

**A Thesis on**  
**Working Capital Management**  
**A Case Study of SEAN Seed Service Centre Limited**  
**A Viable Vegetable Seed Industry in Nepal**



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*In partial fulfillment of the requirements of the degree of*  
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## **DECLARATION**

I hereby declare that the work reported in this thesis entitled "**Working Capital Management : A Case study of SEAN Seed Service Centre Limited-A Viable Vegetable Seed Industry in Nepal**" submitted to Office of Dean, Faculty of Management, Tribhuvan University is my original work done in the form of partial fulfillment of the requirement of Master of Business Studies (M.B.S.) under the guidance and supervision of Prof. Dr. Kiran Das Manandhar, Mr. Kiran Thapa, Lecturer, Shanker Dev Campus.

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## **RECOMMENDATION**

**This is to certify that the thesis:  
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has been prepared as approved by this Department in the prescribed format of Faculty of  
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## VIVA – VOCE SHEET

We have conducted the viva-voice examination of the thesis presented

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*Working Capital Management: A Case Study of SEAN Seed Service Centre Limited-A Viable Vegetable Seed Industry in Nepal*

and found the thesis to be original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for

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

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## List of Abbreviation

|       |   |  |
|-------|---|--|
| GDP   | = | Gross Domestic Product                   |
| US \$ | = | United States Dollar                     |
| AGDP  | = | Aggregate Gross Domestic Product         |
| SSSC  | = | SEAN Seed Service Centre Limited         |
| SEAN  | = | Seed Entrepreneurs' Association of Nepal |
| DFID  | = | Department for International Development |
| UK    | = | United Kingdom                           |
| F\Y   | = | Fiscal Year                              |
| CA    | = | Current Assets                           |
| FA    | = | Fixed Assets                             |
| NTDC  | = | Nepal Industrial Development Corporation |
| NRS   | = | Nepalese Rupees                          |
| BJM   | = | Biratnagar Jute Mill                     |
| RJM   | = | Raghupati Jute Mill                      |
| DNPL  | = | Dabur Nepal Private Limited              |
| NBCL  | = | Nepal Battery Company Limited            |
| NLL   | = | Nepal Level Limited                      |
| SSSP  | = | Seed Sector Support Project              |
| NARC  | = | Nepal Agriculture Research Council       |
| VDC   | = | Village Development Committee            |
| CR    | = | Current Ratio                            |
| CL    | = | Current Liabilities                      |
| QA    | = | Quick Assets                             |
| QR    | = | Quick Ratio                              |
| Ltd.  | = | Limited                                  |
| r     | = | Correlation Coefficient                  |
| $r^2$ | = | Coefficient of determination             |
| t     | = | Student's t-test                         |
| ROCE  | = | Return on capital employed               |

|       |   |                             |
|-------|---|-----------------------------|
| RONW  | = | Return on net worth         |
| R & D | = | Research & Development      |
| SQCC  | = | Seed Quality Control Centre |
| DOA   | = | Department of Agriculture   |
| CV    | = | Coefficient of Variation    |

# Chapter-I

## Introduction

### 1. 1 Background of the study

Situated between China's Autonomous Region Tibet in the north, and India in the south, east and west, Nepal is one the richest countries in the world in terms of bio-diversity, and culture with population of 23.15 million (Census 2001) people. Owing to its unique geographical position and altitude variation (between 60 m. and highest point on earth, Mt. Everest at 8848 m. , all within a distance of 150 kilometers (situated between Latitude =  $26^{\circ} 22' N$  to  $30^{\circ} 27' N$ , and Longitude =  $80^{\circ} 4' E$  to  $88^{\circ} 12' E$ ) resulting in climatic conditions from sub-tropical to Arctic. Occupying only 0.1 percent of the Earth's land area, Nepal (with land area of 147181 sq. km) is home to: 2 percent of all the flowering plants in the world, 8 percent of the world's population of birds (more than 848 species), 4 percent of mammals on Earth, 11 of the world's 15 families of butterflies (more than 500 species), 600 indigenous plant families, 319 species of exotic orchids.

Nepal is a developing country with an agriculture led economy with an annual Gross Domestic Product (GDP) is about US \$ 4.3 billion. In 1993 Nepal possess its moderate low position in agriculture development in South Asian Region. In the year, Government of Nepal spent 3.7 percent Aggregate Gross Domestic Product (AGDP) to the agriculture development.

With manufacturing, still at initial development stage and representing less than 10 percent of the GDP, Nepal's foreign trade is characterized mainly by import of manufactured products and export of agriculture raw materials. Major imports include manufactured goods and petroleum products worth about US\$ 1.3 billion annually. And the exports of about US\$ 315 million include Carpets & Garments. Other export items worth mentioning include handicraft goods, pulses, hides and skins, jute bags and medicinal herbs.



Agriculture is the foundation of Nepalese economy. It is important not only from the employment point of view but also from its contribution to the GDP which is around 40 percent. The share of horticulture sub-sector in the AGDP is 14 and that of vegetable is 7.2 percent.

Owing to its unique geographical position and altitude variation (between less than 100 meter and more than 8800 meters) Nepal is one of the richest countries in the world in terms of bio-diversity and varied climatic conditions from sub-tropical to Arctic. Consequently, Nepal possess comparative advantage to produce high seeds in more than eight distinct seed production areas spread across various agro-ecological regions of the republic.

The wide agro-ecological variance makes the country suitable for high quality seed production of all kinds of vegetable s (tropical to temperate). The production of open pollinated quality vegetable seeds, of different varieties, has been expanding rapidly. Presently fifty species with varying varieties are commercially grown and can be produced through contract farming. Very promising opportunity exists from joint venture investment, technology transfer, contract production and export of seeds from Nepal.

Government of Nepal has put a lot of efforts to create an environment conducive to attract foreign investment to speed up pace of industrialization in an overall context of changing global economic environment. Foreign investments are welcome in the form of convertible foreign currency of capital assets.

The vegetable seed production has been categorized as the national priority industry under the Industrial Enterprise Act 1992. As such, the industry is waived from paying income tax. The act has also included the export oriented agro based industry as the national priority industry. The industries falling "National Priority" as the vegetable seed production are eligible for a number of incentives and facilities.

Total requirement of seeds of major food grains, vegetable seeds, pulses (legumes) is nearly two hundred thousand of tones of which less than one-fourth is assumed as marketable seeds. Less than one-fifth of the total marketable seed requirements is being

supplied by the formal seed sector, while remaining seed demand is met by farmer-saved seeds and informal seed sector. Traditionally the public sector dominates the seeds of the staple food crops. While the private sector is playing increasingly dominant role in vegetable seeds. Likewise user groups' seed comparative societies are playing critical role in collection and marketing of forest and forage crops.

Commercial seed production is carried out in more than eight seed production areas spread across the country between 100 m and 2500 m altitudes. Production potential to produce nearly 1000 tons of vegetable seeds in the vegetable seed market size of 1201 tons (value USD 8.957 million). Over one-fifths of the vegetable seed is met by import. Up to seven percent vegetable seed produced in the country are exported to South Asian Countries-Bangladesh and India.

Looking at increasing trend of growth in vegetable crops coverage and production since the early Nineties, have resulted in ever-increasing demand for seeds (Particularly seeds of vegetable such as hybrid varieties of cabbage, cauliflower, tomatoes, summer squash, cucumber, bitter gourd and so on). Such a situation has brought a new challenge of the industry to come up with strategies to substitute import and promote export of niche seed crops to bring down huge trade deficit Nepal is currently facing. The export of Nepalese seeds produced in niche areas can be promoted under the brand name- "Himalayan Seed: Seeds from the land of Mt. Everest". This definitely calls for strong dynamic assertive Private Sector Seed Industry with facilitating roles played by the Government backed by Pro-Private Sector Policies.

## **1.2 Prospect & potentiality of seed production in Nepal**

A wide variation in agro-climatic regions from tropical to temperate and alpine climates provides opportunities to produce seeds of a wide range of varieties. More importantly, the pockets of micro-climates separated by high mountains provide ideal environment where the risk of losing parental lines of high value seeds is minimal. Vegetable seed production is undertaken in 15 different areas with the following 4 special areas highly successful in the production of a variety of seeds: Thak Khola Marpha in the Western Development Region (elevation 2516 m.) - cabbage, carrot, cress, peas, turnip, broad leaf

mustard; Musikot in the Mid-Western Development Region (elevation 1460 m.) - onion, radish, cauliflower, peas, turnip, spinach, capsicum, knoll-kohl; Kathmandu Valley in the Central Development Region (elevation 1350 m.) - cauliflower, cress, spinach, turnip, radish, broad leaf mustard; Sarlahi in the Central Development Region (elevation 60 m.) - tomato, egg plant, cucurbits, capsicum, spinach, peas and okra. Nepal has well qualified vegetable seed agronomists and vegetable seed breeders. The vegetable development division in the Department of Agriculture has many regional farms located in different agro-climatic regions with well equipped production, cleaning and storage facilities. The division is providing technical supervision and quality control services through well equipped seed testing laboratories.

Very good potential exists in Nepal for the establishment of vegetable seed farms catering to both domestic and foreign markets. Potential markets in India, Bangladesh, Sri Lanka, Pakistan and Thailand could be developed successfully. The seed quality standards in these countries are close to Nepalese seed standards. Export markets in American and European countries too could be tapped with the participation of investors from these countries.

The climate is varied ranging from the sub-tropical Terai to the cool dry temperate and alpine climates in the northern Himalayan ranges. The Terai is the hottest part of the country, summer temperature may rise as high as 40°C and is hot and humid. In the mid mountain regions, the summer is mild with temperature around 25°-27°C. The winter temperature range from 7°C to 23°C in the Terai and sub-zero to 12°C in the mountain regions and valleys. The northern Himalayan region has a frigid climate. The valley of Kathmandu has a pleasant climate with an average summer temperature of 19°-27°C and winter temperature of 2°-12°C respectively.

In the country seed production areas spread between elevation less than 100 meter in the Terai and 2500 meter in High Hills of Jumla district. Major seed production areas in the country are Dhankuta, Kathmandu, Kaski, Parvat, Plapa, Salyan, Rukum, Surkhet, Doti, Dadeldhura etc. Having a number of high altitude areas different kinds of high value vegetables seed can be produced in different areas. High altitude areas of Jumla and

Dadeldhura are suitable for producing carrot and radish seed. An area of Mustang district is suitable for producing high quality seeds of temperate crops like carrot, cabbage, rayo. But due to high cost of production, seed produced in this area is not comparative.

### **1.3 SEAN Seed Service Centre Limited (SSSC) at a glance**

The formation of the SEAN Seed Service Centre (SSSC) is a central part of the seed marketing strategy that aims to promote the seed industry in Nepal. SSSC was founded by the efforts of a group of individual seed traders. It is based on a concept of strengthening the foundations of the Nepal seed trade by establishing a quality product based on a firm foundation of high quality Breeder's and subsequent generation seed. This new approach was also developed with the clear intention of establishing a proper monitoring system of field inspection and post harvest controls to produce seed which would meet the quality standards required by the international market. This will enable Nepal to further expand its export trade in commercial vegetable seed.

SSSC was established in Kathmandu after formally being registered under the Company Act-1996 at the company registrar office on 15<sup>th</sup> June 1999. The company was established and become operational as a result of the investment in shares by 57 individual member of the Seed Entrepreneurs' Association of Nepal (SEAN), besides SEAN itself becoming one of the largest shareholders on behalf of all its members. Initially SSSC received technical and financial support from the Seed Sector Support Project- a joint project between Government of Nepal and DFID (UK). SSSC has initiated seed production and marketing activities through its own endeavors and in cooperation with several private and public seed organizations, both national and international, across many of the country's major seed production areas. SSSC has a five member Board of Directors, elected from among its promoters, one of which is a Managing Director. It has a team of well-trained staff in their respective fields.

Seed is received into the company's own warehouse and dehumidified storage at its headquarter, Thankot, Kathmandu which also houses the processing plant. Marketing of seeds under the SSSC brand name and quality logo has been initiated in the domestic market through a network of appointed marketing outlets, whilst export of high quality

vegetable seed has been initiated. As part of its own Research and Development program, SSSC has become actively involved in the commercialization of national hybrid maize varieties and in developing hybrid tomato varieties.

The mission statement of the company is to contribute the development of Nepalese agriculture by the continuous improvement of planting material and its consistent supply to farmers by maintaining, multiplying and supplying high quality stock seeds of many horticultural varieties, by developing and commercializing national hybrids with high potential. To improve the production and income of all those engaged in the seed industry by expanding the sales of high quality Nepal produced seeds at home and abroad.

#### **1.4 Focus of the study**

Financial management is that managerial activity which is concerned with the planning and controlling of the firms financial resource. As an important area of business management, financial management is relatively a new domain.

An industrial unit normally needs finance for fulfilling two basic objectives.

- a. To set up a manufacturing facility, i.e. acquire land and buildings, plant and equipments etc, collectively known as fixed assets: and
- b. To acquire adequate inventories, comprising raw materials, stock-in-process and finished goods, retain sufficient cash and extend credit to customers collectively termed as current assets as working capital in a gross concept.

This study is related to the working capital management of SEAN Seed Service Centre Limited (SSSC Ltd.). Working capital in the business is comparable to the blood of the human body. Like blood, it gives strength and life i.e. profit and solvency to the business organization. Working capital is a firm's investment in current assets such as cash, marketable security, inventory, accounts receivable, advance and so on. Management of working capital usually involves management or administration i.e. planning and controlling current assets, namely cash, marketable security, accounts receivables and also the administration of current liabilities.

Working capital management is a part of decision making process of the firm. It is as important as oxygen to survive. Therefore, no business can run without working capital. However, it does not mean that the company should maintain excess working capital which means idle funds which earn no profit for the firm. At the same time too little of inadequate working damages the firm's liquidity and also hampers production process. An enlighten management should, therefore, maintain a right amount of working on a continuous basis. To obtain the basic goal of the working capital management current assets and current liabilities of a firm should be managed in a satisfactory way i.e. neither inadequate nor excessive.

The main focus of the present study is, therefore, to evaluate the size and efficiency with which each component of current assets is being utilized in the SSSC Ltd. and to judge its liquidity position, both the concepts of the working capital i.e. gross working capital and net working capital have been considered in the study. It therefore, examines the current assets as well as the liquidity position of the company during the study period of 1999/2000 to 2007/2008. (FY 2056/57 to 2064/65)

### **1.5 Statement of Problems:**

Working capital management has been regarded as one of the conditioning factor in the decision making issues. It is needless to say that it is very difficult to point out as to how much working capital a particular business organization requires. The organization which is not willing to take risks can go for more short term liquidity. The more of short term liquidity means more of current assets and less heading to the lower returns resulting from the use of high cost long term financing. Hence it's very important to analyze and find out problems and its solutions to make efficient use of funds for minimizing the risk of loss to attain profit objective.

Many research studies have been conducted by various people regarding working capital management of different companies. Some of the studies are of comparative nature too. But till no one has made study of working capital position in seed industry. The need of such study was felt and it is motivated to conduct the research on working capital management of research regarding working capital management.

The growing turnover of firm over the years increased the volume of the working capital requirement on the one hand and on the other hand also increases its profitability. A general observation of the company shows that seed sales have been grown and current ratio have increased over the years; net profit ratios are showing a decreasing trend. The following table (Table: 1.1) exhibits the sales, current ratios and net profit of SSSC Ltd over nine years from 1999/2000 to 2007/2008 (FY 2056/57 to 2064/65)

**Table: 1.1**  
**Sales, current ratio and net profit of SSSC Ltd.**

| <b>Year</b> | <b>Sales<br/>(NRs. in thousand)</b> | <b>Current Ratios<br/>(Times)</b> | <b>Net Profit Ratio<br/>(%)</b> |
|-------------|-------------------------------------|-----------------------------------|---------------------------------|
| 1999/2000   | 98.38                               | 0.42                              | 5.08                            |
| 2000/2001   | 339.63                              | 1.31                              | -35.7                           |
| 2001/2002   | 763.32                              | 2.97                              | 10                              |
| 2002/2003   | 1498.25                             | 1.36                              | -45.8                           |
| 2003/2004   | 6675.32                             | 2.86                              | 9.91                            |
| 2004/2005   | 10268.42                            | 1.59                              | 2.58                            |
| 2005/2006   | 8896.93                             | 2.36                              | 0.45                            |
| 2006/2007   | 9194.4                              | 2.10                              | -3.27                           |
| 2007/2008   | 10325.82                            | 3.71                              | 1.91                            |

**Source: Annual report; SSSC Ltd.; 2001-2008**

The above table clearly shows that sales of SSSC Ltd. have been increasing from 1999/2000 to 2004/2005 tremendously but it goes down in 2005/2006 and again it has been increasing since 2006/2007 to onwards. Current ratio of the company is also fluctuating during the period. However, the net profit ratios of the company during the period have not followed the trends of sales and current ratios. This has raised number of questions as to how the working capital of SSSC Ltd. has been managed over the period, what are the sizes of current assets and how efficiently they have been managed and so on. This study addresses these questions and tried to find the answer of the questions.

## **1.6 Objectives of the study**

Working capital management is a crucial aspect of financial management of a firm. It is the life blood and controlling centre for any types of business because without the proper control upon it, no business organization can run smoothly. So it pays the key role in success and failure of an organization. Each and every research study is conducted for achieving some objectives. The main objectives of the study have been to have insight into management of working capital of SSSC Ltd.; analyze it and reach into conclusions.

- i) To analyze the position of working capital of SSSC Ltd. by applying necessary financial and statistical tools and techniques.
- ii) To analyze the size of working capital by measuring the current assets and total assets.
- iii) To examine the growth of working capital and sales of the company.
- iv) To assess the structure of working capital by analyzing inventory, receivables and cash percent to current assets.
- v) To evaluate the efficiency of working capital which is observed by calculating various turnover ratios.
- vi) To evaluate the liquidity position of SSSC Ltd.
- vii) To examine the relationship between liquidity and profitability.
- viii) To analyze strength, weakness, opportunity and threat of the company
- ix) To provide some valuable suggestions for the improvement of their present working capital performance.

## **1.7 Need or significance of the study**

This research study carries a special significance to the policy makers. It may provide important information for the people who are going to decide which financing policy will be better for the particular organization and it will also be useful for various government agencies while formulating policies regarding working capital for manufacturing companies.

The need and importance of this study has been felt for some important reasons.



- a. The SSSC Ltd. is a unique research based company in seed sector established with the joint effort of individuals of related fields, small and big seed trading houses of Nepal. It has a huge importance in Nepalese economy because it has helped to substitute 20 percent import of the total demand of vegetable seeds in the country and it has also great scope for further increase in its exports to India, Bangladesh and third countries. The operations of such an import substitution and export-oriented company should be ensured not only for today but also for the future. Well managed working capital of the company helps ensures its smooth operations both for present and the future.
- b. The study has theoretical significance as it helps to add the existing literature of the Nepalese financial management, particularly to the literature of working capital management in the Nepalese context.
- c. The study has also practical significance. The findings and conclusions of the study can be used by the management of SSSC Ltd. as guide in the financial and working capital management of the company, the government for making policies regarding such companies.

In addition to this the outsiders like the depositors, debtor financing agencies, stock exchangers, stock traders, seed traders etc. can identify that which company is better to deal with. They can find out which company is more secured and can also find out relative worth of stocks of each company. Taking all these consideration, the study of working capital of management of SSSC Ltd. to have much importance.

### **1.8 Limitations of the study**

None of the study can go beyond the boundary of some limitations. The present study is also not an exception. Limitations of the study are given below.

- i) This study is one on the basis of the published (secondary document) like Balance Sheet, Profit and Loss Account, other related journals, magazines and books etc.

- ii) Out of various Limited Companies of Nepal this is the study on only one company i.e. SSSC Ltd.
- iii) There are various aspects of financial management but this study is concerned with only the working capital aspect of the related company.
- iv) The study is base on the data of the last nine years from 1999/2000 to 2007/2008. Only and the data are used in round figures of thousands
- v) Many financial tools and statistical tools are embodied for analyzing the working capital management financial tools used are current ratio, liquidity ratio, activity ratio, capital structure ratio, profitability ratio and other related financial tools are used where is necessary.
- vi) Effects of monetary inflation are not considered in this study.
- vii) The obtained information and explanation used for the purpose of study are assumed to be true and correct.
- viii) Limited tools and technique of working capital have been used.
- ix) This study is of suggestive nature rather than the conclusive one.

## **1.9 Organization of the study.**

The study of working capital management of SSSC Ltd has been divided into seven different sections. Introduction is presented in first section. Literature review is presented in section second. Third section includes profile of SSSC Ltd. Research methodology is presented in section four. Fifth section deals with presentation of data. Sixth section provides summary, conclusions and recommendations.

## **1.10 Terms used in this study**

Following terms are used in this research work:

- i. **Current Assets:-** Current assets are assets convertible into cash within an accounting year or within the operation cycle, whichever is greater. Operating cycle is always involved in the conversion of sales into cash. Current assets

include cash, inventories, accounts receivable, notes and bills receivable, debtors and marketable securities.

- ii. **Current liabilities:-** Current liabilities means that liabilities which are payable within the next accounting year or operating cycle. It includes creditors, account payable, notes and bills payables, temporary loans and provisions.
- iii. **Cash:-** Relative to a business, all coins and funds balances in demand deposits are denoted as cash.
- iv. **Account receivable:-** It is a short term assets representing credit sales to customers.
- v. **Marketable securities:-** Marketable securities have little risk and are appropriate investments for excess cash balances. It is also called money market securities.
- vi. **Inventory:-** It includes the company's stock of goods including raw materials, work in process and finished goods completed and ready for sale.
- vii. **Quick assets:-** It is also called liquid assets. An asset is liquid, if it can be converted into cash immediately or reasonably soon without a loss of value. It is current assets excluding inventory and prepaid items.
- viii. **Balance Sheet (BS):-** A statement of the firm's assets, liabilities and capital at a specific date.
- ix. **Income statement:-** Income statement is a summary of firm's revenues and expenses over specific period ending. With net income statement depicts a summary of the firm's profitability over time.
- x. **Fiscal year:-** Fiscal year is period of twelve month. In SSSC Ltd. It is the period of twelve month from 16<sup>th</sup> July to 15<sup>th</sup> July ( Shrawan 1<sup>st</sup> to Asadh last).

## **Chapter-II**

### **Review of the Literature**

#### **2.1 Introduction:**

This chapter deals with theoretical framework of the study and reviews the relevant studies. Under the theoretical framework of working capital management, it reviews the meaning and concept, classification of working capital, factors determining working capital, techniques of forecasting working capital management and so on. Besides, it also presents the relevant studies carried out in the Nepalese context.

#### **2.2 Working Capital Management**

Working capital management is management for the short-term. This is of critical importance to a firm. As pointed out in the different text, managers spend about 70% managing for the short-term. This makes sense. Every day companies take in money, write receipts, balance checkbooks, record receivable records, and manage inventory and the like. Also, short-term management should not be discounted. As the old saying goes, “If you can make it in the short-term long enough, you don’t need to worry about the long-term.” Cash budgets may be utilized in managing working capital. Working capital has to do with the short-term accounts of a firm — current assets and current liabilities. Net working capital is defined as current assets less current liabilities. The secret to good working capital management is simple — “use someone else’s money every chance you get and don’t let anyone else use yours.” Within reason, of course. To do that, the following strategies might be employed; again within reason. A company wouldn’t want to stretch out its payables for so long a period that it’s forced out of business. Stretch out accounts payable as long as possible. If a bill is due on the 13th, don’t pay it on the 10th. If a company has enough clout, they can negotiate longer terms with vendors. Turn receivables as quickly as possible. Make it easy for customers to pay. Lockboxes, prepaid envelopes, discounts, etc. may be utilized. Turn inventories as quickly as possible. Inventories may be a big investment for a firm and they earn no interest. Just-in-time

inventory methods and some other strategies are used to hold down a firm's investment in inventories.

Financial management looks after two types of capital need: for fixed capital to invest in things such as buildings, plant and equipment and working capital principally to pay for stock and to cover the amount of credit extended to customers. Fixed capital, as the name implies, tends not to vary in the short term but to move up or down in jumps when major investment decisions are made (or assets sold). Working capital on the other hand, is much more fluid and fluctuates with level of business.

Working capital management is the important branch of the financial management which gives answer to the questions such as:

1. How much should we invest in each category of current assets?
2. How should we finance that investment in current assets i.e. appropriate mix of short and long term sources to finance?

In most business, funds are deployed in assets are in the form of cash or bank deposits or will be turned into cash in a relatively short period as part of normal business activities.<sup>1</sup>

Management of working capital usually involves management or administration; i.e. planning and controlling current assets, namely cash and marketable securities, accounts receivable and inventories and also the administration of the current liabilities. Current assets are assets convertible into cash within one year. Any firm should always maintain the right cash balance so that flow of funds is maintained at a desirable speed not allowing any slow downs or, stoppage. Thus, the enterprises can have a balance between liquidity and profitability.

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<sup>1</sup> C.S. Page and E.E. Canaway, Finance for management. William Heinemann Ltd, London, 1969, p 118

“In short the working capital is the sources of financing current assets and it includes short as well as long term financing.”<sup>2</sup>

Planning and control of working capital naturally cluster around the cash planning which includes setting of cash policies, process, control of cash and receivables. This implies that the cash is the major and very sensitive component of working capital.

The basic goal of working capital management is to manage the current assets and current liabilities of a firm in such a way that a satisfactory level of working capital is maintained, i.e. it is neither inadequate nor excessive.<sup>3</sup>

Working capital management is always interested with problems which arise at the time of management of current assets and current liabilities and their interrelation. “For conventional accounting process current assets may be defined as those assets held for trade or production or which result from the routine operations of the business”<sup>4</sup>

In examining the management of current assets, answer will be sought to the following questions:<sup>5</sup>

1. What is the need to invest funds in current assets?
2. How much funds should be invested in each type of current assets?
3. What should be the proportion of long term and short term funds to finance current assets?
4. What appropriate sources funds should be used to finance current assets?

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2 Dr. Surendra Pradhan, Basis of Financing Management, Educational Enterprises (P) Ltd. Nepal 1992, p147

3 Sharma R.K. and Gupta S.K., Management Accounting Principles and Practice, Kalyani Publishers, New Delhi, 1996, p 21.10

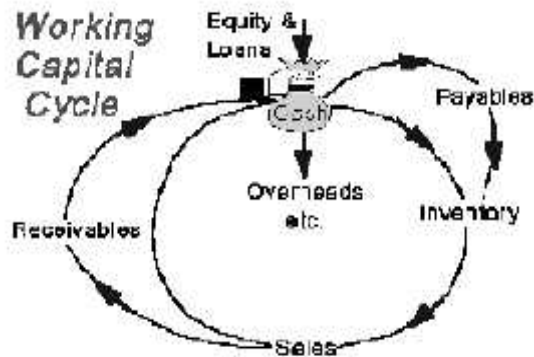
4 C.S. Page and E.E. Canaway, op cit, p 118

5 I.M. Pandey, Financial Management. Vikash Publishing House, New Delhi, p325

## 2.3 Working Capital Cycle

Cash flows in a cycle into, around and out of a business. It is the business's life blood and every manager's primary task is to help keep it flowing and to use the cash flow to generate profits. If a business is operating profitably, then it should, in theory, generate cash surpluses. If it doesn't generate surpluses, the business will eventually run out of cash and expire. The faster a business expands the more cash it will need for working capital and investment. The cheapest and best sources of cash exist as working capital right within business. Good management of working capital will generate cash will help improve profits and reduce risks. Bear in mind that the cost of providing credit to customers and holding stocks can represent a substantial proportion of a firm's total profits.

There are two elements in the business cycle that absorb cash - **Inventory** (stocks and work-in-progress) and **Receivables** (debtors owing you money). The main sources of cash are **Payables** and **Equity and Loans**.



Each component of working capital (namely inventory, receivables and payables) has two dimensions TIME and MONEY. When it comes to managing working capital - **TIME IS MONEY**. If one can get money to move faster around the cycle (e.g. collect monies due from debtors more quickly) or reduce the amount of money tied up (e.g. reduce inventory levels relative to sales), the business will generate more cash or it will need to

borrow less money to fund working capital. As a consequence, one could reduce the cost of bank interest or he'll have additional *free* money available to support additional sales growth or investment. Similarly, if one can negotiate improved terms with suppliers e.g. get longer credit or an increased credit-limit; he effectively creates *free* finance to help fund future sales.

