Inventory management of
‘Gorkhapatra Corporation’

A MASTER DEGREE THESIS

By

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DECLARATION

I herby declare that the work reported in this thesis entitled "Inventory Management Of Gorkhapatra Corporation" submitted to the central Department of Management, Tribhuvan university is my original work. It is done in the form partial fulfillment of the requirements for the master of Business Studies (M.B.S) under the supervision and guidance of Mr. Keshab Bhurtel.

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ABBREVIATIONS

ABC : Always Better Control
AIC : Agriculture Inputs Corporation
B.S : Bikram Sambat
CCC : Carrying Cost Curve
CEO : Chief Executive Officer
CIE : Control by Important and Exception
EOQ : Economic Order Quantity
FIFO : First in First Out
FY : Fiscal Year
GM : General Menager
GPC : Gorkhapatra Corporation
HMG : His Majesty Government
i.e : That is
J.B.R : Janga Bahadur Rana
kgs : Kilo Grams
L/C : Letter of Credit
LIFO : Last In First Out
MBS : Master of Business Studies
MT : Metric Ton
OCC : Ordering Cost Curve
PES : Public Enterprises
PVA : Proportional Value Analysis
QTY : Quantity
RDL : Royal Drugs Limited
RS. : Rupees
TCC : Total Carrying Cost
TOC : Total Ordering Cost
TU : Tribhuvan University

CHAPTER-I
INTRODUCTION

1.1 Background:

Inventory management involves the planning of the optimum level of inventories and control of inventory cost, supported by an appropriate organization structure which is staffed by training persons and directed by top management. It involves both financial dimension as well as physical dimension and these dimensions are interrelated.

The evolution of public enterprises has a long history in the world. All the countries in the world either developed or under developed have accepted the existence of public enterprises of it's own term. It has been define differently by various agencies and government to suit their respective situation.

Public enterprises in Nepal deserve a crucial role for the social-economic development of the country. It has been established in so many sectors like agriculture, water resources, tourism, communication, public health etc. For overall development of the country with different goals and objectives.

Inventory is stock of materials of a product that frequently occurs in the manufacturing organization especially. When the materials are purchased by an organization they have to be stored until they are put in to the production process, when the production is over the finished product have to be stored again until they are sold. Thus inventory involves higher amount of cost in term of occupying space and blocking the capital. Inventories are linked between production and sale of product. These forms of materials may be as raw materials those until which have been purchased and stored for future productions.

Raw materials inventory gives the firm flexibility in it purchasing. Without it a company must exit on a hand to mouth basic, buying raw materials in keeping with its production schedule. Conversely, raw materials inventory may be bloated temporarily because the purchasing department has taken advantage of quality discount. The level of raw materials is influenced by anticipated production, seasonally of production, reliability source of supply and efficiency of scheduling purchases and production operation.

"Inventory management is an integral part of financial management. It is inventory maintaining desired level of inventory should be effectively managed.

The real task of top management inventory investment for attainment of desired objectives." -**Dr.G.R. Agrawal**

Thus, Inventory management is primarily concerned with minimizing cost of investment in inventory, cost of maintaining desired level of inventory and minimizing total cost of inventory both the physical as well as financial dimension of inventory should be effective managed. The real task of top management lies in formulation the plans and policy that will lead to optimal inventory investment for achievement of desired objectives.

There fore to provide inputs at the right quantity, quality, timely, economically and systematically manufacturing as well as trading company should adopt modern and scientific technique of inventory management. So far, they have not been able to run successfully at present situation.

Introduction of Gorkhapatra Sansthan

- In B.S 1958 Baisakh 24, Gorkhapatra was published for the first time as a weekly newspaper in the time of Rana prime minister Dev samshar J.B.R and late king Prithve Bir Bikram Shahadev.

- Form the beginning it was published on every Monday till to B.S. 1991 Baisakh 08, then after till to the B.S. 2001 Aswin, it was published on every Friday.

- The manager of Gorkhapatra was P. Nara Bdr. Pandey. He took his responsibilities to the B.S. 1960 Bhadra.

- In the beginning it was published from Pashupati Chapakhana, Thahity.

- In B.S. 1960 Bhadra 22, Jay Prithivi Bhadur Singh was appointed as a second chief/manager of Gorkhapatra to the B.S. 1972. During his service period Gorkhapatra was equipped by one hand press machine.

- In B.S. 1969, Gorkhapatra was beginning to publish by electric press machine and it was a first electric press in Nepal.

- Mr. Premraj was a first editor of Gorkhapatra but it is still controversy.

- In B.S 2000 Ashwin 29, Gorkhapatra was publish twice a week in Tuesday and Friday.

- In B.S. 2002 Paush 11, Gorkhapatra has published birthday supplementary on the occasion of Rana prime minister Juddha Samshar J.B.R.

- In B.s 2003 Paush 08, it was beginning to publish three times a week on Monday, Wednesday and Friday.

- In B.S. 20125 Bhadra 30, Bal Krishna Sham was appointed as chief editor of Gorkhapatra.

- In B.S. 2017 Falgun 07, Gorkhapatra was beginning to publish as a daily newspaper.

- In B.S. 2020 Ashadh 25, Gorkhapatra Sansthan was established under Corporation Act. 2019.

- In B.S 2021 Ashwin, Gorkhapatra Sansthan published " The Nepalese Perspective" weekly in English language for the first time then after it was dropped out.

- In B.S. 2022 Paush 01, "The Rising Nepal" in English language was beginning to publish as a second publication of Gorkhapatra Sansthan and Mr. Barun Shamshaer Rana was a first editor of this publication.

- In B.S. 2025 Jestha, "Madhupark" was beginning to publish as a monthly magazine.

- In B.S. 2033, Gorkhapatra Sansthan was damaged by fire.

- In B.S. 2045 Ashadh, The weekly magazine "Yuva Manch" was beginning to publish as a fourth publication.

- In B.S. 2045 Bhadra, Ramailo Sukrabar" was beginning to publish and after few time it was dropped out.

- In B.S. 2047 Baishakh, "Sunday Dispatch" was beginning to publish in English language on every Sunday.

- In B.S. 2047 Paush, The children Monthly magazing "Muna" was beginning to publish.

- In B.S 2055 Baishakh 24, Prime minister Girija Prasad Koirala was released first issue of "Manoram Apsara" and it is a latest publication of Gorkhapatra Santhan (till to the date).

According to the history of Gorkhapatra Santhan, it has been dedicated nation and contributing to the society in various sector by the way of communication for welfare of nation and society sector by the way of communication for welfare of nation and society as a important body of nation and society since their birth time.

Currently Publication of Gorkhapatra Santhan

1. Gorkhapatra	Daily	Nepali
2. The Rising Nepal	Daily	English
3. Madhupark	Monthly	Nepali
4. Yuva Manch	Monthly	Nepali
5. Muna	Monthly	Nepali

1.2 Statement of problem:

The existence of public enterprises has been accepted in developing as well as developed countries. These public enterprises should contribute to the government revenue besides saving their own interest.

Input is backbone of any enterprise. Both excessive and inadequate inventories are not desirable. So the inventory management should determine and maintain optimum level of inventory investment.

The optimum level of inventory will lie between two danger point of excessive and inadequate inventories , reorder level , minimum stoke safety stoke ,maximum stoke help to maintain optimum level of inventory which are not given serious consideration while deciding the size and level of various input in the company .

The quantity requirement of various items necessary for publishing is to be estimated by the organization. The economics order size , price of handling charge , unit price etc .are determined unscientifically and they are fixed on the basic of annual requirement and they do not use any types of analytical tools for reducing unnecessary cost .

The lead time or gap between the placing and receiving a new order is not given proper attention, which has been problem to the organization. By this organization sometimes have a face over stoke and sometime have a minimum stoke to publishing newspaper and magazines which directly or indirectly negative effect to sales , revenue and customer services .

1.3 Objectives of the study

The overall objectives of the study are to analyze the present system of inventory management and control system in Gorkhapatra Sansthan and their impact towards the organization profitability. The specific objectives of the study are:

a) To study the present procurement or purchase of goods and raw materials.

b) To examine the technique being employed to manage the inventories.

c) To determine optimum inventory level of major raw materials.

d) To suggest appropriate ways to manage inventory based on findings of the study.

1.4 Significance of the Study

Production management deals with inventory . An important thing for production is the raw material a form of inventory. However the financial manager should manage financing in inventor. This is also a subject of financial management.

A firm cannot achieve its goals unless inventories are controlled effectively and capital is allocated efficiently. Therefore , study on inventory management is a great important . 'Inventory is the most important things but large inventory is the evil for the company.'

Most of the manufacturing enterprises of Nepal are suffering from poor inventory management . Thus , this study seeks to understand the problem faced by Gorkhapatra Corporation . Inventory is the current assets which takes important role in enterprises for the flow production of firm required , adequate inventory for smooth operation and smooth market operation .

Both over inventory as well as under inventory are not good . The reason is that over inventory increase the investment in inventory and increase the cost of carrying inventory on the other hand under inventory causes the obstacle in smooth production as well as market operation. Therefore, the optimal inventory level is desirable.

So , the management and control system of inventory plays a prime role .

1.5 Limitations of study:

This study attempts to be find out the impact of inventory management and control system of Gorkhapatra Sansthan .

This study covers only inventory aspects and ignores the managerial functions .

Major portion of analysis and interpretation to be done on the basis of available secondary data and information .

The data to be based on yearly performance of the organization.

Above all , this study will be only for fulfill the partial requirement of MBS Degree .

1.6. Scheme of the Study

This study has been divided into five different chapters, which are as follows:

1.6.1 Introduction

This chapter includes backgrounds, statement of problem , objectives of study , limitation of study , research methodology , reason for selecting GPC .

1.6.2 Review of Literature

The second chapter includes introduction to inventory management and deals with review of related study. Review of literature means reviewing research studies or other relevant propositions in the related area.

1.6.3 Research Methodology

The third chapter deals with introduction, research design, nature and sources of data , data collecting procedure , analytical tools used and limitation of research methodology .

1.6.4 Presentation and data Analysis of data

This fourth chapter deals with presentation and data analysis of data of available fact and figures collected from different sources through various models and technique i.e. EOQ, ABC analysis.

1.6.5 Summary ,Conclusion and Recommendation

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

CHAPTER-II

REVIEW OF LITERATURE

2.1 Theoretical Consideration:

In general inventory can be define as stoke of any kind of raw materials and finished goods in store for smoothly running business or organization. Managing of inventory is challenging job for both private as well as public manufacturing enterprises.

Inventory management involves the planning of the optimal level of inventories and control of inventory cost supported by an appropriate organization structure which is staffed by trained persons and directed by top management. It involves those financial dimensions as well as physical dimensions.

The job of the financial manager is to reconcile the conflicting view point of the various functional areas regarding the appropriate inventory levels in order to fulfill the overall objective of maximizing the organization's financial status.

Management is an art, which is devoted for planning, directing, co-ordination and controlling different activities to achieve the predetermined goal . Thus, inventory management can be define as the planning, direction, co-ordination and controlling of various activities which are concerned with inventory requirement.

2.2 Aspects of inventory management:

Inventory is an idle resource , which is usable and has value .The idle resource may be men , money , plant requirement of course inventory is an item of current assets which is the most important for the successful run of any enterprises whether it is commercial or manufacturing . Mainly raw materials , semi finished goods , finished goods , parts and supplies are the forms of inventory . The need of inventories is for the transaction motive , precautionary motive and speculative motive.[1]

[1] K.K Abuja., Production Management, (New Delhi, CBS Publisher and distribution,1993)P.310

There is various aspect of inventory management. As per view of Dr. Govinda Ram Agrawal, keeping the various inventory costs in mind ,the process of inventory management consists of the following aspect .[2]

- Purchasing
- Store keeping
- Issuing and pricing

2.2.1 Purchasing

Purchasing function is the most important in very organization . It has been done by purchasing department . The head of this department is usually known as the purchase manager or the supply manager or the chief buyer . All requests for purchase of materials should be contained in purchase requisition . A purchase order should be placed to a carefully selected supplier .Progress about scheduled delivers should be checked constantly until the arrival of materials , purchasing activities should be looked up on as essential aspect of the process of inventory management . The process of inventory management , in fact begins with purchasing . The purchase of sub-standard materials can lead to high wastage , poor quality and expensive machine breakdowns . Similarly , the choice of unreliable supplier may result in delay or even non deliver of essential materials . This may lead to decreased consumer satisfaction and loss of production and sales . Purchasing therefore should be carefully planned for effective inventory management . 'A purchasing means a policy well panned , properly coordinated and covering a side range of control to the selection of materials , sources of supply , the follow up to ensure timely deliveries , a complete inspection for quality and quantity well planned procedures free from much formalities and development of up to date methods and techniques of higher standard to reveal efficiency and economy [3].

There are the following function of purchases department : [4]

a. How to purchase ?

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[2] Agrawal Dr. G.R., Inventory Cost Control, Management Day Souvenir, Production Management,1981

[3] Gupta and P.K. Rajput, Purchasing and Stock Keeping (New Delhi, Tara Mc-Grew-Hill Publishing Co .Ltd.) P.176

[4] ain, S.P. and K.L. Narang, Cost Accounting Principle and Practice(New Delhi, Kalyani Publisher) P.2.10

b. Where to purchase?

c. When to purchase?

d. At what price to purchase?

e. How much to purchase?

To perform these function effectively, the purchase department follows the following procedures:

a. Receiving purchase requisition.
b. Exploring the source of supply and choosing supplier,
c. Preparation and execution of purchases order.

d. Receiving and inspecting materials.
e. Checking and passing of bills for payment.

2.2.2 Store keeping

On the arrival of the consignment, all details relating to actual materials received should be entered on goods received note. After proper inspection for quality control, the goods should be passed unto store. The stole function involves both keeping the store of materials and keeping the store records. The former being a physical task and the later on accounting task.

Store keeping is the activity of receiving or distributing stores or supplies, stores included direct raw materials, indirect materials and finished googs.5

Goods store keeping should help achieve location, identification, receipt and issue without delay. Storage space should be economically utilized and materials should be available on request. General code numbers are assigned to materials for easy identification. Materials may e stored in bin, rack drawer tray boxes on floor area.

Objectives of store-keeping:

- Receiving, handling and issuing goods economically and efficiently.
- Using the storage available space and labour effectively.
- Minimize the investment on inventories.

