INVENTORY MANAGEMENT SYSTEM
OF
NEPALESE PUBLICATIONS

A THESIS

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RECOMMENDATION

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DECLARATION

I hereby declare that the work reported this thesis entitled " Inventory Management System of Nepalese Publication ", submitted to Office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirements for the Master in Business Studies (MBS) under the supervision and guidance of supervisor Mr. Vijay Kumar Thakur , Lecturer, R. R. M. Campus, Faculty of Management, Tribhuvan University.

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Shishir Chaudhary
(Researcher)

LIST OF ABBREVIATIONS

ABC = Always Better Control

EOQ = Economic Order Quantity

FIFO = First In First Out

GPC = Gorkhapatra Corporation

i. e. = That is

JCF = Janakpur Cigrate Factory Pvt. Ltd

KPL = Kantipur Publication (P) Ltd

KPSL = Kamana Prakashana Samuha (P) Ltd

LIFO = Last In First Out

MBS = Master of Business Studies

MFI = Multi Foods Industry Pvt. Ltd

NNPC = Nepalese Newspaper Companies

NLL = Nepal Leaver Ltd

NOC = Nepal Oil Corporation

STPL = Sipradi Trading Private Limited

T. U. = Tribhuwan University

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CHAPTER – I
INTRODUCTION

1.1 Background of the Study

Nepal is a small Asian, land locked, least developed country situated in north hemisphere. This country is surrounded by two big countries India and China. These two countries are big in the sense of population, land coverage, economic development and others. Nepal is small in size but rich in different natural resources and cultural diversity like: powerful river rush out of the Himalaya, beautiful temples, culture and festivals. Buddha and Mt. Everest are the identification of the nation for the world. It covers an area of 147,181 sq. kilometer and runs all along 885 kilometer from the east to the west and 145 kilometer to 241 kilometer from the north to south. Due to absence of tools, techniques and research on different field of economy, elow 40% of total population are below poverty line and more than 80% of total populations are engaged in agricultural sector. Agricultural sector is the backbone of economic development which contribution around 3.6% of Gross Domestic Product (GDP) and it has also a fluctuating trend. Agricultural sector was given top priority in the planning documents in the past considering the fact that the sustainable conomic development was not possible without the development of agriculture. The sound economic development of any nation depends upon the higher rate of growth of production activities in the different sector of the country's economy.

The evaluation of public enterprises in the world has a long history. During the 18^{th} century, a concept was developed like problems of poverty and unemployment may be solved by government intervention in economy. During the period, most of the developed countries had adopted the laissez- fair policy in the economy. During the 19th century, the application of laissez-fair policy evolved the capitalism that increased the poverty corruption, worker exploitation, unbalanced distribution of wealth etc. Therefore, to avoid these serious situation intervention by the government was started the economy. The government intervention in the economy was rapidly increased during 20th century.

All the countries in the world either developed or under developed have accepted the existence of public and private enterprises for the economic and social development. It plays a strategic and crucial role in our mixed economy. They have been established in many sectors for overall development of the country with different goals and objectives. According some newspaper corporation has been established under people utility and social sector.

Now, Nepal has adopted the policy of economic liberalization and privatization and goes to the membership of world trade organization through the globalization for strengthening the economy, any country both the private and public sector should play vital role. This fact has been realized by our county too.

As the study concentrates over inventory management system followed in three (3) private sector publications named "Gorkhapatra Corporation, Kantipur Publication Private Ltd., and Kamna Prakashan Samuha Private Ltd". It is necessary to know what is inventory, what type of inventories for the smooth publication and influence on profit.

The various forms of material good that is held by an enterprise for the future se are known as inventory. Inventory is store of goods or materials or stocks of the organization which are frequently occurs in the business houses or trading houses. Inventory can be either raw materials, finished items already available for sale or goods in the process of being manufactured. So the inventory is recorded as assets on a company's balance sheet. Inventory is form a link between demand of the goods and supply of the goods the inventory exists anywhere i.e. manufacturing or non manufacturing organization.

In Nepalese Newspaper Companies (NNPC), there are four types of nventories. First one is raw material, those units that have been purchased and stored for future production, second is work in process refers to semi–manufactured products, they represents those products that need more work before they become finished products for sale, third is finished goods inventories which has completely manufactured products i.e. ready for sale and fourth is office and plant cleaning materials (soap,brooms, oil, fuels, bulbs etc) but in the case of trading houses there is only appears i.e. finished goods and stock in trade.

Inventory management involves planning of the optimal level of inventory and control of inventory cost supported by an organization structure, which is staffed by trained person and directed by top management. It involves both financial dimension as well as physical dimension and these dimensions are interrelated and can't be looked in isolation (Agrawal, 2000; 68).

Modern concept of inventory management can be traced from 1915–1922 with several authors like R.C Davis, H.S Owen, E.K. Clark and R.C. Willson onceived an independently developed an economic lot size equation which minimized the sum of carrying and holding cost for particular material where the demand is known as constant.

As per view of R.M. Bhandari, one of the management exports of Nepal," Inventory management is determining how much inventory there should be on hand to serve for the purpose of the business most economically" (Bhandari 1997; 65).

Thus inventory management and control system is adequately considered by the top management of the trading houses so as to reduce the cost of store. So, high inventory isn't a good sign because there is a cost associated with storing the extra inventory of the trading houses. Inventory should be maintained appropriate quantity so as to avoid the risk of both over and under stock situation. For this purpose, the inventory management is necessary; it is because the aim of optimum level of inventory is maintained for the smooth supply to the market and sales operation. Therefore inventory is maintain desired level so as to minimize the total cost of investment that will lead to optimal inventory investment for attainment of desired objectives.

The growing numbers of business corporations in Nepal focus a lot of problem in inventory management. Due to lack of proper inventory policy and system, there are many organizations where large amount of capital are blocked up and very little measures have been taken to manage the inventory decisions.

The area of inventory management covers the following individual phases:

- Determine the size of inventory with time schedule.
- Procedure and lot size for new order.
- Determine minimum safety stock level and co-ordinate the sales department for inventory policy.
- Providing proper store facility.
- Arrange the receipt, disbursement and procurement of goods are in operation.
- Developing the firm for recording these transactions.

- Assign the responsibility for carrying out the inventory control function.
- Provide the necessary report for supervise these overall activities of top management.

1.1.1 Organization under the Study

Gorkhapatra Corporation

In Nepal, Gorkhapatra Corporation was only a government organization. During the time of Rana Prime Minister Dev Shamshar JBR in Baisakh 24, 1958 B.S. the first newspaper "Gorkhapatra" was published. At that time 1000 copies of Gorkhapatra were published. The published remained weekly till 43 years. But it had been published twice a week from 29th Ashwin , 2002 B.S. thrice a week from 8th Paush 2003 and finally published daily from 7th Falgun, 2017 B.S. The publishing institution was introduced as "Gorkhapatra" from 70 years since establishment time. Under the "Gorkhapatra Sansthan Act 2019" the institution turned in to a corporation and introduced as a public corporation in 25th Ashadh, 2020 B.S.

So far we look for the publications Gorkhapatra Corporation once published "The Nepalese prospective" (Weekly English Newspaper) but it was dropped out due to the economic reason. The other publications "The Rising Nepal (English newspaper daily in 1st Paush, 2022), Madupark (Monthly magazine in Jestha 2025), Sunday dispatch (English newspaper weekly at 9th Baisakh, 2047), Muna (Monthly Children's magazine at Paush, 2047) and Apsara (Monthly magazine at Baisakh, 2055).

Gorkhapatra Corporation has been providing the sound contribution through the various ways to the nation according to its motto. Now, the corporation is happy to find itself in present condition are sincerely grateful with its founders who offered valuable contribution for established process as well as welfare in the critical time to "Rana Rule".

Gorkhapatra corporation has been published their news in following form.

Table: 1.1

Publication of Gorkhapatra Corporation

S.N.	Publication	Nature	Production unit	Price/unit
1	The Gorkhaptra Daily	Daily	100,000 (Daily)	Rs. 5
2	The Rising Nepal	Daily	35,000 (Daily)	Rs.5

3	**Madhupark**	**Monthly**	**30,000 (Monthly)**	**Rs.20**
4	**Yuwa mancha**	**Monthly**	**60,000 (Monthly)**	**Rs. 20**
5	**Muna**	**Monthly**	**30,000 (Monthly)**	**Rs. 10**

Sources: – Store Dept of Gorkhapatra Corporation.

Kantipur Publication Private Limited

Kantipur Publications Pvt. Ltd is one of the renowned and leading publication houses from private sector of Nepal. It has deep seated belief in Democracy and freedom of press for positive change in safety. It is committed to provide new picture of news and analytical review to the Nepalese society. The publication adopts latest digital printing technology with satellite printing stations the major cities in the country.

Kantipur Publication Pvt. Ltd was established in 2047 B.S. First it started to publish "Kantipur Daily" and "The Kathmandu Post" in 7th Falgun 2049 B.S. In the beginning, the publication was under Goyanka but later it was replaced by Gyawali and Sirohiya from 2050 B.S. Baisakh 12, Kantipur started publishing a four page supplement Kosheli with an aim of giving entertainment purely. Jyestha 5, 2052, Saptahik was printed on every Friday.

For making publication well, organized branch offices were established at Biratnagar, Pokhara, Bharatpur and Nepalgunj. The process of distribution and advertisement are well maintained through these offices. At the same time, capable and experienced journalists are appointed in the regional offices for the better coverage of the regions. Kantipur Daily Newspaper increased their pages 8 up to the pages 16, but it is fluctuated according to time. Due to popularity of Saptahik, the 16 page was increased to 24 pages is published from 2057 Shrawan 15, publications another progress is "Nepal" a bi–monthly magazine published from 2057 Shrawan 15. Publications latest progress is a woman oriented magazine from "Sarbottam" to "Sarbottam Nari" that could be found in market in Nepali medium at monthly scheme. All the publications of Kantipur have own types of different news at different headlines for different countries, Kantipur publication is awarded by the "Gorkha Dakshin Bahu" by HMG and many other associations honored it too.

Kantipur Publication Pvt. Ltd. has been expanding its publication in a wide range. The present publication of Kantipur Publication Pvt. Ltd. has been traced out below:

- ♦ Kantipur Daily Newspaper – Most widely circulated Nepali Daily broadcast with largest leadership in Nepal.
- ♦ The Kathmandu Post – Color English Daily newspaper.
- ♦ Saptahik – Entertainment based family Weekly paper.
- ♦ Nepal – Country's fastest growing Social–Political news magazine especially famous for acutal political reporting and analysis.
- ♦ Sarbottam Nari – Publication's first Monthly Women's Magazine.
- ♦ Kantiur Online – Internal part of any news site that publishes report and

general information. The site has largest number of hits per day. It has created not just to those people living outside the country but also to those people who requires prompt news service.

Kantipur Publications Pvt. Ltd has been published their news in following form.

Table: 1.2

Publications of Kantipur Publication Pvt. Ltd

S.N.	Publication	Nature	Production unit	Price/unit
1	Kantipur Daily	Daily	200,000 (Daily)	Rs. 5
2	The Kathamandu post	Daily	80,000 (Daily)	Rs.3
3	Saptahik	Weekly	100,000 (weekly)	Rs.10
4	Nepal	Bi-monthly	50,000 (Monthly)	Rs. 25
5	Sarbottam Nari	Monthly	30,000 (Monthly)	Rs. 35

Sources: – Store Dept of Kantipur Publications Pvt. Ltd

Kamana Prakashan Samuha Private Limited

Kamana Prakashan Samuha Pvt. Ltd. is another renowned and leading publication house from private sector of Nepal. It was established in Mangsir 15, 2041 B.S. First it started to publish “Kamana – Cine magazine” a monthly magazine related with film industry, promotion of Nepalese film, art, music, culture, fashion and entertainment. The circulation of “Kamana – Cine Magazine” has in 35 countries around the world with more than 2000 copies monthly. Publication’s another magazine is “Sadhana – health Digest” a monthly magazine publishing from Baisakh 1, 2048 regularly, aims to focus on choice for healthy living, explain common diseases and treatments, cardiovascular health, latest medical breakthroughs as well as unethical clinical practices and health care policies. The circulation of “Sadhana - Health Digest” has in 25 countries around the world with more than 1500 copies monthly. In Mansir 29,2049, publication launched “Mahanagar” as daily evening vernacular aims to focus on daily incidents and activities in Kathmandu valley. But “Mahanagar” is not publishing by publication from Baisakh1, 2065. In 2052 Aswin 1, publication aunched a daily newspaper named “Aaj Ko Samacharpatra” aims to deliberate balanced and perceptive news and issues on politics, economics and social justices as well as global affairs. “Aaj Ko Samacharpatra” was converted to “Nepal Samacharpatra” in Aswin1, 2056 with a supplement issue “Saugat” on every Saturday.

“Nepal Samacharpatra” is a first daily newspaper of the country which is published and distributed from two destination Kathmandu and Biratnagar in Baisakh 24, 2058.“Nepal Samacharpatra” has over 73 districts nationwide coverage. The process of distribution and advertisement are maintained through these offices. Kamana Prakashan Samuha Pvt. Ltd. is awarded by the Gorkha Dakshin Bahu” HMG. Kamana Prakashan Samuha Pvt. Ltd. has been expanding its publication in a wide range.

Kamana Prakashan Samuha Pvt. Ltd has been published their news in following form.

Table: 1.3

Publications of Kamana Prakashan Samuha Pvt. Ltd

S.N.	**Publication**	**Nature**	**Production unit**	**Price/unit**
1	Nepal Samacharpatra	**Daily**	**150,000 (Daily)**	**Rs. 5**
2	Kamana	**Monthly**	**40,000 (Daily)**	**Rs.35**
3	Sadhana	**Monthly**	**40,000 (weekly)**	**Rs.30**

4	Mahanagar	**Daily**	**Not published**	

Sources: – Store Dept of Kamana Prakashan Samuha Private Limited

1.2 Focus of the Study

In the economic development of the country, manufacturing company and Publication Company play a vital role. To produce goods, it needs different raw materials as well as manpower. So the establishment of publication companies is the way of generating employment and using of the idle capacity. By using available idle capacity and resources different product can be produced and improved the economic condition of the country.

The basic objective of the study is to evaluate the inventory management and impacts on its profitability of NNPC. Most of the newspaper companies have not given more attention in inventory management. More investment has been made on inventory purchase, they do not know when they place an order, what is the economic size of the inventory. So lack of these they fail to achieve their objectives and goals. NNPC is also not free from this obstacle so, we focus on the inventory management.

Inventory management involves planning of the optimum level of inventory and control of inventory cost supported by an appropriate organization structure which is staffed by trained persons and directed by top management. It involves both financial dimension as well as physical dimension and these dimensions are interrelated and cannot be looked in isolation.

Thus, management should pay adequate attention to the inventory management to reduce the cost of production. Inventory should be maintained in appropriate quantity. So as to avoid both under stock and overstock the aim of inventory management is to maintain optimum level of inventory for the smooth production and sales.

1.3 Statement of Problems

Profit is an essential element in the functioning of an organization. However it is not considers as an essential elements for all manufacturing companies. It is because some manufacturing companies deals with purely promotional and developmental activities, some others are engaged in financing while only some are engaged in production or trading or commercial activities. Among these, the units in manufacturing, trading and commercial activities are certainly expected to earn profit.

Inventory must be managed in such a way that does not lead to disadvantage of production stoppage. The lower the stock maintained, the more susceptible is the business interruption to manufacturing process by the season of the output supplier. Making the smooth flow of operation must be sole objection of ideal inventory policy in context of Nepalese Newspaper Companies. Production oriented organization should hold a large size of inventory. Effective and efficient inventory management system can only yield expected profit organization. The suitable adaptation of inventory level is crucial for an organization. It should be balance in such way that should neither be excessive nor be inadequate. The excessive inventory result the unnecessary tie up of the firm's fund and loss of profit, excessive carrying cost and risk of liquidity where as the inadequacy of inventory cause either product olds up or failure to meet the demand of customer.

The turnover indicates the speed with which the inventories are being converted in to sales. It measures the relationship between sales and inventories. The high turnover shows favorable position of companies and the lower turnover means unnecessary blocking up capital, such situation affects the production efficiency of those companies.

Due to lack of proper inventory polices and strategy, large amount of capital is blocked up and very little measure have been taken to manage the inventories on the basis of inventories decision models that has so far developed. View from various managers prefers to hold inventories as long as incremental amount of inventories are earning as much as could be, if the funds were directed into some other use so financial manager wants to reduce inventory of finished goods, to maximize volume of sales and the operation manager preferring to hold large inventory of raw materials to minimize the interruption in production. Similarly, the consequences of under investment in inventories are loss of regular customer. Another factor of location is also an important factor in determination of sound inventory management. Attaching emphasis to location is mainly due to its signification as to source of supply and to sales outlets.

Neither service firm nor publication organization can achieve there goal without effective and efficient inventory managements. Optimal inventory management helps to increase the profit of the firm. A slight change in cost of inventory will bring great change in firm's profitability.

1.4 Objectives of Study

The objective of this study is to analyze the management and control system of inventory and their impact towards the corporation profitability. The specific objectives of this study are as follows.

1. To identify present inventory position of Nepalese Newspaper company (NNPC).
2. To examine the technique of purchase cycle of raw materials of NNPC.
3. To analyze the different aspects of inventory management of the publications with the help of statistical and financial tools.
4. To study the prevailing inventories management practice and the problem faced by the publication.
5. To provide appropriate suggestions and recommendations based on the major findings.

1.5 Significance of the Study

Production management concerns the inventory management. The main factor of production is the raw materials a form of inventory. Therefore, the financial manager should manage financing in the inventory. This is also the subject of financial management.

Inventory management system is one of the most important functions of any service or publication firm. Without this management, no any organization can achieve their desire goal. A firm cannot achieve their goals unless inventories are controlled effectively and capital is allocated efficiently. Proper inventory management helps to increase the profit of organization. A slight change in cost of inventories will bring a great change in the firm's profitability. Reduction in the inventory cost may be result in high profit.

Most of the publication corporations are suffering from poor inventories management. Inventory is the current assets, which takes important role in

Newspaper Corporation The Nepalese Newspaper Corporation required, adequate inventory for smooth operation and smooth market operation.

Inventory management system and control of inventory plays a prime role even to the manufacturing or publishing corporation. Thus, it is very important to know how the manufacturing or publishing corporation utilizes its inventory to fulfill its goals.

1.6 Limitation of the Study

The study deals on inventory management not on others dimensions of Nepalese Newspaper Company. Analysis is concentrated in some managerial, financial, accounting and planning aspects to which inventory management linkage. Beside that it does not cover the other areas of Nepalese Newspaper Company. The study has certain limitations which are given follows:

1 The study has been carried out for the partial fulfillment of master's degree, faculty of management T.U. So the efforts and resources are major limitation of study.

2 Out of various enterprises indifferent sectors this study has chosen the Gorkhapatra Corporation, Kantipur Publication and Kamana Prakashan Samuha.

3 The study will be based on 5 fiscal years from 2062/63 to 2066/67.

4 This study deals with the raw materials and finished newspapers of each corporation, which are given in target and performance of Nepalese Newspaper Company.

5 This study is more specific in inventory management and its impacts inprofitability not other functional management.

6 The study will depend upon the secondary data provided from the management of the publication.

7 The comprehensibility and accuracy of the study are based on the data available from management and various published documents of Nepalese Newspaper Company.

8 This case study is not applicable in general situation or all type of corporation.

9 Most of the firms are not interested to provide actual reports of their activities. There is lack of detailed information required for the research.