## 2.4 Other views regarding working capital management

The management of working capital is based on two conflicting objectives. The first is the desire to have a safety stock of liquid assets that will be enable the firm to survive unforeseen difficulties when a very large Mexican Corporation sold its accounts receivable to finance long term investment, it removed a possible source of immediate cash. This lack of flexibility helped lead to its bankruptcy. The second minimizing the cost of carrying working capital and maximizing the firm's profits.<sup>6</sup>

Working capital management is concerned with management of the firms current accounts, which include current assets and current liabilities because for manufacturers current assets account for nearly fifty percent of total assets and current liabilities represent nearly thirty percent of total financing. The management of working capital is one of the most important aspects of overall financial management. A firm must maintain a satisfactory level of working capital. Current assets should be large enough to cover current liabilities in order to ensure a reasonable margin of safety.<sup>7</sup>

The term working capital originated with the old Yankee Peddler, who would load up his wagon with goods, then go off on his route to peddle his wares. The merchandise was defined as his "Working capital" because it was what he actually sold or "turned over" to produce his profit.<sup>8</sup>

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6 Harold Bierman, Jr. Seymour Smidt, Financial Management for Decision Making, 1986 Macmillian Publishing Company, New York, p 597

7 Lawrence J. Gutman, Principles of Managerial Finance, 1982, Harper and Row Publishers NY, p 253

8 Eugene F. Brigham, Fundamentals of Financial Management, 1979, The Dryden Press. P 199



Working capital management is a part of decision making process of the firm. It is as important as oxygen to survive. We can rarely find any business without working capital. In each and every step or activity of business it is indispensable.

The working capital is of vital importance; both excessive as well as inadequate positions are dangerous from the firm's point of view. When excessive working capital fund will remain idle, it can not earn profit for the firm. Some of the problems which may arise due to excessive working capital are:

- a. It will result in managerial inefficiency.
- b. Unnecessary inventories will be collected. It is the cause of loss theft, mishandling and waste.
- c. Bad debts may increase which affects the profit.
- d. Unnecessary inventory is just an illusion that will earn more profit but in fact it may not be that.

Not only excessive but shortage of working capital also has bad effect on the business as follows:

- a. No time is taken by the business to reach from galloping stage to creeping stage because it can't meet day to day operation.
- b. Firm can not grab the profitable opportunities i.e. project in the lack of working capital.
- c. Rate of return on investment will also drop.
- d. It will be difficult to maintain the firm's reputation because it will be unable to pay short term obligations.
- e. It will be difficult for a firm to meet its goal.

An efficient and effective management should, therefore always maintain sound working capital.

Working capital analysis has profitability and liquidity implications for the enterprises. If the size of working capital is too large, the liquidity position would improve but profitability would adversely be affected as funds will remain idle. On the other hand, if its size is too small, the profitability would surely be enhanced but there will be an

adverse effect on the liquidity position making the enterprise more risky. Working capital, therefore, requires managing each of the short term assets and liabilities in such a way that optimum level of working capital is determined, which will maintain adequate liquidity without impairing the profitability of the enterprise.<sup>9</sup>

Poor working capital management can lead to:<sup>10</sup>

- a. **Over-capitalization** (and therefore waste through under utilization of resources and hence poor returns); and
- b. **Over trading** (trying to maintain a level of sales which is higher than working capital can sustain- for business which extend credit terms, more sales means more debtors and higher working capital demands).

Characteristics of over-capitalization are excessive stocks, debtors and cash, low return on investment with long term funds tied up in non earning short term assets. Over trading leads to escalating debtors and creditors, and if unchecked, ultimately to cash starvation.

## **2.5 Determinants of Working Capital**

A firm should plan its operation in such a way that it should have neither too much nor too little working capital. The total working capital requirement is determined by a wide variety of factors. These factors, however, affect different enterprises differently. They also vary from time to time. In general, the following factors are involved in a proper assessment of the quantum of working capital required.

### **2.5.1 General nature of business:**

The working capital requirements of all enterprise are basically related to the conduct of business. Enterprises fall into some broad categories depending on the

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<sup>9</sup> Madhav Raj Koirala, International financial Analysis, Pointer Publishers Jaipur 302003 (India), 1995, p 16

<sup>10</sup> Dr. Philip E Dunn (Aug 2001) Working Capital Management, Student, Accountant, p 38

nature of their business. For instance, public utilities have certain features which have a bearing on their working capital needs. The two relevant features are: i) the cash nature of business, that is, cash sale, and ii) sale of services rather than commodities. In view of these features, they do not maintain big inventories and have, therefore, probably the least requirement of working capital. At the other extreme are trading and financial enterprises. The nature of their business is such that they have to maintain a sufficient amount of cash, inventories and book debts. They have necessary to invest proportionately large amounts in working capital. The manufacturing enterprises fall, in a sense, between these two extremes. The industrial concerns require fairly large amounts of working capital though it varies from industry to industry depending on their assets measures the relative requirements of working capital of various industries.

### **2.5.2 Production cycle:**

Another factor that has a bearing on the quantum of working capital is the production cycle. The term 'production or manufacturing cycle' refers to the time involved in the manufacture of goods. It covers the time span between the procurement of raw materials and the completion of the manufacturing process leading to the production of finished goods. Funds have to be necessarily tied up during the process of manufacture, necessitating enhanced working capital. In other words, there is some time gap before raw materials become finished goods. To sustain such activities the need for working capital is obvious. The longer the time-span (i.e. the production cycle), the larger will be the tied-up funds and, therefore, the larger is the working capital needed and vice versa. There are enterprises which, due to the nature of business, have a short operating cycle. A distillery, which has an ageing process, has generally to make a relatively heavy investment in inventory. The other extreme is provided by a bakery. The bakeries sell their products at short intervals and have a very high inventory turnover. The investment in inventory and consequently working capital is not very large. Further, even within the same group of industries the operating cycle may be different due to technological considerations. For economy in working capital,

that process should be selected which has a shorter manufacturing process. Having selected a particular process of manufacture, steps should be taken to ensure that the cycle is completed in the expected time. This underlines the need for effective organization and coordination at all levels of the enterprise. Appropriate policies concerning terms of credit for raw materials and other supplies can help in reducing working capital requirements. Often, companies manufacturing heavy machinery and equipment minimize the investment in inventory or working capital by requiring advance payment from customers as work proceeds against orders. Thus, a part of the financial burden/relating to the manufacturing cycle time is passed on to others.

### **2.5.3 Business Cycle:**

The working capital requirements are also determined by the nature of the business cycle. Business fluctuations lead to cyclical and seasonal changes which, in turn, cause a shift in the working capital position, particularly for temporary working capital requirements. The variations in business conditions may be in two directions: (i) upward phase when boom conditions prevail, and (ii) downswing phase when economic activity is marked by a decline. During the upswing of business activity, the need for working capital is likely to grow to cover the lag between increased sales and receipt of cash as well as to finance purchases of additional material to 'cater to the' expansion of the level of activity. Additional funds may be required to invest in plant and machinery to meet the increased demand. The downswing phase of the business cycle has exactly an opposite effect on the level of working capital requirement. The decline in the economy is associated with a fall in the volume of sales which, in turn, leads to a fall in the level of inventories and, book debts. The need for working capital in recessionary conditions is bound to decline. In brief, business fluctuations influence the size of working capital mainly through the effect on inventories. The response of inventory to business cycles is mild or violent according to nature of the business cycle.

#### **2.5.4 Production Policy**

The quantum of working capital is also determined by production policy. In the case of certain lines of business, the demand for products is seasonal, that is, they are purchased during certain months of the year. What kind of production policy should be followed in such cases? There are two options open to such enterprises—either they confine their production only to periods when goods are purchased or they follow a steady production policy throughout the year and produce goods at a level to meet the peak demand. In the former case, there are serious production problems. During the slack season, the firms have to maintain their working force and physical facilities without adequate production and sale. When the peak period arrives, the firms have to operate at full capacity to meet the demand. This kind of arrangement would not only be expensive but also inconvenient. Thus, serious difficulties will be encountered in trying to match production to the ebb and flow of the seasonal demand pattern. A better alternative is a steady production policy independent of shifts in demand for the finished goods. This means a large accumulation of finished goods (inventories) during the off-season and their abrupt sale during the peak season. The progressive accumulation of stock naturally requires an increasing amount of working capital which remains tied up for some months. Working capital planning has to incorporate this pattern of requirement of funds when production and seasonal sales are steady. This strategy (steady production policy) is, however, not necessarily adopted by everyone. It may be possible for instance, for some to follow a policy of diversification which will enable them to engage the working force and the physical facilities in some other activity. If this is possible, there will be no major working capital problem. Moreover, the nature of some products may be such that accumulation of inventories may create special risk and cost problems. For them, a production policy in tune with the changing demands may be preferable. Therefore, production policies have to be formulated on the basis of the individual setting of each enterprise and the magnitude and dimension of the working capital problems will accordingly vary.

### **2.5.5 Credit Policy**

The credit policy relating to sales and purchases also affects the working capital. The credit policy influences the requirement of working capital in two ways: (i) through credit terms granted by the firm to its customers buyers of goods; (ii) credit terms available to the firm from its creditors.

The credit terms granted to customers have a bearing on the magnitude of working capital determining the level of book debts. The credit sales result in higher book debts (receivables). Higher book debts mean more working capital. On the other hand, if liberal credit terms are available from the suppliers of goods (trade. creditors), the need for working capital is less. The working capital requirements of a business are, thus; affected by the terms of purchase and sale, and the role given to credit by a company in its dealings with-creditors and debtors. Credit terms fixed by an enterprise are affected by the prevailing trade practices as well as hanging economic conditions. If, for example, competition is keen, there would be pressure to grant generous credit terms. Nevertheless, there is wide scope for managerial discretion in working out a suitable credit policy relevant to each customer based on the merits of each case. For instance, liberal credit facilities can be extended on the basis of credit rating. This will avoid the problem of having excess working capital. Similarly, the collection procedure can be so framed that funds, which would otherwise be available for meeting operating needs are not locked up. Thus, adoption of rationalized credit policies would be a significant factor in determining the working capital needs of an enterprise.

### **2.5.6 Growth and Expansion**

As a company grows, it is logical to expect that a larger amount of working capital is required. It is, of course, difficult to determine precisely the relationship between the growth in the volume of business of a company and the increase in its working capital. The composition of working capital in a growing company also shifts with economic circumstances and corporate practices. Other things being equal, growth industries require more working capital than those that are static.

The critical fact, however, is that the need for increased working capital funds does not follow the growth in business activities but precedes it. Advance planning of working capital is, therefore, a continuing necessity for a growing concern. Or else, the company may have substantial earnings but little cash.

### **2.5.7 Vagaries in the Availability of Raw Material**

The availability or otherwise of certain raw materials on a continuous basis without interruption would sometimes affect the requirement of working capital. There may be some materials which cannot be procured easily either because of their sources are few or they are irregular. To sustain smooth production, therefore, the firm might be compelled to purchase and stock them far in excess of genuine production needs. This will result in an excessive inventory of such materials. The procurement of some essential raw materials is difficult because of their sporadic supply. This happens very often with raw materials which are in short supply and are controlled to ensure equitable distribution. The buyer has in such cases very limited options as to the quantum and timing of procurement. It may so happen that a bulk consignment may be available but the firm may be short of funds, while when surplus funds are available the commodities may be in short supply. This element of uncertainty would lead to a relatively high level of working capital. Finally, some raw materials may be available only during certain seasons. They would have to be necessarily obtained, when available, to provide for a period when supplies are lean. This will cause seasonal fluctuations in working capital requirements.

### **2.5.8 Profit Level**

The levels of profits earned differ from enterprise to enterprise. In general, the nature of the product, hold on the market, quality of management and monopoly power would by and large determine the profit earned by a firm. A priori, it can be generalized that a firm dealing in a high quality product, having a good marketing arrangement and enjoying monopoly power in the market, is likely to earn high profits and vice versa. Higher profit margin would improve the

prospects of generating more internal funds thereby contributing to the working capital pool. The net profit is a source of working capital to the extent that it has been earned in cash. The cash profit can be found by adjusting non-cash items such as depreciation, outstanding expenses and losses written off, in the net profit. But, in practice, the net cash inflows from operations cannot be considered as cash available for use at the end of cash cycle. Even as the company's operations are in progress, cash is used for augmenting stock, book debts and fixed assets. It must, therefore, be seen that cash generation has been used for furthering the interest of the enterprise. The availability of internal funds for working capital requirements is determined not merely by the profit margin but also by the manner of appropriating profits. The availability of such funds would depend upon the profit appropriations for taxation, dividend, reserves and depreciations.

#### **2.5.9 Level of Taxes**

The first appropriation out of profits is payment or provision for tax. The amount of taxes to be paid is determined by the prevailing tax regulations. The management has no discretion in this respect. Very often, taxes have to be paid in advance on the basis of the profit of the preceding year. Tax liability is, in a sense, short-term liability payable in cash. An adequate provision for tax payments is, therefore, an important aspect of working capital planning. If tax liability increases, it leads to an increase in the requirement of working capital and vice versa. Management has no discretion in regard to the payment of taxes; in some cases non-payment may invite penal action. There is, however, wide scope to reduce the tax liability through proper tax planning. The service of tax experts can be availed of to take advantage of the various concessions and incentives through avoidance as opposed to evasion of taxes. Tax planning can, therefore, be said to be an integral part of working capital planning.

#### **2.5.10 Dividend Policy**

Another appropriation of profits that has a bearing on working capital is dividend payment. The payment of dividend consumes cash resources and, thereby, affects



working capital to that extent. Conversely, if the firm does not pay dividend but retains the profits, working capital increases. In planning working capital requirements, therefore, a basic question to be decided is whether profits will be retained or paid out to shareholders. In theory, a firm should retain profits to preserve cash resources and, at the same time, it must pay dividends to satisfy the expectations of investors. When profits are relatively small, the choice is between retention and payment. The choice must be made after taking into account all the relevant factors. There are wide variations in industry practices as regards the interrelationship between working capital requirements and dividend payment. In some cases, shortage of working capital has been a powerful reason for reducing or even skipping dividends in cash. There are occasions, on the other hand, when dividend payments are continued in spite of inadequate earnings in a particular year because of sound liquidity. Sometimes, the dilemma is resolved by the payment of bonus shares. This enables the payment of dividend without draining away the cash resources and, thus, without reducing working capital dividend policy, is thus, a significant element in determining the level of working capital in an organization.

### **2.5.11 Depreciation Policy**

Depreciation policy also exerts an influence on the quantum of working capital. Depreciation charges do not involve any cash outflows. The effect of depreciation policy on working capital is, therefore, indirect. In the first place, depreciation affects the tax liability and retention of profits. Depreciation is allowable expenditure in calculating net profits. Enhanced rates of depreciation lower the profits and, therefore, the tax liability and, thus, more cash profits. Higher depreciation also means lower disposable profits and, therefore, a smaller dividend payment. Thus, cash is preserved. In the second place the selection of the method of depreciation has important financial implications. If current capital expenditure falls short of the depreciation provision, the working capital position is strengthened and there may be no need for short-term borrowing. If, on the other hand, the current capital expenditure exceeds the depreciation provision, either outside borrowing will have to

be resorted to or a restriction on dividend payment coupled with retention of profits will have to be adopted to prevent the working capital position from being adversely affected. It is in these ways that depreciation policy is relevant to the planning of working capital.

### **2.5.12 Price Level Changes**

Changes in the price level also affect the requirements of working capital. Rising prices necessitate the use of more funds for maintaining an existing level of activity. For the same level of current assets, higher cash outlays are required. The effect of rising prices is that a higher amount of working capital is needed. However, in the case of companies which can raise their prices proportionately, there is no serious problem regarding working capital. Moreover, the price rise does not have a uniform effect on all commodities. It is likely that some firms may not be affected at all. In brief, the implications of changing price levels on working capital position vary from company to company depending on the nature of its operations, its standing in the market and other relevant considerations.

### **2.5.13 Operating Efficiency**

The operating efficiency of the management is also an important determinant of the level of working capital. The management can contribute to a sound working capital position through operating efficiency. Although the management can not control the rise in prices, it can ensure the efficient utilization of resources by eliminating waste, improving coordination, and a fuller utilization of existing resources, and so on. Efficiency of operations accelerates the pace of cash cycle and improves the working capital turnover. It releases the pressure on working capital by improving profitability and improving the internal generation of funds. To conclude, the level of working capital is determined by a wide variety of factors which are partly internal to the firm and partly external (environmental) to it. Efficient working capital management requires efficient planning and a constant review of the needs for an appropriate working capital strategy.

## 2.6 Control of working capital

Working capital can be controlled when there is control on its main elements viz; debtors, inventories and cash. Control of the debtor's element involves a fundamental trade off between the cost of providing credit to customers and by doing so, additional net revenue can also be earned. Debtors can be controlled or kept to a minimum with following effective credit control policies.

- a. Credit terms should set and enforced.
- b. Investigation about the customers should be done before allowing them credit.
- c. Individual credit limits should be set and reviewed time to time.
- d. Query resolution should be prompt.
- e. Generation of invoice and other statement should be efficient.
- f. Review of debtor's position continuously which can be done by generating "aged debtors" report.
- g. Chasing & collection procedures should be effective.
- h. Limits should be determined beyond which legal action will be pursued.

Before allowing credit to a new customer, trade and bank references should be sought. For this their accounts can be asked for analysis. Investigation should be made whether the cases are filed on court against the business or not. What is the credit score from a credit rating business which may be known by salesmen's views. The amount of credit sought, time period, past experience with the customers and importance of the business that is involved, determined the extent to which all means are called upon. But there is a common fraud which is made by the regular customers. These customers take small amounts of credit and settle it promptly and then build up huge order and disappear. To check these types of customers, credit checking, even for established customers should be done in regular basis.

Collection is also a major element of credit control. For collection, there should be well constructed reminder procedure which should include polite and standard. This procedure may be letters, email or telephone. There should be some proof of credit like outstanding

invoices, sales ledger and debtors control services. When these proofs are available then the company can appoint collection agencies as they are effective in the collection process. Effective control of debtors helps in minimizing overdraft and other loan requirement which leads to effective cash flow. Debtors represent future cash if proper credit control policies are pursued.

Inventory is another important element of working capital which should be controlled for efficient operation of the business at minimum cost. Control should be in buying handling, storing, issuing and recording stock, which keeps the stock level to the minimum. The main objective of establishing control level is to reduce excessive stock which also sacrifice working capital and not letting them to fall below the level at which they can be replenished before they run out. Factors to consider when, establishing the control levels are<sup>11</sup>

- Working capital available and the cost of capital;
- Average consumption or production requirements;
- Recording periods-the time between raising and order and receiving delivery of good;
- Storage space available;
- Market conditions;
- Economic order quantity (including discounts available for quantity);
- Likely life of stock-bearing in mind the possibility of loss through deterioration or obsolescence and
- The cost of placing orders including generating and checking the necessary paper-work as well as physical checking and handling procedures.

Control policies should include designating responsibility for raising and authorizing orders, signing delivery notes and authorizing payment of invoices.

Stock will eventually, becomes cash, but in the meantime represents working capital tied up in the business.

Trade creditors which is outstanding also is the short term financing plus in the working capital equations. The higher the figure, the more has been extended by others (usually at no cost) towards working capital need. But the company should not go beyond the agreed limits because it results in lose out on cash discount, incurred interest charges, upset their suppliers who may refuse future orders, may damage their credit rating and even the business may have to pay additional cost and penalties. To control these things a settlement policy has to be in place so that invoices are properly authorized for payment. There also should be appropriate reports generation and it should be checked time to time.

While speaking about working capital, cash is the most valuable element because it is immediately available to settle bills. Cash is both the balancing figures between debtors, stock and creditors and also the control element. It is not possible to extend credit, order stock or pay creditors if there is no cash to meet working capital demands. So, cash flow control is more important to make sure funds are available whenever required. For control of cash in short term, weekly or monthly forecasts should be prepared for comparison with actual results. If the comparison shows that there is deficit in the forecasts, immediate solutions should be made which includes borrowing, rescheduling plans and payments or even sale of an assets. Control of longer term cash flow will embrace improvements in operating efficiency or higher sales prices, improved working capital control revised fixed assets investment plans. Cash flow can be forecasted by cash budget.

Working capital control can be done through reporting process like “aged debtors” lists and cash flow forecast and through internal control procedures line invoice authorization. Analysis of working capital can be done by the use of various ratio analysis. These ratio are the important indicators of working capital strength. Popular ratio to know the short tem ability to finance its assets and current liabilities. Former should be greater than latter generally. Current assets also increase when debtors’ amount increases. But the increased

amount of debtors faster than sales growth indicates poor credit control and possibilities or increase in bad debts problems prepaid creditors means they will be earned over time.

Another test is 'acid test' which excludes stocks from current asset and known as quick assets. If the quick asset is less than current liabilities then the business may not be able to settle its creditors as they fall due. For this more finance might be needed, with better working capital control to decrease the risk of insolvency.

## **2.7 Concept of working capital**

Current assets of any firm consist of cash and market securities, accounts receivable and inventories. These are assets that are related directly to the production of the firm, and they are called working capital. Current liability accounts which are used to finance current assets consist of accounts payable, notes payable and taxes payable. Current liability accounts are also related directly to production and sales. The difference between current assets and current liabilities is called net working capital<sup>11</sup>. There are two concepts of working capital: Gross working capital and Net working capital.

### **2.7.1 Gross Working Capital:**

Another name of gross working capital is circulating capital. According to this concept, total current assets are working capital which represents both owned capital as well as loan capital used for financing current assets. It includes cash, marketable securities, receivables and inventory. These assets can be converted into cash within a year. Generally, when it comes to current assets, cash is the most valuable element because it is immediately available to settle bills and debtors are more valuable than stock which is nearer to being turned into cash.

The gross concept of working capital refers to the amount of funds invested in short term assets that are employed in the enterprise.<sup>12</sup>

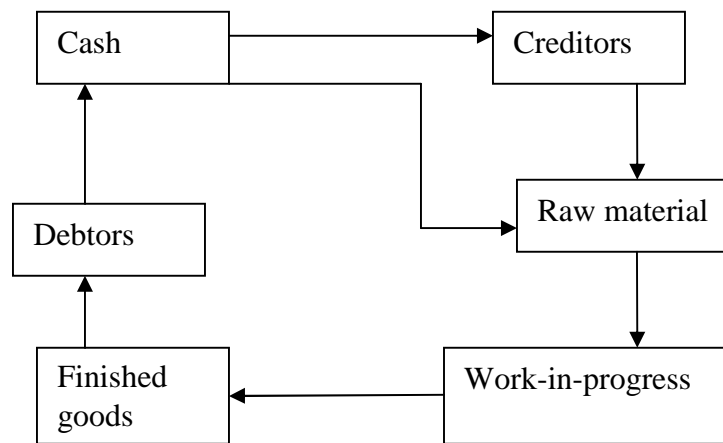
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<sup>11</sup> Glenn V. Henderson, JR. Gary L. Trennepohl, James E. Wert, An introduction to Financial Management, Addison Wesley Publishing Co. p 219

<sup>12</sup> Madhav Raj Koirala op cit, P16

Working capital or circulating capital means circular flow of cash. This is also called operating cycle in case of manufacturing firm. This cycle starts with cash which is used to pay for raw materials. Raw materials are converted into work-in-progress which is again converted into finished goods. When it is ready for sale, it is converted into receivables. Again cash is recovered through these receivables. Thus, we have a circular cash-flow from cash into inventories to receivables and back to cash. This cycle will repeat again and again for the whole life of the firm.

The value represented by current assets circulates from one working capital to another working from purchase accounts to cost of goods manufacturing accounts, from inventory accounts to sales account, from sales account to cash account. This is described as circulating nature of current assets or in other word working capital of the management. The faster the turnover, the higher the degree of efficiency.<sup>13</sup> The working capital cycle can be represented in a diagram as:



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**Fig 2.1: The working capital cycle of manufacturing firms**

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<sup>13</sup> Upadhyay K.M. Financial Management, Kalyani Publishers, New Delhi 1985, p 47

If the business is profitable, the firm's assets at the end of each cycle will be greater than the original investment. In this manner, each cycle will produce a gross profit, and the amount of net earning for the year will depend, in part, on the number of times the cycle Occurs or how often working capital is turned over. Turnover of working capital is measured by the ratio of sales to current assets. The higher the ratio, the more efficient the operations, fewer current assets are needed to support each dollar of sales.<sup>14</sup> The flow of working capital does not always proceed as it is preplanned when it moves through different stage of the cash cycle. For example, sales may decline due to change in consumer taste, slow economy and receivable becomes more difficult to collect, the working capital cycle will be interrupted. This leads to decline in profitability and firm could suffer bankruptcy if this adverse situation prevails for sometime.

There is also much shorter cycle of activity where in goods and materials are held for manufacture and sale and credit is advanced to customers for rapid conversion into cash provide the funds with which to continue in business and to make a profit distribution possible.<sup>15</sup>

The working capital cycle shown in figure (Fig 2.1) is the operating cycle for non manufacturing firm where, cash is required to purchase raw materials which are needed to convert into work-in-process, which is again converted into finished goods. Finished goods are sold for cash and credit and ultimately debtors will be realized.

The non manufacturing firms such as wholesaler and retailers do not manufacture goods. So they have the direct conversion of cash into stock of finished goods into debtors and then into cash. This can be shown graphically as

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<sup>14</sup> Glenn V. Hendorson, JR. Gary L. Trennepohl, James E. Wert, op cit, p221

<sup>15</sup> C.S. Page and E.E. Canway, op cit p118



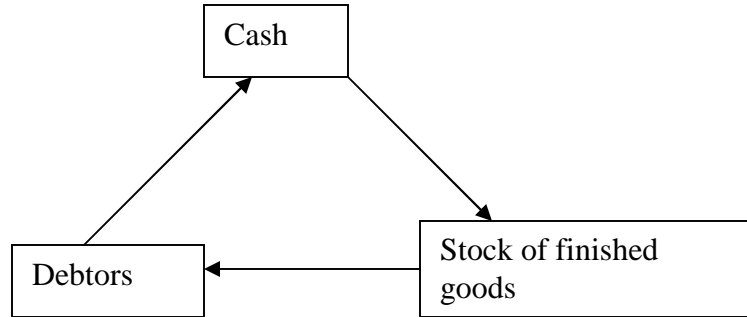


Fig 2.2: Operating cycle of non-manufacturing firms

Sometime service and manufacturing concerns may not have any inventory. In this case the operation cycle will be shortest as follows;



**Fig.2.2: Operating cycle of service and financial firms**

The gross working capital focuses on two aspects of current assets management:

- a. Optimum investment in current assets: As stated earlier, both excessive and inadequate investment is harmful for the business. This aspect thus, emphasis on the optimum or adequate level of current assets working capital depends upon the business activities. It also changes with change in business activities. This may cause excess or shortage of working capital frequently. The management should be active and alert to correct the imbalances.
- b. Financing of current assets: This aspect focus on the need of arranging funds to finance currents assets. When more working capital is required due to the increase in business activities. Then the arrangement should be made quickly. Similarly, when surplus funds arise, then they should be invested in short term securities.

## 2.7.2 Net Working Capital

Net working capital comprises short term net assets: stock, debtors and cash, less creditors. Working capital management then is to do with management of all aspects of both current assets and current liabilities, so as to minimize the risk of insolvency while maximizing return on assets.<sup>16</sup>

Net working capital represents the excess of total current assets over total current liabilities. It is a qualitative concept which shows the soundness of current financial position. Net working capital may be positive or negative according to the size of current assets and current liabilities. Current assets should be sufficiently in excess of current liabilities for the positive working capital to the management. Not only for the management, it is also a major importance to investors and lenders. They always like a company to maintain current assets greater than current liabilities. Generally, current assets should be two fold of current liabilities and this concept is measured by the current ratio viz. current assets divided by current liabilities, which should be 2:1. A large ratio indicates greater solvency of the company and makes it unsafe and unsound. A negative working capital denotes negative liquidity which is also dangerous for the company. Management should always be alert to improve the imbalance in the liquidity position of the firm. Mathematically, it is presented as:

Net working capital = Current assets - current liabilities

Where,

Current assets = Cash + marketable securities + receivables + inventories

Current liabilities = short term bank loans + creditors + payables + outstanding expenses

An alternative definition of net working capital is that portion of a firm's current assets financed with long term funds.<sup>17</sup>

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<sup>16</sup> Dr. Philip E. Dunn, op cit, p38

<sup>17</sup> Lawrence J. Gitman, op cit, p 225

For every firm today, minimum portion of working capital is financed with the permanent sources of funds such as owners' capital, debentures, long term debt, preference capital or retained earning. This portion of working capital which is financed with long-term funds is called permanent working capital. Management must therefore, decide the extent to which current assets should be financed with equity capital or/and borrowed capital.

Both the concepts of working capital, gross and net are not mutually exclusive. However, they are equally important from the management point of view in that the gross concept points out two important aspects of current assets : (i) Optimum investment in each of the component of current assets and (ii) Financing of these current assets : while the net concept indicates (i) the liquidity position and (ii) the extent to which working capital may be financed by permanent sources of funds. <sup>18</sup>

Both the concepts have their own advantages and disadvantages, which concept to choose depend upon the purposes of the firm. The concept of gross capital is a financial concept where as that of net concept is an accounting concept. Management is interested in the amount of current assets to operate the business with efficiency. To evaluate the efficiency, gross concept is appropriate. On the other hand interest of investors and lenders is in concept of net working capital because it helps in the judgment of liquidity position of the enterprise.

