (INPS) is 705 MW of which 652 MW is hydro and 53 MW is thermal. But the system peak demand is around 1000 MW. Hence the generation capacity is not sufficient to meet the electricity demand of the country and has triggered the service load shedding in the country. To meet the deficit demand Nepal is importing 100-120 MW power from India.

The writer also put in his views about the weak project reports of private parties. He has pointed the following factors that result in weak project reports:

- Cost avoidance
- Lack of competent manpower
- Reluctance of financial institution financing the preparation of DPR by private sector
- Lack of new technologies necessity for initial investigations, due to high investment cost on equipments

- Unreliability of the PROJECT STUDY report prepared by private sectors because of improper and in depth study

According to him, IPPs are enjoying based on legal provisions and studies from NEA. IPPs commitment on developing new hydro projects is not promising. The present trend shows that IPPs are interested or are capable in developing only small projects or those projects whose studies has been already prepared by NEA. Private sector in unable to develop large projects because of unavailability of funds in the local market as the market is able to support 20-50 MW projects only. Despite claims by some of the commercial banks, they virtually lack the money for the long term investment in hydropower sector. Nepalese banks are not keen on investing on hydro projects because from their prospective there is high risk involved in hydro projects and also they need to wait for long period for return. Obviously, for megaprojects, we have to look for foreign investment.

Another problem with banking sector is that there is absence of the concept of "project financing" in our Country. Financing is done by financial institutions based on collateral and personal guarantee-backed lending. Project finance is specific mode of financing used by Financial Institutions under which the very project for which finance is being sought is accepted by Financial Institutions as collateral and no additional or external collateral is required for the purpose, thereby resulting in limited recourse to the institutions providing debt financing. Project financing is a relatively new concept in our country. Financial institutions must gradually increase their expertise, either through hiring consultants or by sharing of expertise with foreign financial institutions before starting project financing which needs more time.

Some other problems which IPPs are facing to develop hydropower projects are:

- Absence of long term loans
- Highly capital intensive and absence of committed funds
- Transmission line congestion causing problem in power evacuation
- Lack of competent contracting agencies to construct the project site
- Technical constraints due to complex geological nature of the projects
- High rate of interest and low return on equity (ROE); not attractive enough for investors

- ❖ High construction risks due to the nature of the works, with extensive exposure to geological conditions, flood, access problems, etc.

Mr L.R. Tamang, in his article **'' Yen le Nachhoyeko Load-Shedding "** published on Gorkhapatra daily, dated 20th May 2013, has said that leaving some country, in average, mostly country are facing the problem of 8 to 10% electricity leakage but Nepal is facing more than 25% of electricity leakage. He has presented some point that was taken from a field report which was studied in Birgunj Cement Industries. That report was mainly focused on how to save electricity to generate the employment. The report was focus on how to industrial equipment and machine will increase its durability and how to mitigate the leakage of electricity and how much revenue will increase if investment on controlling electricity leakage is invested.

That report has concluded that if 0.5 million rupees investment on a factory that will save 100 KVA electricity, according to this 50 industrial factory will save 12 million rupees as tariffs and nation/NEA will save 5 MW of electricity annually. To produce 5 MW of electricity cost 700 million rupees.

The causes of leakage of electricity may be various but he has addressed one of the main causes as following. He has said that to minimize the technical leakage hydro power construction should be specified and diversified. Separate policy should be conduct to make the hydro power construction specified and effective. Hydro power construction is running under the act of physical construction. Hydro power construction has been running by Civil Engineering Construction Company instead of running by Hydro Power Construction Company that would make it low effective and high costed. He has added that in the column of qualification of the act of physical construction is Dozer and Loader instead of scheduling electricity examining equipment.

Here he has concluded that to improve the quality of electricity and minimize the leakage electricity construction act should be conducted and that will new direction to reform the electricity development.

2.4. Review of the Previous Thesis

This section comprises reviews of various theses that are related to its topic and which may helpful for this study. Though their problems differ to some extent, methods and techniques of analyzing financial performance resemble.

Reviews of some of the previous thesis prepared by the seniors were made. From these theses, I got very importnt knowledge and information related to hydropower sector. The researchers had also presented the financial position of some IPPs and also of the Nepal Electricity Authority. These theses as well as data are very fruitful to the readers and researchers for their further studies.

In this context, some reviewed previous theses are as follows:

Mr. Prakash Paudel, (2008) conducted a research study entitled ***"Capital Budgeting of Hydroelectric project with reference to Chilime Hydropower Project",*** an unpublished master level thesis submitted to Shankerdev Campus, Faculty of Management , Tribhuwan University. He has examined the financial strength and weakness of Chilime Hydropower based on different Capital Budgeting Techniques i.e. PBP, ARR, NPV, IRR, PI Ratios etc.

The main objectives of his studies were as follows:

- ❖ To evaluate investment worth in rupees.
- ❖ To plan the Future Net Cash Flow.
- ❖ To decide the project investment.
- ❖ To point out the suitable recommendation and suggestion.

Major findings of his study were:

- ❖ Chilime Hydropower Project has positive NPV, the project CHPCL is a worthwhile undertaking.
- ❖ Chilime Hydropower Project can recover its initial investment in 9.9321 Years.
- ❖ Chilime Hydropower Project has 28.2044% ARR which is greater than minimum required rate of return (7.75%). Hence the project should be accepted under ARR method.
- ❖ CHPCL has 27.777986% IRR. However the opportunity cost of capital is 7.75%. Therefore, CHPCL decision is better decision according to IRR Decision Rule.

- The Profitability Index of Chilime Hydropower Project is more than one (i.e. 3.8948); the project should be accepted.

Mr. Bhanubhakta Uprety (2009) conducted a research study on ***"A Financial Performance Evaluation of Independent Power Producers of Nepal",*** an unpublished master level thesis submitted to Shankerdev Campus, Faculty of Management , Tribhuwan University. He has tried to ascertain present trend of performance in hydropower sectors and examines the financial strength and weakness of BPC and CHPCL based on its ratio analysis, income and expenditure analysis and, least square trend analysis.

The main objectives of this study are as follows:

- To analyze the financial performance of BPC and CHPCL and draw comparative conclusions through financial analysis.
- To identify major strengths and weakness of BPC and CHPCL.
- To find out the past and present challenges undergone by IPPs in Nepal.

The main findings of his study are as follows:

- The current and quick ratios of the companies seem to be inconsistent. While CHPCL has failed to maintain conventional standard of liquidity position (2:1) throughout the study period, BPC has failed to do so in last couple of years. Liquidity position of CHPCL is feeble than that of BPC which shows the incapability of CHPCL to meet its current liabilities as compared to BPC.
- The fixed assets turnover ratios of both IPPs are inconsistent but satisfactory in terms of inclination. It seems that BPC has been able to utilize its current assets more appropriately as the difference in ratios of total assets turnover between the two IPPs is more significant. Similarly, while CHPCL seems to be operating under the risk of running out of inventory, BPC has a very humble rate of inventory turnover. Though the debtor's turnover ratios are almost equivalent, considering the average collection periods, it can be concluded that CHPCL suffers less from the problem of outstanding debt collection.
- Both IPPs are all equity financed and thus the risk of insolvency is minimized for these companies.

- ❖ Though BPC has considerably high operating expenses ratios and inconsistent trend in its net profit ratios the overall performance with respect to profitability is better than CHPCL. However, considering the return on shareholder's equity, it is obvious that one would preferably invest in CHPCL rather in BPC.
- ❖ With almost the same coefficient of variation, CHPCL has twice higher EPS compared to BPC. However BPC, being more liberal in distributing the earnings in form of dividends, one might confuse to pick the preferable investment between BPC and CHPCL.
- ❖ The coefficient of correlation between sales and total assets of BPC and CHPCL show positive but that of CHPCL is insignificant relation. It also reveals that it is likely that increase in total assets is associated to increase in sales of BPC more than in sales of CHPCL.
- ❖ The coefficient of correlation between total assets and net profit after tax of BPC and CHPCL show positive but that of CHPCL is insignificant relation. It also reveals that the net profit after tax of BPC is more reactive than that of CHPCL to fluctuations in total assets.
- ❖ The growth trend analysis of total sales, net profit after tax and earnings per share of CHPCL demonstrate a higher increasing trend than that of BPC.

Mr. Luvkush Kairatee (2010) has submitted his research work on ***"Application of Cost Volume Profit Analysis in Decision Making (with reference to Butwal Hydropower Company Limited and Chilime Hydropowr Company Limited)",*** an unpublished master level thesis submitted to Shankerdev Campus, Faculty of Management , Tribhuwan University**.** The main objective of the study was to identify the various tools and techniques of CVP analysis used in CHPCL and BPC for profit planning. He has also tried to provide base for the analysis which suggest manager with a powerful tool for identifying the course of action that improve the profitability. He has conducted some objectives, findings and recommendations as under.

Objectives:

- ❖ To study and analyze the variable and fixed cost of BPC and CHPCL along with contribution margin and operating profit.

- To analyze the breakeven level and margin of safety of both companies and compare them.
- To assess the most favorable combination of variable cost, fixed cost, selling price, sales volume to maximize the profit.
- To evaluate the sensitivity of various factor on profitability of both companies.

Findings:

- There is no practice of classifying cost into fixed and variable. Both the companies are not preparing direct costing. However, after classifying cost under certain assumption, fixed cost of CHPCL is higher than BPC whereas variable cost of BPC is higher than CHPCL.
- Although the generation and sales of both companies are increasing, they are unable to meet their installed capacity. This shows that there is improvement regarding capacity utilization. The generation and sales of CHPCL is far greater than BPC.
- The average selling price of CHPCL is found greater than BPC. CHPCL has been awarded extraordinary purchase rate. This shows that the process of PPA lacks transparency.
- The contribution margin per unit and CM Ratio of CHPCL is in increasing trend whereas of BPC is fluctuating.

Recommendations:

- To practice CVP analysis as profit planning tool by every hydropower companies to accelerate profit.
- The Company should prepare direct costing which is based on those cost that are closely and directly connected to the operation volume.
- The average load factor of both companies is far less i.e. 30% installed capacity is utilized. Both companies should control the major break downs to utilize their maximum capacity.
- Both the companies suffer largely from repair and maintenance problem which cause frequent break down of machine and reduces the average load factor. Such problem should be reduced by hiring expertise from right country.

Mr. Balaram Pandey (2013) conducted a research work on ***"Comparative Analysis of Working Capital Management of Chilime Hydropower Company Limited and Butwal Power Company Limited",*** an unpublished master level thesis submitted to Shanker Dev Campus, Faculty of Management, Tribhuwan University. Mr. Pandey has tried to analyze the assets structure and its implications of BPC and CHPCL. He has also tried to analyze the credit policy of these both companies.

The major findings and recommendations of the study are as under:

Findings:

- The current ratio of BPC is lesser than the standard 2:1 but the current ratio of CHPCL is higher than the standard.
- CHPCL is maintaining adequate liquidity position than BPC.
- The profitability ratios of the selected companies are fluctuating over the study period.
- The average cash conversion period of BPC and CHPCl are 114 days and 51 days respectively.

Recommendations:

- BPC is suggested to improve its profitability position, and to improve its overall efficiency and returns to its shareholders.
- BPC is suggested to improve its receivable conversion period.
- The companies should be aware about the changing technologies regarding the hydropower sector as well as information systems.

2.5. Research Gap

Many research works has been done before on Financial Performance Analysis of hydropower companies. All these research works have many useful findings as discussed above. Even though there is still lack of certain issues remaining unexplored. The unexplored issues related to financial performance of hydropower companies are liquidity management, financial composition management etc. Similarly the researchers have been failed to review the prevailing government policies regarding the hydropower and its development.

All these shortcomings are tried to avoid in this research work. The current government policies as well as plans regarding hydropower development are reviewed here. This study also provides the latest information for the investors to jump on hydropower business which helps to reduce the energy shortage of the nation.

CHAPTER – III
RESEARCH METHODOLOGY

3.1. Research Design

This research design is basically the comparative evaluation of BPC and CHPCL. Descriptive and analytical approaches were used to evaluate the financial performances of these IPPs. Descriptive approach was adopted for conceptualization, problem identification, conclusion and suggestion of the study where as analytical approach was followed for the presentation and analysis of data. The data were analyzed on the basis of standard financial formulas used in the books of financial management.

3.2. Population and Sample

This study is directed towards the evaluation of financial performance of IPPs. Currently there are 12 IPPs in operation in our country. However, only three of them are listed in the NEPSE: BPC, CHPCL and NHPC. The sample of two IPPs is taken in accordance to their price potency in NEPSE.

This analytical study of performance evaluation is based on the financial statements of BPC and CHPCL from the fiscal year 2007/08 to 2011/12. Thus the period covered the 5 fiscal years data.

3.3. Types and sources of Data

The main sources of data for the purpose of this study are the published financial statements of BPC and CHPCL. The study is thus mainly based on the secondary data. It constitutes mostly the annual reports, which comprises balance sheet and profit and loss account statement. Information has been supplemented from various publications of NEA.

Though the study basically covers the secondary data, however in some cases primary data were also obtained through conversation with the staffs of both IPPs. Some other available published and unpublished materials concerning the study as well as some journal abstracts have also been used. In addition to that, numbers of relevant websites were visited to ensure the availability of information across borders regarding the operation of IPPs.

3.4. Research Variables

The research variables are mainly related with the financial statements of BPC and CHPCL. Profit and loss account, balance sheet, cash flow statement and time period are the main research variables of the study. These variables are measured in terms of various components of ratios.

3.5. Data Processing

The data has been processed through editing, coding and classification of the collected data. According to the nature of data, they have been inserted in meaningful tables. Presented data have been analyzed and interpreted using various financial and statistical tools.

3.6. Tools for Analysis

3.6.1. Financial Tools

Financial tools are those, which are used for the analysis and interpretation of financial data. They attempt to explore the financial state of business and convey the strengths and weakness of its financial policies and strategies. There are wide range of financial tools that can be used in analyzing the performance and financial soundness of the organization. In this study, ratio analysis is used to measure the efficiency of the selected IPPs.

Ratio analysis is a widely used tool of financial analysis. It is defined as the systematic use of ratio to interpret the financial statements so that the strength and weaknesses of a firm as well as its historical performance and current financial condition can be determined. The term ratio refers to the numerical or quantitative relationship between two variables. Ratio analysis is used to evaluate relationships among financial statement items. The ratios are also used to identify trends over time for one company or to compare two or more companies at one point in time. Financial statement ratio analysis focuses on three key aspects of a business: liquidity, profitability, and solvency.