1.7 Organization Structure of the Study

The whole study has been organized in to five different chapters, which are defining below:

Chapter–1 Introduction

This chapter includes background of the study, introduction of the study statement of the problem, objective, significance, limitation of the study and chapter scheme.

Chapter–2 Review of literature

The second chapter that deals with review of literature and review of related the study. It means reviewing research studies or other pertinent propositions in the related area of the study so that the past studies, their conclusions and deficiencies may be know and further research can be conducted. In this chapter, I will review from different books, journals, thesis, business report, government publication and independent studies.

Chapter–3 Research Methodology

The third chapter deals with introduction research design, nature and sources of data, population and samples, data gathering procedure and analytical tools technique of data analysis.

Chapter–4 Presentation and Analysis of Data

The fourth chapter deals with presentation of related data collection from different sources and analysis of them to reach closer to the actual result by using financial and statistical tools and technique.

Chapter–5 Summary, Conclusion and Recommendation

The last chapter provides summary, conclusion and recommendation, an extensive bibliography and appendixes are also included at the end.

CHAPTER-II

REVIEW OF LITERATURE

Review of literature means taking knowledge from different source. In this chapter the researcher has reviewed various published and unpublished materials. Similarly, past researcher's thesis related books, articles, newspaper are reviewed. The previous study should be reviewed because they provide the foundation to the resent study. The review of literature provides the foundation for developing a comprehensive theoretical word from which hypothesis can be developed for testing. The purpose of reviewing the literature is to develop some experience in one's area to see what new contribution can be made and to receive some ideas for developing a research design.

The main objective of this chapter is to deals with review of literature regarding inventory management. There are many researchers made in the field of inventory management of Nepalese public enterprises. But only limited numbers of studies have been conducted in field of inventory management of Nepalese Newspaper Corporation.

This chapter divided in to two parts.

1. Theoretical/Conceptual review
2. Review of related Studied

2.1 CONCEPTUAL REVIEW

2.1.1 Meaning of Inventory Management

Inventory is store of goods and items. Items in inventory are called stock keeping items held at stock point. In other word, inventory means all moveable goods in store either ready for consumption in the course of production with a view to convert them in to finished goods for sales.

In Manufacturing organization inventory refers raw materials, parts and components, Supplies, Work in process and finished goods. In Service organization, it includes the tangible items to be sold and used for day to day transaction. Inventory is a material part of working capital requires considerable investments.

Every business organization they are big or small has to maintain the same quantity level of inventory in the store house. Inventory serves as the cushions at the time of shortage and provides the efficient use of resources as well in the organization. Inventory is require any type of organization and require careful plan and formulate the best policy keeping in view the best for the organization depending upon the nature of the organization, inventory is durable and non-durable.

"Inventory is a bridge between production and sales. The optimum level of inventories should be judge in relation to flexibility inventories afford. If we hold constant the efficiency of inventory management, the lower level of inventories is the flexibility of the firm. In evaluation the level of inventories, management must balance the benefit of economics of products, purchasing and increase product demand against carrying cost the additional inventory particulars concern to financial manager is the cost funds invested in inventory which is a fraction of risk of specific inventories involved"(Van Horn,2003,425).

In Winston Dictionary, the meaning of stock is, "a catalog or detailed of list of goods" Various authors define the world in different way. In accounting language the meaning of inventory is finished goods. In manufacturing language the meaning of inventory is raw materials, work- in process and stores etc.

From different aspects of management, inventory management is also one of the main factors of play significant role in management of raw materials, parts supplier, expenses tools, work in process, finished goods and then records on the books and maintenance of store rooms, warehouses by an organization is know as inventory management. Inventory management involves the optimal level of inventory planning and controlling of the organization which is supported by the trained employees and top management of the organization.

Inventory management involves the optimal level of inventory planning and controlling of the organization which is supported by the trained employees and top management of the organization. It involves the financial dimension and physical dimension which keeps the costs of organization and they are interrelated. Inventory management is assumed to be maintained the required level of stock at the lowest level of total cost. The required level of inventory is determined by the demand of the goods and purchasing department of the organization. There duties are to acquisition, receiving and storing the inventory at safety and identify the surplus then taking action to reduce it.

Thus, inventories management can be defined as "the planning direction, coordination and controlling of various activities which are concern with inventory requirement" (Bose, 1980:350).

2.1.2 Functions of Inventory Management

Mainly three functions are involved in inventory management.

- Purchasing
- Storekeeping
- Issuing and Pricing

2.1.2.1. Purchasing

Purchasing function is the very important function of every corporation. The head of department is called purchase manager or supply manager or the chief of buyer. All requests for purchase materials should be contained in purchase requisition. A purchase order should be planned to be carefully selected supplier. Purchasing activities should be looked up as essential aspect of inventory management. The process of inventory management in fact beings with purchasing the purchase of uch standard materials can lead to high wastage, poor quality and expensive machine parts broken downs. Similarly, the choice of unrealizable supplier may lead to decreased customers satisfaction and loss of production and sales. Therefore, purchase should be carefully planed for effective inventory management, "A purchasing means a policy well planned, procedures free from much formulations and development of up to date methods and technique of higher standard to reveal efficiency and economy"(Gupta and Rajput, 1982:176).

Purchasing function is one of any organization concerned with the cost of materials purchased. Therefore, the purchase agent has an important role in industry for purchasing. Purchasing is the only department that deals with both the materials and cost should be recognized as the value export of the organization.

(A) Objective of Purchasing

The objective of purchasing should conform overall objectives of corporation integrated logistics. The efficient acquisition of product and services requires the right materials, in right quality, in right time, from the right source, with the right price. "More explicit is expected to accomplish nine items (Bloomberg and Hana; 2002,185)

- Provide an uninterrupted flow of materials, supplies and services required to operate the firm.
- Minimize inventory investment and loss.
- Maintain adequate quality standard.
- Find and develop component suppliers.
- Standardize, whenever possible, the items brought whenever possible.
- Purchased required item and services at lowest alternative price
- Improve the organization competitive position
- Work harmoniously with other department in the organization
- Accomplishing the purchasing objectives at lowest possible level of administrative cost "

(B) Centralized versus Decentralized Purchasing

Centralized purchasing department means that all the purchase functions are routed through one department. Purchasing should be centralized i.e. all purchase department to avoid duplication overlapping and the non-uniform procurements. All the other departments which require materials, supplies, services, machines and tools should send indents or purchase requisitions to the centralized purchasing department to make timely and suitable purchases.

The advantages of centralized purchasing are as follows.

- This policy can better control on purchasing with qualified and experienced staff.
- It has a maximum buying power and uniformity in procurements.
- All the records with regard to purchase are kept at one place under supervision of purchasing head which is must be well organized.
- It boosts up on economic buying and minimum carrying costs etc.
- Bulk purchased can be made at a cheaper rate and at a good trade discount.
- Better layout of stores is possible.

- Quality of materials can be maintained through the specialized knowledge of personal.

Decentralization is the process of buying inventory from two or more places,departments or divisions where as centralized purchasing refers the process of purchasing the inventory from one place, department and division. Centralized and decentralized purchasing policy depends on various factors such as size of the organization, availability of resources, nature of resources, scope of organization and philosophy of management etc.

The advantages of decentralized purchasing are as follows.

- It has a greater flexibility to react rapidity in regard of purchasing.
- It has advantages of close customer relationship in terms of purchasing activities.
- It has a power of autonomous purchasing.
- It helps to reduce high initial cost.
- It eliminates the delays in getting materials from central store.

(C) Material Purchasing and Receiving Procedures

Purchasing of materials involves a number of steps which may be different from one company to another. Generally, the following steps are involved in purchasing and receiving materials.

♦ **Purchase Requisition**

A purchase requisition is a formal request initiated by the store-keeper. The purchase requisition can also be initiated by other departments for purchasing of special items not normally stocked with the help of purchase requisition; the purchase manager comes to know the type of materials required for different departments. It is prepared in three copies. Each of three copies is sent to the purchasing department, initiating department and accounting department respectively. Only on authorized person should sign a purchase requisition.

♦ **Request for Quotation or Tenders**

The next step of purchase procedure is to find the convenient and economical sources of supply. After inviting tenders or quotations purchase department select a particular supplier from possible sources of supply. Invitations for tender in a prescribed format are sent to prospective suppliers. It contains detailed information about the availability of goods, price of materials and terms and conditions or purchasing. Tenders are received in sealed covers before the due date expires and are opened on the date fixed for the purpose.

Figure: 2.1

Material Purchasing and Receiving Procedures

Purchase
Requisition

Checking and passing of for payament

Purchase procedure

Request for bills Quotation or tender

- **Purchase Order**

The purchase order is a contractual agreement with the supplier for the supply of materials. It is prepared in five copies, the original copy is sent to the supplier, the second copy for receiving department, third for account department, fourth for initiating department and the fifth one is retained in the purchasing department for reference.

- **Receiving and Inspection Materials**

The receiving department verifies the materials with the help of a delivery note and the copy of the purchase order after receiving the delivery of goods. The suppliers send detailed information and on invoices of the materials supplied by it. It has to verify and check the quality and physicals condition of materials by making a comparison of the purchase order and the materials received.

- **Checking and Passing of Bills for Payment**

When the invoices are received form the supplier, they are sent to the stocks and accounting departments for the verification of the quantity and price of materials mentioned in the invoices. After checking the required documents the stock department requests the accounting department for making the payment of the invoice to the supplier.

2.1.2.2 Store keeping

The best method of maintaining materials properly is store keeping in the corporation. A store refers to raw materials, work-in-progress and finished goods remaining in stock. Storekeeping means the activities relating to purchasing, issuing, protecting,storing and recording of the materials. The store keeping is a service function in a manufacturing concern, which deals with the physical storage of goods under the well trained and experienced person termed as storekeeper. The raw materials are usually known as stock and the place where such stocks are kept is known as storeroom. Storekeeping is that aspect of inventory control, which concerned with the physical storage of goods. The responsibilities of store keeping management are "to receive materials, to protect them in storage from unauthorized removal, to issue the materials in the right quantities at the time in the right place and provide these services promptly and at least cost." In the light of the above explanation store keeping can be described as the keeping of materials in store in a scientific and systematic way.

Objective of store keeping:-

- Receiving, handling and issuing goods economically and efficiently
- Using the storage space optimum and labor efficiently.
- Protection from the obsolesce loss from fire, theft.
- Minimize the investment on invention.
- Minimize the investment handling cost.
- Maintain regular supply of materials and finished goods at all time when properly authorized.

To achieve the objective of store keeping a corporative generally uses different types of controlling system like.

A. Bin Card: - A store keeper often maintains a record of quality of each material, which is known as bin card. The bin cards shows the details of receipts and issue of materials and balance in stock at any time this record is of immense helps to the storekeepers in controlling the stock position.

A bin card is attached to the bin, drawer of any other container in which materials is stored. An entry is made at the time of each receipt and issue and the new balance in stock is calculated. All these entries of receipt and issues are supported by documents such goods receipts, materials return notes, requisition notes etc.

Chart –2.1

Sample of Bin Card

Bin card							
Description …………………………..				Bin No ……………………………………..			
Minimum Level ………………………				Code No …………………………………..			
Ordering Level ………………………				Unit ……………………………………			
Ordering quantity ……………………				Store ledger folio			
Date	Receipts		Issues		Balance	Stock Verification	
	Ref. No	Qty	Ref. No	Qty	Qty	Date	Initial

B. Store Ledger:-"This ledger is kept in the costing department and identical with bin card except that receipts and balanced are shown along with their money values. This contains an account for every item of stores and makes a record of the receipts, issues and the balances, both in quantity and value. Thus, ledger provides the information for the pricing of materials issued and the money value at any time of each item of stores"(Jain and Narang ; 1991, 2.37-2.39)

Most of the corporations used these types of stock ledger book.

2.1.2.3. Issuing and Pricing

Materials should be issued against materials requisition slip. The prices of the issues can be based on cost price or market price. Storekeeper should always issue the materials under proper authority to avoid the misappropriation of materials. The pricing of the issue can be used any one of the following methods, depending on the policy management. (Agrawal; 75, 9)

A. First in First out (FIFO) Method
B. Last in First out (LIFO) Method
C. Average cost Method
- Simple Arithmetic Average price
- Weighted Arithmetic Average price

D. Market price Method
E. Standard Price Method

A. First in First out (FIFO) Method:-The method in which materials are issued from the store on a first come first serve basis is called FIFO Method. In this method, materials are issued strictly on a chronological order. The units of opening stock of materials are issued first, the units from the first purchase are issued next and the closing stock is remained in stock always from the latest purchase. The value of the closing stock of materials is at the price of the latest purchase.

B. Last in First out (LIFO) Method: - This method follows the principle that the last items of materials purchased are issued at first. The valuation of the materials issued is made according to the latest purchase price of materials. The closing stock of the materials is valued always on the earliest price of materials. In case of a rising price, this method is suitable because material is issued at current market prices.

C. Average cost Method: - The principal on which the average cost method is based is that all items in the stores are mixed up that consumption of materials or ales of finished goods cannot be made from any particular lot of purchase or manufactured goods. So, closing stock is valued at the average cost of the various items or hand.

Average may be of two types:-

- **Simple Arithmetic Average price: -** It is obtained by taking the average of the prices without taking in to considerations. Suppose, following are the three different lots of material in stock at the end of the year when stock taking is done :-

  1,000 units purchased @ Rs.10 per unit

  2,000 units purchased @ Rs.11 per unit

  3,000 units purchased @ Rs.12 per unit

  In this example, Simple average price will be Rs.11 calculated as below.

  (Rs.10 + Rs.11 + Rs.12)/3 = Rs.11

  Closing inventory of 6,000 units will be valued @ Rs.11 per unit and it will be valued at Rs.66, 000.

- **Weighted Arithmetic Average price: -** This price is obtained by dividing the total cost of items in stock by the total quantity of items in hand. In the above example,

  (1,000X10 + 2,000X11+ 3,000X 12)/ (1,000+2,000+3,000)

  = RS 11.33

  The weighted average price is Rs.11.33 per unit

D. **Market price Method: -** Market price can either be the replacement price or the realizable price. The replacement price is used in case of the items which are held in stock for use in production while realizable price is used in respect of the items, which are kept in stock for sale under this method. Materials are issued at a price at which they can be replaced therefore, cost of materials issued is not considered but materials are issued at the market price prevailing on the date of issue. This method can also be successfully used for the valuation of obsolete items of stock, which have been lying in the stocks for a long period.

E. **Standard Price Method: -** Standard cost is determined after careful consideration of different factors that are likely to affect cost when standard cost of material is determined management assumes specified efficiency in efforts relating to purchase of material, issue of material, storing of material and use of material etc.

when standard cost is used as a basis for pricing the material issue, a standard price is set for each material and actual price is compared with standard price. This method is very useful for management in determine the efficiency of efforts relating to material purchase, material issue and material usage etc.

2.1.3 Types of Inventory

The various forms of materials and goods are hold to store in the organization for future uses are known as inventory. Inventory is lie in between the bridge of production and sale of product. Inventory is keeps in the various steps of the organization, at first for raw material, second for work in process, third for finished goods and then fourth for retail store which may store the huge amount of capital. The various forms in which inventory appear in manufacturing as well as trading houses are raw materials, work in process, finished goods and part of supplies. The inventories which are frequently store in organization are discussed as below.

1. Raw Material: - Raw materials are those goods which are basic inputs for the organization. They are converted in to the finished goods through the processing process. These inventories are purchased and stored by the organization for future production of finished goods. In traditional concept, materials are classified in two ways. i.e Direct materials and Indirect materials.

Direct materials is generally defined to include all materials and parts that are an integral part of finished product and the contribution can be directly identified to the finished product. Indirect materials generally defined as materials used in manufacturing process as supporting materials only.

There are following main types of raw materials used by the NNPC to publish their Newspaper and magazine.

1. Newsprint 2.Ink 3.Aluminum sheet 4.Film sheet 5. Chemicals 6.Photocopy paper 7.Developer.

2. Work in Process: - Work-in-process represents semi-finished goods they include those materials that have been committed to production process but haven't yet been converted in to finished goods.

These categories include those materials that have been committed to the production process but have not been completed goods in process include such item as components and sub assembles that are not yet ready to be sold. Work-in-process inventories are semi-manufactured products. They represent products that need more work before they become finished product for sale.

Work-in-process is neither a finished product nor raw materials. It is middle of raw material and finished product. Work in process inventories are strongly influenced by the length of production, which is the time between placing raw materials in production and completing the finished product. Sometimes it is very difficult to know whether that is finished goods or work in process or raw materials, because same materials may be finished goods for one organization or that is work-in-process for another organization and that is raw materials for other organization. It is so happen because of the nature of an organization.

3. Finished Goods: - These goods are those inventories which are completely finished products and they are ready for sale in the market. In a manufacturing firm, they are final output of production process. The stock of raw material and work in process are crucial role to facilitate production while stocks of finished goods are required to facilitate smooth marketing and sales operation. Thus, inventories serve as a link between the production and consumption of goods.

"Finished goods inventories are those completely manufacturing products. which are ready for sale, stocks of raw materials and work in process, facilitate production, while stocks of finished goods is required for smooth marketing operation"(Pandey;1998:885)

Nepalese Newspaper Corporations has been publishing various papers as the final products, which are mentioned below:-

Gorkhapatra Corporation has been published their news in following form:

- The Gorkhapatra (Daily newspaper)
- The Rising Nepal (Daily English Newspaper)
- The Madhupark (Monthly magazine)
- The Yuba munch (Monthly magazine)
- The Muna (Monthly magazine)

Kantipur Publication has been published their news in the following

- The Kantipur (Daily News paper)
- The Kathmandu (Daily English News paper)
- The Saptahik (Weekly Newspaper)
- The Nepal (Bi-Monthly magazine)
- The Sarbottam Nari(Monthly Magazine)

Kamana Prakashan has been published their news in the follows.

- Nepal Samacharpatra (Daily news paper).
- Mahanager (Daily news paper).
- Kamana cine magazine (Monthly magazine).
- Sadhana health digest (Monthly magazine).

4. Supplies, Stores and Spares:- The stock of supplies are includes , all those materials which are helping for day to day operation of office activities. They are necessary to maintain by the organization. The Stock of supplies includes stationary, spare parts for cleaning and operation of machinery, soap, brooms, oil, fuel and light bulbs etc. These materials are not directly entered in production process but they are necessary for production process. Usually these supplied are small part of total inventory and don't involve significant investment.

2.1.4 Needs /Importance to Holding Inventories

The basic purpose of holding inventory is to operate an organization smoothly and continuously to get its objectives. It is necessary to hold inventories for continuous production process. It is neither physically nor economically justifiable to wait for the stocks to arrive at the time when they are actually required therefore, it is necessary to hold the inventories.

According to Charles T. Horngren," Inventories are cushions (a) to absorb planning errors and unforeseen fluctuations in supply and demand and (b) to facilitate smooth production and marketing operation"(Dangol, 2004;34). Further inventories help to isolate or minimize the interdependence of all parts of the organization (For example:- departments or functions). So each works may effectively.

Following are the motives of holding inventories:-

1. **Transaction Motive: -** An inventory is required to maintain business transaction smoothly. Here, transaction means both smooth production as well as regular supply of product. Shortage or raw materials may interrupt the smooth production and due to the lack of regular supply, customers may turn to another source of supply. Firms may avoid these problems by maintain an optimum level of inventories.

2. **Precautionary Motive: -** Precaution means prevention measure taken before occur any event. Some events are anticipated and some are not. For example, a supplier who is supplying certain material regularity at a 10 days lead-time, inform his inability to supply with in 20 days. The firms either have two options to a wait to 20 days or search another supply. Such events interrupt the production on the one hand and discount the supply on the other hand. So for the precaution to such irregularities, firms are required to maintain inventory.

