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**"AN ANALYTICAL STUDY ON
SYSTEMS AND METHODS OF
MATERIAL MANAGEMENT IN
DYEING & PRINTING INDUSTRY
OF JETPUR CITY "**

**THE THESIS TO BE SUBMITTED TO
SAURASHTRA UNIVERSITY, RAJKOT
FOR THE
Ph. D.**

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CERTIFICATE

This is to certify that Dimple A. Dave has written this thesis on "Analytical Study on Systems and Methods of Materials Management in Dyeing & Printing Industry of Jetpur City." for the Ph.D. Degree in Management under the Faculty of Commerce, Saurashtra University, Rajkot under my guidance and supervision.

I also certify that this is her original work.

Guide

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DECLARATION

I hereby declare that for the thesis, I am going to submit, no degree or diploma has been conferred on me before, either by this University or by any other University

Dimple A. Dave

PREFACE

The Dyeing and Printing Industry of Jetpur is one of the large Dyeing sector of Gujarat state. Jetpur is a small city with 1,04,000 population where this industry is developed.

Research has been conducted by the researcher on "AN ANALYTICAL STUDY ON SYSTEMS AND METHODS OF MATERIAL MANAGEMENT IN DYEING & PRINTING INDUSTRY OF JETPUR CITY "

There are 996 registered dyeing of printing units in the Jetpur dyeing and Printing association, but the researcher has selected 30 sample of units for the research work for Analysis of the systems and methods for the materials are adopted the sampled unit Materials Management is a deep and vast subject and has gained acceptance in all sector of industry. The researcher have collected the primary data consist with store, purchase, materials, handling, safety and security management of waste and scrap and inventory audit. The units of study covers small medium and large units of Jetpur Dyeing and Printing Industry.

Further, the researcher report have been classified in seven chapters. This study can draw the attention of policy makers or entrepreneiour for method and system of martial management.

ACKNOWLEDGEMENT

It is my proud privilege to express my sense to all those who directly or indirectly helped me during my research work.

First of all I have very grateful and have very few words to express the gratitude towards to Dr. D. C. Gohil, Associate Professor, Department of Commerce and Business Administration, Saurashtra University, Rajkot. My guide who guided me, helped me and inspired me in my this research work. She has not only guided me, but also has encouraged me to come out of the troubles and hurdles, which I faced during my research work. I am able to sustain myself in my research work due to her. She is not only my guide but my inspiration and my elder sister also.

I am grateful and obliged to Late Dr. B. H. Joshi who helped me in selecting the theme of this study and who is my previous guide of my work.

I owe a deal to the blessing of my beloved and respected parents Shri Arvindbhai C. Dave and Smt. Gitaben A. Dave. I Lack words to express my feeling towards them.

The difficult and at times discouraging task of undertaking the present research work would have been impossible for me to complete without the inspiring encouragement and generous help of my elder sister Bhrgavi, my elder brother Jatin, Dr. Ushaben Desai, Dr. Anantbhai M.Vasani, Mr. Nalin. C. Joshi and the whole family, and also thankful to DeepSagar Computeres.

I heartily thank to Jetpur Dyeing and Printing Association who provide me the information about the Dyeing and Printing industry of Jetpur city.

Finally, it is all due to the blessings of Almighty, nothing is possible without his blessings and inspiration. With the blessing and inspiration of my Lord Smiandhar Swami, and Dada Bhagwan I can be able to do this Work.

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CHAPTER - 1

INTRODUCTION OF MATERIAL MANAGEMENT

Organisation is the process of assigning duties to individuals or groups selected for the purpose, so as to achieve specified ends effectively and economically through the coordination and combination of all their activities Sheldon defines about organisation in The Philosophy of management.

Men, materials and management are the various factors of an organisation According to Oliver Sheldon " Management is the function in industry concerned in the execution of policy within the limits set up by the administration and the employment of the organisation for the particular object before it. "1

Organisation takes steps for establishing a structural relationship between men, materials, Plant and equipment so as to run business properly. 2 And management is applicable to both business and non business organisation. Also management is useful in our personal life. Management has to coordinate human and non-human factors before achieved goals of organisation effectively and efficiently . There can say " Management is a process of planning, organising, staffing, directing and controlling the various factors.

1 Sheldon, Op cit

2 Business organisation and management P. 10

HENRY FAYOL :- " To manage is to forecast and to plan, to organize, to command, to coordinate and to control "

F. W. TAYLOR :- " Management is the art of knowing what you want to do and then seeing that it is done in the best and cheapest way. "

GEORGE R. TERRY :-" Management is a distinct process consisting of planning, organizing, actuating and controlling, performed to determine and accomplish the objectives by the use of people and resources. "

so many management is an art as well as science.

DONAL J. COUGH :- says " Management is the art and science of decision making and leadership. "

Marketing management, financial Management, Personnel, management, Production management and Materials Management are areas of Management. To Succeed in business, one has to buy the right type of goods at the right place, at the right time, in the right quantities and at the right prices. Materials Management is a main function area to success business organisation.

Quality, quantity, price, location of raw and finished goods, transportation controlling goods are the factors of materials management.

Materials Management serves various functions like the materials Planning, purchasing, receiving, stores, inventory control, scrap and surplus disposal and finished goods. So Materials Management is an important function of management and an integrated approach is necessary.

In general which enters into a Job either directly or indirectly will be the material because finished product, semi finished product and components of one industry is the raw materials of others. And materials Management served various function in the organisation so it becomes important port of the unit / organisation becuse Materials manager control and coordinate all the function of organisation like as purchase, transport, planning, storing and controlling materials. And there should be controlled materials cost, Materials supply and Materials utilisation for the balanced growth and efficient running of the organisation.

It should be essential to know real definition of Materials management. By the A. K. Dutta :- " If is essentially an activity of an enterprise for the procurement and use of materials distinctly separated from the process of procurement and the use of human kills and labours for the ultimate deployment to attain some pre determined objectives " ³

3 A. K. Datta : Integrated Materials Management,
 S. Chand & Co. Ltd. New Delhi 1978 P. 4

P. Gopalkrishnan and M. Sundresan ⁴ :- " The function responsible for the coordination of planning, surceasing, purchasing, moving storing and controlling materials in an optimum manner so as to provide a pre decide service to the customer at a minimum cost. "

P. R. Gokrana⁵ :- " It covers the whole range of functions involved in converting raw materials and ancillary supplies into finished products. "

Materials management is one of the areas covered by the whole process of management. The effective use of all manpower is looked after by the personnel management But for a balanced growth and efficient running of the enterprise it is necessary that the materials costs and materials supply and utilisation are so controlled that they lead to (i) the maximisation of production and (ii) the maximisation of the margin of profit.

A. K. Datta ⁶ also said " Materials Management can thus be defined as that aspect of Management function which is primary concerned with the equation, control and use of materials needed and flow of goods and services connected with production process having some predetermined objectives in view. "

4 P. Gopal Krishnan and M Sunderesan : Materials Management :-A Integrated Approach , Prentice Hall of India Pvt. Ltd. New Delhi 1979 P. 7

5 P. R. Gokrana : Essentials of Materials Management : Somaiya publications Pvt. Ltd., Bombay, 1970 P. 2

6 A. K. Datta : Materials Management : Procedures, Text and cases. Prentic Hall of India Pvt. Ltd. New Delhi 1993 P. 7

For study Team ' Materials Management ' covers the efficient management of Materials in all its aspects affecting the flow, conservation and utilisation and the quality and cost of materials.

Therefore materials management is a service function affecting the flow of materials in a manner in which it helps in conserving the materials cost, best utilisation of materials and maintaining the quality of both incoming and out going materials.

To attain the stated goals of the organisation the management should keeps a close watch over the materials with the help of which people who are at work, accomplish their assigned job.

All types of organisations, whether manufacturing, trading or even non profit are continuously involves in procurement, storage and stock replenishment of different types of materials. The function of buying or stocking is a result of decision making process which may be simple or complex, intuitive or analytical, hasty or deliberate. In the manufacturing organisations material management is relatively more important as well as complex. On an average about one-third of total assets of a company represents the investments in inventories. Due to these reasons materials management assumed a greater importance since the inception of manufacturing activities. Materials is a fatty cost element. The slightest efficiency in its management results in substantial absolute cost advantage. With the growth of these functions in the organisation materials management is given a distinct importance in modern management. In fact, it is recognised as one of the areas of management.

In the organisation, the important inputs are men, machines and materials which are the results of the monetary commitments. Materials being a key and investable input, directly effects the fundamental economic objectives like profitability. Efficient management of any of the input directly affects the output and results in the profitability of the organisation.

As materials consume lion's share of the investments and that too with a possibility of turnover, its efficient management directly contributes to the profitability of the organisation.

American production and Inventory control society defines materials management as under :-

" Materials management is a term to describe the grouping of management functions related to the complete cycle of material flow, from the purchase and internal control of production materials to the planning and control of work in progress, to the ware housing shipping and distribution of the finished product. It differs from the materials control in that the latter term, traditionally is limited to the internal control of production material. "

Materials management is concerned with those engagement functions circumscribed in the complete cycle of materials flow like purchasing, production and inventory control, material handling, packaging, traffic and distribution. All these related functions are grouped together and are put under the direct control of one line manager. All the sections of the materials management strive to attain the fundamental objectives of materials management. With this, it should also be noted that inventory control is an integral part of materials management and it is confined to the internal control of the production materials.

Material management is desirable, for an industrial establishment to have a centralised authority vested with the responsibility of planning, procuring preserving, handling usage and other regulated aspects. Such a centralised authority wherein, all related activities of materials are combined is called integrated materials management or simply the materials management.

Bailes and Farmer define :- ⁷

" Materials management as the management of the flow of materials in to an organisation to the point, where, those materials are converted into the firm's end products "

Ammer defines :-

It is the process by which an organisation is supplied with goods and services that it needs to achieve its objectives. The materials management being with the supplier and ends within the material is either consumed or incorporated into some product. The executives, who engage in materials management, are concerned with three basic activities : buying, storage of material and movement. "

Lee and Dobler define :-

Material Management as a confederacy of traditional materials activities bound by a common idea - the idea of an integrated management approach to planning, acquisition, conversion, flow and distribution of production materials from the raw materials state to the finished product state.

7 Bailey, Peter David Farmer :- Materials Management Hand book, Grower Pub. Company - P. 11

Importance of Materials :-

- ✱ The amount spent on materials is increasing in relation to the expenditure on other inputs.
- ✱ Materials offer considerable scope for reducing costs and improving profits.
- ✱ Materials form an important part of current assets in any organisation.
- ✱ Materials add value to a product. The managing between the value of raw materials and the finished product is known as 'the value added by manufacture.'
- ✱ Materials contribute to the quality of the end product
Quality is understood as the sum of attributes or properties that describe the product.
- ✱ Materials management is one of the centres of accountability for performance.
- ✱ Conservation of materials and their availability for posterity is one of the planks of social responsibility of business. As is well known most material resources are not renewable and are not inexhaustible.
- ✱ Materials is the demand from employees and the public for environmental safety.
- ✱ Materials supplies and equipment are the very life blood of any functioning industrial concern, Governmental agency or commercial operation. No organisation can operate without them.
- ✱ The relationship between man and materials is indivisible. The condition of man is synonymous with materials. Materials are the life - blood of man's development.

Management of material is challenge for unit, if they manage it properly they can developed, otherwise they will not get positive results of business. Any organisation weather it is small or big Government or non Government, social, economical or religious unit, this type of managerial function is mauled for it.

AREA :-

- ☆ Materials planning,
- ☆ Purchasing and inventory control
- ☆ Receiving,
- ☆ Warehousing and store keeping,
- ☆ Value analysis
- ☆ Standardisation
- ☆ Production control
- ☆ Materials Handling
- ☆ Transportation,
- ☆ Disposal of scrap and surplus
- ☆ Auditing of materials
- ☆ Control of finished goods.

These are the areas of materials management. A. K. Datta⁸ has shortened the list and has grouped the function of materials management as logical activities, the scope of which can be confined to the following areas of functioning

8 A. K. Datta : Modern Materials Management, Indian society for materials management, Calcutta, 1975 P. 3

- ★ Materials Budgeting, Planning and Procurement;
- ★ Scheduling Purchasing and Programming.
- ★ Receiving and inspection;
- ★ Inventory control storage and Warehousing
- ★ Materials Handling and Traffic, etc. and
- ★ Despatch, shipping and Disposal " He also add
 - (i) Coordination between the above six activities;
 - (ii) Keeping liaison between (a) designing (b) engineering (c) manufacturing and (d) Production
 - (iii) cost reduction
 - (iv) marketing

OBJECTIVES :-

Materials Management has to balance between the objectives of the organisation and the expectations of the consumer for the maximum profit at minimum price.

There is also responsibility to ensure that the goods and services which required by the people are adequately made available at the time of need and at reasonably moderate prices because the consumers are the backbone of an organisation.

Primary objectives and secondary objectives are the group of objectives which are given below :-

PRIMARY OBJECTIVES :-

- (1) Provision of materials (Procurement, storage, issue and distribution)

- (2) Minimisation of inventories (Control, storage Accounting, Assuring high capital turn over ratio)

SECONDARY OBJECTIVES :-

- (1) Location of new sources of supply
- (2) Variety reduction and simplification
- (3) Quality control
- (4) Value Analysis
- (5) Coordination
- (6) Development of skill and knowledge

K. Aswathappa and K. Shridhara Bhat has described nine objectives of Materials Management, each in some way or the other contributes to the achievement of some overall company objectives. If the contribution is direct the objective may be called ' primary '. If the contribution is indirect, the objectives may be called secondary.

The main focus of Materials Management is to procure right materials in the right quality, of right quantity, at the right time, brought from the right source and at right prices.

According to K. Aswathappa and K. Shridhara Bhat there are at least nine primary objectives and secondary objectives are not limited in number or in scope as primary objectives.

PRIMARY OBJECTIVES :-

Low prices :-

Obtaining the least possible price for purchased materials is the most obvious purchasing objectives and certainly one of the most important. If the purchasing department reduces the prices of the items it buys, operating cost are reduced and profits are enhanced. This objectives is important for all purchase of materials and service including transportation.

High inventory turnover :-

When inventories are low in relation to sales less capital is tied up inventories This is in turn, increases the efficiently with which the company's capital is utilised, so that, return on investment in higher Also storage and carrying costs of inventories are lower when the turnover is high.

Low cost acquisition and possession :-

If materials are handled and stored efficiently, their real cost is lower. Acquisition and possession costs are low, when the receiving and stores department operate efficiently.

Continuity of supply :-

When there are disruptions in the continuity of supply excess costs are inevitable production costs go up, excess expending and transportation costs are likely and so on continuity of supply is particularly important for highly automated processes where costs are rigid and must be incurred even when production stops because of inevitability of material.

Consistency of supply :-

As pointed out earlier, quality of the end product depends on materials that go into it when materials purchased are homogeneous and in a primitive stage, quality is rarely a problem for purchasing personnel. When a variety of items of different qualities are needed and meeting rigid specifications becomes a challenge to suppliers, quality may become the single most important materials management objective.

Low payroll costs :-

The Objective of low payroll costs is common to every organisation. The lower the payroll the higher the profits all other factors beings equal But because no department can do its job without a payroll the objective of low payroll must be viewed in its proper perspective.

Favourable supplier relations :-

Maintaining cordial relations with suppliers benefits the buying company in more than one way. An organisation who have good relations with supplier attract customers more. And the product development and research efforts of suppliers are passed on to the company provided the latter maintains good relations with the former. And materials manger is often faced with the problem of last minute cancellation of existing commitments because of a sudden shift in the demand for materials. Cooperative supplies can do much to help the manger solve such problems.

Development of personnel :-

In the organisation every head of every department should understand the importance of development of personnel and take personal interest in developing the personnel working under him. Each department head should spot the potential leaders among the men and women employed in his department and encourage them to develop into future executives, and company's future profit will depend on the talents of its managers.

Good records :-

Particularly in the procurement phase of these materials management good records considered as a primary objectives. Good records along with well planned administrative controls and periodic audits can discourage corruption.

SECONDARY OBJECTIVES :-

Secondary objectives represent the materials management's contribution to the achievement of primary objectives of some other departments, they can vary widely from industry to industry. Some of secondary objectives are as under.

Reciprocal relations :-

When a company deliberately buys as much as possible from its own customers, it is said to practise reciprocity. In consumer goods industries, reciprocity is not a problem as the sales are spread among many users. In producer goods industries, reciprocity is a fact of business life. The reciprocity relationship with the customer is in the best interest of the organisation.

New Materials and Products :-

Manufacturing managers are always interest in new products and materials that will help them more efficiently and thereby achieving one of their primary objectives.

Economic make or buy :-

Make or buy decisions are generally made by committees consisting of departmental heads. The purchasing manager should spot the need for a make or buy decision and refer it to the committee for action.

Standardisation :-

The materials personnel should hove to promote standardisation and simplification of specifications of items. The engineering group are primarily responsible for the standards of specification, but materials management personnel can make a substantial contribution.

They can review stock, to weed out non standards items they can promote the incorporation of the standard components into product design to reduce cost, and they can promote standardisation with supplier.

Product improvement :-

It is the objective of engineering department but materials department can assist the engineering department. Material manager's economic knowledge can supplement the technical skill of the engineers on programmes to boost profits through product change or improved.

Inter departmental harmony :-

In the organisation, materials management department deals with almost all department. It can greatly constipate to the success of every other department and at the same time, the success of materials management department depends on cooperation from the personnel of the other departments. Most Materials managers are aware of the need for good inter departmental relation. To prevent disputes they are careful to define departmental responsibilities clearly and also try to familiarise others with materials directives policies and organisation.

Forecasts :-

Some conception of the future outlook for prices costs and general business activity is necessary, In order to manage materials better. In such a case good forecasts become a primary not a secondary objective of materials management.

Acquisitions :-

Acquisitions is taken as one of the ways of business occupancies. It is not easy Job to identify a passible candidate for acquisition and then to make the necessary overtures for eventual manager. A purchase manager can play useful role in take over bids because of his wide contacts with the executives of other companies.

ROLE OF MATERIALS MANAGEMENT

Materials Management has to play two role :-

- As a prime corporate function.
- As an reparation function.

*** Materials Managements -as a prime corporate functions:-**

Where materials management holds a key role in the management of the organisation and is considered as a prime or top level corporate activity, it is placed in charge of the materials manager who directly report to the chief executives. Like production, marketing, finance and personnel it is treated as an important area of management in process industries where little layout is added to the raw materials for their conversion into finished products. The cost of the materials may be high as 80 % to 90 % of the product cost. In such a situation financial considerations are greater than manufacturing responsibilities, and hence instead of considering the materials manager subordinate to the works manager, he is put at par with him.

*** Materials Management as an operating functions :-**

The function of materials management is considered subordinate to the production function. The materials manager acts as a subordinate to the works manager. Materials Management is considered as a service function to operation and is regulated with the other operations under the control and superintendence of the works manager.

The splitting of the materials management department will largely depend on the quantum of the work of each section and the need of the organisation. Whether the materials management is treated as a prime function or an operating function. The nature of splitting of the activities will be more or less the same. The usual spitting of the materials under the prime consideration is given as under :-

- **Production department** :-

Regarding the flow of materials selection of the supplier etc.

- **Marketing department** :-

For converting the sales forecast into production schedule and giving delivery dates to customers etc.

- **Finance department** :-

For maintaining the level of the stock locking up of funds into inventory, tapping cash discount and quantity discounting pleadings of hypothetically the materials for working capital needs etc.

- **Engineering department** :-

For the specification of materials quality requirements, product research etc.

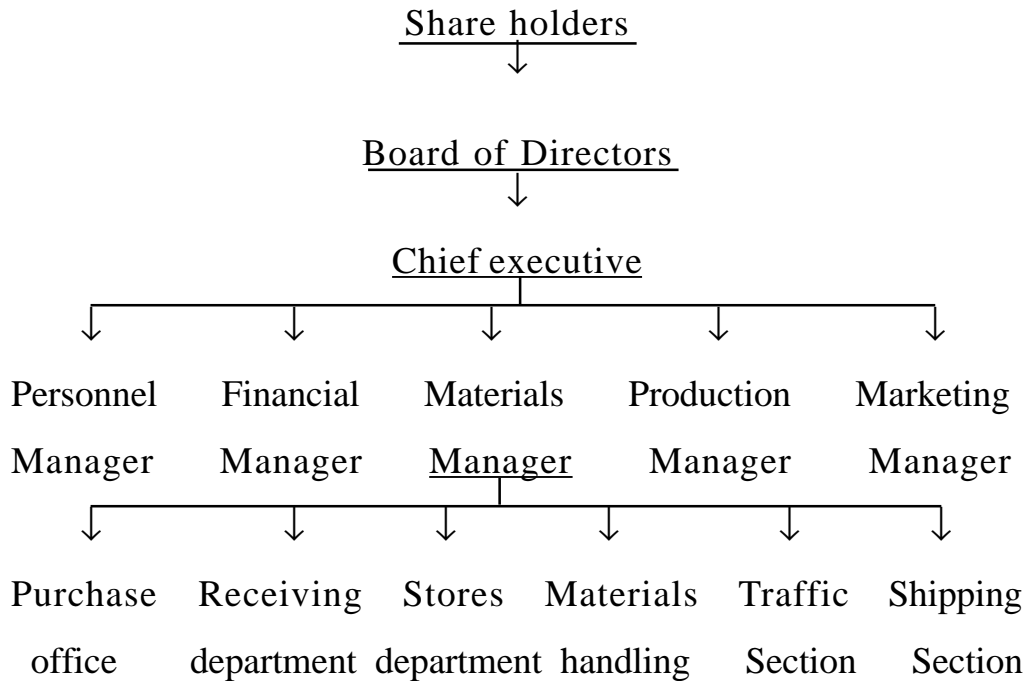
- **Personnel department** :-

For meaning the materials management department vendor relationships, advertising public relations etc.

- **Top Management** :-

As an important profit centre top management has a great concern for materials management.

Organisation of materials management could be describes as under



Above chart based on modern approach which incorporates the objectives of a materials organisation in all its detail.

The chart makes it amply clear that the whole undertaking owes its existence to the share holders who delegate their power and authority to their elected Board of direct to. The Board is assisted by the chief executive the General Manager who in the given char, has organised materials department on the basis of modern approach. He has placed all five closely related departments personnel, finance, materials, production and marketing under five independent heads directly responsible to the general manager.

Coming to the material department, is headed by a materials manager who is conducted six department under him. The materials manager and his assisting departments constitute the top materials management. In the hierarchy of the materials organisation. In such an organisation they will be responsible for materials (i) budgeting (ii) planning and (iii) programming.

All the departments in an undertaking are directly dependent on the materials department but the materials department itself cannot function in isolation. It is a service function. And the top as well as middle level and operating level staff in the materials department owe a responsibility to serve the whole undertaking unhesitatingly and ungrudgingly. An efficient service can be assured only when the materials department realises that it can offer required better service only in unison with all the departments of the undertaking.

It is essential that the materials executives be a materials manager or purchase manager or any executive at the middle level should be given sufficient powers to get the work done. They should be given independent hand in their respective fields of operation. Materials Management has been playing and will continue to play a vital role in boosting industrial efficiency, reducing cost and conserving scarce materials.

Even though separately organised, materials management is directly concerned with most areas of management viz. Production maintenance sales and accounts, In the management structure, the materials management function should be placed at a sufficiently high level to enable the effective exercise of checks and balances cutting across different management branches.

FUNCTIONS OF THE MATERIALS MANAGEMENT :-

In Order to be an effective an organisation should have to attain highest materials productivity and this is possible when there is coordination and integration of different areas in materials decision making Every manufacturing concern is engaged in budgeting, Purchasing and procuring, receiving, production scheduling, producing, maintaining, controlling the inventory, controlling the quality, standardising and also storing and warehousing, distributing and transporting.

Inventory control is dependent upon demand supply management, lead time, standardisation codification and variety reduction. Thus the Problems are inter dependent and inter related Development of vendors affect the inventory control The areas integrated under the materials function are :-

★ **PLANNING FUNCTION :-**

The planning part of materials management deals with the following issues :-

- * Translation of the sales projection into long term requirements of methods.
- * On the basis of update production plan adjusted to the latest sales demand, to adjust the materials accordingly.
- * To project the facilities required for the materials management.

★ **PRODUCTION CONTROL** :-

The production control function develops the short range operations plans and schedules from the long range plans. The function of the production control is to direct and regulate the orderly movement of materials through the entire manufacturing cycle from the procurement of raw materials to the delivery of finished goods to the customers, minimum inventory investment and maximum manufacturing efficiency. This function deals with the following :-

- ★ To develop detailed plans for the production of parts or final products along with the needs of the materials.
- ★ To schedule the operations of parts and products on the basis of the availability of materials operating cycle time, lead time fluctuations in the sales etc.
- ★ To dispatch the materials to the production department
- ★ To expedite the operations so that so that the production may be completed according to the schedule along with the feed back variations.

★ **INVENTORY CONTROL** :-

Materials control or inventory control is a systematic procedure for ensuring the availability of items necessary to meet the production requirements at optimum cost. It is concerned with the following issues :-

- ★ Requisition of the materials according to requirement at appropriate time
- ★ Decisions about the optimum size of the order which popular known as economic ordering quality (EOQ)
- ★ To keep the updated records of the materials received, issued and held in balance.
- ★ To report the inventory data to those who use them as the decision tools.

★ **PURCHASING** :-

The basic objective of purchasing is to procure the materials of desired quality in time to meet the production specifications and at the lowest ultimate cost. The main activities of purchasing are as under :-

- ✿ To select the acceptable supplier
- ✿ To place the purchase order with the selected supplier
- ✿ To expedite the delivery of materials to meet the inventory requirements.
- ✿ To keep abreast of the market conditions for the new as well as reordered materials.




★ **RECEIVING AND STORES** :-


The main activities of these sections are as under :-


- ✓ To accept the delivery of purchased materials, to verify them with the purchase order and packing slip, to inspect them and to prepare the goods received 'note' for stores and accounts, and to route the received materials to stores or to the using department according to the direction of the order.
- ✓ To store the materials properly according to the policy and ensure their quick identification.
- ✓ To issue the materials according to authorized requisition.
- ✓ To verify the materials physically at periodic intervals and to record discrepancy if any, along with the reasons.


★ **SHIPPING** :-

The Shipping function is concerned with the distribution of the finished goods. It involves the following functions :-

-  To receive the finished goods from the production department and verify the quantity.
-  To store the finished goods properly till they are distributed.
-  To pull the goods from the stores, to identify the customer, to pack and label them and to load in to the vehicles for the transportation to customers.


 To proper shipping documents such as packing slip, bill or lading, railways receipt, lorry receipt etc. which are forwarded with the shipment.