The following ratios are used for evaluating the performance of selected IPPs.

a) Liquidity ratio

Liquidity ratios measure the ability of a company to repay its short-term debts and meet unexpected cash needs. Mainly following two ratios are used to measure the liquidity position.

i) Current ratio

The current ratio is also called the working capital ratio, as working capital is the difference between current assets and current liabilities. This ratio measures the ability of a company to pay its current obligations using current assets. The current ratio is calculated by dividing current assets by current liabilities.

$$\textbf{\textit{Current Ratio}} = \frac{\textbf{\textit{Current Assets}}}{\textbf{\textit{Current Liabilities}}}$$

Different industries have different levels of expected liquidity. Whether the ratio is considered adequate coverage depends on the type of business, the components of its current assets, and the ability of the company to generate cash from its receivables and by selling inventory.

ii) Acid-test ratio (Quick Ratio)

The acid-test ratio is also called the quick ratio**.** Quick assets are defined as cash, marketable (or short-term) securities, and accounts receivable and notes receivable, net of the allowances for doubtful accounts. These assets are considered to be very liquid (easy to obtain cash from the assets) and therefore, available for immediate use to pay obligations. The acid-test ratio is calculated by dividing quick assets by current liabilities.

$$\textbf{\textit{Quick Ratio}} = \frac{\textbf{\textit{Quick Assets}}}{\textbf{\textit{Current Liabilities}}}$$

The traditional rule of thumb for this ratio has been 1:1. Anything below this level requires further analysis of receivables to understand how often the company turns them into cash. It may also indicate the company needs to establish a line of credit with a financial institution to ensure the company has access to cash when it needs to pay its obligations.

a) Activity/Efficiency/Assets Management Ratio

"Activity Ratios also called Efficiency or assets Management Ratios indicate the speed with which assets are being converted or turned over into sales. Activity ratios involve comparison between the level of sales and investment of various assets. Funds of creditors and owner are invested in various assets to generate sales and profits. The better is the management of assets; the larger is the amount of sales. The activity ratios are employed to evaluate the efficiency with which company manages and utilizes its assets. A proper balance between sales and assets generally reflects that assets are managed well", (Pandey, 1999:123).

i) Fixed Assets Turnover Ratio (FATOR)

Fixed Assets Turnover ratio measures the efficiency with which the company is utilizing its investment in various net fixed assets. The ratio expresses that a rupee of investment in a fixed asset generates the resulted sale. Generally, high fixed assets turnover ratio indicates efficient utilization of fixed assets while inefficiency in utilization is shown by low fixed assets turnover ratio.

$$\textbf{\textit{Fixed Assets Turnover Ratio}} = \frac{\textbf{\textit{Sales}}}{\textbf{\textit{Net Fixed Assets}}}$$

Net fixed assets are defined as the gross fixed assets minus depreciation. This study accumulates fixed assets, capital work-in-progress and investment in new project to produce the net fixed assets.

ii) Total Assets Turnover Ratio (TATOR)

Total assets turnover ratio shows the relationship between sales and total assets. It indicates the sales generated per rupee of investment in the total assets. Generally, higher turnover ratios show efficiency in utilization of companies' scarce resources and vice versa.

$$\textbf{\textit{Total Assets Turnover Ratio}} = \frac{\textbf{\textit{Sales}}}{\textbf{\textit{Total Assets}}}$$

Total assets constitute the fixed assets as well as current assets and investment of the company. This study accumulates fixed assets, capital work-in-progress, investments in new projects and current assets to produce the total assets.

iii) Debtors Turnover Ratio (DTR)

The Debtors turnover ratios calculates the number of times in an operating cycle (normally one year) the company collets its debtors balance. This ratio indicates the velocity of debt collection of a company. It is calculated by dividing sales by the closing Debtors. Generally, high debtor's turnover is the indication of good receivable management.

$$\textbf{\textit{Debtors Turnover Ratio}} = \frac{\textbf{\textit{Sales}}}{\textbf{\textit{Closing Debtors}}}$$

iv) Average collection period (ACP)

The average collection period (also known as day's sales outstanding**)** is a variation of receivables turnover. It calculates the number of days it will take to collect the average receivables balance. It is often used to evaluate the effectiveness of a company's credit and collection policies. A rule of thumb is the average collection period should not be significantly greater than a company's credit term period. The average collection period is calculated by dividing 365 by the debtors/receivables turnover ratio.

$$\textbf{\textit{Average Collection Period}} = \frac{\textbf{\textit{Days in a Year}}}{\textbf{\textit{Debtors Turnover Ratio}}}$$

The decrease in the average collection period is favorable. If the Average Collection period is less than credit period, it shows the timely payment of debt. However, if the Average Collection Period is more than credit period, the company needs to review its collection efforts.

b) Leverage/ Capital Structure Ratio

"The Leverage or Capital Structure Ratio may be defined as financial ratio which throw light on the long term solvency of a firm as reflected in its ability to assure the long term creditors with regard to: (i) Periodic payment of interest during the period of the loan and (ii) repayment of principal on maturity or in predetermined installments at the due dates. This ratio indicates the mix of fund provided by owners and lenders. As a general rules, there should be an appropriate mix of debt and

owners' equity in financial mix of the companies' assets", (Khan and Jain; 1999:4.10).

This study accumulates short and long-term borrowings from banking and financial institutions, debentures/bonds and any other interest bearing loan to produce total debt. High leverage ratios indicate greater financing by debt holders than those of equity holders. In debtors' point of view, high leverage ratios of the company is more risky to invest in, as its assets are already under claim of other lenders.

i) Debt to Equity Ratio (D/E Ratio)

Debt to Equity Ratio is calculated dividing total debts by total shareholders' equity. This ratio shows the relationship between debt capital and equity capital.

$$\boldsymbol{Debt\ to\ Equity\ Ratio = \frac{Total\ Debt}{Shareholders' Equity}}$$

This study accumulates equity and reserve and surplus to produce shareholders' equity.

ii) Debt to Total Assets Ratio (DTAR)

The debt to total assets ratio calculates the percent of assets provided by creditors. It is calculated by dividing total debt by total assets. Total debt is the same as total liabilities.

$$\boldsymbol{Debt\ to\ Total\ Assets\ Ratio = \frac{Total\ Debt}{Total\ Assets}}$$

The manner in which assets are financed has a number of implications. Debt is considered to be more risky in compare to equity. The company has a legal obligation to pay interest to debt holders, irrespective of the profits made or losses incurred by the company. If the company fails to pay the debt holders in time, they can take legal action against to get the payments and in extreme cases can force the company into liquidation. On the other hand, employment of debt is advantageous for shareholders in two ways; they can retain control of the company with a limited stake and secondly their earning will be magnified when the company earns a rate of return on the total capital employed.

c) Profitability Ratio

"Profitability Ratios are a group of ratios showing the combined effects of liquidity, assets management and debt management on operating results. They are the measures of a company's earning capacity and operation efficiency. Profitability ratios of the company can be calculated in relation to sales and in relation to investment. It is true that higher the profitability ratios better the financial position and vice versa", (Weston and Brigham, 1987:249).

A company must earn sufficient amount of profit from its operation to survive and sustain in the future. Without profit no company can exist and the future of the company will be endangered. Therefore, profit is the ultimate outcome of any company. The following profitability ratios are used in this study.

i) Net Profit Ratio (NPR)/ Profit Margin Ratio

The profit margin ratio, also known as the operating performance ratio, measures the company's ability to turn its sales into net income. To evaluate the profit margin, it must be compared to competitors and industry statistics. It is calculated by dividing net income by net sales.

$$\textbf{Net Profit Ratio} = \frac{\textbf{Net Profit after Tax}}{\textbf{Sales}}$$

The ratio of net profit to sales shows the profitability of corporations indicating that the only increase in sales does not mean anything unless it commends profit.

ii) Operating Expenses Ratio (OER)

The Operating Expenses Ratio is the yardstick of operating efficiency. It indicates the average aggregate variety in expenses, where some of the expenses may be increasing while some may be falling. This ratio throws light on managerial policies and programs. In general, higher operating ratio is inefficient due to higher operating cost in terms of sales. Lower operating ratio is favorable, as it will generate higher operating income, which will be sufficient to meet interest, dividend and other expenses of the company.

$$\textbf{Operating Expenses Ratio} = \frac{\textbf{Operating Expenses}}{\textbf{Sales}}$$

The study accumulates power plant expenses, distribution expenses and consultancy service expenses to produce operating expenses.

iii) Return on Shareholders' Equity (ROE)

The return on common stockholders' equity (ROE) is the most commonly used ratio for measuring the return on owners' investment. It measures how much net income was earned relative to each Rupee of common stockholders' equity. It is calculated by dividing net income by shareholders' equity.

$$\textbf{Return on shareholders' Equity} = \frac{\textbf{Net Profit afterTax}}{\textbf{Shareholders' Equity}}$$

Higher ROE is favorable as it indicates higher return for shareholders' each rupee of investment.

iv) Return on Assets (ROA)

The Return on Assets ratio (ROA) is considered an overall measure of profitability. It measures how much net income was generated for each one Rupee of assets the company has. As the satisfactory level profit is one of the main objectives of the company, this ratio shows the extent to which this objective is being achieved. It can be calculated by dividing net income plus interest expenses by total assets.

$$\textbf{Return on Assets} = \frac{\textbf{Net Profit after Tax} + \textbf{Interest}}{\textbf{Total assets}}$$

Higher ROA shows higher earning of the company in terms of its total assets. Lower ROA indicates unsound financial position due to low level of return.

d) Invisibility Ratio

An analysis of Invisibility Ratio helps the investors to know the performance of the companies. These ratios give management an indication of what investors think of the companies' past performance and future prospects. If the companies' liquidity, profitability, leverage and utilization ratios are good, its market value ratios will be high and its stock price will probably be as high as can be expected. The following invisibility ratios are used to test earning capacity of selected IPPs.

i) Earnings Per Share (EPS)

The Earnings per share (EPS) represents the net income earned for each share of outstanding common stock. The profitability of a company from the point of view of ordinary share holders is the earnings per share (EPS). In a simple capital structure, it is calculated by dividing net income by the number of equity shares outstanding.

$$\boldsymbol{Earning\ per\ Share = \frac{Net\ Profit\ after\ Tax}{No\ of\ Shares\ Outstanding}}$$

EPS shows the amount of earning attributes to each equity share. If earning per share is high, market price of the share may be increased in the market and vice versa. High ratio shows the sound profitability position of the companies.

ii) Dividend per Share (DPS)

This Ratio can be obtained dividing total distributed dividend by number of equity shares outstanding. Dividend per share is the measure of profitability. This ratio shows the rupee earning actually distributed to common stock holders per share held by them. High ratio is favorable for the shareholders.

$$\boldsymbol{Dividend\ per\ Share = \frac{Total\ Dividend\ Distributed}{No.\ of\ Shares\ Outstanding}}$$

iii) Dividend Payout ratio (DPR)

The payout ratio identifies the percent of net income paid to common stockholders in the form of cash dividends. It is calculated by dividing cash dividends by net income.

$$\boldsymbol{Dividend\ Payout\ Ratio = \frac{Dividend\ per\ Share}{Earning\ Per\ Share}}$$

A more stable and mature company is likely to pay out a higher portion of its earnings as dividends. Many startup companies and companies in some industries do not pay out dividends. It is important to understand the company and its strategy when analyzing the payout ratio.

3.6.2. Statistical Tools

Statistical tools present the relationship among certain variables based on past trend and help predict future values of one or more variable given the change in other associated variables. Those tools are useful to researchers in order to draw liable

financial conclusions from data available. The following statistical tools are used in this study for evaluating the performance of selected IPPs.

a) Arithmetic Mean

An average is a single value selected from a group of values to represent them in same way, which is supposed to stand for whole group of which it is a part, as typical of all the values in the group. Out of various measures of the central tendency, arithmetic mean is one of the useful tools applicable here. Arithmetic mean of a given set of observation is their sum divided by number of observations. In general, if $X_1, X_2, X_3, \ldots\ldots\ldots, X_n$ are the given observations and N being number of observations, then arithmetic mean usually denoted by $\bar{\bar{X}}$ is given by:

$$\bar{\bar{X}} = \frac{X1 + X2 + X3 \ldots\ldots\ldots + Xn}{N} = \frac{\sum X}{N}$$

b) Coefficient of Variation (CV)

Coefficient of variation is the percentage of variance in the mean, standard deviation being considered as the total variation in the mean. It is one of the relative measures of dispersion that is useful in comparing the amount of variation in data group with different mean. Coefficient of variation, denoted by CV is given by:

$$CV = \frac{\sigma \times 100}{\bar{\bar{X}}}\%$$

$$\textbf{Where,} \qquad \sigma = \sqrt{\frac{\sum X^2}{n} - \left(\frac{\sum X}{n}\right)^2}$$

c) Coefficient of Correlation (r)

It is a statistical tool for measuring the intensity of the magnitude of linear relationship between two series. Karl Pearson's Correlation between two variables/series *X* and *Y* is usually denoted by *r* and can be obtained by:

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}\sqrt{N\sum Y^2 - (\sum Y)^2}}$$

Where,

$N \quad = \quad No\ of\ observation$

$$\sum X = Sum\ of\ observation\ in\ series\ X$$
$$\sum Y = Sum\ of\ observation\ in\ series\ Y$$
$$\sum X^2 = Sum\ of\ squared\ observation\ in\ series\ X$$
$$\sum Y^2 = Sum\ of\ squared\ observation\ in\ series\ Y$$
$$\sum XY = Sum\ of\ the\ productof\ observation\ in\ series\ Xand\ y$$

Value of r lies between -1 and +1. r = 1 implies that there is a perfect correlation between the variables. The variables are said to be perfectly negatively correlated if r = -1 and perfectly positively correlated if r = +1. If r = 0, the variables are not correlated at all except other than in form of logarithm quadratic or exponential.

d) Probable of Errors of Correlation Coefficient (PE)

Probable Error of correlation Coefficient is an old measure of testing the reliability of an observed value of correlation coefficient. It is calculated to find the extent to which correlation coefficient depends upon the condition of random sample. Probable error of correlation of coefficient denoted by PE(r) is obtained by:

$$\boldsymbol{PE = 0.6745 \times \frac{1 - r^2}{\sqrt{N}}}$$

$Where,$

$$\frac{1-r^2}{\sqrt{N}} = Standerd\ Error$$

Reason for taking 0.6745 is that in a normal distribution, 50% of observations lie in the range $p = \pm 0.6745$

PE is used to test if an observed value of sample correlation coefficient is significant of any correlation in the population. If $r > 6PE$, correlation is significant otherwise it is not significant.

e) Least Square Linear Trend

Trend Analysis is a very useful and commonly applied tool to forecast the future event in quantitative term, on the basis of the tendencies in the dependent variable in the past period. The straight line trend implies that irrespective of the seasonal and cyclical as well as irregular fluctuation, the trend value increase by absolute amount per unit of time. The linear trend values form a series in arithmetic progression.

Mathematically,

$$Y = a + bX$$

Where,

$$Y = Value\ of\ the\ dependent\ variable$$

$$a = Y\ intercept$$

$$b = Slope\ of\ the\ trend\ line$$

$$X = Value\ of\ the\ independent\ variable$$

Normal equations fitting above equations are:

$$\sum Y = Na + b\sum X$$

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

$$Since,\ \sum X = 0, a = \frac{\sum X}{N}\ and\ b = \frac{\sum XY}{\sum X^2}$$

f) Chi-Square Test

"The Chi-square (χ^2) test is designed to work with nominal data. It provides the researcher with a mathematical way of examining a classification table to see whether the arrangement of values within that table is unusual in some way. In performing this test the mathematical process will be looking for a significant difference between the observed and excepted frequencies. The chi-square test involves a comparison or more responding groups", (Wolf and Pant, 2005:287).

"Since chi-square test does not make any assumption about population parameters, it is called distribution free test. This test is good for normal or ordinal scale of measurement. Chi-square test is also used for analysis of quantitative variables, such as opinions of people, religious affiliation, smoking habits and so on. Chi-square test is a test that describes the magnitude of difference between observed and expected (theoretical) frequencies under certain assumptions. In other words, it describes the magnitude of the discrepancy between theory and observation", (Sthapit, 2004:333)

It is defined as:

$$\boldsymbol{Chi - Square\ (\chi^2) = \sum \frac{(O - E)^2}{E}}$$

Where,

$O = Observed\ Frequency$

$E = Expected\ Frequency$

$$\boldsymbol{Expected\ Frequencies} = \frac{\boldsymbol{RT} \times \boldsymbol{CT}}{\boldsymbol{N}}$$

$Where,$

$N = Number\ of\ Observation$

$RT = Raw\ Total$

$CT = Column\ Total$

Note: 5% level of significance have been used for all tests.