[5] Gupta and P.K. Rajput, Purchasing and Stock keeping (New Delhi, Tara Mc-Grew-Hill Publishing Co. Ltd.)P.4

- Maintaining regular supply of raw materials at all time when properly authorized.
- Minimize the materials holing cost.
- Facility ordering of required materials.

To achieve the above objectives, a firm generally uses different types of controlling device like:

a. Bin card: A bin card is recorder of the receipt and issue of material in kept for each item of store carried. The Store keeper maintains these cards and store keeper is answerable for any difference between the physical stock and the balance shown in the bin card. These cards are

used for not only recording, receipts and issues of stores but also assist the store keeper to control the stock. For each item of stores, minimum quality, maximum quality and ordering quality are state on the card. By seeing the bin card the store keeper can send the materials as per requisition form.

b. Store larger: This ledger kept in the costing department and is identical with the bin card excerpt that receipts issues and balance are shown along with cost values. This contains an account for every item of stores and makes a record of the receipts, issues and the balance, both in quality and value. Thus ledger provides the information for the pricing of materials issued and money value at any time of each item of stores.[6]

2.2.3 Issue and Pricing

Materials should be issued on receipt of materials requisition or bill of materials. The store keeper should always issue the materials under proper authority to avoid the misappropriation of material. The pricing of the issues can be used on any one of the following methods, depending on the policy of management.

a. First in First out (FIFO)
b. Last in First out (LIFO)
c. Weighted average

[6] Jain, S.P. and K.L. Narang, Cost Accounting, (Kalyan Publisher, New Delhi) P.2.37-2.39

d. Sample average

e. Replacement price or market price

f. Standard price

All the above methods have advantages and disadvantage. However the method chosen in significant for efficient inventory management. The weighted average method is used in various corporations to determine the pricing. It is calculated by following formula.

$$Weight\ average = \frac{Total\ amount\ of\ closing\ inventory}{Total\ Quantity}$$

2.3 Types of Inventories

The various forms of materials held an enterprise is known as inventory. It includes Taw material, work in progress, finished goods daily consuming goods and soon. Inventories represent the major element in the working capital of an enterprise.

The investment on inventories should not be more or less than requirement . Over inventory involves contain cost which minimize profitability . One the other hand under investment in inventory also involves certain risks and costs .So the financial manager should try to maintain optimum size of inventory so that proper balance between the costs of over investment and under investment can be maintained .[7]

The dictionary meaning of inventory is 'stoke of goods, or a list of goods '. The word Inventory is understood differently by various authors . In accounting language it may mean stoke of finished goods only .In a manufacturing concern , it may include raw materials , work in progress and stores etc . to understand the exact meaning of the word 'inventory' we may study it from the usage side or from the ' side of point of entry ' in the operations . Inventory includes the following things . [8]

7 Dangol,Ratna Man ,Financial Management , Theory and Practical ,(Taleju Prakashan , Kathmandu)P.269

8 R.K. Sharma /Shasi k .Gupta ,Management Accounting ,Principle and Practice ,(Kalyani publisher ,New Delhi) P. 22.22

a. **Raw material:** Raw materials from a major input into the organization . They are required to carry out production activities uninterruptedly. The quantity of raw materials required will be determined by the rate of consumption and the time required for replenishing the supplies. The factors like the availability of raw materials and government regulations etc .too affect the stoke of raw materials.

b. **Work in Progress:** The work in progress is that stage of sticks which are between raw materials and finished goods . The raw materials enter the process of manufacture but they are yet to attain a final shape of finished goods .The quantum of work in progress depends upon the time taken in

the manufacturing process . The greater the time taken in manufacturing. The more will be the amount of work in progress.

c. **Finished goods :**These are the goods which are ready for the consumers . The stoke of finished goods provides a buffer between production and market. The purpose of maintaining inventory is to ensure proper supply of goods to customers. In some concerns the production is undertaken on order basis ,in these concerns there will not be need for finished goods .The need for finished goods inventory will be more when production is undertaken in general without waiting for specific orders .

2.4 Purpose of Holding Inventories .

Although holding inventories involves blocking of a firm's funds and the costs of storage and handling, every business enterprise has to maintain a certain level of inventories to facilitate uninterrupted production and smooth running of business .In the absence of inventories a firm will have to make purchases as soon as it receives orders. It will mean loss of time and delays in execution of orders which sometimes may cause loss of customers and business. A firm also needs to maintain inventories to reduce ordering casts and avail quality discounts, etc. generally speaking, there are three main purposes or motives of holding inventories:[9]

1. To avoid sales losses by making available the goods in the market always.

[9] R.K. Sharma/Shasi K. Management Accounting, Principale and Practice, (Kalyani Publisher,New Delhi) P.22.23

2. To gain quality discount by purchasing large quantities, this helps to minimize to cost.
3. To minimize the ordering cost by purchasing large quality per order.
4. To achieve efficient production run by making available of the raw material and other material this requires by the firm.
5. To take advantage of lower costs by purchasing larger quality.
6. To product the firm from the risks of stocks out or shortage of stock by provision of safety stock.
7. To meet specific customer's order.

8. To protect the firm against the risk involved in not matching the stock of goods wit seasonal requirement. The purposes of holding inventories also can be grouped into the following three categories:-
    a. The Transaction Motive -Which facilitates continuous production and timely execution of sales orders.
    b. The precautionary Motive–Which necessitates the holding of inventories for meeting the unpredictable changes I demand and supplies of materials.
    c. The Speculative Motive – Which induces to keep inventories for taking advantage of price fluctuations, saving I re-ordering costs and quantity discounts, etc.

The major danger point of excessive inventory:

a. The unnecessary tie up of the firm's funds and loss of profit.
b. Excessive carrying cost.
c. The risk of liquidity.

The major danger point of inadequate level of inventory:

a. Production hold up.
b. Failure to meet delivery commitments.

2.5 Risk and Costs of Holding Inventories

The holding of inventories involves blocking of a firm's funds and incurrence of capital and other costs. It also exposes the firm to certain risks. The various cost and risks involved in holding inventories are as below:[10]

[10] R.K. Sharma/Shasi K. Gupta, Accounting, Principale and Practice, (Kalyani Publisher,New Delhi) P.22.23

a. **Capital costs:** Maintaining of inventories results in blocking of the firm's financial resources. The firm has therefore, to arrange for additional funds to meet the cost of inventories. The funds may be arranged form own resources or from outsiders. But in both the cases, the firm incurs a cost. In the former case, there is an opportunity cost of investment while in the later case, the firm has to pay interest to the outsiders.

b. **Storage and Handling cost:** Holding of inventories also involves costs include the rental of the go down, insurance charges, etc.

c. **Risk of Price Decline:** There is always a risk of reduction in the prices of inventories by the suppliers in holding inventories. This may be due to increased market supplies, competition general depression in the market.
d. **Risk of Obsolescence:** The inventories may become obsolete due to improved technology, changes in requirement, change in customer's tastes, etc.
e. **Risk Deterioration in Quality:** The quality of the materials may also deteriorate while the inventories are kept in stores.

2.6 Objectives of Inventory Management

The men objectives of inventory management are operational and financial. The operational objectives mean that the materials and spares should be available in sufficient quality so that work is not disrupted for want of inventory. The financial objective means that investments in inventories should not remain idle minimum working capital should be locked in it. The following are the objectives of inventory management:

a. To ensure continuous supply materials, spares and finished goods so that production should not suffer at any time and the customers demand should also be met.
b. To avoid both over stocking and under stocking inventory.
c. To maintain investments in the optimum level as required by the operational and sales activities.
d. To keep material cost under control so that they contribute in reducing cost of production and overall costs.
e. To eliminate duplication in order or replenishing sticks. This is possible with the help of centralizing purchases.
f. To minimizes losses through deterioration, pilferage, wastages and damages.
g. To design proper organization for inventory management. A clear cut accountability should be fixed at various levels of the organization.
h. To ensure perpetual inventory control so that materials shown in stock ledgers should be actually lying in the stores.

i. To ensure right quality goods at reasonable prices, suitable quality standards will ensure proper quality of stocks. The price analysis, the cost analysis will ensure payment of proper prices.

j. To facilitate furnishing of data for short term and long term planning and control inventory.

The goals of effective and efficient inventory management are:

a. To maintain the direct and indirect cost of holding inventories.

b. To minimize the risks and losses due to stocks out, and

c. **To** keep the investment in inventories at a reasonable level.

An effective inventory management should:

- Ensure a continuous supply of materials to facilitate uninterrupted production.
- Maintain sufficient stoke of raw materials in period of short supply and anticipate price changes.
- Maintain sufficient finished goods inventory for smooth sales operation and efficient customer services.
- Minimize the carrying cost and time it is very important for inventory management because effective management can minimize the carrying cost and time .

After considering all objectives of inventory management mentioned above, we can undoubtedly that inventory management is the lifeblood of an organization.

2.8 Review of Related Studies:

Nepal is an agricultural as well as developing country and this sectors absorbs more than 81% of total labour force of the country (Statistical pocket

book ,1996). However, it is an indisputable fact that the development of the industrials sectors plays an important role in the economics enlistment of the nation . Public enterprise in Nepal deserve a crucial role for the socio-economic development of our country .Its enjoys a strategic and crucial position in our mixed economy .They have been established in many sectors overall development of the country with different goals and objectives . Considering these facts mare than 64 public enterprises were established during the period of 2013-2047 B.S .Out of these many public enterprise have been privatized and some are in the process of privatization . At present there are running 37 PEs in total . Now days the question mark has been raised of their success.

As management of any enterprises is the vital point which will determine that organization is running towards the motive of organization or not. Beside management of other sector or parts inventory management is a very important to achieve the goals of enterprises . Its affects financials position of the organization.

Limited studies undertaken on 'Inventory Management ' in Nepal were studied in this report . The major findings of this study are presented in this chapter which are shown below :

Mr. Manoj Kumar Banarjee (2004) conducted the research work on the topic of 'Inventory Management of Manufacturing Public Enterprises in Nepal'. Some major points stated by Mr. Banarjee as below.

The overall objective of the study is to analyze the inventory management practices in manufacturing PEs. The specific objective are as follows:

- To study the present position of inventory management in manufacturing PEs under study.
- To analyze the relationship between targeted and actual production ,targeted and actual sales ,sales revenue, production cost , profit /loss, raw materials consumption, raw materials purchased and closing .
- To analyze the inventory management and control system .
- To provide suggestions based on findings of the study .

From the analysis and interpretation of available date the following conclusion as a major findings stated by **Mr. Banarjee ;**

- If the manufacturing public enterprises want to get success, it is necessary to apply the theoretical and practical methods in collection , production , selling , management , marketing and proper inventory management .
- PEs are store control device such as Bin cards , Store Ledger but PEs have not applied ABC Analysis technique to control the various types of inventory in the store .
- Manufacturing PEs set sometimes at high expectation ,sometimes at lower expectation and sometimes target were pessimistic and the result explained the weakness of top level management in coordination and integrating the effort of others.
- Manufacturing PEs were not using scientific models of inventory management.
- Although they did not calculate EOQ , manufacturing PEs should make an effort to match the targeted demand , targeted sales and actual supply to overcome the overstocking and under stoking problem of inventory .
- The PEs have invented huge amount in inventory than other current assets.
- Purchased and consumption of raw matrrial was not stable of manufacturing PEs over the period of study and they could not improve the capacity.

Mr. Banargee has recommended some suggestion to improve and require attention to bring some improvement in inventory management of manufacturing PEs.

- To avoid the problem of over stocking of inventories PEs should consider following points ;
  - Target should be realistic.
  - Target should be with the capacity of being fulfilled.

- If Manufacturing PEs are able to hold only optimum level of ending stoke the locked up capital will be reduced.
- PEs should developed appropriate standard record keeping system of ending inventory.

- Manufacturing PEs should attempt to use the scientific inventory models . Manufacturing PEs should use EOQ models to determine the order size, which will minimize the cost of raw materials , calculation of reorder point will help to determine when to order ,storing according ABC analysis will help to store right raw materials at the right place, which will maintain the quality of raw materials in store or warehouse.
- Promotional activities play a great role in success of business. Manufacturing PEs have not promotional strategy and no adequate sales depots to maximize sales . Since Manufacturing PEs should use the best media for the best promotion of products.
- Fully authority and responsibility should be given to the concern department and unnecessary government intervention must be avoided . Proper coordination should maintain with in the organization.
- Volume of inventories should be kept in optimum level which should be maintained on the following basis :

  - Demand fluctuation
  - Availability of raw materials
  - Financial capability
- The frequent change in top-level management creates the unstable environment in the organization , which leads the enterprises back wards , so the post of General Manager / CEO professionalized .

Pushpa Raj Ghimire have studied on the 'Inventory Management of Agriculture Inputs Corporation regarding chemical fertilizer and seeds' for his MBS thesis .

The main objective of this study are to analyze the present system of Inventory Management in Agriculture Inputs Corporation on zonal basis which are as follows:

- To study the procurement procedure of chemical fertilizer and seed.
- To study the transportation facilities for various fertilizer and seeds.
- To study the warehouse facilities for fertilizer and seeds.
- To analyze present positions of Inventory Management.
- To provide suggestions based on findings.

Some major findings are as follows:

- The major procurement procedures /ways are through inviting global tender, though negotiation aid /assistance from donor agencies / countries and through negotiation / agreement of two governments .Besides other ways AIC prefers procurement through Inviting global tender because other procedures are not reliable and costly .

- AIC procure or collect seeds from external as well as internal sources .Internal sources as AIC's own seeds collection and processing center .External sources are seeds multiplication program at the farmers level .

- The procurement followed by the corporation are estimation of requirements , inviting tenders, evaluation of bids placing the order and finally dispatch order to clearing and forwarding agents .

The purchase of chemical fertilizer and seeds if fluctuating year after year which shows that the inventory level will decrease or increase in high volume, which makes inventory handling more difficult.

- Walls of warehouse are built with bricks or stone as available locally, with cement building. Floors are of cement, roofs are made of corrugated asbestos of CGI sheets on wooden steel trusses . Most warehouse have steel rolling shutters .Some warehouse have wooden doors, and are waterproof and well ventilated. This structure of the warehouse keeps fertilizers and seeds safe from being moisturized as well as from excessive heat and water.
- AIC does not have adequate fleet of trucks. So in most cases transport companies under contractual agreement carryout this job .Similarly ,AIC use mula, porter ,as well as plane charter to carry the sacks of chemical fertilizer and seeds to the hill and himali areas where trucks service is available .