 To report about the shipment to the accounting department for billing the customer. To sales department for order closing and customer notification.

 To administer the fleet of the company vehicles used in shipment. If the services are to be hired then to negotiate with the outside carriers about freight, route etc.

★ **MATERIAL HANDLING** :-

The materials Handling functions is sometimes grouped with the stores functions Materials handling as a distinct service involves the following functions :-





 To handle in plant materials though trucking, pallets, containers etc.

 To maintain the material handling equipment and other incidental items like pallets, containers etc.

★ **TRAFFIC** :-

Traffic function is concerned with the incoming consignments of raw materials and out going shipments of finished goods. The former is sometimes attached to the receiving functions and the latter to the shipment However, when the organisation maintain its own traffic fleet or if the traffic services are hired on regular basis, it can exist as a separate function of materials management.

It include the following activities :-

-  To carry raw materials from the suppliers plant or railway goods office or other such destinations.
-  To carry finished goods to customers, railways goods office branch, wholesalers to retailers.
-  To administer freight routes, route etc. if transport service are hired.
-  To maintain the fleet of delivery vans, if vehicles are owned by the company.

★ WASTE MANAGEMENT :-

Materials wastage is to be reduced as for as possible wastage is an index to our materials productivity. Minimum waste results in better productivity. An integrated approach to materials calls for coordination of all the above areas so as to optimism managerial effectiveness for this vital function.

In the organisation, a materials manager either planning or budgeting for materials or negotiating the price or entering into contract with his supplied or storing and preserving the materials or arranging for transportation or considering materials research or analysing the value of materials, also tries hard to integrate the materials activities.

He should involved in the following areas of management :-

☆ **PRODUCTION MANAGEMENT :-**

- ✦ Materials planning and Budgeting
- ✦ Production scheduling,
- ✦ Inventory control.

☆ **PURCHASE MANAGEMENT :-**

- ✦ Make or buy decision
- ✦ Suppliers Analysis
- ✦ Price Negotiation
- ✦ Contracts : Supply and Delivery

☆ **STORE MANAGEMENT :-**

- ✦ Receipt and Inspection
- ✦ Identification and codification
- ✦ Storage and preservation
- ✦ Issue and Despatch
- ✦ Accounting
- ✦ Transportation and shipping

☆ **MISCELLANEOUS RELATED ACTIVITIES :-**

- ✦ Materials Research
- ✦ Value Analysis
- ✦ Waste, Scrap management and Disposal
- ✦ Forecasting

All the activities in which the materials manager is engaged indicates to the simple fact that though the materials manager steps in after production and purchase Management

but he is seldom allowed to work in isolation within the scope of his specific area. It is the material function which must work properly in order to bring desired results.

The main functions of the materials management are described briefly under :-

★ **Materials Planning and Budgeting :-**

Materials planning is the scientific ways of determining the requirements of raw materials components, spares and other items that go in to meeting production needs within the economic ' investment policies.'

Materials planning is based on certain feedback information and reviews sales forecasting production programming and materials planning are interconnected. In fact sales forecasting and production programming are two major functions which normally precedes the materials planning. There should be proper feed back information and periodic review in order to have better materials planning

To factors are affect the materials planning substantially :-

- * The external Factors
- * The Internal Factors.

The external factors may be termed as macro factors which may been unmerited as under :-

- * National Economy
- * Price Trends
- * Monetary and Fiscal policy of the Government :-
 - (i) Credit Regulations.
 - (ii) Direct and Indirect Taxes
 - (iii) Foreign Exchange Regulations
 - (iv) Important policy
 - (v) International Market.
- * Business cycle
- * Uncontrollable factors which usually fall under factors not within the reach of the organisation.

The Internal Factors may be termed as micro factors or corporate factors are as under :-

- * Corporate objective and plans
- * Technology available
- * Market demand
- * Lead time
- * Working capital available
- * Nature of the inventory required and help
- * Plant capacity and its utilisation
- * Inventory levels
- * Seasonal variations and market supply position.
- * Information and data available
- * Delegation of power,

- * Communication system
- * Ware housing facilities available
- * over all materials policy.

There are two techniques are usually used for materials Planning :-

- * Bill of materials Technique
- * Past consumption Analysis Technique

A budget is a coordinated financial estimate of the income and expenditure of an organisation related to a specific future period. Budgets are plans of action quantified in money terms for some future period in time.

A budget serves the following purposes :-

- ▶ Planning the activities of various department
- ▶ Controlling such activities of the department
- ▶ Fixation of objectives and targets of all such activities of the departments
- ▶ Closely watching the performance of various departments,
- ▶ Detection of derision
- ▶ Application of corrective so as to help in achieving the objectives and targets.

A materials budget is a coordinated estimate of the consumption and purchase of materials in an organisation relating to a specific period.

★ **MATERIALS CODIFICATION AND
STANDARDISATION :-**

In order to identify correctly and on a logical basis to avoid multi placating of items to save time and labour to facilitate easy location and proper functioning of the storehouse there should have proper codifications for the materials in stores.

Principles of codification :-

- ▶▶ There must be a consistency in the point of view so that the basis of classification should remain unchanged for all items.
- ▶▶ The system must cover the entire range of items for which it is devised and at the same time allow reasonable scope for extent.
- ▶▶ Material exclusiveness which means, that there must be only one code number possible for any item.
- ▶▶ The codification basis when once understood, the code numbers should be self explanatory to a certain

STANDARDISATION :-

Standardisation simplifies the living whereas lack of it causes problems. In business standardisation are used to denote a size a set manufacturing process a definite weights a particular measure, a particular dimension, use of specified component while manufacturing and given satisfaction to the consumer.

In India the Indian standards Institution coordinates and promotes standardisation in close cooperation with the industries of all types and varieties.

★ **INVENTORY CONTROL** :-

The term inventory includes materials raw imprecise finished packing spares and other stocked in order to meet an unexpected demand or distribution in the future.

And inventory control is defined in a narrower sense than inventory management and pertains primarily to the administrate of established policies, systems and procedures.

Type of product, type of manufacture and volume of output are the factors which influencing inventory control.

There are four steps involved in the process of control :-

- Determination of optimum innovator levels and procedures of their review and adjustment.
- Determination of the degree of control that is required for best results.
- Planning and design of the inventory control system
- Planning of the inventory control organisation

Techniques :-

Scholar technique of inventory control are in use and it depends on the convenience of the firm to adopt any of the techniques.

The techniques most commonly used are as under :-

- ◆ Always Better control (ABC) Classification
- ◆ High Medium and Low (HML) Classification
- ◆ Vital, essential and desirable (VED) Classification
- ◆ Scarce difficult and easy to obtain (SDE)
- ◆ Fast Moving, Slow moving and non moving (FSN)
- ◆ Economic order Quantity (EOQ)
- ◆ Max minimum system
- ◆ Two bin system
- ◆ Materials requirement Planning (MRP)
- ◆ Just in time (JIT)

☆ **STORE KEEPING AND HANDLING :-**

Store or storage is the function of receiving storing and issuing materials.

Stores in not meant of stocking purchased materials alone. Partly finished goods finished goods spares and consumable are also kept in stores.

The Function of stores may be listed as follows :-

- ☆ To receive raw materials and account for them
- ☆ To provide adequate and proper storage and preservation to the various items.
- ☆ To meet the demands of the consuming departmental by proper issues and account for the consumption.
- ☆ To maintain obeisance, surplus and scrap through proper codification preservation and handling.

- ☆ To highlight stock accumulation, discrepancies and abnormal consumption and effect control measures.
- ☆ To ensure good house keeping so that materials handling materials preservative stocking receipt and issue can be done adequately
- ☆ To assist in verification and provide supporting information for effective purchase action.

☆ **PURCHASING :-**

The function of procurement with a view to reducing the investment in and the variety and value of materials so as to facilitate the standardisation and competitive marketability of the product.

Purchasing is a fundamental function in an industrial establishment. An industrial enterprise is primarily for converting raw materials into finished products. The wheels of industry will not move unless materials of the right type are bought in right quantities and made as able at right time. Needless it is to say that is buying function which is responsible for supply of materials to the factory.

The specific objectives of purchasing are :-

- ☆ To pay reasonably low prices for the best values obtainable negotiating and executing all company commitments.
- ☆ To keep inventories as low as is consistent with maintaining production.

- ✧ To develop satisfactory sources of supply and maintain good relation with them.
- ✧ To secure good vendor performance including prompt deliveries and acceptable quality.
- ✧ To locate new materials or products as required
- ✧ To develop good procedures, together with adequate controls and purchasing policy.
- ✧ To implement such programmes as value analysis, cost analysis and make or buy to reduce cost of purchases.
- ✧ To secure high caliber personnel and allow each to develop to his maximum ability.
- ✧ To maintain as economical a department is possible commiserate with good performance.
- ✧ To keep the top management informed of material development which could affect company profit or performance.
- ✧ To achieve a high degree of cooperation and coordination with other departments in the organisation.

PURCHASING CYCLE :-

In the purchasing certain steps can be noticed in the process of initiating and completing the transaction. The steps are :-

- ❄ Recognition of need.
- ❄ Description of need.
- ❄ A suitable source is selected for the supply often a source has to be developed.

- ❄ Price and availability are determined.
- ❄ Purchase order is prepared and sent out to the supplier.
- ❄ Follow up is done by the purchasing department to ensure timely delivery of the materials.
- ❄ Checking the invoice and approving it for making payment to the supplier.

FACTORS IN SOURCE SELECTION :-

The Selection of particular source must be based on such factors as reliability, technical abilities, after sales service availability, buying convenience, past experience, location financial position labour relations, reciprocal relations and the like.

These and other related factors must be carefully considered and time and money should be spent on selecting a right supplier. Once a good choice has been made, succeeding orders can be placed economically and with confidence. Satisfactory experience with a chosen supplier is the best possible basis of repeat orders.

The purchasing function is influenced by certain polices The polices refer to :-

- ★ Uncillarisation
- ★ Make or buy decision
- ★ Speculative buying
- ★ Vendor rating
- ★ Ethics in purchasing

- ★ Reciprocity
- ★ Purchasing for employees
- ★ Gifts and
- ★ Value analysis

PRICE FORECASTING :-

Forecasting is vital for purposeful materials management. It is essential for efficient functioning of any department which is required to plan its future activities in result yielding manner. Price forecasting also falls under such a category. It is inescapable for any creative purchasing. Forecasting depends on reliability and accuracy of such basic data which are collected

There are two techniques are used mainly in many of the organisations in India are as under :-

- ★ Thumb rule Technique.
- ★ Extrapolation Technique.
 - (a) Simple Average Method
 - (b) Moving Average Method
 - (c) Weighted Average Method
 - (d) Exponential smoothing Method

★ IMPORTANCE OF MATERIALS MANAGEMENT :-

In this complex industrial world the importance of materials management can not be over emphasised. It affect not only a particular industry but the entire economic activity of whole nation. Though an efficient management may put 5 percent reduction in the materials cost is always possible.

Japan has given an example in this direction by achieving high cost reduction through efficient materials management. In the late sixties, Japan could achieve a cost reduction of 3.15 percent in 18 months through an efficiently management of materials. Material management is one of the most important function of a business organisation. It is most important for a manufacturing industry as there it is directly linked with profitability. The firms tries to invest its capital in a way that would ensure maximum returns. This goal can be achieved by two methods :-

- (i) Maximum Production with the same capital inveiglement and
- (ii) Maximum profit of each unit produced.

Organisation can increased production by an effective inventory control and proper production schedule. An organisation should reduce cost of materials like purchased handled, stored issued at all the stage it can maximise the profit of the unit firm.

For M. M. Varma : "9 It is not exaggeration in the saying that a one percent saving on the cost of materials Purchased, equals the profit earned on a 10 percent increased turnover " *

In this competitive business world it is so difficult to increase turnover by 10 percent but it would be possible made easy by the effective materials management.

C. B. Agrawal ¹⁰ said " Materials Managements is a new concept in India " *

9M. M. Varma : Materials management, Slutanchand & Sons,
Educational Publishers : New Delhi 99 P. 13

10 C. B. Agrawal : Materials Management, King Books, For word
Publishing Company, Delhi 1998, P. 4

In India organisation tries to reduce the personnel cost through savings in wage and welfare activists and allied activities. They can not realised that Materials Managements is capable to offer a great scope of cost reduction. Materials Managements has two important activities store keeping and purchasing function but more than these two activities its a wider terms so it has wide range of activities like that materials planning, inventory control verification of stock Value analysis, standardisation, Transportation Production control, packing store and issue of finished goods and audit of stock etc. So it is necessary to integrated materials management because a conflict of interests might arise if the functions were to be separately handled. For the example, the purchase department may buy a large quantities to get discount without taking into account its impact on the warehousing and carrying cost. So all the functions of materials management must be integrate for better result of organisation.

It should be quite of Ballot R. B. :-¹¹

" Coordinated function responsible to plan for acquire, store, move and control material and final products to optimise usage of facilities, personnel capital funds and proved customer service, in line with corporate goals. "

Materials management is the result of a nature evaluation. It didn't develop overnight but grew as an obvious corporate solution for the need to provide optimum effectiveness of the varied materials functions "

11 Ballot R. B. :- " Materials Management : A Result Approach "

American Management Association Inc. USA1971

MATERIALS MANAGEMENT IN INDIA :-

Materials Management is a comparatively new concept in India. In early sixties the term was little known. The terms like Purchasing, storekeeping, transportation were in common use. Though these terms were in wide in use in this country. The represented in a value manner. The function of today's materials immanent. But modern materials management has received greater attention, better understanding and increasing improvement during the last few years.

Contrary to Indian scene the western Industrially advance countries and Japan. The Asian country, have made great strides in effective and useful use of materials management as a technique to yield maximum result. In making the organisation materials conscious the American Materials Management Association and Japan Materials Management Association have played significant role. But any single group of such a nature is absent in India. National Production Council, All India Management Association, Indian Association of Materials Management and Indian society for Quality Control and Materials Management are trying to inject materials consciousness in this country. They succeed in the professional training and education in materials management.

In broader perspective materials management covers all aspects of materials (i) supply (ii) utilisation and (iii) costs. The whole range string form planning the procurement of materials and

ancillary supplies to disposal of scraps, surplus and functions relating to materials research is wrapped under the cover of materials management.

The term materials management has found wider acceptance as that branch of management which covers all the interrelated functions listed before it still needs a better understanding in this country at the hands of those who are responsible to Practise it and evolve a methodology that is full proof and that receives universal recognition.

NEED FOR THE SPECIFIC KNOWLEDGE ABOUT THE MATERIALS MANAGEMENT:-

There is a common belief among those who want to get the materials managed that " Materials get automatically managed once a system for the management is installed certainly this is neither a fact nor a truth. Unfortunately this theory is advance by those who are actually engaged in managing the materials. This is misleading thinking.

In India, even after a good deal of industrialisation, the materials management as a science or as a profession has not crossed many a milestone. Even today it is more of a mechanical nature. Every one is serious in reducing the Materials costs. But unfortunately no one goes to adopt a policy which may give fillip to standard practice in managing the materials. Techniques method and tools of management and control must under go a rapid change

in a country like India which has yet to reach the top loader. This obviously needs a specific knowledge and application of acquired skill. This is an extend necessity which India has not realised in the area of materials management. Without specific knowledge and adequate training, materials management cannot be performed effectively Materials Management is now recognised as a specialised subject in India It is a bed of knowledge, which largely depends on Industrial, Economics, Management, statistics, Mathematics and related branches of nature sciences necessary for proper understanding of the nature and problem of a particular industry. And so there is a need of specific knowledge for facilitate effective management of materials.

PROBLEMS IN INDIAN CONTEXT :-

The field of materials management is fall of complexities because the organisations have grown complex investments have gone up competition has increased manifold and prevailing economic conditions have increasingly influenced the decision of must of the industrial and commercial undertakings.

Indian economy is plunged with widely fluctuating prices. The units operating under such an economy are naturally required to depend on their efficient, alert and dynamic materials management department.

CHAPTER - 2

RESEARCH METHODOLOGY AND SAMPLE PROFILE

INTRODUCTION :-

In industrial sector, there are several numbers of performance in the organisation and performance in the organisation and numbers of areas which need attention, they are important in developed and developing countries. Not only but they are also much more important for industrial units. One of them is Material Management.

Material management can be defined as that aspects of Management function which is primarily concerned with the acquisition, control and use of materials needed and flow of goods and services connected with production process having some predetermined objectives in view.

In developed countrirs systems and methods of material management is highly developed. In developing countries, the concept of material management is fully recognised by management. If proper system is adopted by the firm, it gets several benefits. But in cross road areas and in small and medium sized industrial units have not adopted scientific material management practices. In the manufacturing unit or business, the materials are very much there in the minds of those who are responsible for managing affairs, So management should give attendance at a time on the control of very systems,

procedures, methods, techniques and tools and materials which are truly effective instruments in serving the enterprise. However, Materials management is a subject of deep investigation regarding materials management practises adopted by small units of remote areas. The title of this research work is

**" AN ANALYTICAL STUDY ON SYSTEMS AND
METHODS OF MATERIAL MANAGEMENT IN
DYEING & PRINTING INDUSTRY OF JETPUR CITY "**

The researcher has selected this topic for research for Jetpur city. Jetpur city is a Taluka place located in Rajkot district of Gujarat state.

★ PROBLEM IDENTIFICATIONS :-

Materials managements is important division of any organisation. It covers several dimension like a store, quality control, management of scrap and waste, disposal of waste, material planning, inventory control, purchase, transportation, material costing and audit and human behaviour in the area of material management.

Dyeing and Printing industry is a major economic area of Gujarat specifically in a Jetpur city 996 registered units are working in this area. The contribution of these units industry in the development and growth of Jetpur city is very prominent.

The origin of Dyeing and Printing craft in Jetpur can be traced in the beginning of the 19th century (Sampatram 1968) After that in a different places of Jetpur city these industries promoted in the town so, the researcher felt that it would be important for him to identify the study of practice and methods of material management of Dyeing and Printing industry of Jetpur city.

OBJECTIVES OF THE STUDY :-

For the study, the major objectives are as follow :-

- To know about systems and methods of stores, quality control systems.
- To evaluate the inventory method and control
- To justify the purchase procedures.
- To identify the material handling, waste scrap and transportation.
- To review the material audit and human resource aspects.

REVIEW OF LITERATURE :-

For the study, the researcher has reviewed the exiting:-

Material Management a result Approach American Management in corporation USA (1971) by Ballot R. B. identified seven factors for the inventory management. Which consist records for the material transactions, checking of material, reporting and accounting, investigation and control, levels of inventory, counting and auditing for the verification

A practical operation management Heritage pub. New Delhi (1989) in Haiyes and Tomes refer that the quality assurance is not restricted to the operations functions but quality assurance spans every aspect of business. The British standard Institute stress these by their desire to see the managing director of the organisation for given the title of the quality assurance manager showing a company wide commitment to quality.

Tersine R. J. in principle of inventory and Material Management (1994) utility based functions of inventory focused the major area of working stock, safety stock, anticipates stock, pipeline stock and decoupling stock.

F. C. Michel has described sample path derivatives for inventor system, operation research (USA March 1994 P. 351 - 364) of inventory system the paper derives sample path derivatives of performance major with respects to the two perimeters s . and S .

This derivatives yield derivative estimator which can be estimated from a single sample path or simulation of the inventory systems in some cases not even requiring actual knowledge of the under lying demand distribution. Such derivative estimates would be useful in sensitivity analysis or in gradient based optimization technology. The paper considers the non discounted periodic review system with general

independent and identically distributed continuous demand, fall back leggings and general holdings and shortage costs For the infinite horizon model consistency proofs are given for some specially cases, although the paper argues why the estimatory should be correct for the more general case.

Aiyer H. R. Explains in economics of Textile Trade and Industry in India. Vora & Co. Publisher Pvt. Ltd.; 1977 Bombay that today, the textile industry has emerged as a multifibre industry employing cotton, cellulosic and synthetic fibres to produce both knitted and woven fabrics. The process of dyeing and printing has also advanced to produce bright colourful tax, and satisfy the consumer demand. In satisfying this demand the textile industry has contributed to the country's national economy.

Amar Kranit evaluate a " Simulation Model to Determine Minimum Inventory level in Grey room of Textile Industry " (IIM, Ahmedabad 1977) that under the ideal conditions processing departments should have only that much of inventory of cloth which is actually being processed Amount of inventory under going processing gives lower bound beyond that it can't be reduced Therefore objective of the enterprise is to reduce the magnitude of excess work in process inventory which is defined as the difference between the total work in process inventory which is actually under goings process.

(excess inventory = total work in process inventory-inventory under going processing) However for operational and technical reasons it is not feasible to reduce the level of excess inventory to zero.

Beckman M. J. Observed production smoothing and inventory control (operation research The Journal of the operation Research society of America July - Aug. 1961 (456-457) that production can be classified in two cases.

- Production to individual order
- Production to stock either intermittent or continues

The production smoothing problem is little known when the demand is a random variable which correspond to the classical inventory problem in intemittent production.

Gupta H. D. on " Inventory control in public sector " , Anmol Publications (New Delhi 1991) said in this book is an attempt at development and application of techniques suitable for managing aggregate stocking levels of raw material. The heavy medium and light engineering enterprises of the public sector have been analysed company wise for the efficiency of their materials function. Individual organisations have also been ranked with the help of a new and unique rating scale.

Hayes M. and tomes A. on " Practical operations Management " Heritage Publishers New Delhi 1789 said that in the push and pull experimnet they saw how work force motivation

and innovation could be influenced by the design of the operational system. In the pull experimental, the system encouraged the fastest team of workers to help other teams in the system. This led to shop floor workers thinking of innovative ways to speed up certain jobs. The more communal cohesive practices of the work force set the tone for the whole organisation.

Leenders M.R., Fearon H. E. and Wilbur B. E. described in purchasing and Material Management universal Book stall, (New Delhi 1989-90 P. 610) that their major challenges in setting supply objective and strategies

- The effective interpretation of corporate objective and supply objective
- The choice of the appropriate action plan or strategy to achieve the desired objectives.
- The identification and feedback of supply issue to be integrated into organisation objective and strategies.

Gandhi R. S. Mehta Y. C. and Talete A. B. on " Decentralised Sector of the Indian Textile Industry " , National information centre for Textile and allied subjects, ATIRA (Ahmedabad - 1992) P. 75 that processing cost in process house of Jetpur.

Cost element	Cost/saree(Rs.)
Material	5.29
Labour	1.90
Overhead	2.05
Administrative Overhead	0.48
Depreciation & interest	0.48
Total cost	10.20

Medium size procession unit 1 lakh cotton sarees per annum requires 4 lack rupees investment out of which 2.5 laks Rs. is fixed capital and 1.5. laks is working capital.

The net profit varies from unit to unit depending upon product mix quality of saree and final price, however the minimum profit is estimated to Rs. 1.5 %

The Job work charge is in the range of Rs. 10 to 11 per saree and net profit is less than Rs. 1 per saree.

Gopalan M. K. on Resource Allocation & Scheduling Project Networks under Risk, IIM (Ahmedabad 1977) P. 54 that Resource Made available as per average resource requirement : Average resource requirement is computed by dividing the total man days required by PERT Mean. The average for each period upto PERT Mean. Generally this is the procedure very commonly adopted in many organisations and also in almost all the research studies on resources constrained project Scheduling problems.

Chen R. Strong D and Howaleshaka O. on " An economic model for raw material selection " International Journal Production Research Vol. 31 No. 10 (1993) (P.2275-2285) that an economic model for raw material selection is presented and a case analysis is given. The model considers two decisive factor : initial raw material cost and quality. This additional menu featuring cost many include items such as extrapolation cost, extra machine cost & extra quality cost

Doshi S. M. and Shah H. A. said in the Textile Association Education System India (1984) that process control refers to in process control and is aimed to maintain consistently uniform quality of the material in process at various stages of its manufacture or processing.

Important function of a control laboratory in a Modern Process House :-

- Judicious selection of raw material,
- Important in process quality controls at all strategic points in processing
- Accurate evaluation of the end product for confirming to laid standards.
- Planned R & D Programme
- Development of Auxiliary products for in house consumption

Gandhi R. S. Mehta Y. C. and Talele A. B. on " Decentralised Sector of the Indian Textile Industry " , National information centre for Textile and allied subjects, ATIRA (Ahmedabad - 1992) (P. 24 + 39) that entrepreneurial features in the decentralised processing industry.

In Jetpur, entrepreneurs are from Khattris, Patel and Sindhis Khattris have been traditionally a community engaged in fabric processing. They organised a business based on block printing. The printing units is financed through commercial banks. The shares of the entrepreneurs in the project outlay ranges from 10 %to 20 % and the rest is procured through commercial banks. Most of the units are engaged in job work processing. The sindhis have a trading background & they operate through a family network across the country.

Jetpur occupies a unique place in screen printing of sarees produced by the decentralised textile industry of India.

1100 units most of which are in the small scale sector on an average 2,00,000 sarees are printed annually in Jetpur.

Upto 1972 indigo or rapid type dyes were used in saree printing but after 1972 reactive dyes of procion and remazol class were introduced

Benjamin B. S. on Practical Cotton Mill Management. (Vol.2)Pub :
Thacker & Co. Ltd. Bombay

Said that Dyeing in the art of producing a colour of fibres, cloths, fabrics, and other article. For coloured substances to act as a dye stuff there must exist an affinity between the fibre and the dye stuff The dye stuff is more or less permanently thereby. The chief group of dye stuff employed in the dyeing cotton yarns or cloth are

- (a) Direct cotton dyes
- (b) Basis dyes
- (c) Sulphur dyes
- (d) Vat dyes (as Indathren etc)
- (e) Insoluble Azo colours (Which are produced on the fibre or Naphtol, Para red etc.)
- (f) Aniline black
- (g) Mineral colours (Mineral khaki, Prussian Blue, Chrome Yellow etc.)
- (h) Mordant dyes (the wood dyes, Turkey red, The Chrome colours) etc.

Bhave P. V. in Textile Management ATIRA Ahmedabad 1978

Said that colouring material used for dyeing and printing are the same. Printing is loosely termed as localised dyeing. The purpose of printing is to decorate the factor & increase its saleability. Generally the profit margin in printed fabric is more than in bleaching or dyed fabric. Sometimes, printing is done to cover the manufacturing defects. Inherent in the fabric.

There are three main methods of printing block roller and screen water mainly concerned with the latter two. In case of roulette printing engraved copper rollers are used for printing the design. Screen printing is done on tables / machines, flat beds type or rotary. The advantages of roller printing machine are high rate of production printing and continuous lines & fine outlines, printing of gradation of depth of colour, sharpness etc. Its limitations are limited number of colours, small repeat, carry over odours, crushing effect, not possible to print palav (possible only in case of jumper type of roller printing machine) etc. In case of screen printing on flat bed machine / tables the rate of production is low & joining of repeats is difficult particularly while printing continuous lines. On rotary machine the rate of production is high and is free from most of the limitations mentioned for roller machine.