3. **Speculative Motive: -** Holding inventories with a motive to sale at a high price in future is called speculative business. If price is expected to increase in near future, some firm hold enough inventories and expect to earn super normal profit. So firms hold stock of goods with such motive.

The importance of holding inventory to an organization can list as:

- Provide and maintains goods through the production process.
- Enables smooth flow of goods through the production process.
- Provides protection against the uncertainties of demand and supply.
- Various production operations can be performed economically and independently. It can allow temporary variations in operations cases.
- Ensure a reasonable utilization of equipment and labor.
- With purchase in bulk discount can be availed.

2.1.5 Objective of Inventory Management

The main objective of inventory management is minimizing the inventory cost and run smooth production process for steady sales at competitive price. However, some objective of inventory management is presented below:-

1. **Regular Supply of Materials :-** The main objectives of inventory management is to supply all kinds inventory regularly in such a manner that is no shortage of materials and the production has not got to be stopped. For this purpose, the minimum level of all kinds of materials is pre-determined and the business organization tries to maintain the materials at that level.

2. **Suitable Price: -** One of the main objectives of inventory management is to collect the inventory at a fair price. When buying the inventory, a business organization must try to purchase at most economical rate. The quality should not be compromised for least price. Thus, the objective of inventory management is to purchase quality material at the appropriate price and make it available for production.

3. **Minimum Wastage: -** There is a possibility of wastage at the time of holding inventories in stores and handling the materials. Spoilage in storage, loss by theft, loss in handling or using etc. are the example of wastage. Such wastage has an effect on production cost. Hence, such wastage should be minimized and it is an objective of inventory.

4. **Economy in Expenses: -** In holding of materials, it is not enough to pay the cost price only. Besides this, other types of costs also have to be borne for obtaining and holding it. To reduce such cost is another objective of inventory management.

5. **Information about Inventory: -** The management wants to various information and data to manage the materials. These information and data are important for planning and control.

6. **Availability of Finished Goods: -** The business organization will be greatly benefited if it can supply finished goods in the market according to the demand of customers. If the demand of customer is not meet, then customer will buy similar items produced by another organization. Because of this in future they will develop a habit of buying those materials, which is the harmful for the pervious organization. So, organization should always hold proper amount /quantity of inventory for supplying the goods according to customers demand.

7. **Maximization of Profit**: - If the materials are efficient, the production will go on continuously. It will help the organization in big way to earn profit. That is why;

one of the objectives of inventory management is to make a proper supply of materials so that profit will be maximized.

Both excessive and inadequate inventories are not desirable. These are two danger points with in the firm should operate. The objective of inventories management should be determines and maintains optimum level of inventory investment. The optimum level of inventory will be two danger points of excessive and inadequate inventories.

The major danger points of excessive inventory:-

- The unnecessary tie up the firm's fund and loss of profit.
- Excessive earning cost.
- The risk of liquidity

The major danger points of inadequate level of inventory:-

- Productions hold up.
- Failure to meet delivery commitment.

Therefore, the objective of inventory management should be to avoid excessive and inadequate level of inventories and maintain sufficient inventory for the smooth production, Publication or sales. Efforts should be made to place on order at right time with the right source to acquire the right price and right quality.

2.1.6 Importance of Inventory Management

Inventory management is vitally important part of each and every organization whether it is service oriented or a manufacturer. It is the scientific management of organization's inventories in a proper way so as to achieve better performance in capacity utilization, smooth production process and steady supply system, broaden marketing strategy and to generate high revenue.

If the corporation is not paying attention to inventory management, it will affect the efficiency and profitability of the corporation. Inventories serve as the vital function for developing the various operations in sequence beginning with raw materials extending through all manufacturing operations in to finished goods.

Importance of inventory management can be written as follows: (Goel, 1985, 145)

- Inventory helps the smooth and efficient operation of business organization.

- Inventory helps the service to customer immediately or at the time of short period.
- Due to absence of stock, the company may have to pay high price because of emergency purchasing. Maintain of inventory may help to earn discount because of bulk purchasing.
- Inventory also acts as buffer stock when raw materials are received late and many sales orders are likely to be rejected.
- Inventory also reduces product cost because there is an additional advantage of batching and long smooth running production runs.
- Inventory helps to maintain the economy by absorbing some of fluctuations when the demand for an item fluctuates.
- There is also needs of pipeline stocks (are also called process and movement inventories) where the significant amount of time is consumed in transshipment of items from one locality to another.

2.1.7 Factors affecting Inventory Management

Inventory management is a scientific way of planning and controlling of inventories, through, it is not avoidable from various obstacles. There are various factors which influence badly in management and control of inventories.

Some important factors that affect inventory management are as follows (Weston and Brigham, 1978, 490)

- State of health of national economy.
- Price trend and validity
- Direct and Indirect taxes.
- Foreign exchange regulation
- Import policies.
- International market condition.
- Business cycle.
- Corporate objectives.
- Technology available.
- Demand for the item.
- Transportation losses.
- Total lead-time.

- Working capital.
- Plant utilization.
- Communication system.
- Delegation of power.
- Information available.
- Seasonal factors.
- Location of plant.
- Availability of suppliers.
- Location of suppliers.

Another important factor of management is material handling system. Poor materials handling system always results in accumulation of work-in-process and lower motivation. Scientific materials handling is concerned with moving the right quantity of materials at the right time, in suitable price. It deals with the scientific involving with movement, packing and storing of materials.

From the above definitions, we have found that every business organization is running under pressure of various factors. There are various factors and environment which influence smooth operation of organization. Inventory management is also influenced by many internal and external factors. Economic condition of the country, political stability, inflation rate, trade relationship with other country, availability of raw materials, banking facilities and technology etc. are some important external factors which affect inventory management. On other hand, organizational structure, deficiency of machineries and equipments, workers motivation, qualified and experienced employs, sufficient funds, well equipped warehouse etc. are internal factors of an organization which affect badly in inventory management.

2.1.8 Costs Associated with Inventory

A number of cost factors must be considered in inventory analysis. First is the cost of holding the inventory, which includes the value of the capital tied up and the warehousing, handling and other costs associated with the physical presence of goods. Another is the cost of operating system, which includes the cost of orders maintain records and set up cost when we consider production of batches other important factor include the cost of shortage or the failure to meet demands the cost of alternative production, the cost of changing production levels and the cost of obsolesce.

All these costs discussed above are necessary to arrive at or find out the optimum or best inventory policy that results in the least cost to inventory management. In this context, different types of costs are considered which are given below.

1. **Order Cost: -** The cost required from goods ordering to goods receiving is called ordering cost. The most obvious cost are those involved in the acquisition of the inventory, including the expenses of such clerical operation as filling, reviewing the requisition, processing the purchase order, checking the incoming vouchers and paying bills. The important feature of these costs is that they are "one time cost" and therefore may treated like fixed cost.

The Ordering, Shipping and Receiving cost associated with inventories are following items.

- Cost of placing order
- Shipping and handling cost.
- Quantity discount cost.

Assuming the order cost (O) is fixed per order,

Total order cost = Order cost per unit X Annual Requirement/Quantity order size.

TOC = O (A/Q)

Where

O= Cost of placing on order. A= Annual requirements

N= Number of times to be order per year. Q=Quantity order size.

2. **Carrying Cost: -** Total carrying cost generally increase indirect proportion to the average amount of inventory carried. Inventory carried in turn depends upon the frequency the orders are placed. It is the cost which is concerned with the store room. In other words, the cost spent for the security of materials in store is termed as carrying cost. The second major category of cost are those associated with carrying the inventory itself such as capital cost, handling and storage costs, spoilage and shortage cost, insurance and payments and system cost. Carrying costs are likely to

be in the range of 20% to 50% of inventory value. Carrying cost can be calculated from the following formula.

Carrying cost = Average inventory X Carrying cost per unit.

Symbolically, Q/2XC

Where, Q = Quantity order size.

C= Carrying cost per unit.

There are other costs, which are regards as carrying costs.

- **Opportunity Cost**

This consist cost of capital i.e. interest on capital to finance for acquisition of inventory. If the capital of the organization is locked up in inventory then organization may lose best opportunity to invest in another purpose. When the opportunity is miss organization capital which associated for inventory is not uses for another purpose so opportunities obtain by the organization can't be fulfilled. For example: - If the capital is uses in the alternatives way the organization may earn 10% but here opportunity is missed. So the cost of the inventory is 10%.

- **Material Handling Cost**

Those cost which are associated at the time of goods and keeping here and there. It is determine quantity of goods, distance of store house and many more.

- **Storage Costs**

Those costs are associated which maintain the inventory at the time of store. These cost include the expenditure made over the inventory staff, expenditure made over the various facilities like cost of heating, cost of floor space, cost of shelves, cost of lighting, cost of bin and container, cost of goods handling material and other provision for safe and proper storage items. These costs are generally depending on the quality of goods.

- **Spoilage and Storage Cost**

This is another type of inventory carrying cost. Many goods are deteriorating at the time of storage. The precise nature of the goods deteriorates from goods to goods but whatever the cause organization may lose the goods because of storage in inventory. Sometime organization may lose the goods because of shrinkage and pilferage of inventory which also impact the profitability and assets of the organization.

A common type of spoilage cost occurs when stocks is left in inventory after the demand for the product has vanished. This can occur with varying degree of severity. At one extreme the cost is the sum of all further expenses required for carrying the unable items when the demand ceases. A classic example of this situation is the Christmas trees that are still unsold after the holding season, they have virtually no further economic value, and fall purchase cost must be written off as a loss.

Another type of spoilage cost occurs when product deteriorate physically in storage.

For example: - Food products spoil when there are stored too long.

- **Insurance and Taxes**

There is always a risk of free, theft or pilferage of materials. These costs should be estimated or an organization might have taken insurance against such mishaps and the insurance premium paid are relevant costs inventory decisions.

Inventory often represents a significant investment of a firm's capital, conservative management practice calls for increased protection. Naturally, the cost of this insurance varies according to the size and the value of inventory, the same is true for taxes. Some countries leave inventory taxes. Example: - On various dates, through out the year, the more inventory a firm has an hand on those dates the higher tax bill will be. Where such taxes are in effect, product inventory management may dictate periodic reduction in inventory to coincide with the dates on which the assessments are made (Gamet and silver: 1989, 419)

- **System Costs**

These costs are associated with the administration of the inventory system in use, Such as information gathering costs, Supervision costs, physical stock checking costs and records keeping costs. These expenses will be high or low except by making a comparison among actual inventory systems.

3. Stock-out Cost: - Stock out cost is associated with demand. The depletion in stock results in loss of sales or back order costs. The sales are lost due to stock out, the firm losses both the profit margin on unmade sales and the firm's goodwill. If the customer uses another business elsewhere, future profit margin may also be lost and back order cost is needed to convince customer to use again after inventories have been replenished back order cost includes loss of goodwill, money paid to re-order goods and notification to customers when goods arrived.

The term "stock out" costs refer to the cost associated with the storage of inventory. It is in fact, an opportunity cost in the sense that due to the shortage of inventory the firm would be deprived of certain benefits. The denial of these benefits, which would be available to the firm, is the stock out costs. The first and the most obvious of these cost is the loss of profits which the firms could have earned from increased sales if there was no shortage of inventory. Another category of stock out cost is the damage to the relationship with the customers.

If the supply of goods run out before the demand for the product is satisfied, it is called stock out situation. There are two types of stock outs. The first occurs if an item is not available for sale or to meet the production schedule but can be obtained through an emergency procedure. In this case, firms can loss profit from revenue, goodwill from the customers and even more than that stock out cost can be computed from following formula.

Stock out cost = Inventory cycle per year X Stock out units X Probability of a possible stock out X unit stock out cost.

Where,

Inventory cycle / Year = Annual requirements (Usage)/Quantity order size.

Ordering cost, carrying cost and the cost of stock out are three vital cost of maintain inventories. Cost of stock out is maintained under uncertainty as a safety stock, where as ordering and carrying cost are computed under both certain and uncertain situation. Hence, in totality we can formulate and equation, which gives us about the cost of maintain inventory.

TCMI = TCC+TOC+CSS

OR, TCC= [C% X PX AI] + [O X N] + [C% X P X S]

Where,

TCMI= Total cost of maintain inventory.

TCC= Total carrying cost.

TOC= Total ordering cost.

CSS= Cost of safety stock.

C% = % of cost of carrying inventory.

P= Price per unit of inventory.

AI= Average inventory

O= Cost of placing an order

N= No. of times to be order per year.

S= Safety stock.

2.1.9 Inventory System

2.1.9.1 Concept of Inventory System: - In a simple term, inventory system is a basic frame of inventory management which consists of the lifecycle of an item with in the organization. A business organization purchase raw materials and stocks it for a certain period, then process it and again stocks it (semi-finished or finished goods), and finally sells it to the customers. There is various processes to carry out by an organization to complete system of inventory management.

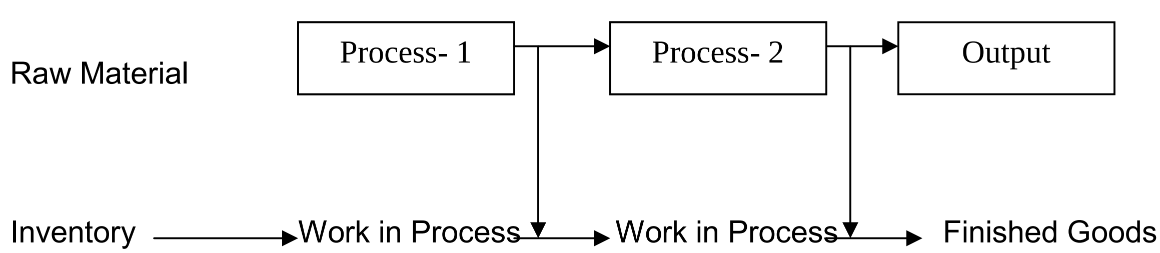
An inventory system provides the organization structure and the operation polices of maintaining and controlling goods to be stocked. The system is responsible for ordering and receipt of goods, timing the order placement and keeping track of what has been ordered, how much and from whom.

It is important to be clear about the inventory system in order to know the concept of inventory and its application in real practice. Two system of inventory are described briefly as follows.

1. Multi-Stage Inventory: - Multi - stage inventory focuses on the inventories of different points of production stages and tries to maintain balance inventory levels at each stage and for the whole conversion system.

Figure – 2.2

Multi-Stage Inventory System Concept



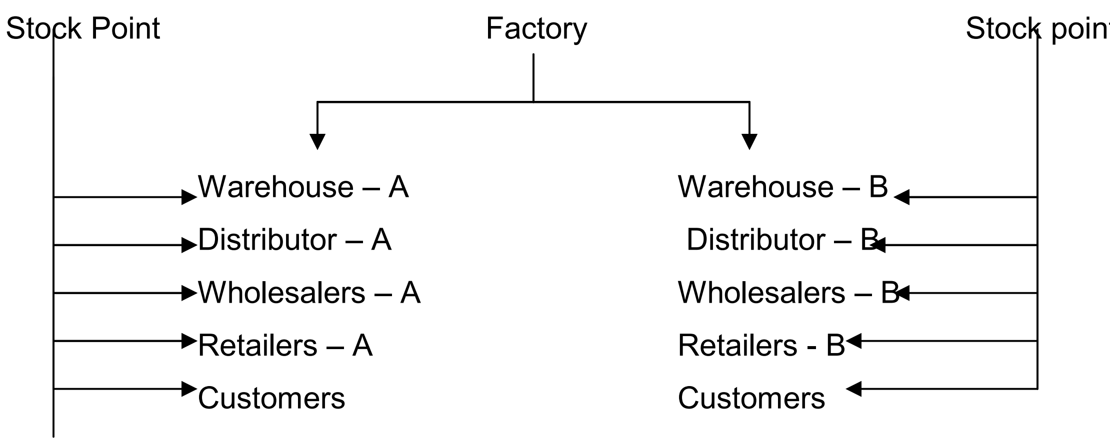
Production/Operation Procedure

In the above diagram, the inventory items passes through various stage. First of all, there is the inventory stock or raw materials. It passes through process and stocked as semi finished goods which is also called work-in-process inventory. After that, the semi finished goods is processed in processing stage 2. The processed goods become a final product or output ready for supply to distributors or consumers. This item is also stocked as finished goods before it reaches to the hand of distributors or primary consumers. In this way, the multi-stage inventory cycle is repeated continuously.

2. Multi-level Inventory: - After the production of goods, the concept of multi level inventory is concerned with the study, analysis and control of inventory in various distribution levels. It deals with the management of inventories at different points of distribution system of an organization.

Figure – 2.3

Showing Multi-Level Inventory System



Multi – level inventory system is basically concerned with stocking system of finished goods. In the figure above, the goods are stocked in different level or different parts. First, the goods from factory are stocked in two different warehouses and then in distributors, whole sellers and retailers respectively before it reach on primary consumer's hand.

2.1.9.2 Types of Inventory System

1. Continuous Inventory System (Q/R- modal) :- First of all this system determines the fixed order quantity Q and reorder stock level R at which level the order should be placed is predetermined. Therefore, it is also called fixed order quantity /perpetual inventory system or economic order quantity model (EOQ) or Q/R model.

Fixed order quantities models are event triggered because fixed quantity of inventory is ordered when it reaches at reorder level. The order can be placed at anytime, which depends on the demand of the stock. Therefore, withdraws and additions of stock should be recorded and monitored regularly to update and ensure the reorder level.

The basic assumptions of this model are as follows. (Joshi and Chaudhary 2002:87-88)

- Demand for product (D) is constant throughout the period
- Lead time (L) is constant.
- Price/cost (P) per unit is constant.
- Carrying cost/holding cost (C) depends on average inventory.
- Ordering and set up cost (O) are constant.
- No stock out or back orders (S).

In this system, an organization reviews the system of record maintained by the controlling department, which reflects the physical movement of stocks and their current balance.

2. Periodical Inventory System (P-modal):- This system is useful in cases where the material is so enormous and stock of dating is not possible in each transaction. In this system it is assumed that inventories would be counted at the specific time intervals. As a result it is unnoticed about the stock position and shortages.

Order quantity Q depends on the actual quantity of period. It is time trigged varies from time to time, depending upon usage rates. Generally, it requires high level of safety inventory than Q/R model. This system is also called fixed period inventory system.

From the above figure, it is clear that inventory will be inspected in certain time interval. There is no constant order quantity Q. On the first order quantity Q_1

second order Q_2 and third order Q_3 should be placed according to the inventory position at the time of inspection. As a result, sometimes, stock out may occur during the inventory planning period.

2.1.10 Inventory Control

2.1.10.1 Meaning

Inventory control is a system which ensures the provision of the required quantity of inventories at the required time with minimum amount of capital investment.

"The technique of maintain the size of the inventory at some desired level, keeping in view the best economic interest of an organization is known as inventory control" (Goel 1985;141)

"Inventory control is concerned with the control of the quantities and monetary values of these items at pre determined level or with in safe limits" (Burbidge, 1975; 310)

There are two basic aspects of inventory control which are described below:-

1. **Accounting Aspects:-**This aspect of inventory control is concerned with maintaining documentary evidence of movement of materials at every stage right from the time sales and production budgets are approved to the point when materials are purchased and actually used in production operation.
2. **Operational Aspects: -** This concept is related to maintain material supplies at level so as to ensure that material is available for use in production and production services as and when required by minimizing invested in materials.

2.1.10.2 Inventory Control Procedure

There are many inventory control systems. They are followed in maintain adequate control over each inventory item and ensuring accuracy of stock on hand. The following are some controlling systems:-

1. **One Bin System: -** It is a periodical replacement system of inventory control. In this system inventory for a fixed periods such as a week, month, quarter etc. is purchased up to predetermine maximum inventory level. Whenever inventory is used, it will be replaced in certain periods. Therefore, there is not fixed order quantity like periodical inventory system.