Mr. Ghimire has recommended some suggestion to improve and require attention to bring some improvement in inventory management system of AIC .

- The objective of inventory management system is to control the inventory to minimize the variance between targeted sales and actual sales .Which will help to increase profitability . In spite of calculating sales target from central office ,individual AIC branch offices should be allowed to set their own target .

- To avoid the problems of over stocking of chemical fertilizers and seeds AIC should consider these points :
  - Target should be realistic.
  - Target should be with the capacity of being fulfilled.
  - If AIC is able to hold only optimum level of ending stoke the locked up capital will be reduced.
  - AIC should develop appropriate standard record keeping system of ending stoke.

- Lowest on cost bid , reliable supplier , reliable seed growers as well as transportation agencies should be selected and AIC should impose appropriate action to them I they follow against the term and condition
- AIC should attempted to use the scientific inventory models. AIC should use EOQ model to determine the order size , which will minimize the cost of chemical fertilizers and seeds calculation of re-order point will help to determine when to order , storing according to the ABC model will help to store right fertilizers and seed at the right place . Which will maintain the quality of chemical fertilizers and seeds in warehouse. With the help of scientific inventory models AIC can solve the over stoke, under stoke as well as out of stoke problem and AIC can supply chemical fertilizers and seeds regularly to the farmers at the right place , quantity , price and at right time .
- Numbers of warehouse should be made according to the area and consumption of chemical fertilizers and seeds, which will make the distribution of fertilizers easier.
- Again, AIC should make an effort to match the targeted demand i.e. targeted sales and actual supply to overcome the overstocking and under stocking problem of inventory .
- For the timely procurement and supply of chemical fertilizers and seeds AIC should not depend upon unreliable sources like government aid, negotiation and agreement of two countries, but should only procure inviting tenders and seed growers. Because this system is more reliable and economic.
- Government should open itself to inspire private parties to establish fertilizer plant in Nepal .Government should concentrate on development of infrastructure, research and extension.

Mr. Narayan Bahadur Karki have studied on the 'Inventory Management and Control of Sajha Swasthya sewa' for his MBS thesis with the following objectives :

- To assess the types of inventory maintained in Sajha Swasthya Sewa .

- To examine the techniques being employed to manage the inventory in Sajha Swasthya sewa.
- To suggest proper inventory model to Sajha Swasthya sewa based on the analysis

Some major findings are as follows:

- For Sajha Swasthya sewa the values for maintaining proper stoke of inputs as well as discussed previously are necessary to know the answer about when and how much to buy .
- No technique for inventory management is possible to apply to calculated one of the major decision when to buy because of the lack of planning and unsystematic methods of recording cost.
- For the managing inventory are available they could not be used fully for finding out the necessary operation of the organization because of the lack of adequate data.
- No concrete step is taken with regard to recording and maintaining of proper data on stoke-out cost , carrying cost , ordering cost etc .
- Separately , future researcher would not be able to predict the re –order period and how much to maintain the safety stoke properly .

Mr. Karki has made the following recommendations on the basis of the study for inventory management and control of Sajha Swasthya Sewa :

- The organization should follow the quantitative models because with the application of economic order quantity formula and economic lot size formula for selling / distribution the total relevant costs for both can be minimized .
- The output obtained from quantitative analysis given basic idea of operation and management.
- Estimation of demand, lead time etc. has to be done regularly as a part of the job.

- The most easy applicable model of ABC classification is another tool that can be applied for managing inventory smoothly . The classification of ABC analysis helps to know which items in inventory have higher usage value and which have not and accordingly a precise control over the items in inventory can be applied. Sajha Swasthya Sewa is not adopting the ABC analysis, so the organization should categorize it's inventory.
- The frequently changing the Board member including chairman and General Manager has been found as disturbance for the effective management. Because different General Manager have different opinions that affect every decisions. So it requires stability of the professional General Manager.

Mr. Bal dip Kandel. Have studied on the 'Inventory Management of Royal Drugs Limited' For is MBS Thesis with the following objectives :

- To assess the types of inventory maintained in Royal Drugs Limited.
- To examine the techniques begin employed to manage the inventory in Royal Drugs Limited.
- To suggest proper inventory model to Royal Drugs Limited based on the analysis.

Some major finding is as follows:

- Chemical materials are over stocking.
- The packing materials were not managed efficiently.
- Inadequate level of finished goods.
- Stocks items were not classified properly.
- They have not recognized the minimum stock and re-over level.

Mr. Kandel stated the following suggestion may be recommended for consideration on the basic of the study:

- The company should define it's goals and objectives clearly with regards to its input and output separately i.e. the quantities, time periods should be specified.

- Ledger card can also be used to manage inventory in a simple way. In this card, the name of item, item number , unit price , usage rate , supplier's name, the percentage of carrying cost and the rate of carrying cost is maintained. Similarly the date of order and its receipt and issuance can be maintained in the cards.

- Due to lack of drying machine the company is facing problem to operate three machine at a same time proceeding this operation . So the company should avoid this problem and should run the machine in full capacity .

- The easiest applicable model of ABC is another tool that can be applied for managing inventory smoothly. The classification of ABC analysis help to know which item in inventory has higher usage value and which have not . According to this a precise control over the items in inventory can be applied .RDL is not adopting the ABC analysis. So the company should categorize the its inventory as a A , B and C items .

- The frequently changing the General Management /CEO has also affected the management. So the post of GM/CEO should be professional and it should be far from the political interfere.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

The objective of this study is to analyze the inventory management system followed by Gorkhapatra Corporation and there by forward some measures to improve the situation . The research methodology is the process of arriving to the solution of the problems through planning and systematic dealing with the collection , analysis and interpretation of the facts and figures .

For the purpose of achieving the objective the following methodology has been proposed to follow which includes research design, nature and source of data , data collection procedure and analytical tools used .

3.2 Research Design

The research design is conceptual structure with in which the research is conducted .It is planed structure and is the strategy for investigation of the fact in order to achieve the conclusion. The research design follows in this study is descriptive as well as analytical. Research design involves selecting the must appropriate method of techniques to solve the particular problems under investigation. Research design used for this study is more descriptive analytical in the sense that the research will be analyzing the facts and figures to determine the Gorkhapatra Corporation's inventory management position and trends.

3.3 Nature and Sources of Data

In order to achieve the objectives of the study both primary and secondary data have been used. Primary data collected through observation, informal interview with the officials of Gorkhapatra Corporation as primary data. In addition to primary data are also used. The sources of secondary data are as follows:

- Published and unpublished documents, book, articles, newspaper and official records.
- Record keeping Books.
- Financial statement like balance sheet and P/L account.

3.4 Data Collecting Procedure

Data collected by research or through agent from related field and processing original character are known as primary source. Primary are also called field source on the other hand, data collected by someone else, used already and made available to other in form of published statistical are known as secondary data.

To obtain the data form official records, the researcher visited the head office at New Road and got the data form the records for secondary data were collected through observation and informal interview has been conducted. All the gathered data have been used according to need requirement of this study.

Required data have been presented in EOQ model. Presented data were analyzed with the help of EOQ model. Conclusions were stated on the basic of study and suitable recommendations and suggestion there after.

3.5 Analytical Tools Used

To analyze the collected data, various accounting tools are used to analyses the effectiveness of inventory management and control wherever necessary. The quantitative technique such as EOQ model, ABC analysis, numbers of orders per year, safety stock level has been used.

a. ABC Analysis

The full form of ABC Analysis is always Better Control. According to this control system those inventories which have highest value should pay more attention. The firm should receive the most effort in controlling. The highest value items are classified in "A" item and would be under the tightest control. Item "B" is between the two categories "A" and "C" and required reasonable attention of management. Item "C" presents relatively least value and should be under simple control.

b. EOQ Model

Economic order quantity is the size of the lot to be purchased which is economically viable. This is the quantity of materials which can be purchased at minimum cost. It attempts to establish the most economic balance between the carrying cost and ordering cost determining the quantities to be ordered.

The basic objectives of this technique; how ever is to determine the optmal level of order to be placed on the basic of usage, ordering costs and carrying cost.

The formila for calculation of EOQ is as follows:

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

Where,

A= Annual Demand
O= Ordering Cost per order
C= Carrying Cost per unit

c. Safety Stock Level

Safety Stock is as buffer to meet some unanticipated is usage. The stage of inventory cannot be perfectly forecasted. It fluctuates over a period of time. The demand for materials may fluctuate and delivery of inventory may also be delayed and in such a situation the firm can face a problem of stock–out. There fore in order to guard against the stock out, the firm should maintain a safety stock or how much safty stock should be maintained.

We have,

Safety Stock = Daily Consumption x Lead time

Daily Consumption = $\frac{Annual\ Demand}{Days\ in\ a\ year}$

3.6 TOOLS AND TECHNIQUE OF INVENTORY MANAGEMENT

Effective Inventory management requires an effective control system for inventories. A proper inventory control not only helps in solving the acute problem of liquidity but also increases profits and accuses substantial reduction I the working capital of the concern. The following are the important tools and techniques of inventory management and control.[11]

[11]R.K. Sharma/Shasi K. Gupta, management Accounting, Principal and Practice, (Kalyani Publisher, New Delhi) P. 22.24

In managing inventories, the firm's objectives should be in consonance with the wealth maximization principle. To achieve, the firm should determine the optimum level of inventory. Efficiently controlled inventories make the firm flexible. Inefficient inventory control results are unbalanced inventory and

inflexibility. The firm may be sometimes out of stock and sometime may quantity unnecessary stocks such situation increases the level of investment and makes the firm unprofitable.

To manage inventories efficiently answer to the following two question should be sought.

- How much should be ordered?
- When should be ordered?

The first question how much to order, related to the problem of determining Economic Order Quantity (EOQ) and is answered by analyzing cost of maintaining various levels of inventories. The second question when to order arises because of uncertainty with replenishing time and is a problem of determining the recorder point. [12]

The following are the important tools techniques of inventory management and control:

1. Determination of Stock level.
2. Determination of Safety Stocks.
3. Determination of Economic Order Quantity.
4. A.B.C. Analysis .
5. Inventory Turn Over Ratios.

3.6.1. Determination of Stock level.

Carrying of too much and too little of inventories is detrimental to the firm. If the inventory level as too little, the firm will face frequent stock –outs involving heavy ordering cost and if the inventory level as too high it will be unnecessary tie–up capital. Therefore, an efficient inventory management requires that of a firm should maintain an ptimum level of inventory where inventory costs are the minimum and at the same time there is no stock- out which may result in loss of sale or stoppage of production. Various stock levels are discussed as such.

[12] D.R.G.R Agrawal,Inventory, Management, Concept and Technique, (Prashasan Byabastha Bibhag, Lalitpur) P.757-758

a) Minimum level

This represent the quantity which must be maintained in hand at all times . If stocks are less than the minimum level than the work will stop due to shortage of materials. Following factors are taken into account while fixing minimum stoke level :

Lead Time: A purchasing firm requires some time to process the order and time is also required by the supplying firm to execute the order. The time taken in processing the order and then executing it is known as lead time . It is essential to maintain some inventory during this period.

Rate of Consumption: It is the average consumption of materials in the factory . The rate of consumption will be decided on the basis of past experience and production plans.

Nature of Materials: The nature of materials also affects the minimum level . If a material is required only against special orders of the customer them minimum stoke will not be required for such materials .Minimum stock level can be calculated with the help of the following formula:

Minimum Stoke Level = Re-ordering level -(Normal consumption × Normal Re-order period).

b) Re - order Level

When the quantity of materials reaches at a certain figure than fresh order is sent to get materials again. The order is sent before the materials each minimum stoke level. Re-ordering level is fixed between minimum level and maximum level. The rate of consumption, number of days required to replenish the stocks, and maximum quantity of materials required on any day are taken into account while fixing re-ordering level. Re-ordering level is fixed with the following formula:

Re -ordering Level =Maximum Consumption ×Maximum Re-order period.

c) Maximum Level

It is the quantity of materials beyond which a firm should not exceed its stocks. If the quantity exceeds maximum level limit then it will be overstocking. A firm should avoid overstocking because it will result in high materials costs .Overstocking will mean blocking of more working capital, more space for storing the materials, more wastage of materials and more chances of losses from obsolescence. Maximum stock level will depend upon the following factors:

1. The availability of capital for the purchase of materials.
2. The maximum requirements of materials at any point of time.
3. The availability of space for storing the materials.
4. The rate of consumption of materials during lead time.

5. The cost of maintaining the stores.
6. The possibility of fluctuations in prices.
7. The nature of materials. If ht materials are perishable in nature, then they cannot be stored for long.
8. Availability of materials. If the materials are available only during seasons then they will have to be stored for the rest of the period.
9. The possibility of chance in fashions will also affect the maximum level.

Maximum Stocks Level can be calculating by following formula:

Maximum Stocks Level = Re – ordering Level + Re – ordering Quantity (Minimum Consumption × minimum Re – ordering period)

d) Danger Level

It is the level beyond which materials should not fall in any case. If danger level arises then immediate steps should be taken to replenish the stokes even if more cost is incurred in arranging the materials. If materials are not arranged immediately there is a possibility of stoppage of work. Danger level is determined with the following formula:

Danger Level = Average Consumption × Maximum Re – order period for emergency purchases

e) Average stock Level

The average stock level calculate as such :

Average Stock Level = Minimum Stock Level + $\frac{1}{2}$ of re – order quantity

3.6.2. Determination of Safety Stocks.

Safety stock is as buffer to meet some unanticipated increase in usage . The sage of inventory cannot be perfectly forecasted. It fluctuates and delivery of period of time . The demand for materials may
fluctuate and delivery of inventory may also be delayed and in such a situation the firm can face a problem of stock – out. The stock – out can prove costly by affecting the smooth working of the concern. In order to protect against the stock – out arising out of usage fluctuations, firms usually maintain some margin of safety or safety stocks. The basic problem is to determine the level of quantity of safety stocks. Two cost are involved in the determination of this stock i.e. opportunity cost of stock – outs and the carrying costs. The stocks – outs of raw materials cause production disruption resulting into higher cost of production. Similarly, the stock – outs of finished goods result into the failure of the firm in competition as the firm connot provide proper customer service. If a firm in maintains low level of safety frequent stock – out will occur resulting into the large opportunity costs. On the other hand the larger quantity of safety stocks involve higher carrying costs.