The work organisation of a print has mainly consists of supplying adequate cloth and design. Bleached or dyed cloth is to be supplied preferably in the form of batched rolls to avoid soiling to reduce downtime & to minimise damage due to creases. These are three styles of printing, direct discharge & resist. In direct style white / dyed fabric is used. In discharge style print is made on dyed fabric The print paste contains chemicals which destroys the ground colour In resist style, print is made on white fabric, the print is fixed & then the fabric is dyed. Print paste contains materials which resists dye uptake.

Cost of printing depends on several factors. Cost can be reduced by taking like following points into consideration

- (1) Longer length per design (lowers engraving cost, labour cost, damage etc.)
- (2) Suitable thicker (increase colour yield)
- (3) Optimum quantity of ingredients like binder, discharging materials etc.
- (4) Controlled condition and fixation or developments (otherwise lower colour yield, variations etc.)
- (5) Selection of design (printing coverage, depth of engraving etc.)
- (6) Cheaper substitutes (like phosphoric acid, based system in place of citric acid for resist on reactive ground)

Chemicals & auxiliary used in finishing stiffener maize, starch, thick boiling starch, Tapioca starch, Gum, CMC, softener " Anionic, Cationic, Non ionic, Emission, Reactive, softener.

Jonkins, C. H. on Modern Warehouse Management

Mc. Graw Hills Book Co. New York 1968 P.39

Enhance the selection of warehouse location :

Some of the main considerations in selecting warehouse locations are listed

- (1) Delivery time requirement.
- (2) Customers.
- (3) Distribution centres.
- (4) Industrial parks

Warehouse layout : The six steps of good management planning and their application to warehouse layout

- (1) Establish the objective
 - (i) Objectives for overall warehouse operations.
 - (ii) Specific layout objectives for storage layout programme.
- (2) Gather the facts
- (3) Analysis
- (4) Formulate the plan
- (5) Implement the plan

The two main factors determining the mode of transportation are

- (1) Delivery time
- (2) Cost

Shah, H. A. Sacariya, N. S. and Gupta, P. C. on
Technology & Manufacturing on Printing
Textile Association India 1982

Inventory is an idle resource of an organisation. Only that much inventory should be which is sufficient for the smooth working of the department. Not only raw material, like colours, chain, spare parts but also stock of goods in WIP must be at optimum level.

Sen, S. L. and Rath, A. on
Key areas in Materials Management
Management Development Institute New Delhi 1976

Areas of Materials Management for further improvements in Public sector enterprises analysed

- (1) There still exists a lack of integration in most public sector organisation inspite of recent efforts towards reorganisation.
- (2) In Many industries an appreciation of scientific techniques of materials Management is still absent.
- (3) The maintenance procedure can be update and improved.
- (4) Large amount of work remains to be done regarding stand irradiation and variety reduction.

- (5) Greater care must be taken to reduce in process inventories and stock of finished goods. These are generally larger in the public sector industries as compared to their counterparts in the private sector.

Bailey P. J. H. & Forman D. explain in
Managing Materials in Industries
Gower Press Ltd. London 1972

Importance of Quality Control : P.164

According to Krik Patric (Quality Control for managers & engineers, Wiley 1971) 96 % of company managers surveyed believed that the quality control department will play an increasingly important role in their company. and

Project network analysis : P.195

Define the project, ask for the job, redraw the diagram correctly, find out how long each activity ought to take to complete, time the network, replan if required, all these steps are part of the planning process when work actually gets under way. The network is used to control progress.

Sen, S. L. and Rath, A. on
Key areas in Materials Management

Management Development Institute New Delhi 1976

Variety Reduction of Products cuts down production costs & promotes competitive markets. Also reactivation in the item in store would help in minimising the inventory carrying cost.

The most apt definition of value analysis is the organised systematic study of the function of a material part, component, system.

John, W. D. evaluate the

Manufacturing Man & His Job

Ed. by Robert E. F. and Henry R. Z. AM. 1966 P.48

Relationship of the Manager with other corporate function of primary importance is the manager's duty a most important one establishing and maintaining good reporting relationships. By this is meant interdepartmental cooperation, not supervisor subordinate relations.

Bailey P. J. H. & Former D. on

Managing Materials in Industries

Gowere Press Ltd. London 1972

There are three basic ways of locating stock which are

Fixed Location :

Goods of a practicality type have position in the store assigned to them exclusively. That mean while stock can be found immediately without a complex system for recording its position there can be considerable waste of space, cause when stock of any one item are low the space left vacant cannot be failed.

Random Location :

That items can be stored in any storage position which is available space is thus better in utilised but practicality where there are a large number of product lines, a record has to be kept of where goods are and frequently of when they entered the storage area.

Zonal location :

Goods of particular product group are kept in a given area. They may be randomly stored in a zonal location or stored according to fixed location.

Bailey P. J. H. & Former D.

Managing Materials in Industries

Gower Press Ltd. London 1972 P.4

Said that, The management of material as distinct from manufacturing has to do with following activities : Production planning & control; external Transport Purchasing, storage, Inventory Planning and control, Internal Transport and Material handling.

Others could be added to the list - Value analysis, for instance or progressing material from outside supplier & through the shop, quantitative analysis control

Ballot R. B.

Materials Management A Results Approach

American Management Association Ind. USA 1971

P.126 Said that It is important that these transactions be posted in the stock Reward Cards :-

- Requisition data
- Purchase or fabrication order data
- Receiving data
- Materials issuance to production and other locations
- Materials returns from production and other locations
- Physical inventory adjustments.
- Defective materials removed from stock
- Material disposal
- Material reserved for future orders.
- Other basic components information relating to identification, costs, loss factors, usage and reordering.

The ultimate goal is for stock record cards to reflect the physical availability of materials to a level of accuracy approaching 100 %

Bai, S. X. and Gorshwin S. B.

Scheduling manufacturing systems with work in process inventory control multiple part type systems International Journal of Production Research Vol 32. No. 2 1994

They have studied that the real time production scheduling problem multiple part type flow shop. They considered there classes of actives pertains, failure / repairs, and starvation blockage.

A three level hierarchical production control model is developed to regulate production for manufacturing systems. Control policy specifies how to allocate limited system capacity among all the parent type and how to react to machine failures.

Ammere D. S. on

Materials Management

Rechar D. Irwin INC. Homewood Jilinois 1962,1968, 1974

Russi J. Taraporewala Sons & Co. Pvt. Ltd. Bombay1977

P. 395- 397

described that :-

Quality :

The basic theory behind modern quality control practice is that every tends to produce materials with specification that fall within a predictable range. Of the process is " in control " specification are within this range, and if it is " out of control " they fall outside it.

Modi S. S. on

Material Management

Jaipur Publishing House Jaipur 1987 P. 153

Codification of Materials :-

For the efficient working of any large stores and purchase organisation it is necessary that there should be a scientific grouping of materials, an easy codification system and

maintenance of a proper stores catalogue based on correct nomenclature.

Mathew, P. D. on
Hand Book of Material Management
Mc. Harety International Calcutta. 1968

We established that the material holding of an industry represent more than 60 % of its total investment. By an approximate reckoning 5 % of these material holding are likely to turn out as useless over period of time.

To keep the wheels of production going well stoked inventories are necessary into the term inventory will come not only these that are physically in stores, but also those committed for, ordered for and in the process of coming.

Inventory control is the art and science adopted to achieve and maintain the safe line of what to keep, how much to keep, how and when to replenish and allied matters.

RESEARCH METHODOLOGY :-

The present study is based on mainly primary data as well as secondary data. The data have been collected by the researcher where the schedule of the intuitive and with the structured Questionnaires. The researcher have visited every sample units. And collected the data for the research. Further. This data where supported by secondary data like booklets of units, generally, predicates, News papers. etc.

For the sample the researcher have followed mixed off cluster and convince sampling technic first a list of 996 units have been prepared by the researcher than three cluster according to the size of business have been prepare by the researcher.

Small printing unit means production capacity for printing a saree per day is 1 to 100 Medium size printing industry produce up to the 200 sarees per day. And large unit means production capacity more than 200 sarees per day.

According the these cluster 10 units per cluster have been selected by the researcher according to the convenient sampling technique. At last total 30 manufacturing limits have been selected by the researcher

The researcher has classified tabulated the data according to the need of the study This data further classified and tabulated properly.

The collected data have been tabulated in a master table than separate table have been prepared by the researcher to draw the meaningful conclusion.

★ **CHAPTER PLAN :-**

Chapter I : Introduction of Materials Management

Chapter II : Research Methodology and Sample Profile

Chapter III : Store and Data Analysis

Chapter IV : Purchasing

Chapter V : Material Handling, waste,Scrap and, Transportation

Chapter VI : Human Resource and Inventory Audit

Chapter VII: Finding and Conclusion

★ **Limitation of the Study :-**

The researcher is quire are following limitation with the study.

- The study is based on personal interview method
- The research have not use statistical tools for scientific testing.
- The researcher have focus 30 units of Jetpur city so further generalisation for Dyeing and Printing industry isn't possible

Objective of this research study is to study materials management adopted by Dyeing and Printing unit of located at Jetpur city. Jetpur is a medium size city, 72 Kilometres south from Rajkot, on the Western bank of the Bhadar river in Gujarat State. Ahmedabad, Rajkot, Jetpur and Kuttchh where the dyeing & Printing industries are developed in cotton materials.

Gujarat has been famous for its textiles and especially dyeing and printing craft since ancient times : Before the beginning of the charting era up to the rise of the British power in India textile from Gujarat were popular all over the known world"¹

Various modes of dyeing and printing has developed highly in Gujarat. From the beginning of the 19 th century the dyeing and printing craft could be traced.

Gopalji Chatrabhuj Kamdar, (Shardul Vala) who was the councillor of one local ruler of Jetpur at that time called upon various cortisone as well as trades, from different place of Saurashtra in order to promote the economic expansion of the town. In 1813 the first families belonging to the Khatri community were called from Kalavad of Jamnagar district to develop printing craft and trade in Jetpur. They wer followeed by other Khatri artisans coming from textile printing centees located in the neightbouring districts of Junagadh and Amreli (like Kuthiana, Bhesan, Majevad, Bagasara)²_____

1 Trivedi :- " Block and screen printing in Jetpur " 1970 P.3

2 Sampatram B. Saurashtra deshno itihias, Ganpat
Krishanajina Chohapkan Bombay, 1968

The water of the Bhadar river (Special properties of the industry) has encouraged the dyeing and printing industries in Jetpur. The water of the Bhadar river which flows in Jetpur, is famous for its special properties that help in developing the colours and the prints, and which would become one of the main reasons for the initial location and concentration of dyeing and printing industry in this area.

In Jetpur about 100 artisans were engaged in dyeing and Printing craft around 1920 At that time the method of dyeing and printing was Block Printing method. In 1947 the technique of screen printing was introduced in Jetpur, and the rapid development of this new mode of printing gradually supplanted block printing. In the seventies, block printing has disappeared from Jetpur.

At the time of introductory of a new technology to print textile, screen printing. The economy of Jetpur was in total doldrums Shri Gordhandas Karsanji Bosamia, Popularly Known as Bachubhai who started the group ' Jagdish Textile Dyeing and Printing works ' in 1947 - 48 was the pioneer in the setting up and promoter of the screen printing industry. Bachubhai was a direct descendant of the first Khatri family called in Jetpur to develop dyeing and printing craft at the beginning of the 19 th century.

Bachubhai was involved in cloth trade in Ahmedabad at the time of the independence. His foresight and business acumen enable him to visualize Jetpur as an ideal place for the development of the printing industry, while the slackness and unemployment which prevailed in Jetpur after the departure of means also prompted him to return to his native place and to try to give impetus to its economy.

The first unit of screen printing was started on a very small size scale in Jetpur Shri Gordhandasji went Japan to improve his knowledge and technique of screen printing and wanted to know other modern techniques of dyeing, bleaching and printing. This effort of his has given a new out look to his industrial group which progressively expanded in Jetpur it self as well as in Ahmedabad, along with the setting up of trading companies in Bombay, Delhi, Madras, and Indore.

Other Block Printing units shifted gradually from block printing to screen printing after the establishment of the first screen printing unit in Jetpur in 1947 - 48 Also other traders and entrepreneurs of the Khatri caste came to Settle in Jetpur More over other communities in Particular Vaniyas and Patels entrepreneurs attracted with screen printing and dyeing business after has shown the prospects of the printing industry.

The number of printing units have set up later in Jetpur and have shown a continues and rapid growth. In 1964 to

1970 There were about 10 units of screen printing and in 1985 it has reached at 1200 units of screen printing The best period for the expansion of the dyeing and printing industry in Jetpur took place from the mid sixties to 1983 Then the industry faced an economic crisis mainly due to violent competition and depression of demand, increased by the adverse effect of the drought of 1985-86, 1986-87, and 1987-88 and pollution case at high court.

Also several ancillary manufacturing and servicing activities have promoted by the development of the screen printing industry in Jetpur and set up in the town or its immediate surroundings manufacturing of screen frames and screen making account for about 200-300 small units of production. About 100 small units are engaged in finishing processes, pressing and folding operations.

Gum Powder Sodium Silicate, Bleach Powder, was, Chemicals, relative colours, caustic soda, liquid soap, kerosine, ground oil are used in printing process. And some of them are the manufactured in the town and the nearby villages. Also other activities are spread at which are related to the industry like the trade of cloth, dyes, chemicals, packaging materials and other accessories and also transport from hand card to truck and railway. Due to this industry there are two Railway station Jetpur railways station and Navagadh station in such this small taluka palace town.

The Maximum capacity of employment of the Jetpur dyeing and printing industry, including its ancillary industries, would be approximate 45,000 (according to Jetpur Dyeing and printing industries Association)

Jetpur Dyeing and printing Association have to part zone due to the increasing number of industrial establishment over the last 45 - 50 years There are 17 Zones in Jetpur and there are 996 registered units in Jetpur Dyeing and printing Association in 1996 The zone wise number of units and its capacity of printing is shown in this table

" Table2.1 : Zone wise number of units "

No.	Name of Zone	Number of factories/units	Number of Saris
1.	Jivanbagh Zone	130	6671
2.	Out of North Darwaja	041	2073
3.	National Highwya NavagadhZone	013	0508
4.	Gadh Ni Rang NavagadhZone	099	5625
5.	Vekariya Udhynagar	020	1343
6.	Juna Panch Pipla Road Zone	054	2766
7.	Dhoraji Road Zone	068	4163
8.	Junagadh Road Zone	101	6142
9.	Chaprajpur Road Zone	072	4232
10.	Amarnagar Road Zone	019	1480
11.	Modhavadi Zone	061	1935
12.	Desaivadi Zone	026	0855
13.	Bhadiya Kuva Zone	110	3932
14.	Mangal Kui Zone	022	0666
15.	Patidar Zone	026	1265
16.	Bhadar SamaKantha Zone	044	1930
17.	City Zone	090	1893
	Total Number of Unit	996	47479

Initially the printing units were located in the inner city progressively factories have been set up in the peripheral zones of the city, and then outside the Municipality boundaries, on the territory of adjoin villages like Champarjpur., Pedhla Sankli.

For example in March 1988, 364 Printing units situated on Jetpur revenue land, but outside residential site on non agricultural land used for industrial purpose, were registered on the revenue records. In Navagadh, at the same period 246 units located on the territory of the village were registered with the local administration. At that time Navagadh was not the part of the Jetpur Municipality, later Navagadh is Joined with the Municipality.

May be there are two reason of this decentralization. The first is the scarcity of the land in the inner side of town as well as its appreciating price And the second is related to taxes, which are higher within the civic administrative boundaries, whereas outside the Municipality limits entrepreneurs in particular avoid the octroi tax.

Several factors played an important role i the development and growth of the dyeing and printing industry in Jetpur. **Reason of Growth** :-The quality of the water of Bhadar river, which flows in Jetpur, is especially favourable for dyeing and printing work as above mentioned. It was past when this technical

advantage was important as long as the saris and other products were washed directly in the river. At present after the construction of Bhadara dam 22 Kilometres upstream from Jetpur, has considerably reduced the flow of river and increased in number of units the flow of the river is not sufficient to fulfil the requirements. After the pollution case in the High Court now association has built up a filter plant for wash and also some big units have built up their own ' Ghat ' or filter plant.

At the time of partition memon community had to left Jetpur (India) to Pakistan who left behind all their properties, specious house and big buildings. So many building were available at a very low cost. Some Khatri artisans took advantage of this situation and made of the factories in those properties.

In 1950 Jetpur got the status of Municipality and municipality had taken an administrative measure to give an impetus to the development of the local industry. The municipality introduced a modification in the rules governing the octroi system. In the initial system, the merchants who were importing goods like cloth had 14 days to pay the octroi tax. The municipality of Jetpur extended this delay up to 60 days, which created an unique situation among all the towns in Saurashtra. This comparative advantage allowed the printing industry. Which was highly dependent on cloth trade, to flourish.

This industry is not a capital intensive so it does not require highly investment in specific machinery or special technology

system. Also bank credit is easily available for the plant and equipment up to 1982-83 was an additional favourable factor.

Also raw materials were available in local market on credit and cloths were easily available to fulfil requirement. Any one can start his unit on a small scale because process of dyeing and printing is manual and printing table and screen plates are main equipment. One can also do only print work on contract basis or Job work in which the traders provide cloth and some times also chemicals and colours so small artisans have not risk for the market of finished product as well as they minimize the expenses.

This industry offered fast profit in minimum level of economic and technological constraints and so many artisans and traders attracted with it. In this traders also attracted who did not belong to the traditional communities of craftsmen or traders.

In the development of the industry in Jetpur, good infrastructure facilities contributing. In the big advantage of the city is it situated on the National Highway from Rajkot to Porabandar and Rajkot to Somnath, state Transport buses regularly pass through it and Jetpur is in connect with man towns in Gujarat. In addition it is linked by rail by two station to major cities of the state and country as above mentioned Among these other noticeable facilities is that Jetpur is a head quarter of a Taluka in Rajkot district, has the appropriate administrative infrastructure, 7 banks, 3 cooperative banks and 1 the Gujarat state cooperative land development bank, a government hospital and an Arts and Commerce college.

**PROBLEMS AND PROSPECTS OF
DYEING AND PRINTING INDUSTRY OF JETPUR CITY**

The difficulties have been faced by the Jetpur Dyeing and printing Industry are fluctuations in supply and prices of raw materials, increasing competition, over inadequateness, water pollution etc.

The Jetpur Sari Printing industry is confronted by fluctuating markets a relative recession in the demand, and competition with other textile printing centres. The demand for saris in certain regional markets may be affected by extraneous factors like political events, international relations and natural calamities, thus creating marketing problems. In particular, the drought which hit large parts of the country in 1987 showed the vulnerability of they testicle printing industry to natural calamities. The purchasing capacity of purchaser reduced the demand of goods especially in rural areas directly affected by the crop failure.

Depression in a specific market has a reduced impact on the Jetpur textile printing industry as a whole as the marketing places of Jetpur's saris are very diversified and extend to all parts of India and to some foreign countries. But for those establishments directly affected the procedure of shifting from one market to another is neither easy not rapid, as the entrepreneur has first to find new traders and then to

adjust the prints to the market's requirements of the new selected region. On the whole, it amounts to a costly procedure, resulting in relatively low flexibility.

The expansion of the screen printing industry in other centres in India which compete directly to industry with Jetpur for cotton Saris and most of which developed more recently than Jetpur. And this confined and temporarily limited the Jetpur textile printing industry is also affected by the relative recession. Further more, the marketing of cotton prints has to face the relatively new and indirect completion of synthetic textiles, increasingly appraised by the consumers for their better qualities of maintenance and durability. At the all India level there has been a remarkable shift away from pure cotton textiles in favour of synthetic and blended varieties, despite the latter being notably more expensive than the former (Goswami 1990; Murty and Sukumari 1991) This is especially the use in Gujarat, whose synthetic Saris from Surat especially Swamp the market.

COMPETITION :-

In the Dyeing and printing industry of Jetpur the entrepreneurs compete fiercely with each other. In a nutshell the Jetpur textile printing industry is the victim of its own successful development. The bright prospects of this industry attracted many entrepreneurs which contributed to the

industrial growth of Jetpur as long as the demand was also expanding rapidly. When the demand started stagnating, this led to increasing competition, resulting today the reduction of the margin of profit in this industry and to the elimination of the weakest units.

Many of the unit holder did not have the technical knowledge of the dyeing and printing process nor the required managerial skill. Consequently insufficient attention was given to the technical requirements of the production process. Unskilled or semi skilled workers were employed to perform the work of skilled labour, which finally damaged the quality of the prints and this affected the general reputation of this industrial centre. This also turned out to be a handicap on the export market where quality standards are particularly strict. Because of fierce competition with regard to printing prices and to snatch orders from traders some entrepreneur do not hesitate to lower their price at the expense of the quality or raw material or by resorting to malpractices. The result is a general downward trend of the margin of profit in the Jetpur dyeing and printing industry.

FINANCIAL CRISIS :-

With the above difficulties a major reason for sickness in the Jetpur dyeing and printing industry is the shortage of working capital in running the concerns. The natural deduction

to this is over indebtedness as the industry is a totally credit based business. Problems arise for the owners who want to increase production without insufficient initial capital base and who don't implement a strict financial management. There is not a balance between the creditors and the debtors. On the creditor's side, the owner has to pay interest to the dye and chemical merchants, cloth traders and to the bank for financing of working capital. On the debtors side, the finished products are sold to the traders on a credit basis, with the period of credit ranging from 30 to 180 days. This created liquidity constraints for the printing unit and curtails its quantum of working capital. This Disparity between the creditors side and the debtors side has direct impact on the health of the unit.

In a situation of tough competition and faced with shrewd traders who impose their conditions such entrepreneurs are unable to save their concern from liquidation. In addition some of the entrepreneurs with low educational qualifications are not aware of the rehabilitation schemes provided to sick units.

IRREGULAR WATER SUPPLY AND PROBLEM OF WATER POLLUTION :-

In addition to the economic difficulties engendered by the increased co-option, the multiplication of textile printing factories in the same area meets ecological constraints, namely in adequate water pollution

The dyeing and printing industry is dependent on water, therefore an adequate water supply is a primary concern and a potential source of recurring difficulties in a drought prone region like Saurashtra. Water is an essential element in the dyeing and printing process sufficient quantities as well as an adequate quality of water have to be provided. Water is first used in the preparation of the dye solutions, to dissolve the colour powders. Then large quantities of water are required to wash the Saris. For these two operations the chemical properties of the matter matters too. A good amount of water is also needed to wash the printing tables, the screens the buckets and other tools Hence, drought has an immediate adverse effect on the dyeing and printing industry which is his in the first place by shortage of water.

Another ecological limit to the concentration of textile printing factories in Jetpur is water pollution factories discharge their effluent, loaded with dyes and other chemicals into streams and rivers resulting directly in the pollution of the surface water and by infiltration of the underground water. In addition washing places for the saris have been constructed along the banks of rivers and in the agricultural fields in the surrounding of Jetpur. This has increased the pollution of rivers and also affected agriculture. This wide spread pollution is not only harmful for the environment but it also generates health hazards for the people and the cattle in this area.

For this situation Gujarat Government appointed a task force committee in 1979 to examine this water pollution problem. Subsequently from 1983 the Gujarat State Water Pollution Control Board stopped issuing a ' No Objection Certificate ' for setting up new printing units in Jetpur. An agreement was eventually reached the Jetpur industrialists and the Board in order to implement a collective water pollution programme, whose expenses were to be shared by the entrepreneurs and the Government of Gujarat Hence on effluent disposal system, consisting of drainage net work and a collective treatment plant, was constructed, and the plant was eventually inaugurated in May 1992 But the problem of the chemical pollution created by the washing place scattered along rivers and in agricultural fields is not solved as yet. This state of affairs prompted the district administration to resort to extreme steps in order to curb water pollution, like the demolition of some washing Places.

The golden years of the Jetpur dyeing and printing industry, when the town was known as ' the little Dubai ' of Saurashtra, however though the fall in the demand does not give much scope for future expansion of the Jetpur printing industry at the global level. It still allows the firms with a rigorous management to be very prosperous and the more dynamic ones to plan an increase in their processing capacity.

The research has given information about the year of establishment of industry, about the type of firm, number of employees in the unit, area of the unit, number of workers in the unit, number of sister concerns, nature of business, products manufactured by the firm. Area of the market and finished good exported by the firm in following tables.

TABLE NO 2.2
YEAR OF ESTABLISHMENT

S.No.	Type/size of firm	1948	56	68	70	77	78	80	82	87	89	90	91	92	93	95	96	Total
1	SMALL	-	-	-	1	1	-	1	1	1	1	1	1	-	1	1	-	10
2	MEDIUM	-	-	1	2	-	-	-	1	-	1	-	2	2	-	-	-	09
3	LARGE	1	1	-	2	-	1	1	1	1	-	-	1	-	-	-	1	10
4	TOTAL	1	1	1	5	1	1	2	3	1	2	1	4	2	1	1	1	29

Above table reveals 30 samples of research study, amongst there are three types of unit i.e. Small, Medium and Large. Each has 10 units for the sample. In this table the year of the establishment of the unit has been mentioned. There was one unit of large scale unit which was established in the year 1948 and 1956. In 1968 there is one unit among the medium only. In 1970 there is a unit from small and there are 2-2 units from the medium and large. In 1977 there is only one

from the small size; in 1978 there is only one from the small size unit established. There is one unit has been established in 1980 in small and also large scale. In 1982 all types of firm has established one unit. In 1987 there is one unit from small and also one from large size. In the year of 1989 small and medium size firm has been established one unit. In the year 1990 there is only one unit in the small type of unit. In 1991 there is one unit in small and large scale and two units in the medium size. In the year of 1992 there are two units has established in the medium size. In 1993 and 1995 only small size firm has established one unit and in 1996 only large size firm has been established one unit. It means that in 1948 when this industry was started only large size of firm, has started the unit. Researcher has received information of only 9 units of medium size.

Here it seems that small size units has been started in the year 1970, 1977, 1980, 1982, 1987, 1989, 1990, 1991, 1993, and 1995. Among the 10 units only 9 units of medium size have given information about their establishment year. The years of started units are 1968, 1970, 1982, 1989, 1991 and 1992. In the year 1970, 1991, 1992 there were two units established. And in 1956, 1970, 1978, 1980, 1982, 1987, 1991, and 1996, are the years of establishment of the large size units. In 1970 there were two units established from large size units.