CHAPTER – IV

PRESENTATION AND ANALYSIS OF DATA

4.1.1. Liquidity Ratio

Liquidity Ratios are used to judge a company's ability to meet its short-term obligations. These ratios involve the relationship between current assets and current liabilities and are measured in terms of current ratio and quick ratio.

Current Ratio (CR)

Current Ratio measures the liquidity position of the company. The standard current ratio should be 2:1 and it is also set on the basis of the nature of the company. The current ratios of the five fiscal years from 2007/08 to 2011/12 are presented in the table 4.1 below.

Table no. 4.1
Current Ratio of BPC and CHPCL

(In Thousand NRS.)

Fiscal Year	Current Assets		Current Liability		Ratios (Times)	
	BPC	CHPCL	BPC	CHPCL	BPC	CHPCL
2007/08	746,136	646,230	595,872	504,088	1.252	1.282
2008/09	743,837	995,074	691,203	364,892	1.076	2.727
2009/10	651,519	1450,092	653,672	102,700	0.997	14.120
2010/11	600,391	2046,285	436,110	107,384	1.377	19.056
2011/12	1,023,848	3,124,280	593,000	115,172	1.727	27.127
Mean($\bar{X}$)					1.286	12.862
Standard Deviation(σ)					0.257	9.801
Coefficient of Variation(C.V.)					20.018	76.196

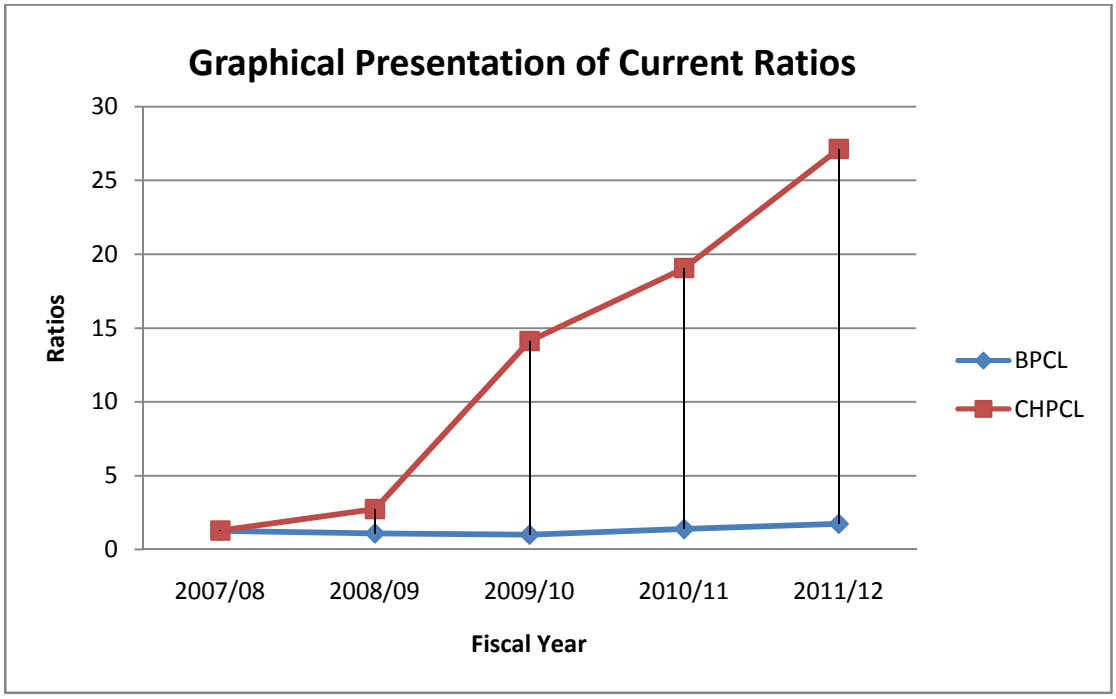
Source: Annual Report of BPC and CHPCL

Looking at the trend of current ratio of BPC over 5 fiscal years, it can be observed that the company's current ratio has not remained satisfactory. On the contrary, the current ratio of CHPCL is in increasing trend. In the last 3 fiscal years, the current

ratio was too high (more than 2) which shows that the company could not use its current assets. It is indication of problems in working capital management.

The mean current ratio of BPC is 1.286 which seems to be less than the conventional standard 2:1 which shows its incapability to meets its short-term obligations. However the mean current ratio of CHPCL is 12.862 which is highly liquidity position. Likewise CHPCL has a higher CV than that of BPC which means that CHPCL has more fluctuations in ratios than BPC.

Figure no. 4.1



Quick Ratio (QR)

The Quick Ratio is more accurate guide to measure the liquidity position of a company. Generally a standard quick ratio of 1:1 is considered satisfactory as it means a company can easily meet all current claims.

Table no. 4.2
Quick Ratio of BPC and CHPCL

(In Thousand NRS)

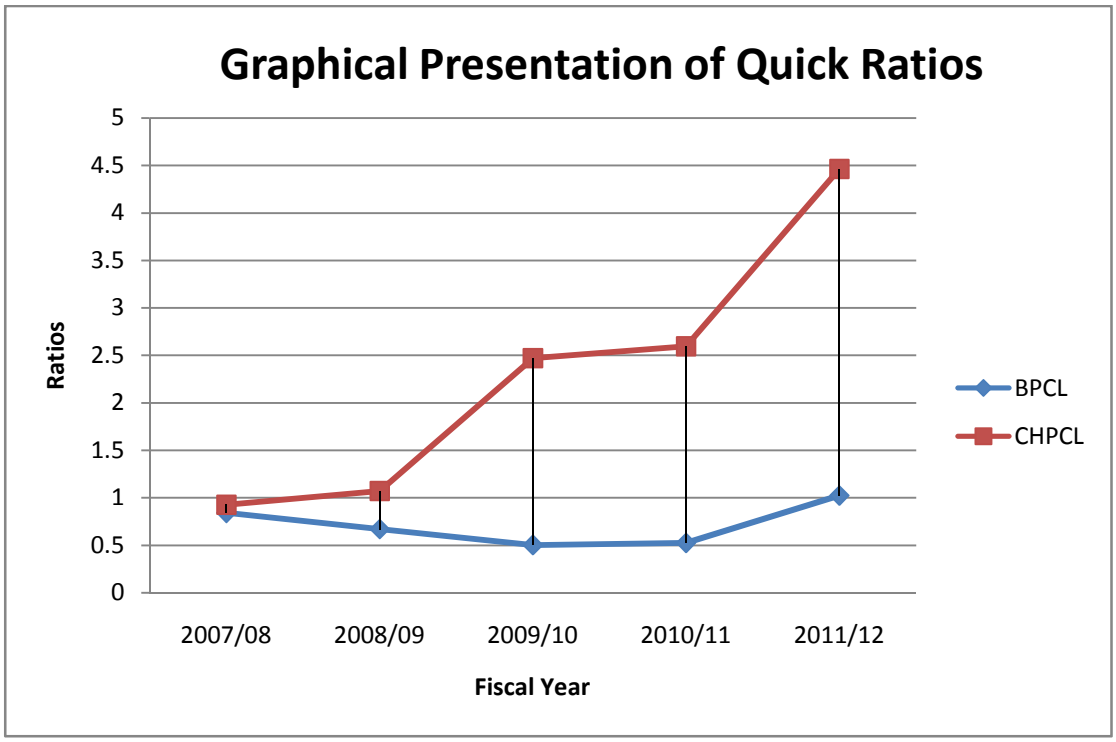
Fiscal Year	Quick Assets		Current Liability		Ratios (Times)	
	BPC	CHPCL	BPC	CHPCL	BPC	CHPCL
2007/08	501,042	466,801	595,872	504,088	0.841	0.926
2008/09	463,046	390,326	691,203	364,892	0.670	1.070
2009/10	328,578	253,612	653,672	102,700	0.503	2.469
2010/11	229,042	278,625	436,110	107,384	0.525	2.595
2011/12	606,422	513,917	593,000	115,172	1.023	4.462
Mean ($\bar{X}$)					0.712	2.304
Standard Deviation (σ)					0.197	1.280
Coefficient of Variation (C.V)					27.626	55.545

Source: Annual Report of BPC and CHPC

Looking at the trend of quick ratio of BPC of 5 fiscal years, it can be observed that the company's quick ratio did not remain satisfactory except in the fiscal year 2011/12. The company is suffering by low quick ratio since its mean quick ratio is 0.712. It reveals inadequacy of resources to meet current obligations. But in case of CHPCL, the mean quick ratio is 2.304, which means the company can easily meet its current claims.

The above table shows that CHPCL has a higher CV than that of BPC which means that CHPCL has more fluctuations in quick ratios than BPC.

Figure no. 4.2



4.1.2. Activity/ Efficiency/ Assets Management Ratio

Activity Ratio also called Efficiency Ratio or Assets Management Ratio indicates the speed with which assets are being converted or turned into sales. A proper balance between sales and assets generally reflects that assets are managed well. The following activity ratios are used to judge the effectiveness of assets utilization in this study.

Fixed Assets Turnover Ratio (FATOR)

Fixed Assets Turnover Ratios measures the efficiency with which the company has utilized its investment in its various net fixed assets. Generally, high fixed assets turnover ratio indicates efficient utilization of fixed assets while inefficiency in utilization is shown by low fixed assets turnover ratio.

Table no. 4.3
Fixed Assets Turnover Ratio of BPC and CHPCL

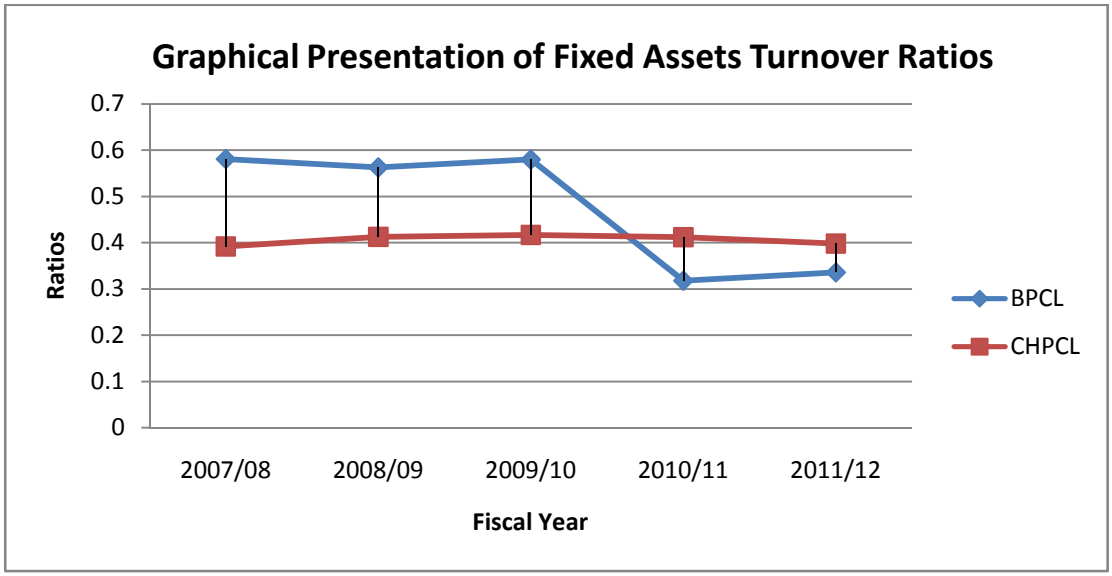
(In Thousand NRS)

Fiscal Year	Sales		Fixed Assets		Ratios (Times)	
	BPC	CHPC	BPC	CHPC	BPC	CHPCL
2007/08	421,687	870,014	725,742	2,219,483	0.581	0.392
2008/09	430,800	883,445	765,339	2,139,794	0.563	0.413
2009/10	453,431	886,564	781,666	2,127,331	0.580	0.417
2010/11	483,787	885,046	1,521,536	2,148,722	0.318	0.412
2011/12	518,432	900,638	1,543,387	2,264,984	0.336	0.398
Mean ($\bar{X}$)					0.476	0.406
Standard Deviation (σ)					0.1217	0.0096
Coefficient of Variation (C.V)					25.584	2.370

Source: Annual Report of BPC and CHPCL

The above table reveals that BPC has been able to generate overall mean sales of NRs 0.476 out of each rupee invested in fixed assets. CHPCL is also not far behind in generating not-so-modest sale at per rupee invested in fixed assets. It has a mean FATOR of 0.406 which is less than the mean of BPC; however CV of CHPCL is n2.370 which is less than the CV of BPC being 25.58.The scenario indicates more stability of fixed assets turnover ratios of CHPCL.

Figure no. 4.3



Total Assets Turnover Ratio (TATOR)

Total Assets Turnover Ratio indicates the sales generated by rupee of investment in the total assets. Generally, higher turnover ratios show efficiency in the utilization of companies' scarce resources and vice versa.

Table no. 4.4
Total Assets Turnover Ratio of BPC and CHPCL

(In Thousand NRS)

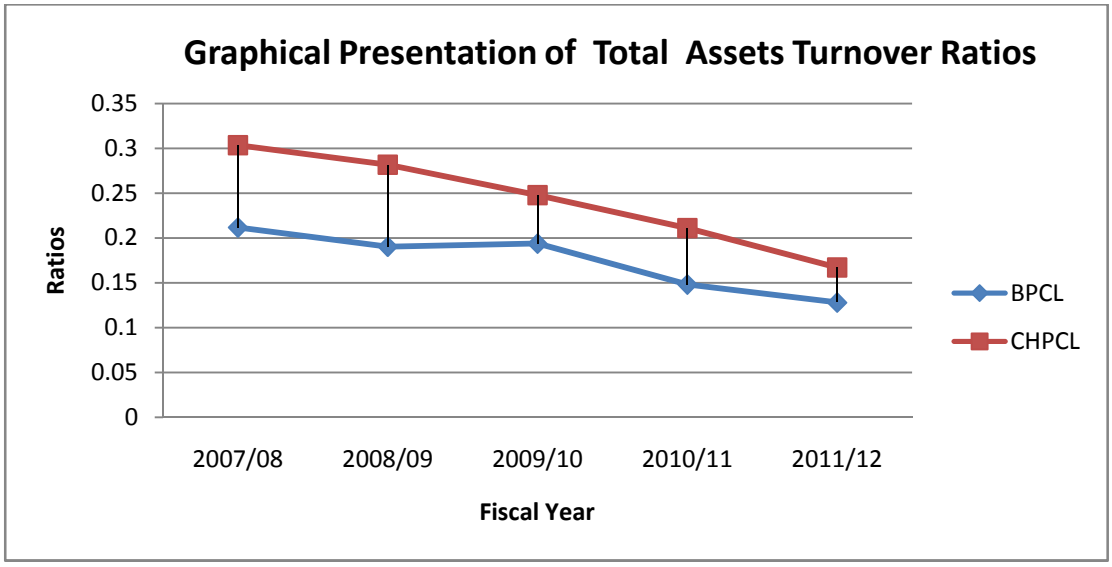
Fiscal Year	Sales		Total Assets		Ratios (Times)	
	BPC	CHPCL	BPC	CHPCL	BPC	CHPCL
2007/08	421,687	870,014	1,991,692	2,865,714	0.212	0.304
2008/09	430,800	883,445	2,264,200	3,134,868	0.190	0.282
2009/10	453,431	886,564	2,341,444	3,577,424	0.194	0.248
2010/11	483,787	885,046	3,265,163	4,195,007	0.148	0.211
2011/12	518,432	900,638	4,048,205	5,389,264	0.128	0.167
Mean($\bar{X}$)					0.174	0.242
Standard Deviation (σ)					0.031	0.049
Coefficient of Variation (C.V)					17.862	20.207

Source: Annual Report of BPC and CHPCL

The above table reveals that CHPCL has used its assets more efficiency with an overall mean of 0.242. In contrast, BPC has less favorable TATOR with a mean of 0.174. CHPCL has been able to generate sale equal to rupee 0.242 with one rupee investment in assets. But BPC has been able to generate only 0.174 rupee sales.