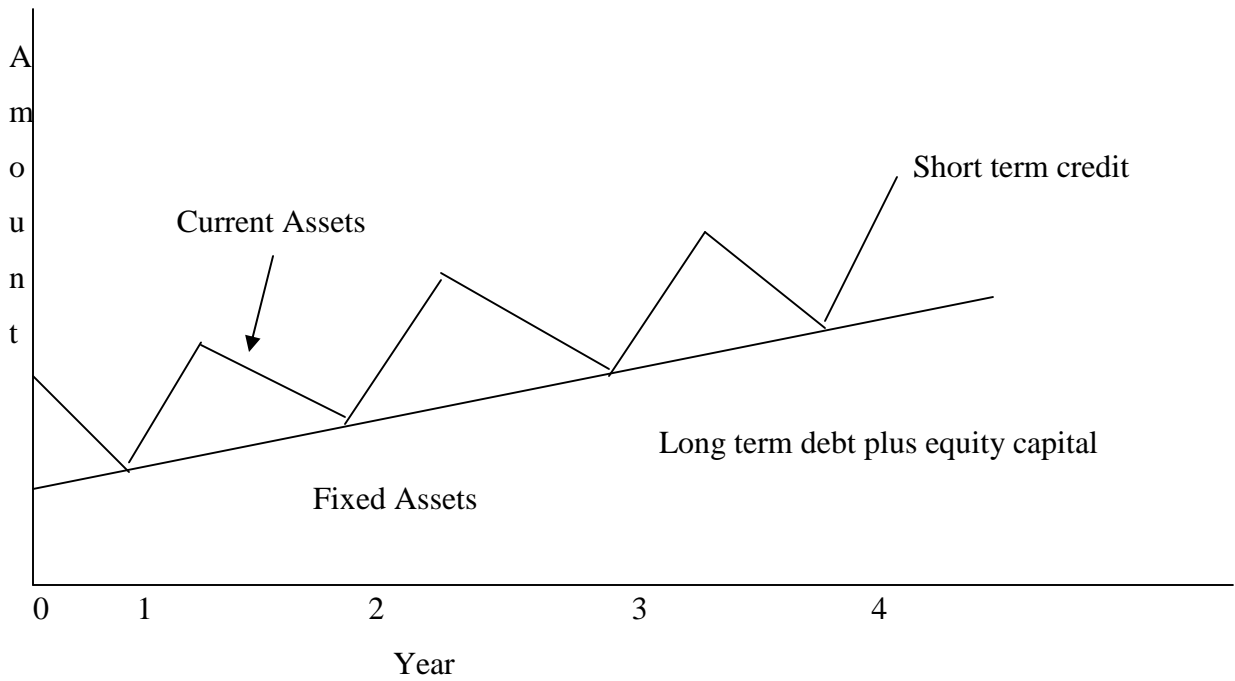
## **2.8 Original Concept of Working Capital**

The term working capital was originated at a time when most of the industries were agro based. Manufacturer would buy the crops, process them, sell the finished goods and end up just before the next. Harvest with relatively low inventories. Loans were taken from bank which has a maturity period not more than one year. These loans were used to grow steadily over the time period, while current assets

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<sup>18</sup>Ibid, p 255

gallop at the harvest season and then decline during the year ending just before the next crop is harvested. Current assets are financed with short term credit and fixed assets are financed with long-term funds. This situation is depicted in the following figure:



**Fig 2.3 Fixed and current assets pattern in agriculture.**

In this figure, the top segment deals with working capital. Current assets build up gradually as crops are purchased and processed. Inventories are drawn less regularly and ending stock never decline zero. Working capital management consists of decisions relating to the top section of the graph managing current assets and arranging the short-term credit used to finance them.

## **2.9 Extending the working capital concepts**

As the economy became less oriented towards agriculture, the production and financing cycles of typical business changed. Although seasonal patterns still existed and business cycles caused assets requirements to fluctuate, it became apparent that current assets

rarely, if ever dropped to zero. This relation led to the development of the idea of permanent assets.<sup>19</sup>

### **2.9.1 Classification of working capital**

Working capital can be classified into:

1. Permanent or fixed working capital
2. Temporary or variable working capital.

**1. Permanent or fixed working capital:** It is the part of working capital, which is required to meet the firm's minimum needs in long term; it tends to be constant in the short term.<sup>20</sup>

There is always a minimum level of current assets requirement or fixed working capital which is permanent like the fixed assets.

This working capital fluctuates according to changes in production and sales of the firm. If production and sales increases then extra working capital is required to support the changing production and sales activities.

**2. Temporary or variable working capital :** Temporary working capital is created by the firm to meet liquidity requirements that will last only temporarily.<sup>21</sup> Like permanent working capital these are also of vital important in production and sale. It is the part of working capital, which varies seasonal requirements of the firm. For example, Investment in raw material, work in progress and finished goods will decline with the black of market. In this situation temporary working capital is indispensable.

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<sup>19</sup> J. Fred Weston, Eugene F. Brigham, Management Finance, Holt Saunders International Editions; 7<sup>th</sup> edition 1982, p 267

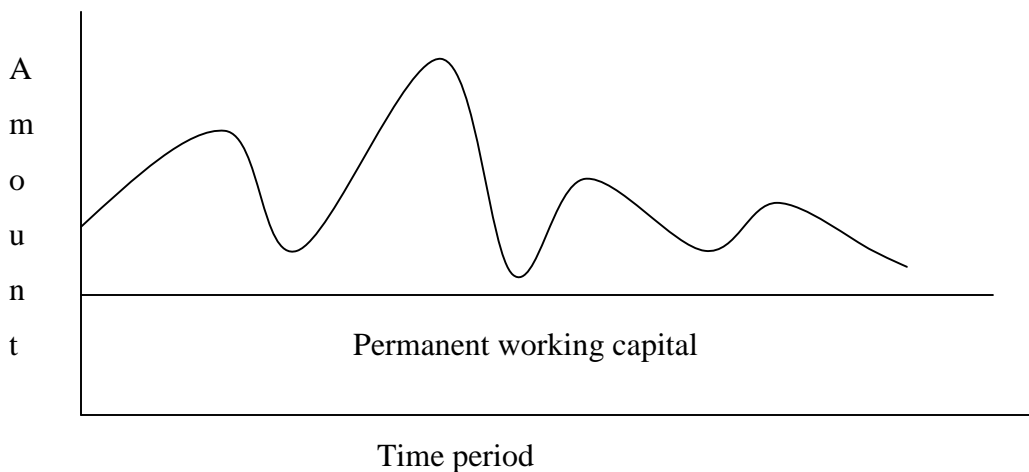
<sup>20</sup> I.M. Pandey, op cit, p 328

<sup>21</sup> Ibid p328

The temporary working capital is also classified into two ways.<sup>22</sup>

- i. Seasonal Working Capital: This sort of temporary working capital needs which is required not for a whole year but not only a particular season of a year is known as seasonal working capital. In another way, the temporary working capital which is required only during the particular season of a year known as seasonal working capital. So it is kept for fulfilling the seasonal demands of enterprises.
- ii. Special working capital: Special working capital is managed for special situational. In other words, during the special occasion the firm has to produce goods in large quantity and for this additional working capital is needed.

Temporary and permanent working capital can be graphically presented as:



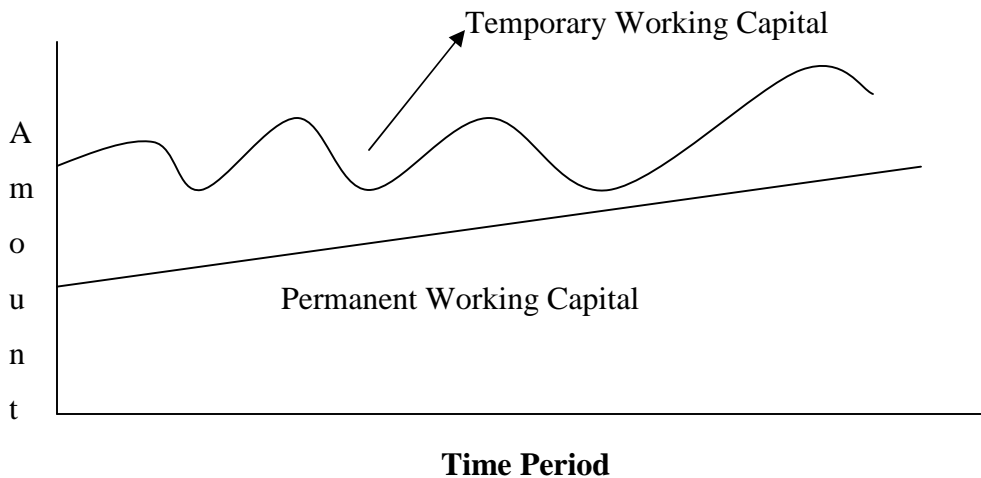
**Fig. 2.4 : Permanent and temporary working capital**

In this figure permanent working capital is stable where temporary working capital is sometime increasing and sometime decreasing.

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<sup>22</sup> Subedi, Nischal, as Quated by Shiv Gopal Risal, A comparative study of working capital management of Mittal Tea Estate P. Ltd. And Danphey Tea processing Company P. Ltd., An unpublished thesis submitted to the Faculty of Management T.U. 2003, p 22

When firm's requirement for permanent capital is increasing then the permanent capital will also increase and when the firm's requirement decreases, permanent working capital will also decrease.



**Fig. 2.5 : Permanent and temporary working capital**

In this figure permanent working capital line is in increasing trend and temporary working capital is sometime increasing and sometime decreasing. This difference in increasing permanent and temporary working capital is seen grouping firms.

### **2.9.2 Methods of investment in working capital**

There are generally three types of source of available to most of the companies to finance working capital. They are; long term financing, short term financing and spontaneous financing. Long term finance includes equity shares, performance shares, debentures, long term debts from financial institutions and retained earnings. Short term debts from financial institutions and retained earnings. Short term financing includes short term bank loans, commercial papers and factoring receivables. Spontaneous financing includes outstanding expenses, creditors, bills payables and advance income. Since the spontaneous financing are of free cost, firm utilizes these sources at full extent. Those current assets which is not financed with spontaneous finance, must be financed with either long term financing. Management must choose between these two sources to finance in current assets.

There are basically, three approaches to invest in working capital which are as follows:

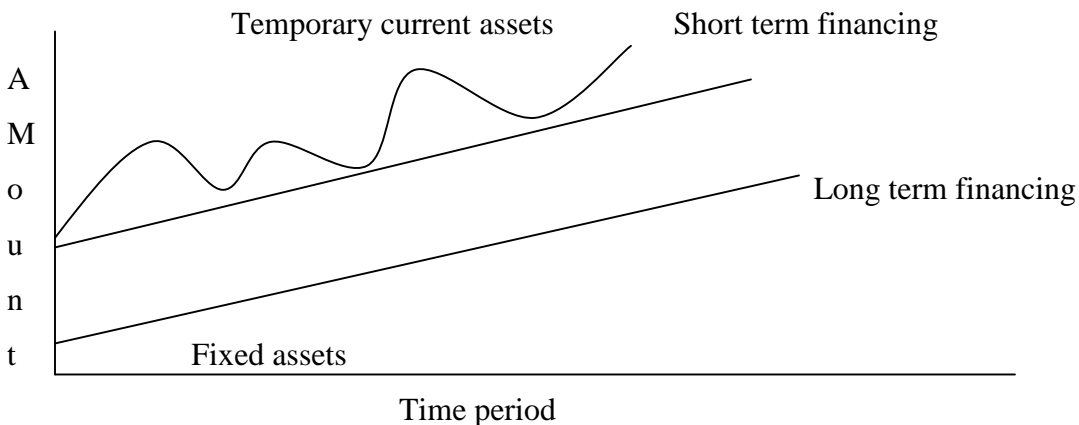
1. Matching approach
2. Conservative approach
3. Aggressive approach

**1. Matching approach:**

This approach is also known as average or hedging approach. In this approach, long term financing are used to finance fixed assets and permanent current assets and short term financing sources are used to finance temporary or current assets. In other words, expected life of assets are matched with expected life of the source of the funds raised to finance assets, i.e. maturity period of both assets and source of finance should be the same. If short term financing is used to finance long term assets, then it will be inconvenient and costly because arrangement of new short term financing should be made on a continuing basis. Similarly, when short term assets are financed with long term fund. Then its costs also increased because funds will not be utilized in full extent. Thus, we can say in this approach, we have exact match between life of assets and life of funds to finance the assets.

However, it should be realized that exact matching is not possible because of the uncertainty about the expected lives of assets.

However, it should be realized that exact is not possible because of the uncertainty about the expected lives of matching assets.



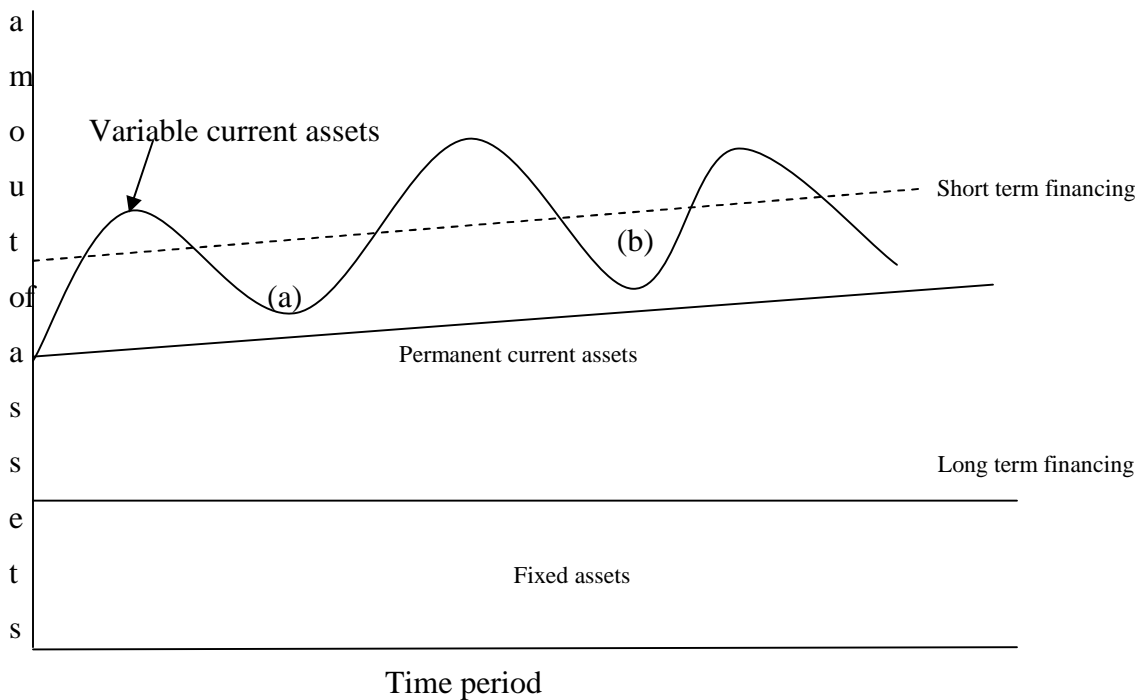
**Figure 2.6: Financing under matching approach**



In the figure (figure 2.9), the firm's fixed assets and permanent current assets are financed with long term funds and as the level of those assets increases, long term financing level also increases. The temporary current assets are financed with short term funds and as their requirement increase, short term funds also increased.

## 2. Conservative approach:

In capital life exact matching is not possible because of the expected life of the assets which is uncertain. So, firm uses conservative approach in which firm depends more on long term funds than short term funds whenever finance is required. When this approach is adopted by a firm, then it finances its permanent assets and a part of temporary current assets with long term financing. Long term financing is less risky so that firm which are risk averse adopt this approach. When firm has no temporary current asset, then, the surplus long term funds are invested in marketable securities.

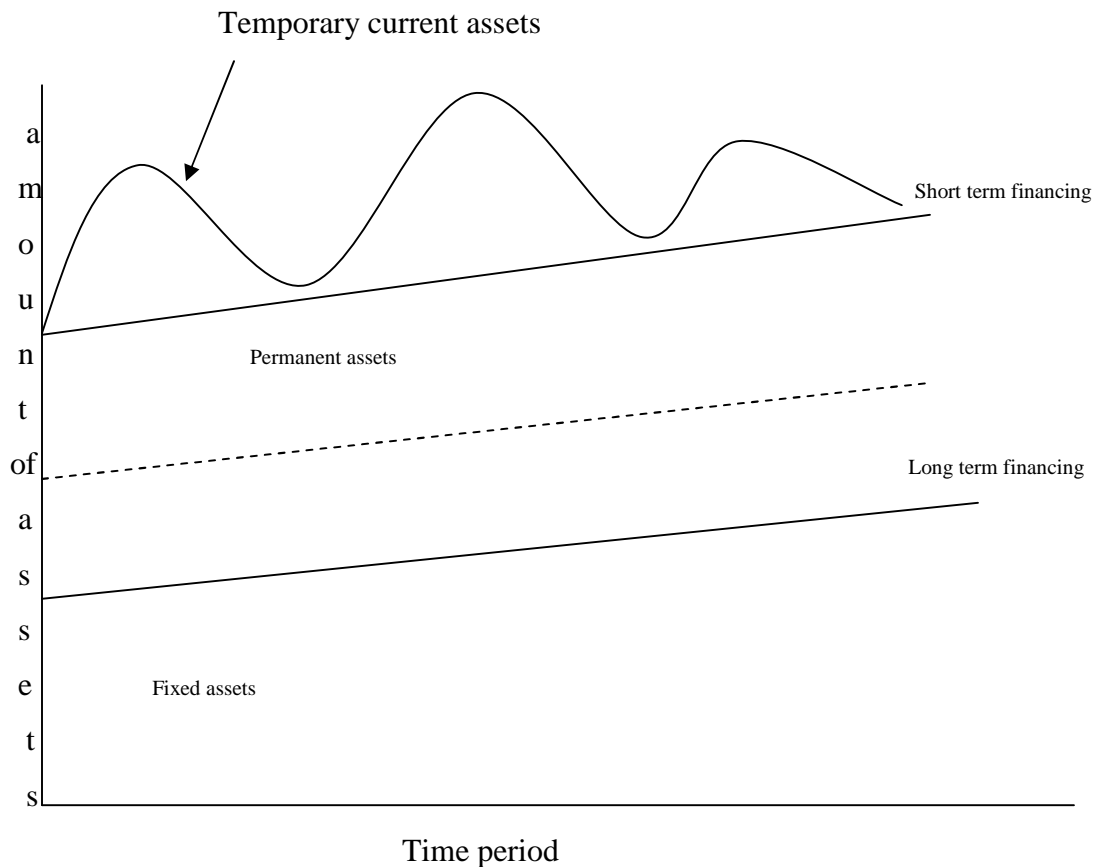


**Fig. 2.7: Financial under conservative approach**

In this figure, permanent assets and a part of variable current assets are financed with long term funds. When the firm has no variable or temporary current assets e.g. in (a) and (b), firm invest excess funds in marketable securities to build up the liquidity position of the firm.

### 3. Aggressive approach:

In this approach, the firm finances a part of its permanent current assets with short-term financing i.e. this type of firms are of aggressive nature and uses of more short term financing. Some extremely aggressive firms may even finance a part of their fixed assets with short-term financing. More use of short-term financing makes the firm more risky but the cost of investment is relatively less than that of financing with long term financing.



**Fig. 2.8 : Financing under aggressive approach**

Here, parts of permanent current assets are financed by short term financing. But short term financing is more risky as compared to long term financing.

Whether or not the firm should adopt a conservative, aggressive and net working capital policy depends upon the three factors.<sup>23</sup>

- 1) **Expected volatility of sales:** The greater the uncertainty regarding cash flows from sales, the higher the level of working capital required. A utility, for instance, can maintain a lower net working capital level than the electronic firm can.
- 2) **Working capital cycle of the firm:** The longer the time to convert raw materials in to collected accounts receivable, the more the firm is exposed to disruption of the working capital cycle. A lower level of net working capital can be maintained of firm with short working capital cycles.
- 3) **Risk preferences of management:** Greater amount of net working capital increase the firm's ability to meet unforeseen disruption in the working capital cycle. The more risk averse the management, the higher the working capital balance required.

Working capital management involves many simultaneous decisions about the level and financing of current assets. Since it is very difficult to maintain a specific amount of net working capital over each operating cycle, most of the firm find it useful to follow general guidelines and principles when establishing net working capital levels. Financial managers will consider above three factors and the principle of matching sources and uses of funds when they make working capital policy decision.

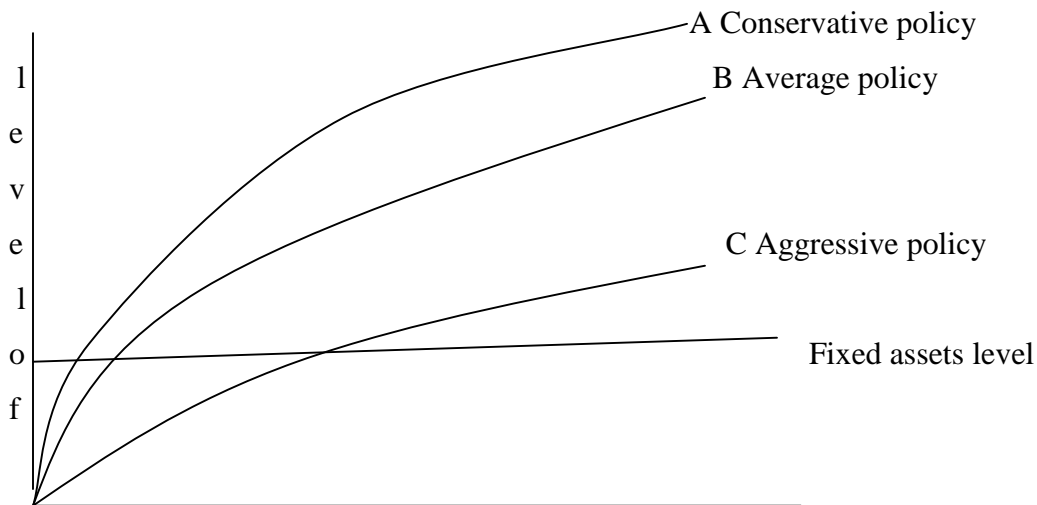
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<sup>23</sup> Gleen V. Henderson, JR Gary L. Trennephol, James E. Wert, op cit, p 229

### 2.9.3 Optimum level of current assets

The optimum level of each type of current assets should be fixed in every firm. For a particular level of output both fixed and current assets are required. It is not necessary that for the same level of output, same level of current assets are required. As the firm's output and sales increased, current assets need also increases at a decreasing rate. This denotes that when fewer units of output are produced portion of investment in current assets is greater.

What should be the level of current assets is denoted by its relation with fixed assets which is measured by current assets to fixed assets ratio, i.e.;  $CA \div FA$ . It is assumed that fixed assets is constant. Higher  $CA \div FA$  denotes conservative current assets policy i.e., this policy tries to keep sufficient large amount of currents. Lower  $CA \div FA$  ratio means an aggressive current assets in which lowest amount of current assets is kept as far as possible. In moderate policy company tries to keep current assets to the level of real need. Other things being constant, conservative policy implies greater liquidity and lower risk; while aggressive policy denotes higher risk and poor liquidity. Most of firm adopts conservative or aggressive policy. These polices can be depicted from the following figure;



**Fig : 2.9 Alternative current assets policies**

In this figure, conservative is denoted by A which have CA÷FA ratio greatest at every level of output. Average policy is denoted by B which lies between the conservative and aggressive policies and is also known as the middle of the road approach. Aggressive policy is denoted by C, where CA÷FA ratio is greatest at every level output.

## **2.10 Financing of working capital**

When there is increase in current assets due to increase in short term financing, then it does not mention the increase in working capital. Increase in working capital is also denoted by the increase in current assets which are financed by long term source of finance. The major sources of increased working capital are:-

- i) Net income
- ii) Provision for depreciation
- iii) Amortization and other non cash expenses
- iv) Amount received by sale of fixed assets
- v) Insurance of capital stock and long term debt for cash

The application our uses of the working capitals are:

- i) Operating loses
- ii) Purchase of fixed assets
- iii) Payment of cash dividend
- iv) Retirement of capital stock and long term debt for cash

Since depreciation and other non cash expenses are charged to profit for tax liability, so it helps in working capital. Deprecation refers to all book value of any assets. It involves conversion of fixed assets into current assets and for most of the companies the cash inflow from operations measure and retained through depreciation chargers are more sustainable than retained earning from its income. Depreciation is charged for tax liability and there is no shareholders' claims on it, so deprecation charges would increase the working capital of the company rather than capital expenditure. Depreciation is an expenditure deducted from income before computations of profit for tax liability.

The long term debt may also in the nature of debenture, which issue is practiced popularly in Nepal from the various institutions. If issue of share is not possible then in that case long term loans on fixed rates of interest are borrowed from the government of financial institutions. If the amount to be invested in current assets is brought from share capital then, there is no need to pay the fixed rate of interest and return the principle. In this case, only dividend is to be paid when the company is at a profit. Long term loan is the second most important after equity capital. These long term loans are provided by different banks and financial institutes. E.g. Nepal Industrial Development Corporation (NTDC), Agricultural Development Bank and other commercial banks like Nepal Bank Limited, Nepal Rastra Bank etc.

Sales of fixed assets would increase the working capital of the company. It would be a source of increasing current assets if it had not been used for other purposes like repayment of loans, replacement of assets or dividend payment. Equity share capitals are most important source of finance in Nepal because dividend does not carry the fixed rate all the time, the rate may vary each year according to the decision of the management. Share capitals are better than long term debts because it does not have to refund the principle and pay yearly interest.

Thus, there would be no working capital if the company financed through current liabilities only and it would be possible for the company to maintain the level of assets needed regularly in the day to day operation. On the other hand, the company would have net working capital at the level required for maintaining liquidity as well as for earning the profit.

Generally, all the business firms invest in current assets i.e. working capital. Investment in working capital is necessary especially to avoid the unnecessary cost at the time of unexpected events such as sudden fluctuation in industry's sales or profit or sudden increase in cash expenses. For the production of goods and services, cash is necessary which can be again gathered by the sale of finished goods. Outflow of cash includes the

purchase of raw material which is turned in work-in-process. This work-in-process is turned into finished goods. It later flow into finished goods inventory and then flow out as the sale of goods. If there is credit sales then receivables are created which turns into cash after collection; which is the liquid asset. Cash sale of finished goods directly flow to the liquid assets investment. Business invests in current assets to avoid the cost of quickly adjusting to unexpected changes in demand for the business products. When there is an unfavorable imbalance between inflow and outflow of cash, at that time liquid assets helps the business to meet cash obligation.

Investment in receivable can help to reduce transaction cost associated with cash sales and may also stimulate sales by reducing effective purchase price and by helping customer attain desire purchase patterns of customers cash receipts. Finished goods inventory helps in smooth sales of product because it provides product to customers whenever they demand. It also helps in stable flow of production in response to fluctuating demand. When there is increase in raw material cost or the increase in the level of production, at that time materials inventory helps in avoiding excess costs.

## **2.11 Techniques of forecasting working capital**

Generally, for forecasting the working capital for any future period, the following techniques may be used:

### **2.11.1 Operating cycle method:**

Under this working capital is determined by (a) total operating expenses for the year and (b) number of operating cycles during the year.<sup>30</sup> Here operating expenses includes all the cash expenses are estimated all the changes in the product mix, introduction of new products, changes in price level etc. should also be adjusted. Number of operating cycle is calculated by dividing days is the year by duration of operating cycles. Duration of operating cycle is number of days involved to the various stages of the operating cycle, i.e. cash→raw materials→semi-finished

goods→debtors→cash, which is reduced by the credit period allowed by the creditors. The duration of operating cycle in terms of days for various stages may be calculated as under<sup>24</sup>:

$$1. \text{ Materials storage period (days)} = \frac{\text{Average stock of materials}}{\text{Daily average consumption}}$$

$$\text{Average stock of materials} = \frac{\text{Opening stock} + \text{Closing stock}}{2}$$

$$\text{Daily average consumption} = \frac{\text{Consumption for the year}}{365}$$

$$2. \text{ Conversion period (days)} = \frac{\text{Average stock of semi-finished goods}}{\text{Average daily factory cost}}$$

$$\text{Average stock of semi-finished goods} = \frac{\text{Operating stock of semi-finished goods} + \text{Closing stock of semi finished goods}}{2}$$

$$\text{Average daily factory cost} = \frac{\text{Total factory cost}}{365}$$

$$3. \text{ Finished goods storage period (days)} = \frac{\text{Average stock of finished goods}}{\text{Average daily cost of sales}}$$

$$\text{Average stock of finished goods} = \frac{\text{Opening stock of finished goods} + \text{Closing stock of finished goods}}{2}$$

$$\text{Average daily cost of sales} = \frac{\text{Total cost of sales}}{365}$$

$$4. \text{ Average collection period or Average debtors} = \frac{\text{Opening debtors and B/R} + \text{Closing debtors and B/R}}{2}$$

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<sup>24</sup> Dr. S.P. Gupta, Management Accounting, Bhawan Printers Agra, 1<sup>st</sup> edition 1990, p 228



$$\text{Net credit sales per day} = \frac{\text{Total credit sale}}{2}$$

$$5. \text{ Average payment period (days)} = \frac{\text{Average creditors and B/P}}{\text{Net credit purchase per day}}$$

$$\text{Or } \frac{\text{Average creditors and B/P} \times 365}{\text{Total credit purchase for the year}}$$

$$\text{Average creditors \& B/P} = \frac{\text{Operating creditors and B\&P} + \text{Closing creditors \& B/P}}{2}$$

$$\text{Net credit purchase per day} = \frac{\text{Total credit purchase for the year}}{365}$$

$$6. \text{ No of operating cycles} = \frac{365}{\text{Duration of operation cycle}}$$

$$7. \text{ Working capital} = \frac{\text{Total operating expenses}}{\text{No. of operating cycle}}$$

### 2.11.2 Estimation of current assets and current liabilities:

This is the traditional method of forecasting the working capital. By estimating the amount of current assets and current liabilities, working capital may be easily forecasted. This estimation of each elements may be at cost per unit or total value.