2. **Two Bin System: -** Under this system, two bins are used. First bin contains the items for day to day operations and second bin provides the stock required for replacement. In other word, the second bin contains the stock of item equal to reorder point. When stock in the first bin is finished, stock would be brought form second bin and an order will be placed to replace stock in the second bin as well as in the first bin like Q model. This process will continue till the date of inventory planning.

3. **Cardex file System: -** A cardex file system is a manually operated inventory system, in which inventory card represents each stock item with transaction kept on the cardex. Following are some characteristics of the cardex file system.

- A card for every item is field on a rotating down on file cabinet.
- On the top of each card, is the computed operating doctrine (EOQ, Reorder level)
- Balance of the card refers the ledger of the beginning inventory order placed, order received, issues form stores and current inventory levels.

When transactions occur, the entry with corresponding date is recorded when physical inventories are taken, cards are adjusted to show current inventory levels.

4. **Management Accounting and Production Information Control System (IBM'S MAPICS):-** It is an IBM's computerized common data base system for manufacturing information and control. It include many models such as financial order processing, accounting and manufacturing for implementation of planning key models for controls are product data management material requirement planning, inventory management, production costing and control applications.

Inventory management application reduces times, increase overall plant capacity, reduces investment stock and space, improves customs services and provides inventory data and reports.

2.1.11 Technique of Inventory Management

An efficient inventory management system facilitates smooth production activities and provides safe delivery system to customers. On the other hand, excessive inventory is idle resources for the organization and can prove costly where as little inventory burdens production and supply problems in the organizations. The quantitative approach technique of inventory management furnishes the basic information to control the burden of excessive and deficit inventories. It provides both numerical and logical information to the organization to maintain optimum level of stock so as to minimize the inventory costs.

'To manage its inventories effectively a firm should use a system approach to inventory management. A system approach considers all the factors in a single model that affect the inventory. A system for effective inventory management involves subsystem (Hompton, 1986; 233)

2.1.11.1 Economic Order Quantity (EOQ) Model

"The important inventory control technique is economic order quantity. This technique is widely used in many industries. The EOQ may be defined is that level of inventory order that minimizes the total cost associated with inventory management". (Khan and Jain 2004:20.7). The quantity to be purchased should neither be small nor big because of buying and carrying materials are very high. EOQ is the size of the lot to be purchased which is economically viable. Generally, EOQ is that point at which inventory carrying costs are equal to ordering costs. The objective of inventory decision is to keep the relevant costs to minimum. So, the determination of economic order quantity is made on the basis of these two relevant costs i.e. ordering cost and carrying costs. The total cost will minimum at a point where these two costs are equal. Thus the economic order quantity is that quantity where the total annual cost of placing the order is equal to total annual cost of carrying. At that quantity, the cost will minimum.

A. Assumption of EOQ Model

This model is valid for any time period as long as all variables are defined for the time period considered. For simplicity assume the time horizon to be one year.

- Required unit of quantity should be constant over the planning period.
- Ordering costs per order should be known.
- Ordering costs per order should not be changed
- Average carrying costs of inventories should be fixed.
- Unit cost of item should be known.

B. Approaches to set EOQ

Economic order quantity may be determined order the following three approaches.

1. Formula Approach or mathematical Approach

2. Trial and Error Approach or Analytical Approach

3. Graphical Approach.

1. Formula Approach or Mathematical Approach

Mathematical models are also available to calculate EOQ. There are numerous model exist as the field of inventory management and can be studied in college programs such as production and operation research management. Even many mathematical models are exists, the main objective of their model is to reduce and minimize the inventory costs. We can illustrate the concept of EOQ with a basic mathematical model as follows; EOQ is calculated by using the following formula.

$$EOQ = \sqrt{2AO/C}$$

Where,

EOQ = Economic order quantity

A = Annual requirement of product

O =Ordering cost per order

C = Carrying cost per unit per year.

We have,

Total ordering cost = Annual requirement/Order size X Ordering cost per order

A/QXO = AO/Q

Total carrying cost = Order size/2 X Carrying cost per unit

Q/2 X C = QC/2

Total cost = Ordering cost + Carrying cost

AO/Q = QC/2

Q2 = 2AO/C

Q= _2AO/C

Q= EOQ

Let assume that,

Annual requirement (A) = 2500 units

Ordering cost per order (O) = Rs.100.

Carrying cost unit (C)= Rs2

Here,

EOQ= $\sqrt{2AO/C}$

= $\sqrt{2x2500x100/2}$

= 500 units

No of order = A/EOQ= 2500/500= 5 times

Total cost = Q/2XC + A/QXO

500/2X2+2500/500X100

Rs.500+Rs.500= Rs.1000

2. Trial and Error Approach

This is another type of approach to calculate the EOQ. A firm has a different type of purchase policy of its inventory. It can purchase its entire requirement on a single lot. Alternatively, the firm can purchase its inventory in small lot periodically, like weekly, monthly, Quarterly, half yearly and so on. It means more than one time the firm can place on order to purchase inventory. The smaller lot sizes the lower average inventory and vice versa. Trial and Error approach is to determine economic lot size known as long analytical approach or tabulation approach. "The trial and error or long analytical approach for the determination of EOQ uses different permutations and combination of lots of inventory purchase so as to find out the least ordering and carrying cost combination" (Khan and Jain op.cit;735)

The trial and error approach to find out the economic lot size can be illustrated by a simple example:

Let a company has annual requirement of inventory is 2000 units. Ordering cost per order for the period is Rs.80.00 and the Carrying cost per unit is Rs.2.00 per unit. What will be the optimum lot of inventory for the period?

Here, Total Annual Requirement (A) = 2,000 units.

Ordering cot per units (O) = Rs.80

Carrying cost per unit (C) = Rs.2 per unit

Economic order quantity (EOQ) =?

Relevant costs for various order size can be computed as follows:

Table-2.1

Competition of Relevant Cost in Different Order Size

S. No	Order Size	2,000	1,000	5,00	4,00	250	200

1	Number of order	**1**	**2**	**4**	**5**	**8**	**10**
2	Cost per order (O)	**80**	**80**	**80**	**80**	**80**	**80**
3	Total ordering cost	**80**	**160**	**320**	**400**	**640**	**800**
4	Carrying cost per unit	**2**	**2**	**2**	**2**	**2**	**2**
5	Average inventory	**1000**	**500**	**250**	**200**	**125**	**100**
6	Total carrying cost	**2,000**	**1,000**	**5,00**	**4,00**	**250**	**200**
7	Total cost (3+6)	**2,080**	**1,160**	**820**	**800**	**890**	**1,000**

Total relevant costs in different order size show that the minimum cost of ordering inventory is Rs.800, where ordering costs equals the carrying cost.

Hence, The Economic order Quantity (EOQ) = 400 units

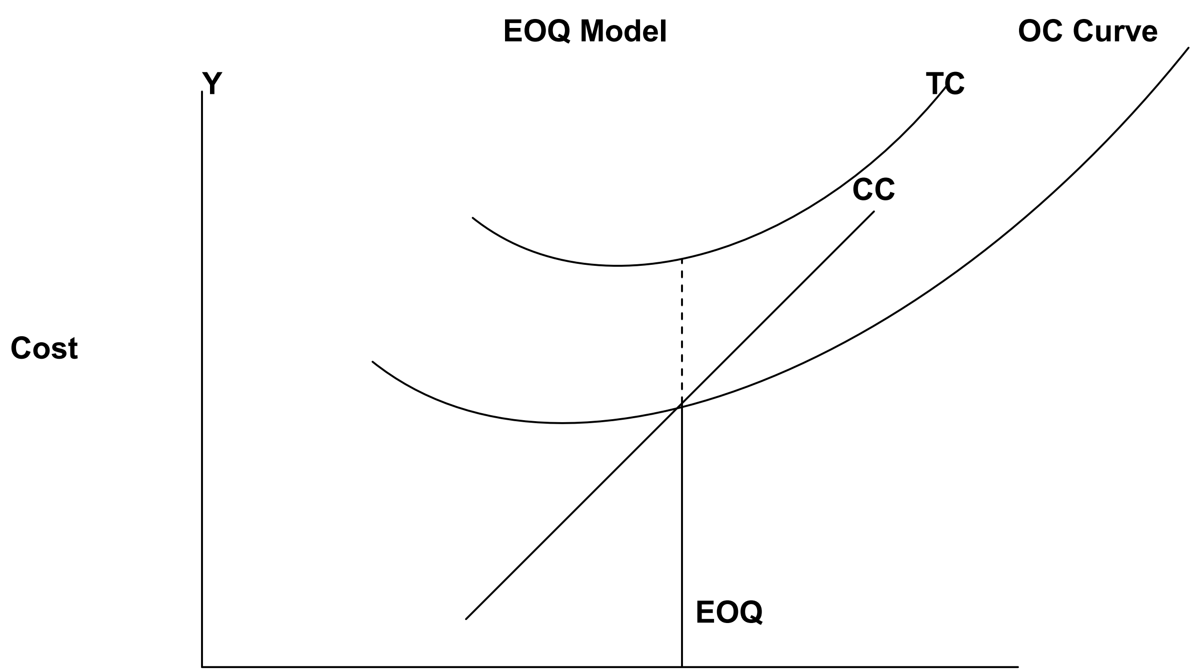
Number of order for the period = 5 times.

3. Graphical Approach

EOQ can also be determining by using the graphical approach under this method. EOQ is determined at a point where the total ordering cost and carrying cost intersect each other. In this point where the ordering cost and carrying cost are equal at that point total cost would be minimum, if order are increased or decreased beyond this point total cost will be increased.

Graph 2.1

EOQ Model



X

O Q

No. of Units per order

In the above graph 2.1 OX axes represent the ordering quantity and OY axis represents the cost. When the order size increased the number of order as well as ordering cost decreased therefore ordering cost curve slopes down from left to right, on the contrary to this carrying cost increase with the increases in the number of ordering. The carrying cost curve and ordering cost curve intersect each other in that point total carrying cost and ordering cost is minimum In above graph total cost curve slopes downward in the initial stage and slowly lend to increase from the equilibrium point showing like U shape. In the OQ point the total cost curve is lowest. Any increase or decrease in the order size from this point the total cost will be increase.

2.1.11.2 ABC Analysis

The ABC model of inventory management identifies the relative importance each type of inventory and calls for managerial emphasis accordingly. Consider the need for cost controlling and value maximization. Various inventories which are critical for operation and of high value need a special attention. The ABC model suggest to classify inventories in to three categories namely "A" for high value inventories, "B" for average value inventories and "C" for low value inventories. The term ABC is known as always better control. It has shown following table.

Table-2.2

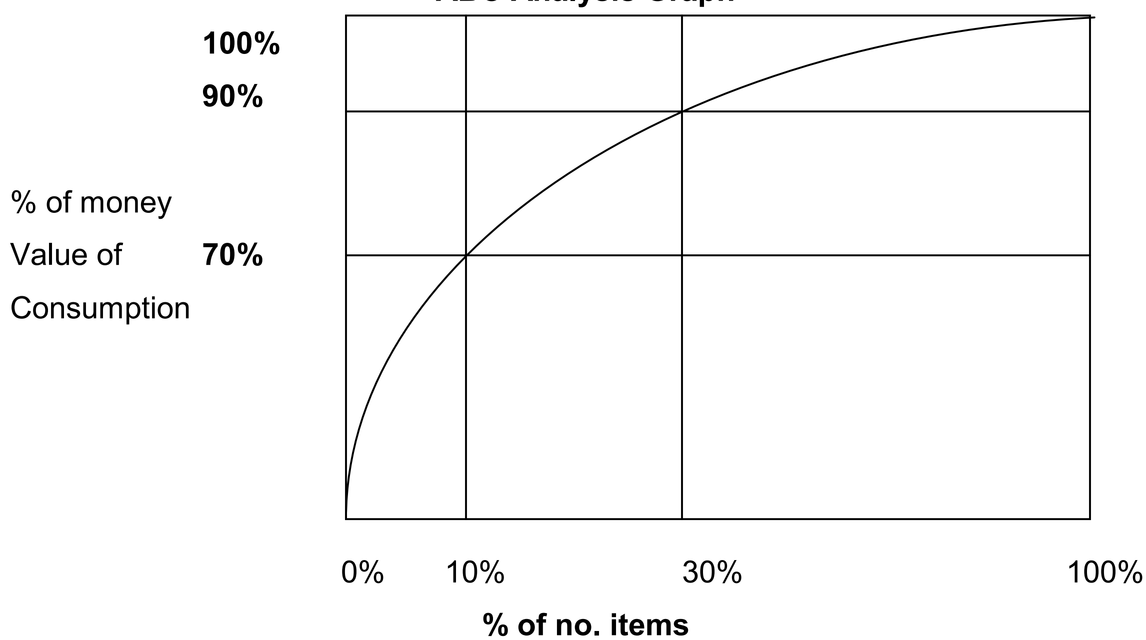
ABC Analysis

Inventory Classification	% of items	% of value
A	10-15	70-75
B	15-35	15-35
C	60-80	10-15

This table No 2.2 shows that "A" items include low value items and high cost of all items with tightest level of control. But "B" items consists average value and volume last items "C" consists higher value items and lowest total cost with low level of control .

Graph: 2.2

ABC Analysis Graph



The above graph 2.2 presentations includes item "A" forms a minimum proportion 15% of total unites of all items, but represent the highest value, 70% on the other hand, item "C" represents 55% of total unit and only 10% of total value. Item "B" occupies the middle place. Item A and B jointly represents 45% total units and 90% of the investment more than half of total units are item "C" represents nearly 10% of the investment. Thus a tightest control should be exercised on item "A" in order to maximize profitability on its investment. In case of item "C" simple control will be sufficient.

Benefits

The following benefits of ABC analysis (Richardmend; 1969:396)

- A strict control is exercised on the items, which represents a high percentage on the material costs. Managerial time is spent on "A" items where as clerical staffs with least managerial supervision can handle "C" items and some time "B" items. Equal attention to all the items of stores is not desirable because it is expensive. Concentrating on all the items of stores is likely to have a defused correct on all the items, irrespective of the value of consumption. Therefore, ABC analysis should be followed to give due attention to the items which they deserve keeping in view their value of consumption.
- Investment inventory is reduced to the minimum possible level because a reasonable quantity of "A" items representing a significant position of the material cost purchased. To reduce investment in materials, close control of "A" items contribute much more than close control of "C" items.
- Storage cost is reduced as a reasonable quality of materials. Which amount for high percentage of value of consumption will be maintained in the stores?

2.1.11.3 Re-order level/Re-order point

The level of inventory at which a reorder should be placed is known as Reorder level/Reorder point. It may be defined as that level of inventory when fresh order should be placed with the suppliers to procuring additional inventory equal to the economic order quantity. The reorder level refers to the number of units on hand. In many instance, no orders are outstanding when the re-order level is reached, so the reorder level often thought of a referring to only the number of units in hand.

The reorder point is the stock level of inventories in the store at which the store keeper initiates the purchase requisition for the supply of materials. This level is fixed in some where between the maximum and minimum level is such a way that the difference of quality of materials between the reorder level and the maximum level will be sufficient to meet the requirements of production up to the time the fresh supply of the material is received.

(A) Lead–time: - It is assumed that an organization would get supplies of materials immediately after placing order but there may be span of time between receiving and ordering. This span of time is known as lead-time i.e. on organization place 20 times order per year. If the lead- time is 8 days, simply management should decide to order 12 days after the receipt of the previous delivery.

(B) Good in Transit: - Goods in transit are the goods that have been ordered but have not been received. If a new order must be placed before the previous order is received, a goods in transit inventory will be built up.

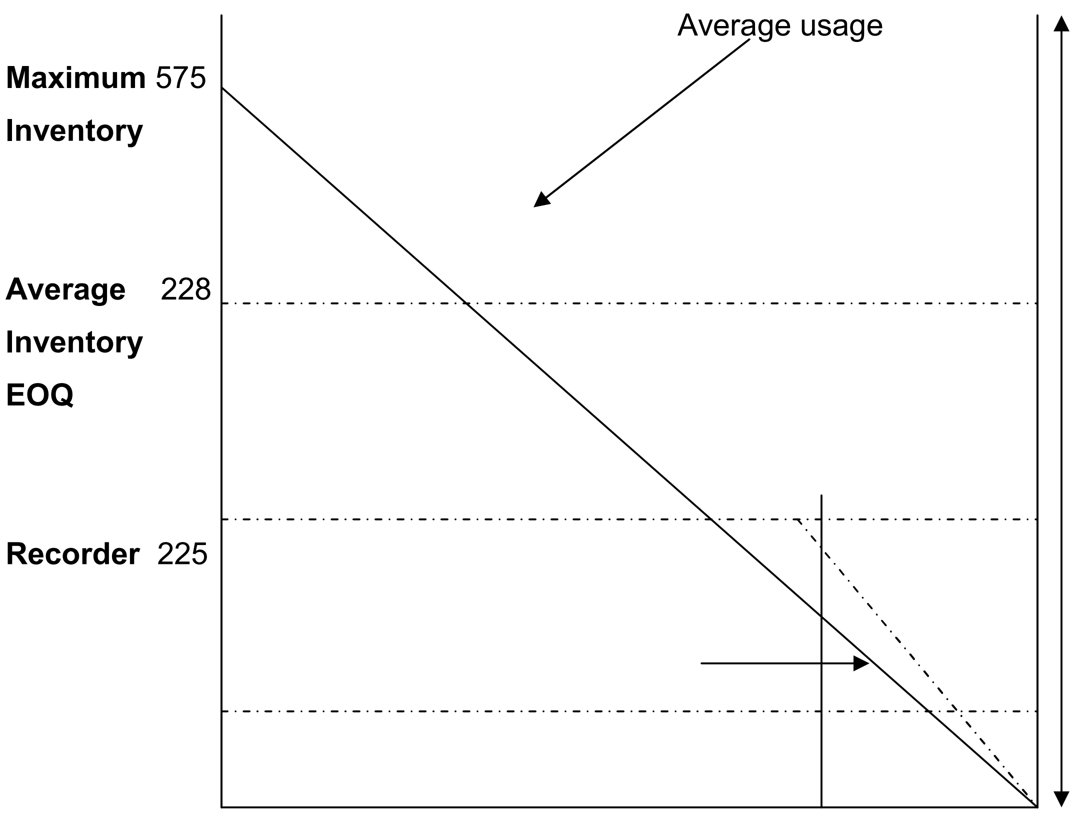
(C) Usage Rate: - This is rate per day at which items are consumed in production or they are sold to customer.

(D) Safety Stock Level: - The demand of material fluctuates from day to day or forms week to week. Similarly, the actual delivery time may be different from the normal lead-time. If the actual usage increases or the delivery of inventory is delayed the firm can face a problem of stock out which can prove to be costly for the firm. Therefore in order to guard against the stock out. The firm may maintain safety stock, i.e. some minimum or buffer inventory as cushion against expected increased usage and or delay in delivery time.

To illustrate let us assume that economic order quantity is 500 units, lead-time is 3 weeks and average usage is 50 units per week, reasonable expected stock-out is 25 units per week. The firm should maintain a safety stock of 75 units (25 units X 3 weeks). Thus, the reorder the point will be 150 units + 75units = 225 nits. The maximum inventory will be equal to the economic order quantity + Safety stock i.e. 500 units + 75 units = 575 units. The formula to determine the reorder point when safety stock is maintained is as follows.