3.6.3. Determination of Economic Order Quantity

The economic order quantity may be defined as that level of inventory order that minimize the total cost associated with inventory management. [13]

A decision about how much to order has great significance in inventory management. The quantity to be purchased should neither be small nor big because costs of buying and carrying materials are very high. Economic order quantity is the size of the lot to be purchased which is economically viable. This is the quantity of materials which can be purchased at minimum costs. Generally, economic order quantity is the point at which inventory carrying cost are equal to order costs. In determining economic order quantity it is assumed that cost of managing inventory is made up solely of two parts i.e., ordering cost carrying costs.

The total cost in EOQ model is the sum of ordering cost and carrying cost. The cost requires from goods ordering receiving is known as ordering cost. The ordering cost includes the cost of requisitioning, clerical and staff cost, freight, cartage and postage cost, insurance cost, inspection and receiving cost etc.

[13]Khan & jani, Financial Management Text and Problem (Tata Mc Graw HIll Publishing, New Delhi) P.20.7

The carrying cost are the cost which requires for holding an inventory for specified period of time. In includes storage cost, cost of up keep and supervision, cost of risk or uncertainty, cost of rist or uncertainty, cost of funds to finance such stock, etc. [14]

Assumptions of Economic Order Quantity

The Economic Order Quantity has the following assumptions:

1. The estimate of annual requirement are correct.
2. The ordering cost per order have been estimated correctly and it is constant regardlesss of the size of the order.
3. The cost of carrying is fixed percentage of the average value of the inventory.
4. Sales occurs at the constant rate.

Cost associated with inventories:[15]

A) Ordering cost: These are the costs which are associated with the purchasing or ordering of materials. These costs include:

1. Costs of staff posted for ordering of goods. A purchase order is processed and then placed with suppliers. The labor spent on this process is included in ordering costs,
2. Expenses incurred on transportation of goods purchased.
3. Inspection cost of incoming materials.
4. Cost of placing order or production set up cost.
5. Cost of stationary, typing, postage, telephone charge etc.
6. Shipping and handling cost.

These costs are also known as buying costs and will aries only when some purchases are made.

[14] Dangol, Ratna Mman , Financial management, theory and practical, (Taleju Prakashan , Kathmandu) p.270
[15] Weston and Copeland, managerial finance (The Dryden Press international Edition , Ninth Edition.) P. 816

When materials are manufactured in the concern then these costs will be known as set up costs. These costs will include costs of setting up machinery for manufacturing materials, time taken up in setting, costs of tools, etc.

The ordering costs are totaled up for the year and then divided by the number of orders placed each year.

B) Carrying Cost: These are the costs for holding the inventories. These costs will not be incurred if inventories are not carried. These costs include:

1. The cost of capital invented in inventories. An interest will be paid on the amount of capital locked up in inventories.
2. Cost of storage which could have been used for other Purposes.
3. The loss of materials due to deterioration and obsolescence the materials may deteriorate with passage of time. The loss of obsolescence aries when the materials in stock are not usable because of change in process and product .
4. Insurance cost.
5. Cost of spoilage in handling of materials.
6. Property taxes.
7. Cost of capital tied up.

The Economic Order Quantity can be determined in following three ways:–

By Graphic Approach

By Mathematical Approach

By Trail and Error Approach

A. <u>By Graphic Approach</u>

The economic Order Quantity occurs at that point where the ordering cost curve and carrying cost curve intersect. The economic order quantity can be found graphically or diagrammatically in following way :

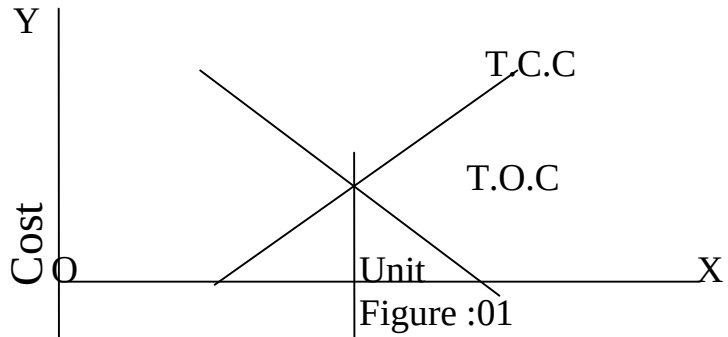


Figure :01

T.C.C. = Total Cost Curve
C.C.C. = Carying Cost Curve
O.C.C. = Ordering Cost Curve

Hear, OX represent Unit and OY represent costs.
The equilibrium point between ordering cost curve and carrying cost curve is known as economic order quantity. The ordering cost function varies inversely with order quantity. If the order quantity increases the order cost for the period decreases. So it is slopping downward to right side. The carrying cost are directly related to order quantities. The larger the order quantity, the larger the average inventory and therefore the higher the firm's carrying cost. So carrying cost curve is slopping up ward to right side.
The total cost curve is the sum of ordering cost curve and carrying cost curve. So it is above to both curves. The total cost functions exhibits a U shape, which means that minimum value for the function exists. The total cost will be minimum at that point where carrying cost curve and ordering cost curve will equilibrium. More or less then this point will lead to maximize the total cost.

B. <u>By Mathematical Approach</u>

A formula can be developed for determining economic order quantity is following way:

From EOQ Statement; we have,

Total ordering cost = Total carrying cost.

Total ordering cost = Number of orders × ordering cost per order

$$= \frac{Annual\ Requirement}{Order\ Size} \times O$$

$$= \frac{A}{Q} \times O$$

$$= \frac{AO}{Q}$$

Total carrying Cost = Average Quantity × Carrying cost per unit

$$= \frac{Order\ Size}{2} \times C$$

$$= \frac{Q}{2} \times C$$

$$= \frac{QC}{2}$$

Now, we have, $\frac{AO}{Q} = \frac{QC}{2}$

Or, $Q^2C = 2AO$, (By cross multiplication)

Or, O2 = $\frac{2AO}{C}$

Or, Q = $\sqrt{\frac{2AO}{C}}$

Where,

Q = Economic Order Quantity
A = Annual Requirement
O = Ordering Cost Per Order
C = Carrying Cost Per Unit

By using the above formula, we can find out EOQ.

Lets Assume that:

A = 90000 unit per annum
O = Rs. 300 Per Order.
C = Rs. 6

Here,

Or, Q = $\sqrt{\frac{2AO}{C}}$ = $\sqrt{\frac{2 \times 90000 \times 300}{6}}$

= 3000 kg

Number of orders:

= $\frac{A}{Q}$

= $\frac{90000}{3000}$

= 30 Times

By Trail Error Approach

According to this approach, he ordering cost and carrying cost for difference order sixes are compited and the order size with lowest total cost will be economic order Quantity. The method of finding out economic order quantity through Trail and Error approach of the Illustion is given below :

No of order	Order size	Average Inventory	Ordering cost	carrying cost	Total Cost
10	9000	4500	3000	27000	30000
20	4500	2250	6000	13500	19500
30	3000	1500	9000	9000	18000
40	2250	1175	12000	7050	19050
50	1800	900	15000	5400	20400

Where,

Order Size	=	Annual requirement/no. of order
Average Inventory	=	Order Size/2
Ordering Cost	=	Total Cost per Order × no. of order
Carrying Cost	=	Carrying Cost × average inventory
Total Cost	=	Ordering Cost + Carrying Cost

Above table shows the carrying cost , ordering cost and total inventory of respective size and no. of order . According to the table if company only placed up to 30 numbers of orders that the total cost will be minimized to Rs. 18000.00.

3.6.4. A.B. C Analysis

Every business firm however big or small has to maintain some inventories . It is not desirable to keep some degree of control on all the items ."Inventory control is a science based art of ensuring that enough inventory of stock is hold by an organization to meet both its internal and external demand commitment economically ."[16]

[16] Kulkarni, P.V, Financial management ,(Kalyani publisher, New Delhi) P.223

The firmshould pay maximum attention to those whose value is the highest . Thus , the firm should be selective in its approach to control investment in various types of inventories . This analytical approach is called ABC analysis .

The materials are divided into a number of categories for adopting a selective approach for materials control .It is generally seen that in manufacturing concern , a small percentage of items contribute large percentage of value of consumption and a large percentage of items of materials contribute a small percentage of value . In between these two limits there are some items which have almost equal percentage of value of materials. Under A-B-C analysis, the materials are divided into three categories viz, A , B and C . Past experience has shown that almost 10 percent of the items contribute to 70 percent of value of consumption and this category is called ‘A’ Category . About 20 percentage of items contribute about 20 percentage of value of consumption and that is known as category ‘B’ materials .Category ‘C’ covers about 70 percentage of items of materials which contribute only 10 percentage of vale of consumption . There may be some variation in different organization and an adjustment can be made in these percentages.

The information is shown in the following diagram:

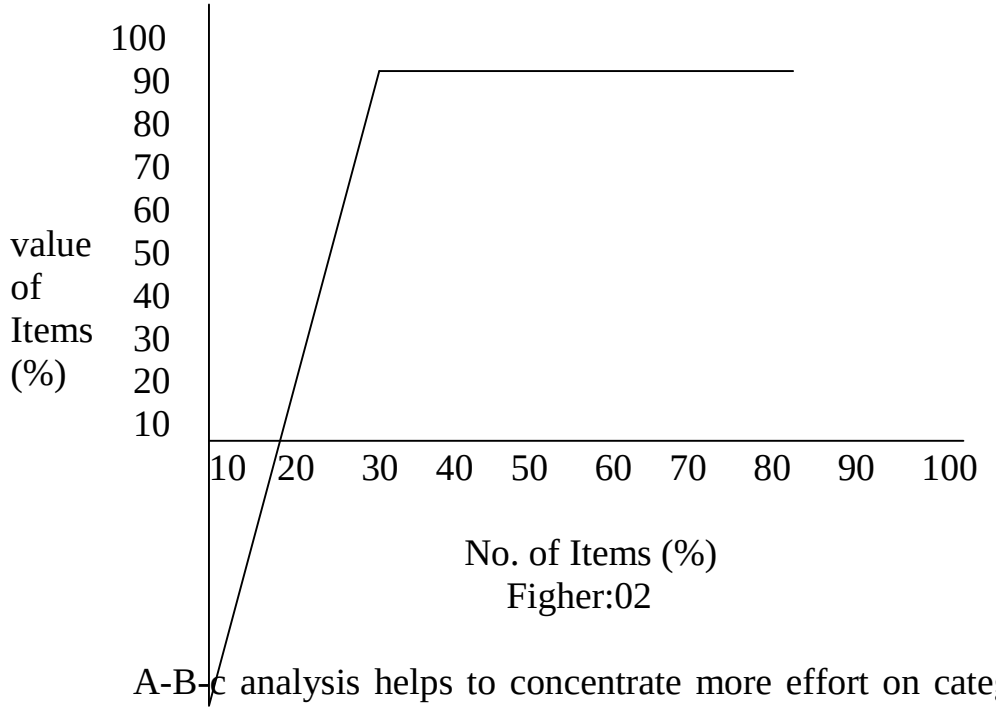
Table No .02

Class	No . of Iems %	Values of Items%
A	10	70
B	20	20
C	70	10

The firm has kept various items of inventory. All items in the inventory cannot be treated equally. They differ in value and can follow a selective control system. A selective control system, such as the ABC analysis, calcifies inventories into three categories according to the name of A,B and C. The ABC analysis concentrates ion important items and is known as Control by Important and Exception (CIE). As the items are classified in the importance of their relative value. This approach is also known as Proportional Value Analysis (PVA).[17]

[17]Pandey, I.M, Financial Management, (Bikash Publishing House Pvt. Ltd.,New Dehli) P. 775

The firm should pay maximum attention to those items which value is the highest. Thus the firm should be selective in its approach is called ABC analysis. The term ABC is known as Always Better Control.



Figher:02

A-B-c analysis helps to concentrate more effort on category A since greatest monetary advantage will come by controlling these items. An safety stocks and properly storing of 'A' category materials. These items are kept under a constant review so that a substantial material cost may be purchased for the year. A little more attention should be given towards 'B' category items and their purchase should be undertaken at quarterly or half yearly intervals.

The following example will explain the advantages of A-B-C analysis:

Suppose three items X,Y,Z have been and their consumption is Rs.240000, Rs.24000 and Rs 2400 respectively. Lat us presume that A-B-C classification is not due and annual order are 12 number. Each item will be ordered 4 times and average inventory will be:

Table no :03

Items	**Annual consumption (Rs)**	**No. of orders**	**Average working inventory (Rs)**
X	240000	4	60000
Y	24000	4	6000
Z	2400	4	600
	266400	12	66600

Suppose A-B-C analysis is followed and the number of orders will be according to the importance of the items. If the numbers of orders are 8,3 and 1, for items X,Y and Z respectively then the average inventory will be as follows:

Items	**Annual consumption (Rs)**	**No. of orders**	**Average working inventory (Rs)**
X	240000	8	30000
Y	24000	3	8000
Z	2400	1	2400
	266400	12	40400

When A-B-C analysis was not followed the average inventory was rs. 66600 and after following A-B-C analysis the average inventory came down to Rs. 40400. Average value of inventory is nearly 1.5 times in the earlier situation, then as compared to the second situation.

Advantages of ABC Analysis are :[18]

– A strict control of exercised on the items, which represent a high percentage on the materials cost. Managerial time is spent on 'A' items where as clerical staff with east managerial supervision can handle 'C' items and sometimes 'B' items. Equal attention to all the items of stores is likely to have a defused

correct on all items, irrespective of the value of consumption. So, ABC analysis should be followed to give due attention to the items which they deserve keeping in view their value of consumption.

– Investment in inventory is reduced to the minimum possible level because a reasonable quantity of 'A' items representing a significant portion of the materials cost is purchased. To reduce investment in materials, close control of 'A' items contributes much more then close control of 'C' items.
– Storage cost is reduced as a reasonable quantity of materials. Which account for high percentage of value of consumption, will be maintained in the stores.