It can be concluded that TATOR of CHPCL is more volatile with compared to BPC which is indicated by CV.

Figure no. 4.4



Debtors Turnover Ratio (DTR)

The Debtors Turnover Ratio indicates the velocity of debt collection of a company. In other words, it indicates the number of times average debtors are turned over during a year. Generally, high debtor's turnover is an indication of good receivable management.

Table no. 4.5
Debtors Turnover Ratio of BPC and CHPCL

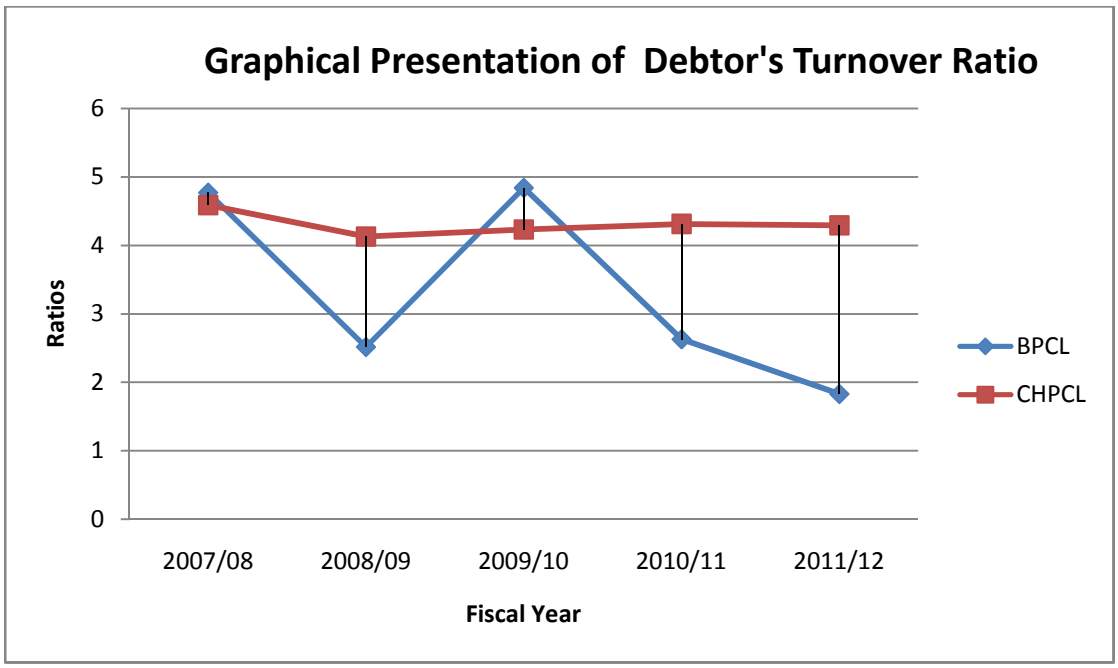
(In Thousand NRS)

Fiscal Year	Sales		Closing Debtors		Ratios (Times)	
	BPC	CHPC	BPC	CHPC	BPC	CHPCL
2007/08	421,687	870,014	88,407	189,691	4.770	4.586
2008/09	430,800	883,445	171,359	108,655	2.514	4.131
2009/10	453,431	886,564	93,690	209,483	4.840	4.232
2010/11	483,787	885,046	184,140	205,170	2.627	4.314
2011/12	518,432	900,638	283,625	209,751	1.828	4.294
Mean($\bar{X}$)					3.316	5.111
Standard Deviation (σ)					1.246	1.515
Coefficient of Variation (C.V)					37.590	29.631

Source: Annual Report of BPC and CHPCL

The above table reveals a fluctuating trend of DTOR of both IPPs. In the fiscal year 2008/09 CHPCL has enjoyed high turnover but DTOR of BPC was only 2.5. CHPCL has stable DTR in the next 3 fiscal years but BPC has decreasing trend of DTOR. Chilime has much better receivable management with its 5.111 mean DTOR and stable trend of ratio with its 29% CV in comparison to 3.316 mean DTOR and 37% CV of BPC.

Figure no. 4.5



Average Collection Period (APC)

The Average Collection Period shows the average time taken to convert receivable into cash. Short average collection period shows the timely payment of debt and long average collection period indicates inefficiency of the company in collection of receivables.

Table no. 4.6
Average Collection Period of BPC and CHPCL

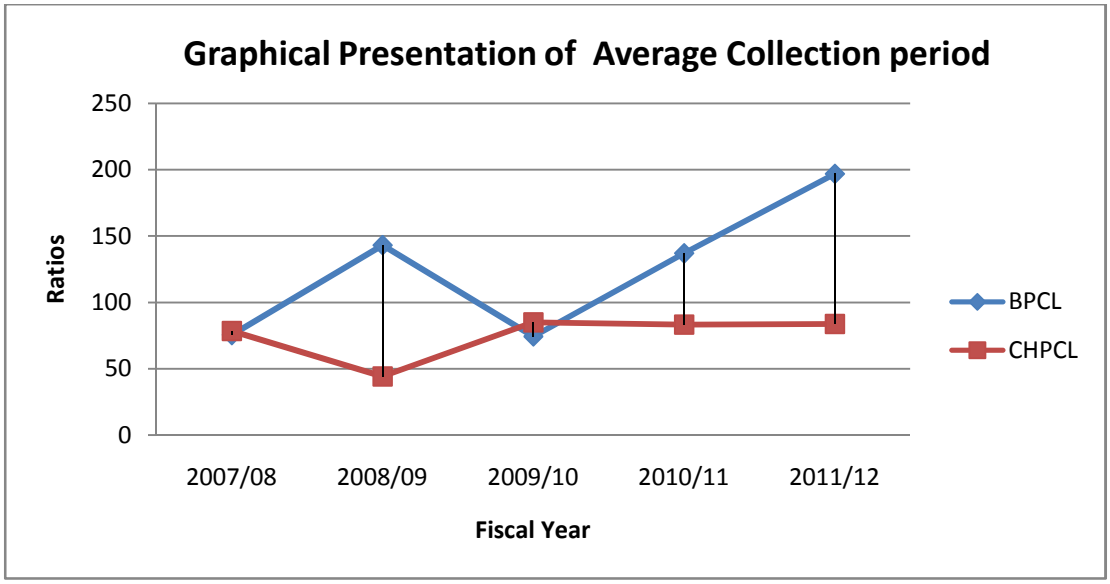
(In Thousand NRS)

Fiscal Year	Days in a year	Debtors Turnover Ratio		ACP (Days)	
		BPC	CHPC	BPC	CHPCL
2007/08	360	4.7698	4.5865	75.472	78.500
2008/09	360	2.5140	4.1307	143.198	44.275
2009/10	360	4.8397	4.2322	74.380	85.066
2010/11	360	2.6273	4.3137	137.038	83.459
2011/12	360	1.8279	4.2998	196.937	83.838
Mean($\bar{X}$)				125.405	75.026
Standard Deviation (σ)				46.186	15.538
Coefficient of Variation (C.V)				36.829	20.710

(Source: Annual Report of BPC and CHPCL)

The above table shows that the CHPCL was more efficient in collection of receivable than BPC. Chilime has more stable trend in collecting receivable with its mean ACP equal to 76 days and 126 of BPC respectively. Such inefficiency in collection of receivable of BPC directly affects the company's liquidity position and financial growth.

Figure no. 4.6



4.1.3. Leverage/ Capital Structure Ratios

Leverage Ratio also called as Capital Structure Ratio is calculated to judge the long term financial position of the company. This ratio indicates the mix of fund provided by owners and lenders.

Debt- Equity Ratio (D/E Ratio)

Debt to Equity Ratio is calculated by dividing total debt by total shareholders' equity. This ratio shows the relationship between debt capital and equity capital.

Debt to Total Assets Ratio (DTAR)

Debt to Total Assets Ratio is calculated dividing total debts by total assets. This ratio shows the relationship between debt capital and total assets.

Table no. 4.7
Leverage Ratios of BPC

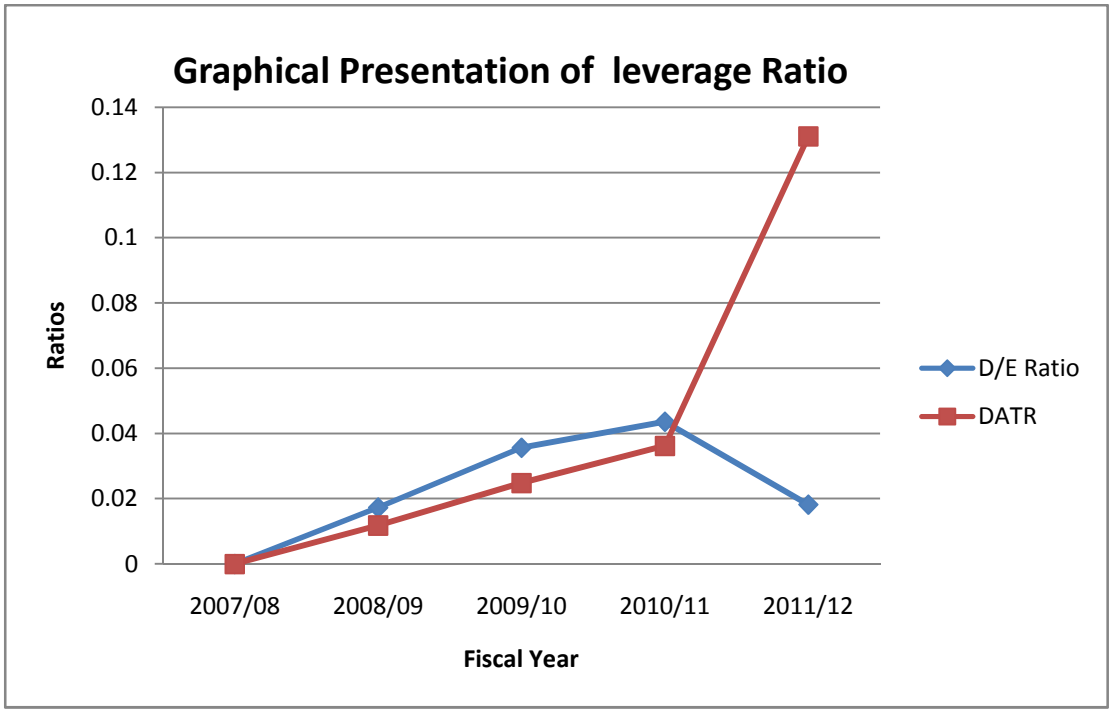
(In Thousand NRS)

Fiscal Year	Total Debt of BPC	Shareholders' Equity of BPC	Total Assets of BPC	Leverage Ratio	
				D/E Ratio	DATR
2007/08	-	1395820	1986927	0	0
2008/09	26729	1546268	2258465	0.017	0.012
2009/10	57970	1629802	2335800	0.036	0.025
2010/11	118111	2710942	3260268	0.044	0.036
2011/12	531799	2923405	4055942	0.182	0.131
Mean($\bar{X}$)				0.056	0.041
Standard Deviation (σ)				0.065	0.047
Coefficient of Variation (C.V)				116.586	114.633

(Source: Annual Report of BPC and CHPCL)

Since CHPCL has not any debt capital, Debt Equity Ratio and Debt to Total Assets Ratio of CHPCL has not calculated here. But we can conclude that CHPCL has minimal risk (having zero Debt Equity Ratio and Debt to Total Assets Ratio) than BPC. The increasing trend of leverage ratio of BPC show the long term loan burden is continuously growing up as well as financial risk also. In other hand CHPCL has no more debt burden in financial composition.

Figure no. 4.7



4.1.4. Profitability Ratio:

Profitability Ratios measure the success of the company in earning a net return on sales or on investment. These ratios give the decision about how effectively the company is being managed. It is true that higher the profitability ratios better the financial position and vice versa.

Net Profit Ratio (NPR)

The Net Profit Margin establishes the relationship between net profit and sales. The ratio measures the companies' ability to change each rupee sales into net profit. The ratio of net profit to sales shows the profitability of corporations indicating that the only increase in sales does not mean anything unless it commands profit. From this ratio it can also be acquired the information of the total expenses incurred during a certain period of time.

Table no. 4.8
Net Profit Ratio of BPC and CHPCL

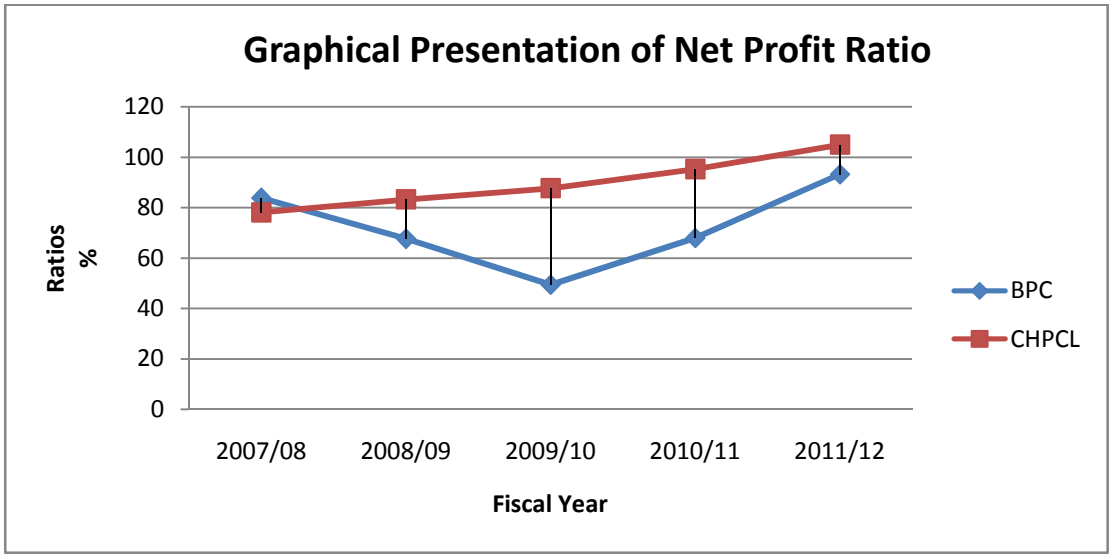
(In Thousand NRS)

Fiscal Year	Net Profit After Tax		Sales		Ratios (%)	
	BPC	CHPCL	BPC	CHPCL	BPC	CHPCL
2007/08	353879	679372	421687	870014	83.92	78.09
2008/09	291592	735360	430800	883445	67.69	83.24
2009/10	224233	777431	453431	886564	49.45	87.69
2010/11	328970	843139	483787	885046	68.00	95.26
2011/12	483503	945320	518432	900638	93.26	104.96
Mean($\bar{X}$)					72.464	89.848
Standard Deviation (σ)					15.074	9.428
Coefficient of Variation (C.V.)					20.802	10.493

(Source: Annual Report of BPC and CHPCL)

Above table reveals that Net Profit Ratio of BPC is in decreasing trend for the first three fiscal years. From the fiscal year 2009/10 it is in increasing trend with 72% of mean Net Profit Ratio. On the other hand Net Profit Ratio of CHPCL was in increasing trend since the fiscal year 2007/08. The scenario indicates that CHPCL has stronger financial position and lower fluctuation than BPC. This conclusion was derived from the Mean and CV of their Net Profit Ratio.