Figure 2.6

Re-order Point and Safety Stock under Uncertainty



Point

Maximum Usage

Safety stock 75

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Week **Lead Time**

If in case of uncertainty, the reorder point may be like below:-

Re-order point = Safety stock + Lead time X Average Usage

2.1.11.4 Stock – Level

This stock level sub system keeps tracks of the goods hold by the firm, the issuance of goods and the arrival of orders. It is prepared for recording as well as accounting of goods in stock. Thus, the stock level sub-system maintains records of the current level of inventory.

1. **Maximum Stock Level: -** It is a stock level that can be maintained on the basis of requirement. It is the stock level above which stock should not allowed to rise. It is an upper level limit beyond which the quantity of any item is not normally allowed to rise. Holding of stock more than maximum limit will increase materials and storage cost and tied up working capital unnecessarily. The maximum level of stock is affected by availability of financial resources, store spaces, lead-time and nature of materials, responsibility of material and government control. It is fixed by considering the following points.

- Re-order level
- Minimum consumption rate during lead-time.
- Minimum lead-time or re-order period.
- Re-order quantity.

Maximum stock is determined by the following formula.

Maximum stock level = Re-order level + Re-order quantity - (Minimum consumption X Minimum delivery times)

2. **Minimum Stock Level: -** This is the lower limit, below which the stock of any item should not normally allowed to fall at all items. It the stock goes below this level.

There is a possibility that the production may be interrupted due to shortage of materials. This stock is a buffer stock or safety stock to be used only under abnormal condition or in an emergency. In the determination of minimum stock level, the following points are taken in to consideration.

- Re-order level
- Average rate of consumption and
- Average/normal lead-time

The following formula is for calculating minimum level

Minimum stock level = Re-order level - (Normal consumption X Normal Re-order period)

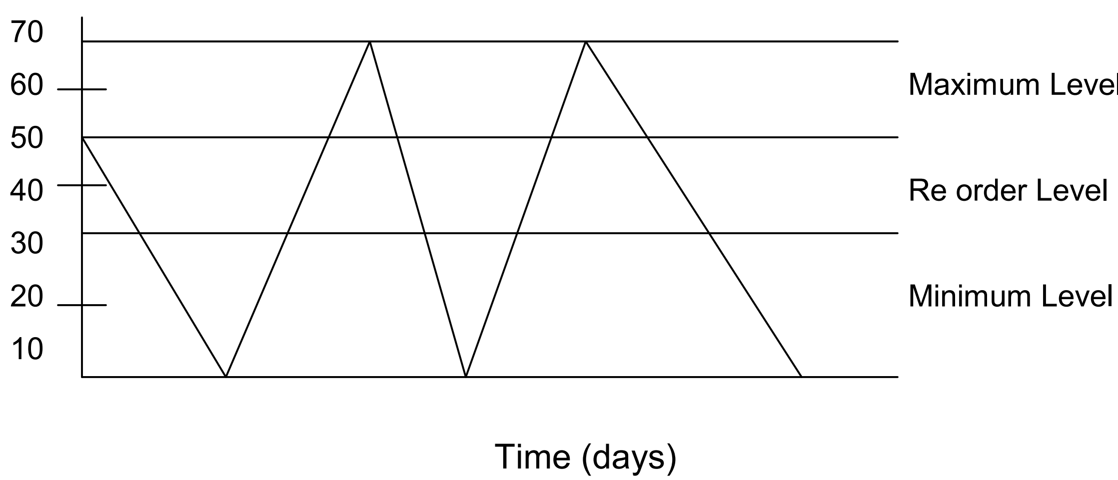
3. **Danger Level: -** It is that level beyond which materials should not fill in any case. If the danger level arises then immediate steps should be taken to replaish the stock even if the more cost is incurred in arranging the materials, So that the production may not be interrupted due to the shortage of materials.

It is determined by the using following formula

Danger level = Average consumption X Maximum Re-order point for emergency purchase.

Graph 2.3

Maximum Level and Minimum Level



2.1.12 just – in –time (JIT) Inventory System

This is a new model for inventory management system so most of the modern business enterprises are applying for new strategy. It is just in time inventory management system. In this system the ordered materials and parts are arrive only at the time of supply to the customers. This system prime role is to save the cost of the corporation products are not produced or inventories are not ordered unless need arises under the system. Thus, inventories are not ordered or maintain relatively a low inventory level. The main objective of this system is to avoid or reduce the level of inventory of the corporations. The JIT system reduces the sizeable amount spend on inventory and other related factors.

The special features of JIT system are as under :

- A smooth uniform production
- A full method of coordinating in the production process.
- High quality of materials and finished goods.
- Purchase of materials and parts in small lot size.
- Effective prevent maintains of equipment.
- Skilled workers and flexibility in facilities.

2.1.13 Perpetual Inventory System

The perpetual inventory system is maintained regular stock records. In fact, perpetual inventory system implies a complete and up dated of each item of stores both on regards and physical goods. The institute of cost and management account of England and Wales define perpetual inventory system as 'A system of record maintain by the controlling department, which reflect the physical movement of stock and their current balance.' Thus, this is a system of ascertaining current balance after recording every received and issue of materials and stock records the continuous stock taking is and essential future of the perpetual inventory system. Inventory records maintained under LIFO and FIFO basis are the best example of perpetual inventory system. The perpetual inventory system means maintenance of such records (stock control cards,bin cards and store ledger) as it will reflect the eceipts, issue and balance of all items in stock at all times.

2.1.14 nventory Reports

nventory Reports is a most essential part of inventory management. It is basic out coming of inventory control system. Its objective is to help the management in exercising effective inventory control and take appropriate decision. It gives the facts related to according to the convenience of the organization. However following can be the basis design of inventory reports.

Time	**Report file**	**Sent to**	**Content**	**Purpose of report**
Weekly	material usage and wastage report	Manager	Work actual quantity of material used against standard quantity specified	Controlling used of material and elimination of excessive wastage, scrap, spoilage and detectives.
Monthly	Material price variable report	Purchase officer	comparison of actual prices for quantity purchase	Watching efficiency of the trend a price movement.
Monthly	Purchasing Report	Purchase committee	Comparison of actual purchase consumption and stock figure.	Determining the result of polices decided upon.
Special	Inventory Report	Top management	Summarized study of inventory control procedure.	To manipulate efficient controlling system further.

2.2 Review of Related Studies

epal is a developing country. In our country public and private enterprises play a critical role for the social-economic development. It enjoys a strategic and crucial position in our mixed economy. They have been established in many sector overall development of the country with different goals and objectives. Taking this strategy more than 69 public enterprise was established into 2047 B.S. After 2047, so many private enterprises were established in different objectives and goals in the country. But now a day, only 18 public enterprises have been privatized and some are in the process of privatization. Limited studies under taken on "Inventory management" in Nepal were reviewed in the course of this study. The major findings of these studies are presented in this chapter. Some studies have been made in the subject of inventory management in the master's degree but few studies have been done. Some studies will be reviewed in this chapter.

2.2.1 Review of Thesis

Mr. Vibhas Gautam (2001) has conducted a research study on "A Study of Inventory management of Nepal Oil Corporation Limited" to analyze the efficiency and present position of inventory management of NOCL. His objective was to identify the problem faced by NOCL in application and practice of inventory management.

Mr. Gautam has collected related information and data from both primary and secondary sources. Primary data are collected through interviews and discussion where as secondary data are obtained from published and unpublished documents related to NOCL. The researcher has applied statistical, financial and accounting approaches to evaluate and examine the gathered data. Some of his significant findings are as follows:

- NOCL is the only one organization to supply the petroleum related fuels in the kingdom of Nepal; it has to act in favor of consumer interests and needs.
- NOCL inventory control system is weak therefore; the company has always suffered over stock or stock out situations.
- NOCL is failed to practice basic inventory management techniques and it always maintain rough safety stock for 35 days, which is fluctuating every time.
- NOCL has not applied scientific inventory management and it only forecasts its purchase on adhoc basis.

Rama Devi Bhandari, (2002) has conducted his master's thesis on Inventory Management, "A Case Study of Multi Food Industry (P) Ltd".

The main objective of this study is to find out the inventory management system exercised by the factory. To achieve this objective the following sub objective has been defined by her.

- ♦ To access the maintained inventories and other consequence on cost and profit.
- ♦ To find out the applied techniques used to manage the inventories in the factory.
- ♦ To analysis the present inventory position of Multifoods Industry Pvt. Ltd.
- ♦ To suggest proper inventory models of based on the analysis.

From the above analysis following findings have drawn about the inventory management of MFI.

- ♦ Required different types of raw material are imported form Singapore, Malaysia, India as well as local market.
- ♦ The company has not determined the re-order level, maximum level and minimum level.
- ♦ Sometimes the company has to suffer the shortage of inventory which is imported from third country.
- ♦ Inventory turnover ratio was not satisfactory.

Mr. Surendra prasad yadav, (2003) has conducted their thesis work on "Inventory Management of Manufacturing Public Enterprise," A case study of Janakpur Cigraters Factory Ltd."

The main objective of this study was to identify the problems of inventory management of JCF. To achieve the objective the following sub objectives have been defined by him.

- ♦ To study the present practice of collection and procurement producer of raw materials in JCF.
- ♦ To analyze the present position of inventory in JCF.
- ♦ To provide the suggestion and recommendation on the base of study.

From the above analysis yadav have drawn following findings about inventory management.

- ♦ The consumption pattern of factory is also fluctuating from year to top year like purchasing pattern.

- No EOQ model is used to determine optimum order quantity.
- Productions cost and sales of cigarette are increasing.
- JCF is not classified various inventories according to ABC.

Mr. Sanjev Lal Karna (2007) conducted a research work in the topic of "Inventory Management System of Listed Publications". The main objectives of the study are:

- To assess how the inventories are maintained and their consequence on cost and profit.
- To find out what techniques have been applied to manage the inventories in the corporation.
- To provide an idea of how inventories of inputs are maintained and how replenishing orders are placed.

From the above analysis Karna have drawn major findings pointed out based on this analysis works are as follows:

- Both corporations have not applied scientific tools and techniques of inventory management to make major decisions.
- When and how much to buy and steps taken by the corporation with regard to recording and maintain the inventories is not well.
- Corporation is not classified various inventories according to ABC.
- Unnecessary cost involved in ordering and carrying be reduced to certain level

2.2.2 Review of Journals and Articles

Some Journals and Articles will be reviewed in this chapter are below. Dr. Govinda Ram Agrawal, said that the inventory management in Nepal is probably the weakest aspect of management the tools and technique for controlling inventory has been applied in Nepalese enterprises for controlling their physical as well as financial dimension. (Agrawal, 1980: 21)

Rao and Jagmohan also observed that for the efficient management of inventory, there are the needs of tackling the human element in the third world country like Nepal. They have suggested to orienting the attitude of the staffs towards material cost because lack of knowledge and carelessness, which were the responsible of this management of inventory. (Rao and Jagmohan, 1981:43)

Puskar Bajracharya has conducted a study on management problem in public sector manufacture enterprise in Nepal. One of the important findings was regarding the inventory. Their management suffers from lack of planning, high carrying cost, poor recording and stores management and virtual absences of controlling system. (Bajracharya, 1983: 76)

From the review of above-mentioned literature it has been observed that many thesis Journals and Articles has been written inventory management but inventory management system not seriously regarding the inventory materials management. Most of public and private enterprise are not applied the inventory model. So, most of companies have not been success to achieve their goals and objective.

2.3 Research Gap

There have been various studies done in the inventory management system of Nepalese public and private enterprise. The studies conducted earlier now need to carry out a study to assws to recent development in inventory management system. No researcher of earlier studies has focused on the inventories trend analysis of different raw materials in Nepalese Newspaper Companies (NNPC). So the study isthe first attempt in the field of inventory management to Nepalese Newspaper Companies (NNPC) in Nepal.

CHAPTER – III

RESEARCH METHODOLOGY

3.1 Introduction

Research is to find out to gain knowledge about a phenomenon. Here "Re" means repeatedly or again and again and "Search" means to investigate or to find. Thus, combine researching repeatedly is called research, which includes searching new facts knowledge, principles and theories in scientific way likewise: research needs various methodologies, tools, techniques etc. A systematic research studies needs to follow a proper methodology to achieve the pre–mentioned objectives. The research methodology is a systemic path or way to solve the arising research problem. It is the process of solution the arising problem through the planned and systematic dealing with the collection of data analysis of data and interpretation of data for fact and figure " The research for gaining the knowledge about the method of goal achieve, hich we desires, is known as research methodology" (Joshi,2001;12–13).

he basic objective of the study is to identifying the present position of inventory management of three Nepalese Newspaper Corporations and its impact on profitability. For the purpose of achieving the following methodology has been proposed to follow which consists of research design, nature and sources of data, collection procedure, data collection instrument and quantitative technique applied to analyze data.

3.2 esearch Design

Research design is the plan, structure and strategy of investigation conceived so as to obtain answer to research questions and to control variance" (wolf and pant; 1999,50). Research design of this study is descriptive as well as analytical. This study is an examination and evaluation of inventory management practices with in the operation of Nepalese Newspaper Company (NNPC). The information and data are presented in an analytical method but the qualitative aspects of the research such as effectiveness of inventory management views personal of the enterprises and the theoretical dimensions are explained in words, wherever necessary.

It is a plan, structure and strategy of investigation so as to obtain answer of question and to control variance. To achieve the goal of study, the study has used the data from secondary as well as primary sources. So the result is depending upon the reliability of data. It conclude all the process of collection, verify and evaluate the past evidence systematically and objectively to reach in conclusion. Some financial and statistical tools are used to examine in fact and figure in this study.

3.3 Source of Data

For the reliability and effectiveness of research work, true and fact information's are necessary because information's are the life blood for any research work to achieve objective of the study. Primary data are collected through the personal observation and interview with officials.

Secondary data have been collected from the published and unpublished documents, books, newspaper, record keeping books, records and financial statement like balance sheet and profit and loss account of publication houses.

3.4 Population and Samples

There are so many publication registered as per rule of Nepal Government. These publications will be taken as population of the study. Among them, the objective of this study is to analyze the inventory management and control system of Gorkhapatra Corporation, Kantipur Publication Pvt. Ltd and Kamana Prakashan Samuha Pvt. Ltd. on the basis of well known reputation forward some measures to improve the situation. The methodology which has been used in this study consists of research design, nature and source of data gathering procedure and analytical tools used etc.

3.5 Data Gathering Procedure

Secondary data are directly obtained from various sources mention above. Specially, to obtain data form officials records, the researcher has to visit the corporation frequently and get it from the records for primary data the additional required information collected form various officials were selected for personal interview. Questionnaire distributed to the Executive marketing, Executive finance and storekeeper. All the gathered data have been used to need requirement of this study. The questionnaires include yes/no, tick mark as well as fill in the blank. Questionnaires were understood or not by the respondents, for check questionnaires were distributed to one Newspaper Publication. As positive response received questionnaire distributed to rest of the corporations.

3.6 Analytical Tools used

The study is basically conducted on inventory management area. So, inventory related data are used for drawing conclusion. To draw the conclusion, data collected from various sources are managed, analyzed, present in proper table various tools are used for analyzing and interpreting those collected data such as accounting and statistical tools. To analyze effectiveness of inventory management the following types of tools are implemented.

3.6.1 Accounting tools

A. Economic Order Quantity (EOQ):– The economic order quantity is that inventory level, which minimizes the total ordering and carrying cost. It attempts to establish the most economic balance between the carrying cost and ordering cost it determine the quantities to be ordered.

The basic objectives of the techniques are to determine the optimal order size to be placed on the basis of usage, ordering costs and carrying costs.

The mathematical formula for calculation of EOQ is

$$EOQ = \sqrt{`2AO/C}$$

Where,

A = Annual usage in units.

O= Ordering cost per order.

C= Carrying cost per unit.

B. ABC Analysis: – The term ABC is known as always better control. The ABC model suggest to classify inventories in to 3 categories, " A" for high value inventories and would be under the highest control "C" for low value inventories and should be under simple control and "B" for average inventories are require reasonable attention management.

C. Re-order Level (ROL) :– ROL refers to the level at which new orders the placed to replace low stock New supplies will be received before the stock reaches the minimum level the following formula is used to calculate Re-order level.

Here, Re-order Level = Lead time x Average uses ± safety stock

Or

Re-order Level = Minimum Level± Lead time x Daily Consumptions

D. Safety Stock: – Safety Stock is a buffer to meet some on unanticipated increase in usage. In order to guard against the stock out, the firm may maintain a safety stock. It is difficult to predict or forecast accurate usage and lead-time because of the time is uncertain. The demand of inputs may fluctuate from day to day or week to week.

Safety Stock = Daily Consumption x Lead time

Daily Consumption = Annual requirement/Days in a year.

E. Lead–Time: – It is a time span between first order and the second order. It is calculated as follows.

Cycle time: – Days in year/A/EOQ

Where, A= Annual requirement, EOQ= Economic order Quantity

These are 365 days in a year.

3.6.2 Statistical Tools

Coefficient of Correlation

This analysis identifies and interprets the relationship between two or more variables. In this case of highly correlated variables, the effect on one variable may be effect on other correlated variables. Under this topic, Karl person's coefficient has been used to find out the relation between the different variables. The formula for computing Karl person's correlation coefficient (r) using direct method is as follows.

$$r = \frac{N.\sum UV - \sum U.\sum V}{\sqrt{N.\sum U^2 - (\sum U)^2}\ \sqrt{N.\sum V^2 - (\sum V)^2}}$$

X= Dependent Variable,

Y= Independent Variable

r= Correlation Coefficient,

N= No of time period.

CHAPTER – IV

PRESENTATION AND ANALYSIS OF DATA

The main objectives of this research is to examine the existing position of inventory management system of Nepalese newspaper corporations on the basis of the analysis and diagnosis of the collected historical data and provide the best suggestion and recommendation for the future improvement of inventory management control system of the Nepalese newspaper corporation.

Now in this chapter, the presentation and analysis of data are collected mostly from the corporation. The available data are analysis according to the deterministic on well as probabilistic model or technique on the requirement by the study so as to make best tip of the real situation for the Nepalese news paper corporations.

4.1 PURCHASEING CYCLE

Purchase is the first important function of inventory management in any corporation. The quantity of purchasing raw materials directly affects the investment of inventory and cost associated with inventory. This ultimately affects the profit of corporation. In NNPC EOQ model of inventory management is not appropriate method in practice. All raw materials are not available in local market. GPC, KPL and KPS purchase its raw materials by tender or others method.

NNPC need regular supply of different types of raw materials for continuous publication. Required raw materials for the corporation are purchase by using following purchase procedure.

- **Collection of Requisition: -** In NNPC purchasing manger of the corporations collects the purchase requisition slip from the store department.
- **Decision for Purchase:** - On the receipt requisition, the purchase department decides what, when and how much to purchase without applying scientific inventory model.
- **Selection of Supplier: -** For the selection of suppliers bids of tenders should be inviting for listed suppliers on the studying the terms of supply, quality and price of goods suppliers are selected. Suppliers should be selected out of bidders or tenderizers. Newsprint, aluminum sheet, film sheet and chemicals are imported from foreign market. Stationary and others are purchases from local market.
- **Purchase Order: -** After selection of the bidders or tenderizers suppliers. A purchase order is prepared by the purchase department and sent to the vender authorizing him to supply a specified quantity and quality of materials at the stipulated terms, at the time and place mentioned in it.
- **Receiving and Inspecting Materials: -** When materials are arrived the delivery received and checked by receiving clerk against the order by the purchasing department on checking if any discrepancy is found as regards to quality and quantity, it is immediately referred to the purchasing department to adjust discrepancy.