The procedures for estimating the components is as follows:

**i) Stock of raw materials:** Stock of raw materials are important for smooth and continuous production. Average amounts of stocks depends upon the quantity of raw materials required for the production and the average time taken in obtaining fresh raw materials. Adjustment should also be made for ascertaining the quantity of raw materials which is seasonal. Amount of stock of raw materials can be obtained as :

$$\text{Stock of raw materials} = P_x U_x P_r$$

Where,

Pr. = Price of materials per unit

P = Period for which stock required

U = Units of production during that period

- ii) **Stock of work-in-process:** In order to determine the stock of work-in-process, time period for which the inputs will be in the process of production, which is conversion period should be ascertained. Stock of work-in-process can be calculated by multiplying the units in process during the said period by the cost of work-in-process per unit.
- iii) **Finished goods stock:** The goods are kept in godown of warehouse for certain period. On the basis of year production, the amount of finished goods for the storage period may easily be calculated.
- iv) **Sundry debtors:** The amount of sundry debtors may be calculated on the basis of credit sales, period of credit allowed/time lag in collecting the payments. Again, such amount of debtors may be determined either at sales value or at cost. Calculations may be done as under:

$$\text{Debtors at sales value} = U \times SP \times P$$

Where,

U= Units of credit sales during the period

SP= Selling price per unit per year

P= Credit period

$$\text{Debtors at cost} = U \times C \times P$$

C= Cost per unit

- v) **Cash and bank balances:** These are estimated on the basis of past experience and problems generally mentioned about them.
- vi) **Sundry creditors:** This is forecasted on the basis of credit purchase and the time lag in payments to creditors/credit period allowed by suppliers of raw materials.
- vii) **Outstanding expenses:** These are ascertained having considered the time lag in payment of various types of expenses.

### **2.11.3 Cash forecasting method:**

This method estimates cash surplus or deficiency. For this purpose, receipts and payments expected to be incurred in the future are estimated and their difference will disclose the surplus/deficiency. This is very much related to cash budgeting.

### **2.11.4 Projected balance sheet method:**

Under this method all the times of assets and liabilities are estimated after taking into account the transaction expected for the future period. When the balance sheet is projected, working capital is estimated by deducting current liabilities from current assets.

### **2.11.5 Profit and loss adjustment method:**

Under this, profit is estimated first on the basis of transaction likely to take place in future. Working capital magnitude is ascertained by making necessary adjustment for cash inflow and out flow in the estimated profit. In fact, this method attempts to convert profit on cash.

## **2.12 Components of the working capital:**

Following are the components of working capital:

### **2.12.1 Current assets:**

**i) Cash:** It is money in the form of notes, coins and cheque held by the firm balances in bank. It is the major and very sensitive component of working capital. Cash can be disbursed immediately without any restriction. It is the basic input needed to keep the business continuously. On the other hand, it is also the output expected to be realized by selling the service or product manufactured by the firm. “ The inflow of cash increase the liquidity and outflow decrease it.”<sup>25</sup>

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<sup>25</sup> Dr. R.S. Kulshrestha, Financial Management, Sahitya Bhawan, Agra,1992,p 412.

Even profitable companies fail if they have inadequate cash flow. Liabilities are settled with cash and net profits. The primary objective of working capital management is to ensure that sufficient cash is available to<sup>26</sup>:

- ) Meet day to day cash flow needs;
- ) Pay wages and salaries when they fall due;
- ) Pay creditors to ensure continued suppliers of goods and services;
- ) Pay government taxation and providers of cash dividends; and
- ) Ensure the long term survival of the business entity.

From the above objectives of the working capital, the firm holds cash for the following four motives:

- a) **The transaction motive:** In this motive cash is hold to conduct day to day operation smoothly. The firm needs cash primarily to make payments for purchases, wages, operating expenses, taxes, dividends etc.
- b) **The precautionary motive:** In this motive cash is hold to meet any of the possible events in future. It may be borrowing at short notice, when need arises.
- c) **The speculative motive:** This motive relates to the holding of cash for investing in profitable opportunities when they arise. Opportunities may arise when security prices fall and interest rate of security will rise.
- d) **To satisfy compensating balance requirements:** The commercial banking system performs many functions for business firms. Business firms pay for these services in part by direct fees and sometimes in part by maintaining compensating balances at the bank. Compensating balances represents the minimum levels that the firm agrees to maintain in its checking account with the bank. With this assurance, the bank can loan such funds on a longer basis, earning a return, which is an indirect fee to the bank. This represents an institutional reason why a firm holds cash.

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<sup>26</sup> Dr. Philip E. Dunn, op cit, p 38

### 2.12.2 Advantages of adequate cash:

1. To take trade discount firm should have sufficient cash balance. The payment schedule for purchases is referred to as the term of the sale. It is measured by the following formula,

$$\text{Cost} = \frac{\text{Discount \%}}{100 - \text{Discount \%}} \times \frac{365}{\text{Final due date} - \text{discount period}}$$

We, then determine effective interest as :

$$r_e = \left[ 1 + \frac{\text{Cost}}{\frac{365}{\text{FD} - \text{DP}}} \right]^{\frac{365}{\text{FD} - \text{DP}}} - 1$$

Where,

$r_e$  = Effective interest rate

FD= Final due date

DP= Discount period

2. The current ratio and acid test ratio are the key items in credit analysis, so it is essential that the firm, in order to maintain its credit standing meet the standards of the line of business in which it is engaged. A strong credit standing enables the firm to purchase goods from trade suppliers on favorable terms and to maintain its line of credit with banks and other sources of credit.
3. When the favorable opportunities arises in the business environment, then sufficient cash balances is useful to take advantages.
4. There should be sufficient cash to meet the threats such as competitors, theft, strikes, fires etc.

Swift flow of cash can be maintained by reduction in float.

### 2.12.3 Sources of floats:

**a. Mail time float-** Whenever a customer mails a check, some amount of time passes before the check is received by a seller. This is called mail time float.

**b. Processing float-** When a firm receives a cheque, processing time is involved in crediting the customer's account and in getting the cheque into banking system. It is related to the processing float.

**c. Transit float-** It is related to the clearing time within the banking system.

#### There are three types of transfer mechanism

**i) Depository transfer checks (DTC) -** It is an ordinary check which is restricted for deposit at a particular bank and payable only to the bank of deposit for credit to the firm's specific account. So, it moves funds from local depository banks to concentration banks.

**ii) Electronic depository transfer checks (EDTC) -** It is paperless and the electronic image is transferred via the Automated Clearing House (ACH) network developed by the Federal Reserve System. The EDTC avoids the use of mails and has a uniform one-business-lag clearing time. EDTC is generally initiated by central company management.

**iii) Wire transfers (WT)-** It is the fastest way in which funds available for use at one bank immediately available for use at another bank, even in a different city.

The wire transfer is the quickest transfer mechanism but it is most expensive. Depository transfer checks may cost less but may involve delays from two to seven days. So the break even transfer size should be known. Formula for the break even transfer size is:

$$S = \frac{\Delta \text{Cost}}{r\Delta t}$$

Where,

S= the break even size of transfer above which the faster higher cost mechanism is preferred.

$\Delta \text{Cost}$  = Incremental cost of the faster mechanism.

r = the applicable daily interest rate.

$\Delta t$  = the difference in transfer time in days.

#### 2.12.4 Marketable Securities

Marketable securities is a short term interest earning money market instrument used by a firm to obtain return on temporary idle fund. It can be quickly converted into cash.

Marketable securities are short-term money market instrument that can easily be converted into cash. Marketable securities are often referred to as part of the firm's liquid assets.<sup>27</sup> Marketable securities have different characteristics which are:

- i) **A ready market:** The security market should have both breadth and depth in order to minimize the amount of time required to convert it into cash. The depth of the market is determined by its ability to purchase or sale of large number of securities. For e.g. if 500 participants each willing to purchase 200 shares.

The breadth of the market is determined by the geographical area and the number of participants. More the participants more broad the market. By comparing both depth and breadth of the market, we can say that depth of market is more important than breadth in order for a security to be marketed.

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<sup>27</sup> Lawrence J. Gitman op cit, p 287

- ii) **No likelihood of a loss in value:** There should be little or no loss in the value of marketable security over time. It should not be converted into cash quickly, but the value should also be close to initial investment. Marketable securities include government issues i.e. commercial paper, banker acceptance, security bills etc.

Accrued incomes are the incomes which the firm has earned but cash have not been received yet. They are received within the accounting period.

It is important to point out that not all of the firm's needs for cash call for holding cash balances exclusively. Indeed, a portion of these needs may be meeting by holding marketable securities-cash equivalent assets. For the most part firm do not hold cash for the purpose of speculation.<sup>28</sup> The more likely situation is that the firm will rely on reserve borrowing power rather than holding cash for speculative purpose. Consequently we concentrate on the transaction and precautionary motives.

- iii) **Inventory :** Inventory may consists of raw materials, work in process and finished goods awaiting sales and shipment.<sup>29</sup> Inventories are the stocks of the product which is manufacture by the company for selling purpose. It also may be the components that make up the product. The inventories may be in various forms which are: raw materials, work in process (or semi finished goods) and finished goods. Inventories serve as a link between the production and consumption of goods. Inventory is an investment in the sense that it requires the firm to tie up its money.

The management of inventory is not easy task because a major part of working capital is covered by it. "The area of inventory management covers the following individual phases: determining the size of inventory to be

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<sup>28</sup> Van Horne J.C.; Wachowicz Jr. John M, Fundamentals of Financial Management, Prentice Hall of India Pvt. Ltd. New Delhi, 110001,1995, p 222

<sup>29</sup> R.A. Brealey and S.C. Myers, Principles of Corporate Finance, Tata Mc Graw Hill Publishing Co. Ltd, New Delhi, 4<sup>th</sup> edition, 1996, p 725



carried; establishing timing minimum safety level; coordinating sales, production and inventory policies; providing proper storage facilities, arranging the receipt, disbursement and procurement of materials; develop the firms of recording transaction assigning responsibilities for carrying out the inventory control functions; and providing the report necessary for supervising this over all activity.<sup>30</sup>

Four basic levels will need to be established for each line or category of stock.

There are;

- a) **Maximum level:** This level is achieved at the point where new order of stock is physically received.
- b) **Minimum level:** Sometime it is called buffer stock i.e. those held for short term emergencies. It is the point or level just before the delivery of new order.
- c) **Reorder level:** In this point new order is placed so that stocks will not fall below the minimum level before delivery is received.
- d) **Reorder quantity or economic order quantity (EOQ):** EOQ is that level of inventory which minimizes the total of ordering and carrying costs. “The quantity of stock which must be recorded to replenish the amount held at the point delivery arrives up to the maximum level.”<sup>31</sup>

The objective of establishing control levels is to ensure that excessive stocks are never carried (and working capital there by sacrificed) but that they never fall below the level at which they can be replenished before they run out.<sup>32</sup>

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<sup>30</sup>S.C. Kuchal, Financial Management an Analytical and Conceptual Approach, Chaitanya Publishing House, University Road, Allahbad 1980, p 227

<sup>31</sup>Dr Philip Dunn, op cit, p 39

<sup>32</sup>Ibid, p 39

**iv) Receivable:**

When one company sells goods to another company or a government agency, it does not usually expect to be paid immediately. These unpaid bill or trade credit makes up the bulk of account receivable. Companies also sell some goods or credit to the final consumer. This consumer credit makes up the remainder of account receivable.<sup>33</sup> Receivable is a short term assets representing credit sale to customer. Accounts receivable represent the extension of credit on open account by the firm to its customers. In order to keep current customers attract new ones, most of the manufacturing concerns find it necessary to offer credit.<sup>34</sup> Whenever goods are sold on credit, an assets item entitled accounts receivable appears on the books of selling firm, which the firm is expected to collect in the near future. Receivables represent future cash or they should do if proper credit control policies are pursued. The book debt or receivable arising out of credit has three characteristic<sup>35</sup>. Firstly, it involves an element of risk which should be carefully analyzed. Cash sales are totally risk less, but not the credit sales as the cash payment has yet to be received. Secondly, it is based on economic value. To the buyer, the economic value in goods or services passes immediately at the time of sale, while the seller expect an equivalent value to be received later on. Thirdly, it implies futurity. The cash payment for goods or services received by the buyer will be made by him in a future period. The customers from whom receivables or book debts have to be collected in future are called trade debtors or simply as debtors and represents the firms claim assets. The main objective of credit management is to achieve trade off between profitability and risk i.e. when sales are expanded to an extent, risk remains within the acceptable limits. For this the objectives of receivable are:

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<sup>33</sup>R.A. Brealey & S.C. Myers op cit, p 724

<sup>34</sup> Lawrence J. Gitman, op cit, p 204

<sup>35</sup> S.C. Kuchhal, op cit, p 204

1. To obtain optimum and not maximum volume of sales.
2. To control and keep the cost of credit at minimum.
3. To invest in debtors at optimum level.

The two basic liquidity goals in receivable management concentrate on (i) prospect of collecting receivable when they become due and (ii) prospect of shortening future receivable maturities.

v) **Prepaid expenses and accrued incomes:**

These are also includes in current assets. Prepaid expenses are the future expenses which are paid in advance. It includes: prepaid rent, prepaid salary, prepaid insurance etc.

Accrued incomes are the incomes which the firm has earned but cash have not been received yet. They are accrued dividend, accrued interest etc. which are received within the accounting period.

### **2.12.5 Current Liabilities**

These are the short term obligations which are deducted to find net working capital. If it is greater than current assets, then negative working capital is obtained. It includes:

- a) **Creditors:** They are person from who firm purchase raw materials on credit. They are also denoted as accounts payable in the balance sheet.
- b) **Bills or notes payable:** These are the promises which are in the written form. It is written by the creditors and firm accepts to make particular sum of payment at the particular date to the creditors. They have life less than one year.
- c) **Bank overdraft:** When the customer overdraws his account, it is bank overdraft which is for a very short period. This facility of overdrawing their account are granted by bank occasionally.

- d) Provisions: This includes taxes provisions for dividends etc. every firm has to pay taxes on its income. Usually it takes sometime to finalize the amount of tax with the tax authorities. Therefore, the amount of tax is estimated and shown as provisions for tax in the balance sheet.
- e) Expenses outstanding and income received in advance: Expenses outstanding or expenses payable are the expenses which have incurred but is not yet paid. These may be rent payable, wages payable, outstanding commission etc. Sometimes firm receive payment in advance for the goods yet not supplied. These goods should be delivered within accounting year. These advance income are prepaid income.

## **2.13 Review of the literature in Nepalese perspective:**

### **A. Dr. Khagendra Acharya's Study<sup>36</sup>**

Dr. Khagendra Acharya studied on working capital management of manufacturing public enterprises. Some major outcomes of this study with special reference to Nepal Tea Development Corporation (NTDC) are:

- i) Inventory constitutes the cost important and largest element of working capital in NTDC. The overall adequacy of inventory in NTDC discloses that the growth of working capital and inventory in the corporation are negatively correlated.
- ii) Receivables are growing rapidly than the corresponding growth on sales volume.

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<sup>36</sup> Dr. K. Acharya, Working Capital Management Public Enterprises in Nepal with special reference to NIDC, Unpublished PH.D. Thesis submitted to Allahabad University, India 1986, as quoted by Binita Koirala in Working Capital Management of Dabur Nepal Pvt. Ltd, p 49

- iii) The breakeven analysis of NTDC reveals the due to insufficient working capital the corporation has been selling its product at a far below rate than its breakeven.
- iv) Monitoring the proper functioning of working capital management has never been included in the managerial job in all the selected public enterprises, with no exception to NTDC during the study period.
- v) NTDC is expected to improve its prevalent system of inventory management regarding the planning and purchasing of spare parts manures, insecticide fuels etc.
- vi) There should be a liaison between the production units of different estates and the central materials management department.
- vii) The credit policy which is not clear in itself has not been followed by the corporation which collecting the over due accounts.

## **B. Dr. Puspa Raj Sharma<sup>37</sup>**

Dr. Puspa Raj Sharma conducted a research named by “Working Capital Management in Biratnagar Jute Mill and Raghupati Jute Mill Ltd.” He had undertaken all together ten years starting from FY 2026/27 to 2035/36. Some of his important conclusions and recommendations are as follows:

- i) The nature of management of current assets in both the mills is almost same. However, the management of stocks and debtors in BJM seems to better and cash management seems better RJM.
- ii) The nature of management of inventory in both the mills is same. The turnover ratios are relatively lower in the later years of the study.

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<sup>37</sup> Puspa Raj Sharma, Working Capital Management in Biratnagar Jute Mill and Raghupati Jute Mill Ltd; Unpublished Thesis as Quoted by Binita Koirala, op cit, p 50

- iii) The management of cash in RJM as compared to BJM is efficient in utilizing its cash and bank balances but no effective in maintaining its liquidity.
- iv) The indices to total current liabilities of both BJM and RJM indicated that they had rather and increasing trend.
- v) Both Jute Mills have faced an acute shortage of liquidity in the later years.
- vi) Inventory management should be given highest priority by the top management of both mills.
- vii) Both Jute mills make their selling effective so that heavy stocks of finished goods would be minimum. For this, both the mills should make their selling units efficient.
- viii) The debt collection efficiency of both mills should be improved. Greater attention should be given to collect the debts from institutions.

### **C. Ms. Binita Koirala<sup>38</sup>**

Ms. Binita Koirala had studied the on working capital management of Dabur Nepal Pvt. Ltd. (DNPL). She had undertaken all together 10 years starting from F/Y 1992/93-2001/2002. On the basis of this study, the following suggestions and recommendations are made.

- i) DNPL's current & quick assets were not sufficient to meet current obligations.
- ii) The proportion of increase in current liabilities is more than that of current assets. So, it should make a proper planning to decrease the liabilities of increase current assets.
- iii) DNPL has been suggested to negotiate for improvements in the credit terms offered by the suppliers.
- iv) DNPL has been suggested to make proper provisions for emergencies.
- v) Cash and bank balances have been very low in DNPL. Therefore, in order to avoid contingencies, DNPL should have credit arrangements with banks to avoid contingencies.

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<sup>38</sup>Binita Koirala, Working Capital Management of Dabur Nepal Pvt. Ltd. Unpublished MBS Thesis submitted to Office of the DEAN Faculty of Management, TU, August, 2003.

- vi) DNPL should tighten its credit and collection policies or drive out the slow paying customers because its debtors turnover, though have increased as compared to the beginning year, is highly fluctuating which indicates the chances of bad debts losses.
- vii) DNPL has been suggested to maintain proper balance of inventories which must commensurate with the current assets and sales.
- viii) DNPL has been suggested to emphasis on two levels of control. The first making sure money received is banked as soon as possible, making payments the most efficient way, and second, ensuring any surplus balances are put to interest earning use, e.g. Government bonds etc.
- ix) While making proper planning. DNPL should make the comparison of sales and production.
- x) The inferential analysis of total current assets and sales showed that there was no significance difference between them. So, DNPL should try to improve its current assets position proportionate to its sales.
- xi) For the purpose of speculation motive, DNPL may hold the marketable securities.

#### **D. Mr. Deependra Raj Sharma<sup>39</sup>**

Mr. Sharma conducted a study on “Working Capital Management of Nepal Battery Company Limited (NBCL), Nepal with objectives of:

1. Analysis of the liquidity, composition of working capital, assets utilization and profitability position.
2. Study the relationship between sales and different variables of working capital.
3. Whether the adequacy of working capital depends upon the nature of financing current assets or not.
4. Provide the suggestions to the appropriate management system of working capital.

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<sup>39</sup>Deependra Raj Sharma, “Working Capital Management of Nepal Battery Company Limited (NBCL)”, MBA Dissertation, T.U., 1999

The thesis was conducted through basically secondary data. The data had been collected from financial statement, reports and official records, reports of auditors and other related documents of the company. The information are collected through personal interview and discussion with employees. The various ratio analysis and Karl Pearsonal's correlation coefficients are used to analyze the data. The major findings are:

1. The working capital is not in fixed nature. It is increasing each year in respect to increase in operation function. The proportions of current assets are more than the fixed assets, the correlation in between investment in current assets and total asset is positive.
2. The inventory covers the largest portion of the current assets and positive correlation between inventory and current assets.
3. The sales and working capital has positive correlation and current assets and current liabilities have insignificant relationship.
4. The gross working capital turnover is more fluctuating than net working capital in average. There is significant positive correlation in between gross profit and sales.
5. By using conservative working capital management policy that reduces the risk but also hamper in the profitability position of the company.

### **E. Mr. Dhura Nath Yogi <sup>40</sup>**

Mr. Dhruva Nath Yogi conducted a study on "A Study on Working Capital Management of Nepal Lever Limited (NLL), Nepal with objectives of:

1. Analyze the liquidity, composition of working capital, assets utilization and profitability position.
2. Analyze of the optimal level of working capital.
3. Analyze the current assets and current liability policy.
4. Analyze the financing pattern of working capital, liquidity position, and profitability position.

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<sup>40</sup>Dhruva Nath Yogi, "A Study on Working Management of Nepal Lever Limited (NLL), Nepal", MBA Dissertation, T.U., 2000.



5. Examine the relationship between liquidity and profitability position.

This thesis was conducted through basically secondary data. The data had been collected from annual reports and audited financial statements of the company submitted to Nepal Stock Exchange Company. The data has been directly extracted from the balance sheet and income statement of the company. The primary information has been collected through interview with officials of NLL. Various ratio analysis is used to analyze the data and Karl Pearson's coefficient of correlation is used to examine the relationship between liquidity positions. The major findings are:

1. The liquidity position of the company is fluctuating year by year.
2. The proportion of current asset is affected by the sales. In other words, the sales affected the management of current assets.
3. The components of current assets and current liabilities are fluctuating in nature.
4. The insignificant relationship between liquidity and profit margin implies that there is not trade off between liquidity and profitability.

## **F. Ms. Pun Devi Maharjan<sup>41</sup>**

Ms. Pun Devi Maharjan conducted a study on "A Study on Working Capital Management of Nepal Lever Limited (NLL), Nepal with objectives of:

1. To indicate the liquidity position of NLL.
2. To find out the factors affecting the size of working capital of NLL.
3. To find out the working capital financing policy adopted by NLL.
4. To study the impact of working capital in profitability.
5. To find out the working capital investment policy of NLL.

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<sup>41</sup>Ms Pun Devi Maharjan , "A Study on Working Management of Nepal Lever Limited (NLL), Nepal", MBS, A Project Report, T.U., 2003.

This thesis was conducted through basically primary and secondary data. The primary data are collected through questionnaire and interviews with chief executives, directors and employees of NLL. The secondary data had been extracted from annual reports and audited financial statement of the company directly collected from company and submitted to Nepal Stock Exchange. The major findings are:

- i) The major components of Current Assets (CA) in NLL are cash and bank balance, sundry debtors and inventory. Inventory holds the higher proportion than other components.
- ii) The assets management ratio of NLL measures how effectively the firm is managing its assets. So, inventory turnover ratio for five years is 7.43, 10.04, 8.73, 13.05 and 5.24 times.
- iii) The current assets turnover ratio is not much fluctuating during five years.
- iv) During the study period account receivable turnover ratio is very much fluctuating. The highest ratio is 91.53 times & lowest turnover ratio is 35.06.
- v) The current asset to total asset for five years is 43.84 percent, 53.41 percent, 64.74 percent, 71.76 percent and 74.64 percent respectively for five years.
- vi) The major components of current liabilities of NLL are loan and advances, sundry creditors and miscellaneous liabilities.
- vii) In year 2053/54, Quick ratio of NLL is lowest among five years study and highest in year 2056/57.
- viii) Debt to equity ratio for five years is 3.47, 2.81, 2.91, 2.87 and 3.95 times respectively.
- ix) NLL is adopting moderate working capital financing policy and working capital investment policy. NLL is following the same policy. The working capital policy has impact on the profitability and risk of the company. The proportion of Current Asset and Current Liabilities found appropriate.

## **Chapter- III**

### **Profile of SEAN Seed Service Centre Limited**

#### **3.1 Introduction:**

The formation of the SEAN Seed Service Centre Limited (SSSC) is a central part of the seed marketing strategy that aims to promote the seed industry in Nepal. SSSC was founded by the efforts of a group of individual seed traders & seed companies. It is based on a concept of strengthening the foundations of the Nepal seed trade by establishing a quality product based on a firm foundation of high quality source and subsequent generation seed. This new approach was also developed with the clear intention of establishing a proper monitoring system of field inspection and post harvest controls to produce seed which would meet the quality standards required by the national as well as international market. This will enable Nepal to further expand its export trade in commercial vegetable seed.

SSSC was formally registered under the Company Act of 1996 at the Company Registrar Office on 15 June 1999. The company was established and become operated as a result of the investment in shares by more than 50 members of the Seed Entrepreneurs' Association of Nepal (SEAN). Major capital support was provided by the Seed Sector Support Project (SSSP), funded by the Department for International Development (DFID) Of the UK government. This Project aimed to assist in the commercialization of the Nepal seed industry through encouragement of the private sector supported by a strengthened government central seed testing laboratory and a more effective National Seed Board.

SSSC has established production pockets in the far western, mid western and in the western region of Nepal to tap and monitor seed production in various districts, which have immense potential for the growing of high value seed of vegetables such as, radish, carrot, broad leaf mustard, cucumber, beans and peas.

SSSC is governed by the Board of Director comprised of five members who are elected from its Annual General Assembly in every four years. SSSC has more than 50 shareholder members, most of them are seed traders and rests of them are professional in various field. A management committee led by the Managing Director is responsible for program implementation, follow-up and monitoring and evaluation. The Managing Director sits on the Executive Board representing staff members. The Programme Coordination Committee (PCC) also led by the Managing Director and representative from each Department and senior staff members provides recommendation on policy and programme strategy to the Board and is responsible for sharing ideas and experiences within the organization, coordination management strategy and publicity and representing the concerns of field staff.

### **3.2 Objective of formation of SSSC**

The Nepalese vegetable seed sector is expanding but is still mainly comprised of small private companies. With this structure, it is uneconomic for each individual company to try and perform all the functions of high quality seed production using only their own resources and capital. Therefore, SSSC has adopted a broad strategy, which will channel all the key activities into a collective and cooperative approach to production. SSSC also aims to identify market opportunities for Nepal produced seed, whilst still leaving the individual seed companies to establish market linkages for high quality seed both within and outside the country. In summary, SSSC is the business wing of Seed Entrepreneurs' Association of Nepal (SEAN) with the task of facilitating quality seed production on behalf of its member companies and then linking these companies with the potential markets at home and abroad.

The ultimate commercial goal of SSSC is to establish itself as a viable service enterprise, which will assist the growth and the development of the seed industry in Nepal.

### **3.3 Activities**

#### **3.3.1 On going activities – production & marketing**

SSSC has started contract production of high quality of open pollinated seeds of five commercially important vegetable crops, *viz.*, radish (Mino Early), carrot (New Kuroda), onion (Red Creole), okra (Parwani Kranti) and cauliflower (Kathmandu Local). Specially designed with aluminum foil pack has been developed to maintain the quality of seeds. The targets are to trial market within the country and explore the potential markets in the region. Similarly, SSSC has *already* initiated trial production of hybrid maize in conjunction of National Maize Research Program under Nepal Agricultural Research Council (NARC). The best performing hybrid will be contracted out in order to trial market within the country. A MoU has been signed between NARC and SSSC to undertake commercialization of hybrid maize by SSSC.

### **3.3.2 On going activities – research and development**

Trial production of hybrid tomato seed in Thankot, Baglung and Nakhu farm: SSSC has contracted out Horticultural Research Division of NARC to perform a joint work for production trial of tomato hybrid seed. A highly experienced tomato breeder with experience of more than 17 years in tomato breeding has been involved in development of tomato hybrid. The production trial has been performed by SSSC in three different locations.

**a. Trial production of hybrid maize seed:** SSSC has also contracted out Agricultural Botany Division of NARC to perform a joint work for production trial of hybrid maize seed. Numbers of different promising lines are under production trial with direct technical supervision of NARC. The company has already produced commercial production of hybrid maize seed and marketed in the Nepalese market since year 2006.

**b. Variety screening of tomato in Thankot:** Commonly grown popular varieties of the vegetable crops are kept under variety screening program. The outstanding genotypes are selected and maintained for the further multiplication and will be used as source seed. The genotypes will also be kept for reference material for inbred for the hybrid seed development.