An Informative table about the type of firm has given below :-

TABLE NO 2.3
TYPE OF FIRM

S.No.	Type/size of firm	Ownership/ Proprietorship	Partnership	Total
1	SMALL	06	04	10
2	MEDIUM	06	04	10
3	LARGE	04	06	10
4	TOTAL	16	14	30

Above table reveals the information about types of firm, The research has taken small, medium and large scale unit consist 10 units in each group for the study. Among, this 6 units of small scale, 6, units of medium and 4 units of larger scale sector were owned by sole traders, while 4 in small, 4 in medium and 6 units in large scale hold by partnership firm

Total area of the units has given in below mention table.

TABLE NO 2.4
AREA OF THE UNIT/ FIRM

S.No.	Area in Squire feet	Size / Type of Firm		
		Small	Medium	Large
1	4000	-	1	-
2	8000	1	1	-
3	9000	3	-	-
4	10000	-	1	-
5	10800	1	-	-
6	11000	-	-	1
7	12600	1	-	1
8	15000	-	-	1
9	16000	-	-	2
10	17500	-	-	1
11	18000	1	1	1
12	18900	-	1	-
13	19200	-	1	-
14	20700	-	1	-
15	22500	1	-	-
16	24300	-	-	1
17	25000	1	-	-
18	27000	-	-	1
19	36000	-	1	-
20	42500	-	1	-
21	43000	-	-	1
22	54000	-	1	-

Above table gives information about the area of the firm, small size unit hold less area of land for production. 3 units have about 9000 sq. feet area and other have 8000, 10800, 12600, 18000, 22500 Sq. feet areas, In the medium size there are 4000, 8000, 10000, 18000, 18900, 19200, 20700, 36000, 42500, and 54000, Sq. feet area. And in the large scale there are 11000, 12600, 15000, 17500, 18000, 24300, 27000, 43000, and 2 units have 16000 Sq. feet are in their production. According to the data, medium size unit hold large square fit of land as compare to small and large units of the study in each units of the study hold minimum 8000 Sq. feet land for their functions.

Unit wise Number of employees is mentioned in under given table by the researcher.

TABLE NO 2.5
NUMBER OF WORKERS IN THE UNIT/FIRM

S.No.	No. of Total Workers	Unit with size		
		Small	Medium	Large
1	08	1	-	-
2	10	5	-	-
3	12	1	-	-
4	15	1	1	-
5	18	-	-	-
6	20	1	4	-
7	24	-	1	-
8	25	-	1	-
9	30	-	2	-
10	45	-	-	1
11	50	-	1	1
12	60	-	-	1
13	70	-	-	1
14	75	-	-	2
15	80	-	-	1
16	100	-	-	3

Explains the information about numbers of employees working in the sample units. Minimum 8 workers working in one unit while maximum 100 workers working in 3 major large units of sample of the researcher.

In under given table the researcher has information about given employees wise unit

TABLE NO 2.6

NUMBER OF EMPLOYEES IN THE UNIT/FIRM

S.No.	Type/size of firm	Number of Employees										Total
		1To 10	11To 20	21To 30	31To 40	41To 50	51To 60	61To 70	71To 80	81To 90	91To 100	
1	SMALL	06	03	-	-	-	-	-	-	-	-	09
2	MEDIUM	-	06	03	-	01	-	-	-	-	-	10
3	LARGE	-	-	01	-	01	01	01	03	-	03	10
4	TOTAL	06	09	04	-	02	01	01	03	-	03	29

This table show that in the small size unit there are less number of employees and in the medium size there are more employees than small size units. But there are many employees in the large scale units. Researcher found 6 units of small size have only 1 to 10 employees and 4 units have 11 to 20 employees. In the medium scale there are 6 units which have 1 to 20 employees and 3 units have 21 to 30 employees also there is a unit which has 41 to 50 employees. In the above table, the large size of the units there are three units up to 60 and also one is in category of 61 to 70 employees. There are 3 units which have 71 to 80 and also 3 units have 91 to 100 employees. So here its looks that in the large scale there is large number of employees than small and medium scale of units. From the 30 units there are only three units which falls in the category of 91 to 100 employees.

Undermentioned table has given an information about the sister concern units

TABLE NO 2.7
NUMBER OF SISTER CONCERN

S.No.	Type/size of firm	Number of Sister Concern								
		1To 02	3 To 04	5 To 06	7 To 08	9 To 10	11 To 12	13 To 14	15 To 16	Total
1	SMALL	10	-	-	-	-	-	-	-	10
2	MEDIUM	08	01	01	-	-	-	-	-	10
3	LARGE	03	01	03	01	01	-	-	01	10
4	TOTAL	21	02	04	01	01	-	-	01	30

In the above table, researcher took figures of sister concern of the sample units. In the small size units, it belongs the category of 1 to 2 sister concern units. In the medium size of category there are 8 units which are in the 1 to 2 sister concern and there are 2 units which are in the 3 to 4 and 5 to 6 sister concern. But in the large scale, the picture is opposite than other two category of units. It means that there are 3 units in 1 to 2 there is a unit in 3 to 4, there are 3 units in 5 to 6, there is 1 in 7 to 8 and also one in 9 to 10 and also there is a units in 15 to 16 sister concern category. In the large scale of units they have number of sister concern units under their main units. From 30 units of sample there are 21 units which are belonged to 1 to 2 sister concern category. Rest of them are belonged other to categories of sister concern units.

Nature of business has narrated in following table

TABLE NO 2.8

NATURE OF BUSINESS OF FIRM

S.No.	Type/size of firm	Own Processing & Printing	Job Work on Contractual Basis	Total
1	SMALL	01	09	10
2	MEDIUM	01	09	10
3	LARGE	06	04	10
4	TOTAL	08	22	30

Above table shows that from the thirty sample of research, 10 units of small size. There is only one unit which has processing & printing unit and there are 9 units of small size which are doing job work on contractual basis. In the medium size units have same position like small size unit. In the large size there are 6 units from selected sample which are doing own process or printing and 4 units are doing job work on Contractual basis. Thus the large scale of units can do their own business and printing work than medium and small scale.

In this research study, the research has described the manufactured products by the sampled unit are as under.

TABLE NO 2.9
PRODUCTS HANDLED MANUFACTURED BY THE FIRM

S.No.	Type/size of firm	Printed Sarees	Bhandhani	Khanga	Dress Material	Other
1	SMALL	10	-	-	-	-
2	MEDIUM	09	01	02	03	-
3	LARGE	05	01	08	05	01

Here researcher asked about product handled or manufactured by the firm. In the small size all the 10 units of sampled manufactured printed sarees. In medium size units, 9 units from the sample are printing sarees and one unit is printing Bhandhani, two units of medium size are manufactured Khanga and 3 units are produce Dress Material. In the large size of the sampling units there are 5 units which are manufactured printed Sarees, 1 unit from 10 sample units manufactured Bhandhani, Khanga have produced by 87 units out of the 10 units, 5 units of sample are manufactured Dress Material and other like Bed Sheet, Duppatta and other cotton materials are procured by 1 unit of the 10 sampled units. Thus the large scale of units have all options to product and manufacture.

In this research study of dyeing and printing Industry of Jetpur, the researcher has given the information about the market area of the products given in the below table.

TABLE NO 2.10

MARKET AREA : PRODUCTS MARKETED

S.No.	Type/size of firm	Market Area Local / Region	National	International
1	SMALL	03	07	00
2	MEDIUM	00	10	00
3	LARGE	01	02	07
4	TOTAL	04	19	07

Products marketed of above table, here researcher tried to know about market area of the dyeing industry of the Jetpur city. In the small size unit they have local or regional and national market for their product. There are 3 units which have local market and 7 units have national market. In the medium size all the units of sample have national market; and in the large scale 1 has local market, 2 have national market and 7 units have international market for their product. Large size of units have all the options market for their products.

Also the researcher has tried to know about the export of the finished goods and information about the finished good has exported or not is given below.

TABLE NO 2.11
FINISHED GOODS EXPORTED

S.No.	Type/size of firm	Finished Sarees	Goods Khanga	Exported to Bhandhani	Foreign Dress	Countries Other Goods
1	SMALL	00	00	00	00	00
2	MEDIUM	00	00	00	00	00
3	LARGE	01	07	00	04	01

In this table, researcher wants to know that what type of goods they exported to foreign countries. In the small and medium size there is no any unit who exported the goods. In the large scale there is a unit who exported sarees, 7 units have exported Khangas, 4 units exported dress materials and one has exported other goods like bed sheets, Dupattas etc. It means that there are 10 units who exported their finished goods to foreign countries. This table shows that there are so many units who do not exports only one item but also exports 2 or 3 items of their products.

CHAPTER - 3

STORE AND DATA ANALYSIS

In general every common man has stored for his regular useful things. They usually store in their houses. When the things and products become vast there is need for genuine store. In the industry or organisation the production unit has need vast quantities of materials and component parts. Large sum of money are involved. So store function is very necessary. The primary function to provide materials to receive and issue work in progress. A large number of inventory and stock have to be stored in organisation so store or warehouse is a compulsory for the unit / firm.

Storing is a fundamental function of materials management. And also storage is a primary objectives of Materials Management. And so it would be said here that store keeping refers to the safe custody of all items of materials stored. In the store room for which the store keeper acts as a trustee.

Store keeping is the " physical storage of materials carried into the store room in a scientific and systematic manner with a view to (1) Saving them from all kinds of damages and losses, and (2) exercising over all control over their movement. " ¹

1 C.B. Agrawal materials Management ;
King Books Forward Publishing company ;
Delhi - 98 P. 11

In small unit or organisation the stores department is often neglected. Wastage of materials, pilferage, careless, handling of stores lead to reduce profits. So store department should be well equipped and should be well maintained for the maximum advantage of store.

Spriegel and Lansburgh has rightly remarked " poor control of materials frequently accompanied by poor store room administration in a way that may easily throw out of balance any operation programmes which have been adopted "*

★ **Types of Inventory :-**

There are four types of inventories in organisation.

- (1) Production Inventories.
- (2) M.R.O. Inventories
- (3) In process Inventories
- (4) Finished goods Inventories.

Production Inventories : A Includes raw materials, parts and components which enter into production and form part of the product during conversion process

Includes and M.R.O. Inventories : Includes maintenance, repair and operating requirement inventories which are consumed during the production process but do not form part of the product.

In process Inventories : Consist semi finished parts and components which enter into production at various stages, and then form part of the final assembly. While

Finished goods inventories : Consist and products which are ready for sale and delivery.

Significance of store :

In order to protect all of those inventories there is need for store or ware house in organisation. So material can be stored in the store. A materials manager should calculate the cost of material. Because high inventory cost can increase the total cost of production which may reflect in price decision. Low cost of inventory is important requirement for reflective managerial decision for that store keeper has to fixed three level of marital and stock. In includes :-

- (1) Average stock.
- (2) Safety stock.

These levels and stock decision could save the organisation from the problem of out stock delay delivery adverse market condition etc. So organisation can avail the benefits of stores.

A store play a vital role in the organisation. It is indirect touch with the user in its day-to-day activities. The most important purpose served by the stores is to provide interrupted service to the manufacturing divisions. Store is often equated directly with money, as money is locked up in the stores.

A store has to do some functions for effective administration so functions of stores has been described as under :-

- Receiving of raw materials, tools, components equipment and other items like semi finished products, maintenance equipment and account for them.

- Provision of adequate and storage and preservation to the various items.

- To the meet the demands of the consuming departments by proper issues and account for the consumption.

- Minimisation of obsolescence, surplus, wastage and scrap through proper codification, preservation and handling.

- To highlight stock accumulation, discrepancies and abnormal consumption and effect control measures.

- Material handling, material preservation, stocking, receipt and issue can be done adequately by insurance of good house keeping.

- To assist in verification and provide supporting information for effective purchase action.

- In India 4 to 6 months inventories are not uncommon and infect, for certain imported items, it could be for 24 months stock also considering the market condition of Indian economy and the several changes of market behaviour, a firm have it be calculated for stores.

- Considering this aspects the important of store is very high with specific aspects of cost saving. Maintance of quality maintance of quantity or supply and to avail the benefits from market condition.

- Now in India, store keeping is not a new concept. In our ancient India this function popular with various other names. There are traditional surnames such as Kothari, Kotwal, Bhandary. Bhandarkar. There families have been dealing in this area like stocking, controlling goods and merchandise. There should be have stocked materials to meet the requirements of

consumption during lead time or delays in lead time or unexpected increase rate of consumption. It may said that is not simple function of storing items, but rather a package of service that enables the smooth running of the wheels of an organisation or industry.

A store department must have to be in constant touch with the user department or production departments in order to provide uninterrupted service to the manufacturing department. If working capital is blocked up in the ware house, stores, in often equated directly with money.

LOCATION :-

Location or site depends upon the quantities of the material to be handled and the nature of goods to be stored

Location is important consideration for store department with certain object like space distance conspire mode types and nature of material with size of organization, condition of raw material and seasonal fluctuation For this basic conditions are as under.

- Inflammable materials such as petrol should be stored separately.
- Acids should be stored in Jars in a separate place.
- Combustible products should be kept away from each other and from the general store.
- A good location of stores allow for old and first received goods to be issued first.
- Expensive tools and spareparts etc. Should be kept in containers, packets, tin boxes or celluloid covers.
- Item of heavy weight should be stores in containers on the ground floor. Large sized items such a logs may be stoked in the open.

- Goods which are affected by water should be kept in moisture proof packing and stored in dry place.
- Goods which are too much in demand should always be kept near hand.²

According to P. GopalKrishna ³ A to Z factors for proper location and layout of stores. Which gives direction in the area which covers the overall functions of the stores mainly. Those factors given briefly as below :-

- The stores function should be organized to serve the user easily by the identification of the materials.
- It should be nearest from the user department.
- Materials must be arranged as to enable their easy storage facilities.

2 C. B. Agrawal :- Materials Management; king Books, forwards publishing company, Delhi 98, P 19

3 P Goplakrishanan " Purchasing and Materials management; Tata Mc Graw Hill Publishing company Ltd. New Delhi 1993
P. 115

- There should be easy movements of materials, sufficient space for men and materials, shelves; racks, pallets etc. Should be there.
- Proper preservation to protect materials from rain, moisture, hazards, biological, physical and natural deterioration.
- Different modes of transport should be easy to central receiving section.
- Flexibility for expansion with adequate facilities and comfortable working condition.
- Clear and adequate light for better working environment.
- For minimization of accidents there should safe working conditions and better provisions for fire fighting.
- Provision of toilets, smoking areas, routine maintenance of stores equipments, safe electrical wirings etc.
- Balancing should be done in the cost of investment, supplying in puts, manufacturing, handling, transporting to the consumer in locating the stores.

- Adequate space for inspection area, bulk storage, storage space, issue area, scrap yard.
- Items handled frequently must be located to minimize the distance travelled.
- Regulation of factory act and other regulatory measures should be followed.
- Sufficient care should be taken to utilize the stores area.
- The aisle widths have to be designed on the basis of handling equipments, like fork lifts and clearly marked.
- In block stanching method, the unit loads are stocked one over the other and the stack heights will have to be reduced, if random access is needed, this method can not be applied, if strictly first in first out method has to be used for issues.
- Generally racks, bins, shelves and pigeon holes are used for storage. To keep items individually wooden or metallic structures are divided into compartments.
- The racks should be arranged properly.

- Bins are used to hold loose items and compartment can be multi tier or single tier to suit the needs. Trays can be used for small items.
- Small but costly items should be locked to prevent theft and pilferage.
- Cap storage cover and plinth is adopted by food corporation to protect the food or grain protect from sun and rain.
- Transportation of materials should be easy by facilitate loading and unloading trucks and wagons are parked against the walls.
- The normal loading condition for a warehouse is 200 lbs per 59 ft. and appropriate strengthening is needed if more loading is needed.
- Doors should be built as large as possible in order to facilitate handling.
- The access to storage issues area must be restricted and confined only to authorized stores personnel.

★ **LAYOUT** :-

Layout explain the design and specification for Material layout includes specific arrangements of furniture, material and other resource layout depends on requirement of business, size and structure of organisation types of material value of martial etc. The basic factor of layout can be classified in four groups which are

- A Nature of Stores ;
- B Value of stores;
- C Availability of space;
- D Physical facilities;

A Nature of Stores :-

There must have knowledge how can the various types of materials and products to be stored. It will help in working out the size and quantity of storage equipment and their arrangement and also the size of racks and bins and the open space for stocking.

B Value of Stores :-

There should be provided required space for each item by determination of minimum quantities of the stores. There should be enough space for passage for free movement of goods.

C Availability of Space :-

Sometimes the space available for a store is strictly limited. If there is too little space it will lead to reduction of quantities that may be kept in store. So it will be conjusted for the goods. On the other hand too much space will add to the indirect cost of storing materials so it is important to provide just sufficient space based upon standard requirement.

D Physical Facilities :-

There should be better environment in store. These include adequate lighting arrangements, ventilation, wall paints, noise regulation as well as regulation of temperature etc.

The store location of store, layout of store are important aspects of any business units. If the handle this factors properly they can achieve the benefits of cost reduction maintance of qulity and supply

For this, Researcher has collected data with help of structured questioner of the questions consist this appeals i.e. required spare allotted space, the type of store organisation ownership aspects size physical facilities available in sampled units.

The Jetpur city is famous for dyeing and printing out of the registered units 30 sampled has been selected by the researcher for the study of system and method of material management in this industry. After this collection of data following observation have been made by the researcher.

DATA ANALYSIS :

Area of the unit

Area can time as total space available in units for work. It is Dyeing and Printing industry, which required more space for their functions like dyeing printing of sarees, packaging, stores, preparation of colours and dyes considering this Researcher has made an attempt to evaluate the situation.

TABLE NO. 3.1

TOTAL AREA OF THE FIRMS

S. No.	Type/size of Firm	Upto 10000	10001 to 20000	20001 to 30000	30001 to 40000	40001 to 50000	50001 to 60000
1	SMALL	4	3	2	0	0	0
2	MEDIUM	3	3	1	1	1	1
3	LARGE	0	7	2	0	1	0
4	TOTAL	7	13	5	1	2	1

Above table shows total area available with the firm.

In the small size there are 4 units have up to 10000 sq. feet area, 3 units have 10001 to 20000 sq. feet area and 3 units have 20001 to 30000 square feet area for their total production units. Medium size of the sample, there are 3-3 units which have up to 10000 sq. feet and 10001 to 20000 sq. feet area respectively. And remaining of 4 units each one of them has 20001 to 30000 sq. feet area and one has 40001 to 50000 sq. feet area and one has 50001 to 60000 area for the production. And in the large size there are 7 units which have 10001 to 20000

sq. feet area 2 units have 20001 to 30000 sq. feet area and one has 40001 to 50000 sq. feet for the production. It is observed that medium scale units of the sample have more lands than the large scale units from the above table.

Store is basic infrastructure of any business organisation. Specifically, Jetpur dyeing and printing industry has unique characteristics of processing the product so units required huge space to store it. In this regard, following table clear the real situation.

TABLE NO. 3.2

DO YOU HAVE STORES DEPARTMENT

S. No.	Type/size of Firm	DO YOU HAVE STORES DEPARTMENTN IN YOUR FIRM		
		YES	NO	Total
1	Small	10	00	10
2	Medium	10	00	10
3	Large	10	00	10
4	Total	30	00	30

In this table researcher wants to know that if there is a stores department in the firm. All types of firms, small, medium and large have stores department in their firms. All the 30 units of the samples have stores in their production unit. Asking the question of stores department in their firm, all the proprietors replied that they have a stores department for storing raw materials.

The business units can evaluate the position of store by considering lead in the transportations, material safety and handling process.

Present situation of business demand for store on ownership basis, because supply control, convenience and comfortness can be achieved by the owner and high connectivity can assured constant and smooth operations of all the departments.

It is not necessary that all the unit should have sufficient space for the all requirement of the production. Researcher made an attempt to know whether all the units have their own store room or rented store room for stocking the materials. So the business units can evaluate the position of store by considering lead time, transportation, materials safety and handling process of the store. If there is a store owned by firm time and centralised or decentralised store, transportation and handling the store. If there is store owned by firm, it will reduce time. The required materials should provide to production department in time so the processors of the production can run smoothly.

It is most important to establish warehouse in the most appropriate place but often neglected by the proprietors on the unit. It has advantages to have the warehouse nearest to the point of usage but any vacant site cannot be treated as the site of stores. The guiding stores in locating the store in minimising

the materials handling effort while serving the user. In the broadest sense, this implies location centre and location of finished good store and packing material store near the assembly shop.

Present situation of business demand for store an ownership basis, because supply control convenience and comfort can be achieved by the owner and high connectivity can assured constant and smoother operation of all the departments. Here researcher has given the information according to the study of the owned store or rented store in the sampling units are as under.

**TABLE NO. 3.3
WHETHER STORE IS RENTED OR OWNED**

S. No.	Type/size of Firm	OWNED STORE	RENTED STORE	TOTAL
1	SMALL	10	00	10
2	MEDIUM	10	00	10
3	LARGE	09	01	10
4	TOTAL	29	01	30

Above table show that all the small and medium size unit have their owned stores department. Out of sample units one large size of the units has rented stores and 9 units have their owned stores department for storage of their materials. From 30 units of sample, 29 units have their owned stores.

(4) Centralization V/s Decentralization

Centralization or decentralization depends on management philosophy of operations, nature, size and structure of business, process of production, etc. Centralized stores refers with while Decentralized store refers with major point about situation of stores.

- To receive and issue the material within least possible time,
- To effect economy in the cost of transportation.
- To save the materials from unnecessary pilferage, theft & fire.
- To avoid hold-ups and delays in production work thereby cutting the cost of production and achieving greater efficiency.
- To have strikers control over the monotony.

It would be appropriate here in the sense of rented or owned store department. Here in this study much more of selected units have their owned store for the materials that means they have better understanding about the location of the store.

But it is necessary to know about the system of centralized or decentralized store in sampled units, Here researcher also made an attempt about the centralized store or decentralized stores in the sampled units.

TABLE NO. 3.4

SINGLE OR SEPARATE STORES IN ALL PRODUCTION UNITS

S. No.	Type/size of Firm	Single store for all units	Separate Stores at all units
1	SMALL	09	01
2	MEDIUM	09	01
3	LARGE	10	00
4	TOTAL	28	02

By this table the researcher find that in the small and medium size 9 units of both sizes have single stores and 1 has separate stores at all units. In the large size of units storage of all of their goods in one place for better management. So they can give their attention to all the units for their goods and stock of their materials. They have to see only one unit for their goods and don't waste their man and money power in all of their units. But they should have to pay transportation charge to take their goods at production units.

Here out of 30 units 28 units have centralized store and 2 units have decentralized store for separate units. Single and separate store system has their own advantage and disadvantages.

C.B. Agrawal has given advantages and disadvantages of centralized storage :-

Advantages :-

- (1) Reduce in staff and concentration of experts in one department.
- (2) Reduce clerical costs and economy in records and stationery.
- (3) Better supervision is possible.
- (4) Staff becomes acquainted with different types of stores which is very useful if any one is absent from work.
- (5) Better layout of stores is made possible.
- (6) Inventory checks are facilitated.
- (7) Stocks are kept to a minimum, thus reducing storage space.
- (8) Fewer obsolete articles.
- (9) The amount of capital invested in stock is minimised.

Disadvantages :-

- (1) Increased transportation costs.
- (2) stores may be situated some distance from many departments which draw from them, thus causing inconvenience and delay.
- (3) Breakdown in transport or hold ups in central store may cause production stoppages in departments.
- (4) Greater risk of loss by fire.⁴

The main reason in delay in order or production, process, is delivery of material. For this delivery should be in time in specific order, specification and according to the terms and condition. So, material management process should be effective.

4 C.B. Agrawal :- Materials Management ; King Books, Forwarded publishing company - Delhi - 1998. P. 2

According to Jonkins C.H. ⁵ has and the selection of ware house location the main considerations in selecting ware house locations are listed below.

- (1) Delivery time requirement.
- (2) Customers
- (3) Distribution centres.
- (4) Industrial Parks.

If consumption centres are located at the corners of large plot, then decentralised location of stores may become invertible. Decentralized stores offer service where it is needed, resulting in the reduction of unnecessary consumption and prevent obsolescence and accumulation of surplus material. However, a decentralized setup costs money because the increased number of locations automatically results in increased stocks must be balanced against the advantages of the improved service being rendered. ⁶

Here in this study 28 units at of 30 units have single store it means there were centralized system adopted by the proprietors. They may compared the centralised and decentralized system and reduce their cost of records, buildings, man and money.

5 Jonkins C.H. :- Modern Warehouse Management ;
Mc Grew Hill Book Co. New York 1968 P. 39

6 P. Gopalkrishnan :- Hand Book of Materials Management
Prentice-Hall of India private Limited, New Delhi - 1994 P.11

C.B. Agrawal said about adopting of centralized system for a medium sized organisation. ⁷ It would be appropriate here in the sense of this study.

- (1) There is reduction of working capital owing to the reduction in number of pocket stores and carry over the of stocks.
- (2) A lightening of the system in general and of methods of inspection of stores are often a source of neglect and loss.
- (3) There is also possibility of lower tender prices, Firms are reluctant to tender for contracts requiring frequent to delivery in small quantities to numerous depots, the transport costs being to factor for consideration with the surplus
- (4) A limited stores control facilitates, a closer supervision of stocks more effort in the direction of standardisation a better control of obsolete and surplus stocks.
- (5) Consolidation of the stores system and the work of checking invoices for payment and a reduction in the number of accounts for payment.

SPACE FOR STORE

Stores department must have sufficient space for the stock to handle it frequently. Here researcher has collected information about the space provided to the stores department of sampled with table No. 3.5

7 C.B.Agrawal :- Materials Management ; King Books,
Forwarded publishing company - Delhi - 1998. P. 6

TABLE NO. 3.5

SPACE ALLOCATED TO STORES DEPARTMENT

S. No.	Type/size of Firm	WITHIN THE UNIT (SQUARE FEET)					OUT SIDE
		0to1000	1000 to 2000	2001 to 3000	3001 to 4000	4001 to 5000	UP TO 1000
1	Small	7	2	1	0	0	0
2	Medium	6	1	2	0	1	0
3	Large	1	7	0	0	1	1
4	Total	14	10	3	0	2	1

In this table, the details has been given of the space allocated to the store department. In the small size of unit, 7 units have allocated up to 1000 Sq. Feet area to their stores department, 2 units allocated 1000 to 2000 Sq. Feet area and 1 units of samples allocated 2000 to 3000 Sq. Feet area to the stores department. It shows that in the medium size of units, 6 units allocated up to 1000 Sq. Feet area to their stores, one has allocated 1000 to 2000 Sq. Feet area, 2 units have allocated 2000 to 3000 Sq. Feet and 4000 to 5000 Sq. Feet area have been allocated in one unit to the stores department. In the large scale, one unit has allocated up to 1000 Sq. feet area to their stores, 7 units have allocated 1000 to 2000 Sq. Feet and one unit has allocated 4000 to 5000 Sq. Feet area to the stores department. And one unit has allocated upto 1000 Sq. Feet area in out side of the unit.