3.6.5. Inventory Turnover Ratio

The relationship between sales and stock is known as inventory turnover. The ratio of sales to stock evaluates the efficiency of the company for inventory management. Inventory effect on sales directly because the level of invented the efficiency of the inventory management.

Inventory turnover ratios are calculated to indicate whether inventories have been used efficiently or not. The purpose is to ensure the blocking of only required minimum funds in inventory. The inventory turnover ratio also known as stock velocity is normally calculated as sales/average inventory or cost of goods sold/average inventory cost. Inventory conversion period may also be calculated to find the average time taken for clearing the stocks.

Symbolically,

$$\text{Inventory turnover ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory at cost}}$$

$$\text{Or,} \quad = \frac{\text{Net Sales}}{(\text{Average})\text{Inventory}}$$

[18] Richardmond ,J. Herbert, Effective Inventory Management (Fact of Fiction?, Financial Executive Publishers, New York) P 396

The significance of inventory turnover is that, it helps the analysis to measure the adequacy of goods available to sell compared to the actual sales.
It is also important technique of inventory management. Inventory turnover ration is calculated as given below:

$$\frac{\text{Cost of inventory consumed during the period}}{\text{Cost of average inventory held during the period}}$$

Average stocks is average of the opening stock and closing stock. The stock turnover ratio can also be determined in days as follows:

and, Inventory Conversion Period = $\frac{\text{Days in a year}}{\text{Inventory Turnover ratio}}$

Either a high or low ratio may be an indication of poor management as follows:

– High turnover may indicate future shortage:

A high inventory turnover result when the firm maintains extremely low stock of goods of raw materials. The low level of finished goods may indicate that firm will suffer a loss of sales due to an inability to deliver goods promptly. The

low level of raw materials could cause shut down of the form's production live resulting in higher cost.

– Low turnover may indicate overstocking of inventory:

A low inventory turnover result from excessive inventory begin by the firm may be increasing high cost form overstocking finished goods or raw materials at the same time. The firm may be absolute goods in it's inventory.

3.7 Limitation of Research Methodology

- B Data have been taken from Corporation's recorded books and interviews with related responsible personnel.
- B Data were taken in quantity as well as amount
- B All types of inventory have not been included in this study.

CHAPTER- IV

Presentation and Data Analysis of Data

4.1 Types of Inventory in Gorkhapatra Corporation

Inventory is the bridge between production and sales of a product. Inventory reserves the vital function of developing the various operation in the sequence beginning with raw materials extending through all the manufacturing operations and into finished goods storage and continuing to were house and retail store. The various forms of materials or goods that is held by an enterprise for future use is known as inventory. The various forms which inventory exists in manufacturing enterprise are materials, work in progress and finished goods.

a) Raw materials:

Raw materials are those basic inputs which are converted into finished product through the manufacturing process. Raw materials from a major input into the organization. They are required to carry out production activities uninterruptedly. The quantity of raw materials required for replenishing the supplies. The factors like the availability of raw materials and government regulations, etc. too effect the stock of raw materials.

There are following types of raw materials used by Gorkhapatra Corporation to publish various magazines and newspapers:

1. Newsprint paper
2. Aluminum Sheet
3. Image Setter film
4. P/S Plate negative
5. P/S Plate positive
6. P/S Developer negative
7. P/S Developer positive
8. Tele Printer Roll
9. Various Size of Blanket
10. A4 Size Photocopy Paper
11. Photo Graphic Film (Black & White and Color)
12. Agfa Paper
13. Agfa Paper Sterling
14. Image Remover Positive
15. Developer 163 & 76
16. Blanket Wash Solution
17. Phosphoric Acid
18. Finisher
19. Dunlop Rubber Solution

20. O/S reducer oil
21. Damping Hoge (Various Numbers)
22. Sprite Rectified
23. Various Ink
24. Cotton
25. Gum Arabic
26. Fountain Solution
27. Graphic Art Film
28. Color Fest set Ink
29. Photo Graphic Paper Alford
30. Blanket Fix Ink.

b) **Work in Progress:**

The work in progress is that stage of sticks which are between raw materials and finished goods. The raw materials enter the process of manufacture but they are yet to attain a final shape of finished goods. The quantum of work in progress depends upon the time taken in the manufacturing process. The greater the time taken in manufacturing. The more will be the amount of work in progress. Gorkhapatra Corporation does not keep the work in progress inventory because of the mature of publication. Corporation uses various raw materials to publish finished product i.e. Newspapers and Magazines.

c) **Finished goods**

Finished goods inventories are those completely manufactured products which are ready for sale. Stock of raw materials and work in progress facilitate production, while stock of finished goods is required for smooth marketing operation. Thus, inventory server as a link between the production and consumption of goods. There are the goods which are ready for the consumers. The stock of goods provides a buffer between production and market. The purpose of inventory is to ensure proper supply of goods to customers. The need for finished goods inventory will be more when production is undertaken in general without waiting for specific orders.

Gorkhapatra Corporation has a various publication i.e. newspapers and magazines as finished goods which are as follows:

1. Gorkhapatra Daily
2. The Rising Nepal Daily
3. Yuba Manch Monthly
4. Madhupark Monthly
5. Muna Munthly
6.

4.2 Philosophical interpretation of inventory

The basic objective of this study is to analysis the present practice of inventory management system in Gorkhapatra Corporation. Inventory management plays the vital role in management and every management should consider about it. In Gorkhapatra Corporation is also all the management team and staffs of store department are aware about it and even there is manual system and not any fake. Because of internal audit departments regular checking there is accurate stock of items in the stock as record and through the questionnaire with the staffs of store department it is clear that the staffs of the corporation and questionnaire model of techniques as the requirement by this study.

4.3 Practice of Inventory Management

The objective of this study is to analyze the present of inventory management system in Gorkhapatra Corporation. To achieve the above objective, collected information is analyze in this chapter by applying inventory management tools and techniques.

4.3.1 Purchasing

Purchasing is the First important function of inventory management in any manufacturing enterprises. The level of purchasing raw material directly affects the investment inventory and cost associated with inventory which ultimately affects the profit of the manufacturing enterprises . Therefore the manufacturing enterprises should apply the EOQ models to determine the real or appropriate quantity of raw materials to minimize the inventory cost and maximize the profit .

However, Gorkhapatra Corporation has not been applying EOQ model in practice. Most of all the required raw materials for the corporation are not available market. Corporation purchase its raw materials by global and local tender as per government rules and regulations.

Corporation needs regular supply of different types of raw materials for continuous production operation. Required raw materials for the Corporation are purchased by using following purchased procedures.

a) <u>Collection of Requisition:</u>

In Gorkhapatra Corporation , purchasing manager collects the purchase requisition form from store department for all items of regular use and operation .

b) <u>Decision for Purchase :</u>

On the receipt of requisition form , the procurement department of Corporation decides what and how much to purchase , from where to purchase as per previous exercised by the Corporation .

c) Selection of Suppliers :

For the selection of Corporation invites bids of tenders from listed suppliers then after Corporation selects qualified , cheap and best supplier among the participated suppliers as per their terms and conditions , quality and quantity and price of goods . Corporation has to import raw materials (Newsprint) mostly form Russia and another European countries like Canada and Belgium .

d) Purchase Order :

Corporation having selected suppliers , a purchase order is prepared by the procurement department and sent to supplier authorizing him to supply a specified quality and quantity of materials at the predetermined terms and conditions , time and place mentioned in it .

e) Receiving and Inspecting Materials :

When materials are arrived the delivery received and checked by receiving staff against the order placed by procurement department. After proper checking materials, it delivered into store department. On checking, if any discrepancy is found as regards to quality, it is immediately referred to the procurement department to adjust discrepancy. However, some time the procurement department has not tried to adjust the discrepancy as regarding to quantity and quality.

4.3.2 Store Control

Store keeping function includes the function of keeping the materials in the store and keeping their records of their movements. The cost of materials holding in the store directly affects the total cost associated with holding inventories. To minimize the cost of holding materials in the store, all manufacturing Public Enterprises generally use different types of controlling devices like bin cards, store larger.

a. Bin Cards:

By using bin cards in the form of loose sheets to keep the complete recorder of the receipt and issues of each item of materials in terms of quantity as well as balance quantity but ordering quantity are not stated. Therefore, by seeing the loose sheet the store keeper can sent the materials requisition for the purchases of materials in time. Corporation having use bin card system at the end of the fiscal year for audit purpose only.

b. Store Ledger:

Always Best Control in common for all to control the inventories in the store. It classifies the materials in the store into three groups, so that

effective control over the materials can be exercised. Nevertheless, the Corporation has not classified the materials in different group for control purpose. It is seen that Corporation has given equal attention to high values and critical materials as well as less values and non critical materials. This attitude leads to increase the holding cost of inventory and investment on inventory. It the Corporation wants to minimize the holding cost of inventory and investment of inventory, there should be use ABC analysis technique.

4.3.3 Issuing and Pricing :

Materials should be issued against requisition slip from various department of organization. Corporation has been also following this system by using first – in first - Out (FIFO) method. The pricing of the issues can be determined based on cost price or market price. In case of Corporation the inventories is valued at it's cost price.

4.4 Economic Order Quantity (EOQ)

For calculation of Economic Order Quantity of Corporation's raw materials, only major four types of raw materials have been taken for study.

Fiscal Year 2066/67

a. Newsprint

Based on Gorkhapatra Corporation record the following data are available.

Annual Demand:		830 MT.
Cost/MT:		Rs. 31982.00
Total Cost		830 MT.×31982.00
	=	2,65,45,060

Ordering Cost

Custom Duty:	Rs. 1550000.00
Clearing & Forwarding:	Rs. 2337500.00
Advancement:	Rs 140250.00
Bank Commission:	Rs. 129350.00
Labor Charge:	Rs. 14875.00
T.O.C.:	**Rs. 4171975.00**

Carrying Cost.

Storage:	Rs 372000.00
Insurance:	Rs. 8820.00
Obsolescence:	Rs. 398166.00
T.C.C. :	**Rs. 778986.00**

Carrying Cost per unit : $\frac{\text{Rs.778986}}{830}$

: Rs. **938.53**

By fitting the above data into EOQ formula

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

$$= \sqrt{\frac{2\times830\times4171975}{938.53}}$$

= 2716MT.

From the above calculation, it shows that the economic order size is 2716 metric ton and annual requirement is 830 metric ton. If the Corporation wants to minimize the total cost it should order 830 instead of 425 metric ton. But corporation import 425 metric ton at a time which cost much more because transportation charge and custom duty is very high.

Calculation of EOQ by applying table method

Table no. 04

No. of order	Order Size	Average Inventory	Ordering Cost	Carrying Cost	Total Cost
1	830	415	4171975	3894899.5	8066874.5
2	415	207.5	834395	194744.97	8538694.97
3	276	138	12515925	129517.14	12645442.14

4	207	103.5	16687700	97137.85	16784837.85
5	166	83	20859625	77897.99	20937522.99

Source:

Where,

Order Size = Annual Requirement/No. of order

Average Inventory = Order Size/2

Ordering Cost = Total cost per × no. of order

Carrying Cost = Carrying Cost × Average Inventory

Above table shows that carrying cost, ordering cost and total inventory cost of respective or size and no. of order. According to the table of corporation placed one on. of order the total cost will be minimize to 80,66,874.50.

b. Aluminum Sheet

Annual Demand: 10,000 Sheets

Cost/Sheet: Rs 250.00

Total Cost: 10000 sheet × Ts. 250.00

= Rs. 25,00,000.00

Ordering Cost

Advertisement : Rs. 22,275.00

Carrying Cost

Obsolescence: Rs. 37,5000.00

Carrying Cost Per Unit : $\frac{Rs.37,500.00}{10000}$

= Rs. 3.75

By fitting the above data into EOQ formula

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

= $\sqrt{\frac{2\times10000\times22275}{3.75}}$

= 10,900 sheets

From the above calculation it shows that the economic order size is 10,900 Sheets and annual requirement is 10,000 sheets. If the Corporation wants to minimize the total cost it should order 10,000 sheet at a time.

Calculation Of EOQ by Applying Table Method

Table no. 05

No.of order	Order Size	Average Inventory	Ordering Cost	Carrying Cost	Total Cost
1	10000	5000	22275	18750	41025
2	5000	2500	44550	9375	53925
3	3333.33	1666.66	66825	6249.97	73074.97
4	2500	1250	89100	4687.50	93787.5
5	2000	1000	111375	3750	115125

Source:

Where,

Order Size = Annual Requirement/No. of order

Average Inventory = Order Size/2

Ordering Cost = Total cost per × no. of order

Carrying Cost = Carrying Cost × Average Inventory

Above table shows that carrying cost, ordering cost and total inventory cost of respective or size and no. of order. According to the table of corporation placed one on. of order the total cost will be minimize to 41025.00

c. Image Setter Film Roll

Annual Demand: 120

Cost/Roll: Rs. 12800.00

Total Cost: 120 × 12800.00

= Rs. 1536000.00

Ordering Cost

Advertisement : Rs. 22,275.00

Carrying Cost

Obsolescence: Rs. 23,040.00

Carrying Cost Per Unit : $\frac{Rs.23040.00}{120}$

= Rs. 192

By fitting the above data into EOQ formula

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

= $\sqrt{\frac{2\times120\times2275}{192}}$

= 167 Rolls

From the above calculation it shows that the economic order size is 167 rolls and annual requirement is 120rools. If the Corporation wants to minimize the total cost it should order 120 roll at a time.

Calculation Of EOQ by Applying Table Method

Table no. 06

No.of order	Order Size	Average Inventory	Ordering Cost	Carrying Cost	Total Cost

1	120	60	22275	11520	33795
2	60	30	44550	5760	50310
3	40	20	66825	3840	70665
4	30	15	89100	2880	91980
5	24	12	111375	2304	113679

Source:

Where,

Order Size = Annual Requirement/No. of order
Average Inventory = Order Size/2
Ordering Cost = Total cost per × no. of order
Carrying Cost = Carrying Cost × Average Inventory

Above table shows that carrying cost, ordering cost and total inventory cost of respective or size and no. of order. According to the table of corporation placed one on. of order the total cost will be minimize to 33795.00.

d. Ink (Black)

Annual Demand: 9000kg
Cost/Kg : Rs. 73.00
Total Cost: 9000 × 73.00
= Rs. 657000.00

Ordering Cost

Advertisement : Rs. 22,275.00

Carrying Cost

Storage: Rs. 180000.00
Obsolescence: Rs. 13140.00
T.C.C: **Rs. 193140.00**

Carrying Cost Per Unit : $\frac{Rs.193140.00}{9000}$

= Rs. 21.46

By fitting the above data into EOQ formula.