### 3.3.3 On going activities – Services

**a. Production and supply of stock seed of vegetables:** SSSC is now primarily concentrating on the improvement of the quality of seed sold by SEAN members by taking over the responsibility from the public sector for the supply of high quality foundation or source seed of the various vegetable seed crops. SSSC is planning, coordinating and supervising the production of high quality source seed and then supplying it to the different seed production areas for the commercial seed program. It has already started its own source seed production program in collaboration with a number of the shareholder companies.

**b. Perform field inspection:** This important part of the quality assurance mechanism in seed production is being intensified. Qualified technicians, engaged by SSSC, are inspecting seed crops at critical stages to ensure quality of the produced seeds. This work is being carried out for further improvement of a quality of the produced seeds.

**c. Perform grow out test:** Different seed lots are tested under field condition to confirm the performance of the seeds, which are to be marketed. The seeds are planted under suitable agro climatic conditions and plants are regularly examined, evaluated and analysed with the ISTA rules with the help of Seed Quality Control Center under Ministry of Agriculture.

**d. Perform laboratory test:** To guarantee quality, seed testing of the all class of produced seeds is therefore, done, however, quality control process starts in the field. Some important functions like analytical (physical or mechanical) purity, germination capacity and moisture content are being carried out by the trained staff. Other important functions like seed health, cultivars (varietal) purity etc. are currently being done with the help of Central Seed Testing Laboratory of Seed Quality Control Center under Ministry of Agriculture.

**e. Provide storage facility:** SSSC has own special storage facilities comprised with dehumidifier in a climatically suitable place for storing the seeds. It is made available for storing the seeds for its promoters under charge basis.

## **3.4 Strength of SSSC**

### **3.4.1 Infrastructure:**

SSSC is a well equipped organization with modern facilities. It has own office building with special storage facilities comprised with dehumidifier, germinator and mini seed testing laboratory with trial ground.

SSSC will now run its program and activities from its new building with the immediate facility of two 486-DX Pentium processor computers, two laser printers, a photocopy machine, phone, email and fax facilities. For staff mobility SSSC has four motorbikes and a 4WD Pick-up. A mini conference hall and a library with a wide variety of seed related books and publications are available. As of July 17, 2002 approximately NRs. 10 million (US \$ 125,000) has been capitalized as fixed assets.

### **3.4.2 Institutional capability and human resources**

In the initial phase of the company, short term SMS, consultant, experts will be hired as and when required. Presently, our program has four main components and the concerned manager heads each:

- ) R&D department
- ) Production Department
- ) Marketing Department
- ) Finance and Administration Department

During the establishment period, SSSC had received a considerable technical & financial support from SSSP to strengthen its technical capabilities from the production areas to the central level.

## **3.5 Board of Directors:**

The company has the composition of five members Board of Directors. Their name and designation are as follows:

Chairman : Mr. Mitra Raj Dawadi  
Managing Director : Mr. Durga Prasad Adhikari

**Directors:**

1. Mr. Durga Prasad Dahal Upadhyay
2. Mr. Mani Dev Bhattarai
3. Mr. Jeevan Lal Shrestha

**3.6 Major Products of SSSC Ltd.**

The company has been producing and marketing the wide range varieties of vegetable seeds. The produced seeds are sold in bulk and small foil & L.D. Plastic packets.

**Vegetable seeds sold in aluminum foil & LD packets are as follows:**

| <b><u>Crop/Variety</u></b>    | <b><u>Packet size</u></b> |
|-------------------------------|---------------------------|
| 1. Radish: Minoearly          | 50 gms, 400 gms and 1 kg  |
| 2. Radish : 40 days           | 50 gms                    |
| 3. Radish : Pyuthane red      | 50 gms                    |
| 4. Radish : All season        | 50 gms                    |
| 5. Carrot: New Kuroda         | 10 gms                    |
| 6. Onion : Red creole         | 100 gms                   |
| 7. Okra : Arka anamika        | 250 gms                   |
| 8. Borccoli : Green sprouting | 5 gms                     |
| 9. Potato : TPS (F1)          | 5 gms                     |
| 10. Tomato : F1(SS10,14, 20)  | 2 gms                     |
| 11. Swiss chard : Susag       | 100 gms                   |
| 12. Bean : Foureseason        | 1 kg                      |



|                                |         |
|--------------------------------|---------|
| 13. Bean : Trishuli            | 1 kg    |
| 14. Pea : Sikkime              | 1 kg    |
| 15. Pea : Arkel                | 1 kg    |
| 16. Cauli : Kathmandu Local    | 10 gms  |
| 17. Cucumber : Bhaktapur Local | 10 gms. |
| 18. Bittergoud : Whitelong     | 10 gms  |
| 19. Rayo : Marfa               | 10 gms  |
| 20. Coriander : SB             | 500 gms |
| 21. Coriander : Kalami         | 500 gms |
| 22. Maize: NHM (Hybrid)        | 500 gms |

**Vegetable seeds sold in bulk are as follows:**

| <b><u>Crop/Variety</u></b> | <b><u>Bulk size</u></b> |
|----------------------------|-------------------------|
| 1. Rayo: Khumal Red        | 40 kgs                  |
| 2. Rayo: Khumal Chauda     | 40 kgs                  |
| 3. Cress: Local            | 40 kgs                  |
| 4. Tomato: CL              | 5 kgs.                  |
| 5. Tomato: BL              | 5 kgs.                  |
| 6. Tomato: Lapse           | 5 kgs                   |
| 7. Bean: Bakula            | 40 kgs                  |
| 8. Turnip: PTWG            | 40 kg                   |
| 9. Turnip: Red             | 40 kgs                  |
| 10. Cowpea: Sarlahitane    | 10 kgs                  |
| 11. Cowpea: Surya          | 10 kgs                  |
| 12. Cabbage: Copenhegan    | 5 kgs                   |
| 13. Soybean: Green         | 20 kgs                  |

### **3.7 Market Segmentation**

The market share of SSSC with above-mentioned vegetable crops are around 12 percent in Nepal. The major outlets for its distribution are Damak, Biratnagar and Rajbiraj in the East, Kathmandu, Hetauda and Narayangarh in the Mid West, Pokhara, Damauli and Butwal in West, Butwal, Nepalgunj in the Mid West and Dhanagadi in the Far West region. The company was able to export some of the vegetable seeds (esp. Radish: Minoearly) to Bangladesh and India. The demand from Bangladesh to Nepal produced vegetable seeds is not always static due to adverse climatic condition and planting time (having flooding). India's seed import policy is rather restrictive through imposition of high guarantee fee and lengthy bureaucratic procedures. Therefore, penetration of Nepal produced seeds to Indian border market is largely through informal way.

### **3.8 Competition**

SSSC has long way to compete with imported seeds from abroad. A lot of confusions are creating among the farmers from sub-standard seeds that are being imported from China and India. Market is often distorting from cheap and un-reliable seeds produced and collected from local commission agents. Awareness among the user farmers and local seeds traders is greatly lacking for the quality assured seeds so they have to be much more aware in this aspects.

### **3.9 Distribution**

SSSC is practicing seed sales through own shareholders as a seed stockiest which are covering the main seed business pockets i.e. Birtamwood, Damak, Biratnagar, Dharan, Rajbiraj, Janakpur, Birganj, Hetauda, Narayangarh, Butwal, Nepalgunj, Dhangadhi, Pokhara, Damauli, and Kathmandu. The focus on selection of the seed dealers is based on that who sales more than Rs. 50000 per year. The seed demand is also determined as per the annual programme of Government. Now SSSC has total 40 seed dealers within country.

### **3.10 Pricing strategy**

The price of SSSC seed is 20 to 30 percent higher than retail price and 20 to 30 percent less than imported seeds. For selling and distribution aspect pricing is normally fixed for one growing season.

### **3.11 Promotion strategy**

**SSSC has considered the following activities as a promotional strategy:**

1. 3 to 5 percent discount is provided to the dealer as per annual turnover on increased volume above Rs.500000/-
2. Participate in exhibition, business seminar, and farmers talk program within country and abroad also.
3. Use of vapor proof aluminum foils packets with truthful labeling.
4. Emphasis on advertisement through the means of communication (Radio, TV, Paper, Seed Journal etc.).
5. Provision to provide rewards to dealers for sales maximization.
6. Programme arrangements for market visit to dealers.
7. Updating of websites, seed bulletin, catalogue, leaflet etc.

### **3.12 Sales Strategy**

1. Sales target is finalized through dealers' requirement
2. Customs seed supply depends upon bilateral agreement
3. Replacement of OP varieties with improved and hybrid varieties
4. Increase image of the company brand
5. Maintaining assured quality seeds
6. Organize field days, farmer's day
7. Develop demonstration farms

### **3.13 Major seed production areas of the company**

By the initiation of seed traders this company was established with the aim of supplying quality seed in the domestic market of Nepal to substitute import to some extent.

Concerning over it the company started to produce quality vegetable seed in the various parts of the country especially in the hills and mountain areas by contract farming system. In the contract farming system, the vegetable seed producing farmers' groups are called to contract for seed production annually in which quantity and price are determined. As per the contract agreement farmers are liable to supply vegetable to the respective company. Therefore, to produce various varieties of vegetable seed the production areas have been segmented to acquire vegetables seed from the different production areas. The major seed production areas of the company are as follows.

| <b>Production areas</b> | <b>Districts</b>                                | <b>Altitude</b>  | <b>Major seed produced</b>   |
|-------------------------|---|------------------|--|
| Easter region           | Sankhuwashabha, Terhathum, Bhojpur and Dhankuta | 639-3963 meters. | Radish, Rayo, Pea, Broccoli, turnip, Cauliflower, beans                            |
| Central Region          | Kathmandu, Dolkha, Kavre Palanchowk             | 350-2003 meters  | Radish, Cauliflower, Cress, cucumber, beans  |
| Western Region          | Mustang, Myagdi, Kaski, Baglung, Parvat, Tanahu | 700-4200 meters  | Tomato, radish, rayo, peas, beans , cress, cucumber, tomato, squash                |
| Mid-western Region      | Jumla, Rukum, Surkhet, Salyan, Rolpa, Dang      | 1600-2200 meters | Radish, onion, rayo, okra, cauliflower, squash, cabbage, carrot, radish all season |
| Far-western Region      | Baitadi, Dadeldhura, Achham, Doti               | 1500-1600 meters | Radish, Rayo, peas, beans carrot   |

Source: SSSC catalogue

### 3.14 Production status of the company

The company is directly and indirectly involved in the seed production programme of various vegetable seeds since the period of establishment. The production trend is increasing every year but it has been decreasing since 2005/2006 because of various external and internal reasons. The seed production scenario of the company during the study period has been presented in the following table.

**Table: 3.1**

**Seed production status (1999/2000-2007/2008)**

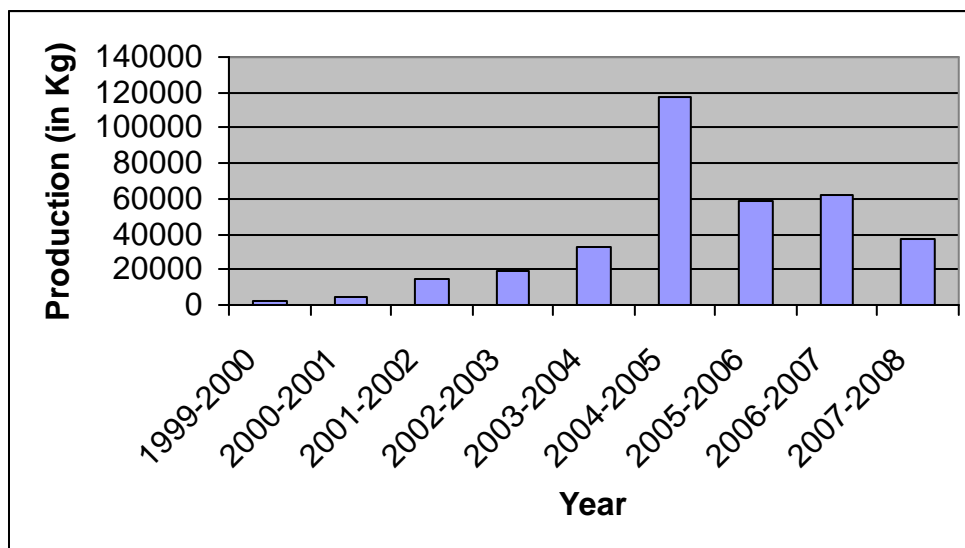
| <b>Year</b> | <b>Production (in kg)</b> |
|-------------|---------------------------|
| 1999/2000   | 1840                      |
| 2000/2001   | 4703                      |
| 2001/2002   | 14270                     |
| 2002/2003   | 19290                     |
| 2003/2004   | 32605                     |
| 2004/2005   | 116970                    |
| 2005/2006   | 58489                     |
| 2006/2007   | 62032                     |
| 2007/2008   | 36770                     |

Source: SSSC Annual reports

The above table shows that the company has been increasing its production rapidly as per the demand of seeds in the market. But since 2005 the production has been in decreasing trend. Its main reasons are unhealthy competition with unorganized sector and uncontrolled import from the abroad.

This can be presented from the bar diagram as

### Production status of vegetable seeds



**Fig 3.1: Vegetable seed production status**

The figure 3.1 above shows that vegetables seed production of SSSC Ltd was in increasing trend up to the year 2004/2005. After the year 2004/2005 it has been decreasing heavily. Its main reasons are uncontrolled domestic market, reduction on demand of Nepalese seeds because of import of foreign hybrid seeds and no export of Nepalese seeds with the rest of the world.

# Chapter-IV

## Research Methodology

### 4.1 Introduction

The methodology explains the methods used in the study. Research methodology is very important for any research study to achieve the objectives and to reach some conclusions. In each and every research study, specified methods and techniques should be followed which is known as research methodology. Researcher has to collect the information which are required, evaluate and verify them to reach some conclusions.

“Research Methodology refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view”<sup>49</sup>

Research methodology means the methods, processes, tools and techniques which are used in any of the research or investigations till the purpose is accomplished and the aim is achieved.

“Methodological research is control investigation of the theoretical and applied aspects of measurement, mathematics and statistics and ways of obtaining and analyzing data. Without methodological research, modern behavioral research would still be in the dark ages”<sup>50</sup>

Thus, methodology is a description of the procedures of inquiry in particular field.

This chapter highlights the different methods and produces that are applied in the present research. It includes research design, nature and sources of data, population and sample, data collection techniques, data analysis tools and data variables of the study.

### 4.2 Research Design

“Research design is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance. The plan is the overall

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<sup>49</sup>C.R. Kothari, Quantitative Technique, Vikas Publishing House Pvt. Ltd. New Delhi 1994, p 19

<sup>50</sup>F.N. Kerlinges Foundation of Behavioral Research, 5<sup>th</sup> Indian Reprint 2000, Surjeet Publication, New Delhi, p703

scheme or program of the research. It includes an outline of what the investigator will do from writing the hypothesis and their operational implications to the final analysis of data. The structure of the research is more specific. It is the outline, the scheme, the paradigm of the operation of the variables. When we draw diagrams that outline the variables and their relation and juxtaposition, we build structural schemes for accomplishing operational research proposes. Strategy, as used here, is also more specific than plan. In other words, strategy implies how the research objectives will be reached and how the problems encountered in the research will be tackled.”<sup>51</sup>

Research design is a systematic planning, structure and strategy for conducting a particular research work. It provides the framework of the study. To achieve the objectives, the study has collected, evaluated, verified and synthesized past financial information systematically and objectively to reach some conclusions. The study has also attempted to explore certain facts about the working capital management of the SSSC. The types of research of the study research of the study have therefore, been mainly historical, descriptive and inferential.

### **4.3 Population and sample**

The term “Population” or “Universe” for research means all the members of any well-defined class of people, events or objects.<sup>52</sup> Population refers to the totality of the observation, which is selected for study. Population is whole of universe where as sample is the number of representative which are going to be studied. A population in most studies usually consists of large group so; it is very difficult to collect information. To overcome this difficulty small unit is chosen from the total which represents the population. This sub-group is called sampling. SSSC Ltd. has completed eight years, hence the financial statement viz. balance sheet and profit and loss account which have

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<sup>51</sup> Ibid p 300

<sup>52</sup> Howard K. Wolff and Prem R. Panta, A Handbook for Social Science Research and Thesis Writing, 2<sup>nd</sup> edition 1999, Buddha Academic Research Enterprises Pvt. Ltd.p75



been published till now is the population of the study. In this study however, the data of all the eight years of SSSC Ltd. is under taken which are the population of the study. Since, the whole population is chosen for this study that contains nine years annual reports, this is a census study. From the F/Y 1999/2000-2007/2008.

#### **4.4 Nature and source of data**

In general, data can be classified into primary and secondary form. Primary data are those data which are collected for first time. It is original or first hand in nature. Secondary data are on the other hand, not originally collected rather obtained from published or unpublished sources. Data which are primary in one hand becomes secondary for another.

The study is mainly based on the Annual Reports of the SSSC Ltd. for the period of nine years, 1999/2000-2007/2008 which have been collected from the corporate office of SSSC Ltd. which is located at Mahadevsthan VDC-7, Thankot, Kathmandu. Other facts and information were collected from journals/website of SEAN. The data for the study have, therefore, primarily been secondary in nature.

#### **4.5 Data processing procedures**

In this study, the data published in the annual reports of SSSC Ltd. have been used and processed for the required data. For this purpose, the data published were processed and tabulated as per the requirement of the study. In order to facilitate the analysis and interpretation of the data some statistical measure and financial ratios have also been used.

#### **4.6 Tools and techniques of analysis**

In order to achieve the purpose of the study, two types of analysis have been made- descriptive analysis, techniques and inferential. In the descriptive analysis, techniques of time series analysis of the financial ratios with their trend percentages have been used. To make the analysis conclusive, the study has also used such statistical tools as mean values, standard deviation, coefficient of correlation and coefficient of determination, regression analysis and compound growth rate.

For the inferential analysis, different null hypothesis have been proposed and tested by utilizing student's t-test as per the requirement of the data. On testing, the null hypothesis have been rejected if the calculated t-value of the financial ratios is greater than the table value at 5% level of significant for n-2 degree of freedom. But, if the calculated t-value of financial ratio is less than the table value at 5% level of significance, the null hypothesis have been accepted and it has been inferred that the mean values of the ratio are not statistical different.

#### 4.6.1. Some variable for the study

There are some financial indicators and variables used in this study which are defined as follows:

1. **Liquidity ratio:-** It measures the liquid position of the company and firm's ability to meet current obligations. It is used to evaluate a firm's ability to satisfy creditors in the immediate future. These ratios compare the assets available for meeting current obligations with the level of those obligations. Lack of sufficient liquidity will result in bad credit image, loss of creditors. A very high degree of liquidity is also not good because idle assets earns nothing rather they entail opportunity cost. The ratios which indicate the extent of liquidity of lack of it are:

- i) **Current ratio:** It is calculated by dividing current assets by current liabilities. It measures the firm's short-term solvency. A ratio greater than one means that the firm has more current assets than current claims against them.

Mathematically,

$$CR = CA \div CL$$

Where,

CR = Current ratio

CA = Current assets

CL = Current liabilities

- ii) **Quick or acid test ratio:** It excluded the stock element and prepaid expenses (if any) from current assets. If quick assets i.e. current assets excluding stock, is less than current liabilities then the business may

not be able to settle its creditors as they fall due. Mathematically, it is expressed by dividing total of the quick assets or liquid assets by total current liabilities.

$$QR = QA \div CL$$

Where,

QR = Quick ratio

CL = Current liabilities

QA = Quick assets or current assets

2. **Activity ratio:** It is also called turnover ratio. It involves a relationship between sales and the various assets and presumes that there exists an appropriate balance between sales and the various assets. It indicates the speed with assets is being converted into sales. There are several activity ratios. Some ratios which are related to working capital are:

- i) **Inventory (or stock) turn over:** It denotes the efficiency of the firm's inventory management. It is calculated by dividing the cost of goods sold by the average inventory:

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Where,

Cost of goods sold is obtained by sales minus gross profit and average inventory is obtained by dividing closing plus opening stock by two. When cost of goods sold figure is not available, in that case,

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

- ii) **Debtor turnover:** Amount owed by the business in the short term is debtor and they are created by credit sales. Debtor's turnover indicates the number of times on the average that debtors or receivables

turnover each year. Higher the value of debtors' turnover, the firm efficient is the assets management. It can be calculated utilizing total sales figures and ending balance of debtors:

$$\text{Debtor turn over} = \frac{\text{Total Sales}}{\text{Closing debtors}}$$

When there is availability of information regarding credit sales, opening and closing debtors' balances, and then the alternative formula is;

$$\text{Debtor turnover} = \frac{\text{Credit sales}}{\text{Average debtors}}$$

- iii) **Current assets turnover:** It is also called "trading ratio". It indicates the efficiency with which current assets turn into sales. Higher current assets turnover ratio implies more efficient use of funds. It can be calculated by dividing sales with current assets:

$$\text{Current assets turnover} = \frac{\text{Sales}}{\text{Current assets}}$$

- iv) **Net working capital turnover :** Net working capital is obtained by subtracting current liabilities from current assets. By analyzing sales to net working capital turnover over period, we may know the efficiency of net working capital in supporting sales. It is sales divided by net working capital. Mathematically,

$$\text{Net working capital turnover} = \frac{\text{Sales}}{\text{Net working capital}}$$

- v) **Cash turnover:** It is sales divided by cash. Higher cash turnover implies a more efficient use of fund. Mathematically,

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

3. **Profitability ratios:** Profit is the different between total revenues and total expenses and is the ultimate output of a company. The firm therefore, should continuously evaluate the efficiency of its company in terms of profit. The

profitability ratios are calculated to measure the operating efficiency of the company. Following are profitability ratios related to working capital.

**i) Profitability on sales**

- a) **Net profit margin:** This ratio establishes the relationship between net profit and sales and indicates management's efficiency in manufacturing administrating and selling the products. It is the measure of the firm's ability to turn each rupee of sales into net profit. It is calculated as;

$$\text{Net profit margin} = \frac{\text{Net profit after taxes}}{\text{Sales}}$$

- b) **Operating ratio:** It measures the operating efficiency. It indicates the average aggregative variations in expenses, where some are increasing and some are decreasing. It is calculated as;

$$\text{Operating ratio} = \frac{\text{Cost of goods sold} + \text{Operating expenses}}{\text{Sales}}$$

**ii) Return on investment**

- a) **Return on assets:** The return on assets or profit-to-assets ratio is net profit divided by total assets. The return on assets is a useful measure of the profitability of all financial resources invested in the firm's assets.

Mathematically,

$$\text{Return on assets (ROA)} = \frac{\text{Net profit after tax}}{\text{Total assets}}$$

- b) **Return on capital employed (ROCE)**

Return on capital employed indicates how well management has used the funds supplied by creditors and owners.

Mathematically,

$$\text{ROCE} = \frac{\text{Net profit after tax}}{\text{Capital employed}}$$

Where,

ROCE = Return on capital employed

Capital employed = Equity + Reserve + Long Term & short term loans

- c) **Return on shareholders' equity:** This ratio indicates how well the firm has used the resources of the owners. This ratio is one of the most important relationships in ratio analysis. The return on shareholders' equity (or return on net worth) is net profit after taxes divided by the total of preference shareholders' equity (if any) and common shareholders' equity (i.e. net worth):

$$\text{Return on shareholders' equity} = \frac{\text{Net profit after tax}}{\text{Shareholders' equity}}$$

#### 4.6.2 Trend Analysis

In financial analysis the direction of change over a period of years is crucial importance. Trend analysis of ratios indicates the direction of change over a period. Under this segment various data related to working capital are analyzed in term of trend percentage. For this study F/Y 2000/2001 is assumed as a base year. Variables which are essential for this analysis are:

- i) Total assets
- ii) Total current assets
- iii) Total current liabilities
- iv) Total liabilities
- v) Total assets
- vi) Cash and bank balances
- vii) Gross working capital
- viii) Net working capital
- ix) Sundry debtors
- x) Sundry creditors
- xi) Inventories
- xii) Net profit after tax

### 4.6.3 Statistical tools

Some of the statistical tools used in this study are as follows:

1. **Arithmetic mean ( $\bar{X}$ ):** Arithmetic mean or simply a mean is the most popular and commonly used statistical average. It is also simply called “the average” which is the sum of all observations divided by the number of observations.

Symbolically :

$$\text{Mean} = \frac{X_1 + X_2 + X_3 + \dots + X_n}{N}$$

$$\text{Or, } \bar{X} = \frac{\sum X}{N}$$

Where,

$\bar{X}$  = Arithmetic mean

$X_1 + X_2 + X_3 + \dots + X_n$  = Values of variable X

N = Total number of observation

$\sum X$  = Sum of the values of variables

2. **Standard deviation ( $\sigma$ ):** The standard deviation is also popular and widely used measure of dispersion. It is the positive square root of the squared deviations from the arithmetic mean. It is the least possible root mean square deviation. It measures the absolute value of risk, i.e. variability or dispersion of the returns from the mean returns.

$$\text{Symbolically; } \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

Where,

X = Value of observation

N = Total number of observations

$\bar{X}$  = Mean of observatin

3. **Coefficient of variation:** Coefficient of variation is the ratio of the standard deviation to the mean expressed in percentage. When there is different mean in the company then the decision may not be correct. In this case, coefficient of variation is important. It is independent of unit. It is the best way of variation is important. It is independent of unit. It is the best way to compare the variability of two distributions. Less the coefficient of variation more will be the uniformity, consistency etc and vice versa.

Symbolically,

$$\text{C.V.} = \frac{\sigma}{\bar{X}} \times 100$$

Where,

$\sigma$  = Standard deviation

C.V. = Coefficient of variation

$\bar{X}$  = Arithmetic mean

4. **Karl Pearson's correlation coefficient:** One of the most popular ways of calculating the correlation coefficient between two variables is Karl Pearson's correlation coefficient. It is also known as Pearson's correlation coefficient which helps to analyze the co- variation of two or more variables.

Symbolically;

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

Where,

$r$  = Karl Pearson's correlation coefficient

$N$  = Total number of observations

$\sum XY$  = Sum of the values of two variables multiplied

$\sum X$  = Sum of the values of variable X

$\sum Y$  = Sum of the value of variable Y

$\sum X^2$  = Sum of the squared values of variable X

$\sum Y^2$  = Sum of the squared values of variable Y



The value of correlation coefficient lies between +1 and -1. +1 means there is perfect positive correlation between variables. When  $r = -1$ , it denotes perfect negative correlation & when  $r = 0$ , it means there is no relationship between variables. However, practically value of  $r$  do not lies between  $\pm 1$  and it extreme  $\pm$  points

5. Student's t-test : To test the validity of the assumptions, t-test is used when the sample size is less than thirty. Student's t-value is calculated first compared with the table value of 't' at a certain level of significance for given degree of freedom. Symbolically:

$$t = \frac{r}{\sqrt{1-r^2}} \times \sqrt{n-2}$$

Where,

t = Student's t-value

r = Correlation coefficient

N = Number of observations

On testing, the null hypothesis will be rejected if the calculated t-value is greater than the table value at 5% level of significance for the  $n-2$  degree of freedom. This implies that the value of correlation coefficient is significant at 5 percent level of significance or vice-versa.

#### **4.7 Limitations of research methodology**

Some of the limitations of the research methodology are as follows;

1. Due to time constraints all the concerned areas are not possible to cover.
2. The study is based on the financial data which is published in annual report of SSSC Ltd in different years (since 1999-2008).
3. Other qualitative and quantitative variables which are not included in the study may influence the study of working capital of the company.

## **Chapter -V**

### **Presentation and Analysis of Data**

#### **5.1 Introduction:**

This chapter attempts to present and analyze the working capital of SSSC Limited. It deals with the selected ratios pertaining to the size, growth, structure and efficiency of working capital and the testing of hypothesis to observe the statistical significance of the average values of the selected ratio pertaining to the crucial aspects of working capital of the SSSC Limited.

#### **5.2 Size and growth of working capital of SSSC Limited**

The size of working capital of an enterprise has significant impact on its risk return complexion. If it is too small to be adequate, it will endanger the enterprise's survival; if on the other hand, it is too large, it will deteriorate its profitability. The size of working capital has to be just adequate. To have an insight into it, following tables (5.1, 5.2, 5.3, 5.4) consider the size of working capital in the SSSC Ltd. during the period 1999 to 2007.

##### **5.2.1 Size of working capital**

Table 5.1 shows the ratio measuring the size of working capital. The ratio provides a measure of relative liquidity of the assets structure of the companies concerned. It suggests that higher the ratio, the lower would be the profitability and risk and vice-versa.