If properly for every movement of maintain for the good house keeping, proper preservation from rain, light and other such natural calamities. Facilities of enough space to store easy and economical. Day to day verification of the materials can be easy.

The articles in the store should be so well kept that staff may be traced out instantly. So the adequate space is essential for the store. Here in this study about 10 % space from total area of the unit has been provided to the store department in the industry of Jetpur city. It is not sufficient.

Sufficient space is main requirement of department, with proper building, better lighting, safety, organisation, proper code numbers, proper stock checking. Here in this industry the sampled units used to store materials but they stored not only one but cloths, colours, chemicals, wax, plates, barrels, screen designs, liquid soaps and many other printing accessories and materials are stored in the store room. So it is necessary for the owner to provide sufficient space to the effective store operations.

Whether there space allocated to store is sufficient or not. The researcher made an attempt in this regard.

TABLE NO. 3.6

WHETHER STORE CAPACITY IS SUFFICIENT

S. No.	Type/size of Firm	Store Capacity is sufficient	Store Capacity is insufficient	Total
1	SMALL	10	00	10
2	MEDIUM	10	00	10
3	LARGE	10	00	10
4	TOTAL	30	00	30

All the units of sample have allocated sufficient space for store department. Here researcher tries to find that whether store capacity is sufficient or not. Researcher asked them a question that whether store capacity is sufficient or not. In this question all the units of sample answered that store capacity are sufficient. They all feel that they allocated sufficient area for the storage of the materials. Small, medium and large all the types of firm said yes the store capacity is sufficient.

According to the observation and discussion with businessmen of sampled units, they clear that they are quite aware about need of space of store department so that they can store many kind of materials in store.

Conclusion :-

The administration of stores agrees the overall performance of business like purchase production and Marketing. It is clear that if businessman can manage the store with proper method, they can achieve the benefit of cost reduction and profit realisation further. Storage systems have to accommodate the inflow of goods and materials which bought from outside, in process stock and the out flow of the goods to customers.

The design, size and location of store is the integrate part of a wider management strategy.

Labour cost, future planning, legal and other restrictions, ground load bearing capacity, effluent disposal are other aspects of store can be managed by this decision.

So the location of store room must be designed properly and site of location would be easy to the production and other required units. Organisation should adopt any way of three ways which is given by Bailey P. J. H. and Farmer D ⁸ (1) Fixed location (2) Random location and (3) Zonal location.

(1) Fixed location :-

Goods of a particular type have a position in the store assigned to them exclusively. That mean that while stock can be found immediately without a complex system for recording its position, there can be considerable waste of space, because when stock of any one item are low of the space left vacant can not be filled.

(2) Random location :-

That items can be stored in any storage position which is available. Space is thus better utilised but particularly where there are a large number of product lines, a record has to be kept that where goods are and frequently of when they entered the storage area.

8 Bailey P. J. H. and Former D. :- Managing materials in industries ; Gower press Ltd London

(3) Zonal location :-

Goods of particular product group are kept in a given area. They may be random stored in a zonal location or stored according to fixed location.

So an organiser should think all the aspects and then and then he should design of storeroom to keep stock safely and easy available. To minimise surplus, wastage and scrap and for the preservation of the various item there must have adequate space in the store room.

In inventory management storing is fundamental function. It is primary function of materials management of various items carries into a store are generally divided into the following major types. The materials executives and staff in maintaining the records of these major items.

- ⇒ Raw material
- ⇒ Purchased components
- ⇒ Work in progress
- ⇒ Finished goods
- ⇒ Spares parts
- ⇒ Consumable
- ⇒ Machinery and Equipment
- ⇒ Inflammables
- ⇒ Chemicals
- ⇒ Furniture
- ⇒ General Stores
- ⇒ Scrap and wastage materials
- ⇒ Packaging Materials
- ⇒ Fuel stock

These types of material should kept in the store room. The materials department can be efficient and effective It also help the consuming department in keeping them moving in the

right direction so that they may not lay behind in the accomplishment of their task and in the process. They may maintain their operating skills in attaining the set objectives of the organisation. Buffer stock in inventories keeps smooth transfer of materials from one subsystem of the organisation to another may be carried on with success. Materials manufacturing marketing and selling is a chain and every subsystems of the organisation moves in a chain to attain objects of the organisation. Inventors strike a balance between different operation of subsystems

In the manufacturing organisation, collection of inventory. This main function manufacturing units. They collect inventory in bulk so they are adopting formal procedure and method so smooth operation can be held in organisation.

The inventory is an investment in the organisation. It is important to bear in mind that organiser lose money if he hold stock longer than anticipated. There is not only carrying cost but also costs of obsolescence, physical deterioration, storage, insurance, handling and transportation. And also hidden cost that is procurement cost. One should calculate these costs and after that stored the inventories in the store room.

Store is important dimension of the organisation so safety, security, quality, and quantity can be managed by the organisation. Some time the industry is investing more fund in material without maintaining the standard of requirement, on the other side less inventory is also problem for unit. So according to the production planning of the organisation, inventory should be maintain in store with scientific calculation and proper method for standard specification considering this, investment in inventory will reflect the liquidity of firm. The working capital strategies and maintenance of liquidity.

★LOCATION :-

The location and space have been decided to see the storage arrangements and its planning for economy of space utilisation So That any item in the store can be obtained without difficulty.

Store room must be near from the user department which required lead time and the working of production department. About the location of store has been described in chapter 3 by the researcher. While selecting a suitable site, due consideration should be given to temperature, humidity, water and light arrangements

Any vacant site cannot be treated as the site of stores. It should be well constructed building or parts of building. Store of inventories must be located near to the place of requirements. If it is not suitable, heavy loss with inventory could take place So the situation of the stores is an important aspect in the industry.

Here in this research study researcher has tried to know about the distance between store department and the production department.

TABLE 3.7
DISTANCE BETWEEN STORE AND THE PRODUCTION UNIT

S. No.	Type/size of Firm	Distance between store & production unit (meters)									
		0 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	More Than 50 M
1	SMALL	1	2	2	2	1	0	0	0	0	2
2	MEDIUM	0	1	1	3	3	1	1	0	0	0
3	LARGE	0	2	2	1	2	1	0	0	0	1

In this table researcher took the figure of distance between store and the production unit. In the small size unit the distance between store and production is up to 5. 2 units have 6 to 10 meter. 2 units have 11 to 15 meter. 2 have 16 to 20 and 1 unit have 21 to 25 Distance and more than 50 meter distance between store and production in 2 units. In the medium size there is 1 unit which distance is to 10 meter. 1 has 11 to 14 meter. 3 have 16 to 20 meter. 3 units have 21 to 25 meter. 1 unit has 26 to 30 meter. And 1 unit has 31 to 34 meter. Distance between store and production unit. And in the large size of sample there are 2 units which distance is 6 to 10 m. 2 units which distance is 11 to 15 meter. 1 has 16 to 20 m. 2 units which distance is 21 to 25 m. 1 unit which distance is 26 to 30 m. and 1 units which distance between store and production units is more than 50 m. Out of 30 units there were only 3 units which distance is more than 50 metres.

Here in this study, it could said that in the industry of Jetpur the sample units kept their store room near to the production unit within the unit so comfortable and effective operation can be possible for the production procedures.

NATURE OF STORE :-

A store should be a structured permanent building in the unit to protect inventories from rain, sun, humidity moisture insects white ants and biological physical

and natural deterioration. If a store is temporary, it would increase the cost of transportation and scrap and wastage. To minimise scrap and waste and in order to prevent pilferage and theft store should be built up with permanent base so administration procedure can be easy for operation and efficient control mechanism can work. The various types of materials are required for units, so proper store facilities is prime infrastructure for any organisation.

For this research, the situation about nature of store in dyeing and printing industries of Jetpur city have been classified as under.

TABLE NO 3.8
NATURE OF STORE

S. No.	Type/size	TEMPORARY STRUCTURE	PERMANENT STRUCTURE	TOTAL
1	SMALL	0	10	10
2	MEDIUM	0	10	10
3	LARGE	0	10	10
4	TOTAL	0	30	30

Here in this table there is figure about the structure of store. Researcher tried to know about the structure of store. All the types of firms small, medium and large size units have permanent structure of store.

No one has temporary structure of store. All units which have been selected for the study hold permanent facility of store. It is positive characteristics of Jetpur dying and printing units.

For the purpose of safety and security store house must be constructed permanent base and it could said here that in this industry the owner of the unit has well-known about this aspects of materials management.

Items in store :-

The Dyeing and Printing Industry of Jetpur city are used to store not only one item but they are tendency lie store various other related items in store.

Also there has affected in industry the centralised of decentralised store room. If consumption centres has been located at the coroners of a large plot then decentralised location of stores may become inevitable similarly, as the number of transaction increases, there should be an increase in the number of service counters to serve customers without delay.

The researcher has asked to the sample units about the items which has been kept in their store room.

Details of the items which is stored in the store have been given by the researcher as follows

TABLE NO 3.9
MATERIAL STORED IN STORE HOUSE

S. No.	Type/size of firm	MATERIALS STORE										Total
		Gray Cloth	Bleached Cloth	Colours & Chemicals	Printing Gum	Silicates	Bleaching Agents	Wax	PVC Containers	Finished Goods	Other Accessories	
1	SMALL	0	08	10	10	10	09	10	10	09	10	86
2	MEDIUM	0	10	10	10	10	10	10	10	10	10	90
3	LARGE	3	10	10	09	09	09	09	10	08	07	84

Here researcher asked the question that which type of the materials that they stored. In the answer of this, 10 units of small size stored colours & chemicals printing gum, silicates, wax, PVC containers and other accessories and 9 units stores Bleaching Agent and finished goods 8 of them store for bleached cloth stored in the store house. In the medium size of units all the sample units took place bleached cloth, colours & chemicals, printing gum, silicates, bleaching agents, wax, PVC containers, finished goods and other accessories. No one stored grey cloth in store house both in small and medium size of units. In the large size of the sample 10 units stored bleached cloth, colours & chemicals and PVC containers, 9 of them stored printing gum, silicates, bleaching agents, wax, 8 of them stored finished goods, 7 of them stored other accessories and 3 units of them stored also grey cloth in store house.

METHOD OF STORING :-

The materials may be piled up, stacked, or placed in racks, bin or shelves, depending upon the size and nature of the individual item. Where there such a multi items have to be stored there must have a proper layout of store and designed it perfect of stores.

In the big industry there should be a warehouse lay out. There are six steps of good management planning and their application to ware house lay out. According to Jonkins C. H. the steps of layout :-

- (1) Establish the objective :-
 - (i) objective for overall warehouse operations
 - (ii) specific lay out objectives for storage layout programme.
- (2) Collection about facts
- (3) Analysis of materials
- (4) Formulate the plan for store
- (5) Implement the plan for store

For achieving the aims of good layout, first of all the store room should be divided into rows and columns or bays with proper numbers allotted to them so easy location of material in the store room. Can be possible

Further, the store has divided into sections according to the nature or classification of materials like chemicals, colours, paints, cloths, tools iron and steel, stationery machinery, packing materials and inflammable materials. It is advantageous to divided into group which are some nature articles such as nails, screws, bolts, nuts etc. Like this small items should be stored in boxes or closed bins. Open or wide space should be provided for the big and bulky goods. It is best way to keep it in the containers.

The provision for separate counters, room, receipt room, despatch room, inspection and records room or space is essential. It might be convenient to the store keeper, store manager and also to the management. There should have sufficient space for the man and materials between the column or rows for the moving of materials easily. It must be designed in improved modular form to allow for future growth of products and products line, so there should be made adequate space for the expansion. There is a essential requirement to placement of the fire extinguishers, sand bags, buckets in the store room.

Oils, industrial spirits, chemicals and many other liquids can be stored in iron - steel tanks or barrels or in tin containers. An excellent instance for the use of tanks is that of holding motor spirit. They could be buried underground, leaving the space above available for use in other way. Such

tanks should be fitted with both inlet and outlet pipes and with visible gauge for the purpose of showing the volume of content at any time.

A. K. Datta * has given the principal types of containers convenient for storage and inspection named as below :-

- Bags :- Articles ready made up in standard quantities, e.g. cements, barytes etc.
- Barrels :- Liquids and solid etc. e.g. oils, fats.
- Baskets :- Edibles sold by baskets. e.g. certain fruits etc.
- Bins :- Small metal parts, e.g. fitting and certain light goods.
- Bottles :- Liquidise, chemicals in comparatively small quantities e.g. spirit
- Boxes :- Hardware and misalliances goods.
- Carboys :- Liquid chemicals and acid in large quantities.
- Cases :- Hardware etc.
- Casks :- Hardware and misalliances goods.
- Cupboards:- small articles, fitting etc. requiring more protection than open shelves.
- Cylinders :- Gases.
- Drums :- paints, spirit, oils and certain other liquids.
- Floors :- Tubeings, pipping, sheet irons and other heavy metal fittings, manufactured goods and timbers etc.
- Jars :- Greases etc.
- Kegs :- Greases, Paint, white lead etc.

- Racks :- Tools, spares, parts, hardware, etc. of lengthy description
- Sacks :- Dry goods ready made up in standard weights in large and heavy quantities, e.g. cement, certain types of chemicals.
- Tanks :- Spirit, oils and other liquids
- Tins :- Certain materials requiring to be kept damp and air proof
- Vats :- Oils and greases.

Rack storage is usually used to store pallet size loads. Rack storage might be used for surplus for very large and irregular shaped items or for items that have such extremely high volume turnover. Achieving high space utilization of a large variety of items with irregular sizes and shapes is usually difficult.

Sometime units have to do repackaging. Repackaging after receiving at the store or after picking from stock would be costly and often unnecessary. Companies should work with suppliers to adopt the use of containers that could be received stocked and picked fro stock without repackiging.

Also there should have facilitated measuring equipment Handling equipment and safe enclosure in the store room. In this modern time the store department has to handle an enormous variety of materials, extensive range of storage equipment. Although many kinds of special equipment have been developed for this purpose. Now a days steel equipment like steel racks, shelves, bins etc. have been increased because steel

storage equipment is more satisfactory and renders better service than the wooden one. Also steel equipment are more durable, stronger, easier to clean and more or less fireproof in comparing with wooden equipment. Steel Almarish is the best safe equipment where mammals, rats, moles, mice white ants etc. get into quite impossible. And when in closed it becomes vermin proof as well.

In the purpose of maximum utilization of space. Now steel racks, bins, Almarish are available in two styles :- fixed and Adjustable

In the case of fixed ones at the time of manufacturing there have two division horizontal and vertical which cannot be changed. And in the adjustable types they are so designed that the shelves can be fixed at variable gaps according to the requirement of the user department.

M.M. Varma has given following types of steel equipments.

- (1) racks :- Pallet racks, bar and tube racks, angle racks, vertical, racks plate and sheet racks, tyre racks, cable racks, drum racks.
- (2) containers:- Wooden crates and rote box
- (3) Measuring :- for the weight, liquid measure and by size.

Equipments:- Measuring equipment special

instrument, micrometer and various special gauges are also used.

- (4) Ladder and steps :- Ordinary, shelf, steps or travelling ladders.
- (5) Cleaning Equipments :- Brushes, dusters, Mops, buckets, soaps, degreasing agents and polishes and also vacuum cleaners.
- (6) Open type Shelving :- For packaged items, small boxes, tins of paints, drills, components, screws, ball bearing, files
- (7) Closed type Shelving :- for loose items, medical supplies, delicate and valuable instruments, stationary, clothing etc.
- (8) General tools :- Bailing wire or banding machine powered hacksaws, band saws circular saws, hammers, chisels, pillars, rail with drawers, shears, screw drivers, spanners etc.

Terms :-

(1) Bay :-

In general sense by is known as a division wall between columns. In store keeping bay is said to be the unit of a shelf, if found in both fixed and adjustable steel racks etc. According to the British Standard. Bay is defined as the unit of adjustable steel shelvings and may be of two kinds (1) Single sided and

(2) Double sided. Single sided bay consists of a number of adjustable shelves which are supported by vertical posts and is accessible from the front side only. In double sided bays. Two single sided bays are joined back to back having a common sheet back, with two sets of shelving, each of which is accessible for its front side.

(2) **Stack** :-

Number of bays joined together end to end and should be either single sided or double sided.

(3) **Compartment** :-

Compartment is a space between any of two adjustment shelves in the same bay with full width of the bay.

(4) **Pigeon holes** :-

The sub division of a compartment by the insertion of shelf dividers are called pigeon holes.

(5) **Bin** :-

A pigeon hole or compartment fitted with a bin front storing only one type of material.

(6) **Shelf - trays** :-

Placed on the shelves for storing small size articles. Usually six trays can be accommodated in a standard size shelf, 90 Cm. in width.

(7) **Multi tier Beginning** :- Two or more tiers of bins, one on top of the other, can be accommodated in a space meant only for one tier. This arrangement is quite economical since the lower there will form the base and support of the upper one.

(8) Trays :-

Also known as work pans for the random storage it is used.

They are very convenient for storing loose components and can be made in various sizes provided with handles.

(9) Pallets :-

It is a flat, wooden blade with handle for the use of porters so that they may be able to handle heavy loads with out putting in much labour. In store keeping it is designed to facilitate mechanical handling by fork lift struck and may be used for both storage and transportation purpose. For the loading and unloading it becomes indispensable since they are economical in saving both time and energy of workers.

Here in this research study, researcher has given an information about the storing facilities available in the store house of Dyeing and printing industry of Jetpur city.

TABLE NO. 3.10

STORING FACILITIES AVAILABLE IN THE STORE HOUSE

S. No.	Type/size of Firm	FACILITIES AVAILABLE					
		Racks			Measuring Instruments	Handling Equipment	Safe Encl.
		0to10	11to20	21to30			
1	SMALL	09	00	00	10	09	00
2	MEDIUM	10	00	00	10	10	03
3	LARGE	08	01	01	10	08	00
4	TOTAL	27	01	01	30	27	03

Here researcher tried to know about the facilities available in the store house of materials safely. In this table in the small size units, 9 units have racks up to 10, all the sampling units have measuring instruments, 9 units have handling equipment, no one has safe enclosure. In the medium size of units, 10 units have up to 10 racks in the store house, all the units have measuring instruments and handling equipment and 3 units have safe enclosure in store house. By this table in the large size of firms, 8 units have up to 10 racks, one has 11 to 20 and one has 21 to 30 racks, all the units have measuring instruments and 8 of them have handling equipment in the store house but no one has safe enclosure in the store house.

It should be said that, about 90 % of the total units have up to 1 to 10 racks in their store room 100 % units have measuring instruments, 90 % units have handling equipment and only 10 % units have safe enclosure in their store room.

CLASSIFICATION OF MATERIALS :-

Classification :- classification means systematic division grouping or categorisation of store materials or items.

Materials can be classified according to their condition or usability as under.

Serviceable stores are those stores which go temporarily out of order. After repairing and replacement they may become serviceable again and their usable life may thus be extended for some more time.

Those items which have outlived their life. No amount of repairers, renewals or replacements can bring them back to their usable life. They are thus fit only for disposal as scrap are unservicable stores

Obsolete are those items which have gone out of date because of new inventions in design use and which cannot profitably be used again. These need to be disposed of quickly to provide place for new ones.

(ii) Finished and semi finished stores :-

Finished stores are those goods which have been manufactured in complete form by the production department and are ready for sale.

On the other hand, Semi finished stores are those which have not yet been manufactured completely and need some further processing before they can be put to sale in the market. They are thus taken back by the production department for turning them into a final product.

(iii) Dead stock items :- The term is generally used in government departments. Furniture, equipment, machinery and other items which have some definite life and which can not be written off before the expiry date of their life are classed as dead stock items. They are generally issued temporarily on loan basis to their users.

(iv) Unused stock :- These are not stock in the real sense of the term. These cannot be used in the production unit because

being defective, damaged beyond use or because of some other reason they have been rendered unusable.

There ere should be mistake in unused stock and it would count as a scrap and unserviceable materials, but this is not the real position. Scrap are usually left over items from the production unit. They can not be used as either they are less in quantity or less in measurement weight etc. But unserviceable items are movable items which have been rendered unserviceavble by constant use and are new beyond repair.

Codification of Materials :-

Codification :- codification means assigning or giving a code number or symbol to store's items.

A accurate identification of an article sometimes, demands lengthy description which may generally he complicated and add to the confusion. If said, a chair as such is not the identification. An armchair, plastic caned back revolving steel frame, foam cushioned, etc. may be accurate description of the chair in question.

A proper codification is to be evolved so as to obtain the following benefits :-

- ✓ To avoid the long and unwieldy description.
- ✓ To have accurate and logical identification.
- ✓ To prevent duplication.
- ✓ To standardise the items.

- ✓ To reduce the varieties.
- ✓ To have efficient purchasing department.
- ✓ To have efficient recording and accounting.
- ✓ To simplify and facilitate the mechanical recording.
- ✓ To simplicity and facilitate the pricing and costing.
- ✓ To have proper system of location and indexing.
- ✓ To assure correct and efficient inspection and
- ✓ To assure production as planned and as required.

In order to identify correctly and on a logical basis, to avoid multiplication of items, to same time and labour, to facilitate easy location and proper functioning of the store house, a proper codification is needed in the organisation.

Advantages of codification :-

Come of merits have been describe above by the researcher. P. Gopal Krishanna has given a to z advantages of codifications for serving the user promptly have been described briefly are as under :-

- ✓ The warehouse manager can be able to identify instantly the requirement of user.
- ✓ Reduce delay in the service to production unit.
- ✓ In the case of finished goods ware house, the customer will go to another company thereby affecting the image and profit of the organisation.
- ✓ Consumer has to unambiguously identify his requirement through proper nomenclature.

- ✓ If the procured item has a trade name and the stores executive has to correlate the two names, with the problem going out of hand if the number of items is very large.
- ✓ Codification helps to uniquely identify the item by having one to one correspondence.
- ✓ The advantages of unique identification and disadvantages of ambiguous nomenclature can never be overstated.
- ✓ Long description by tongue twisting long names must be avoided.
- ✓ Systematic grouping of similar items is facilitated by codification.
- ✓ Codification automatically leads to the process of standardisation.
- ✓ Ordering becomes more economical as like items are ordered together.
- ✓ Price advantage can be availed out of the resultant bulk ordering with discounts.
- ✓ Location problems of items in bins are reduced by codification.
- ✓ Service levels can be improved for the same level of investment.
- ✓ Servicing time less due to easy identification.
- ✓ Stock levels are less as duplication has been eliminated by codification.
- ✓ Obsolescence is less as the number of items is less codifications facilitates computerisation.

- ✓ The records entries and transaction are less as less number of items are handled per person.
- ✓ The overall efficiency of ware house staff is much better with higher level of motivation.
- ✓ Logical grouping of items facilitates variety reduction easily.
- ✓ Procurement operations become easy and nontechnicals can understand the requirements easily.
- ✓ Communication between different department is smoother by process of codification as they know what they are talking about.
- ✓ The simplicity of codification enables even unskilled workers to distinguish one item from another and trace where the wanted items is kept.
- ✓ Codification introduces discipline and reduces inventory by removing nonstock items and reducing items in temporary code.
- ✓ Minimising the number of items today by means of codification enables every one in the organisation to meet future challenges created by expansion, diversification and technological upgradations.

Codification aims at maximum service to users with minimum input resources, after identifying items uniquely and classifying them into major class, subclass group, subgroup and minor groups.

But some time there should be a mistake in codification and it would be demerit of classifications.

DEMERITS OF CLASSIFICATION :-

(1) Mistake in coding :-

Sometimes check up line may not verifying the codes of all items in all paces and positions. Sometimes store department has done coding mistake in the purchase requirement of orders to supplier and consequently wrong supply of materials to the stores department by the supplier.

(2) Detection of coding mistake :-

To locate coding mistakes involved long time and hard labour. To find out exact code against a wrong code is a strenuous task.

(3) misunderstanding of codes :-

Where a human element becomes unconscious wrong belief, false notion, oral version and non verification there is a chance of misunderstanding. There can be mistake in the code.

(4) Large number in one group :-

If in one group a large number of items are put and codes are allocated there may bring confusion and advantage of codification may not achieved fully.

(5) Dummy codes :-

Dummy codes have come to stay with the increased use of mechanical recording. The statement and returns submitted to the management with the help of mechanical system are prepared with dummy codes. But they are non existent in code index hence invite no reference to the index resulting in more paper work and involving lot of time and energy on the part of the assistant.

(6) Systems of codification :-

There are different systems of codification for rationalised storekeeping. A. K. Datta ¹² has given below mentioned system of codification :-

- (1) Arbitrary System
- (2) Prieumonic System
- (3) Decimal System

M.M. Varma ¹³ also given the system of classification are as under :-

Alphabetical system

Numerical system

Decimal system

Combined Alphabetical and numerical system

Brisch system

Kodak system

P.Gopalkrishnan¹⁴ has described two methods of classification:-

- (1) Brisch System
- (2) Kodak System

C.B. Agrawal¹⁵ also has given two systems which is given by

P. Gopal Krishnan.

12 A.K.Datta :- Materials Management procedures text and cases' prentice Hall of India

Private Limited, New Delhi - 1993 P. 151

13 M.M.Varma :- materials management;Sultanchand and sons Educational publishers, New Delhi - 99 p.85

14 P.Gopalkrishnan :-materials management;Sultanchand and sons Educational publishers, New Delhi - 99 p.85

15 C.B.Agrawal :- Materials Management;Forward publishing Company, King books, Delhi - 1998 p.112

Here narrated by the researcher Brisch system and Kodak system.

Brisch System :-

It is developed by a British industrial engineer. It is a comprehensive system, consisting of seven digits and is applied in three phases. The seven digit split into group such that similar items are brought together. The preliminary set of categories are categories of The assemblies sub assemblies, and boughtout items. Classification is done after duly considering materials, sizes, function and uses.

Kodak System :-

Kodak system developed by East Man Kodak Company of New York. It consists of ten digits divided into groups of three, four and three. In addition to the classification based on materials, function and use of the item importance is given to the made of procurement of the item by the first two digits. Thus within a group, the numbers used are 00 to 99. If nuts and bolts are to be coded, then bolts can have the number 28 and nuts 29, because b is ahead of n in the alphabet.

Although it is necessary to use this codification properly. It would be disadvantageous or may not given best result if not used proper codification. In the unit or organisation each and every person should be use the code of unit not a supplier code. There must be prepared codification

which has shown raw material spare part, semi finished goods and finished good easily. It company used national codification it would be able to away duplicate and provide original quality goods to users.