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

= $\sqrt{\frac{2\times9000\times22275}{21.46}}$

= 4322Kgs.

From the above calculation it shows that the economic order size is 11336 kgs and annual requirement is 9000kgs. If the Corporation wants to minimize the total cost it should order 9000kgs at a time.

Calculation Of EOQ by Applying Table Method

Table no. 07

No.of order	Order Size	Average Inventory	Ordering Cost	Carrying Cost	Total Cost
1	9000	4500	27967	96570	124537
2	4500	2250	55934	48285	104219
3	3000	1500	83901	32190	116091
4	2250	1125	111868	24142.5	136010.5
5	1800	900	139835	19314	159149

Where,

Order Size = Annual Requirement/No. of order

Average Inventory = Order Size/2

Ordering Cost = Total cost per × no. of order

Carrying Cost = Carrying Cost × Average Inventory

Above table shows that carrying cost, ordering cost and total inventory cost of respective or size and no. of order. According to the table of corporation placed one on. of order the total cost will be minimize to Rs. 104219.00

First Year 2067/68

a. Newsprint

Based on Gorkhapatra Corporation record the following data are available.

Annual Demand:		1200
Cost/MT :		Rs. 49358.00
Total Cost:		1200 × 49358.00
	=	Rs. 59229600.00

Ordering Cost

Custom Duty:	Rs 2370000.00
Clearing & Formatting:	Rs. 2360000.00
Advertisement :	Rs. 161000.00
Bank Commission:	Rs. 190350.00
Labor Charge:	Rs. 21500.00
T.O.C.:	**Rs. 5102850.00**

Carrying Cost

Storage:	Rs. 900000.00
Insurance:	Rs. 105276.00
Obsolescence:	Rs. 888444.00
T.C.C:	**Rs. 1893720.00**

Carrying Cost Per Unit : $\frac{Rs.1893720.00}{1200}$

= Rs. 1578.10

By fitting the above data into EOQ formula

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

= $\sqrt{\frac{2\times1200\times5102850}{1578.10}}$

= 2786 MT.

From the above calculation it shows that the economic order size is 2786 MT and annual requirement is1200 MT. If the Corporation wants to minimize the total cost it should order 1200instead of 400 MT. But corporation import 400 Metric ton at a time which cost more because transportation charge and custom duty is very high.

Corporation is purchasing newsprint by import L/C through local bank and it will have to bear Hugh amount on bank commission, fright charge, custom duty and other expenses. So, it's economically to order for annual requirement at a time can be minimizing the total cost. In the fiscal year 2067/68 the EOQ is greater than annual requirement.

Calculation of No. of order be placed in a year.

$$\text{No. Of Order} = \frac{\textit{Annual requeriment}}{EOQ}$$

$$= \frac{1200}{2786}$$

$$= 0.4307$$

Calculation Of EOQ by Applying Table Method

Table no. 08

No.of order	Order Size	Average Inventory	Ordering Cost	Carrying Cost	Total Cost
1	1200	600	5102850	946860	6049710
2	600	300	10205700	473430	10679130
3	400	200	15308550	315620	15624170
4	300	150	20411400	236715	20648115
5	240	120	25514250	189372	25703622

Where,

Order Size = Annual Requirement/No. of order
Average Inventory = Order Size/2
Ordering Cost = Total cost per × no. of order
Carrying Cost = Carrying Cost × Average Inventory

Above table shows that carrying cost, ordering cost and total inventory cost of respective or size and no. of order. According to the table of corporation placed one on. of order the total cost will be minimize to Rs. 6049710.00

Safety Stocks

Safety Stocks is as buffer to meet some unanticipated increase in usage. The sage of inventory connect be perfectly forecasted. The amount of safety stock required is perpetual inventory system is determined by the amount of stock needed to guard against a stock out during the delivery time. The demand for materials may fluctuate and delivery of inventory may also be delayed and in such a situation the firm can face a problem of stock – out. The stock out can prove costly by affecting the smooth working of the concern. The safety stock can be determined in a wide variety of ways. Lead time of newsprint is not uniform this is from various countries of world like Russia, Holland, Belgium etc. So, lead time is differing according to import country.

We have,

Safety Stock = Daily Consumption × Lead Time

$$\text{Daily Consumption} = \frac{Annual\ Demand}{Days\ in\ a\ year}$$

$$= \frac{1200}{365}$$

= 3.29 MT.

Lead Time : Lead time is the normally taken in replacing inventory after the order has been placed. Normally it taken 60 days as lead time to supply into corporation from out of the country.

Therefore,

Safety Stock = Daily Consumption × Lead Time

= 3.29MT. × 60 Days

= 197.4 MT.

From the above calculation corporation should keep 197.4 MT. of newsprint as a safety stock to published newspaper and magazines. So the new order should be placed when the stock for 60 days left.

b. Aluminum Sheet.

Annual Demand:		12000
Cost/Sheet:		Rs. 190.00
Total Cost:		12000 × 190.00
	=	**Rs. 2280000.00**

Ordering Cost :

Advertisement: Rs. 27967.00

Carrying Cost

Obsolescence: Rs. 34200.00

Carrying Cost per Unit: $\frac{Rs.34200.00}{12000}$

= Rs. 2.85

By fitting the above data into EOQ formula

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

= $\sqrt{\frac{2\times1200\times27967}{2.85}}$

= 15346 Sheets.

From the above calculation it shows that the economic order size is 15346 sheets and annual requirement is12000 Sheets. If the Corporation wants to minimize the total cost it should order 12000sheets at a time which enable corporation to minimize the total cost. In a fiscal year 2067/68 corporation has ordered two times which is far away from annual requirement since, aluminum sheets are generally imported from Techno Company Of India.

Calculation of No. of orders to be placed in a year :

No of Orders = $\frac{Annual\,requirement}{EOQ}$

= $\frac{12000}{15346}$

= **0.782**

Calculation Of EOQ by Applying Table Method

Table no. 09

No. of order	Order Size	Average Inventory	Ordering Cost	Carrying Cost	Total Cost
1	12000	6000	27967	17100	45067
2	6000	3000	55934	8553	64487

3	4000	2000	83901	5702	89603
4	3000	1500	111868	4276.5	116144.5
5	2400	1200	139835	3421.2	143256.2

Where,

Order Size = Annual Requirement/No. of order

Average Inventory = Order Size/2

Ordering Cost = Total cost per × no. of order

Carrying Cost = Carrying Cost × Average Inventory

Above table shows that carrying cost, ordering cost and total inventory cost of respective or size and no. of order. According to the table of corporation placed one on. of order the total cost will be minimize to Rs. 45,067.00

Safety Stocks

We have,

Safety Stock = Daily Consumption × Lead Time

Daily Consumption = $\frac{Annual\ Demand}{Days\ in\ a\ year}$

$= \frac{12000}{365}$

= 32.87 Sheets.

Lead Time = 60 days.

We have,

Safety Stock = Daily Consumption × Lead Time

= 32.87 sheets × 60 days

= 1972.2 Sheets.

It is clear that Corporation should keep 1972.2 sheets as a safety stock.

c. Image Setter Film Roll

Annual Demand: 156 Roll

Cost/Roll: Rs. 15900.00

Total Cost: 156 × 15900.00

= ~~**Rs. 2480400.00**~~

Ordering Cost :

Advertisement : Rs. 27967.00

Carrying Cost

Obsolescence: Rs. 37206.00

Carrying Cost per Unit : $\frac{Rs.37206.00}{156}$

= Rs. 193.78

By fitting the above data into EOQ formula

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

= $\sqrt{\frac{2\times156\times27967}{193.78}}$

= 212 Rolls.

From the above calculation, it shows that the economic order size is 212 rolls and annual requirement is156 Rolls. If the Corporation wants to minimize the total cost it should order 156 Rolls at a time which enable corporation to minimize the total cost. In a fiscal year 2067/68 corporation has ordered two times which is far away from annual requirement since, Image setter film rolls are generally imported from Konica & Fuji Company of Japan.

Calculation of No. of orders to be placed in a year:

No of Orders = $\frac{Annual requirement}{EOQ}$

= $\frac{\mathbf{156}}{\mathbf{212}}$

= **0.736**

Calculation Of EOQ by Applying Table Method

Table no. 10

No.of order	Order Size	Average Inventory	Ordering Cost	Carrying Cost	Total Cost
1	156	6000	27967	17100	45067

2	6000	3000	55934	8553	64487
3	4000	2000	83901	5702	89603
4	3000	1500	111868	4276.5	116144.5
5	2400	1200	139835	3421.2	143256.2

Where,

Order Size = Annual Requirement/No. of order
Average Inventory = Order Size/2
Ordering Cost = Total cost per × no. of order
Carrying Cost = Carrying Cost × Average Inventory

Above table shows that carrying cost, ordering cost and total inventory cost of respective or size and no. of order. According to the table of corporation placed one on. of order the total cost will be minimize to Rs. 45,067.00

Safety Stocks

We have,
Safety Stock = Daily Consumption × Lead Time

Daily Consumption = $\frac{Annual\ Demand}{Days\ in\ a\ year}$

$= \frac{156\ Rolls}{365\ Days}$

= 0.43Rolls.

Lead Time = 60 days.

We have,
Safety Stock = Daily Consumption × Lead Time
= 0.43 Rolls × 60 days
= 25.8 Rolls.

From the above safety stock calculation it is clear that corporation should keep 26 Rolls as safety stock for running.

d. Ink (Black)

Annual Demand: 10000kg
Cost/Kg : Rs. 85.00

Total Cost: 10000 × 85.00

= Rs. 850000.00

Ordering Cost

Advertisement : Rs. 27967.00

Carrying Cost

Storage: Rs. 180000.00

Obsolescence: Rs. 17000.00

T.C.C: **Rs. 197000.00**

Carrying Cost Per Unit : $\frac{Rs.197000.00}{10000}$

= Rs. 19.70

By fitting the above data into EOQ formula

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

= $\sqrt{\frac{2\times 10000\times 27967}{19.70}}$

= 5329 Kgs.

From the above calculation it shows that the economic order size is 5329 kgs. and annual requirement is 10000kgs. If the Corporation wants to minimize the total cost it should order 5329 kgs. at a time. It is imported form Coast company of India.

Calculation of No. of orders to be placed in a year:

No of Orders = $\frac{Annual\,requirement}{EOQ}$

= $\frac{\mathbf{10000}}{\mathbf{5329}}$

= **1.88 times**

Calculation Of EOQ by Applying Table Method

Table no. 11

No. of order	Order Size	Average Inventory	Ordering Cost	Carrying Cost	Total Cost
1	10000	5000	27967	98500	126467
2	5000	2500	55934	49250	105184
3	3333.3	1666.7	83901	32833.3	116734.3
4	2500	1250	111868	24625	136493

Where,

Order Size = Annual Requirement/No. of order

Average Inventory = Order Size/2

Ordering Cost = Total cost per × no. of order

Carrying Cost = Carrying Cost × Average Inventory

Above table shows that carrying cost, ordering cost and total inventory cost of respective or size and no. of order. According to the table of corporation placed one on. of order the total cost will be minimize to Rs. 105184.00. It is sufficient to run minimum 6 Month smoothly.

Safety Stocks

We have,

Safety Stock = Daily Consumption × Lead Time

Daily Consumption = $\frac{Annual\ Demand}{Days\ in\ a\ year}$

$= \frac{10000\ kgs}{365\ Days}$

= 27.39 kgs.

Lead Time = 60 days.

We have,

Safety Stock = Daily Consumption × Lead Time

= 27.39 kgs × 60 days

= 1643.4 Kgs.

From the above safety stock calculation it is clear that corporation should keep 1643.4 Kgs. as safety stock for running.

Note: Above three major items Aluminum Sheets, Images setter film roll and ink are parched by the local supplier on the door deliver basic so there is no need of custom expenses, clearing and forwarding transportation and other incurred expanses for import them according to the corporation.

e. Chemicals:

There are many kinds of chemicals which are used into the corporation. The calculation of economic order quantity is not possible but the concept of EOQ must be followed while placing the new order for these items. What is the lead time to bring them, what amount of quantity during the year, which is the cost to be incurred all off these things should be considered.

According to the record of store department of corporation the total annual cost of chemical Rs. 700000.00 approximately in the fiscal year 2067/68.

f. Stationary

Similar to chemicals, stationary contains so many items which cannot be defined individually. Stationary is considered the least important items in respect investment or expenses. In these items EOQ is not possible to calculate too. Under the stationary items many items are included i.e. pen, calculator, pencil, eraser, tipex, Ball pen, glue stick, stapler, punching machine etc. The quantity of stationary items required is small and daily usage could be found exactly. The system used by the corporation for the stationary is ordered in a single order is satisfied. Inventory of stationary items has been checked by the staff of store department once every three months to determine the quality to place a new order. According to the records of store department of corporation the total cost of stationary is Rs. 550000.00 in the fiscal year 2067/68.