4.2 EOQ Analysis:

conomic order quantity is an important inventory control technique. This echnique is widely used in many countries in these days. Many organization of Nepal has been using this technique. The Gorkhapatra Corporation, Kantipur Publication Pvt. Ltd. and Kamana Prakashan Samuha Pvt. Ltd. has apply this technique. It is tried to find out the Economic order quantity (EOQ) of each item with the help of their data. The data have been collected for five years starting from 2060/61 to 2065/66.

Table 4.1

Position and Utilization of Newsprint

Fiscal Year	2062/63			2063/64			2064/65			2065/66			2066/67		
	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS
Annual Requirement(MT)	764	910	750	620	950	800	900	1100	900	1100	1300	1175	1200	1350	1200
Cost per metric ton (In RS.000)	39	40	39	42	45	40	45	48	42.2	59.5	50	45	64.05	50	48
Per order Quantity (MT)	350	400	350	300	300	400	450	550	300	350	400	500	400	450	400
No of order placed with in a year	2	2	2	2	3	2	2	2	3	3	3	2	3	3	3
Total or - dering cost per order	1813283	1877000	1666000	1678000	2023750	1737200	2424500	2160700	1788000	439000	2440700	1899000	459000	2382700	201200
Total carrying costPer MT	1165.27	757.14	760.67	1360	889.68	793.75	1328.78	989.09	864.78	1319.39	1036.41	915.53	1619.17	1074.07	978.33
EOQ (in MT)	1542	2124	1812.5	1237	2079	1871	1812	2192	1929	855	2474	2207	825	2395	2221.6
Re-order point (In MT)	125	125	103	102	130	110	148	151	124	105	107	97	115	111	99

(Source Annex- 1)

From above table 4.1 shows that above three publications have fluctuating and increasing trend in annual requirement of newsprint. EOQ is greater than annual requirement of newsprint of three publications. Therefore orders should be placed up to its annual requirement at a time. So that various expense can be minimized. No of orders placed with in a year for three publication houses are almost same i.e. 2 or 3 times. Ordering cost of KP Pvt. Ltd is higher than GPC and KPS Pvt. Ltd. In the same way carrying cost of GPC is higher than KP Pvt. Ltd and KPS Pvt. Ltd. EOQ of KP Pvt. Ltd. is greater than GPC and KPS Pvt. Ltd. Re-order point of three publications have fluctuating trend. Comparatively it is seemed that Re-order point of KP Pvt. Ltd is higher than GPC and KPS Pvt. Ltd. Therefore KP Pvt. Ltd should minimize the lead-time.

Table 4.2

Position and Utilization of Ink

Fiscal Year	2062/63			2063/64			2064/65			2065/66			2066/67		
	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS
Annual Requirement(KG)	10100	10000	9000	9800	12000	10200	9460	12800	11000	10500	13000	11800	10800	13500	12300
Cost per Kg (In RS.000)	165	190	180	180	220	200	200	230	200	250	250	230	267	250	235
Per order Quantity (KG)	2500	2500	3000	2500	4000	3000	2500	3200	3500	3500	4300	6000	5400	4500	4100
No of order placed with in a year	4	4	3	4	3	3	4	4	3	3	3	2	2	3	3
Total or - dering cost per order	29773	95400	70000	22932	104723	78038	24596	118250	89700	9800	133100	99960	10000	141491	108900
Total carrying costPer KG	7.40	7.95	6.92	7.71	7.94	7.11	8.24	7.98	7.36	9.038	8.25	7.92	9.32	8.34	8.13
EOQ (in KG)	9015	15492	13493.7	7635	17792	14963.5	7515	19477	16374.5	4772	20480	17258.6	4814	21402	18152
Re-order point (In MT)	830	685	617	806	822	699	778	877	754	863	891	808	888	1130	845

(Source Annex- 1)

From above table 4.2 shows that annual demand of ink in KP Pvt. Ltd is higher than GPC and KPS Pvt. Ltd. In above three publications ink should order according to EOQ to minimize the total cost. No of orders placed with in a year for three publications is not same so, per order quantity of ink in GPC, KP Pvt. Ltd. and KPS Pvt. Ltd is in fluctuating way. Ordering cost of KP Pvt. Ltd is higher than GPC and KPS Pvt. Ltd. In the same way carrying cost of KP Pvt. Ltd is lesser than GPC and KPS Pvt. Ltd. EOQ of KP Pvt. Ltd. is greater than GPC and KPS Pvt. Ltd. Re-order point of KP Pvt. Ltd is higher than GPC and KPS Pvt. Ltd. It is seemed that lead time of three publications is same i.e. 30 days or 25 days. Daily consumption of Ink in KP Pvt. Ltd. is higher than GPC and KPS Pvt. Ltd.

Table 4.3

Position and Utilization of Film Sheet

Fiscal Year	2062/63			2063/64			2064/65			2065/66			2066/67		
	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS
Annual Requirement(Sheet)	11000	12200	11100	11500	13000	11900	12000	13700	12200	14000	14200	13000	14000	15500	13900
Cost per sheet (In RS)	250	370	280	320	400	300	350	500	380	490	550	400	490	600	450
Per order Quantity (Sheet)	5000	6000	5500	3000	4000	3500	6000	4500	6100	7000	7100	6500	7000	7500	7000
No of order placed with in a year	2	2	2	3	3	3	2	3	2	2	2	2	2	2	2
Total or - dering cost per order	42250	59800	46900	59500	72240	53000	67150	94390	59000	37000	106200	71200	40125	120000	78200
Total carrying costPer Sheet	10.35	8.47	6.37	10.47	9.49	7.37	13	10.08	7.85	13.09	10.4	8.64	8.40	7.31	6.20
EOQ (in Sheet)	10519	14128	12959	11499	148	1407	12913	16508	13976	8945	17298	15356	9264	18913	15862
Re-order point (In Sheet)	1507	1337	1216	1418	1247	1141	1644	1501	1337	1918	1556	1425	1918	1699	1523

(Source Annex- 1)

From above table no 4.3 shows that annual demand of film sheet in KP Pvt. Ltd is higher than GPC and KPS Pvt. Ltd. In KP Pvt. Ltd and KPS Pvt. Ltd EOQ is greater than annual demand of film sheet but in GPC EOQ is in fluctuating way. In FY 2061/62, FY064/65, FY065/66 EOQ is smaller than annual demand and in FY 062/63, FY 063/64 EOQ is greater than annual demand. Therefore orders should be placed up to its annual requirement at a time so that various expenses can be minimized. No of orders placed with in the year for three publications is same but change in FY 062/63. Ordering cost of KP Pvt. Ltd is higher than GPC and KPS Pvt. Ltd. Carrying cost of KPS Pvt. Ltd is smaller than GPC and KP Pvt. Ltd. Re-order point of above three publications is almost same.

Table 4.4

Position and Utilization of Aluminum Sheet

Fiscal Year	2062/63			2063/64			2064/65			2065/66			2066/67		
	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS	GPC	KP	KPS
Annual Requirement(Sheet)	5500	9000	6500	6000	11500	6800	6200	12600	7000	6500	14000	7500	7000	15000	8000
Cost per sheet (In RS)	200	200	180	240	210	195	250	220	210	270	230	225	300	250	225
Per order Quantity (Sheet)	1800	3000	2100	2000	5750	3400	3100	6300	3500	3250	7000	3750	3500	5000	2500
No of order placed with in a year	3	3	3	3	2	2	2	2	2	2	2	2	2	3	3
Total or - dering cost per order	33540	47000	37000	36536	59000	41600	42835	65050	46500	45100	77600	52100	47200	86200	57200
Total carrying costPer Sheet	10.36	5.78	6.10	10.9	6.29	6.60	11	7.30	7	11.13	7.48	7	11.21	7.9	7.3
EOQ (in Sheet)	5968	12098	8880	6342	14688	9259	6949	14985	9620	7258	17043.5	10503	7678	18093	11189
Re-order point (In Sheet)	602	740	534	657	945	559	680	1036	575	712	1151	617	767	1233	658

(Source Annex- 1)

From above table 4.4 shows that annual demand of Aluminum Sheet in KP Pvt. Ltd. is higher than GPC and KPS Pvt. Ltd. Above all organizations should order according to EOQ at a time, which enables to minimize the total cost. No of order placed with in the year for all organization is almost same i.e.2 or 3 times. Ordering cost of KP Pvt.Ltd is higher than GPC and KPS Pvt. Ltd. Carrying cost of GPC is highest than KP Pvt. Ltd. and KPS Pvt. Ltd. Lead time of GPC should be minimized. Lead-time of KP Pvt. Ltd and KPS Pvt. Ltd is same in all year.

Item 'B' Chemicals:-

Chemicals have been categorized under the item 'B' i.e. moderate important items in the sense of value and weight in above three publications. Under the head of chemicals there is much kind of chemicals, which are used in the publications. Economic order quantity of each item of chemicals is not possible but the concept of EOQ must be followed while placing incurred in these chemicals. What are the cost to be incurred, what the lead-time is and what is the quantity used during the year should be considered.

The chemicals used in above three publications house are Gum Arabic, Fountain Solution, Blanket fixture, Image Remover, Negative, Acetic acid, Paper developer, Reducer roil, Phosphorus acid, Dunlop, Rubber solution, Blanket wash solution etc.

Total cost incurred for chemicals in the GPC is RS 457,000 as record in store department in the same way KP Pvt. Ltd. has kept record is RS 19, 28,000 and in KPS Pvt. Ltd has kept record RS 8, 30,000 for chemicals.

It is seemed that total expenses incurred for chemicals by KP Pvt. Ltd is higher than GPC and KPS Pvt. Ltd. Above three publications use same kind of chemicals.

Item 'C' Stationery:-

Stationary has been categorized under the item 'C' i.e. as least important item. Similar to chemicals stationary contains so many items, which cannot be treated individually. In GPC and KPS Pvt. Ltd. inventories of stationary are checked physically once in every three months to determine new order and in KP Pvt. Ltd inventories of stationary are checked physically once in every two months to determine new order. EOQ is impossible for stationeries. There is no need of keeps records and make minimum effort to control lead-time.

The stationeries used in above three publications are Tipex, Pen, Ball pen, Scale, Calculator, Pencil, Stapler, punching machine, Tape and Gum etc. The quantity of stationary require is relatively small and daily usage could not be found exactly.

According to the GPC record the total cost incurred for stationary is RS 2,090,000 in KPS Pvt. Ltd total cost incurred for stationary is RS 1,655,000 and in KPS Pvt. Ltd total cost incurred is RS 1,420,000.

It is seemed that above three publications use same kind of stationary. Total cost incurred for stationary in GPC is higher than KP Pvt. Ltd and KPS Pvt. Ltd.

4.3 ABC Analysis

The inventory can be managed by classifying them according to ABC analysis. ABC is known as Always Better Control. The firm should give maximum attention to these items of inventory whose value is the highest. Therefore the firm should classify inventories to identify which items should receive the most effect in controlling. Category A includes the most important items and recognized for more attention. Categories B include lesser importance items, and category C includes least importance items of store. This classification of items into ABC categories is based into value, usage and rate and critically of items and these variables are given due weight in categorizing the items.

According to this model, the items of inventory of NNPC are categorized as ABC on the basics value shown in table below.

Category	**Inventory item**
A	Newsprint
B	Ink
	Film Sheet
	Aluminum Sheet
	Chemicals
C	Stationary

Table: 4.5

ABC Classification of GPC

Category	Item	% of item	Total Value (RS)	% of Total Value
A	Newsprint	8.5	2,51,783,278	84.075
B	Ink Aluminum sheet Film Sheet Chemicals	84.36	45,599,294	15.23
C	Stationary	7.14	2,090,000	0.69
	Total	100	299472572	100

(Source Annex- 2)

From table 4.5 shows that Newsprint encompasses highest value in rupee in the GPC has been categorized under "A". Although, percentage of item is 8.5% but it is usage value is highest i.e.84.075% so economic order quantity should be calculated carefully. The usage rate and procurement cost should be reviewed continuously. GPC should be tight inventory control should be maintained.

Ink, Aluminum sheet, Film sheet and Chemicals are categorized under "B" Percentage of item is very high i.e. 84.36% and total value of percentage is 15.23%. Therefore, normal inventory control is exercised on this item.

Stationary has been categorized under "C" Percentage of item 7.14% and total value percentage is 0.69%. Therefore, EOQ calculation is not required. Inventories are checked physically.

Table: 4.6

ABC Classification of KP Pvt. Ltd

Category	Item	% of item	Total Value (RS)	% of Total Value
A	Newsprint	10.68	2,80,654,383	80.43
B	Ink Aluminum sheet Film Sheet Chemicals	83.12	66,618,339	19.09

C	Stationary	6.2	16,55,000	0.43
	Total	100	3,48,927,722	100

(Source Annex- 2)

From table 4.6 shows that Newsprint encompasses highest value has been categorized under "A". Although, percentage of item is 10.68% but it is usage value is highest i.e.80.43% so economic order quantity should be calculated carefully. The usage rate and procurement cost should be reviewed continuously. KP Pvt. Ltd should be tight inventory control should be maintained.

Ink, Aluminum sheet, Film sheet and Chemicals are categorized under "B" Percentage of item is very high i.e. 83.12% and total value of percentage is 19.09%. Therefore, normal inventory control is exercised over this item.

Stationary has been categorized under "C". Percentage of item 6.2% and total value percentage is 0.43%. Therefore economic order quantity calculation is not required. Inventories are checked physically.

Table: 4.7

ABC Classification of KPS Pvt. Ltd

Category	Item	% of item	Total Value (RS)	% of Total Value
A	Newsprint	9.5	2,23,040,750	82.89
B	Ink Aluminum sheet Film Sheet Chemicals	83.3	44,617,944	16.58
C	Stationary	7.2	14,20,000	0.53
	Total	100	2,69,078,694	100

(Source Annex- 2)

From table 4.7 shows that Newsprint encompasses highest value in rupee in the KPS Pvt. Ltd has been categorized under "A". Although, percentage of item is 9.5% but its usage value is highest i.e.82.89% so economic order quantity should be calculated carefully. The usage rate and procurement cost should be reviewed continuously. KPS Pvt. Ltd should be tight inventory control should be maintained.

Ink, Aluminum sheet, Film sheet and Chemicals are categorized under "B" Percentage of item is very high i.e. 83.3% and total value of percentage is 16.58%. Therefore, normal inventory control is exercised over this item.

Stationary has been categorized under "C". Percentage of item 7.2% and total value percentage is 0.53%. S0 economic order quantity calculation is not required. Inventories are checked physically.

4.4 Trend Analysis

In this section the study tried to explain the trend of Newsprint, Ink, Film sheet, and Aluminum sheet in different fiscal year.

1. Annual use of Newsprint.

Table: 4.8

Annual usages of Newsprint in NNPC

Fiscal Year	GPC		K .P. Pvt. Ltd		K. P. S .Pvt. Ltd	
	Total Purchase	%Change	Total Purchase	%Change	Total Purchase	%Change
2062/63	32499548	-	38966000	-	31486500	-
2063/64	28561000	-12%	45618950	17.07%	4372200	8.39%
2064/65	44120400	54.47%	56048700	22.86%	40546300	17.96%
2065/66	67340330	52.62%	68788033	22.72%	55849750	37.74%
2066/67	79262000	17.70%	71232700	3.55%	60786000	8.83%

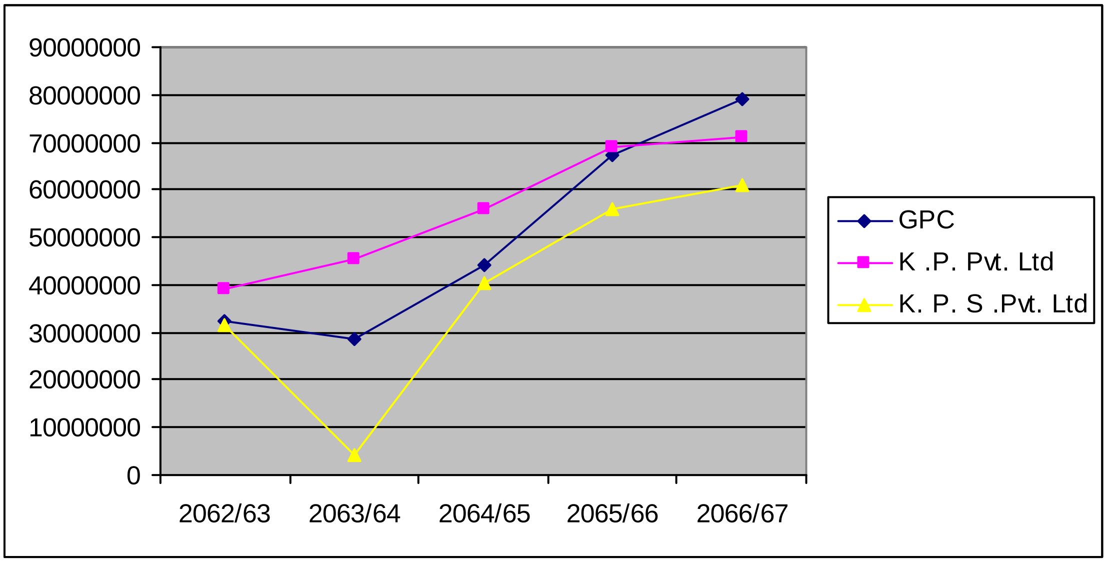
(Source: Unpublished Records of GPC, K.P. Pvt. Ltd and K.P.S. Pvt. Ltd)

From above table 4.8 shows that GPC has fluctuating trend in collection of Newsprint. The usage of Newsprint in GPC has decreased by 12% in FY 2063/64 but it is increased by 54.47%, 52.62% and 17.70% in FY 2064/65, 2065/66 and 2066/67 respectively from the base of 2062/63. On the other hand K.P.PVT.LTD and K.P.S. PVT.LTD has fluctuating and increasing trend in usage of newsprint. In K.P.PVT.LTD it is increased by 17.07%, 22.86%, 22.72% and 3.55% in fiscal year 2063/64, 2064/65, 2065/66 and 2066/67 respectively from the base of 2062/63. In

K.P.S.PVT.LTD F.Y. 2064/65 it is highly increased by 37.74% from the base of 2061/62. It is increased by 8.39%, 17.96% and 8.83% in fiscal year 2063/64, 2065/66, 2066/67 respectively from the base of 2062/63.

Graph 4.1

Annual Asses of Newsprint in NNPC



From the above graph 4.1 it is clear that above all organization have fluctuating and increasing trend in usage of Newsprint. So it is better to purchase according to planning and planning should be according to Economic order quantity.