Figure no. 4.8



Operating Expenses Ratio (OER)

Operating Expenses Ratio is yardstick of operating efficiency. The calculation of this ratio comprises computation of all operating cost of goods sold and general administrative expenses. In general, higher operating expenses ratio is inefficient due to higher operation cost in terms of sales. Lower operating expenses ratio is favorable, as it will generate higher operating income, which will be sufficient to meet interest, dividend and other expenses of the company.

Table no. 4.9
Operating Expenses Ratio of BPC and CHPCL

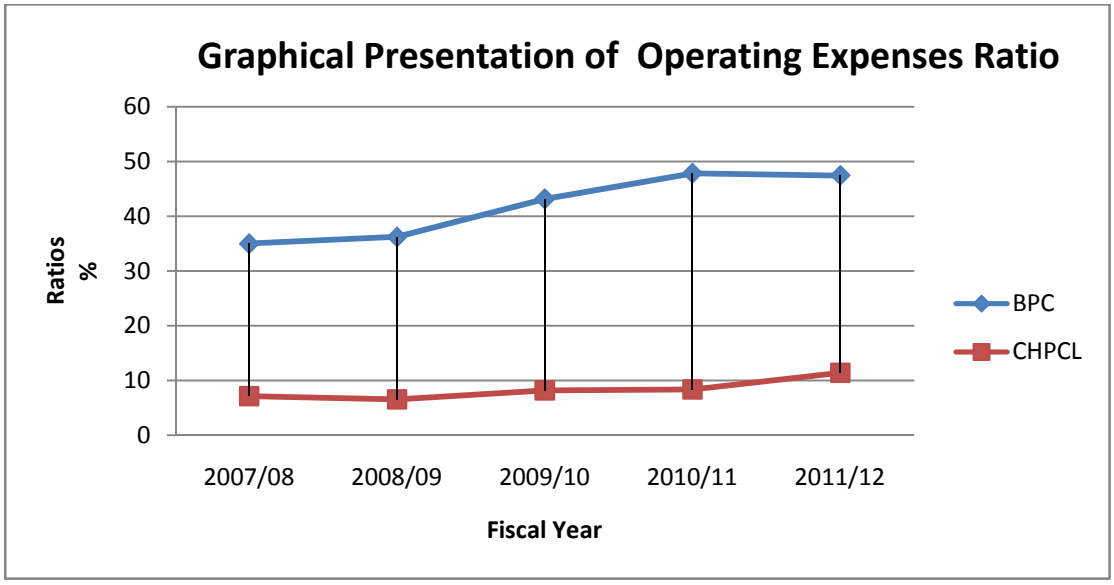
(In Thousand NRS)

Fiscal Year	Operating Expenses		Sales		Ratios (%)	
	BPC	CHPC	BPC	CHPC	BPC	CHPCL
2007/08	147685	62284	421687	870014	35.02	7.16
2008/09	156158	58131	430800	883445	36.25	6.58
2009/10	195856	72734	453431	886564	43.19	8.20
2010/11	231573	74098	483787	885046	47.87	8.37
2011/12	246147	102758	518432	900638	47.48	11.41
Mean ($\bar{X}$)					41.962	8.345
Standard Deviation (σ)					5.434	1.669
Coefficient of Variation (C.V)					12.949	20.004

(Source: Annual Report of BPC and CHPCL)

The Above table reveals that CHPCL has satisfied position/trend in Operating Efficiency ratio with such a lower mean of 8.345% Though, CHPCL has maintained an admirable low trend of Operating Expenses Ratio but it has more volatility in Operating expenditure revealed by a CV of 20%. BPC with a mean Operating Efficiency Ratio of 41.962% and CV of 12.949% has considerably high operating cost with compared to CHPCL.

Figure no. 4.9



Return on Shareholders' Equity (ROE)

Return on Shareholders' Equity is the most commonly used ratio for measuring the return on owners' investment. It is the proportion of net income after tax to shareholders equity. Higher ROE is favourable as it indicates higher return for shareholders at each rupee of investment.

Table no. 4.10
Return on Shareholders' Equity of BPC and CHPCL

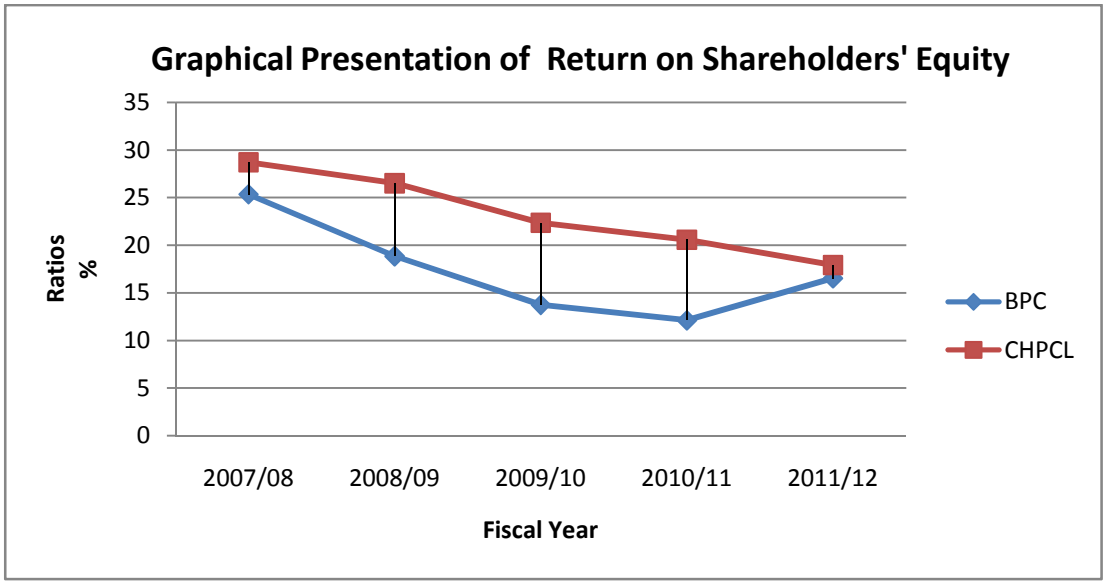
(In Thousand NRS)

Fiscal Year	Net Profit After Tax		Shareholders' Equity		Ratios (%)	
	BPC	CHPC	BPC	CHPC	BPC	CHPCL
2007/08	353879	679372	1395820	2366278	25.35	28.71
2008/09	291592	735360	1546268	2773339	18.86	26.51
2009/10	224233	777431	1629802	3478078	13.76	22.35
2010/11	328970	843139	2710942	4096353	12.13	20.58
2011/12	483503	945320	2923405	5274092	16.54	17.92
Mean ($\bar{X}$)					17.329	23.217
Standard Deviation (σ)					4.628	3.918
Coefficient of Variation (C.V)					26.705	16.877

(Source: Annual Report of BPC and CHPCL)

From the above table, we can say that CHPCL has better financial position with its mean ROE, 23.217% with compared to BPC, which has 17.329% as mean ROE. CHPCL is satisfied position from both points of view due to its consistency in trend of ROE ratio which is revealed by low CV as 16.877%.

Figure no. 4.10



4.1.5. Invisibility Ratio

An analysis of Invisibility Ratio helps the investors to know the performance of the companies. If the companies' liquidity, profitability, leverage and utilization ratios are good, its market value ratios will be high and its stock price will probably be as high as be expected.

Earnings per Share (EPS)

EPS shows the amount of earning attributes to each equity share. If earning per share is high, market price of the share may increase and vice versa. High ratio shows sound profitability position of the companies.

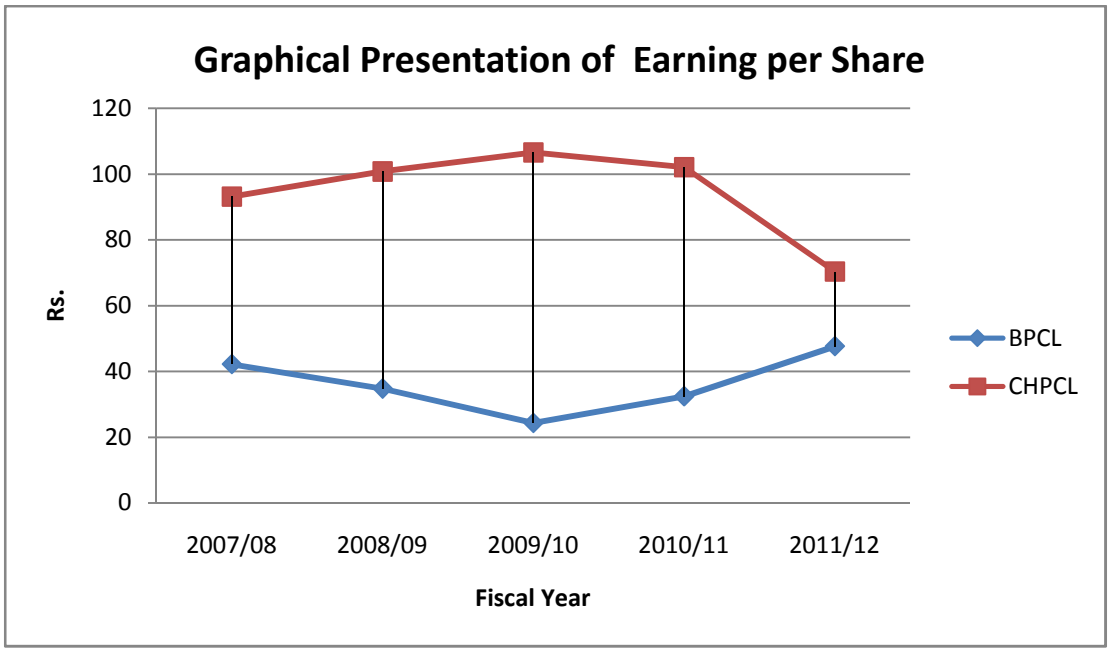
Table no. 4.11
Earnings per Share of BPC and CHPCL

Fiscal Year	Earnings after Tax		No. of Equity Shares		EPS (Rs.)	
	BPC	CHPC	BPC	CHPC	BPC	CHPCL
2007/08	353,879,380	679,372,048	8,390,577	7,295,795	42.18	93.12
2008/09	291,592,163	735,360,519	8,390,577	7,296,000	34.75	100.79
2009/10	224,232,945	777,431,847	9,229,675	7,296,000	24.29	106.56
2010/11	328,969,837	843,139,339	10,152,694	8,256,000	32.40	102.12
2011/12	483,502,840	945,320,636	10,152,694	13,440,000	47.62	70.34
Mean ($\bar{X}$)					36.25	94.58
Standard Deviation (σ)					8.06	12.87
Coefficient of Variation (C.V)					22.22	13.61

(Source: Annual Report of BPC and CHPCL)

The above table shows that CHPCL has more profitability than BPC with mean EPS of 94.58 rupees per share and it has less volatility with its lower CV of 13.61% in comparison to BPC.

Figure no. 4.11



Dividend per Share (DPS)

Dividend per Share is the measure of profitability. This ratio shows the rupee earning actually distributed to common stock holders per share held by them. High ratio is favourable for the shareholders.

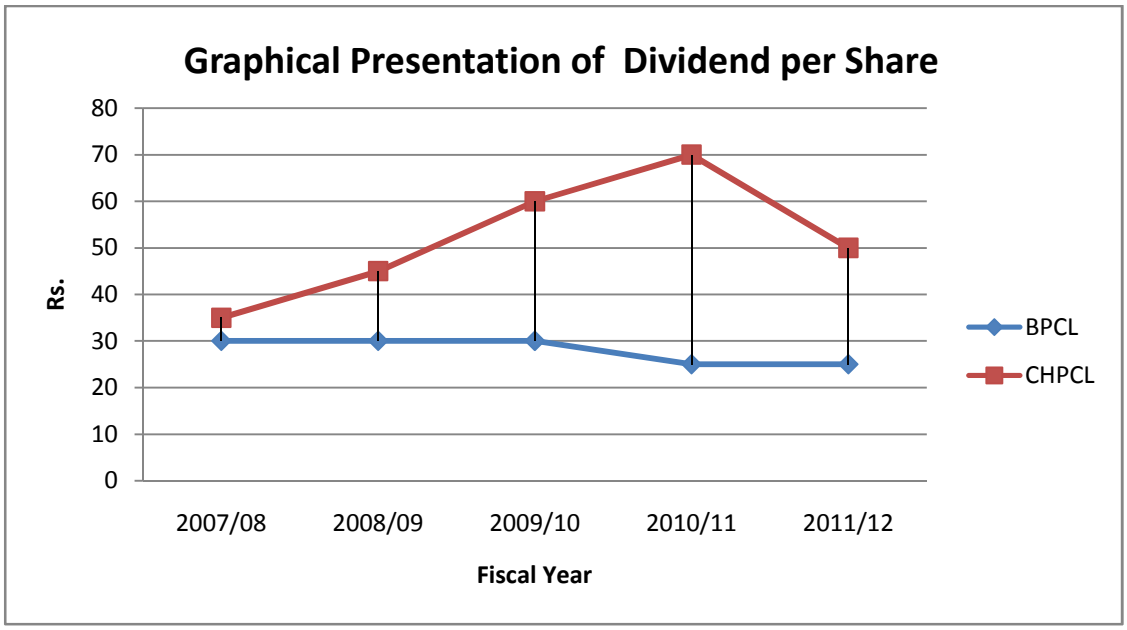
Table no. 4.12
Dividend per Share of BPC and CHPCL

Fiscal Year	Total Dividend		No. of Equity Shares		DPS (Rs.)	
	BPC	CHPCL	BPC	CHPCL	BPC	CHPCL
2007/08	251,717,310	255,352,825	8,390,577	7,295,795	30	35
2008/09	251,717,310*	328,320,000	8,390,577	7,296,000	30	45
2009/10	276,890,250*	495,360,000	9,229,675	8,256,000	30	60
2010/11	253,817,350	672,000,000*	10,152,694	9,600,000	25	70
2011/12	253,817,350	672,000,000*	10,152,694	13,440,000	25	50
Mean ($\bar{X}$)					28	52
Standard Deviation (σ)					2.45	12.08
Coefficient of Variation (C.V.)					8.75	23.24

** Including Bonus Share*
Source: Annual Report of BPC and CHPCL

The above table reveals that CHPCL is in increasing trend of DPS and it has higher dividend paying capacity than BPC. In fiscal year 2011/12, company has distributed Rs. 50 of DPS even the company has distributed 40% share as bonus. Here the above two table EPS calculation table and DPS calculation table clearly shows that there is huge difference between fluctuation trends of EPS and DPS of CHPCL and BPC. While BPC is yielding a satisfactory mean EPS of Rs 36 and DPS of Rs 28, CHPCL is yielding an excellent mean EPS of Rs 94 and mean DPS of Rs 52. In essence, CHPCL not only has a twice greater EPS and DPS than that of BPC but also has less variability in ratios of EPS. The CV with respect to EPS of CHPCL is 13.61 which is lower than BPC, while BPC has some extend lower variability in the ratio of DPS than CHPCL, it caused of distributing bonus share in CHPCL. In overall we can say that CHPCL has higher profitability than that of BPC.