4.5 Trend Analysis

1. Newsprint

Annual Usages of Newsprint

Table No. 12

Year	Quantity (MT)	% Change
2063/064	750	00
2064/065	688	-8.2
2065/066	700	+1.75
2066/067	830	+18.75
2067/068	1200	+44.57

Sources: Appendix II

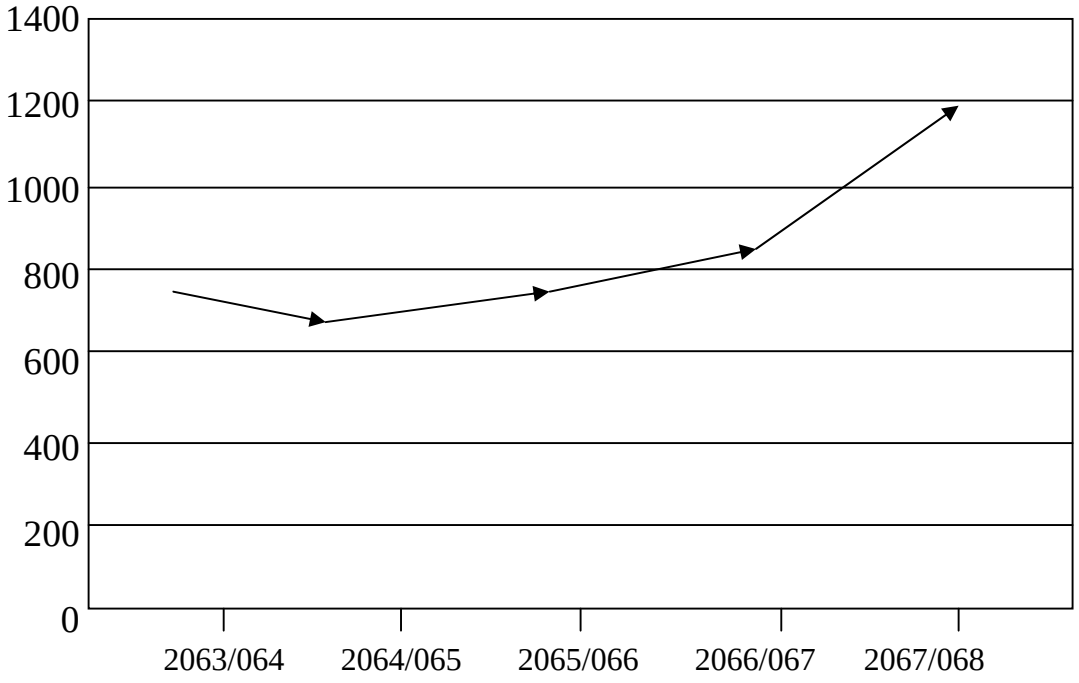


Figure: 03

Table and figure shows that the annual usage of Newsprint by the corporation is differ from year to year which is shown from 2063/064 to 2067/068 fluctuated although the normal working are same.

2. Aluminum Sheet

Annual Usages of Newsprint

Table No. 13

Year	Quantity (MT)	% Change

2063/064	5610	00
2064/065	7070	+26.02
2065/066	7667	+8.44
2066/067	10000	+13.04
2067/068	12000	+20.00

Sources: Appendix II

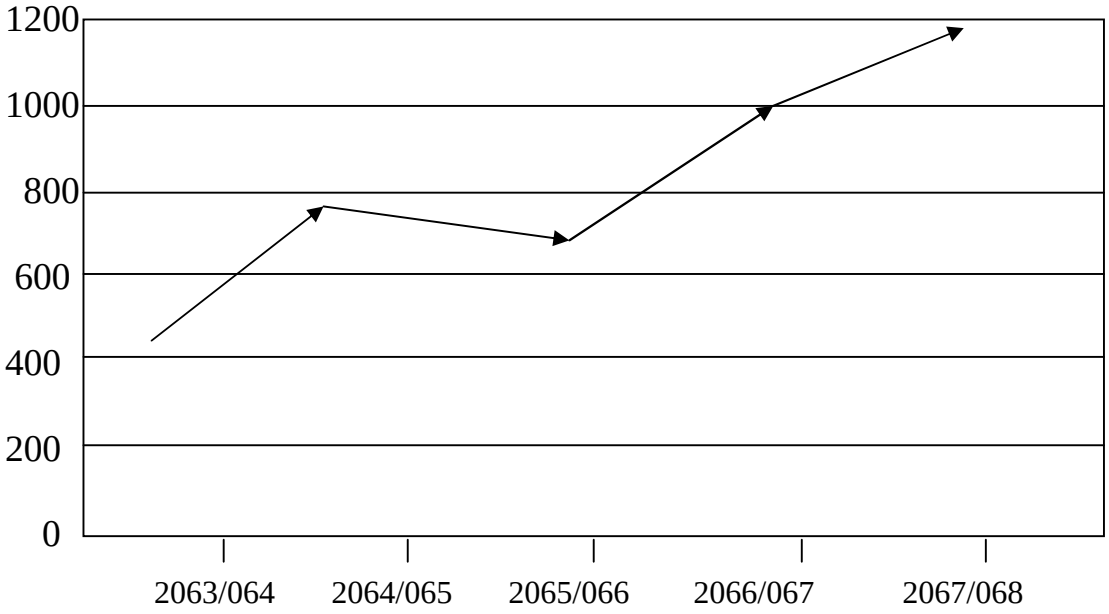


Figure: 04

From the above Table and figure It is clear that annual usages of aluminum sheets by the corporation in the fiscal year from 2063/064 to 2067/068 is not same and it is fluctuated although the normal working are same.

3. Image setter film roll

Annual Usages of Image setter film roll

Table No. 14

Year	Quantity (MT)	% Change
2063/064		00
2064/065	110	00
2065/066	115	+4.45
2066/067	120	+4.34
2067/068	156	+29.99

Sources: Appendix II

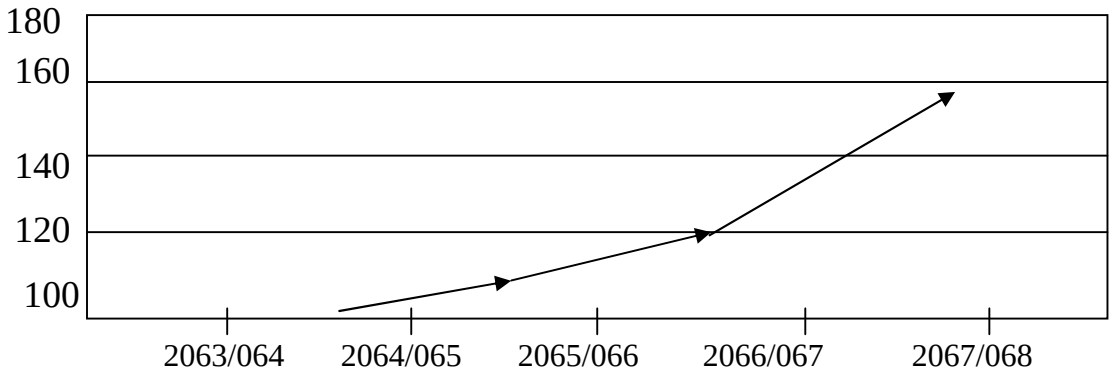


Figure: 05

From the above Table and figure It is clear that annual usages of aluminum sheets by the corporation in the fiscal year from 2063/064 to 2067/068 is not same and it is gradually increased although normal working days are same.

4. Ink

Annual Usages of Ink

Table No. 15

Year	Quantity (MT)	% Change
2063/064	7500	00
2064/065	7800	+3.99
2065/066	8000	+2.56
2066/067	9000	+12.5
2067/068	10000	+11.11

Sources: Appendix II

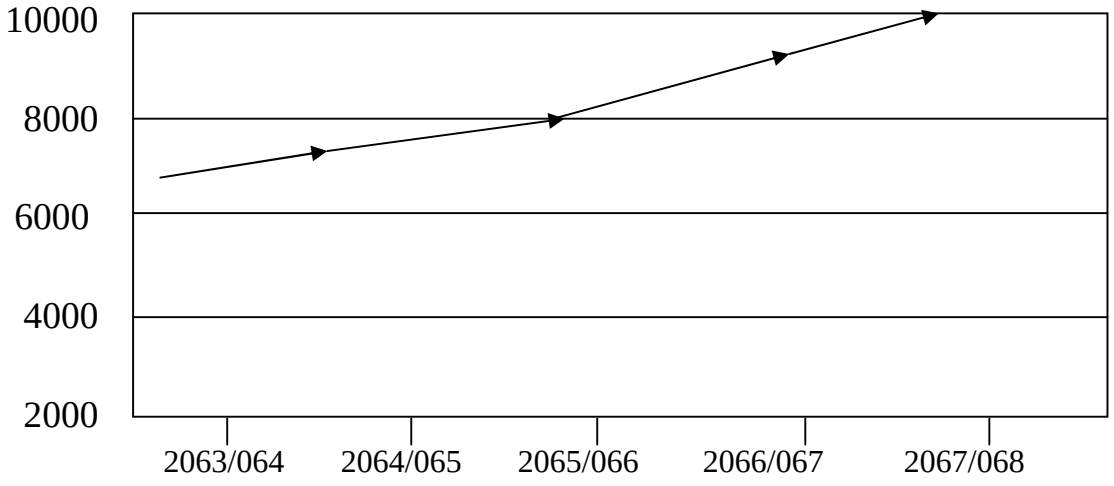


Figure: 06

From the above Table and figure It is clear that annual usages of aluminum sheets by the corporation in the fiscal year from 2063/064 to 2067/068 is not same and it is gradually increased although normal working days are same.

4.6 ABC Analysis

The materials are divided into a number of categories for adopting a selective approach for material control. It is generally seen that in manufacturing concern, a small percentage of items contribute a large percentage of value of consumption and a large percentage of items contrails contribute a small percentage of value. In between these two limits there are some items which have almost equal percentage of value is highest. In this inventory control system all items divided into three categories A, B and C. This classification of items is based on value, usages, rate and critically of items.

According to ABC analysis concept, the inventory items of Gorkhapatra Corporation are categories in A,B and C on the basis of their usages and value as show below:

ABC Classification

Table No. 16

Category	Items	Value	% of value
A	Newsprint	59229600.00	89
B	Aluminum sheets Image seeter film Ink Chemical	2280000.00 2480600.00 850000.00 700000.00	10
C	Stationary	550000.00	01
	Total:	**66090200.00**	**100**

Sources: Appendix II

From the above table it is found that newsprint is highest amount of value in the corporation has been categories under 'A' item according to it's usage value is very high i.e. 89% so, economic order quantity should be calculated very carefully. Tight inventory control should be maintained. Should be pay maximum attention to protect from any types of damages and losses.

Aluminum sheets image setter film roll, ink and chemical are categorizing under 'B' items according to its usages value is 10% so that normal inventory control is sufficient.

Stationary items have been categories under 'C' items according to their usages value is hardly 01% of total value and simple control will be sufficient. Inventories are checked physically every three month of one time in year to determined new order to be placed.

4.7 Major Findings

From above analysis following findings mentioned about the inventory management of Gorkhapatra Corporation.

- The procedure followed by the corporation are estimation of requirements , inviting tenders , evaluation of bids and placing the orders to selected supplier .
- Corporation procures raw materials from foreign countries by global supplier for newsprint and by local supplier for Aluminum sheets and ink import L / C.
- Corporation is not using scientific models of inventory management . For easy supply of raw materials corporation ordered from listed suppliers .Safety stock , re-order level was not calculated properly .
- All the in account and store department system is manual not computerized.
- Corporation is practicing store control device such as store ledger (stock book) but has not applied ABC analysis technique to control the various types of inventory in the store.
- Inventory expenses have increased due to indiscriminate storing and carelessness is the storing inventories.
- Corporation has not doing insurance of major inventory items excluding Newsprints for secure from any types of risks (Fire, thefts & terrorism) etc.)
- Annual usages of Newsprint, mages setter film roll, Aluminum sheets and ink are increasing year by year which makes inventory holding more difficult.
- Corporation has been also printing books of Janak Siccha Samagri and Sajha Prakashan.
- There is very limited staff in store department so recorders are not kept properly.
- Image setter film roll, Aluminum sheets and ink are procure on door delivery basis.

» Corporation not used the EOQ model for inventory management.

CHAPTER- V

Summary, Conclusion and Recommendation

5.1 Summary

Government of Nepal has established different types of manufacturing PEs during different plan periods with different objectives, i.e. provision of public utilities acceleration the rate of economic growth, establishment of welfare oriented society contributed in government exchequer, utilization of resources. PEs is Nepal constitute a vital instrument for the socio economic development of our country. It enjoys a strategic and crucial position in our economy. PEs provides such goods and services which are provides by private enterprises more efficiently. The government has been establishing public and private companies to given the employment to the unemployed and help to the declining economical condition of our country. In this context this study is concerned to appraise Gorkhapatra Corporation and exam that method the corporation is following inventory management and control system so as to minimize its cost which ultimately affects the objectives.

Success of any enterprises basically depends on the strength of management along with efficiency in managing the various functional aspects and modeling then to achieve the company objective. In other words, whatever may be the nature of business enterprises must important element i.e. management is basically concerned with getting the jobs and done effectively and efficiently.

Most of the manufacturing and leading companies invest a huge amount of capital in the firm of inventories. Involved for carrying on function associated with inventory such as purchasing handling storing, and record keeping is also large. Thus, the subject of inventory management has engaged the attention of management and extensive progress which include statistical tools like economic order quantity for how much to purchase together with re-order point.

Whatever may the nature of business enterprises management is the most important element which basically though other. Gorkhapatra Corporation invests a huge amount of capital in the form of inventory. The main objective of this study investor and provide the suggestion to use the scientific technique to help to reduce cost.

The basic problems are of this study is to examine the inventory management and control as practiced by the corporation. For this purpose, the interview held with officials and data were collected from various sources. Quantitative tools are applied to this study to analyze the collected data.

All the collected data and facts of corporation are analyzed on the basic stock level, ABC analysis. The order size, carrying cost, ordering cost, lead time all are determined by the corporation. To make certain type of inventory management decision many mathematical technique have been available for controlling the inventory but the corporation have not applied any types of technique for managing the inventory and is not given proper attention to the total cost of the corporation.

Inventory management means directing the business for the proper handling of the inventory to achieve the goal of organization. From the study of corporation it is found that the inventory management is not so good, so it requires some improvements.

5.2 Conclusion

All the basic data of the study and observation of researchers are taken from the interview with the officials, published books recorders of corporation in the calculation and presentation of obtained data. It seems that the corporation is not following any scientific tools and techniques to control or management of inventory systematically.

It is necessary to apply the theoretical and practical methods in ordering, carrying the inventory. It seems that all the field like collection, selling, production and management have so many levelness for this reason public and manufacturing enterprises have to bear loss in every year. Being the study of inventory management purchase or order is done in the basic of EOQ theory, safety stock and re-orders point to know the demand of product and inventory.

To meet the objectives of corporation establishment the study focused on the need for a suitable inventory management system to maintain a reasonable level of inventory. From the Gorkhapatra Corprotion point of view, answer of the question when and how much to buy is very important, because all the required newsprint, Aluminum Sheets and Ink etc. are imported from various countries for maintaining proper balance of inventory to fulfill the corporation's requirement.