2. Annual use of INK (Value in RS)

Table: 4.9

Annual usages of Ink in NNPC

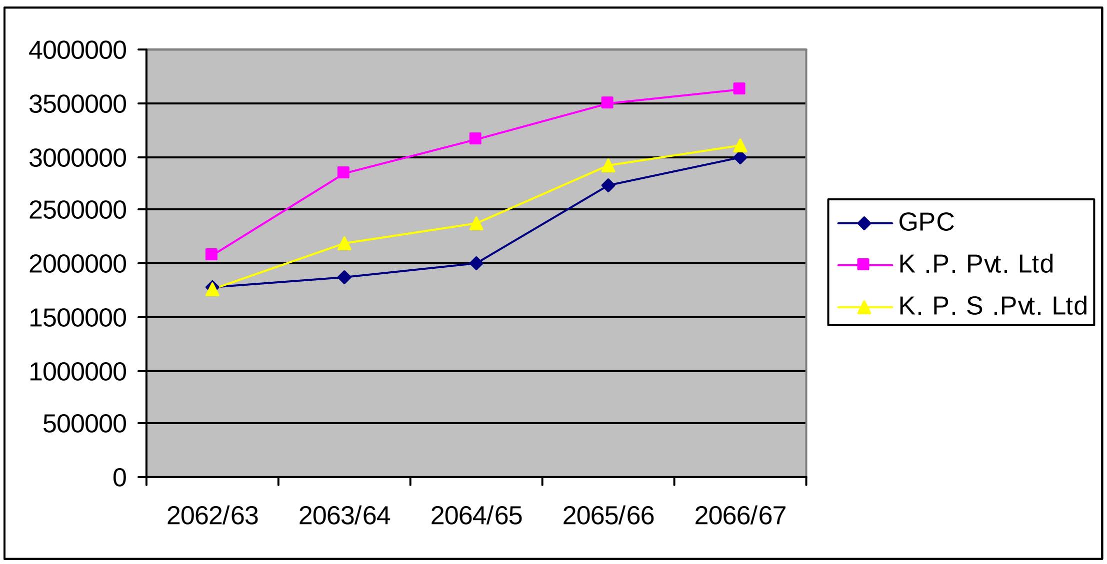
Fiscal Year	GPC		K .P. Pvt. Ltd		K. P. S .Pvt. Ltd	
	Total Purchase	%Change	Total Purchase	%Change	Total Purchase	%Change
2062/63	1771003	-	2074900		1752300	
2063/64	1862512	5.16	2840023	36.88	2190638	25.015
2064/65	1994536	12.62	3164410	52.50	2370700	35.29
2065/66	2729700	54.13	3490350	68.22	2907470	65.92
2066/67	2994332	69.075	3629116	74.90	3099457	76.88

(Source: Unpublished Records of GPC, K.P.Pvt. Ltd and K.P.S.Pvt.Ltd)

From above table 4.9 shows that above three publications have increasing rate in using of Ink. In GPC it is increased by 5.16% to 69.075% in FY 2063/64 to FY 2066/67 from the base of FY 2062/63. In KP Pvt. Ltd, it is increased by 36.88% to 74.90% in FY 2063/64 to FY 2066/67 from the base 2061/62 to. On the other hand KPS Pvt. Ltd has high increasing rate in usage of ink comparison with GPC and KP Pvt. Ltd. It is increased by 25.015% to 76.88% in FY 2063/64 to FY 2066/67 from the base FY 2062/63

Graph 4.2

Annual Assess of Ink in NNPC



From graph 4.2 found that above three publications have increasing trend in consumption of Ink. Comparatively, it is seemed that KP Pvt. Ltd. has highly increasing trend in consumption of ink. It is advised to both organizations to maintain optimum level of inventory to control the expenses on Ink.

3. Annual use of Film Sheet (Value in RS)

Table: 4.10

Annual usages of Film Sheet in NNPC

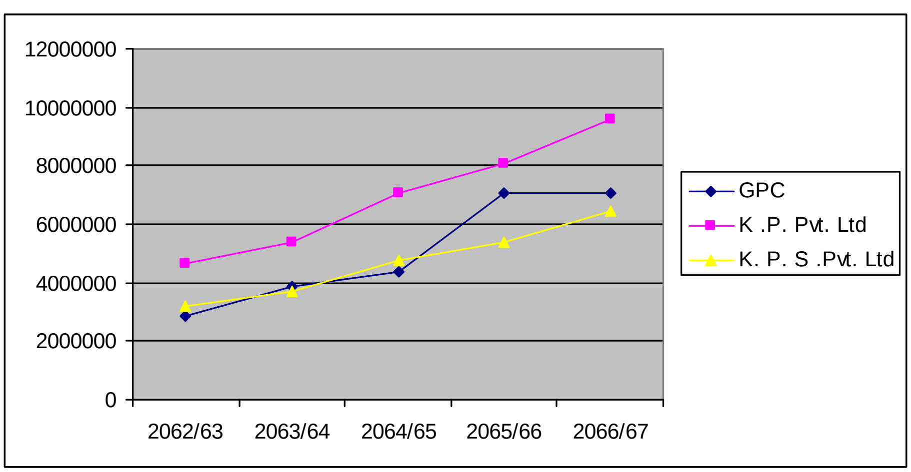
Fiscal Year	GPC		K .P. Pvt. Ltd		K. P. S .Pvt. Ltd	
	Total Purchase	%Change	Total Purchase	%Change	Total Purchase	%Change
2062/63	2884750	-	4662940	-	3223780	-
2063/64	3858500	33.75	5382390	15.43	3698800	14.73
2064/65	4392750	52.27	7074390	51.72	4784960	48.42
2065/66	7079000	145.39	8059300	72.84	5373200	66.67
2066/67	7083325	145.54	9581200	105.47	6453250	100.17

(Source: Unpublished Records of GPC, K.P. Pvt. Ltd and K.P.S. Pvt. Ltd)

From table 4.10 shows that above three publications have increasing rate in usage of film sheet. In GPC it has high increasing rate in usage of film sheet. It is increased by 33.75% to 145.54% in FY 2063/64 to FY 2066/67 from the base FY 2062/63. In KP Pvt. Ltd. it has increased by 15.43% to 105.47% in FY 2063/64 to 2066/67 from the base FY 2062/63 and In KPS Pvt. Ltd. it is increased from 14.73% to 100.17% in FY 2063/64 to FY2066/67 from the base FY 2062/63.

Graph 4.3

Annual Assess of Film Sheet in NNPC



From above graph 4.3 found that KPS Pvt. Ltd has highly fluctuating end in usage of film sheet. In other hand KP Pvt. Ltd has highly increasing end in use of film sheet comparison with GPC and KPS Pvt. Ltd. Therefore it is advised to KPS Pvt. Ltd to scan external and internal environment to avoid fluctuation.

4. Annual use of Aluminum Sheet

Table: 4.11

Annual usages of Aluminum Sheet in NNPC

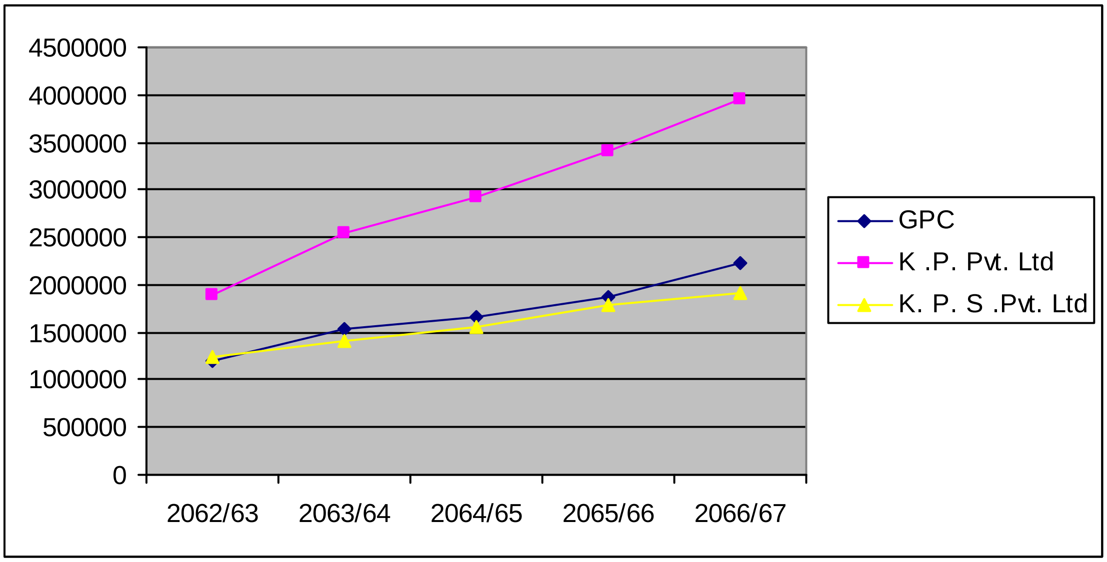
Fiscal Year	GPC		K .P. Pvt. Ltd		K. P. S .Pvt. Ltd	
	Total Purchase	%Change	Total Purchase	%Change	Total Purchase	%Change
2062/63	1190540	-	1899000	-	1246700	-
2063/64	1542136	29.53	2546300	34.086	1412510	13.30
2064/65	1661085	39.52	2929020	54.24	1565749	25.59
2065/66	1872425	57.28	3402300	79.16	1792730	43.80
2066/67	2225700	86.95	3954700	108.25	1915700	53.66

(Source: Unpublished Records of GPC, K.P. Pvt. Ltd and K.P.S Pvt. Ltd)

From table 4.11 found that above three publications have increasing rate in usage of Aluminum Sheet. In GPC it is increased by 29.53% to 86.95% in FY2063/64 to FY 2066/67 from the base FY 2062/63. In KP Pvt. Ltd it is increased by 34.086 to 108.25% in FY 2063/64 to 2066/67 from the base FY 2062/63. In other hand in KPS Pvt. Ltd it is increased from 13.30 in FY 2063/64 to 53.66 to FY 2066/67 from the base FY 2062/63.

Graph 4.4

Annual Assess of Aluminum Sheet in NNPC



From graph 4.4 shows that KPS PVT. Ltd. has fluctuating start in usage of Aluminums Sheet. It is seemed that KP PVT. Ltd. has highly increasing trend in consumption of Aluminum Sheet Comparison with GPC and KPS Pvt. Ltd. Therefore it is advised to both organizations to control its expenses on Aluminum Sheet by ordering option level of inventory.

4.5 Ratio Analysis

Financial analysis is an evaluation of firm's financial performance and its prospects for the future. Financial statement analysis involves the calculation of various ratios. In mathematics a ratio is the relationship between two quantities figures. The ratio analysis is the financial tool by which the financial strength and weakness are measured by relating two accounting data.

1 Inventory Turnover Ratio (ITR)

A ratio which is use to measure the efficiency of sales of an organization is termed as inventories turnover ratio. Some time it is also called stock turnover ratio or stock velocity ratio. Finished goods inventory is the cushion between sales and purchase for non-manufacturing organization. Level of inventory depends upon sales and purchase of the goods of the corporation.

$$\text{Inventory Turnover Ratio (ITR)} = \frac{\text{Cost of Goods sold}}{\text{Average Inventory}}$$

Where, Cost of goods sold (CGS) = Opening Stock + Purchase – Closing Stock

Average inventory (AI) = Opening Stock + Closing Stock / 2

Table 4.12

Showing Inventory Turnover Ratio

Fiscal Year	GPC			K.P. Pvt. Ltd			K.P.S. Pvt. Ltd		
	GGS	AI	Ratio	GGS	AI	Ratio	GGS	AI	Ratio
2062/63	113564258	16880700	6.73	280378316	19438000	14.42	108564250	15155000	7.16
2063/64	156583400	18538000	8.44	260797722	19880700	13.12	121040200	16958875	7.14
2064/65	167525340	18509875	9.05	293779335	20774280	14.14	146583000	17552570	8.35
2065/66	171520222	19809000	8.65	312662424	21662000	14.43	162535250	18802500	8.64
2066/67	179583441	21205231	8.46	323668357	22884120	14.14	178540000	20985231	8.50

(Source: Unpublished Records of GPC, KP Pvt. Ltd and KPS Pvt. Ltd)

From table 4.12 found that above three publications have fluctuating inventory Turnover ratios. In GPC FY 2062/63, turnover is low 6.73 while maximum is 9.05 in 2064/65. In KP Pvt. Ltd FY2063/64, turnover is low 13.12 while maximum is 14.43 in 2065/66. In KPS Pvt. Ltd FY 2063/64 turnover is low while maximum is in 8.64 in 2065/66. Comparatively, inventory turnover ratio in KP Pvt. Ltd. is greater than GPC and KPS Pvt. Ltd. It means more inventories are kept in the stock, unnecessary investment tied up on it.

2. Inventory Holding Days (IHD)

Inventory holding days is the time period in which the company holds the average inventory. Holding inventory for long period increasing holding costs on the other hand, holding inventory for short period may create stock out situation.

$$DIH = \frac{\text{Average inventory (AI)}}{\text{Cost of Goods sold(CGS)}} \times 365 \text{ days}$$

Table:-4.13

Inventory Holding Days

Fiscal Year	GPC			K.P. Pvt. Ltd			K.P.S. Pvt. Ltd		
	GGS	AI	Ratio	GGS	AI	Ratio	GGS	AI	Ratio
2062/63	113564258	16880700	6.73	280378316	19438000	14.42	108564250	15155000	7.16
2063/64	156583400	18538000	8.44	260797722	19880700	13.12	121040200	16958875	7.14
2064/65	167525340	18509875	9.05	293779335	20774280	14.14	146583000	17552570	8.35
2065/66	171520222	19809000	8.65	312662424	21662000	14.43	162535250	18802500	8.64
2066/67	179583441	21205231	8.46	323668357	22884120	14.14	178540000	20985231	8.50

(Source: Unpublished Records of GPC, KP Pvt. Ltd and KPS Pvt. Ltd)

From table 4.13 the GPC holds average inventory 44.62 days in regards of mean in five fiscal years. The minimum holding days is 40.37 days in 2064/65 and maximum holding days is 54.25 days in 2062/63. This is more than average holding period 44.62 days. The K.P Pvt. Ltd holds average inventory 26days in regards of mean in five fiscal years. The minimum holding days is 25.29 days in 2065/66 and maximum holdings days is 27.82 days in 2063/64 and the KPS Pvt. Ltd holds average inventory 46.22 days in regards of mean in five fiscal years. The minimum holding days is 42.12 days in 2065/66 and maximum holding days is 51.14 days in 2063/64. The mean of KPS Pvt. Ltd. is greater than GPC and KP Pvt. Ltd. Thus it is advised to KPS Pvt. Ltd to maintain moderate inventory holding days.

3. Inventory to sales Ratio.

Inventory to sales ratio means percentage of inventories in comparison to sales volume. It helps to evaluate the efficiency of the organization in term of inventory to sales percentage. If net sales are increases, the net sales with low inventories level generate low ratio and vice versa. The low ratio indicates good inventories management where sales are generated by keeping minimum inventories.

$$\text{Inventory to sales ratio} = \frac{\text{Inventory (I)}}{\text{Net Sales(S)}} \times 100$$

Table 4.14

Inventory to sales Ratio

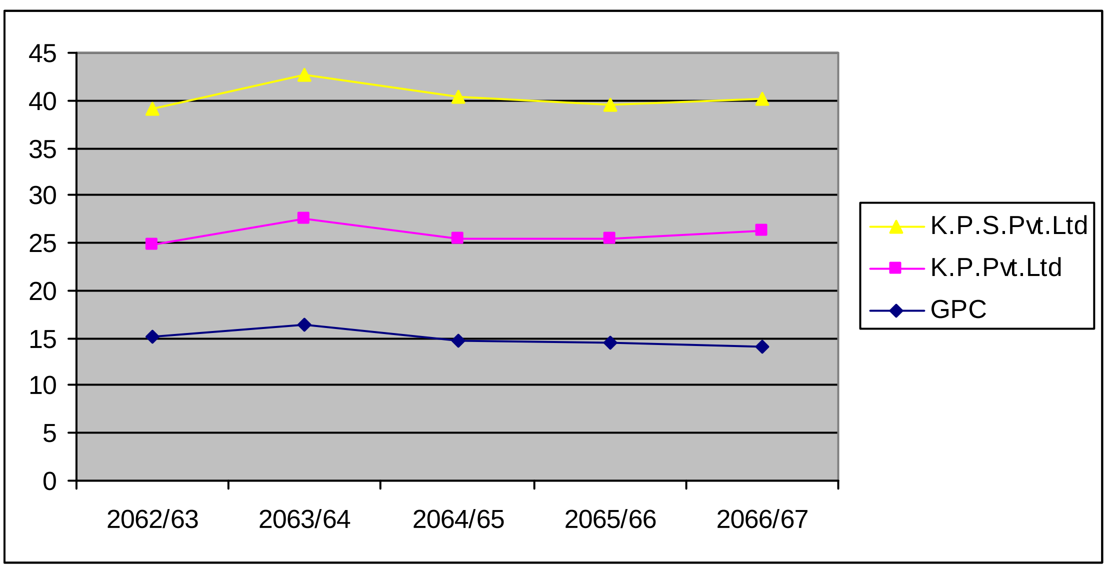
Fiscal Year	GPC			K.P. Pvt. Ltd			K.P.S. Pvt. Ltd		
	Inventory	Sales	Ratio	Inventory	Sales	Ratio	Inventory	Sales	Ratio
2062/63	33761400	221737365	15.23	32876600	340426400	9.65	30310000	212778520	14.24
2063/64	37076600	227021800	16.33	39761400	351836000	11.3	34765600	229885112	15.12
2064/65	37019750	251817458	14.70	41548560	387969870	10.7	36183240	240581250	15.03
2065/66	39618000	273320158	14.50	44324000	404456340	11.0	39976142	285503215	14
2066/67	42410462	302816547	14	51768240	425110000	12.18	42232100	301812549	13.95

(Source: Unpublished Records of GPC, KP Pvt. Ltd and KPS Pvt. Ltd)

Above table 4.14 shows the inventories to sales ratio of 5 years. The lower ratio of GPC is 14 % in 2065/66, while higher ratio is 16.33% in 2063/64. The lower ratio of KP Pvt. Ltd is 9.65% in 2062/63, while higher ratio is 12.18% in 2066/67. In KPS Pvt. Ltd. the lower ratio is 13.95% in 2066/67, while higher ratio is 15.12% in 2063/64.

Graph 4.5

Inventory to Sales



From graph 4.5 shows three publications have fluctuating inventory to sales ratio. Comparatively KP Pvt. Ltd. is fluctuated than GPC and KPS Pvt. Ltd which shows that KP Pvt. Ltd has not uniform inventory management.

4.5 Correlation Analysis

Degree of relationship between two or more than two variables is called correlation. Degree of relation ship between two variables is called simple correlation. Correlation Analysis is the statistical tools that we can use to describe the degree to which one variable is linear to other variables. Two or more variable are said to be correlated if change in the other variables. In correlation analysis, only one variable is treated as dependent and one or more variables are treated as independent.

Table 4.15

Correlation Analysis of Sales and inventory

Value in RS 0,000,000

Description	GPC		K.P. Pvt. Ltd		K.P.S. Pvt. Ltd	
	Inventory	Sales	Inventory	Sales	Inventory	Sales
Mean	3.79	25.53	4.34	38.42	3.66	25.41
Standard deviation	0.2912	3.007	0.8539	3.1738	0.4142	3.391
Coefficient of Variation (C.V)	7.675 %	11.78%	19.675%	8.31%	11.317%	13.35%
Coefficient of Correlation (r_{xy})	0.88		0.90		0.91	
Probable Error (P.E)	0.068		0.0573		0.0232	

Above table 4.15 shows that arithmetic mean of inventory and sale in KP Pvt. Ltd. is higher than GPC and KPS Pvt. Ltd. S.D of inventory is less than sales in above three publications, which indicates that inventory is high variability nature than sales. C.V of inventory and sales of KPS is not high fluctuated while C.V of inventory and sales of GPC and KP Pvt. Ltd is high fluctuated. Coefficient of correlation between inventory and sales is positive in three organizations. Since r_{xy} is greater than P.E. in the organizations. Sales will go on the same direction of inventory cost.

4.7 Analysis of Primary data :

The Primary data gives the accurate information of the company. The data are collected through structured questionnaire to the entire mentioned respondent. Structured questionnaire encircled 12 fixed questions like Yes / No, option based and opinion based. Questionnaire method has been used to analysis the respondent's attitude on the companies inventory analysis and its impact to the companies overall performance. The numbers of structured questions are put up by means of 30 copies of questionnaire. The questionnaires were forwarded to the different level of respondent of the sample companies and the respondent's views are presented below. The questionnaires are shown in Annex 4. The data which is shown combined of three publications in the tables.