Standardisation :-

Standardisation of plants and machinery, spares parts is very important in any scheme of inventory control.

Standardisation refers to setting up of fixed sizes, types, qualities, measures etc. It also means standardisation of nomenclature of materials.

Standardisation reduces average over all stock to be held. It eliminates unnecessary types, grades and variety of materials or parts. It simplifies record and gives rise to increased quantities of purchase, enabling quality discounts and then reduced cost.

The frequency distribution of demand for each type and size of an item in terms of quantity of materials purchased used or products sold, would be an excellent starting point for standardisation and variety reduction in an organisation.

It can be decided in the weight or measures of the goods, e.g. Killo Gramme, Killo Meter Meter, Voltage, Horse Power. It is easy to standardise items for which published standards by the Indian standards Institution are available. It must not lead to rigidity in design or restrict technical development. It is also based on previous practices.

Product simplification and standardisation should reduce or stabilize the number of existing products and sharply reduce the number of components and materials.

Safety Measures :-

There should be a scientific ware house for the purpose of safety. There should take steps of safety of stored in the store house. Also avoid pilferage, theft and like these hazards taken steps, if safety and these are narrated in the location of store. There should have a provision for stock verification for the purpose of safety. The checked out systems should be well established and full proof. When a large of work force is present, through random inspection must be adopted.

There should discussed 7 factors for the safety measures.

- (1) A Security of building and stock yards ;
- (2) Custody of keys ;
- (3) Movement of Men ;
- (4) Making the store ;
- (5) Statutory Regulation
- (6) Inspection by supervisors
- (7) Fire precaution.

Security of building and stock yards :-

Building of store house should be well constructed and a permanent structure. In this study researcher has given the information about permanent structure of store house in table No. 3.8 In this industry all the units have permanent structure with the purpose of safety. 100 % units of sampling have permanent store house.

Custody of keys :-

The keys of the store room are must kept under the control of responsible person like store manager, store keeper or any other authorised person. ' A key movement register ' should be maintain if more than one person handled the store. Duplicate keys of store room or store house must be kept in safe custody of a senior officer. At the time of event of key stolen, lost or misplaced fullest possible enquiries should be made and lock should be changed by a new one.

Movement of men :-

The store keeper is responsible person for the safe custody of the store, he has the full authority to supervise not only his own staff but all other persons who have the occasionally to visit the store for any purpose whatsoever. There should have a I card with all the staff persons and Daily visitors Slip should be made for the casual visitor. There should be maintain movement register.

Making the stores :-

In order to minimise the risk of pilfering, it is advisable to mark stock items with the name of the firm or other convenient symbol of identification. The stolen article can be traced easily with the help of these marking.

Statutory Regulations :-

The store officer / official should be fully aware with the rules and regulations, both obligatory and statutory, which affect the security of the stores or the store building. They should also be aware of explosive and petroleum regulations, relevant sections of penal code, civil procedure and criminal suits and also the concerned Provisions of Contract Act and Sale of Good Act to meet with requirement of any case arising out of happenings in the stores department. In the short store keeper of officer should fully aware with catalogued procedures

Inspection by supervision :-

The senior store officer should have to visit the store and should checked the physical condition of required standard are being maintained. Regular visits of them avoid the chances of being slack in day - to - day duties of staff. They should have to give suggestions and instructions for the storage and store room to the store keeper

Fire precaution :-

The inflammable nature of boxed store, fire is the major menace in store house. There should be provision for early detection of fire and fire fighting system which can swing into action at once. There should have provision of sand, water and fire exits. Automatic alarm and sprinkler systems should be installed in the warehouse. This nature of materials must be inspected regularly and kept aside from other materials.

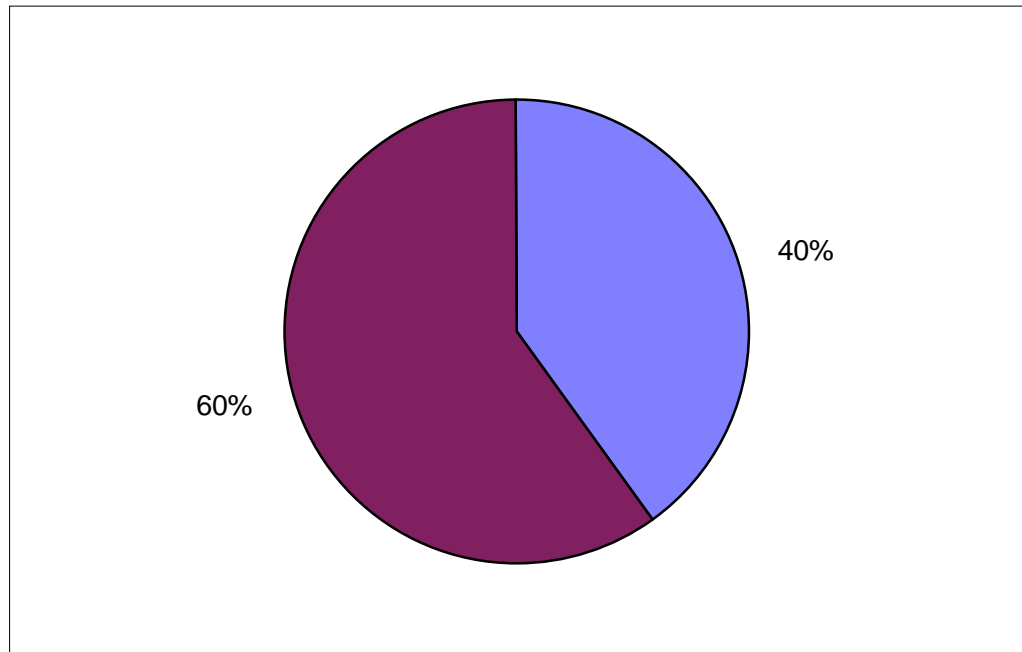
The working staff should be trained in fire fighting procedures. And there must be available of first aid and medical kit. Also the provision of safety article.

Here in this study researcher has given information about the event of accident may be occurred in the unit. Wax, acid, colour chemicals, cloths and packing materials are stored in the store room of the units so there are possibilities of accident. Given the informatic table below :- first here given the table of inflammable material in the store.

Table No. 3.11

Do you store inflammatory materials in your store

S.No.	Type/size of Firm	YES	NO
1	SMALL	08	02
2	MEDIUM	07	03
3	LARGE	03	07
4	TOTAL	18	12



There were 60 % units who have inflammatory materials and 40 % units did not store inflammatory materials in their stores.

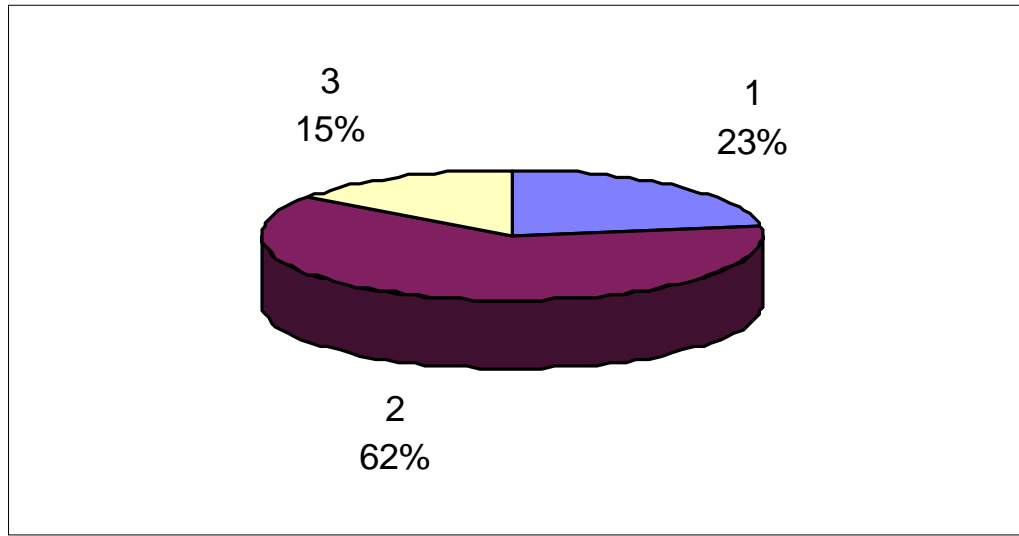
Researcher has study about the dyeing and printing industry and here the researcher tries to know that is there inflammatory materials in the store house. In the above table its described that in the small size units, 8 units have inflammatory materials and 2 units have no such materials in store house. In the medium size of units 7 units stored the inflammatory materials in store house but 3 units didn't store these materials in the store. In the large size of units there are 3 units who stored inflammatory materials and 7 had not store like these materials in the store. There are 60 % units which have inflammatory materials in their store.

Table No. 3.12

Chances of Accidents / Casualties During Handling

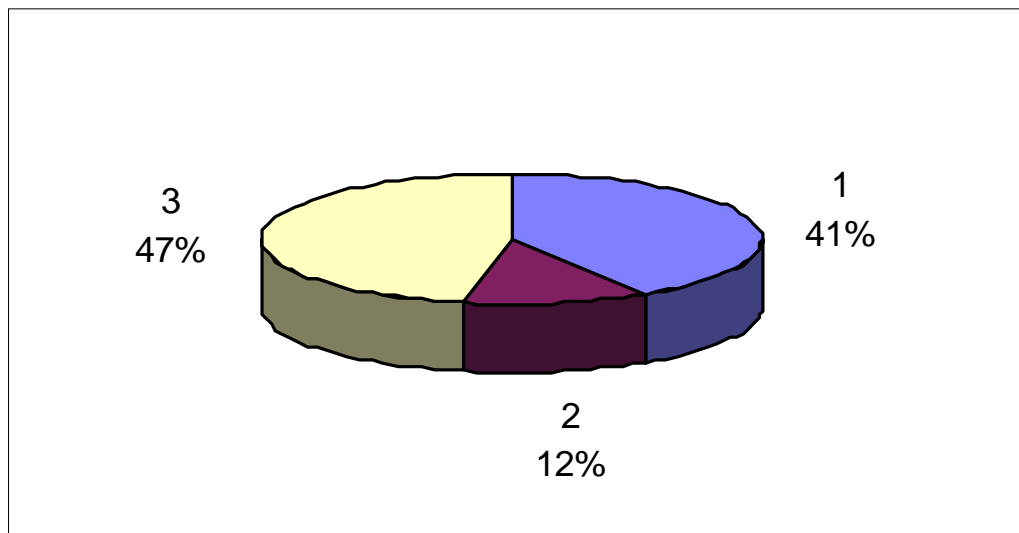
S.No.	Type/size of Firm	YES	NO
1	SMALL	03	07
2	MEDIUM	08	02
3	LARGE	02	08
4	TOTAL	13	17

Chances of Accidents / Casualties During Handling : YES



about 15 % of Large, about 23 % of Small, about 62 % of Medium

Chances of Accidents / Casualties During Handling : NO



about 47 % of Large, about 41 % of Small, about 12 % of Medium

In the dyeing & printing industries there are using of chemicals, acid etc. And also boilers are used within the unit. Here researcher wants to know whether there were the chance of accident during handling the materials. In this table we see that in the small scale units 3 units answered that there are chance of accident and 7 units denied it. In the medium size of units 8 said that there are chances of accident / casualties during handling materials, 2 units said no there are no chance of accident. In the large scale of units 2 units said yes there may be accident and 8 units denied the chance of accident.

Out of 30 units 13 units informed that there is chance for the accident during the handling process. It means that 43.33 % were in opinion for chances of accident are there in this type of industry.

Further in order to get for reaction of squabbled industrialist about the chances of accident during the manufacturing process and reaction about accident in industry. For this which steps have been selected by the sample units before accident and after accident have been analysed by the researcher.

Table No. 3.13

How do you react (to accident)

S. No.	Type/size of Firm	Takes steps after accident has happened	Take precautions
1	SMALL	06	08
2	MEDIUM	08	07
3	LARGE	10	10

Researcher wants to know that what will be the reaction of the owner of units about the accident. Have they taken any precaution or steps to avoid the accidents ? From the above table it is understand that in the small size of units 6 units of 10 said that or what provision they have made for after the accident and 8 of them said that they will take precautions to avoid the accident. But if the accident has happened they take steps precautions to avoid the accident. But if the accident has happened they take steps after the accidents also. In the medium size of units there is a position like small size units. They will take precautions but also take action after accident. There are 8 units who will also take steps after accident and 7 units who take precautions to avoid the accident. In the large size of units, all the units of sample take precaution to avoid the accident. They also said that if the accident has happened they will take steps.

According to the facts presented in the table by the researcher 83.33 % of total respondents were agreed that they have taken steps to avoid accident and 80 % of total respondents were agreed that they have taken steps after accidents.

For the equipment of safety for the employees against natural or man made calamities, the researcher have researched following table.

Table No. 3.14

Do you provide safety articles to employees

S.No.	Type/size of Firm	YES	NO
1	SMALL	07	03
2	MEDIUM	09	01
3	LARGE	07	03
4	TOTAL	23	07

There are inflammable materials in store and used in production. So researchers want to know that is the firm provides safety articles to employees. From the above table it looks that in the small size units 7 units provide safety articles to employees and 3 do not provide it. Medium size of units 9 units provide safety articles and 1 unit don't provide it. Larger size of units there are 7 units who provide safety articles and 3 units who do not provide safety articles to their employees.

Among 30 units there were 23 units have provided the safety articles to employees.

There are about 76.66 % units have provided safety articles to their employees. It could be said that only 76.66 % units have an idea for preservation of their employees from the accident. They provided them gumboots, hand gloves etc. For their safety from flammable procedure with the materials.

After that researcher also asked them that they think safety of employees is important or not. Which unit provide safety articles to employees ? In the reply, they said yes they are thinking employees safety is more important in the units. Here the table is given :-

Table No. 3.15

Do you think safety of Employee is important

S.No.	Type/size of Firm	YES	NO
1	SMALL	07	03
2	MEDIUM	09	01
3	LARGE	07	03
4	TOTAL	23	07

From the above table revealed that from small size of units, 7 units feel that safety of employees is important, but 3 units do not think like this. In the medium size of units 9 units think that safety of employees is important but 1 units does not think the importance of safety. Large size of unit there are 7 units who think the safety of employees is important and 3 units think the safety of employees is not so important.

STORE KEEPER :-

According to Robert C. Sampson.

" As a manager, it is up to you to reduce stress and undue anxiety to increase productivity and improvement. "

A storekeeper is a person who keeps the stores in order and handles them efficiently. Also It can be said that a store keeper is one who caresses the stores lying under his control. The dictionary meaning of the term is " an individual who is a man of working class type and who maintains the stores. "

In a productive unit or organisation, vast quantities of materials and component parts have to provide every day. The most important thing is to keep the incoming goods as near as possible to the assembly shops will use daily. The store keeper is responsible for maintaining the stores. The importance of store keeper has increased by the advancement

of knowledge, the pattern of production and production techniques have undergone great changes.

A storekeeper has to operate a storekeeping system varies from one store to another depending upon the nature, size and composition of the stores departments.

QUALITIES AND QUALIFICATION :-

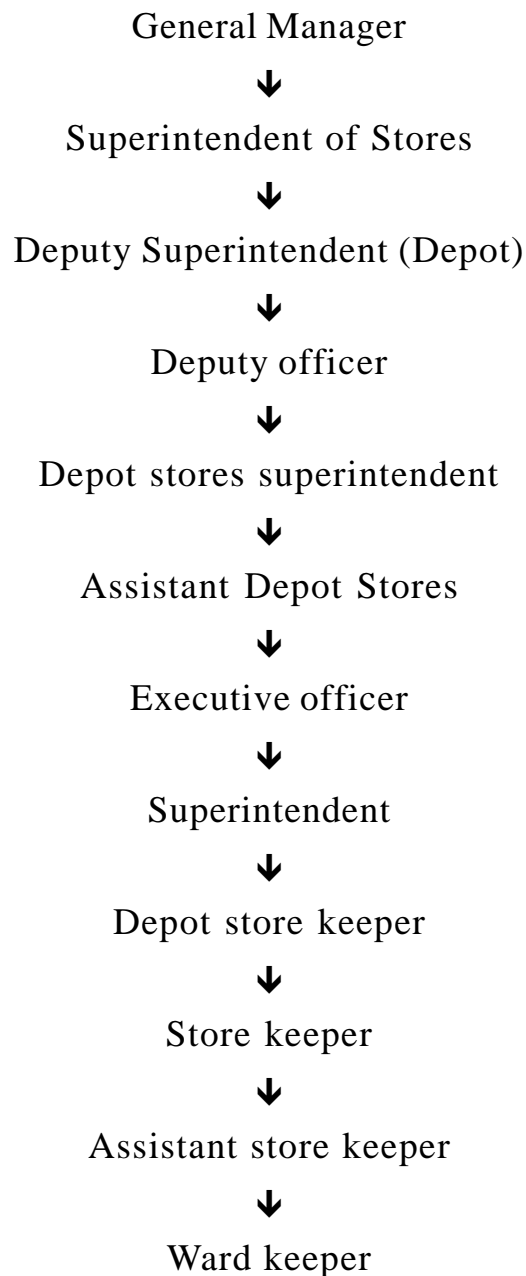
The store keeper occupies an important place in the organisation. Some of the qualities and qualification of it are as under :-

- ☞ A hard-working and painstaking individual.
- ☞ Honest worker, pleasing personality and sweet temperament.
- ☞ Have some managerial qualities so as to create confidence in his colleagues and exercise control over his subordinates.
- ☞ He should be fully familiar with materials stored into the store so as to enable him to preserve them rightly and properly.
- ☞ He must possess basic academic qualification. Which will vary from one store to another.
- ☞ A storekeeper must have a knowledge to handle general stores or stores not much of technical nature, He should have passed at least the Higher secondary or matriculation and have taken trained in the art of storekeeping.

PALACE OF STOREKEEPER IN THE FIRM OR ORGANISATION :-

Store keeper is a valuable Assets in the organisation.
His place in the firm has narrated in following chart :-

- : CHART :-



FUNCTION, DUTIES AND RESPONSIBILITY :-

A Store keeper should have to do some function and there is some duties and responsibility of the store room on the store keeper. His function and duties are as under :-

- ☞ To receive the materials
- ☞ To keep materials at the right place in proper order and in the manner prescribed.
- ☞ To issue the materials on proper authorised letter and to proper persons within least possible time.
- ☞ To maintain complete, up-to-date and correct records.
- ☞ To inspect the stores and ensure that they are proper conditions.
- ☞ To arrange the stock in such a manner that they are easily traceable.
- ☞ To replenish the stock
- ☞ To advise the management on day to day affairs of the stores department.
- ☞ To check the figures of consumption of stock and report to the officer.
- ☞ To keep vigil on the security. To prevent accident like fire and theft

RESPONSIBILITY :-

His duties and function are closely followed by his responsibility. A store keeper's responsibilities have been given below :-

- ☞ He is responsible for the materials which he receives, and also for getting materials inspected by the experts and obtaining the necessary certificates.
- ☞ He is responsible for stock keeping at the right place in the right manner.
- ☞ He is responsible for the issue of materials which is required without waste of time with the written authorisation.
- ☞ Responsible for theft, pilferage damage and spoilage in the store.
- ☞ Responsible to keep coordination with all the department in the interest of smooth functioning of the organisation.
- ☞ Responsible to act in close co-operation with the purchase department and production department.
- ☞ Responsible for offering facilities to the stock verifiers and for irregularity detected by them.

Above duties functions and responsibilities clears that the job of store keeper is onerous and at every step for every action, whether small or big, he is held responsible. It could be said here that his duties are simple but his responsibility are full of obligation both moral and legal.

Researcher has made an attempt to know :-

- ☞ Whether there is a specialised official for stores in Dyeing and printing Industry of Jetpur city or not.

TABLE No. 3.16
IS THERE ANY SPECIALISED OFFICIAL FOR STORES
DEPARTMETN

S. No.	Type/size of Firm	YES	NO
1	SMALL	01	09
2	MEDIUM	04	06
3	LARGE	06	04
4	TOTAL	11	19

Researcher's study is materials management in Dyeing and Printing industry and so the materials management is the subject researcher wants to know is there any special office or manager for store department ? By the above table it is describe that there is only one unit where specialized official for stores department in small size units and 9 had no any specialized person for stores department and there are 4 units where are specialized person for stores department 6 units where specialized person for store. In the large size of units there are 6 units where specialized official is appointed for the store department and 4 units where there no any specialized for store department

Out of 30 units have are only 11 units who have specialized official in their stores department. It means only 36.66% units among the sample units who have specialized official in their unit.

Further researcher has made an attempt to know whether there is an authorised person or stores manager in their units or not.

TABLE No. 3.17

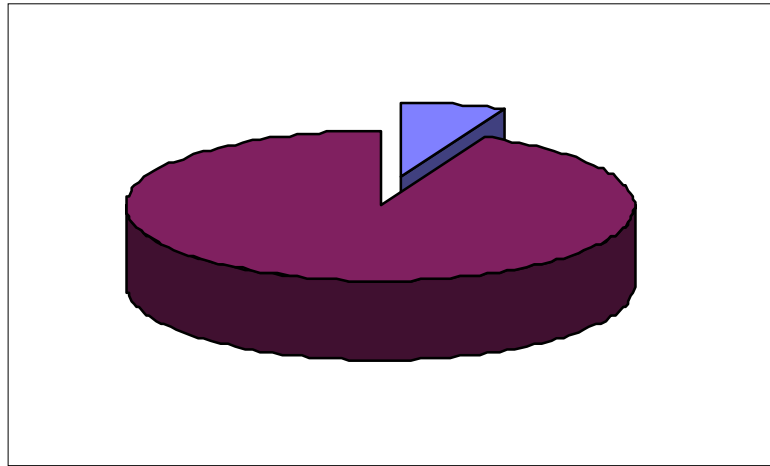
Do You Employ Stores Manager or Other Authority

S. No.	Type/size of Firm	Employ Stores Manager	Handled by other authority
1	SMALL	00	10
2	MEDIUM	01	09
3	LARGE	01	09
4	TOTAL	02	28

Here researcher tries to know that is there is there stores manager or other authorize employees in the store department. From this table it is found out that in the small size of unit's stores department is handled by other authority, there is no manager for stores. In the medium and large size of units 1 has appointed stores manager and 9 have other authority for handling store department.

According to the Table No. 3.48 that there are only 11 units out of 30 who have specialized in their units but this table has shown that only 2 units have a store manager in their units and 28 units were there where stores department is handled by any other authority.

It should be narrated in graph as under :-



about 93.33 % units have Other Authority and
6.67 % units have store manager in their firm

Only 6.66 % unit have stores manager in their stores department.

Skill and store keeper

Store keeper is responsible for various responsibility related to the departmental issue of material like safety security, recording, maintance, supply, checking, controlling authority etc. It requires professional skill to handle the store efficiently. Following information gives clear idea about store keepers skill of sampled units.

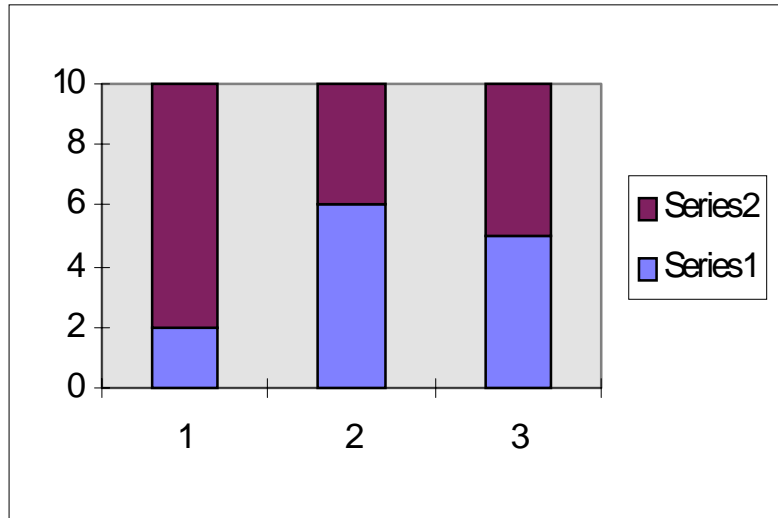
There should have specific skilled employee in the store department for better handling of store. Here researcher has tried to know about the skilled employee in the sampled units.

TABLE No. 3.18

Specific Skilled Employee For Store

S. No.	Type/size of Firm	Yes	No
1	SMALL	02	08
2	MEDIUM	06	04
3	LARGE	05	05
4	TOTAL	13	17

It should be narrated in graph as under :-



Here researcher wants to know that if they are specific skilled employees for in the Dyeing & Printing industry of Jetpur. From the above table its described that there are 2 units who have skilled employees and 8 units who have not skilled employees for store in the small size units. In the medium size of units there are 6 units who have skilled employs and 4 firms who haven't skilled person for store. There are 5 units which have skilled employees and 5 have not skilled employees for store in the large size.

Only 13 units among the sampled units have specific skilled employee for the stores department. Only 43.33 % units have specific skilled performs in their units.

SUPPLIER OF MATERIAL

Receiving of materials is one of main functions of the store. Here in this study, it would be important to know that from where materials are coming in the store.

Store department has to received material from supplier, local dealers, transport office or railway godowns. Here researcher has derived that from where the materials have been received by the store department.

TABLE No. 3.19

STORE DEPARTMENT RECEIVES MATERIALS FROM

S. No.	Type/size of firm	Suppliers	Local Dealers	Transport Office	Railway Godown
1	SMALL	03	09	06	00
2	MEDIUM	03	07	04	00
3	LARGE	03	07	08	00

Researcher asked that from where stores department receives materials and the answer shows in the above table. All the three types of the firms, three units received material from suppliers. In the small size units. 9 units received from local dealers and 6 firms received from transport office. In the both medium and large size 7 units received materials from local dealers. In the medium size firm 4 units received from transport office. In the large size 8 units received materials from transport office. Sometimes they purchase the materials from suppliers or local dealers. Local market is also available in the Jetpur city so they also received it from suppliers or local dealers.

Quality of Incoming materials :-

There must have procedure for ensuring incoming materials to the store. Quality should be built in the to product and it can not be inspected in to the item. It aims at detecting defects at inspection and not at the inspection stage. The word ' quality ' denotes the quality characteristics involving the measured and attribute types. Examples of measured characteristics include height, weight, thickness, diameters, volume.

In the big organisation they have independent quality control department to report the top management. The store manager is in-charge of quantity accounting while the purchase manager looks after contractual obligations of invoice.

The user expects best quality and buying by brand name, the buyer is interested in right quality. There problem arise because procurement is done by the materials department, so the store keeper or incharge must be acquainted with the procedures of incoming quality control.