Figure No. 4.12



Dividend Payout Ratio

Dividend Payout Ratio is the ratio which can be obtained dividing dividend per share by earning per share. It determines the position of per share dividend paid out of per share earnings. The higher ratio is better to the shareholders. It builds faithfulness of the investors towards the companies.

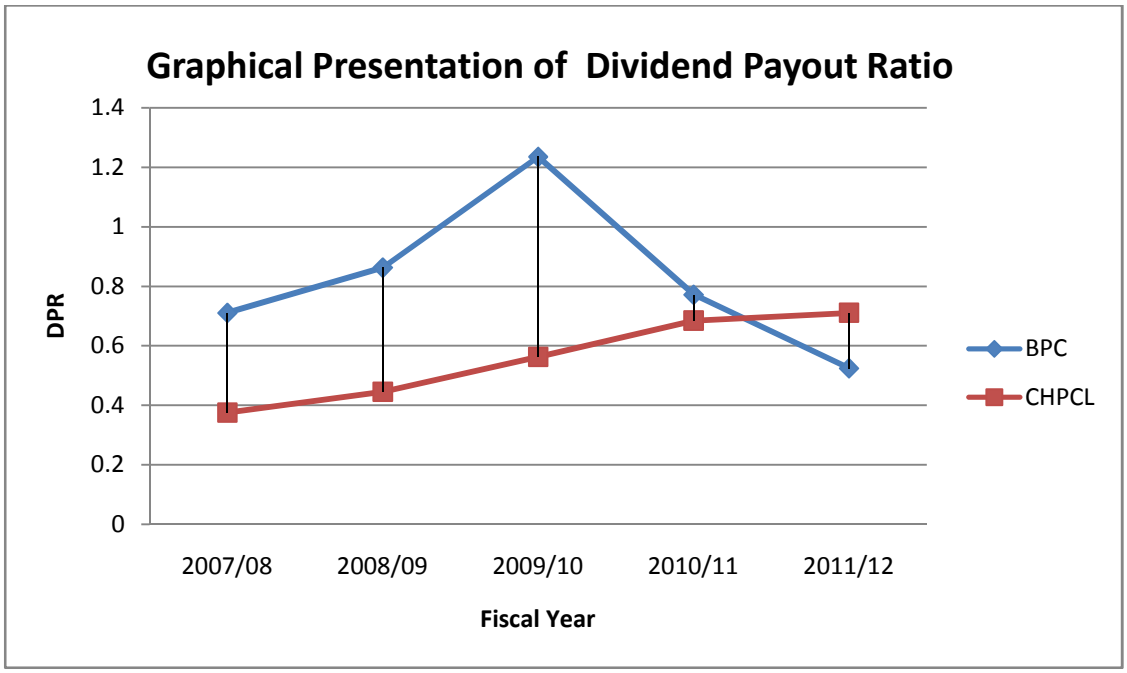
Table No. 4.13
Dividend payout Ratio of BPC and CHPCL

Fiscal Year	Total Dividend		No. of Equity Shares		DPS (Rs.)	
	BPC	CHPCL	BPC	CHPCL	BPC	CHPCL
2007/08	42.18	93.12	30	35	0.711	0.376
2008/09	34.75	100.79	30	45	0.863	0.446
2009/10	24.29	106.56	30	60	1.235	0.563
2010/11	32.40	102.12	25	70	0.772	0.685
2011/12	47.62	70.34	25	50	0.525	0.711
Mean ($\bar{X}$)					0.821	0.556
Standard Deviation (σ)					0.235	0.131
Coefficient of Variation (C.V.)					28.575	23.467

(*Source: Annual Report of BPC and CHPCL)*

The above table shows that CHPCL has increasing trend of DPR and BPC has fluctuating trend of DPR. In overall we can say that BPC has higher DPR with its mean of 82% with compare to CHPCL with mean of 55%. CHPCL has less volatility in DPR with its lower CV of 23.467% in comparison to BPC.

Figure No. 4.13



4.1.6. Correlation Analysis

Karl Pearsons' Coefficient of Correlation measures the degree of relationship between two variables of the company.

a) Correlation between Total Sales and Net Profit after Tax

The coefficient of correlation between Total Sales and Net Profit after Tax of both IPPs has been calculated in Appendix A. The result of which is given below:

Company	r	PE	6 PE	Remarks
BPC	0.6435	0.1767	1.0602	r < 6PE
CHPCL	0.9287	0.0415	0.249	r > 6PE

Source: Appendix A

The Coefficient of correlation between Sales (X) and Net Profit after Tax (Y) of CHPCL and BPC are 0.9287 and 0.6435 respectively. This shows positive correlation of both companies, but CHPCL has more correlation value than BPC.

Here the Correlation of CHPCL is higher than 6PE, it shows that the relation between sales and net profit after Tax is significant, while BPC is not in significant level.

b) Correlation between Sales and Total Assets

The coefficient of correlation between Total Sales and Total Assets of both IPPs has been calculated in Appendix A. The result of which is given below:

Company	r	PE	6 PE	Remarks
BPC	0.9832	0.0101	0.0606	r > 6PE
CHPCL	0.9034	0.0555	0.333	r > 6PE

Source: Appendix A

The coefficient of correlation between Total Sales (X) and Total Assets (Y) of BPC and CHPCL are 0.9832 and 0.9034 respectively. This shows the positive correlation of both companies. BPC has more correlation value than CHPCL.

Here correlation value (r) of both companies are higher than 6PE, it shows that the relation of Total Sales and Total Assets of both companies are in significant level.

c) Correlation between Total Assets and Net profit after Tax

The coefficient of correlation between Total Assets and Net Profit after Tax of both IPPs has been calculated in Appendix A. The result of which is given below:

Company	r	PE	6 PE	Remarks
BPC	0.7402	0.1364	0.8184	r < 6PE
CHPCL	0.9919	0.0049	0.0294	r > 6PE

Source: Appendix A

The coefficient of Correlation between Total Assets (X) and Net Profit after Tax (Y) of BPC and CHPCL are 0.7402 and 0.9919 respectively. This shows positive correlation of both companies, but CHPCL has more correlation value than BPC.

Here the Correlation of CHPCL is higher than 6PE; it shows that the relation between Total Assets and Net Profit after Tax is significant, while BPC is not in significant level.

4.1.7. Least Square Linear Growth Trend Analysis:

Trend Analysis is a mathematical method which is widely used to find out future tendencies based on past findings and present assumption. Furthermore it is applied for finding out a trend line for those series which change periodically in absolute amount.

Least Square Trend Analysis of Total Sales Growth

Least Square Trend Analysis of Total Sales Growth of both companies has been calculated in Appendix B. The result of which is given below:

Table no. 4.14

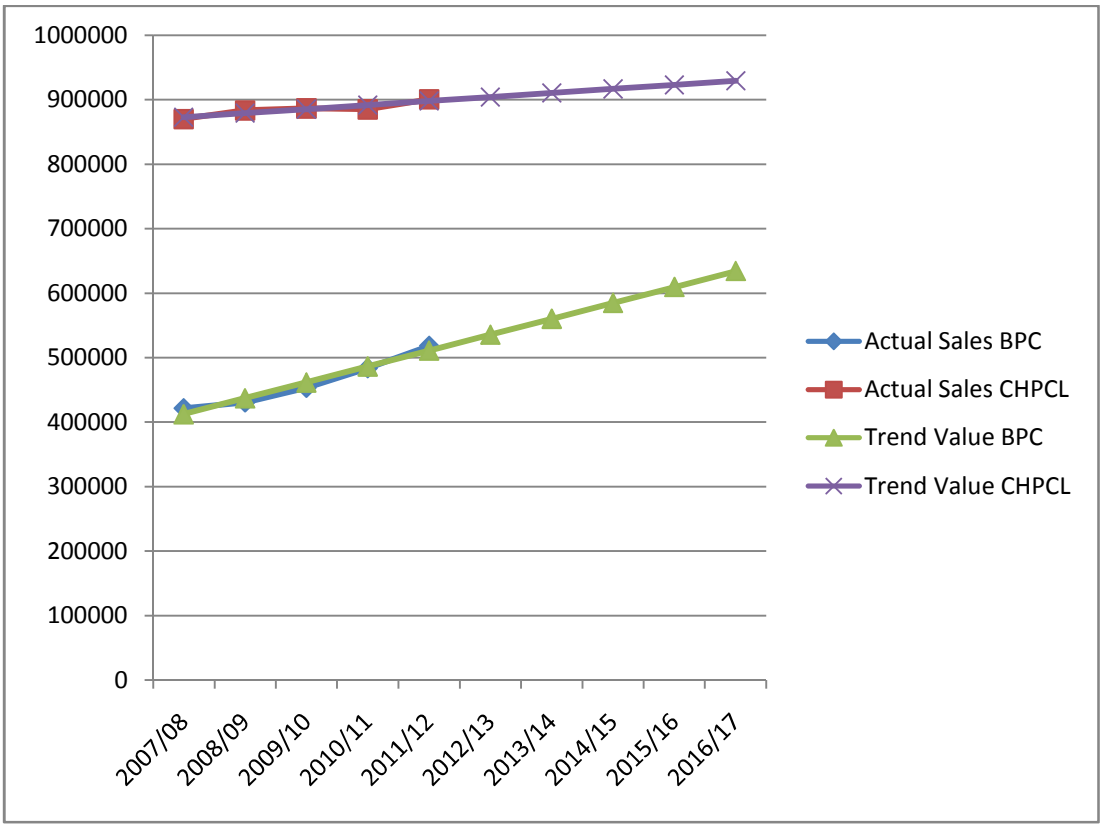
Least Square Trend Analysis of Total Sales Growth of BPC and CHPCL

(In Thousand NRS.)

Year	Actual Sales (Y)		Trend Value (Y_c)	
	BPC	CHPCL	BPC	CHPCL
2007/08	421,687	870,014	412,332	872,572
2008/09	430,800	883,445	436,980	878,857
2009/10	453,431	886,564	461,627	885,141
2010/11	483,787	885,046	486,275	891,426
2011/12	518,432	900,638	510,923	897,711
2012/13			535,571	903,996
2013/14			560,218	910,281
2014/15			584,866	916,566
2015/16			609,514	922,851
2016/17			634,161	929,136

Figure no. 4.14

Graphical Presentation of Least Square Trend Analysis of Total Sales Growth



The Y - intercept (a) and slope of the trend line (b) of total sales of BPC remained to be NRs. 796124.4 and NRs. 63967.5 respectively. During the study period, total sales of BPC exposed an increasing trend. The trend equation of total sales is given by: Y = 796124.4 + 63967.5X.

Similarly the Y - intercept (a) and slope of the trend line (b) of total sales of CHPCL remained to be NRs. 885141.4 and NRs. 6284.9 respectively. The trend equation of total sales of CHPCL is given by: Y = 885141.4 + 6284.9X.

Least Square Trend Analysis of Net Profit after Tax Growth:

Least Square Trend Analysis of Net Profit after Tax Growth of both IPPs for the different sampled years has been calculated in Appendix B. The result of which is given below:

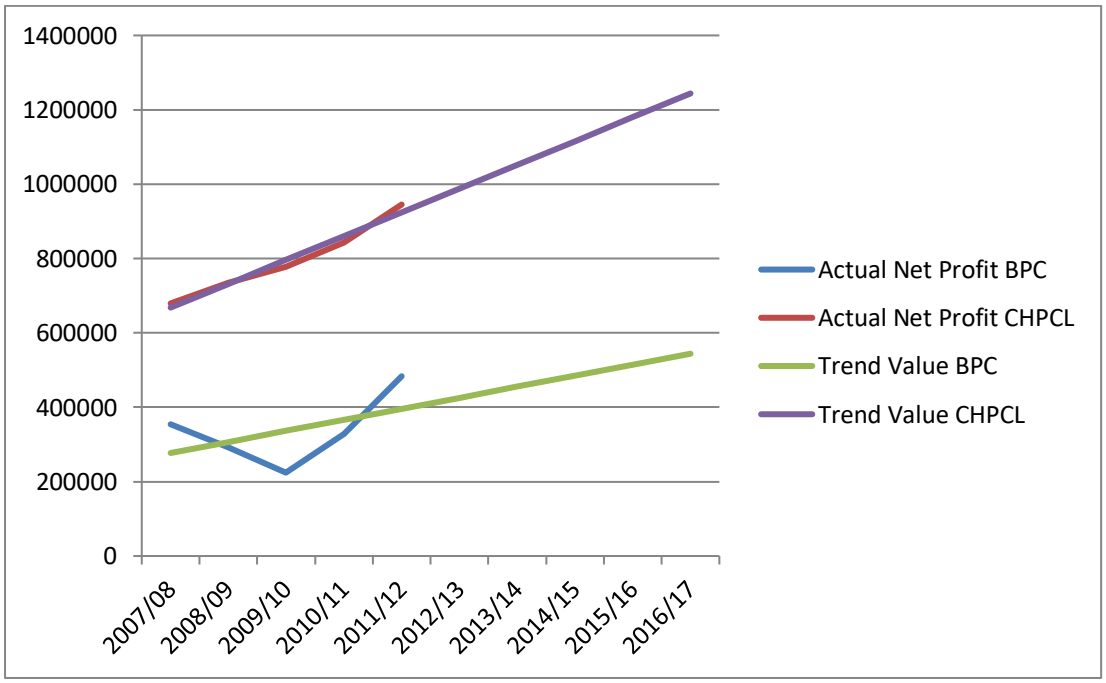
Table no. 4.15

Least Square Trend Analysis of Net Profit after Tax of BPC and CHPCL

(In Thousand NRS.)

Year	Net profit after Tax (Y)		Trend Value (Y_c)	
	BPC	CHPCL	BPC	CHPCL
2007/08	353,879	679,372	277,110	668,189
2008/09	291,592	735,360	306,773	732,157
2009/10	224,233	777,431	336,435	796,124
2010/11	328,970	843,139	366,098	860,092
2011/12	483,503	945,320	395,761	924,059
2012/13			425,423	988,027
2013/14			455,086	1,051,994
2014/15			484,748	1,115,962
2015/16			514,411	1,179,929
2016/17			544,074	1,243,897

Figure no. 4.15
Graphical Presentation of Least Square Trend Analysis of Net Profit after Tax Growth



The Y - intercept (a) and slope of the trend line (b) of Net Profit after Tax of BPC remained to be NRs. 336435.4 and NRs. 29662.6 respectively. The trend equation of Net Profit after Tax of BPC is given by: Y = 336435.4 + 29662.6X.

Similarly, the Y-intercept (a) and slope of the trend line (b) of Net Profit after Tax of CHPCL remained to be NRs. 796124.4 and NRs. 63967.5 respectively. The trend equation of total sales of CHPCL is given by: Y = 796124.4 + 63967.5X.