**Table-5.1****Current assets to total assets of SSSC Ltd. during 1999/2000-2007/2008**

| Year      | Current Assets    |         | Total assets      |         | Current assets to total assets |        |
|-----------|-------------------|---------|-------------------|---------|--------------------------------|--------|
|           | NRs. In<br>(lakh) | Trend   | NRs. In<br>(lakh) | Trends  | Ratio in<br>times              | Trend  |
| 1999/2000 | 3.63              | 100     | 13.02             | 100     | 0.2788                         | 100    |
| 2000/2001 | 15.09             | 415.7   | 32.61             | 250.46  | 0.4627                         | 165.96 |
| 2001/2002 | 6.76              | 186.22  | 83.77             | 643.40  | 0.0806                         | 28.90  |
| 2002/2003 | 26.65             | 734.16  | 124.94            | 959.60  | 0.2133                         | 76.50  |
| 2003/2004 | 41.47             | 1142.42 | 140.23            | 1077.03 | 0.2957                         | 106.06 |
| 2004/2005 | 97.8              | 2694.21 | 191.34            | 1469.58 | 0.5111                         | 183.32 |
| 2005/2006 | 76.84             | 2116.8  | 162.57            | 1248.61 | 0.4726                         | 169.51 |
| 2006/2007 | 90.66             | 2497.52 | 169.96            | 1305.37 | 0.5334                         | 191.32 |
| 2007/2008 | 80.62             | 2220.93 | 153.94            | 1182.33 | 0.5237                         | 187.84 |
| —<br>X    | 48.83             |         | 119.15            |         | 0.3746                         |        |
| S.D.      | 35.65             |         | 59.04             |         | 0.1531                         |        |
| C.V.      | 73.01%            |         | 49.55%            |         | 40.87%                         |        |

Source: Annex-2

The size of working capital in SSSC Ltd. during the study period fluctuated year after year registering a variation between the highest 0.5334 times in 2006/2007 and the lowest 0.0806 times in 2001/2002, averaging out at 0.3746 times with the statistical variation of 40.87 percent. It manifests that during the period SSSC Ltd. had maintained 37.46 percent liquidity in its total assets during the period. During the study period, the total assets had on increasing trend up to FY 2004/2005 and after that it had been moving downward at FY 2005/2006 and again it had been raising at FY 2006/2007 but again it has been moving downward at FY 2007/2008. Therefore, this reveals that current assets were properly arranged as per the increase or decrease in total assets.

### 5.2.2 Testing the hypothesis of the size of working capital

The following null hypothesis has been formulated and tested applying the student's test  
H01: There is no significant correlation between current assets and total assets of SSSC Ltd. during the period of study.

HA1: There is significant correlation between current assets and total assets of SSSC Ltd. during the period of study.

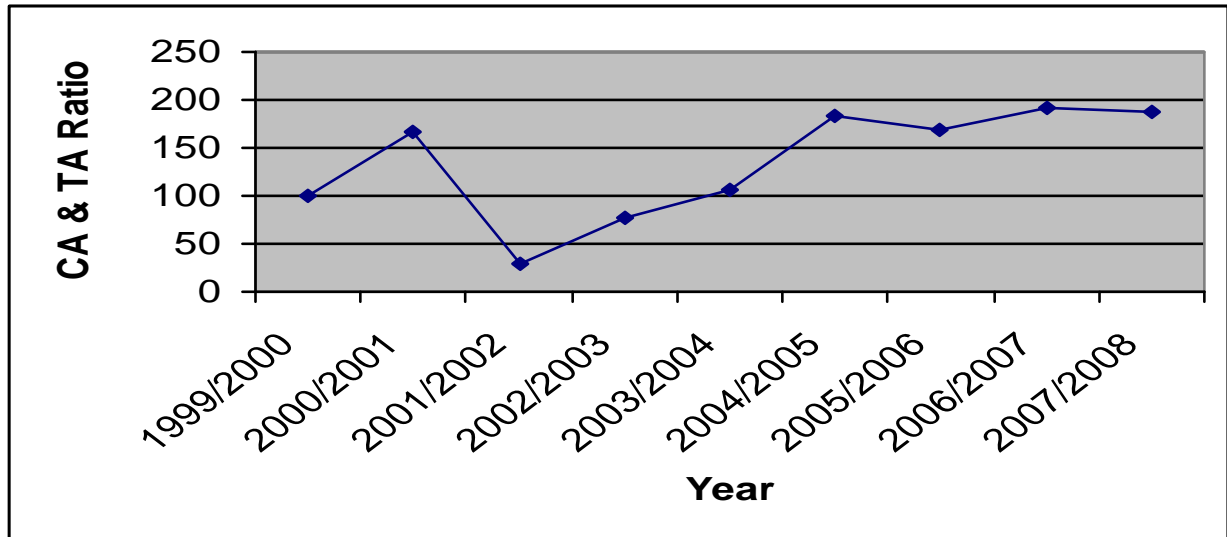
The following table (table 5.2) presents the correlation of the current assets and total assets and their student's t-value

**Table- 5.2**  
**The correlation coefficient of the Current assets & total assets their t-value of SSSC Ltd During 1999/200 to 2007/2008**

| <b>Ratio</b>                   | <b>r</b> | <b>r<sup>2</sup></b> | <b>t-value</b> | <b>d.f.</b> | <b>Results</b> |
|--------------------------------|----------|----------------------|----------------|-------------|----------------|
| Current assets to total assets | 0.8923   | 0.7962               | 5.23           | 7           | Significant    |

Source: Annex-2

From the above (Table 5.2) it is obvious that the null hypothesis is found not accepted in respect of the correlation between current assets and total assets as their calculated t-value is greater than its table value at 5% level of significance ( $t_{0.05, 8} = 2.365$ ) and hence the alternative hypothesis has been accepted. From this result, it can be inferred that the current assets and total assets of SSSC Ltd. are significantly correlated.



**5.1 : Structure of current assets to total assets ratio**

From the above figure 5.1, it is clear that the current assets to total assets ratio of SSSC Ltd. fluctuates over the year of study. In 1999/2000, it was 100 which sharply 191.32 in 2006-2007 which is the highest value among the study period. Before that it is found high fall in 2001/2002 i.e. 28.90 which is lower than base year, and slowly it goes on increasing trends.

### **5.2.3 Growth of working capital**

Working capital is dynamic concept which depends upon, interlaia, the scale of operations of an enterprise represented by its volume of sales. The growth of working capital in the enterprise is, therefore, related to its growing sales volume. In order to observe the growth of working capital in relation to the growth of sales in the SSSC Ltd. indices of working capital and sales have been calculated and presented in the following table 5.3

**Table: 5.3**  
**Growth of working capital and sales in SSSC Ltd. during 1999/2000 and 2007/2008**  
**(Base Year 1999/2000 = 100.00)**

| Year                        | Gross working capital |         | Sales          |          |
|-----------------------------|-----------------------|---------|----------------|----------|
|                             | NRs. (in lakh)        | Trend   | NRs. (in lakh) | Trend    |
| 1999-2000                   | 3.6312                | 100     | 0.9839         | 100      |
| 2000-2001                   | 15.0573               | 414.66  | 3.3963         | 345.18   |
| 2001-2002                   | 6.5307                | 179.85  | 7.6332         | 775.70   |
| 2002-2003                   | 26.4436               | 728.23  | 14.9824        | 1522.75  |
| 2003-2004                   | 41.1966               | 1134.51 | 66.7532        | 6784.55  |
| 2004-2005                   | 97.5194               | 2685.59 | 102.6841       | 10436.43 |
| 2005-2006                   | 76.7988               | 2114.97 | 88.9693        | 9042.51  |
| 2006-2007                   | 90.6185               | 2495.55 | 91.9440        | 9344.85  |
| 2007-2008                   | 80.5790               | 2219.07 | 102.2582       | 10393.15 |
| <b>Compound growth rate</b> | <b>36.33%</b>         |         | <b>59.10%</b>  |          |

Source: Appendix 1 & 2

Table 5.3 consider the growth of working capital and sales during the study period from 1999/200-2007/2008 in the SSSC Ltd. From the above table (Table 5.3) it is obvious that both the net working capital and sales are not increasing trend, they are fluctuating every year. The percentage of sales is recorded highest 10393.15 percent in the year 2007/2008 and the sales are recorded lowest 100 percent in the base year 1999/2000. The compound growth rate showed by sales was 59.10 percent.

The working capital is also fluctuating every year at a compound growth rate 36.33 percent. The percentage of net working capital in the base year 1999/2000 is lowest 100 percent and the highest is 2685.59 in the year 2004/2005. This analysis subscribes the notion that working capital and sales are functionally related.

#### **5.2.4 Testing the hypothesis of the growth of working capital**

To know the relationship between working capital and sales, following hypothesis has been formulated and tested by applying the Student's t-test.

HO2 : There is no significant correlation between sales and net working capital of SSSC Ltd during the period of study 1999/2000 and 2007/2008

HA2 : There is significant correlation between sales and net working capital of SSSC Ltd during the period of study 1999/2000 and 2007/2008

**Table 5.4**

**Coefficient of correlations of the growth of working capital and sales with their t-values of SSSC Ltd.**

| <b>Relationship</b>                        | <b>r</b> | <b>r<sup>2</sup></b> | <b>t-value</b> | <b>d.f.</b> | <b>Result</b> |
|--|----------|----------------------|----------------|-------------|---------------|
| <b>Growth of working capital and sales</b> | 0.9671   | 0.9352               | 10.05          | 7           | Significant   |

Source: Appendix 1 & 2

It is clear from the above table that there was indeed significant relationship between working capital and sales in the SSSC Ltd during the study period 1999/2000 and 2007/2008. The correlation between sales and working capital is positive therefore, alternative hypothesis is accepted. Therefore, as the calculated value is greater than the table value of student's t-test at 5 percent level of significance ( $t_{0.05, 7}$ ). The growth of working capital is significantly related with sales. As sales increase growth of working capital also increases and vice-versa.

### **5.3 Structure of working capital**

An inquiry into the structure and composition of an enterprise's working capital helps to understand its nature and problems thereof. Usually, the enterprise's working capital

consists of inventory, receivables and cash. Receivables and cash are considered the more liquid form of assets than inventory. Hence, the greater the proportionate size of inventory, the less liquid would be the nature of working capital, or vice-versa. The following tables (table 5.5, 5.6, 5.7, 5.8, 5.9) portray the structure of working capital in the SSSC Ltd. during the period under study.

### 5.3.1 Structure of cash and bank to current assets

Structure of cash and bank to current assets of SSSC Ltd. is presented in the following table (Table no. 5.5)

**Table 5.5**

**Structure of cash and bank to current assets of SSSC Ltd during 1999/2000-2007/2008**

| Year                        | Cash and bank |         | Current assets |         | Cash and bank to current assets |        |
|-----------------------------|---------------|---------|----------------|---------|---------------------------------|--------|
|                             | NRs.(In lakh) | Trend   | NRs.(In lakh)  | Trend   | NRs.(In lakh)                   | Trend  |
| 1999-2000                   | 1.9498        | 100.00  | 3.63           | 100.00  | 0.5371                          | 100.00 |
| 2000-2001                   | 9.8491        | 505.133 | 15.09          | 415.70  | 0.6527                          | 121.52 |
| 2001-2002                   | 1.6245        | 83.316  | 6.76           | 186.22  | 0.2403                          | 44.74  |
| 2002-2003                   | 7.996         | 410.277 | 26.65          | 734.16  | 0.5588                          | 104.04 |
| 2003-2004                   | 5.3665        | 275.233 | 41.47          | 1142.42 | 0.1294                          | 24.09  |
| 2004-2005                   | 1.1114        | 57.000  | 97.80          | 2694.21 | 0.0113                          | 2.10   |
| 2005-2006                   | 1.3654        | 70.027  | 76.84          | 2116.80 | 0.0177                          | 3.29   |
| 2006-2007                   | 2.2078        | 113.232 | 90.66          | 2497.52 | 0.0243                          | 4.52   |
| 2007-2008                   | 4.1867        | 214.724 | 80.62          | 2220.93 | 0.0519                          | 9.66   |
| <b><math>\bar{X}</math></b> | <b>3.96</b>   |         | <b>48.83</b>   |         | <b>0.2470</b>                   |        |
| <b>S.D.</b>                 | <b>2.9896</b> |         | <b>35.65</b>   |         | <b>0.2488</b>                   |        |
| <b>C.V.</b>                 | <b>75.49%</b> |         | <b>73.01%</b>  |         | <b>63.79%</b>                   |        |

Source: Appendix-2

From the above table it proves that the proportion of cash to total working capital widely fluctuates between 0.6527 times to 0.0113 times. Similarly, the amount of cash and bank balances fluctuate during the period of study. However, as compared to current assets



which were more or less continuously increasing over the period, the cash and bank balances did not follow the suit. This shows that management of cash and bank balances in SSSC Ltd. is not very efficient. This can also be presented diagrammatically as;

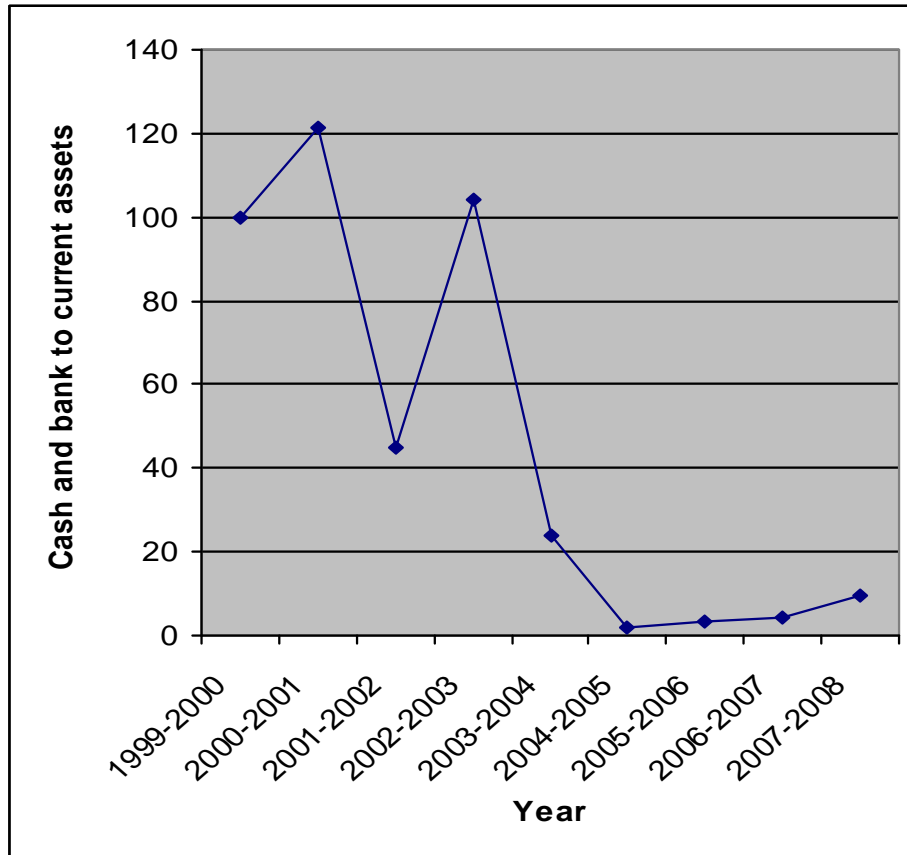


Fig. 5.2 Structure of cash and bank to current assets ratio

The above figure (figure 5.2) shows that the proportion of cash to total current assets widely fluctuates between 121.52 percent in 2000/2001 and 2.10 percent in 2004/2005. It had increased more than 100 percent in 2000/2001 and 2002/2003 and except these two years in most of the years it is fluctuating below 100 percent.

### 5.3.2 Structure of inventory to current assets

Table 5.6 shows the structure of inventory to current assets

**Table : 5.6**

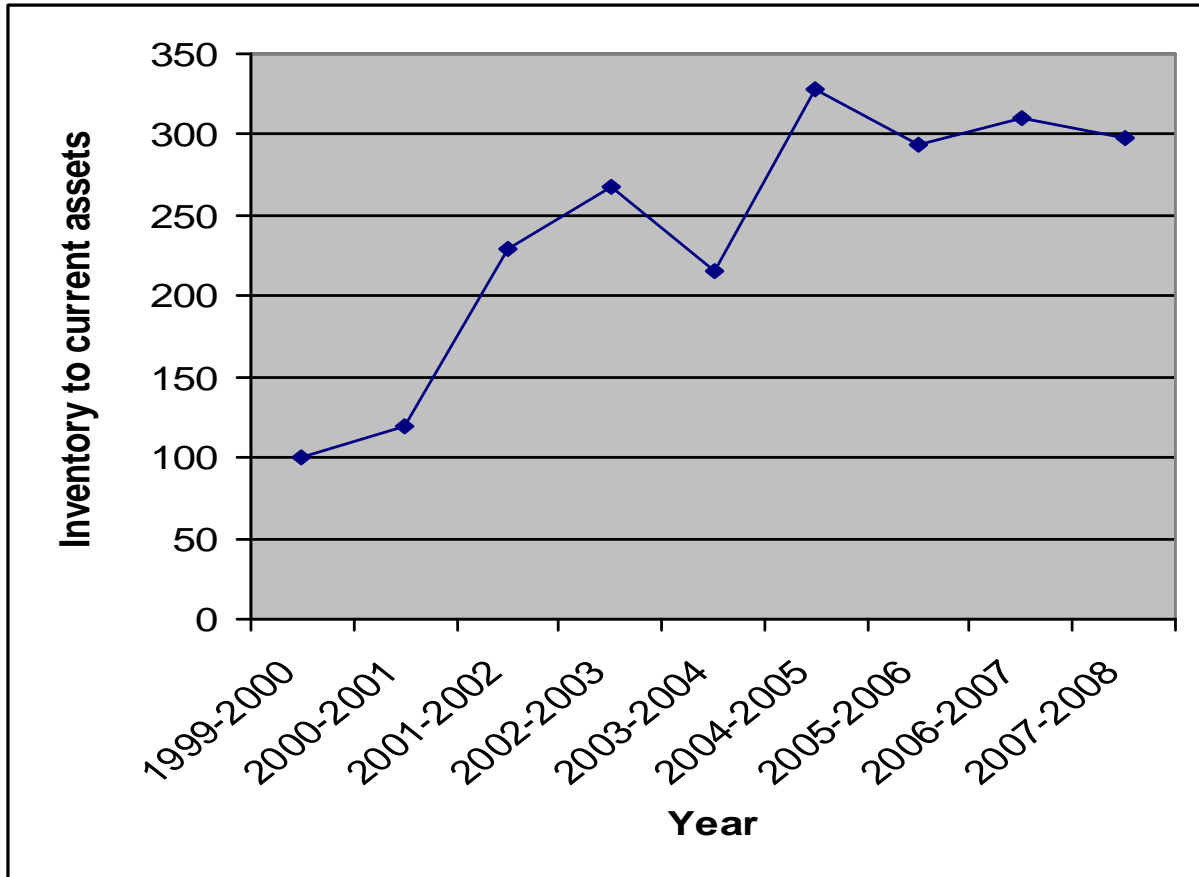
**Structure of inventory to current assets of SSSC Ltd. during 1999/2000 and 2007/2008**

| Year                        | Inventory      |         | Current Assets |    |         | Inventory to current assets |        |
|-----------------------------|----------------|---------|----------------|----|---------|-----------------------------|--------|
|                             | NRs in Lakh    | Trend   | NRs. lakh      | In | Trend   | Ratio in times              | Trend  |
| 1999-2000                   | 0.87718        | 100.00  | 3.63           |    | 100     | 0.2416                      | 100    |
| 2000-2001                   | 4.37557        | 498.82  | 15.09          |    | 415.76  | 0.2899                      | 119.99 |
| 2001-2002                   | 3.75449        | 428.01  | 6.76           |    | 186.22  | 0.5554                      | 229.88 |
| 2002-2003                   | 17.2116        | 1962.15 | 26.65          |    | 734.16  | 0.6458                      | 267.30 |
| 2003-2004                   | 21.60487       | 2462.99 | 41.47          |    | 1142.42 | 0.5209                      | 215.60 |
| 2004-2005                   | 77.41195       | 8825.09 | 97.80          |    | 2694.21 | 0.7915                      | 327.60 |
| 2005-2006                   | 54.48317       | 6211.17 | 76.84          |    | 2116.80 | 0.7090                      | 293.46 |
| 2006-2007                   | 68.08667       | 7761.99 | 90.66          |    | 2497.52 | 0.7510                      | 310.84 |
| 2007-2008                   | 57.9517        | 6606.59 | 80.62          |    | 2220.93 | 0.7188                      | 297.51 |
| <b><math>\bar{X}</math></b> | <b>33.9730</b> |         | <b>48.83</b>   |    |         | <b>0.5804</b>               |        |
| <b>S.D.</b>                 | <b>28.60</b>   |         | <b>35.65</b>   |    |         | <b>0.1875</b>               |        |
| <b>C.V.</b>                 | <b>84.20%</b>  |         | <b>73.01%</b>  |    |         | <b>32.31%</b>               |        |

Source: Appendix-2

From the above table (Table 5.6) it is clear that the inventory to current assets fluctuates over with the lowest 24.16 percent in 1999/2000 and highest 79.15 percent in 2004/2005 comparison with average ratio 0.5804. On aggregate, they average out the statistical variation 32.31 percent. Inventory fluctuates especially in the year 2001/2002 and 2003/2004 and current assets are always in increasing trend.

The relationship of inventory and current assets can also be presented in the diagram as follows:



**Fig. 5.3 Structure of inventory to current assets ratio**

Fig 5.3 shows that during the period of study, the ratio of inventory to current assets is above 100 percent in each year. In the beginning year the ratio was highest 2004/2005 and lowest in 1999/2000 i.e. 100 percent.

### **5.3.3 Structure of debtors to current assets**

The following table (Table-5.7) shows the structure of debtors to current assets.

**Table : 5.7**  
**Structure of debtors to current assets of SSSC Ltd**  
**During 1999/2000-2007/2008**

| Year        | Debtors       |         | Current assets |         | Debtors to Current assets |        |
|-------------|---------------|---------|----------------|---------|---------------------------|--------|
|             | NRs. In Lakh) | Trend   | NRs. In lakh   | Trend   | Ration in times           | Trend  |
| 1999-2000   | 0.64379       | 100     | 3.63           | 100     | 0.1773                    | 100    |
| 2000-2001   | 0.83266       | 129.33  | 15.09          | 415.70  | 0.0551                    | 31.07  |
| 2001-2002   | 1.15171       | 178.89  | 6.76           | 186.22  | 0.1703                    | 96.05  |
| 2002-2003   | 1.25253       | 194.55  | 26.65          | 734.16  | 0.0469                    | 26.45  |
| 2003-2004   | 14.22525      | 2209.61 | 41.47          | 1142.42 | 0.3430                    | 193.45 |
| 2004-2005   | 18.99603      | 2950.65 | 97.80          | 2694.21 | 0.1942                    | 109.53 |
| 2005-2006   | 20.95032      | 3254.21 | 76.84          | 2116.80 | 0.2726                    | 153.75 |
| 2006-2007   | 20.32400      | 3156.93 | 90.66          | 2497.52 | 0.2241                    | 126.73 |
| 2007-2008   | 18.44051      | 2864.36 | 80.62          | 2220.93 | 0.2287                    | 128.99 |
| $\bar{X}$   | 10.7574       |         | 48.83          |         | 0.1902                    |        |
| <b>S.D.</b> | 8.92          |         | 35.65          |         | 0.0893                    |        |
| <b>C.V.</b> | 82.99%        |         | 73.01%         |         | 46.97%                    |        |

**Source : Appendix-2**

From the above table (table-5.7), it is seen that proportion of debtors to total working capital has been 4.69 percent and 34.30 percent in 2002/2003 and 2003/2004 respectively with an average ratio of 19.02 percent and statistical variation of 46.97 percent. The reason may be that other components of current assets than debtors were increasing with the increase in current assets during the period of study.

The relationship of debtors to current assets can also be shown as in figure 5.4

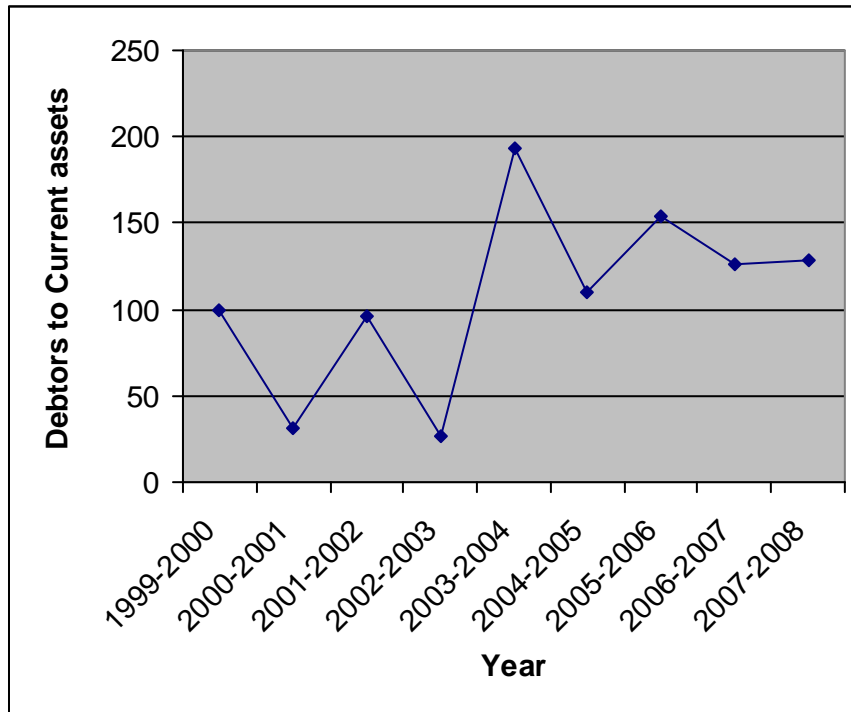


Fig 5.4 Structure of debtors to current assets ratio.

The above figure (Figure 5.4) shows that the debtors to current assets ratio fluctuate every year. It reached at highest point 193.45 percent in the year 2003/2004 and lowest recorded is 26.45 percent in the year 2002/2003.

### 5.3.4 Structure of working capital

The following table (Table :5.8) portrays the structure of working capital during the period under study of SSSC Ltd.

**Table 5.8**  
**Structure of working capital of SSSC Ltd.**  
**During 1999/2000 - 2007/2008**

Percent to current assets

| <b>Year</b>                 | <b>Inventory</b> | <b>Debtors</b> | <b>Cash and Bank</b> |
|-----------------------------|------------------|----------------|----------------------|
| 1999-2000                   | 24.16            | 17.73          | 53.71                |
| 2000-2001                   | 28.99            | 5.51           | 65.27                |
| 2001-2002                   | 55.54            | 17.03          | 24.03                |
| 2002-2003                   | 64.58            | 4.69           | 55.88                |
| 2003-2004                   | 52.09            | 34.30          | 12.94                |
| 2004-2005                   | 79.15            | 19.42          | 1.13                 |
| 2005-2006                   | 70.90            | 27.26          | 1.77                 |
| 2006-2007                   | 75.10            | 22.41          | 2.43                 |
| 2007-2008                   | 71.88            | 22.87          | 5.19                 |
| <b><math>\bar{X}</math></b> | <b>58.04</b>     | <b>19.02</b>   | <b>24.70</b>         |
| <b>S.D.</b>                 | <b>18.76%</b>    | <b>8.95%</b>   | <b>24.84%</b>        |
| <b>C.V.</b>                 | <b>32.33%</b>    | <b>47.06%</b>  | <b>100.56%</b>       |

Source: Table 5.5,5.6,5.7

It is evident from the table (Table 5.8) that in the SSSC Ltd. during the study period, 1999-2000 to 2007-2008, inventory occupied the most important place in the structure of its working capital. Next to inventory cash obtained the important and the middle place in the composition of working capital of SSSC Ltd. The proportion of debtors to working capital has been placed third in the hierarchy.

During the study period, inventory is in increasing trend. On the contrary to this, cash and bank has been declining trend. Debtors on the other hand also has been rising remarkably during the study period. This shows the SSSC Ltd. is still ineffective in controlling cash and collecting amount from debtors.

From this analysis, it is obvious that SSSC Ltd. has been giving its priority on inventory instead of its debtors in order to maintain adequate liquidity in its working capital. However, it still seems to be unable to maintain absolute liquidity since FY 2003-2004 by rising the proportion of cash to its working capital. Liquidity may vividly be observed, especially in the later years of the study period.

### 5.3.5 Testing of hypothesis of structure of working capital

The following hypothesis has been tested by employing the Student's t-test.

HO<sub>3</sub>            There is no significant correlation among the components of the structure of working capital in SSSC Ltd. measured in terms of inventory, debtors and cash & bank.

HA<sub>3</sub>            There is significant correlation among the components of the structure of working capital in SSSC Ltd. measured in terms of inventory, debtors and cash & bank.

The following table (Table 5.9) shows the correlation among the components of the structure of working capital in SSSC Ltd. expressed in terms of inventory, debtors and cash & bank.