QUALITY MAINTENANCE

Inspection of material quality is undertaken by industry in order to ensure that products conform to the specified or pre established standards. Such verification or inspection is carried out in the purchase of raw materials, in the inter department flow of materials, and in the final acceptances of finished goods for distribution. Verification of the materials helps to prevent substandard items reaching the next user department of the unit and the final inspection prevent defective items reaching to the consumer. Verification of incoming materials is usually done by acceptance sampling procedures and the same principles can be applied for the outgoing quality evaluation, giving quality assurance to the consumer.

Inspection of materials is an essential tool of quality control of all goods and materials purchased and received in the store.


Where there is no separate inspection department or where that department deals only with a limited number of commodities, the store keeper may be required to undertake the examination of goods for quality as well as quantity. The quality of a product may be defined as sum total of the number of related characteristics or properties. Characteristics of a product can comprise :-


Shape, colour, Dimension and weight, composition, strength, workmanship of finish etc.


The aim of inspection is to prevent the production of non standard items. Inspection is essential to ensure that unit has received those goods that were ordered, quality of goods is the same as the goods ordered, same quality goods have received for the ensurance about the damage caused to the goods intransist.

METHODS OF INSPECTION / VERIFICATION :-






Regarding incoming materials, the unit has following alternatives :-

 Acceptance of the lot without any inspection. This is possible when preshipping inspection has been done by the suppliers or standard items received from reputed manufacturers.

 Verification of total items or goods which are received. But this 100 % inspection may not be efficient due to fatigue. Also it takes time and cost so this alternative is ruled out.

 Random sample verification - where inspected only those items which included in sample. The lot is accepted or rejected on the basis of sample verification. Generally, the lots. Which are rejected are sent to the suppliers.

Visual method is the most common method employed of examination all those materials where quality can be verified looking at the materials.

-  All package can be examined for any damage.
-  Breakage of material or product can be visually seen.
-  Article of furniture.
-  Raw materials such as timber, coal etc.
-  supplies and finished articles such as nuts, bolts etc.

CHEMICAL EXAMINATION :-

This type of inspection is performed on various types of chemicals and other materials. The method is however, not employed for store inspection.

MECHANICAL TESTS :-

Various types of measuring tools such as steel rule, micrometer, dial gauge, ' go ' and ' not go ' gauges and other production gauges and even X-ray techniques are employed to determine any defect or irregularity in the size or strength specification of various materials. The main objective is to determine the strength of the material of their specifications where precision of dimensions is desired.









Inspection in stores is virtually a postmortem operation as it is performed after the manufacture is complete.




DUTIES OF VERIFICATION OR INSPECTION OFFICIAL:-

To inspect the material on arrival, the organisation has an inspection cell directly under the materials manager. In small units the departmental or unit manager indenting the material for supply of daily needs he store the store keeper may in self perform this function.

The inspection officer must be a diploma holder or a degree holder in engineering, must have two or five years of shop floor experience in that like organisation, must have knowledge and experience of various types of stores, must be able to read and understand specifications, drawings and instructions relating to the materials as ordered, should be conversant with various tests and testing procedures of materials.

The main duties of and responsibilities of inspection official with respect to incoming materials are as under :-

-  To sort out defective raw materials and production received.
-  To inform management about the quality of materials.
-  To check the quantity with the ordered placed.
-  To give suggestions for action regarding rejected goods, i.e. returned to suppliers, sale as scrap or deduct from the bill of materials.
-  To decide about the verification of all materials or random samples.
-  To point out defective materials which can be rectified by the purchaser to be so treated and the cost to be changed to the supplier.
-  To suggest possible improvements in the materials if defects are detected.
-  To prepare and sign the certificate of inspection.

-  To control quality or standard of the incoming material.
-  To use various inspections devices such as steel rules, callipers, gauges, micrometers, comparators electric instruments etc. for the purpose of inspection.
-  To ensure uniform quality of the products.

ACCEPTANCE OR REJECTION OF MATERIALS :-

Materials that conform to the specification are passed by the Inspection officer to be sent to the store room. Those which do not conform to the desired goods are declared as " reject " . There should be proper provision to ensure that rejected materials could not back with active stock. These materials should be kept separate for returning to the supplier or sold as a scrap material.

There should be taken urgent action with the rejected materials. A store department must inform the purchase department as fast as possible and the purchase department must inform supplier soon for the materials.

VERIFICATION ASPECT OF MATERIALS :-

In this research study researcher has made an attempt to know about the verification method of incoming raw materials. Have they accept any proper practise for the inspection or not. First researcher has given information about the ensured authority of the incoming material.

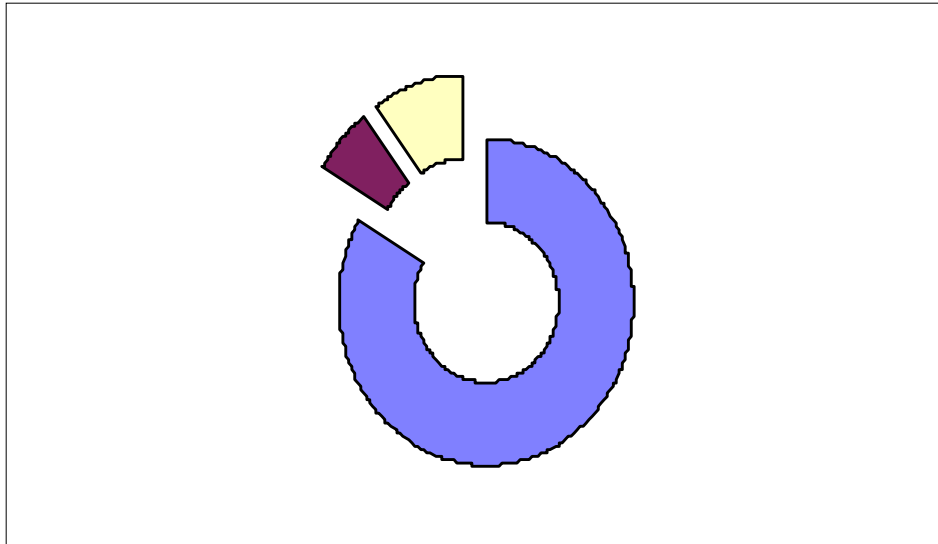
TABLE No. 3.20
QUALITY OF INCOMING MATERIALS ENSURED BY

S. No.	Type/size of firm	Owner	Stores Manager	Any other Authority
1	SMALL	09	00	01
2	MEDIUM	09	01	00
3	LARGE	07	01	02
4	TOTAL	25	02	03

From the above table it is realize that in the small size and medium size of units, there are 9 units where owner ensured the quality of incoming materials. Other authority ensured it in 1 unit of small size units. Store manager ensured materials in 1 unit of medium size of units. In the large size of the firms owner ensured the quality of incoming materials in 7 units, stores manager has this responsibility in 1 unit and other authority ensured the quality of incoming materials in 2 units of large size. Here in this industry out of 30 units in 25 units owner ensured the quality of incoming materials. It means 83.33 % units have been ensuring quality of incoming material while 2 units have stores manager to ensured quality of materials.

Further the researcher have analysis the verification aspects with quality, quantity and product specification. This aspects clear the idea of method of verification of stores.

It is given in chart as under :-



83.33 % units were owner,

06.67 % units were store manager,

10.00 % units were other authority ensured incoming materials

TABLE No. 3.21
DO YOU VERIFY THE QUALITY, QUANTITY &
PRODUCT SPECIFICATIONS

S. No.	Type/size of firm	Yes	No
1	SMALL	10	00
2	MEDIUM	10	00
3	LARGE	10	00
4	TOTAL	30	00

In this reference all the sampled units have given opinion that they have method of verifications about quality, quantity and product specification small, large and medium sector also verifying the material in store.

Further the researcher has made an attempt to know about the verification techniques. In previous table it is clear that all the units are verifying the material. Now about the methods, following data can clear this situation.

TABLE No. 3.22

HOW DO YOU CHECK / VERIFY THE MATERIALS

S. No.	Type/size of firm	Individual Assessment	By Sampling
1	SMALL	02	08
2	MEDIUM	07	03
3	LARGE	06	04
4	TOTAL	15	15

All the units of samples verify the quality, quantity & product of incoming materials. Here researcher tried to find out that how they check / verify the materials. In this table the small size of units, 2 units accepted individual assessment method and 8 units verify materials by sampling method. In the medium size of units 7 units verified materials by individual method and 3 units accepted sampling method. In the large size 6 units accepted individual assessment method and 4 units verify material by sampling method.

There are 50 % units of the sampled have checked the materials on individual assessment method and 50 % of them has adopted sampling method of the verification.

In this study, researcher has also tried to know about the aspect of verification of the sampled units. Following table has described the aspects of verification.

TABLE No. 3.23
ASPECTS OF VERIFICATION

S. No.	Type/size of firm	Quantitative Aspects	Qualitative Aspects	Both
1	SMALL	0	3	07
2	MEDIUM	1	0	09
3	LARGE	0	0	10
4	TOTAL	1	3	26

Researcher asked them about the aspects of verification in the materials. Some have quantitative aspects and some qualitative aspects and some have both aspect to verify the materials. The above table described that 3 units have qualitative aspects 7 have both aspects. In the medium size units 1 has quantitative aspects and 9 have both aspects. And in the large size units all the units have both aspects to verify materials. From the total sampling units more of them have both aspects. It means that they are aware for quality and quantity.

There are 86.66 % units of sample units who are quite aware for quantity and quality aspects.

In this industry if the materials are rejected, researcher has tried to know what they have done with the rejected materials It is as follows.

TABLE No. 3.24

WHAT DO YOU DO WITH THE REJECTED MATERIALS

S. No.	Type/size of firm	Return to to Supplier	Use at times of Emergency	Recover value of Rejected Materials	Dispose off
1	SMALL	09	1	1	0
2	MEDIUM	09	1	1	0
3	LARGE	10	0	1	0

Sometimes there may be possible that quality or quantity of materials is not satisfied. After the verification of materials some materials would be rejected. Here researcher asked about the rejected materials. In the small and medium size units 9 of them returned the materials to the suppliers and in the both types of firm 1 unit used at the times of emergency and sometimes recover the value of rejected materials also. In the large size of units all the units returned materials to the suppliers but 1 unit answered that sometimes recovered value of rejected materials also. No one of them kept it in store for used at the times of emergency. And no one dispose off rejected materials.

Among the 30 units of sample there 28 units who have returned the rejected materials to the suppliers that means 93.33% units have returned the rejected materials.

Issue of Materials :-

It has said fore going that issue of the materials where required by the various department it is one of the major function of the store keeper

In the process of issue of materials an organisation or store room has been dealed only three documents like as -

- Materials Requisition Slip.
- Gate pass
- Stores advice note

MATERIALS REQUISITION SLIP

Material should issue on a written requisition by the department. Materials Requisition slip is also known as Issue Note or Requisition Note which is an order to the stores department from the requisitioning department for making available the materials listed therein

This slip should be useful for :-

- Completing and making up-to-date the stock ledger, Bin card, Stock Day Sheet, Record cared and cost calculation sheet.
- Calculating the cost of production
- Determining the different replacement levels.
- Taking decision regarding production schedule and investment pattern,
- Chalking out the verification programme and deciding upon the shortage and preservation system and
- Arranging the lay out of the store room.

GATE PASS :-

When the material requisition slip is not used there should Gate pass issued in the name of the official of the requisitioning department who has received the delivery of materials, as the gate keeper of the store department will not allow any one to take away the materials unless permitted by the proper authority of the stores department in writing. The Gate Pass is a permission which prevents any pilferage and theft from the store room / department.

STORE ADVICE NOTE :-

When the finished goods issuing to the sales departmental stores Advice note is used. This note helps in ascertaining the quantum and value of the materials despatched.

METHODS USED FOR ISSUE OF THE MATERIALS :-

The old principle " Cost or market Price, whichever is less " , is certainly a prudent approach for the valuation of stock issued but experienced has proved beyond doubt that it does not always produce satisfactory results and it is not good for the ascertainment of true profit or loss for the period.

The process of valuation of the materials in the industry range from the conservative practice, such as market price or cost of procurement, which ever is less on one hand, to modern development such as replacement cost on the other. Each methods has its own benefits For the internal control purpose, the organisation can choose any of the following methods.

FIFO - FIRST IN FIRST OUT :-

That means the materials purchased are issued in strict chronological order i.e. whatever is received first consumed / issued first where the materials are issued at actual cost and the stock are valued as per the latest price paid. The operations are simple so long as fluctuating in price is not much. Where the materials costs are increasing, the material cost issued to the user departments are lower. The costs charged to production tag the actual prices, thus indicating, higher profits and increased taxes but the advantage is that, the value of materials in stock does not vary significantly from the market price.

LIFO - LAST IN FIRST OUT :-

This method assumes that the materials coming in last issues first. The benefit of the method is that production is charged at the latest price, reflecting market condition if the receipt are recent. Hence the changing decision can be taken realistically. But the stock are valued at older prices. In times of falling price, the LIFO system changes consumption nearest to the market price, which is lower than the price paid.

AVERAGE PRICE :-

In this method, the issue of materials are valued on the basis of a simple average price. The price of purchase prior to any issues are summed and the average is obtained by dividing by the number of purchase price used.

As per example

First purchase price - Rs. 1/-

Second purchase price - Rs. 2/-

$$\text{Then } \frac{1 + 2}{2} = \frac{3}{2} \quad - \quad \text{Rs. } 1/5$$

This method is very simple to operate and also gives reasonably valid estimates but this method is not very accurate, when errors are possible due to approximations in calculations. As the prices are not weighted by the quantities purchased, the average price obtained do not give a proper representation of the facts, unless the fluctuations are not much, or the quantities purchased on each order are the same. As the valuation is not at cost, the closing stock value will differ from the actual value, giving rise to profit or loss due to the systems adopted, since the closing stock of 150 will be multiplied by Rs. 1/50 to give a value of 225/- Rs. Through this method is easy to operate but not advisable to use if for high value items.

WEIGHTED AVERAGE :-

The issue to the production department are split into equal batches from each shipment at stock. It is a realistic method, reflecting the price levels and stabilizing the cost figure In this method rate is arrived at by deciding the total cost by the number of items. Then this rate is applied to the issues to production. As more purchase are made, a new average is computed and this average is applied to the subsequent issue. This method will lie in between the previous two method.

In this researcher the issuing method of the Dyeing and printing industry of Jetpur city. Shown as below first researcher has tried to know about the authorised person for issue materials from the store is given below mention table.

Table No. 3.25

Authorised person to supply /
issue materials from stores department

S. No.	Type/size of firm	Owner	Store Manager	Other Authority
1	SMALL	08	0	2
2	MEDIUM	08	2	0
3	LARGE	06	3	1
4	TOTAL	22	5	3

Above table remarks that in the small size of firms owners supply materials in 8 units out of 10 units of samples other authority supplies the materials from stores in 2 units. In the medium size of firm, in the 8 unit's owner supply the materials and in the one unit stores manager supply the materials and one unit didn't give the answer of this question. In the large size in 6 unit owner suppliers the material, stores manager supply materials in 3 units and other authority issue materials in one unit.

There are 22 units out of 30 units where owner is a authorised for issue materials.

There should have a practise for the requisition letter to acquire goods from the store regarding to the study reality is narrated below.

Table No. 3.26

IS REQUISITION LETTER REQUIRED TO ACQUIRE
GOODS FROM STORE

S. No.	Type/size of firm	Yes	No
1	SMALL	09	00
2	MEDIUM	09	01
3	LARGE	09	01
4	TOTAL	27	02

Here researcher asked about the requisition letter for acquiring goods from store. All the types of firms, there are 9 units where requisition letter is required to acquire goods from store and in the medium and large types of units there is 1 unit where requisition letter is not required to acquire goods from store. And in the small units 1 unit didn't give the answer of this question.

There are 27 units where the requisition letter is required to acquire goods.

The material should be verified with the requisition letter is mention before. Researcher has made attempt to know that is the material verified according to the requisition letter or not has been given in below table.

Table No. 3.27

DO YOU VERIFY THE GOODS WITH REQUISITION LETTER

S. No.	Type/size of firm	Yes	No
1	SMALL	09	00
2	MEDIUM	09	01
3	LARGE	08	02
4	TOTAL	26	03

There are 26 units out of 30 units where good are verified with the requisition letter. Above table described that in the both small and medium size of units 9 units where they verify the goods with the requisition letter. And 1 of the medium size unit do not verify the goods with the requisition letter 1 unit of small size denied giving the answer of this question. In the large size units there are 8 units where they verify the goods with the requisition letter and 2 units do not verify the goods with the letter.

There should have a practise of verification or inspect on the material at periodic intervals. Data of materials and to place of order for the materials at proper time, the evaluation of materials after certain intervals is essential. Following table gives this information.

Table No. 3.28

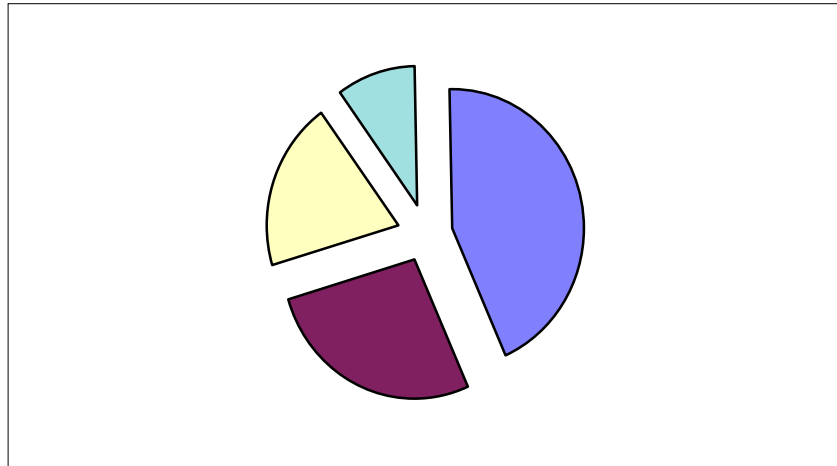
STOCK VERIFICATION AT PERIODIC INTERVALS

S. No.	Type/size of firm	Monthly	Quarterly	Half yearly	Yearly
1	SMALL	03	3	3	1
2	MEDIUM	01	5	3	1
3	LARGE	09	0	0	1
4	TOTAL	13	8	6	3

Researcher wanted to know that what the periodic intervals between the verification of stock is. Researcher gave them 4 options monthly, quarterly, half yearly and yearly. 3 units of small size verify the stock monthly, 3 of them verify the stock quarterly, 3 units choose the half yearly verification and 1 unit verified yearly stock verification. In the medium size of unit there is a monthly periodic interval in 1 unit, 5 units of them have quarterly, 3 units chose half yearly verification of stock method and 1 unit verified yearly stock verification. In the large size of units there are 9 units of them who have accepted monthly stock verification method and 1 unit who have yearly stock verification method.

Among the 30 units there are 13 units which are aware than the others. They verified materials at monthly.

It is given in chart as under :-



Method of supply :-

Method of supply is important aspects of store. It will depends on philosophy of materials management of the unit because supply method will quarterly affected for costing strategies of the unit.

By which method of the supply materials have been supplied is given in below table No. 3.29

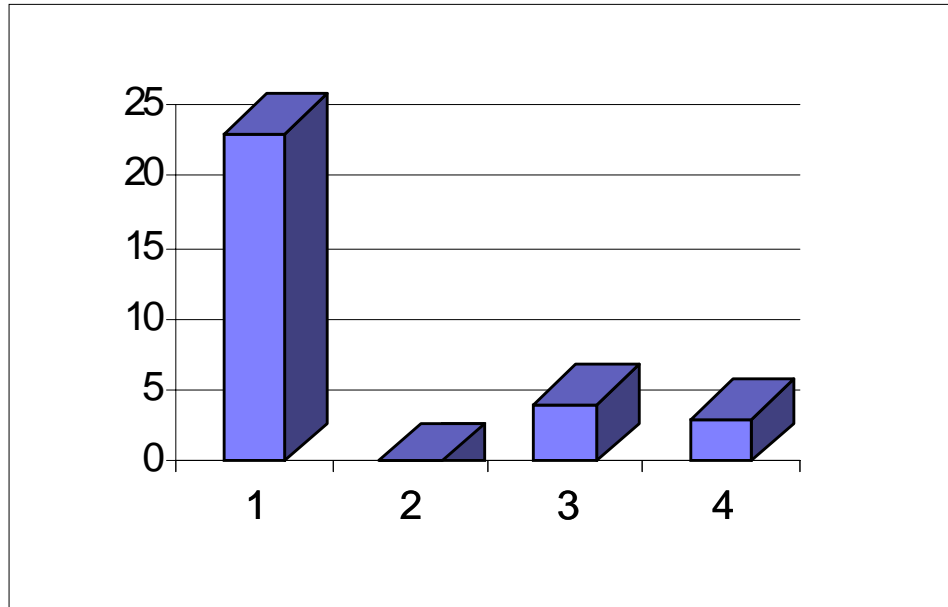
Table No. 3.29

Supply Materials from stores to production unit by

S. No.	Type/size of firm	Fifo	Lifo	Weighted Method	Random Method
1	SMALL	09	0	0	1
2	MEDIUM	09	0	0	1
3	LARGE	05	0	4	1
4	TOTAL	23	0	4	3

In the dyeing industry which method adopted to supply the materials from stores to production unit ? Aim of researcher in this table is that by which method they supply materials from stores to production unit. In this question there are 9 units of small size adopted FIFO method and 1 unit adopted random method. In the medium size also 9 units supply materials by FIFO method and 1 unit adopted random method. 5 units of large size supply materials from stores to production by FIFO method, 4 units adopted weighted mean for supplying materials and 1 unit adopted random method to supply materials from stores to production unit.

It should be narrated in graph as follows :-



The methods of supply of material help to decide the inventory level in the store room also. The researcher has made an attempt to know about the inventory level is kept by the sampled units of the dyeing and printing industry of Jetpur city. This information has given in below table

Table No. 3.30

How Much Inventory of Stock Do You Keep

S.No.	Type/size	To meet Immediate Requirement	One Month Inventory	Three Month Inventory	Six Month Inventory	One Month Inventory
1	SMALL	02	06	2	0	0
2	MEDIUM	01	08	1	0	0
3	LARGE	00	06	4	0	0
4	TOTAL	03	20	7	0	0

Researcher wanted to know how much inventory of stock is kept in Dyeing and Printing industry of Jetpur city. Above table show the stock level. In the small size 2 units kept inventory to meet immediate requirement only, 6 of small size kept one month inventory and 2 unit of small size kept three month inventory. 1 unit of medium size kept inventory to meet immediate requirement, 8 unit of medium size have one month inventory and 1 of medium size kept three months inventory in their firms. 6 units of large size kept one month inventory and 4 units kept three months inventory in their firms.

No one of sample kept six month or one year inventory in their firms. Large size units have big requirement so there is not any unit who kept inventory to meet immediate requirement.

On which base the sampled units have maintain their inventory, is given in the table by the researcher. The researcher has asked them how they maintain the material in terms of quantity or quality level. It explained by as under.

Table No. 3.31

MAINTAIN INVENTORY LEVEL IN TERMS OF

S. No.	Type/size of firm	Quantity Of Stock	Value Of Stock	Both Value & Quality
1	SMALL	00	2	08
2	MEDIUM	02	1	07
3	LARGE	04	1	05
4	TOTAL	06	4	20

Here researcher tried to explain how they maintain the inventory level in store. Researcher wanted to know that if they maintain by quantity of stock or value of the stock or both quantity and value of stock. From the above table it seen that in the small size unit 2 of them maintain inventory level in terms of value of stock and 8 believed in both the value & quaintly of stock. 2 units of medium size units maintain quantity of stock, 1 unit maintain value of stock and 7 units maintain both value & stock.

Also in the large size unit 4 firms maintain quantity of stock, 1 unit maintain value of stock and 5 units maintain both level value & quantity of stock.

INSURANCE :-

For the safety of the money and stock, an organisation should have insurance for their stock. Safety is important. For benefit of the organisations there should have insurance of the materials. In this research study, the researcher has asked about the provision for the insurance of the stock.

The Analysis is as under :-

Insurance is regular feature of any risk prevailing in the business at present the senario of insurance requirement is changed various types of Dark has been covered by the insurance companies

Table No. 3.32

Make provisions for insurance of stock

S. No.	Type/size of firm	Yes	No
1	SMALL	10	00
2	MEDIUM	10	00
3	LARGE	10	00
4	TOTAL	30	00

Researcher asked all the units of sample that if they make provisions for insurance of the stock in their store. Above table show the answer of this questions. All the small, medium and large size units make provisions for insurance of stock in their store.

FINISHED GOOD :-

Finished goods and the level for the product increase the volume of need of working capital. Investment in finished good reflect the market condition and financial structure of the units.

How much level the finished goods are kept in the store house, it should also necessary to know for the researcher. This information is given in the table

Table No. 3.33

FINISHED GOODS INVENTORY IN STORE

S. No.	Type/size of firm	One Week	Two Week	One Month	Zero Inventory
1	SMALL	01	00	01	08
2	MEDIUM	00	01	00	09
3	LARGE	00	02	02	04
4	TOTAL	01	03	03	21

The above table shows that 1 unit kept one week inventory, 1 unit kept one month inventory & 8 unit have zero inventory of finished goods in small size firms. 9 units of medium size have zero inventories and 1 unit kept one month inventory of finished goods. In the large size 2 units kept two weeks inventory, 2 kept one month inventory and 4 units kept zero inventory of finished goods. 2 units of large size didn't give any answer of this that how much level of finished goods inventory they kept in their firm.

COMPUTER IN MATERIALS MANAGEMENT :-

Modern materials management has received greater attention, better understanding, and increasing importance during last few years.

The report on materials management in public undertakings has specifically stressed the need for using these models when it opined that " for proper inventory control it is essential to adopt the scientific practices and techniques that have been developed in this regards. "16

With advance technology increasing in industrial growth and commercial complexities of business are solved by the help of computers they solving their inventory problems. The computer can be successfully used in the materials Management for recording accounting & controlling.

16 Committee on public undertaking, 14 the report Lok Sabha Secretariate, New Delhi P.12

The one time application for each item to be done annually or monthly includes the following areas :-

- ★ ABC analysis
- ★ Music 3 D
- ★ Movement Analysis
- ★ Obsolete items
- ★ Material requirement planning.
- ★ Forecasting Price
- ★ Lead time analysis
- ★ Economic order quantities
- ★ Safety stock
- ★ Reserve stock
- ★ Buffer Stock
- ★ Consumption norms
- ★ Quantity forecasting
- ★ Vendor rating
- ★ Sales analysis
- ★ Economic lot size in manufacturing
- ★ product customer wise
- ★ Item wise sales
- ★ Stock statements
- ★ Inventory Valuation
- ★ material budget
- ★ Distribution systems and market intelligence
- ★ Transportation systems

- ★ Cash flow forecasts of money committed
- ★ Exception reporting and cost reduction efforts
- ★ service level / stock out
- ★ customer complaints.