1. If the corporation want to get the success, it is necessary to apply the theoretical and practical methods in collection, production, selling management and marketing and proper inventory management.
2. Corporation required war materials for the production of newspaper and magazines are imported by the company from Russia, Canada, Belgium, Japan, India and other third world countries on global or local tender agreement. Corporation has purchased some materials from other then listed suppliers.
3. Corporation is practicing stock control device as store ledger (Stock Book) but have not applied ABC analysis.
4. Corporation set sometime high expectation, some time lower expectation and the result explained the weakness of top level management in coordination and integrating the effort of orders. Therefore measure should be the considered by improve such problems and plans.

5. Corporation is not using scientific models of inventory management. Although corporation did not calculate EOQ.

6. Corporation Should make an effort to match the targeted demand i.e. targeted sale and actual supply to overcome the overstocking and under stocking problem of inventory.

7. Lowest on cost bid, reliable supplier as well as transportation agencies should be selected and corporation should impose appropriate action to them if they follow against the term and condition.

8. Due to the lack of sufficient data models, examples and formula etc. could not be used fully to ascertain the necessary operation of the corporation.

9. No technique for inventory management is possible to apply to calculate one of the major decisions when to buy because of the lack of planning and unsystematic methods of recording and maintaining data on stock out cost, carrying cost price of the raw materials etc. Thus in the real situation of the operation of corporation regarding it's inventory management system could not be found. It is necessary to use and study above maintained things in inventory management.

5.3 Recommendation

The management of inventory in corporation is not only necessary but also compulsion for the better performance of the manufacturing enterprises. If corporation initiates step to the appropriate management of inventory, certainly it will cope its set objectives successfully. This study is just a small part to fulfill the partial requirements of Master's Degree. Concerning these findings, it may be appropriate to make some suggestions are recommendations. Although these suggestion may not enough but that can be improved and required

attention to bring some improvement in inventory management of Gorkhapatra Corporation.

There are no any kinds of difficulties to take essential data and contact with the responsible person of department in process of study and research of Gorkhapatra Corporation. The response and behavior of office staff are quite helpful and I am grate full for their help.

The following recommendations are forwarded on the basic of analysis and interpretation of data and conclusion extracted to improve the existing inventory management system of Gorkhapatra Corporation.

1. Reduce Inventory Expenses

- Corporation used to procure raw materials 3-4 times in a year. Therefore the inventory expenses increased due to high ordering cost. To reduce this cost it has to procure once in a year.
- Corporation has to compare between door delivery cost and direct buying cost from manufacture and which is economy that should be prefer because Aluminum sheets, Ink and Image setter film roll are procure on door delivery basis.
- The obsolescence tendency of raw materials has increased the inventory cost because of indiscriminate storing and carelessness in the storing of inventories to improve if proper storing is essential.
- Corporation has store on rent at National Trading and Jilla Sahakari by this corporation has been paid million of rupees as a store rent. So that corporation should make its own warehouse that can be save million of rupees and will make the supply of raw materials easier and fast.

- Corporation has bear higher amount of cost due to local purchase, thus local purchase should be discourage and has to follow the financial tools and technique to purchase its raw materials.

2. Follow Inventory Techniques

- Corporation has follow the method of inventory management techniques like purchase order, EOQ, safety stocks, re-order point and inventory control device ABC analysis.

- The inventory can be manage smoothly by classifying them according to their value i.e. ABC analysis. Those items that have higher usages value then other have to be given precise control with less control applied over items having low usage value, when its types of classification is made, it will be easier for the corporation to know which items in inventory expenses.

- Bin card can also be used to manage inventory in a simple way. In this card the name of item, item number, unite price, usage rate, and supplier's name is maintained. Similarly the data of order and its receipt and issuance can be maintained in the card.

3. Term and Conditions with Suppliers

Lowest on cost bid, reliable supplier as will as transportation agencies would be selected and corporation should take appropriate action to them if they follow against term and condition.

4. Security

During the study, there is no insurance made of raw materials except Newsprint. So major raw materials like Ink, Aluminum sheets, film sheet etc. should be insurance to secure from any types of risks.

5. Proper Records

– Record keeping system should be scientific so that the corporation can locate the past records.

– Accounting provides valuable information to the decision makers, which can serve the controlling function if the records are classified and properly kept. Costing of different factors related to inventory of corporation required sound classification and definition activities.

6. Proper Management

- Clear vision of top authority should be there to solve the problems appeared in coerce of inventory management system and they should think favor of the corporation.
- The frequent change in top level management creates the unstable environment in the corporation, which leads the enterprises backwards, so the post of General Manager should be professional. He/She should be appointed as per his/her qualification and experience.

Bibliography

Books:

Agrawal, Govinda Ram, (1981), Inventory Cost control, Management Day Souvenir, production Management

Agrawal, Govinda Ram, (1975),Inventory Management Concept & Technique, prashasan Byabastha Bibhag, Lalitpur

Ahuja, K.K, (1993), Production Management, CBS Publishers and Distrubuters

Dangol, Ratna Man, (2052), Financial Management, Theory and practical, Taleju prakashan

Gorkhapatra Corporation, (1958 - 2057), Satabarshik Smarika

Gorkhapatra Corporation, (2062), Smarika

Gupta and P.K Rajput, (1982), Purchasing and Stock Keeping, Tata Mc-Grew-Hill Publishing co. LTD., New Delhi

Jain S.P and K.L Narang, (1990), Cost Accounting Principle and Practice, Kalyani Publisher, New Delhi

Khan, M.Y. and Jain P.K., (2002) Financial Management Text and Problems, Tata Mc Hill Publishing Company, Third edition, New Delhi

Kulkarni, P.V., (1981), Financial Management, Kalyan Publisher, New Delhi

Pandey, I.M., (1993), Financial Management, Bikash Publishing House PVt.Ltd , New Delhi

Richardmond, J. Herbet, (1969), Effective Inventory Management Fact or Fiction ?, Financial Executive Publisher, New York

R.K Sharma/Shasi k. Gupta, (1996), Management Accounting Principle and Practice, Kalyani Publisher, New Delhi

Weston, J.F. and Copeland, T.E., (1992), Managerial Finance, The Dryden Press International Edition, Ninth edition.

Thesis:

Banjare, Manoj Kumar (2004), "Inventory Management of Manufacturing Public Enterprises in Nepal " an Unpublished master degree Thesis, central department of Management (T.U.)

Ghimire, Pushpa Raj (2003), "Inventory Management Of Agriculture Inputs Corporation regarding chemical fertilizer" an unpublished master degree thesis, central department of Management (T.U)

Kandel, Bal Dip,(2004), "Inventory Management of Royal Drugs Limited" an unpublished Master degree thesis, central department of Management (T.U)

Appendix I
Date of materials consumption and purchase

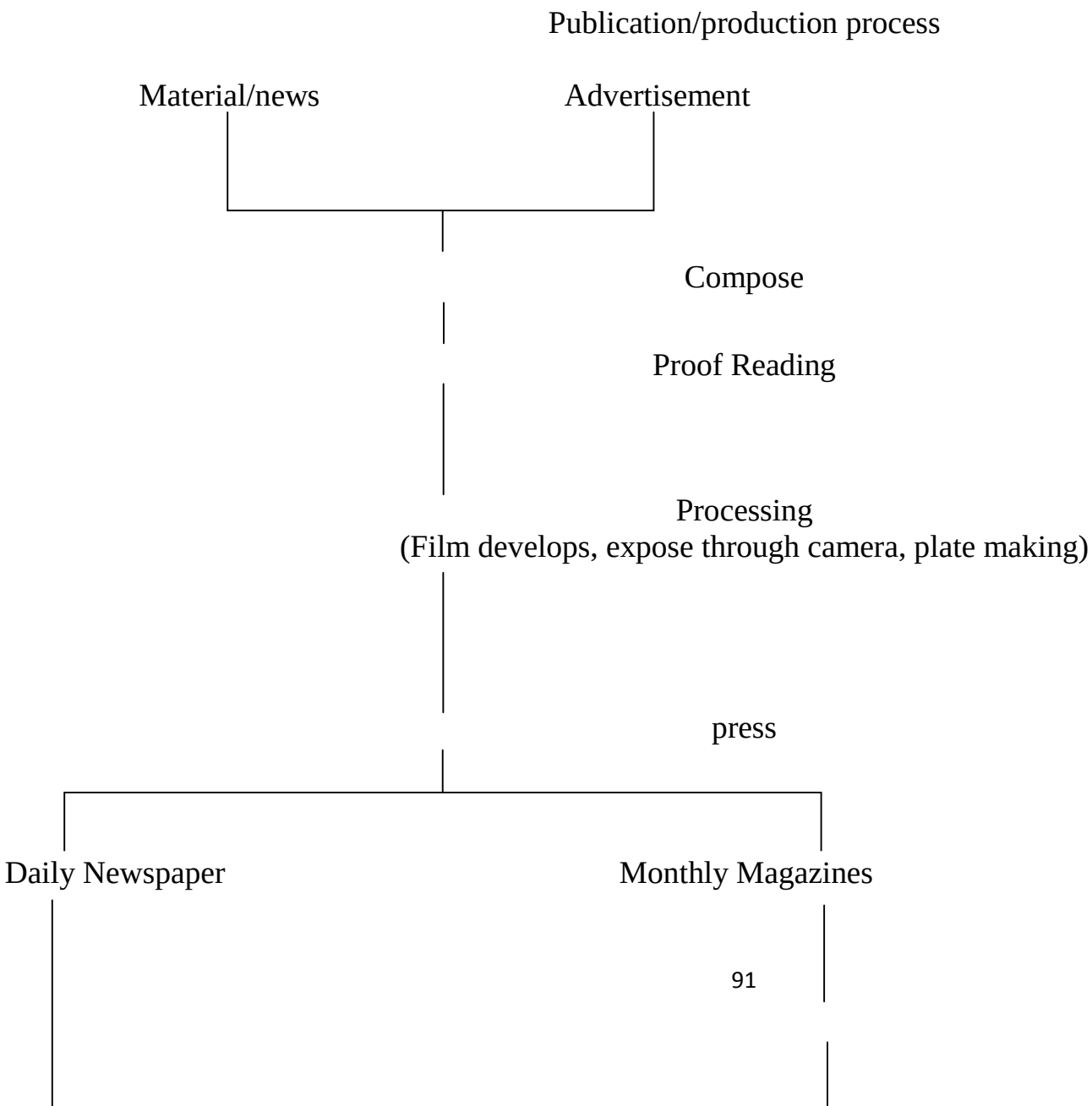
Materials	**2063/064**	**2064/065**	**2065/066**	**2066/067**	**2067/068**
1. Newsprint					
Annual Requirement (MT)	750.00	688.00	700.00	830.00	1200.00
cost/MT	50,484.50	50,484.50	33,450.00	33,750.00	49,358.00
Total cost	37,863,375.00	34,733,336.00	23,415,000.00	28,012,500.00	59,229,600.00
% change		-8.27	1.74	18.57	44.58
Index	100	91.73	101.74	118.57	144.58
2. Aluminum Sheets					
Annual Requirement (Sheets)	5610	7070	7667	10000	12000
cost/MT	257.00	249.00	260.00	250.00	190.00
Total cost	1,441,770.00	1,760,430.00	1,993,420.00	2,500,000.00	2,280,000.000
% change		26.02	8.44	30.43	20.00
Index	100	126.02	134.47	164.90	184.90
3. Image Setter Film					
Annual Requirements(Rolls)		110	115	120	156
cost/MT		26,000.00	16,000.00	1,536,000.00	2,480,400.00
Total cost			4.55	4.35	30.00
% change		100	104.55	104.35	130.00
Index					
3. Ink (Black)					
Annual Requirement (Kgs)	7500	7800	8000	9000	10000
cost/MT	68.00	65.00	68.00	73.00	85.00

Total cost	510,000.00	507,000.00	544,000.00	657,000.00	850,000,00
% change		4.00	2.56	12.5	11.11
Index	100	104.00	102.56	112.50	111.11

Date of Materials Consumption and purchase

Materials	2063/2064	2064/2065	2065/2066	2066/2067	2067/2068
Newsprint					
Annual Requirement (MT)					1200
Cost/MT					49358
Total cost					59229600
Aluminum Sheets					
Annual Requirement (Sheets)					12000
Cost/Sheet					190
Total cost					2280000
Image Setter Film					
Annual Requirements(Rolls)					1300
Cost/Roll					15900
Total cost					20670000
Ink (Black)					
Annual Requirement (Kgs)	`				10000
Cost/Kg					85
Total cost					850000

Appendix-II


Publication/production process
Material/news
Advertisement
Compose
Proof Reading
Processing
(Film develops, expose through camera, plate making)
press
Daily Newspaper
Monthly Magazines

Binding

Distribution

Market

News Print

Ordering Cost:		**2063/064**	**2064/065**	**2065/066**
	Custom			
	Cleaning & Forwarding			
	Calcutta Port Charger			
	Tax			
	Insurance			
	Bank Commission			
	Labour Charge			
Carrying Cost:				
	Godown			
	Jilla Sahakari Sangh Limited			

	Insurance			
	Obsolescence			
	Lead Time			

Aluminum Sheets

Ordering Cost:		**2063/064**	**2064/065**	**2065/066**
	Custom			
	Cleaning &Forwarding			
	Calcutta Port Charger			
	Tax			
	Insurance			
	Bank Commission			
	Labor Charge			
Carrying Cost:				
	Godown			
	Jilla Sahakari Sangh Limited			
	Insurance			
	Obsolescence			
	Lead Time			

Film Roll

Ordering Cost:		**2063/064**	**2064/065**	**2065/066**
	Custom Duty			
	Cleaning & Forwarding			
	Calcutta Port Charger			
	Tax			
	Insurance			
	Bank Commission			
	Labour Charge			
	Weightage			
Carrying Cost:				
	Godown			
	Jilla Sahakari Sangh Limited			
	Insurance			
	Obsolescence			
	Lead Time			

Ink

Ordering Cost:		**2063/064**	**2064/065**	**2065/066**
	Custom Duty			
	Cleaning & Forwarding			
	Calcutta Port Charger			
	Tax			
	Insurance			
	Bank Commission			

	Labour Charge			
	Weightage			
Carrying Cost:				
	Godown			
	Jilla Sahakari Sangh Limited			
	Insurance			
	Obsolescence			
	Lead Time			