**Table 5.9**

**Coefficient of correlation with their Student's t-value and coefficients of determination of structure of working capital measured in terms of inventory, debtors and cash & bank.**

| <b>Ratio (Percent to current assets)</b>    | <b>r</b> | <b>r<sup>2</sup></b> | <b>  t  -value</b> | <b>d.f.</b> | <b>Result</b>   |
|---|----------|----------------------|--------------------|-------------|-----------------|
| 1.Inventory & debtors keeping cash constant | 0.3346   | 0.1119               | 0.9394             | 7           | Not significant |
| 2. Inventory and                            | -0.6849  | 0.4690               | 0.7286             | 7           | Not significant |

|   |         |        |      |   |                 |
|---|---------|--------|------|---|-----------------|
| cash keeping debtor constant                  |         |        |      |   |                 |
| 3. Cash and debtor keeping inventory constant | -0.7790 | 0.6068 | 1.54 | 7 | Not significant |

Source : Appendix-2

It is analyzed from the above table (table 5.9) that null hypothesis has been found accepted in all the cases in respect to the correlation of inventory and debtors keeping cash constant, in respect to the correlation of inventory and cash keeping debtor constant and in respect to the correlation of cash and inventory keeping inventory constant respectively as their calculated values are lower than the table value at 5% level of significance. From this it can be inferred that there is no significant difference in the relationship of inventory and debtors, inventory and cash & cash and debtors.

#### 5.4 Efficiency of working capital

Since working capital has significant bearing on the conflicting object of liquidity and profitability of an enterprise, its efficient management helps to achieve a trade off between them. It is thus desirable to look into the efficiency with which the working capital and its constituents such as inventory, receivables and cash have been managed or utilized by the enterprise. This part of the analysis, therefore, inquires into the efficiency of working capital in SSSC Ltd. during the study period. For that purpose, turnover ratios of inventory, receivables, cash and total current assets have been calculated and presented in the following tables (tables: 5.10, 5.11, 5.12, 5.13, 5.14). These ratios reflect how these resources have been utilized by the company to obtain higher profits in lower costs and risks. It is suggested that the higher the ratios, the more efficient would be their use and smaller their requirement; and hence, lower would be the costs and risk associated with the working capital.



#### 5.4.1 Inventory turnover ratio of SSSC Ltd.

One of the important measures of efficiency of working capital management is the inventory turnover ratio which indicates how frequently inventory moved in-out of an enterprise during a period of time. This ratio helps to judge the efficiency of inventory management. The ratio is usually expressed in the number of times the inventory is turned over during the period. It is suggested that the higher the ratio, the larger the amount of profit. The following table (Table 5.10) exhibits the inventory turnover ratio of the SSSC Ltd. during the study period 1999/2000-2007/2008.

**Table 5.10**  
**Inventory turnover ratio of SSSC Ltd**  
**During 1999/2000-2007/2008**

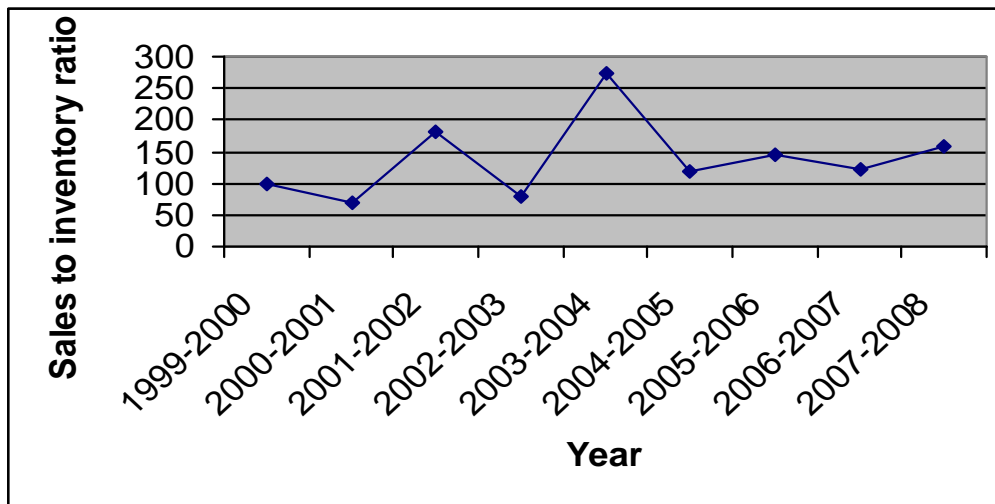
| Year        | Sales       |          | Inventory   |         | Sales to inventory |        |
|-------------|-------------|----------|-------------|---------|--------------------|--------|
|             | NRs in Lakh | Trend    | NRs in Lakh | Trend   | Ratio in times     | Trend  |
| 1999-2000   | 0.9839      | 100      | 0.8771      | 100     | 1.12               | 100    |
| 2000-2001   | 3.3963      | 345.18   | 4.3755      | 498.82  | 0.77               | 68.75  |
| 2001-2002   | 7.6332      | 775.75   | 3.7544      | 428.01  | 2.03               | 181.25 |
| 2002-2003   | 14.9824     | 1522.75  | 17.2116     | 1962.15 | 0.87               | 77.67  |
| 2003-2004   | 66.7532     | 6784.55  | 21.6048     | 2462.99 | 3.08               | 275.00 |
| 2004-2005   | 102.6841    | 10436.43 | 77.4119     | 8825.09 | 1.32               | 117.85 |
| 2005-2006   | 88.9693     | 9042.51  | 54.4831     | 6211.17 | 1.63               | 145.53 |
| 2006-2007   | 91.9440     | 9344.85  | 68.0866     | 7761.99 | 1.35               | 120.53 |
| 2007-2008   | 102.2528    | 10393.15 | 57.9517     | 6606.59 | 1.76               | 157.14 |
| $\bar{X}$   | 53.29       |          | 33.9730     |         | 1.54               |        |
| <b>S.D.</b> | 42.89       |          | 28.60       |         | 66.42              |        |
| <b>C.V.</b> | 80.48%      |          | 84.20%      |         | 43.14%             |        |

**Source: Appendix- 1 & 2**

The above table (Table 5.10) reveals that through inventory turnover ratio is fluctuating, it was in rising trend with the highest 3.08 times in 2003/2004 and lowest at the

beginning year 1999/2000. The average turnover ratio is 1.54 times during the period. The coefficient of variation 43.14%. Both the sales and inventory are in increasing trend but the improving trend of SSSC's inventory turnover ratio is certainly due to the constant increase of its sales. This shows that the company has utilized its inventory efficiently.

The relationship of sales to inventory can also be represented in a diagram as:



**Fig. 5.5 : Structure of inventory turnover ratio**

Figure 5.5 shows that the inventory turnover ratio fluctuates every year. In the fifth year (2003/2004) is rapidly increased to 275 percent from 100 percent which is the highest range. Except that year it was fluctuating between 68.75 percent to 181.25 percent.

#### **5.4.2 Debtors turnover ratio of SSSC Ltd.**

Another important measure of efficiency of working capital management is debtor's turnover ratio which indicates the efficiency with which debtors are being utilized in the enterprise. The ratio is expressed in the number of times the debtors turned over during the period. It is, therefore, the higher the ratio, the more efficient is the management of debtors. However, the ratio should be carefully interpreted as high ratio could be achieved through strict verdict polling. The debtors turnover ratio of the SSSC Ltd.

during the period of study 1999/2000 to 2007/2008, has been presented in the table following (Table 5.11)

**Table 5.11**  
**Debtors turnover ratio of SSSC Ltd**  
**During 1999/2000-2007/2008**

| Year                        | Sales         |          | Debtors        |         | Sales to debtors |        |
|-----------------------------|---------------|----------|----------------|---------|------------------|--------|
|                             | NRs in Lakh   | Trend    | NRs in Lakh    | Trend   | Ratio in times   | Trend  |
| 1999-2000                   | 0.9839        | 100      | 0.64379        | 100     | 1.52             | 100    |
| 2000-2001                   | 3.3963        | 345.18   | 0.83266        | 129.33  | 4.07             | 267.76 |
| 2001-2002                   | 7.6332        | 775.75   | 1.15171        | 178.89  | 6.62             | 435.52 |
| 2002-2003                   | 14.9824       | 1522.75  | 1.25253        | 194.55  | 11.96            | 786.84 |
| 2003-2004                   | 66.7532       | 6784.55  | 14.22525       | 2209.61 | 4.69             | 308.55 |
| 2004-2005                   | 102.6841      | 10436.43 | 18.99603       | 2950.65 | 5.40             | 355.26 |
| 2005-2006                   | 88.9693       | 9042.51  | 20.95032       | 3254.21 | 4.24             | 278.94 |
| 2006-2007                   | 91.9440       | 9344.85  | 20.32400       | 3156.93 | 4.52             | 297.36 |
| 2007-2008                   | 102.2528      | 10393.15 | 18.44051       | 2864.36 | 5.54             | 364.47 |
| <b><math>\bar{X}</math></b> | <b>53.29</b>  |          | <b>10.7574</b> |         | <b>5.39</b>      |        |
| <b>S.D.</b>                 | <b>42.89</b>  |          | <b>8.92</b>    |         | <b>2.66</b>      |        |
| <b>C.V.</b>                 | <b>80.48%</b> |          | <b>82.99%</b>  |         | <b>49.46%</b>    |        |

Source : Appendix -1 & 2

The above table 5.11 shows that average of debtors turnover is 5.39 times and coefficient of variation shows that the variability of the ratio during the period was 49.46 percent. It is in fluctuating and increasing trend. Highest ratio 11.96 times in 2002/2003 and lowest at the beginning year was 1.52 times. Till fourth year it showed the increasing trend and reached 11.96 times in 2002/2003, which is 7.86 times more than the first year. But it is almost constant in some of the years and fluctuating in the most of years. According to the proposition, debtors follow the sales suit. But here the debtor's turnover ratio

fluctuates which implies that the credit sale was less than the cash sales during the period of study 1999/2000-20007/2008.

This debtor's turnover ratio can also be presented in a diagram as follows:

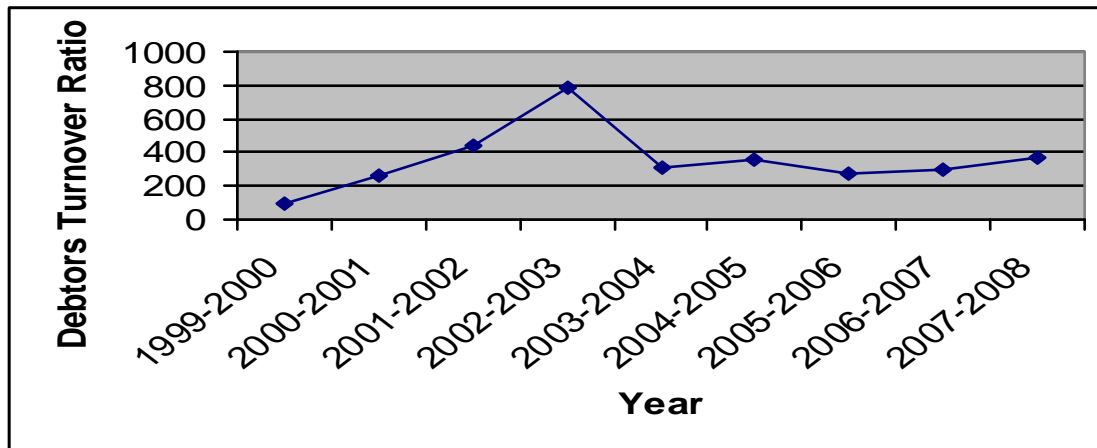


Fig. 5.6: Structure of debtors turnover ratio

From the above figure (Figure5.6), it is clear that debtors turnover ratio fluctuates almost every year. Highest fluctuation is 786.84 percent in 2002/2003 and lowest 267.76 percent in 2000/2001.

### 5.4.3 Cash and bank turnover ratio

Although cash has the smallest size in the total working capital of an enterprise, it being the most liquid of all needs to be managed as efficiently as receivables or inventory. In order to measure the efficiency of cash management, cash turnover ratio is usually employed which indicates that velocity of cash in and out of the enterprise. It is expressed in the number of times. It is suggested that the higher the ratio, the greater is the efficiency of cash management, or vice versa. However, while interpreting the ratio one must be careful that greater ratio may be due to inadequate or too small amount of cash balances. Table 5.12 portrays the cash turnover ratios of the SSSC Ltd during the study period.

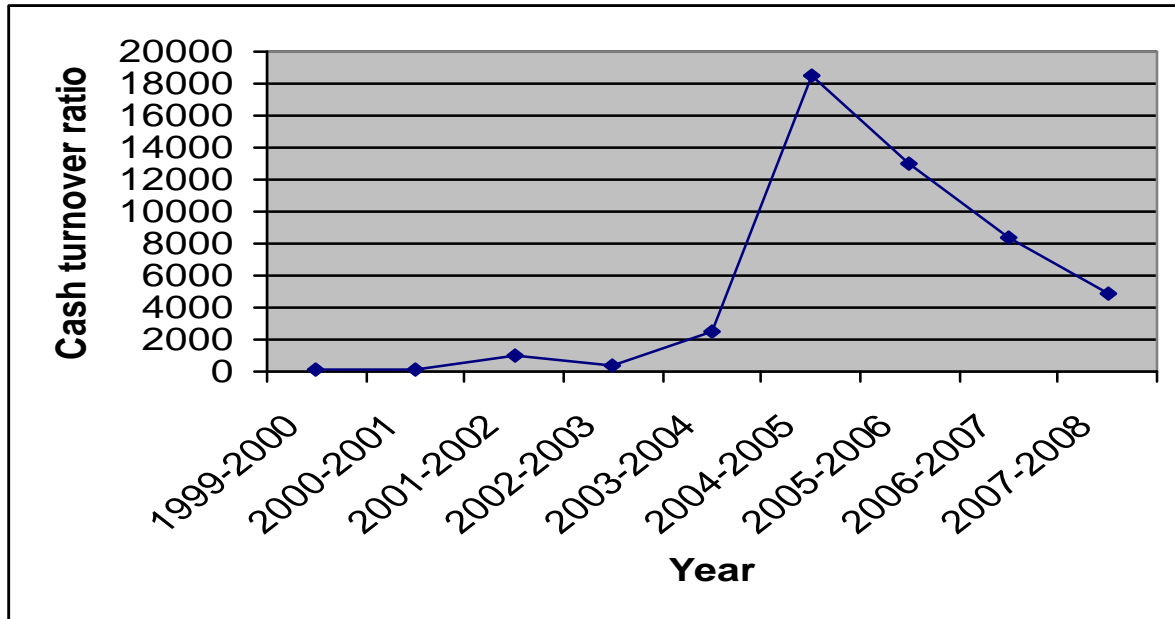
**Table 5.12**  
**Cash turnover ratio of SSSC Ltd**  
**During 1999/2000-2007/2008**

| Year        | Sales         |          | Cash          |         | Cash to sales  |       |
|-------------|---------------|----------|---------------|---------|----------------|-------|
|             | NRs in Lakh   | Trend    | NRs in Lakh   | Trend   | Ratio in times | Trend |
| 1999-2000   | 0.9839        | 100      | 1.9498        | 100.00  | 0.50           | 100   |
| 2000-2001   | 3.3963        | 345.18   | 9.8491        | 505.133 | 0.34           | 68    |
| 2001-2002   | 7.6332        | 775.75   | 1.6245        | 83.316  | 4.69           | 938   |
| 2002-2003   | 14.9824       | 1522.75  | 7.996         | 410.277 | 1.87           | 374   |
| 2003-2004   | 66.7532       | 6784.55  | 5.3665        | 275.233 | 12.43          | 2486  |
| 2004-2005   | 102.6841      | 10436.43 | 1.1114        | 57.000  | 92.39          | 18478 |
| 2005-2006   | 88.9693       | 9042.51  | 1.3654        | 70.027  | 65.16          | 13032 |
| 2006-2007   | 91.9440       | 9344.85  | 2.2078        | 113.232 | 41.64          | 8328  |
| 2007-2008   | 102.2528      | 10393.15 | 4.1867        | 214.724 | 24.42          | 4884  |
| <b>X̄</b>   | <b>53.29</b>  |          | <b>3.96</b>   |         | <b>27.04</b>   |       |
| <b>S.D.</b> | <b>42.89</b>  |          | <b>2.9896</b> |         | <b>31.10</b>   |       |
| <b>C.V.</b> | <b>80.48%</b> |          | <b>75.49%</b> |         | <b>115.01%</b> |       |

Source : Appendix-1 & 2

The table (Table5.12) shows that, during the period, the ratio showed a fluctuating trend having a wide variation between 92.39 times in 2004/2005 and 0.34 times in 2000/2001. The average cash turnover ratio of SSSC Ltd is 27.04 times and coefficient of variation is 115.01 percent. This shows that cash had been always deficit in SSSC Ltd. Its liquidity position is not good.

The relationship can also be presented in the figure as follows:



**Fig 5.7 : Structure of cash turnover ratio**

Figure 5.7 shows that cash turnover ratio heavily fluctuating during the period of study 1999/2000 to 2007/2008 lowest fluctuation is 68 percent in 2000/2001 and highest fluctuation is 18478 percent in 2004/2005.

### **5.3.4 Current Assets Turnover Ratio**

The overall efficiency of working capital management of an enterprise can be measured by current assets turnover ratio which indicates how efficiently the short term funds have been employed by the enterprise for maximizing profitability with a given level of risk. The higher the working capital turnover ratio the lower the investment in short term funds and hence, greater the profits. However, care must be taken while interpreting the ratio because a very high ratio may also mean insufficient working capital funds for a given volume of business. A lower ratio, therefore, should clearly be taken to mean that the capital is not sufficiently active. The table 5.13 considers the current assets turnover ratio of the SSSC Ltd during the study period 1999/200 to 2007/2008.

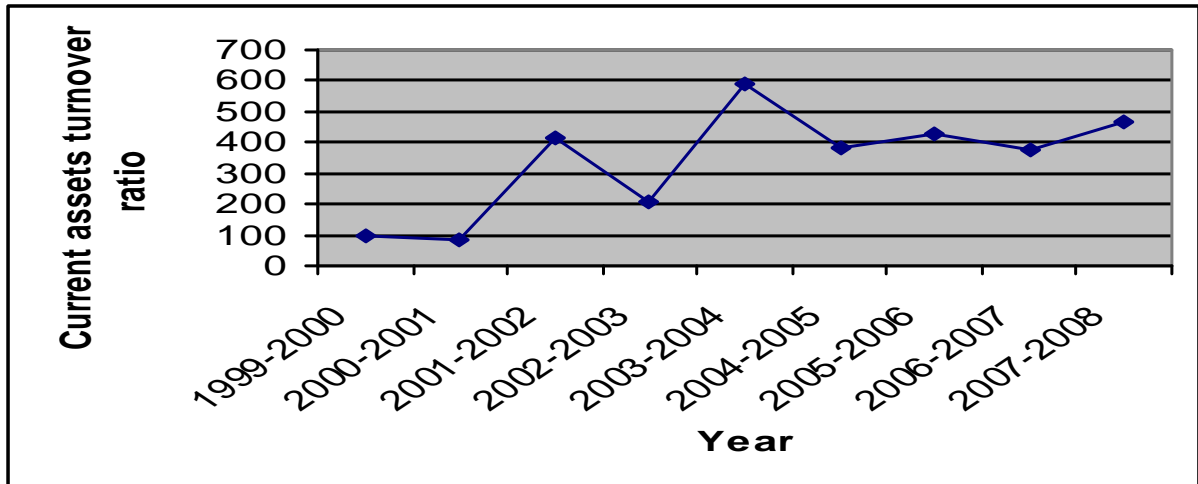
**Table 5.13**  
**Current assets turnover ratio**  
**During 1999/2000-2007/2008**

| Year                        | Sales         |             | Current Assets |             |                | Current Assets Turn over |  |
|-----------------------------|---------------|-------------|----------------|-------------|----------------|--------------------------|--|
|                             | NRS<br>lakh   | in<br>Trend | NRS<br>lakh    | in<br>Trend | Ratio<br>times | in<br>Trend              |  |
| 1999-2000                   | 0.9839        | 100         | 3.63           | 100         | 0.27           | 100                      |  |
| 2000-2001                   | 3.3963        | 345.18      | 15.09          | 415.70      | 0.22           | 81.48                    |  |
| 2001-2002                   | 7.6332        | 775.75      | 6.76           | 186.22      | 1.12           | 414.81                   |  |
| 2002-2003                   | 14.9824       | 1522.75     | 26.65          | 734.16      | 0.56           | 204.40                   |  |
| 2003-2004                   | 66.7532       | 6784.55     | 41.47          | 1142.42     | 1.60           | 592.59                   |  |
| 2004-2005                   | 102.6841      | 10436.43    | 97.80          | 2694.21     | 1.04           | 385.18                   |  |
| 2005-2006                   | 88.9693       | 9042.51     | 76.84          | 2116.80     | 1.15           | 425.92                   |  |
| 2006-2007                   | 91.9440       | 9344.85     | 90.66          | 2497.52     | 1.01           | 374.07                   |  |
| 2007-2008                   | 102.2528      | 10393.15    | 80.62          | 2220.93     | 1.26           | 466.66                   |  |
| <b><math>\bar{X}</math></b> | <b>53.29</b>  |             | <b>48.83</b>   |             | <b>0.91</b>    |                          |  |
| <b>S.D.</b>                 | <b>42.89</b>  |             | <b>35.65</b>   |             | <b>0.4375</b>  |                          |  |
| <b>C.V.</b>                 | <b>80.48%</b> |             | <b>73.01%</b>  |             | <b>48.07%</b>  |                          |  |

Source: Appendix-1 & 2

It is apparent from the table (Table-5.13) that turnover of current assets in SSSC Ltd during the period was fluctuating almost year to year without making a clear cut trend of increase or decrease. The variation between the highest and the lowest ratio was 1.60 times in 2003/2004 and 0.22 times in 2000/2001 respectively, resulting in an average of 0.91 times with a statistical variation of 48.07 percent.

This can also be presented diagrammatically as follows:



**Fig 5.8 : Structure of current assets turnover ratio**

Figure 5.8 shows that the current assets turnover is in fluctuating trend. Lowest is 81.48 percent in the year 2000/2001 and highest 592.59 percent in 2003/2004.

#### **5.4.5 Testing of hypothesis of efficiency of working capital**

The following hypothesis has been proposed and tested by applying student's t-test

HO<sub>4</sub>            There is no significant correlations of sales with inventory, debtors, cash and current assets.

HA<sub>4</sub>            There is significant correlations of sales with inventory, debtors, cash and current assets.

The following table (Table 5.14) presents the coefficient of correlation with their t-values of the ratios measuring the efficiency of working capital management in SSSC Ltd



**Table 5.14**

**Coefficient of correlation, coefficient of determination and student's t-values of the ratios measuring the efficiency of working capital management of SSSC Ltd. during 1999/2000 to 2007/2008**

| <b>Ratios</b>            | <b>r</b> | <b>r<sup>2</sup></b> | <b>t-value</b> | <b>d.f.</b> | <b>Result</b>   |
|--------------------------|----------|----------------------|----------------|-------------|-----------------|
| Inventory and sales      | 0.9446   | 0.8922               | 7.6146         | 7           | Significant     |
| Debtors and sales        | 0.9831   | 0.9664               | 14.2130        | 7           | Significant     |
| Cash and sales           | -0.3841  | 0.1475               | 1.1921         | 7           | Not significant |
| Current assets and sales | 0.9677   | 0.9345               | 10.15          | 7           | Significant     |

**Source: Appendix – 1 & 2**

It is obvious from the table given above (Table 5.14) that the null hypothesis has been found positive in respect of cash turnover ratio of SSSC Ltd. as its calculated t-value is lower than the table value at 5 percent level of significance. On the other hand, the null hypothesis was found not accepted with respect to debtors' turnover, inventory turnover and current assets turnover ratios of SSSC Ltd. as their calculated values are higher than the table value at 5 percent level of significance, and hence, the alternative hypothesis of significant difference has been accepted. From these results, it can be inferred that the relationship of receivable, inventory and current assets management is significantly different while cash is not.

### **5.5 Analysis of liquidity**

Liquidity refers to the ability of an enterprise to pay its short term obligations. The enterprise has to pay its short-term obligations when they are due, otherwise it will be technically insolvent and its future will be sombre. In order to avoid such a risk, the enterprise, nonetheless can not maintain too high liquidity to be adequate because it is an expensive affair. Liquidity management is, therefore, the core of working capital management.

Liquidity of an enterprise can be measured on the basis of current and liquid ratios which express the precise relationship between current assets and current liabilities, and liquid assets and current liabilities. For the manufacturing enterprise a current ratio of 2:1; and liquid ratio of 1:1 are considered appropriate for measuring the efficient liquidity management of the enterprise.

With a view to inquire into the efficiency of liquidity management of SSSC Ltd during the study period of 1999/2000 and 2007/2008, their current and quick ratios have been calculated and presented in the following tables (Tables 5.15, 5.16, 5.17).

### 5.5.1 Analysis of current ratio

Current ratio is one of the most popularly used measures of liquidity. It measures the degree to which current assets can cover current liabilities. A higher current ratio indicates greater assurance of ability to pay current liabilities. The following table (Table no. 5.15) exhibits the current ratios of the SSSC Ltd during the study period 1999/2000 to 2007/2008.

**Table : 5.15**  
**Current ratio of SSSC Ltd.**  
**During 1999/2000 to 2007/2008**

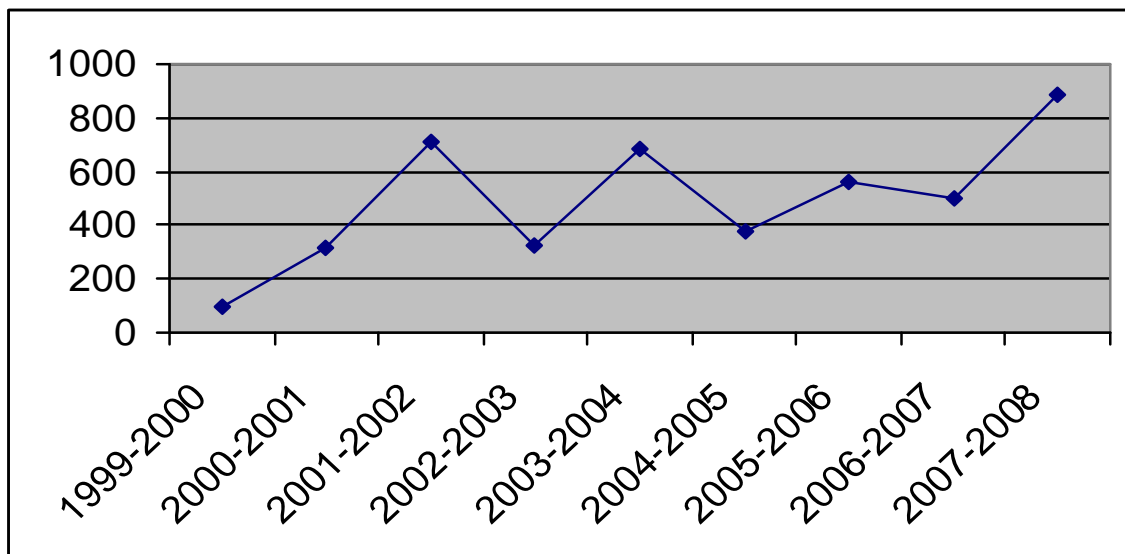
| Year      | Current assets |         | Current liabilities |        | Current ratio  |        |
|-----------|----------------|---------|---------------------|--------|----------------|--------|
|           | NRs in Lakh    | Trend   | NRs in Lakh         | Trend  | Ratio in times | Trend  |
| 1999-2000 | 3.63           | 100     | 8.46                | 100    | 0.42           | 100    |
| 2000-2001 | 15.09          | 415.70  | 11.49               | 135.81 | 1.31           | 311.90 |
| 2001-2002 | 6.76           | 186.22  | 2.27                | 26.83  | 2.97           | 707.14 |
| 2002-2003 | 26.65          | 734.16  | 19.52               | 230.73 | 1.36           | 323.81 |
| 2003-2004 | 41.47          | 1142.42 | 14.50               | 171.39 | 2.86           | 680.95 |
| 2004-2005 | 97.80          | 2694.21 | 61.26               | 724.11 | 1.59           | 378.57 |
| 2005-2006 | 76.84          | 2116.80 | 32.49               | 384.04 | 2.36           | 561.90 |
| 2006-2007 | 90.66          | 2497.52 | 43.20               | 510.64 | 2.10           | 500.00 |

|           |               |         |               |        |               |        |
|-----------|---------------|---------|---------------|--------|---------------|--------|
| 2007-2008 | 80.62         | 2220.93 | 21.73         | 256.85 | 3.71          | 883.33 |
| $\bar{X}$ | <b>48.83</b>  |         | <b>23.88</b>  |        | <b>2.08</b>   |        |
| S.D.      | <b>35.65</b>  |         | <b>17.68</b>  |        | <b>0.95</b>   |        |
| C.V.      | <b>73.01%</b> |         | <b>74.05%</b> |        | <b>46.00%</b> |        |

Source: Appendix-2

The above table (Table 5.15) reveals that the current ratios of SSSC Ltd are fluctuating and it is admirable to some extent. The highest ratio recorded was 3.71 times in 2007/2008 and lowest 0.42 times in the beginning year 1999/2000. It averages 2.08 times may be asserted that the liquidity measured by matching current assets and current liabilities was greater than the rule of thumb of 2:1 in SSSC Ltd in the five years out of nine years respectively.