Least Square Trend Analysis of Earning per Share Growth

Least Square Trend Analysis of Earning per Share Growth of both IPPs for the different sampled years has been calculated in Appendix B. The result of which is given below:

Table no. 4.16

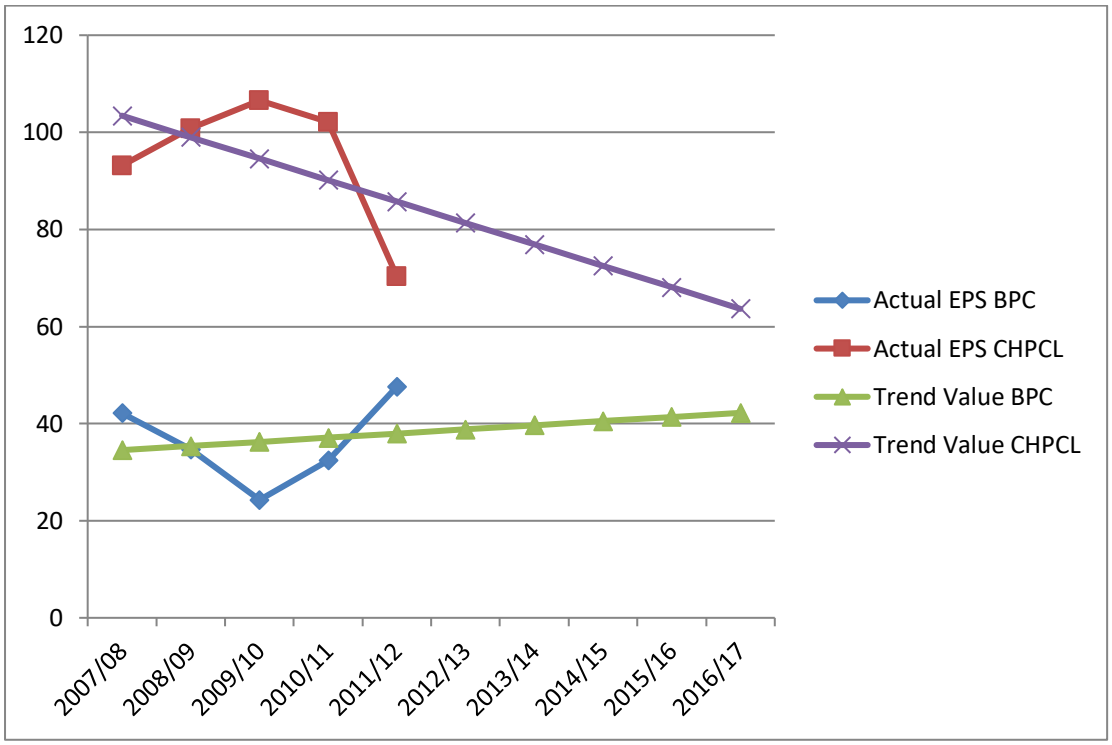
Least Square Trend Analysis of EPS Growth of BPC and CHPCL

(NRS.)

Year	Earnings per Share (Y)		Trend Value (Yc)	
	BPC	CHPCL	BPC	CHPCL
2007/08	42.18	93.12	34.54	103.43
2008/09	34.75	100.79	35.40	99.01
2009/10	24.29	106.56	36.25	94.59
2010/11	32.4	102.12	37.10	90.16
2011/12	47.62	70.34	37.95	85.74
2012/13			38.81	81.32
2013/14			39.66	76.89
2014/15			40.51	72.47
2015/16			41.37	68.05
2016/17			42.22	63.63

Figure no. 4.16

Graphical Presentation of Least Square Trend Analysis of EPS Growth



During the study period, total earning per share of CHPCL exposed a decreasing trend. The trend equation of EPS is given by: Y = 36.248+0.853X and Y = 94.586-4.423X for BPC and CHPCL respectively.

According to above figure and table we can say that BPC has increasing trend of EPS, while CHPCL is in decreasing trend. Here the trend of Net profit after tax of CHPCL is in increasing trend but EPS is in decreasing trend caused it has increased the number of equity share in the fiscal year 2066/67, 2067/68 and 2068/69 with remaining constant in the fiscal year 2064/65 and 2065/66. That's why we can't come to decide the CHPCL has weak position in earning profit from the indication revealed from above figure.

4.1. Presentation and Analysis of Primary Data:

This section includes the presentation and analysis of primary data. Primary data were obtained through conversation and interview made with the engineers and managerial level officials of both IPPs. The presentation and analysis of these primary data are given below.

4.1.1. ROE as a measure of Performance:

To know the respondents' view if ROE shows the performance of the selected IPPs, a question was asked, "Does ROE show the performance of your company?"

The responses provided by respondents are tabulated below:

Table No 4.17

Group	Yes	No	Total
Executives	8	2	10
Non-executives	17	3	20
Total	25	5	30

Sources: field survey of CHPCL and BPC in 2013

The question was asked and analyzed through chi-square method. Two hypotheses were set and results were derived.

- Null hypothesis (H_0): ROE shows the performance of the selected IPPs.
- Alternative hypothesis (H_1): ROE does not show the performance of the selected IPPs.
- Test Statistics: Under H_0 the test statistics is: $\varkappa^2 = \sum \frac{(O-E)^2}{E}$

Table 4.18
Calculation of Chi Square test

Row, column	Observed (O)	Expected (E)=(RT×CT)/N	$(O-E)^2$	$(O-E)^2/E$
1,1	8	8.33333333	0.111111	0.013333
1,2	2	1.66666667	0.111111	0.066667
2,1	17	16.6666667	0.111111	0.006667
2,2	3	3.33333333	0.111111	0.033333
Total	**30**	**30**	**0.444444**	**0.12**

So, calculated $\varkappa^2 = 0.12$

Here, the degree of freedom = (r-1) (c-1) = (2-1) (2-1) = 1

So, tabulated value of $\aleph^2$ at 5% level of significance and 1 degree of freedom is: $\aleph^2$ (0.05,1) = 3.84

So, calculated $\aleph^2$ < tabulated $\aleph^2$ i.e. (0.12<3.84)

So H_0 is accepted. That means ROE shows the performance of the selected IPPs.

4.1.2. Performance Evaluation through Ratio Analysis:

To know the respondents' view if ratio analysis is used to measure performance in the selected IPPs, a question was asked, "Is ratio analysis used to measure performance in your company?"

The responses provided by respondents are tabulated below:

Table No 4.19

Group	Yes	No	Total
Executives	10	0	10
Non-executives	15	5	20
Total	25	5	30

Source: Field survey of BPC & CHPCL in 2013

Above question was asked and analyzed through chi-square method. Two hypotheses were set and results were derived.

- Null hypothesis (H_0): Ratio Analysis is used to measure the financial performance in company.
- Alternative hypothesis (H_1): Ratio Analysis is not used to measure the financial performance in company.
- Test Statistics: Under $_{H0}$ the test statistics is: $\varkappa^2 = \sum \frac{(O-E)^2}{E}$

Table No 4.20

Calculation of Chi Square test

Row, column	Observed (O)	E=(RTXCT)/N	$(O-E)^2$	$(O-E)^2/E$
1,1	10	8.33333333	2.777778	0.333333
1,2	0	1.66666667	2.777778	1.666667
2,1	15	16.6666667	2.777778	0.166667
2,2	5	3.33333333	2.777778	0.833333
Total	**30**	**30**	**11.11111**	**3**

Here the calculated, $\chi^2 = 3$

Here the degree of freedom = (r-1) (c-1) = (2-1) (2-1) = 1

So, tabulated value of χ^2 at 5% level of significance and 1 degree of freedom is χ^2 (0.05,1) = 3.84

So, calculated χ^2 < tabulated χ^2 i.e.: (3<3.84)

So H_0 is accepted.

Here we can conclude that the Ratio analysis is used to measures the financial performance of the company.

4.1.3. Adequacy of Government assistance to the IPPs in Nepal

To know the respondents' view about the adequacy of government assistance to the IPPs in Nepal, a question was asked, "Has government provided adequate assistance to your company?"

The responses provided by respondents are tabulated below:

Table No 4.21

Group	Yes	No	Total
Executives	2	8	10
Non-executives	4	16	20
Total	6	24	30

Source: Field survey of CHPCL and BPC in 2013

Above question was asked and analyzed through chi square method. Two hypotheses should be taken, accordingly these two hypotheses were set.

- Null hypothesis (H_0): Government policy is totally flexible and promotional toward hydro power development.
- Alternative hypothesis (H_1): Government policy is not totally flexible and promotional toward hydro power development.
- Test Statistics : Under H_0 the test statistics is : $\chi^2 = \sum \frac{(O-E)^2}{E}$

Table No. 4.24

Calculation of Chi Square test

Observed (O)	E=(RTXCT)/N	$(O-E)^2$	$(O-E)^2/E$
2	2	4	2
8	8	64	8
4	4	16	4
16	16	256	16
30	**30**	**340**	**30**

Here the calculated, $\chi^2 = 30$

Here the degree of freedom =(r-1) (c-1) = (2-1) (2-1) = 1

So, tabulated value of χ^2 at 5% level of significance and 1 degree of freedom is χ^2 (0.05,1) = 3.84

So, calculated χ^2 > tabulated χ^2 i.e. (30 >3.84)

So H_0 is not accepted.

Hence we can conclude that the government policy is not flexible and promotional toward hydropower development.

4.1.4. Major Findings Based on Secondary Sources

The current ratios of CHPCL were 1.282, 2.727, 14.120, 19.056 and 27.127 in the five fiscal year of 2007/08 to 2011/12 with the mean current ratio of 12.862 and CV of current ratio of 12.862. Similarly, the current ratios of BPC were 1.252, 1.076, 0.997, 1.377 and 1.727 in the five fiscal year of 2007/08 to 2011/12 with the mean current ratio of 1.286 and CV of current ratio of 20%.

The quick ratios of CHPCL were 0.926, 1.070, 2.469, 2.595 and 4.462 in the five fiscal year of 2007/08 to 2011/12 with the mean quick ratio of 2.304 and CV of quick ratio of 55%. Similarly, the quick ratios of BPC were 0.841, 0.670, 0.503, 0.525 and 1.023 in the five fiscal year of 2007/08 to 2011/12 with mean quick ratio of 0.712 and CV of quick ratio of 27%.

The fixed assets turnover ratios of CHPCL were 0.392, 0.413, 0.417, 0.412 and 0.398 in the five fiscal year of 2007/08 to 2011/12 with mean FATR of 0.406 and CV of FATR of 2%. Similarly, the fixed assets turnover ratios of BPC were 0.581, 0.563,

0.58, 0.318 and 0.336 in the five fiscal year of 2007/08 to 2011/12 with mean FATR of 0.476 and CV of FATR of 25%.

The total assets turnover ratios of CHPCL were 0.304, 0.282, 0.248, 0.211 and 0.167 in the five fiscal year of 2007/08 to 2011/12 with mean TATR of 0.242 and CV of TATR of 20%. Similarly, total assets turnover ratios of BPC were 0.212, 0.190, 0.194, 0.148 and 0.128 in the five fiscal year of 2007/08 to 2011/12 with mean TATR of 0.174 and CV of TATR of 17%.

The debtor turnover ratios of CHPCL were 4.586, 8.131, 4.232, 4.314 and 4.294 in the five fiscal year of 2007/08 to 2011/12 with mean DTR of 5.111 and CV of DTR of 29%. Similarly, debtor turnover ratios of BPC were 4.770, 2.514, 4.840, 2.627 and 1.828 in the five fiscal year of 2007/08 to 2011/12 with mean DTR of 3.316 and CV of DTR of 37%.

The average collection period of CHPCL were in day 79, 45, 86, 84 and 84 in the five fiscal year of 2007/08 to 2011/12 with mean ACP of 76 day and CV of ACP of 20%. Similarly, the average collection period of BPC were in day 76, 144, 75, 138 and 197 in the five fiscal year of 2007/08 to 2011/12 with mean ACP of 126 day and CV of ACP of 36% respectively throughout the study period.

The debt equity ratio of CHPCL is zero throughout the study period due to zero debt portions in financial composition. Similarly, the debt equity ratio of BPC were 0, 0.017, 0.036, 0.044 and 0.182 in the five fiscal year of 2007/08 to 2011/12 with mean DER of 0.056 and CV of DER of 116% due to increasing trend of debt portion in financial composition.

The debt to total assets ratios of CHPCL is zero throughout the study period due to zero debt portions in financial composition. Similarly, the debt to total assets ratio of BPC were 0, 0.012, 0.025, 0.036 and 0.131 in the five fiscal year of 2007/08 to 2011/12 with mean DTAR of 0.041 and CV of DATR of 114% due to increasing trend of debt portion in financial composition.

The net profit margin of CHPCL were 78.09%, 83.24%, 87.69%, 95.26% and 104.96% in the five fiscal year of 2007/08 to 2011/12 with mean NPM of 89.848% and CV of NPM of 10%. Similarly, the net profit margin of BPC were 83.92%,

67.69%, 49.45%, 68% and 93.26% in the five fiscal year of 2007/08 to 2011/12 with mean NPM of 72.464% and CV of NPM of 20%.

The operating expenses ratios of CHPCL were 7.16%, 6.58%, 8.20%, 8.37% and 11.41% in the five fiscal year of 2007/08 to 2011/12 with mean OER of 8.345% and CV of OER of 20%. Similarly, the operating expenses ratios of BPC were 35.02%, 36.25%, 43.19%, 47.87%, and 47.48% in the five fiscal year of 2007/08 to 2011/12 with mean OER of 41.962% and CV of OER of 12.95%.

The Return on Shareholders' Equity of CHPCL were 28.71%, 26.51%, 22.35%, 20.58% and 17.92% in the five fiscal year of 2007/08 to 2011/12 with mean ROE of 23.217% and CV of ROE of 16%. Similarly, the Return on Shareholders' Equity of BPC were 25.35%, 18.86%, 13.76%, 12.13% and 16.54% in the five fiscal year of 2007/08 to 2011/12 with mean ROE of 17.329% and CV of ROE of 26%.

The Earning per Share of CHPCL were NRs. 93.12, 100.79, 106.56, 102.12 and 70.34 in the five fiscal year of 2007/08 to 2011/12 with mean EPS of NRs. 94.58 and CV of EPS of 13%. Similarly, the earning per share of BPC were NRs. 42.18, 34.75, 24.29, 32.40 and 47.62 in the five fiscal year of 2007/08 to 2011/12 with mean EPS of NRs. 36.25 and CV of EPS of 22%.

The Dividend per Share of CHPCL were NRs. 35, 45, 60, 70 and 50 in the five fiscal year of 2007/08 to 2011/12 with mean DPS of NRs. 52 and CV of DPS of 23%. Similarly, the Dividend per Share of BPC were NRs. 30, 30, 30, 25 and 25 in the five fiscal year of 2007/08 to 2011/12 with mean DPS of NRs. 28 and CV of DPS of 21%.

The Dividend payout ratios of CHPCL remained 0.376, 0.446, 0.563, 0.685 and 0.711 with mean and CV of 0.556 and 23.467% respectively throughout the study period. Similarly, the dividend payout ratio of BPC remained 0.711, 0.863, 1.235, 0.772 and 0.525 with mean and CV of 0.821 and 28.575% respectively throughout the study period. BPC has straight line dividend policy. So in the fiscal year 2009/10, dividend payout ratio is greater than EPS i.e. 123.5%.

The coefficient of correlation between sales and Net Profit after Tax of CHPCL and BPC were 0.9287 and 0.6435 respectively. These values of correlation indicate the positive relation between sales and Net Profit after Tax. Considering the probable errors of CHPCL and BPC, the value of r of CHPCL is greater than 6PE and value of

r of BPC is less than 6PE. So, the correlation of CHPCL is significant and BPC is at insignificant level.

The coefficient of correlation between Sales and Total Assets of CHPCL and BPC were 0.9034 and 0.9832 respectively. These values of correlation of both companies indicate high degree of positive correlation and are in significant level due to r being greater than 6PE.

The coefficient of correlation between Total Assets and Net Profit after Tax of CHPCL and BPC were 0.9919 and 0.7402 respectively. The values of r of both companies indicate positive correlation. Considering the probable errors of CHPCL and BPC, the value of r of CHPCL is greater than 6PE and value of r of BPC is less than 6PE. So, the correlation of CHPCL is significant and BPC is at insignificant level.