4.7.1 Know the Lead-time

When 30 persons were asked whether they know about the lead time, the question was "Do you know about the lead time?" and the option are "Yes", "No" and 'Partially Yes".

Table 4.16

Know the Lead-time

S. No	Particular	Frequency	Percent (%)	Cumulative Percent
1	Yes	15	50	50.0
2	No	10	33.3	83.3
3	Partially	Yes	5	16.7
	Total	30	100	

(Sources: Primary Survey)

The above table 4.16 shows that 15 persons (50%) responded "yes", 10 persons (33.3%) replied "No" and 5 persons (16.7%) answered "Partially Yes".

4.7.2 Percentage of Purchase Price spends of Carrying Cost.

When 30 persons were asked whether they know about the carrying cost, the question was "What percentage of purchase price does your company spend as carrying cost?" and the option are Below 5%, Above 5% and Below 10% and Above 10%

Table 4.17

Percentage of Purchase Price spends of Carrying Cost

S. No	Particular	Frequency	Percent (%)	Cumulative Percent
1	Below	11	36.7	36.7
2	Above 5% and below 10%	13	43.3	80
3	Above 10%	6	20	100
	Total	30	100	

(Sources: Primary Survey)

The above table 4.17 shows that 11 persons (36.7%) responded "Below 5%", 13 persons (43.3%) replied "Above 5% and below 10%" and 6 persons (20%) answered "Above 10%".

4.7.3 Know about the Goods in Transit

When 30 persons were asked whether they know about the goods in transit, the question was "Do you know about the goods in transit?" and the option are "Yes" and "No" .

Table 4.18

Know about the Goods in Transit

S. No	Particular	Frequency	Percent (%)	Cumulative Percent
1	Yes	15	50	50.0
2	No	15	50	100
	Total	30	100	

(Sources: Primary Survey)

he above table 4.18 shows that 15 persons (50%) responded "Yes", 15 persons (50%) replied "No".

4.7.4 EOQ is the best Method to Manage the Inventory

When 30 persons were asked whether they know about best method to manage the inventory, the question was "EOQ is the best method to manage the inventory in each company?" and the options are "Agree", "Partially agree" and "Disagree".

Table 4.19

EOQ is the best Method to Manage the Inventory

S.No.	Particulars	Frequency	Percent (%)	Cumulative Percent
1	Agree	10	33.3	33.3
2	Partially agree	11	36.7	70.0
3	Disagree	9	30.0	100
	Total	30	100	

(Sources: Primary Survey)

The above table 4.18 shows that 10 Persons (33.3%) answered "Agree", 11 Persons (36.7%) replied "Partially agree" and 9 Persons (30%) respondent "Disagree"

4.7.5 Group of Company Lie

When 30 persons were asked whether they know about the company, the question was "In your opinion, in which group does your company lie?" and the options are "Aggressive"' "Moderate"' "Conservative" and "I don't know".

Table 4.20

Group of Company Lie

S.No.	Particulars	Frequency	Percent (%)	Cumulative Percent
1	Aggressive	10	33.3	33.3
2	Moderate	11	36.7	70.0
3	Conservative	4	13.3	83.3
4	I don't know	5	16.7	100
	Total	30	100	

(Sources: Primary Survey)

In above table 4.19 shows 10 Persons (33.3%) answered Aggressive, 11 Persons (36.7%) Moderate, 4 persons (13.3) Conservative, 5 persons (16.7%) I don't know.

4.7.6 Inventory Turnover Ratio is better to Company

When 30 persons were asked whether they know about the higher inventory ratio, the question was "Is the higher inventory turnover ratio always better to each company?" and the option are "Yes", "No" and 'Partially Yes" and "I don't know".

Table 4.21

Inventory Turnover Ratio is better To Company

S.No.	Particulars	Frequency	Percent (%)	Cumulative Percent
1	Yes	7	23.3	23.3
2	No	10	33.3	56.7
3	Partially	Yes	8	26.7
4	I don't know	5	16.7	100
	Total	30	100	

(Sources: Primary Survey)

The above table 4.20 shows that 7 persons (23.3%) responded "yes", 10 persons (33.3%) replied "No", 8 persons (26.7%) answered "Partially Yes" and 5 Persons (16.7) responded I don't know.

4.7.7 Importance of Safety Stock to Manufacturing Company

When 30 persons were asked whether they know about the safety stock, the question was "How is importance of safety stock to a manufacturing company in Nepalese context?" and the options are "Very important'", "Important", "Less important" and "No important".

Table 4.22

Importance of Safety Stock to Manufacturing Company

S.No.	Particulars	Frequency	Percent (%)	Cumulative Percent
1	Very important	6	20	20
2	Important	7	23.3	43.3
3	Less important	9	30	73.3
4	No important	8	26.7	100
	Total	30	100	

(Sources: Primary Survey)

The above table 4.21 shows that 6 Persons (20%) responded "Very important", 7 persons (23.3%), responded "Important", 9 persons (30%) responded "Less important", 8 persons (26.7%) replied No important.

4.7.8 No of Orders help to reduce Company's Inventory Cost

When 30 Persons were asked whether they know about the reduce company's inventory cost, the question was "Does the no of orders help to reduce company's inventory cost?" and the options are "Yes", "No" and "I don't know"

Table 4.23

No of Orders help to Reduce Company's Inventory Cost

S.No.	Particulars	Frequency	Percent (%)	Cumulative Percent
1	Yes	12	40%	40
2	No	9	30%	70
3	I don't know	9	30%	100
	Total	30	100	

(Sources: Primary Survey)

The above table 4.22 shows that 12 persons (40%) responded "yes", 9 persons (30%) replied "No" and 9 Persons (30%) responded I don't know.

4.7.9 Concept of Inventory Management

When 30 persons were asked whether they know about the inventory management, the question was "The concept of inventory management is concerned with.......... "And the options are "Raw material", "Work in progress", Finished goods", "All of above", and "None of above".

Table 4.24

Concept of Inventory Management

S.No.	Particulars	Frequency	Percent (%)	Cumulative Percent
1	Raw material	7	23.3	23.3
2	Work in progress	6	20	43.3
3	Finished goods	8	26.7	70
4	All of above	6	20	90
5	None of above	3	10	100
	Total	30	100	

(Sources: Primary Survey)

The above table 4.23 Shows 7 persons (23.3%) answered "Raw material", 6 persons (20%) answered "Work in progress", 8 Persons (26.7%) responded "Finished goods", 6 Persons (20%) responded "All of above" and 3 Persons (10%) replied "None of above".

4.7.10 Concept of EOQ to reduce Inventory Cost

When 30 Persons were asked whether they followed the concept of EOQ, the question was "Are you follow the concept of EOQ to reduce inventory cost" and the options are "Yes", "No"

Table 4.25

Concept of EOQ to reduce Inventory Cost

S.No.	Particulars	Frequency	Percent (%)	Cumulative Percent
1	Yes	15	50%	50
2	No	15	50%	100
	Total	30	100	

(Sources: Primary Survey)

From table 4.25 shows 15 persons (50%) answered "Yes", 15 persons (50%) answered "No".

4.8 Major findings of the study

From the analysis of various data collected by primary and secondary sources and on the basis of observation and discussion. The following major findings have been drawn.

4.8.1 Major Findings From Secondary Data

Secondary data with the help of different financial and statistical tools was used to analyze. On the basis of data presentation and analysis some important findings of the study and summarized below.

- ♦ The inventory can be managed by classifying them according to ABC analysis in all NNPC. Those items that have higher usages value than other have to be given precise control with less control applied over items having low usage value, when this type of classification is made. It will be easier for the NNPC to know which items in inventory have higher precise control over the items inventory can be applied.

- The NNPC is not followed the method of inventory management technique i.e. EOQ model, Re-order level, Safety stock and ABC analysis.
- Annual usage of raw materials are highly fluctuated seem in the fiscal year 2062/63 to 2066/67 but normal working days are same and an annual usage expenses in own materials is also highly fluctuated.
- Inventory expensed have increased due to indiscriminate storing and carelessness in the storing of inventories in GPC than other two corporations.
- The NNPC need to procedure necessary raw materials 2-4 times in year instead of one time in a year.
- Book keeping record system of inventory is not scientific in GPC but other two corporation systems are scientific but not actual system follows.
- Correlation Analysis has shown the positive relationship between the inventory cost and profit.
- Kantipur Publication Pvt. Ltd and Kamana Prakashan Samuha Pvt. Ltd has mainly branches office scattered over the nation and decision making process is decentralizes while Gorkhapatra Corporation has been centralized only in kingdom . Therefore its decision making progress is centralized.

4.8.2 Major Findings from Primary Data

From the opinion survey of various respondent's i.e. Top level, Middle level, and Lower level officials, the following findings has been drawn.

- The political crises and especially Nepal Banda, Strikes and lockout organized by different pressure groups directly affect the company and its inventory management while geographical barriers and transportations problems are other problems faced by NNPC.
- The trend of demand and supply of raw materials is inventory.
- There is no systematic and scientific system to determine ordering and carrying cost.

- The companies are using the bin card technique to control the store.
- The basic motive for holding inventory management in organization is transaction motives and precautionary motives.
- For the purchase of raw materials mainly the corporation used two processes i.e. direct collection and collection through agent by global tender method. Now a days Gorkhapatra Corporation use Tender.
- For the quality product, the corporation purchase the main raw materials form domestic market i.e. Newsprint, Ink, Aluminum sheet and Film sheet from Korea, Singapore, Germany, Russia and Stationary from domestic market.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

Nepalese public enterprises and private enterprises play vital role in socio-economic development of our country. It enjoys a strategic and vital crucial position in our country. Public enterprises as well as private enterprises are engaged in public utilities and necessities such electricity, water, transportations, communication, newspaper, magazine, drugs etc. Public enterprises provide such goods and services, which are provides by private enterprises more effectively. Public enterprises as well as private enterprises have take the responsibility of providing quality goods and services cheaply and to utilizes resources more effectively.

The present research study has been undertaken to examine, evaluate and compare the efficiency in practice of inventory management tools in Gorkhapatra Corporation, Kantipur Publication Pvt. Ltd. and Kamana Prakashan Samuha Pvt. Ltd. The study is concerned to appraise NNPC and examine what extend the corporation is applying inventory management and control system.

Inventory management is one of the most important functions of any corporation. Without effective inventory management no corporation achieve their goal. Inventory management is the most important part for NNPC. A firm cannot achieve their goal unless inventories are controlled effectively. Inventory management is concerned with production, marketing, finance etc. Inventory constitutes most significant part of current assets.

The nature of business enterprise management is the most important elements. NNPC invest the large amount of capital in the form of inventory. The objective of this study is to find out what techniques have been applied to manage the inventory and make suggestion one of quantities analysis is to help reduce cost and directly increase in profit through inventory management.

Both primary and secondary data have been collected to meet the objectives. The statistical tools like mean standard deviation, Coefficient of variation, Correlation, Regression Probable error and trend analysis are used to analyze the data. Similarly, the financial tools like financial ratio, inventory turnover ratio and inventory holding days have also been used.

The basic Things of this study is to examine the inventory management and control system as taken by NNPC. All the collected data and facts are analyzed in the base of inventory management theory with the help of ABC analysis and EOQ model with reorder quantity level. The carrying cost, ordering cost, order size, Safety stock are unsatisfactory and unscientific. NNPC is not paying much attention to the lead-time. Therefore, all these functions lead to increase total cost of the corporation.

5.2 CONCLUSION

On the basis of data analysis, observation of researchers and records of NNPC the following major conclusion is drawn It seems that the NNPC are not following any scientific tools and technique to control or manage inventory in GPC than KP Pvt. Ltd and KPS Pvt. Ltd. It is necessary to apply the theoretical and practical method in ordering cost and carrying cost. Purchase orders are done on the base of EOQ theory, safety stock and re-order point to know the demand of product and inventory.

The study focuses for the inventory management system to maintain a reasonable level of inventory. when and how much to buy is very important question because almost all the required newsprint, Film sheet, Aluminum sheets, Stationary, Chemicals, Equipment etc. are import from various countries for fulfill the proper balance of inventory. Due of lack of sufficient data models, examples and formula etc could not be used fully to ascertain the necessary operation of the all corporation. No any technique of inventory management is possible to apply to calculate one of the major question when to buy because of the lack of planning and unsystematic method of recording cost.

All corporations have faced some problems on managing proper inventories because there is uncertain about the future supply of materials due to Nepal bands, Lockouts, Strike, Geographical problems, Fluctuation of materials price etc.

Kantipur Publications Pvt. Ltd and Kamana Prakashan Samha Pvt. Ltd has many branches all over the nation and decision making, process is decentralized where as Gorkhapatra Corporation is centralized only in capital city. Therefore decision making process is centralized. Above three publications purchase raw materials from local market as well as from international market.

5.3 RECOMMENDATIONS

To achieve all the objectives of NNPC, The efficient management is essential. The management of inventories is compulsory for the better performance of the corporation.

On the basis of study the following suggestions may be recommended for consideration.

- All corporations should define its objectives clearly with regarding to its inputs and outputs separately. Also output quantities and time period should be specified.
- Purchasing plan should be prepared for different types of raw materials with the proper co-operation and co-ordination among the planning, marketing, Publishing and sales department to avoid excessive investment on inventory.
- Feasibly study, Field study and survey mobilization of available resources and historical analysis should be taken to standardize the procurement system and to control the fluctuation of raw materials collection.
- Corporation used to purchase raw materials 2-3 times in a year. So the inventories expenses increased due to high ordering and carrying cost to avoid these costs, it should purchase once a time in a year.
- The corporation should follow the ABC analysis system in systematic way.
- In order to minimize the inventory cost 'A' item should be controlled carefully and should be paid more attention than 'B' and 'C' items. 'B' lies in between 'A' and 'C' items. It requires neither careful nor simple but a moderate control system is adequate for this item.
- Corporation should adopt the method of inventory management techniques like EOQ, Safety stock and Re-order level.
- Inventory records are most essentials and valuable to produce decision on various managerial tasks. It helps to build up future strategies and assists to forecast future budgets. Therefore these organizations should keep the

inventory records up to date different filling system and computerized record system can be used to keep the inventory records. These records can also be kept in organizations management information system.

- Special workshop, Seminars and trainings etc. should be conducted among company's personal academic and management experts to light the new and revolving tools of scientific management. Academic concepts should be used in practical field of companies.
- Research and development etc. should be done by the various sectors to develop new methods and technologies that can produce better performance.
- Corporation should follow the financial tools and techniques to purchase its raw materials.
- Clear vision of top level authority should be there to solve the problems appeared in course of inventory management system and they should think in favors of the corporation.
- GPC has been failed to achieve the target concerning for selling its newspapers. Corporation should reduce their weakness and its target can be achieved by publication quality newspaper and supplying at appropriate price.
- Planning of inventory is most welcomed in the world today. So published their different types of newspapers on planned basis and attention should give for implementing better marketing strategies to take a strategic advantage of competitive world.

BIBLIOGRAPHY

Books

Adams EE and Bert JE (2000) **Production and Operation Management**, Prentice Hall of India Pvt. Ltd, New Delhi.

Bloomberj, DJ lemay.s, Hanna, JB (2002) **Logistics,** New Delhi, Prentice Hall India Pvt. Ltd

Dr. Agrawal GR (2002) **Marketing in Nepal, Fundamental Management and Strategy**, Educational Enterprises (P) Ltd, Katmandu, Nepal.

Garret L and Silver M (1986) **Production Management Analysis**, Harcourt Brace Jovanovich Inc, New York

Goel BS (1985**) Production and Operation Management**, Pragati Prakhashan, Meerut, India

Goel BS (1992) **Production and Operation Management** 6th Edition Published By KK Mittal, Pragati Prakhashan

Gupta LN (1988) **Cost Account**, Kitab Mahal, Allahabad, India Hampton JJ (1986) **Financial Decision Making**, Prentice – Hall of India Pvt. Ltd

Jain SP and KL (1995) **Cost Accounting**, Kalyani Publisher, Ludhiyana, India Jain SP and Narang KL (1993) **Financial Management Accounting**, Kalyani Publisher, New Delhi

Khan MY and Jain PK (1992) **Financial Management**, Tata Mc Graw Hill Publishing, New Delhi

Man Mohan and Goyal SN (1997) **Principal of Management Accounting**, Sahitya Bhawan Publication, Agra

Munakarmi, SP (2060) **Management Accounting**, Kathmandu, Buddha Academic Enterprises Pvt. Ltd

Munakarmi SP (2000) **Management Accounting**, Buddha Academic Publisher and Distributors Pvt. Ltd, Kathmandu, Nepal

Panday IM (1995) **Financial Management**, Vikash Publishing House Pvt. Ltd, New Delhi

Pradhan S (1996) **Basic of Financial Management**, Educational Enterprises Pvt. Ltd, Kathmandu, Nepal

Prof. Dr. Arsham H. (2000) **Inventory Control and ABC Inventory**, University of Baltimore, USA.

Regmi LK, Joshi PR, Chaudhary AK and Fago G (2003) **Production and Operation Management**, Buddha Academic Publishers and Distributors Pvt. Ltd, Kathmandu, Nepal.

Sharma N (1998) **Accounting and Auditing**, Ekta Books Distributors Pvt. Ltd, Kathmandu

Sharma RK and Gupta RK (2002) **Management Accounting**, Kalyani Publishers, New Delhi

Shrestha BP, Paudal SP, Panday LP, Regmi G, Rana S, Gupta U, Adhikari D, Koirala

MR, (2064) **Third Edition Princple of Accounting,** Buddha Academic Publishers and Distributors Pvt. Ltd, Kathmandu, Nepal.

Sharma N (1998**) Accounting and Auditing**, Ekta Books Distributors Pvt. Ltd, Kathmandu

Sharma RK and Gupta RK (2002) **Management Accounting**, Kalyani Publishers, New Delhi

Weston JF and Brigham EF (1978) **Essential of Managerial Finance**, the Dryden Press, Chicago, USA

Weston JF and Copeland TE (1992) **Managerial Finance**, the Dryden Press, Chicago, USA

Wolff, Howord k and Pant, Prem R (2002) **Socail Science Reseach and Thesis writing** 14th Edition, Buddha Academic Publishers and distributors Pvt. Ltd

Dissertations:

Banarjee, Monoj kumar (2004) **Inventory Management of Manufacturing Public Enterprises in Nepal**, Unpublished Master Degree Dissertations Submitted to faculty of management, Tribhuwan University (T.U)

Bhandari, Rama Devi (2002), **Inventory Management, A Case Study of Multi Food Industry Pvt. Ltd.** Unpublished Master Degree Dissertations Submitted to faculty of management, Tribhuwan University

Bhattarai, Krishana Prasad (2010), **Inventory Management of Bottelers Nepal Ltd and Unilever Nepal Ltd.** Unpublished Master Degree Dissertations Submitted to faculty of management, (T.U).

Dhakal, Anup Mani (2009), **Inventory Management of Sipridi Trading Pvt.Ltd**. Unpublished Master Degree Dissertations Submitted to faculty of management (T.U).

Gautam, Vabhes, (2001) **Inventory, A study of inventory management of Nepal Oil Corporation limited**. Unpublished Master Degree Dissertations Submitted to faculty of management, (T.U).

Khanel, Pitambar (2005) **Inventory Management System of GPC**. Unpublished Master Degree Dissertations Submitted to faculty of management T.U.

Karna, Snajev Lal (2007) **Inventory Management System of Gorkhapatra Corporation and Kantipur Publication Pvt. Ltd.** Unpublished Master Degree Dissertations Submitted to faculty of Management, Tribhuwan University

Yadav, Surendra Prasad (2003) **Inventory Management of Manufacturing Public Enterprise.** Unpublished master Degree Dissertations Submitted to faculty of management, Tribhuwan University