The current ratio can also be presented in a diagram as:



**Fig. 5.9 : Structure of current ratio**

The above figure (figure 5.9) reveals that current ratio is in fluctuating. Highest trend is 883.33 percent in the year 2007/2008 and lowest 100 percent in the base year.

### 5.5.2 Analysis of quick ratio

Another important measure of liquidity in an enterprise is quick ratio or acid test ratio which is believed to be more refined than the current ratio as it excludes inventory, the less liquid form of current assets in its calculation. It indicates the degree to which quick assets such as receivables and cash can cover the current liabilities. A higher ratio indicates higher assurance of ability to pay current liabilities. The table (Table 5.16) presents the quick ratio of SSSC Ltd during the period 1999/200-2007/2008

**Table 5.16**  
**Quick ratio of the SSSC Ltd.**  
**During 1999/2000-2007/2008**

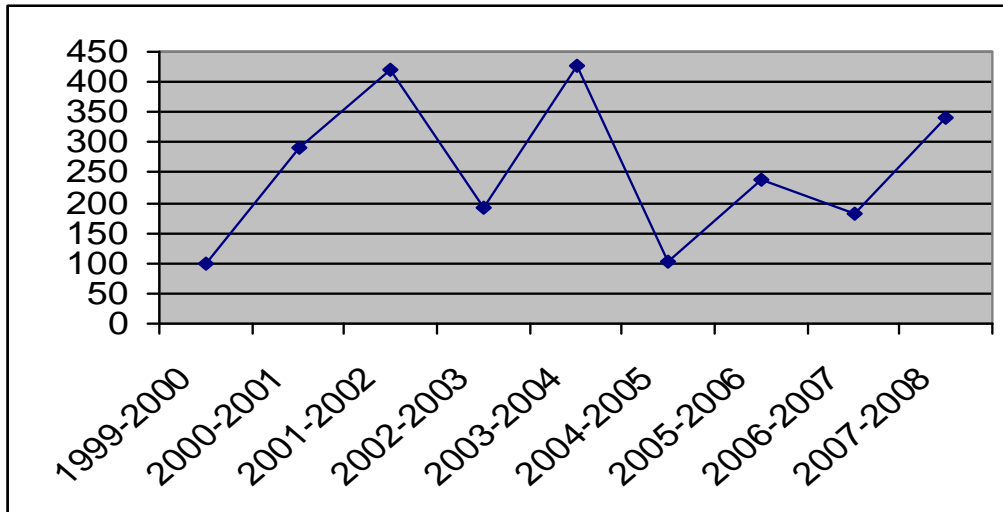
| Year        | Current assets  |        | Current liabilities |        | Current ratio     |        |
|-------------|-----------------|--------|---------------------|--------|-------------------|--------|
|             | NRs. In<br>Lakh | Trend  | NRs. In<br>Lakh     | Trend  | Ratio in<br>times | Trend  |
| 1999-2000   | 2.75            | 100    | 8.46                | 100    | 0.32              | 100    |
| 2000-2001   | 10.71           | 389.45 | 11.49               | 135.81 | 0.93              | 290.62 |
| 2001-2002   | 3.07            | 111.63 | 2.27                | 26.83  | 1.35              | 421.87 |
| 2002-2003   | 12.02           | 437.09 | 19.52               | 230.73 | 0.61              | 190.62 |
| 2003-2004   | 19.87           | 722.54 | 14.50               | 171.39 | 1.37              | 428.12 |
| 2004-2005   | 20.39           | 741.45 | 61.26               | 724.11 | 0.33              | 103.12 |
| 2005-2006   | 24.92           | 906.18 | 32.49               | 384.04 | 0.76              | 237.50 |
| 2006-2007   | 25.18           | 915.63 | 43.20               | 510.64 | 0.58              | 181.25 |
| 2007-2008   | 23.74           | 863.27 | 21.73               | 256.85 | 1.09              | 340.62 |
| <b>X̄</b>   | <b>15.85</b>    |        | <b>23.88</b>        |        | <b>0.82</b>       |        |
| <b>S.D.</b> | <b>8.46</b>     |        | <b>17.68</b>        |        | <b>0.37</b>       |        |
| <b>C.V.</b> | <b>53.38%</b>   |        | <b>74.05%</b>       |        | <b>45.26%</b>     |        |

Source : Appendix-2

It is clear from the above table (Table 5.16) that though quick ratio fluctuates year after year, it has increased from 0.32 times at the beginning year 1999/2000 to highest 1.37

times in the year 2003/2004. It average out at 0.82 times with the statistical variation 45.26 percent. The liquidity positions as reflected by the ratio is little bit greater than up to the rule-of-thumb norm of 1:1 in some of the years during the study period.

The quick ratio can also be presented in the diagram



**Fig. 5.10 : Structure of quick ratio**

Figure 5.10 reveals that quick ratio during the period of study not follows the fixed trend. Highest point recorded is at 428.12 in 2003/2004 and lowest 100 percent at the base year 1999/2000.

### **5.5.3 Testing of hypothesis of liquidity of SSSC Ltd.**

The following hypothesis has been tested by applying the student's t-test.

HO<sub>5</sub>            There is no significant correlation of current assets and quick assets with current liabilities of SSSC Ltd.

HA<sub>5</sub>            There is significant correlation of current assets and quick assets with current liabilities of SSSC Ltd.

The following table 5.17 presents the coefficient of correlation with their Student's t-values of the ratios measuring liquidity in the SSSC Ltd during 1999/2000-2007/2008.

**Table: 5.17**

**Coefficient of correlation, coefficient of determination with their student's t-values of the ratios measuring liquidity in the SSSC Ltd. during 1999/2000-2007/2008.**

| <b>Ratio</b>                           | <b>r</b> | <b>r<sup>2</sup></b> | <b>t-value</b> | <b>d.f.</b> | <b>Result</b> |
|--|----------|----------------------|----------------|-------------|---------------|
| Current assets and current liabilities | 0.9607   | 0.9229               | 12.82          | 7           | Significant   |
| Quick assets and current liabilities   | 0.6920   | 0.4788               | 2.53           | 7           | Significant   |

**Source: Appendix-2**

In the table (Table 5.17) clearly, the null hypothesis has been found negative in both ratios as their calculated value is higher than the tabulated value at 5 percent level of significance. Thus, the alternative hypothesis of significant difference has been accepted. This reveals that the relationship of current assets and quick assets with current liabilities are statistically significant.

## **5.5 Liquidity vs. Profitability**

Liquidity in any firm is essential to meet its current obligations and expenses. Therefore, every firm is supposed to maintain higher liquidity to avoid the technical insolvency of the firm. But since maintaining higher liquidity results in higher costs, higher liquidity impairs the profitability of the firm. Therefore, there is always inverse relationship between liquidity and profitability. The following tables (Tables: 5.18, 5.19, 5.20, 5.21) attempt to show the relationship between liquidity measured in terms of current ratio and acid test ratio and profitability measured in terms of current ratio and operating profit ratio, quick ratio and return on total assets, net profit to total capital employed and return on net worth.

### 5.6.1 Testing of hypothesis between current ratio and operating ratio

To test the relationship between current ratio and operating profit ratio the following hypothesis has been proposed and tested by employing the student's t-test

HO<sub>6</sub>            There is no significant correlations between profitability measured in terms of operating profit ratio and liquidity measured in terms of current assets.

HA<sub>6</sub>            There is significant correlations between profitability measured in terms of operating profit ratio and liquidity measured in terms of current assets.

The following table (Table 5.18) presents the coefficient of correlation, coefficient of determination with their student's t-test of current ratio and operating ratio.

**Table 5.18**  
**Coefficient of correlation, coefficient of determination with their Student's t-value of current ratio and operating ratio.**

| Ratio                           | r      | r <sup>2</sup> | t-value | d.f. | Result                |
|---------------------------------|--------|----------------|---------|------|-----------------------|
| Current ratio & operating ratio | 0.3766 | 0.1418         | 1.07    | 7    | Not significant at 5% |

Source: Appendix 1 & 2

Evidently, the null hypothesis has been accepted with respect to the relationship between current ratio and operating ratio of SSSC Ltd, as its t-value is lower than the table value at 5% level of significance ( $t_{0.05,7} = 2.365$ ). The reason for this may be both the ratios follows the same trend i.e. though they are fluctuating are in increasing trend.

### 5.6.2 Relationship between net profit to total assets ratio and quick ratio.

To know the relationship between return on total assets (net profit to total assets) ratio and quick ratio, following null hypothesis has been proposed and tested by using student's t-test.

HO<sub>7</sub> : There is no significant correlation between profitability measured in terms of return on total assets and liquidity measured in terms of quick ratio.

HA<sub>7</sub> : There is significant correlation between profitability measured in terms of return on total assets and liquidity measured in terms of quick ratio.

The relationship between quick ratio and return on total assets has been precisely observed by studying their correlation value with Student's t-test which has been presented in the following table (Table 5.19)

**Table 5.19**

**Coefficient of correlation, coefficient of determination with their Student's t-value of quick ratio and return on total assets ratio.**

| Ratio                           | r     | r <sup>2</sup> | t-value | d.f. | Result                |
|---------------------------------|-------|----------------|---------|------|-----------------------|
| Current ratio & operating ratio | 0.425 | 0.180          | 1.24    | 7    | Not significant at 5% |

Source: Appendix 1 & 2

It is vivid from the above table (5.19) that there was indeed no correlation between the quick ratio and return on total assets in SSSC Ltd. during the period of study 1999/200 and 2007/2008. The correlation is positive but not statistically significant because the t-value is less than the table value at 5% level of significance ( $t_{0.05,7} = 2.365$ ). Hence, the null hypothesis has been accepted. From the above table it is noted that the proposition such as higher liquidity lower profitability in the SSSC Ltd.



### 5.6.3 Relationship between return on capital employed and quick ratio

To test the relationship between return on capital employed (ROCE) and quick ratio (QR), the following hypothesis has been proposed and tested.

HO<sub>8</sub> : There is no significant correlation between profitability measured in terms of return on capital employed and liquidity measured in terms of quick ratio.

HA<sub>9</sub> : There is significant correlation between profitability measured in terms of return on capital employed and liquidity measured in terms of quick ratio.

The following table (Table 5.20) presents the coefficient of correlation, coefficient of determinants with their student's t-test of return on capital employed and quick ratio.

**Table 5.20**  
**Coefficient of correlation, coefficient of determination with their student's t-test for ROCE and QR**

| Ratio       | r    | r <sup>2</sup> | t-value | d.f. | Result          |
|-------------|------|----------------|---------|------|-----------------|
| QR and ROCE | 0.33 | 0.108          | 0.92    | 7    | Not significant |

Source: Appendix 1&2

Evidently, the null hypothesis has been accepted with respect to the relationship between return on capital employed and quick ratio of SSSC Ltd, as its calculated t-value is lower than the table value at 5% level of significance ( $t_{0.05,7} = 2.365$ ). This implies that there is no statistically significant correlation between ROCE and QR. From the table 5.20, it is noted that proposition such as higher the ROCE lower will be the QR is not statistically supported in the SSSC Ltd.

#### 5.6.4 Relationship between return on net worth and quick ratio

To test the relationship between return on net worth (RONW) and quick ratio (QR), the following hypothesis has been proposed and tested by employing the student's t-test:

HO<sub>9</sub> : There is no significant correlation between profitability measured in terms of return on net worth (or return on shareholders' equity) and liquidity measured in terms of quick ratio.

HA<sub>9</sub> : There is significant correlation between profitability measured in terms of return on net worth (or return on shareholders' equity) and liquidity measured in terms of quick ratio.

The following table (Table 5.21) presents the coefficient of correlation, coefficient of determinants with their student's t-test of return on net worth and quick ratio.

**Table 5.21**  
**Coefficient of correlation, coefficient of determination with their student's t-test for**  
**RONW and QR**

| Ratio        | r    | r <sup>2</sup> | t-value | d.f. | Result             |
|--------------|------|----------------|---------|------|--------------------|
| QR &<br>RNOW | 0.41 | 0.17           | 1.19    | 7    | Not<br>significant |

Source: Appendix 1 & 2

It is clear from the above table (Table 5.21) that there was indeed no correlation between the quick ratio and return on net worth in SSSC Ltd during the period of the study 1999/2000 and 2007/2008. Their correlation is positive but not statistically significant because the calculated t-value is less than the table value at 5% level of significance ( $t_{0.05,7} = 2.365$ ). Hence, the null hypothesis has been accepted which implies that proposition such as the higher the RNOW and lower will be the QR is not statistically supported in the SSSC Ltd.

## 5.7 SWOT Analysis

SSSC Limited is a pioneer manufacturing company which has been involving to produce various varieties of vegetable seeds with its own research & development process and by using innovative techniques. The main motto of this company to provide quality and improved seed in the country by preserving Nepalese varieties of vegetable seeds and substitute import to some extent. As a seed producing company the company has been facing and getting various threats & opportunities which can be presented as SWOT Analysis below.

### Strength

- ) Endowment of diverse agro-ecological conditions across the country.
- ) Facilities of seed testing, processing, condition storage & field-testing for quality assured of seeds established.
- ) Trained Technical manpower
- ) R & D program/ multiplication Program of stock seed and commercial seeds developed.
- ) Climatically suitable pocket areas for seed production developed
- ) Seed distributors networking throughout the country established
- ) License from SQCC obtained for Foundation Seed production, Seed testing and Seed business.
- ) Well Infrastructure - Office and Processing Plant
- ) Linkage with seed growers/Seed Producer Groups and Agriculture cooperatives
- ) Coordination and linkage with SQCC, NARC station and DOA Farms and seed testing laboratories established.
- ) Less competition (only trading companies are involved in seed business)
- ) Low cost of production
- ) Truthfully labeled well-packed seeds in SSSC's own brand name.

### Weakness

- ) Limited Manpower

- ) Lack of technical know-how of growers
- ) Subsistence farming for seed production
- ) High freight cost lack of convenient transportation facilities in the country.
- ) Mostly conventional farming practices for seed production
- ) Supervision of seed field is not sufficient.
- ) SSSC is not yet able to developed promising varieties as compared with imported varieties
- ) Production of common open pollinated varieties.
- ) Poor investment in production
- ) Avoidance of contract laws by the farmers and no effective execution.
- ) Not adequate touch with the international market lack of sea port.

### **Opportunity**

- ) Diversified Agro-ecological zone for seed production.
- ) High potential of seed export to India and Bangladesh
- ) Presence of huge market of fresh vegetable in India
- ) Low seed production cost
- ) Demand of high quality seed in the domestic market is increasing year by year
- ) Government is going to enforce seed law, regulation that will help in quality control.
- ) Probabilities of customs seed production with foreign company by joint venture approach.

### **Threat**

- ) Increased level of competition with Indian and other imported varieties
- ) Awareness of high quality seeds is increased
- ) Informal seed system pertinent in the country
- ) Political instability
- ) Emergence of new seed companies
- ) Entrance of Multinational seed companies

- ) Substantial farming force to pre payment
- ) Drain of working manpower (specially youth)
- ) Support system (subsidy) in India in agriculture.
- ) Implementation of new seed act and regulation
- ) Breaching of production contract by the seed grower due to intervention of other seed traders at the time of seed collection.
- ) Difficult to mechanize due to topography and small land holding.

## **5.8 Major findings of the study**

### **5.8.1 Major findings under the descriptive analysis**

The major findings under descriptive analysis are as follows:

1. The current assets to total assets ratio fluctuated during the study period, but in totality the current assets and total assets individually showed the increasing trend.
2. The sales and working capital both showed the increasing trend during the study period but the trend of fluctuation gap is much from one year to another.
3. The cash and bank balances did not follow the current assets suit. It was fluctuating almost every year. This resulted in decreasing trend of cash and bank to current assets ratio during the period.
4. Inventory to current assets ratio was in increasing trend. Inventory had increased as compared to the base year but the proportion of inventory is greater than the proportion of current assets.
5. Debtors to current assets was also fluctuating but they are increasing at constant rate. It is almost constant in last three years.
6. Structure of working capital showed that inventory occupied the most important place. Next to inventory cash obtained the important and the middle place in the composition of working capital. The proportion of debtors to working capital has been placed third in the hierarchy.

7. Both sales and inventory are in increasing trend but the improving trend of the company's inventory turnover ratio is certainly due to the constant increase of its sales. This shows that the company has utilized its inventory efficiently.
8. Sales to debtors ratio also fluctuated. However, it has increased as compared to the base year.
9. Cash and bank turnover ratio was high though it fluctuated cash and bank was increasing in very low proportion as compared to sales during the study period.
10. Though both sales and current assets were in increasing trend but they are fluctuating every year. The proportion of increase in sales was more than that of current assets.
11. Current ratio was greater than the rule of thumb of 2:1 in five years out of nine years of the study period.
12. Quick ratio was little bit greater than the rule of thumb of 1:1 in some of the years during the study period.

### **5.8.2 Major findings under inferential analysis**

The major findings of the study derived from inferential analysis are as follows.

- i) There is negative correlation between current assets and total assets. Null hypothesis is rejected as its student's t-value is higher than the table value at 5% level of significance. The result implies that the correlation of current assets and total assets is significantly different.
- ii) The correlation between sales and working capital is positive and it is statistically significant. Therefore, alternative hypothesis is accepted as the calculated value is greater than the table value at 5% level of significance. The reason for this is working capital follows the sales trend.
- iii) The calculated student's t-value of correlation coefficient between inventory to current assets and debtors to current assets is less than the table value at 5% level of significance. Hence, null hypothesis has been accepted as it is not statistically significant.

- iv) The null hypothesis has been found positive in respect to cash turnover ratio. Its calculated t-value is lower than the table value at 5% level of significance. On the other side, the null hypothesis was rejected with respect to debtors turnover, inventory turnover and current assets turnover ratio as their calculated values are higher than the table value at 5% level of significance, and hence, the alternative hypothesis of significant difference has been accepted. It can be inferred that the relationship of receivable, inventory and current assets management is significance different while cash is not.
- v) Cash and sales show that they are not statistically significant which results in acceptance of null hypothesis as its student's t-value is less than table value at 5% level of significance.
- vi) Current assets and quick assets in relation with current liabilities reject null hypothesis and accept alternative hypothesis of significant difference as their student's t-value is more than the table value at 5% level of significance.
- vii) Relationship between current ratio and operating ratio is not statistically significant since their student's t-value is less than the table value. Hence, the null hypothesis is accepted.
- viii) Relationship between net profits to total assets ratio is not statistically significant since their student's t-value is less than the table value at 5% level of significance. Hence, the null hypothesis is accepted.
- ix) Relationship between ROCE and QR is not statistically significant since their student's t-value is less than the table value at 5% level of significance. Hence, the null hypothesis is accepted.
- x) Relationship between RONW and QR is not statistically significant since their student's t-value is less than the table value at 5% level of significance. Hence, the null hypothesis is accepted.

# **Chapter-VI**

## **Summary, Conclusion and Recommendation**

### **6.1 Summary**

Agriculture is the foundation of Nepalese economy. It is important not only from the employment point of view but also from its contribution to the GDP which is around forty percent. The share of horticulture sub-sector in the AGDP is 14 and that of vegetables is 7.2 percent. Owing to its unique geographical position and altitude variation (between less than 100 meters and more than 8800 meters) Nepal is one of the richest countries in the world in terms of biodiversity and varied climatic conditions from sub-tropical to Arctic. Consequently Nepal possesses comparative advantage to produce high seeds in more than eight distinct seed production areas spread across various agro ecological regions of the country. Commercial seed production is carried out in more than eight seed production areas spread across the country between 100 meter and 2500 meters altitudes. Production potential to produce nearly 1000 tons of vegetable seeds in the vegetable seed market size: of 1201 tons. Over one-fifths of the vegetable seeds is met by import up to seven percent of vegetable seeds produced in the country are exported to South Asian Countries-Bangladesh and India.

Industrialization is the process of economic development of a country, which increased the production manifold, raises the standard of living of the people, increases the foreign trade which helps in foreign exchange, helps in replacing poverty with prosperity and generating employment opportunity. Industrialization is the only way open to Nepal to take her rightful place in the country of nations which helps her to march in line with other economically advanced countries of the world.

Working capital has two concepts. Its gross concept includes all the current assets of the firm i.e. cash, stock and debtors. Its net concept comprises short term net assets: stock, debtors and cash less creditors. In net concept working capital management then is to do



with management of all aspects of both current assets and current liabilities. To control the working capital, the firm must focus on its main elements or components viz. cash, debtors, inventory and creditors. Working capital may be permanent or temporary. Permanent working capital is that minimum level of current assets which is continuously required by the firm to carry on its business operations. Temporary working capital is created by the firm to meet liquidity requirements that will last only temporarily and it varies according to the seasonal requirements of the firm.

There are basically three approaches to invest working capital. In matching or hedging approach expected life of the assets are matched with expected life of the source of the funds raised to finance assets, i.e. maturity period of the both assets and source of finance should be the same. According to conservative approach, firm finances its permanent assets and a part of temporary current assets with long term financing which is less risky and when firm has no temporary current assets then, the surplus funds is invested in marketable securities. In aggressive approach, the firms which are of aggressive nature use more short-term financing even in its permanent current assets.

For forecasting working capital there are different techniques viz; operating cycle method; estimation of current assets and current liabilities; cash forecasting method; projected balance sheet method; profit and loss adjustment method.

This study aims at examining the size and growth of working capital; structure of working capital; efficiency of working capital; liquidity of working capital and liquidity Vs profitability of SEAN Seed Service Centre Limited. For these assessments, various financial tools like current ratio, quick ratio, and activity ratios related to working capital, profitability ratios and the ratios of current with its components are calculated and measured. Statistical tools like arithmetic mean, standard deviation, coefficient of variation and coefficient of correlation are also computed to evaluate and reach certain conclusions. Correlation coefficients of different ratios were tested with the help of Student's t-values which is helpful for accepting or rejecting null hypothesis.

## 6.2 Conclusions

The major conclusions derived from the descriptive and inferential analysis are as follows:

1. **Size of working capital:** The size of working capital has significant impact on the risk return complexion of an enterprise. It should therefore, be just adequate, neither too large nor too little. A study of the current assets to total assets ratio measuring the size of working capital of SSSC Ltd has shown that the company has maintained average of 37.46 percent of working capital to their total assets. The coefficient of variation (C.V.) is 40.87 percent. It manifests that during the study period, SSSC Ltd has maintained 37.46 percent liquidity in its total assets.

However, current assets and total assets almost showed increasing trend, which reveals that current assets were properly arranged as per the increase in, total assets.

The inferential analysis shows that null hypothesis was rejected in respect of the correlation between current assets and total assets as their calculated t-value is greater than the tabulated value at 5 percent level of significance. From this result it can be inferred that the correlation of current assets and total assets is significantly different.

2. **Growth of Working Capital:** The growth trends of working capital and sales in the enterprise are the indicators of its better prospects. A study of the growth trend of net working capital of SSSC Ltd reveals that it has increasing trend at a compound growth rate of 36.33 percent. The SSSC Ltd also has almost increasing trend of sales at a compound growth rate of 59.10 percent.

The highest percentage of sales of base year 1999/2000 shows 10436.43 percent in 2004/2005. The highest percentage of net working capital to the net working capital of base year 1999/2000 shows 2685.59 percent in

2004/2005. This analysis shows that working capital and sales are functionally related.

The inferential analysis shows that the correlation between sales and working capital is positive and it is significant. The alternative hypothesis is accepted as the calculated t-value is greater than tabulated t-value at 5 percent level of significance. The reason for this is working capital follows the sales trend i.e. both are fluctuating every year.

3. **Structure of working capital:** The composition of working capital structure indicates the proportionate size of different types of current assets. Moreover, it also reveals the nature of working capital. Thus, the greater the proportionate size of inventory, the less liquid would be the nature of working capital; and conversely, the greater the size of receivables, the more liquid would be the nature of working capital. A study of the structure of working capital of the SSSC Ltd indicates that the inventory occupied the most important place in the structure of its working capital with the size of 58.04 percent. Next to inventory cash obtained the important and middle place in the composition of working capital with the size of 24.70 percent. The proportion of debtors to working capital has been placed third in the hierarchy with the size of 19.02 percent. This shows the SSSC Ltd is still ineffective in controlling cash and collecting amount from debtors.

The inferential analysis showed that there is no significant difference in the relationship of inventory and debtors, inventory and cash and cash and debtors.

4. **Efficiency of working capital:** The efficient management of working capital trades off between the conflicting objects of liquidity and profitability. The working capital efficiency of an enterprise is measured by evaluating various turnover ratios. From the study of turnover ratio of SSSC Ltd it is found that inventory turnover averages on 1.54 times, debtors turnover averages 5.39 times, cash turnover averages on 27.04 times. Cash turnover is higher than the inventory turnover which implies

that the SSSC Ltd. has been shifting its emphasis from inventory to cash in order to maintain adequate efficiency of working capital. However, from the cash turnover ratio it can be said that the company is able to maintain absolute efficiency of working capital by raising the cash balance.

The inferential analysis shows that the null hypothesis has been found positive in respect of cash turnover ratio of SSSC Ltd. as its calculated t-value is lower than the table value at 5 percent level of significance. On the other hand, the null hypothesis was found not accepted with respect to debtors' turnover, inventory turnover and current assets turnover ratios of SSSC Ltd. as their calculated values are higher than the table value at 5 percent level of significance, and hence, the alternative hypothesis of significant difference has been accepted. From these results, it can be inferred that the relationship of receivable, inventory and current assets management is significantly different while cash is not.

5. **Liquidity of working capital:** Liquidity is the core of working capital. The higher the liquidity, the lower would be the risk of technical insolvency or vice-versa. The current ratios of SSSC Ltd are fluctuating and it is admirable to some extent. The highest ratio recorded was 3.71 times in 2007/2008 and lowest 0.42 times in the beginning year 1999/2000. It averages 2.08 times may be asserted that the liquidity measured by matching current assets and current liabilities was greater than the rule of thumb of 2:1 in SSSC Ltd in the five years out of nine years respectively.

Quick ratio of the SSSC Ltd fluctuates year after year; it has increased from 0.32 times at the beginning year 1999/2000 to highest 1.37 times in the year 2003/2004. It average out at 0.82 times with the statistical variation 45.26 percent. The liquidity positions as reflected by the ratio is little bit greater than up to the rule-of –thumb norm of 1:1 in some of the years during the study period.

Its inferential analysis showed that the null hypothesis has been found negative in both ratios as their calculated value is higher than the tabulated

value at 5 percent level of significance. Thus, the alternative hypothesis of significant difference has been accepted. This reveals that the relationship of current assets and quick assets with current liabilities are statistically significant.

6. **Liquidity Vs. profitability:** There is always an inverse relationship between liquidity and profitability. In other words, maintaining higher liquidity results in higher costs, higher liquidity impairs the profitability of the firm.

Relationship between current ratio and operating ratio, return of total assets and quick ratio, return on capital employed and quick ratio, i.e. they are not significantly different. Their correlation is positive but not statistically significant because their Student's t-values are less than the table value at 5 percent level of significance.

### **6.3 Recommendation:**

1. From the study it has been found that the SSSC Ltd is able to maintain rule of thumb of the current ration and quick ratio in some of the years of study period. But it is not enough to meet the current obligations and future obligations to run the firm smoothly.
2. The proportion of current assets is greater than current liabilities. It is positive performance of the company. It is recommended that it should be continued in future also.
3. SSSC Ltd. is suggested to improve the credit terms to collect money.
4. High cash turnover ratio may indicate a low level of cash build by the company. SSSC Ltd should therefore, make proper provisions for emergencies.
5. Cash and bank balance are not enough in SSSC Ltd. Therefore, on order to avoid contingencies. SSSC Ltd. should have credit management with banks to avoid contingency.
6. SSSC Ltd should tighten its credit and collection polices or drive out the slow paying customers because its debtors turnover, though have

increased as compared to the beginning year, is highly fluctuating which indicates the chances of bad debts losses.

7. Credit checking, even for established customers should feature in regular procedures.
8. During the study period the SSSC Ltd. is able to maintain proper balance of inventories, but it is not enough to commensurate with the current assets and sales.
9. Regular stock taking and verification must be done by SSSC Ltd.
10. Being a production based company, it has not invested required amount in research and development activities. Therefore, in coming days it is recommended to invest on it and increase sales volume by producing quality seeds which will maintain required level of liquidity of the company.
11. While making proper planning, SSSC Ltd should make the comparison of sales and production.
12. Being a unique research based Seed Company; the SSSC Ltd should explore new areas for the production of new varieties of vegetables seeds. To substitute imports the company should give emphasis on hybrid seed production in future.
13. The inferential analysis of total current assets and sales showed that there was significant difference between them. So, SSSC Ltd should give continuity in this level of current assets position proportionate to its sales.
14. To keep strong liquidity position, SSSC Ltd may hold the marketable securities for the purpose of speculative motive.

In summary, the SSSC Ltd. will adopt the recommendations provided above to improve present working capital positions. This study will also help for making policies regarding Joint Venture Company in the agriculture sector in the country to commercialize agriculture and to increase exports. This study will also help teachers, students, consultants, businessmen and others who are interested to explore more in agriculture sector in future.

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