According to the trend equation, the forecasted values of total sales of CHPCL for coming five years would be NRs. 903996, 910281, 916566, 922851 and 929136 thousand respectively. Similarly, the forecasted values of total sales of BPC for coming five years would be NRs. 535571, 560218, 584866, 609514 and 634161 thousand respectively.

According to the trend equation, the forecasted values of Net Profit after Tax of CHPCL for coming five years would be NRs. 988027, 1051994, 1115962, 1179929 and 1243897 thousand respectively. Similarly, the forecasted values of Net Profit after Tax of BPC for coming five years would be NRs. 425423, 455086, 484748, 514411 and 544074 thousand respectively.

According to the trend equation, the forecasted values of Earning per Share of CHPCL for coming five years would be NRs. 81.32, 76.89, 72.47, 68.05 and 63.63 respectively. Similarly, the forecasted values of Earning per Share of BPC for coming five years would be NRs. 38.81, 39.66, 40.51, 41.37 and 42.22 respectively.

4.3.2 Major Findings Based on Primary Sources

Out of 30, 25 respondents agreed that ROE indicates the performance of company. And since calculated value of χ^2 is less than tabulated value of χ^2, H_0 is accepted which means that ROE measures the performance of the selected IPPs.

Out of 30, again 25 respondents agreed that ratio analysis was used to measure the financial performance of their company. And since calculated value of $א^2$ is less than tabulated $א^2$, H_0 is accepted which means that ratio analysis used to measure the financial performance in the selected IPPs.

Out of 30, 24 respondents do not agree that the government policy is favorable toward the development of hydropower sector. And since calculated value of $א^2$ is greater than tabulated $א^2$, H_0 is not accepted which means that government policy is not favorable toward hydropower development sector.

CHAPTER – V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary

Nepal's gushing mountain rivers could meet the energy needs of its own and southern neighbour, India. But the foaming waters are even yet to be even partly harnessed, because of a shortage of funds and opposition to big multimillion dollar hydroelectric projects on the ground of environmental issues.

The peak power and annual energy demand growth are about 7% and 11% respectively. INPS has a total installed capacity of about 706 MW of which 652 MW is generated from hydro resources. The annual supply of energy was 3850.87 GWH, whereas the estimated demand from INPS was 4833.35 GWH in the fiscal year 2010/11 resulting in a shortfall of 982.48 GWH as load shedding. A surge in energy demand was already creating long power shortages in the capital city, Kathmandu as well other parts of the country.

The production of one MW of hydro electricity, on an average, requires Rs. 180 to Rs. 230 million of investment in Nepal. The annual energy demand, on an average, grows about 100 MW. To meet this demand, the annual investment requirement is about Rs. 23,000 million. In addition to this production costs, additional investment is required for the expansion of the transmission line. Twenty Years' Hydro-power Development Plan-2066 estimates that the investment requirement to produce 14,480 MW by 2019 is US$ 28570 million, which equals to Rs. 2537.02 billion (using monthly average middle exchange rate of September). Mega projects require billions of dollars of investment and technological knowledge, which has yet not been estimated. This implies the investment need of billions of rupees for hydro-power development either through domestic or external sources.

The government, left with little choice but to explore alternative power projects to meet the demand, gave the go-ahead to a number of projects that were smaller in scale but easier to finance and build.

The Chilime Hydropower Company Ltd. was established with 51% equity of NEA, another 25% of NEA employees and the rest to be offered to the public. The 22.1 MW dam in the hills north of Kathmandu is built by Nepali engineers and technicians

using local design capabilities. The Chilime Hydropower Company was funded by Employees' Provident Fund. The company promptly won a power generation license from the government, and also signed a power purchase agreement with NEA to sell the energy generated to the national grid. The price was fixed at 3.9 to 5.52 rupees per KWH of energy.

Butwal Power Company was established in 1966 AD when total capacity of the hydropower in the country was only 3.45 MW. BPC with assistance from the United Mission to Nepal developed Tinau project in 1967 AD to light up the town of Butwal and to promote industrial development in the area. BPC not only involved in design and construction work but also owns and operates 12 MW Jhimruk Hydropower Plant and 5.1 MW Andhikhola Hydropower plant. Besides supplying power to the national electricity grid, the company owns 14.9% of the share in Khimti I Hydropower Plants (60MW) and 48.6% of the share in Nepal Hydro and Electric Pvt Ltd. BPC is engaged in operation & maintenance of power plants, consulting engineering of hydropower and infrastructure projects, manufacturing and repair of hydro-mechanical and electro-mechanical equipment for power plants. The company supplies power to the national electricity grid besides lighting up nearly 23,000 local households. BPC is currently one of the large private power suppliers in Nepal.

There has been a gradual change in local and global energy markets providing ample space for both the public and private sectors. It is now being increasingly evident that the participation of private enterprises in the power sector can be lead to better mobilization of resources to meet the medium sized hydropower plants within the last decade has laid the foundation for private sector participation in Nepal.

The continuing interest shown by both the domestic and foreign private investors is encouraging for Nepal's power sector although the current interests of the private sector is limited to small plants of capacities less than 10 MW only, probably because of the much higher investment needs of larger projects. The increasing demand of electricity can however be met only through a combination of both small and medium sized projects. It is therefore pertinent for NEA to take up several medium sized schemes for implementation in the public sectors with donor assistance.

Although the demand for power is rising every year, hydropower projects have not been implemented in tandem. The delays experienced in public sector project

presently under construction, is an example of the uncertainties faced even after a project is in the construction phase. Public sector generation projects take considerable preparation time before execution. The process of mobilization of resources for generation and other projects is also very time consuming and uncertain. Decision for taking up such projects should therefore be made well in advance so that power plants come into operation in a timely fashion as per the system requirements. The identification and implementation of projects involving relatively low investments is the key to providing affordable electricity to the people of Nepal.

Being the largest government enterprises and pioneer of electricity business in Nepal, it is desirable for NEA to initiate and expedite joint venture power generation schemes to conquer the continuous loss situation. Considering NEA's limited resources for capital investments, financial resources available in the local market should be tapped for the equity distribution. The successful commissioning of CHPCL under NEA private partnership was indicative of the beginning of a new era of public private sector cooperation in Nepal's electricity sector. This should act as a springboard for NEA to adopt an effective joint venture investment policy to meet the growing demand of energy in the country.

As this study is related to the financial evaluation of BPC and CHPCL, a number of financial and statistical tools have been used to meet the prescribed objectives. Ratio analysis being the primary financial tool includes liquidity ratio, activity ratio, leverage ratio, profitability ratio and invisible ratio. A number of statistical tools have been used such as arithmetic mean, standard deviation, coefficient of variance, coefficient of correlation, probable error of correlation coefficient and least square trend line for further analysis of the relevant subject matters.

The liquidity ratios of CHPCL and BPC seem to be in increasing trend throughout the study period. But BPC has failed to maintain conventional standard of liquidity position (2:1) during the study period. The mean and CV of current ratios of CHPCL were 12.862 and 76% during the period respectively. The mean and CV of current ratio of BPC were 1.286 and 20% respectively in the same period. The mean and CV of Quick ratio of CHPCL were 2.304 and 55% but that of BPC were 0.712 and 27%. These indications clearly shows strengthen of CHPCL and weakness of BPC.

All the activity ratios show a mixed result. Fixed Assets Turnover Ratio and Total Assets Turnover Ratio indicate slightly much better performance to BPC. Mean of Fixed Assets Turnover Ratio and Total Assets Turnover Ratio of CHPCL are 0.406 and 0.242 respectively. The Fixed Assets Turnover Ratio and Total Assets Turnover Ratio of BPC are 0.476 and 0.174 respectively. The mean of Debtors Turnover Ratio of CHPCL and BPC are 5.111 and 3.316 respectively. On the other hand mean of Average Collection Period of CHPCL and BPC are 75 days and 125 days respectively. These both indicators show the better performance of CHPCL than BPC. The CV of Fixed Assets Turnover Ratio, Total Assets Turnover Ratio, Debtors Turnover Ratio and Average Collection Period are 2%, 20%, 29% and 20% of CHPCL. On the other hand the CV of Fixed Assets Turnover Ratio, Total Assets Turnover Ratio, Debtors Turnover Ratio and Average Collection Period are 25%, 17%, 37% and 36% of BPC. These indicators show that BPC is more volatility/variability than CHPCL. Overall Activity ratios indicates that the much more efficient utilization of assets as well as debtor management of CHPCL rather than BPC.

Leverage ratio of CHPCL reveals zero debt financing. While BPC has the portion of debt is in increasing trend. The both mean and CV of all leverage ratios of CHPCL is zero. This indication indicates that the BPC is riskier than CHPCL.

The profitability ratio indicates the CHPCL more profitable than BPC. CHPCL has increasing trend of Net Profit Margin. The mean and CV of Net Profit Margin of CHPCL are 89.848% and 10% respectively. BPC has fluctuation trend of Net Profit Margin with mean and CV of Net Profit Margin 72.464% and 20% respectively. Mean and CV of Operating Expenses Ratio of CHPCL are 8.345% and 20% respectively. The mean and CV of Operating Expenses Ratio of BPC are 41.962% and 12.949% respectively. Mean and CV of Return on Equity of CHPCL are 23.217% and 16.877% respectively. Mean and CV of Return on Equity of BPC are 17.329% and 26.705% respectively.

Invisibility ratios indicate CHPCL has more profitable than BPC. The mean and CV of Earning per Share of CHPCL are Rs. 94.58 and 13.61% respectively. Mean and CV of Earning per Share of BPC are Rs. 36.25 and 22.22% respectively. Mean and CV of Dividend per Share of CHPCL are Rs. 52 and 23.24% respectively. Mean and CV of

Dividend per Share of BPC are Rs. 28 and 8.75% respectively. Mean and CV of Dividend Payout Ratio of CHPCL are 0.556 and 23.467% respectively. Mean and CV of Dividend Payout Ratio of BPC are 0.821 and 28.575% respectively.

The coefficient of correlation between Sales and Net Profit after Tax of CHPCL and BPC are 0.9287 and 0.6435 respectively. Since the value of r of CHPCL is greater than 6PE and value of r of BPC is less than 6PE, the correlation of CHPCL is in significant level and BPC is in insignificant level.

The coefficient of correlation between sales and total assets of CHPCL and BPC are 0.9034 and 0.9832 respectively. The value of r of both companies is greater than 6PE. Hence the correlation between Sales and Total Assets of both companies is in significant level.

The coefficient of correlation between Total Assets and Net Profit after Tax of CHPCL and BPC are 0.9919 and 0.7402 respectively. Since the value of r of CHPCL is greater than 6PE and value of r of BPC is less than 6PE, the correlation of CHPCL is in significant level and BPC is in insignificant level.

According to the trend equation, the forecasted values of Total Sales of CHPCL for coming five years would be NRs. 903996, 910281, 916566, 922851 and 929136 thousand respectively. Similarly, the forecasted values of Total Sales of BPC for coming five years would be NRs. 535571, 560218, 584866, 609514 and 634161 thousand respectively.

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According to the trend equation, the forecasted values of Earning per Share of CHPCL for coming five years would be NRs. 81.32, 76.89, 72.47, 68.05 and 63.63 respectively. Similarly, the forecasted values of Earning per Share of BPC for coming five years would be NRs. 38.81, 39.66, 40.51, 41.37 and 42.22 respectively.

Out of 30, 25 respondents agreed that Return on Equity indicates the performance of company. And since calculated value of χ^2 is less than tabulated value of χ^2, H0 is accepted which means that ROE measures the performance of the selected IPPs.

Out of 30, again 25 respondents agreed that Ratio Analysis is used to measure the financial performance of the company. And since calculated value of χ^2 is less than tabulated χ^2, H0 is accepted which means that ratio analysis is used to measure the financial performance in the selected IPPs.

Out of 30, 24 respondents do not agree that the government policy is favorable toward the development of hydropower sector. And since calculated value of χ^2 is greater than tabulated χ^2, H0 is not accepted which means that government policy is not favorable toward hydropower development sector.

5.2 Conclusions

As per the analysis and interpretation of data the following have been derived:

- The current and quick ratios of the companies seem to be inconsistent. CHPCL has increasing and strong liquidity position throughout the study period but BPC failed to maintain the standard liquidity position throughout the study period.
- The fixed assets turnover ratios of both IPPs were in consistent and satisfactory in terms of its consistency. The overall total assets turnover ratios of both IPPs were in decreasing trend. Average collection period and debtor turnover ratios of CHPCL were better than BPC. So it can be concluded that CHPCL has better efficiency in debtor/receivable management in comparison to BPC.
- There is no debt risk in CHPCL, while BPC has increasing trend of debt financing. So BPC has more risky in financing.
- Overall profitability ratio shows that CHPCL was more profitable than BPC.
- The coefficient of correlation between sales and net profit after tax of CHPCL shows positive and significant relation, while BPC has positive but

insignificant relation. CHPCL was more successful than BPC and has been able to generate more uniform profits.

- The coefficient of correlation between sales and total assets as well as between total assets and net profit after tax of both company are in positive and significantly correlated.
- The growth trend analysis of total sales, net profit after tax and earnings per share of CHPCL is greater but BPC is in increasing trend. So both IPPs are in optimistic favorable positions.
- From the primary data analysis it can be concluded that NPM does show the performance of the IPPs, ratio analysis is used to analyze the financial performance, government policy is not hydropower business friendly.
- It can be said that hydropower related policy is not harmonized and coordinated with others policy.
- It can be said that hydropower business of Nepal is most interested and best targeted investment potential for foreign and domestic investors.

Table No. 5.1

SWOT Analysis

Company	CHPCL	BPC
Strengths	➢ Availability of funds ➢ No debt risk in financing, fully equity financing. ➢ High earning capacity and low operating expenses with efficient assets management.	➢ Well equipped and sophisticated tunnel drilling technologies ➢ Associated with renowned hydro electric power developer as Himal Hydro and general construction private ltd as well as it is also associated with well renowned business group like Pancha Kanya, Jyoti Group.

		➢ Running 11 feasible project with having huge capacity. ➢ 34% of market of Hydro power and 1.8% of total market is covered by BPC.
Weakness	➢ High level of fixed costs ➢ Possibilities of government's interfere which can lead toward miss management	➢ High operating expenses ➢ High financial risk ➢ Low liquidity position
Opportunities	➢ Plenty of market available ➢ No competition	
Threats	➢ High research costs ➢ Tightening power purchase agreements by NEA	

5.3 Recommendations

Based on the conclusions, the following recommendations are made for further improvements of the companies.

- The liquidity position of BPC is so weak and CHPCL has very high. So BPC has to retain more liquid assets or otherwise cut off current liabilities to maintain proper liquidity position and CHPCL should grasp more investment opportunities.
- The profitability position of both IPPs is satisfactory. However, there is a need for effective production management to control operating cost of BPC.
- Both IPPs are adopting liberal dividend payout policy, both has to adopt this trend in future as well.
- BPC has debt financing is in increasing trend. So BPC should make well capital budgeting plan to minimize the financing risk.
- The projected sales values can be met by setting production and sales plans, and formulating proper policies and strategies. The IPPs should

implement new technologies of management such as participative management, management by objectives and total quality management.

- The companies should manage the research and development budgets to study new hydroelectric projects.
- The companies should introduce SWOT analysis to improve their capacity of dealing with external forces and managing internal issues of strengths and weaknesses.
- IPPs should follow the practice of setting financial goals for future activities.

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