The repetitive application include :-

- ✿ Stock status existing at a point in time
- ✿ Outstanding bills
- ✿ Status of a purchase order
- ✿ Follow-up mechanism
- ✿ Outstanding supplies
- ✿ Rejection
- ✿ Rework
- ✿ Accounts receivable
- ✿ Number of sales invoice handled
- ✿ Number of issues
- ✿ Value of Sales
- ✿ Value of issues
- ✿ Value of receipt and other information needed by the warehouse management on a day to day basis.

Stock accounting implies recording of all transactions which affect the stock status of different items. The stock status is constantly up dated and the computer master file reflects the latest position. The output required the materials abstract. The opening balance of each item is listed and all transactions pertaining to that period are logged and the final balance is indicated. The stock ledger is printed by the line printer and is available as a record.

Here in this research study the researcher tried to know about the use of computer for stock in the store room of Dyeing & Printing business. Researcher has given This information in the following table :-

Table No. 3.34

DO YOU USE COMPUTER IN ACCOUNTING PROCESS

S. No.	Type/size of firm	YES	NO
1	SMALL	01	09
2	MEDIUM	08	02
3	LARGE	07	03
4	TOTAL	16	14

From the above table the researcher tried to know about the usage of computer in accounting process in Dyeing and Printing industry of Jetpur city. 1 Unit of small size use the computer in accounting process and 9 of small size did not use it. 8 of medium size use computer and 2 units do not use computer in accounting process. In the large size 7 units use the computer and 3 units do not use the computer in accounting process.

Packaging and Inventory of Packing materials :-

A package is a wrapper of container in which a product is enclosed, encased or related. Packing-there fore may be defined as an act of designing and producing the package for a product. ¹⁷

Packaging is an integral part of production marketing and physical distribution.

Importance of Packaging :-

- * Package protects products from deterioration, spilling, spoilage and evaporation during its transits from manufacturer to consumer.
- * It enhances products use convenience by keeping it clean and undisturbed.
- * It helps easy brand identification.
- * It makes product handling easier and safe on the retail store shelves.

There should have information to identify the packing.

The following information is necessary :-

- ❖ Detailed description of the use of the product.
- ❖ The conditions in which product is used.
- ❖ Possible packing size.
- ❖ Minimum order size for packaging.

17 J.C. Gandhi :- Marketing - A managerial Introduction;
Tata Mc Graw Hill Publishing company
Limited, New Delhi - 1995 P. 209

- ❖ Existing manufacturing and packing system.
- ❖ Requirement of storage.
- ❖ promotional requirement to attract consumers with pleasing feature.
- ❖ Legal aspects requirement like sterility, dosage infection and shelf life.
- ❖ Pharmalogical requirements like sterility, dosage, infection and shelf life
- ❖ Labelling on direction of usage.
- ❖ Physical state, weight, density, fraglity, rigidity and surface finish.
- ❖ Physico chemical effect to moisture, oxygen, light, flame, bacteria and chemical action.
- ❖ Odour, flavour, colour, ease to open / close / identify and and pilferage proof are other factor.
- ❖ Corrosion proof.
- ❖ Minimising damage due to breakage and fire.

LABELLING :-

It is necessary to guide the packing to its destination markeing packages. Marking can be done by branding, embossing, etching, printing, painting, stencilling and other methods which ensure that marking does not rub off easily.

P. Gopalkrishnan has said that marking must include the following information :-¹⁸

- ✱ Name and the address of the consignee.
- ✱ Brief description of contents.
- ✱ Package number and quantity of packages making up the consignment.
- ✱ Date of despatch.
- ✱ Special instructions on shelf - life, handling of glass ware, method of lifting explosives and possible damage.
- ✱ Name and address of the issuing ware house.
- ✱ Labelling of each articles for speedy delivery.
- ✱ Labelling of each articles for speedy delivery.
- ✱ Location of the address and note just post box number to ensure safe delivery
- ✱ Dark, bold and distinguishable marking.
- ✱ Black colour marking in general, red colour for caution / danger.
- ✱ Ends to provide caution markings and sides for general marking.
- ✱ Directional arrows to be indicated for handling.
- ✱ Caution marking indicating " fragile - handle with care " .
- ✱ No use of hooks.
- ✱ Keep the consignment in dry and sling position.

18 P. Gopalkrishnan :- A hand book of Material Management ;
Prentice - Hall of India Private Limited
New Delhi - 94 P. 128

✻ Cargo be classified as :-

- (1) Inflammable material (2) Radioactive material
- (3) Corrosive material (4) Poisonous material
- (5) Explosive material & (6) Fragile glass material

This researcher industry has produced cotton cloth products like Saris Dress - Materials, Bed Sheet, Khangas etc. so for that there should have proper packaging of the materials and also have sufficient stock for packing to reduce lead time and prompt delivery may be done.

For the protection of these material

- ★ It should be wrapped in water proof paper or wax paper.
- ★ Packing in water proof bags.
- ★ Lining the cases with water proof paper or cloth.
- ★ Cleaning and drying the surface which are to be protected.
- ★ Use of air tight containers.

First of all, researcher has defined about the inventory level of packing materials in the following table :-

Table No. 3.35

INVENTORY LEVEL OF PACKAGING MATERIAL MAINTAINED

S.No.	Type/size of firm	To meet Immediate Requirement	One Month Inventory	Three Month Inventory	Six Month Inventory	One Year Inventory
1	SMALL	01	06	03	00	00
2	MEDIUM	00	07	03	00	00
3	LARGE	00	06	04	00	00
4	TOTAL	01	19	10	00	00

After finished the goods should have packed safely so packing material should have stored in the units. Researcher wanted to know how much inventory of packing material in the sampling units of study. From the above table its revealed that in the small size there are 6 units who kept one month inventory of packing materials and 3 units kept three month inventory and 1 unit who kept only to meet immediate requirement. There are 7 units who kept one month inventory and 3 units kept three month inventory in medium size units. In the large size there are 6 units who kept one month inventory and 4 units who kept three month inventory of packing materials in the firms.

There should have skilled employee for the packing with intense to protect the materials and good packing that material should be supplied safely. Researcher has tried to know about the availability of skilled employees in sampled units of dyeing and printing industry is given below.

Table No. 3.36

Do You Have Skilled Employees For Packing

S. No.	Type/size of firm	YES	NO
1	SMALL	10	00
2	MEDIUM	10	00
3	LARGE	10	00
4	TOTAL	30	00

There should be skilled employees for packing in the unit and here in this study researcher wanted to know about the employees for packing whether they are skilled. From the above table it looks all the units of sample have skilled employees for packing A small medium and large units said that they have skilled employees for packing finished goods.

Moreover the researcher has made an attempt to get information about the aspect of the unit about the packing. On which aspect they have emphasised more is analysed in following table.

Table No. 3.37

ASPECTS OF PACKAGING EMPHASISED UPON

S.No.	Type/size of firm	Size of The Package	Weight of The Package	Quality of Package	Quality of Preservation	Cost of Package
1	SMALL	03	04	07	03	01
2	MEDIUM	01	01	05	05	00
3	LARGE	04	04	09	07	03

This study is on dyeing & printing industry so there are finished goods is made from cotton cloth. It is necessary to pack the goods safely to prevent from water & moist. Firms should think about size, weight, quality and cost of packing. In the above table it is considered that from 10 units of small

size 3 units emphasis on size of the packing, 4 of them give weight to weight of the package, 7 units of them saw the quality of package, 3 of 10 preferred quality of preservation and 1 unit also saw the cost of packing. More than one aspects are emphasizes by unit for packing. In the medium size 1 unit from 10 sample units saw the size of the package and 1 also saw the weight of the package. Quality of package emphasized by 5 units and 5 units emphasised quality of preservation. In the large size there are 4 units who saw size of the package, 4 units accepted the weight of the package, 9 units saw quality of package quality of preservation is seen by 7 units and 3 units saw cost of package. More than one aspect accepted by the units. Here units not only emphasized on one aspect but also see more than one aspect and pack the materials.

Labelling date number, quantity, and special instruction are important aspects for packaging, this information is given below :-

Table No. 3.38

OTHER ASPECTS OF PACKAGING TAKEN CARE OF

S.No.	Type/size of firm	Proper Labelling	Package Number & Quantity	Despatch Date	Special Instruction
1	SMALL	10	08	03	02
2	MEDIUM	08	07	02	02
3	LARGE	10	08	04	00

There should be proper labelling, package number & quantity, dispatch date and special instruction on the packing. In the above table all the 10 units of sample take care for proper labelling on the packaging. 8 of them take care for package number & quantity, 3 of them also see dispatch date should be there on the packing and 2 units also give special instruction on the packaging, other one unit 6 of those 8 stock care for package number & quantity, 2 units of those 8 units also show dispatch date and 1 unit and 1 unit of those 8 units also gave special instruction on the packaging. In the large size proper labelling is done by all the units of sample. 8 of them also cared for package number & quantity and 4 of them show dispatch date on the packaging.

CHAPTER - 4 PURCHASING

Introduction :-

Optimizing profit is the basic objective which any organisation would ever be striving for. This can be made possible by efficient performance of managerial functions. One of the unavoidable functions which any organisation would be keen to perform is of Materials Management. It goes without saying that materials management is the gate way through which materials are required preserved and controlled as per the needs and requirements of an organisation. The task of managing materials, unquestionably, requires special care to be taken by a manager since it involves core activities namely materials planning, controlling purchasing store keeping. Inventory management and so on. Out of all these prime functions of materials management purchasing occupies key position since it is a process of acquiring basic raw materials with the help of which finished product are prepared, which in turn, determine the bright future of the concern. Thus purchasing should be regarded as an integral function not only of materials department, but also of general management as a whole.

Apparently purchasing is equally important to all industrial undertakings. Needless to mention, if any sort of carelessness would be shown by a manager with regard to purchasing. It would be proved as one of the biggest blunder which would let an organisation have irreparable loss. At the other extreme, rather, lets say, an undivided attention should be paid by the materials manger on this primary activity called " purchasing " .

Conceptual Framework :-

Purchasing to any organisation is of prime importance because it has bearing on every vital factor concerning the manufacturing i.e. quantity, quality cost efficiency, economy, prompt delivery, volume of production etc. it is the scientific purchasing that can save much, Money, time and efforts to the management.

In simple words, purchasing may be defined as a process of procuring materials, supplies, machines tools and services required for equipment maintenance and operation of business. Needless to mention purchasing must be of the right quality, in proper quantity for delivery at correct time at the most favourable price from outside the organisation.

In the opinion of Walter, the procurement by purchase of the proper materials, machineries, equipment & supplies of stores used in the manufacture of a product adopted to marketing in the proper quality and quantity at the proper time and at the lowest price consistent with the quality desired.

It is also beautifully quoted by Westline and fine that purchasing is a business activity directed to ascertain the raw materials, supplies, equipments required in the operation of organisation.

Summing up the above stated opinions aired by different thinkers, it can be said that purchasing is related to going to open market, finding the desired materials at the lowest possible price and selecting the supplier who offers it at that price having the quality of materials in mind. It is indeed a specialist activity calling for commercial rather than technical training outlook.

★ **Significance of purchasing :-**

Purchasing is the single most important activity of the materials management in most of the companies. Efficient purchasing can reduce the cost considerably. In the subsequent paragraphs attempt are made to clarify an important role of purchasing to the materials management.

(I) Efficient Administration :-

The function of purchasing is equally important to every type of organisation whether it is manufacturing unit. Trader or government or charitable institution. It directly affects the quality of final products. If the function of purchasing is efficiently perform, better quality of goods can be required at reasonable price. Thus it helps management to be efficient.

(II) Improving Quality of Final Products :-

Manufacturers are extra careful about the quality of their final product. If the product is faulty or defective there would be a direct impact on the reputation of the company. But this problem can be sorted out with the help of efficient purchasing.

(III) Reduction in Cost of Production :-

Scientific purchasing achieves saving through attention to price of materials, their quality and their service. The objective of every business enterprise should be to reduce its cost of production. Efficient purchasing helps a lot to the management to bring down the cost of production by purchasing the right type of materials at the right price.

(IV) Delivery in Time :-

It has been clearly witnessed that many companies had to forget their lucrative business due to a lack of sense of timelessness. Moreover, a continuous and regular flow of raw materials is the prerequisite for a unit's updated production process. This can be achieved with the help of efficient purchasing.

(V) Increasing Profitability of Organisation :-

It goes without saying that profitability of organisation is directly influenced by the way in which purchasing function is performed. This function helps the manager whether purchase should be made in bulk quantity or not. They have to be alert in the market which may be fluctuating. For instance, a textile unit has to be vigilant during the season of cotton as cheaper procurement reduces the total cost substantially.

(VI) Optimum Utilisation of Finance :-

Proper purchasing avoids unnecessary investment of the capital. Thus the saved capital can be utilised for more profitable purposes. This objective can be achieved by purchasing of right quantity of right quality at the right time from right source.

Thus effective purchasing enables the company to function smoothly and profitably. And this fact is reflected in the selection of right people in the purchasing department.

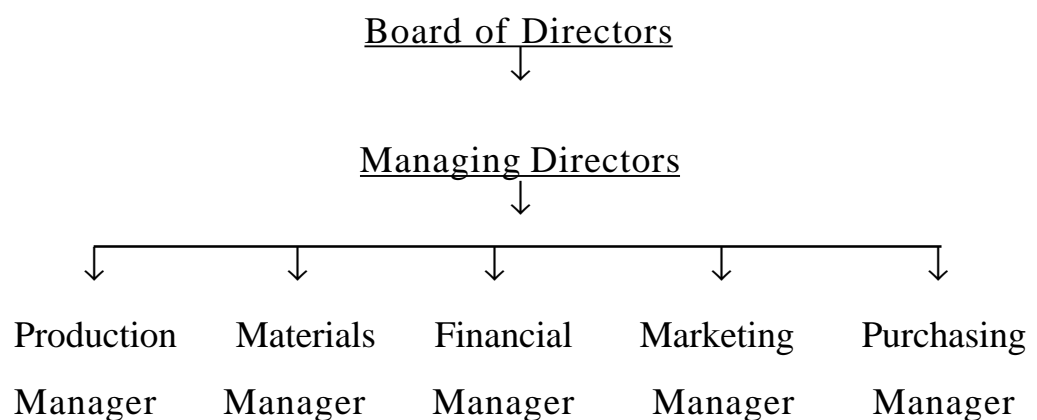
Organisation of Purchasing :-

Organisation is a structure manned by human beings who would work under the defined relationship. The organisation structure established the authority and responsibility among the personnel.

It has been rightly said that organisation is not an end in itself. But a means to the end of the business performance and business results. Unquestionably wrong structure will seriously impair business performance and may even destroy it. It would be clearly stated that the structure of an organisation is to be determined by considering number of factors. However the attitude of the management has a deciding role while establishing Organisation of purchasing department.

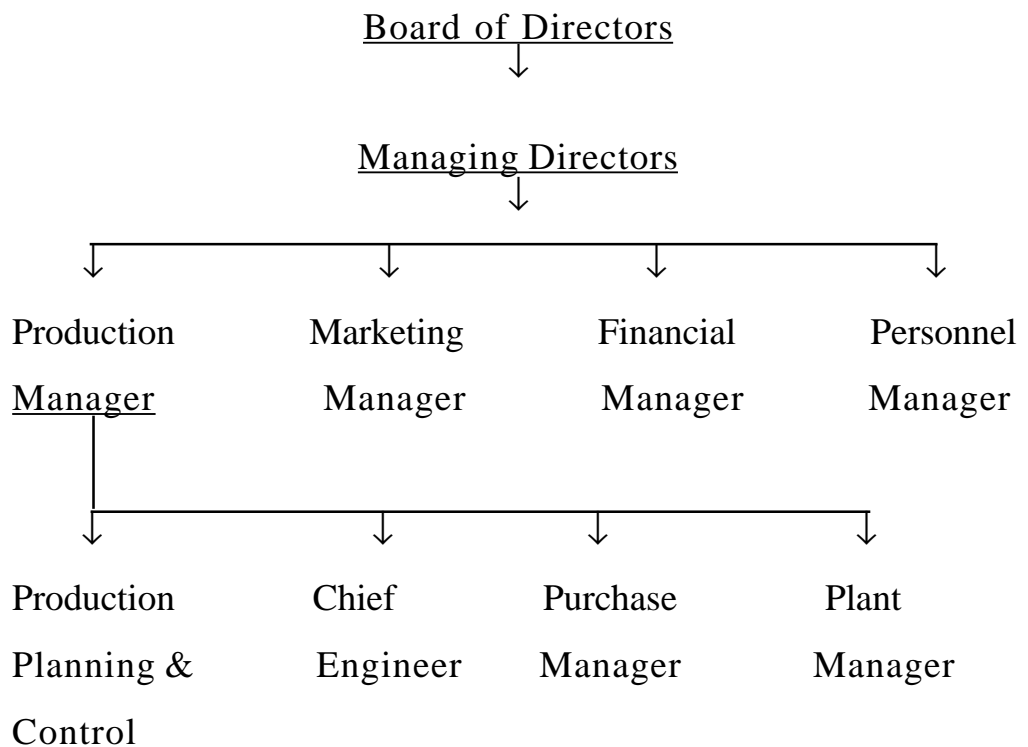
Purchasing manager may follow any of the following structure of his purchasing department.

A Under this structure, purchase function should be regarded as major function of the management. This can be depicted as under;



Thus effective purchasing enables the company to function smoothly and profitably and this fact is reflected in the selection of right people in the purchasing department.

B Purchasing function under this type of structure should be regarded as subsidiary to some major area of management. This can be shown graphically as under.



OBJECTIVES OF PURCHASING :-

When a purchasing agent says that it is his responsibility to buy materials of the right quality, in the right quantity, at right time at the right price, from the right time at the right price from the right source with delivery at the right place, he is in a general way stating the objectives of sound purchasing.

More specific the objectives of purchasing may be described as (i) maintenance of continuity of operations (ii) maintenance of adequate standard of quality (iii) avoidance of duplication, waste and obsolescence (iv) maintenance of company's competitive position and (v) development of internal relationship that lead to understanding and harmony among the various organisational units.

P. Gopalkrishanan and M. Sundarson have observed and described goals of purchasing :-

" The basic objective of the purchasing function is to ensure continuity of supply of raw materials, sub- contracted items and spare parts and at the same time reduce the ultimate cost of the finished goods. The objective is not so much to procure the raw materials at the lowest price but to reduce the cost of final product. "

The following may be described as the main objectives of a purchase organisation from above descriptions of purchasing objectives :-

- To maintain regular flow of materials
- To purchase at a competitive price the right quality in right quantity and at a right time from a right source.
- To ensure higher productivity
- To ensure the production of a better quality production at a competitive cost.
- To act for standardisation, variety reduction and value analysis.
- To ensure a better margin of profit.
- To keep inventory investment losses (due to deterioration obsolescence and theft) at a practical minimum.
- To develop reliable alternate sources of supply
- To develop, good vender relationship and good continuing supplier relationship
- To achieve maximum integration with the other departments of the firm.

A. K. Datta ¹ has given fundamental objectives of Purchasing :-

- To maintain continuity of supply so as to support production schedules.
- In doing so it must ensure minimum investment in stores and material inventory consistent with safety and economy.

1 A. K. Datta :-"Materials Management and Inventory control",
Jaico Publishing house, Bombay 1988

- It must also maintain quality standards based on the suitability criterion
- It must avoid duplication of purchases, wastes obsolescence and cost by delays
- It must procure materials at the lowest possible cost consistent with quality and service requirement .
- It must maintain in so far as materials costs are concerned, the company's competitive position in the market.

Function of Purchasing :-

The various purchasing activities were classified :-

- Activities which are mostly performed by the purchasing department independently:
- Activities in which purchasing shares the responsibility with other departments.

The role of purchasing and function is given below:-

Determination of need for the materials :-

- Selection of source
- Negotiating Approving and signing the terms of purchase
- Follow up function
- Checking invoices
- Disposing off surplus
- Determining order quantities
- Scheduling purchases
- Maintain Buyer seller relation.

There are several steps for purchasing the materials. These steps are divided in two stages.

Pre order stage :-

- (a) Receipt of requisition from stores
- (b) Enquiries floated
- (c) Quotation receipt and deciding the order

Post order stage :-

- (a) Order placed
- (b) Confirmation receipt
- (c) Follow up for delivery on due date
- (d) Materials received in store
- (e) Inspection of materials & final acceptance or rejection
- (f) Payment

Purchasing is the first steps in Material Management

The essential steps in a purchasing procedure are :-

- As certainment and recognition of the need
- Accurate statement of the character and quantity of materials needed with full descript
- Transmission of the purchase requisition.
- Negotiation with possible sources of supply.
- Analysis of the proposals, determination of price and availability of materials, placing the order.
- Follow up and expediting actions.
- Receipt, inspection, storage and processing of rejection and discrepancies.
- Invoice checking for bills payment
- completion of record and files.

For effective performance it is necessary that the purchasing executive should follow certain essentials, known as principles of right purchasing. Right Quality, Right Quantity, Right Time, Right Price, Right source and Right Place of Delivery are the six " Rs " Which constitute the principles of right purchasing.

- **Right Quality :-**

The best quality is usually not the right quality. A particular quality of an item may be right quality for a given job but the same may not be right for another job, quality if superior for a given job is a waste and is an avoidable expense, where as an inferior quality for a given jobs is also a waste and is an expense which is neither worth it nor may win the confidence of the consumer.

For building goodwill right production avoidance of waste, standardisation and better results from men and machine right quality purchase are very essential.

Right Quantity :-

Right quantity of material is to be purchased to maintain of regular flow of materials for production activity. Excess purchases should be avoided as they result in over stocking and capital is unnecessarily blocked and inventory carrying cost goes up.

Order quantity is further divided into the following three classes :-

- Economic order Quantity
- Bulk order Quantity
- Arbitrary order Quantity

Economic Order Quantity :-

There are two factors govern the fiction of the economic order quantity are (i) procurement cost and (ii) caring cost. These two factors play a determining role in a decision on economic order quantity. The quantity at which procurement cost curve and inventory carrying cost curve equalise is the economic order quantity.

Bulk order Quantity :-

Bulk order quantity is a quantity which is larger than the economic order quantity and which combines the ordering quantity of more than one order so as to round off to 3, 6, or 12 monthly requirement and place a single order for the total requirement of the period so decided. Bulk order gives better purchase price, reduced procurement cost and reduced operation in the purchase organisation.

Arbitrary Order Quantity :-

It is not always possible to strictly adhere to the economic order quantity and bulk order quantity because of varying market conditions, uncertain consumption, uncertain lead time, uncertain availability of funds, uncertain order form the market and consequently uncertain production schedule.

Right Time :-

The right time for the procurement of an item is said to be the point of minimum stock the point at which the materials are expected to arrive in the store house. The materials control department sends the requisition to the purchase department as soon as the material touches the order level and the purchase department takes immediate steps to replenish the stock by calling quotations approving one of them, choosing the supplier, placing the order following up vigorously so as to procure the material by the time the material reaches the minimum level.

Right Source :-

The right source for the procurement of materials is that supplier who can supply the material (i) of right quality as order (ii) in right quantity as ordered (iii) at a right time at price and (iv) which is in a position to honour the commitment without much flow up (v) who has necessary financial resources and adequate manpower to handle the order and (vi) who is well established with proven business integrity.

The selection of the right source of supply is very important from the point of view getting the materials in time and of desired quality and required quantity at a right price.

There are some media which are helpful in finding out different categories of suppliers are as under :-

- Advertisement
- Tenders
- Price lists
- Telephone and Trade Directories
- Chamber of commerce
- Trade Association
- Enquiry and offer letters.

The most important irreparability of the purchase department is to maintain good relations with suppliers and their representatives

Selection of Source of Supply :-

Effective purchasing through a right sources by selecting a right source of supply goes a long way in ensuring the consumption as well as production requirements of any organisation. A rational selection plays a vital role in the purchasing process which alone can contribute much to the operational efficient of the industrial organisation

A purchasing official should have considered following factors while selecting the source of supply :-

- Geographical location of the supplier
- Reserve productive facilities available to the supplier
- Internal facilities available to the supplier
- Labour relations the supplier has developed
- Plant analysis of the supplier.

- credit and financial analysis of the supplier.
- size of the suppliers firm
- Distributors if any
- single or multiple supplier
- Quality discipline observed by the supplier.

Right Price :-

The price which brings the best ultimate value invested in purchasing the materials The quantity quality delivery time demand and supply curve, competitive cure, competitive trend standard or non standard materials business relationship distance government restrictions after sales service discount terms or purchase are important factors which govern the determination of the right price of an item.

Most materials are always available at a price Materials that are brought and sold in commodity markets are always available the price automatically equilibrates supply and demand.

Materials manager job in to get the required material at minimum prices He can influence the price of most of the items he buys while he will make use of economic forecasts when buying such items,

The following documents or previous records have to be attained by the organisation.

- Catalogue price list
- Telephone quotations
- Previous purchase Records
- Letter of offer from the supplier
- Letter of inquiry and its replay
- Samples and related price cards
- Negotiations with the suppliers.

Negotiation is one of the most interesting phases of buying. It may be limited to a three minute telephone conversation about the details of a purchase or it may consist of several all day sessions involving top executives in both buyer's and supplier's organisation.

Price negotiation is only one of many contributions the materials department can make to reduce cost. In the organisation, negotiating skills must be placed high on the list of accomplishments making for success in management.

Some of the matters which purchasing staff may have to negotiate are :-

- Terms and conditions of contract
- Initial price
- Price change on long term contract or for regular work.
- Price and terms when there is little choice of supplier and competition is not sufficient to settle a reasonable contracts basis

- who does what and who is liable for what and when goods rejected on delivery have to be replaced repaired or credited.
- special arrangement of all kinds transport tooling scrap disposal and inspection arrangement.

Indicatory part, discussions ornaments and stating the agreement are three basic part of negotiation.

Price forecasting :-

Price forecasting is essential for efficient functioning of any department which is required to plan its future activities in result yielding manner. Forecasting depends on basic data and correct forecasting depend on the reliability and accuracy of such basic data. It is the collection, classification and end use of data which is important and which really affect their reliability. One should have to use the technique of forecasting.

The materials manger is concerned with three basic types of fore cast :-

- **Demand for purchased materials :-** This is normally derived directly from demand for the companies and products.
- **Supply of purchased material :-** In most cases, the primary concern is with lead time, the number of weeks or months that one must wait for delivery of particular materials after they have been ordered.

- **Price paid for purchased Material :-**

The have a direct relationship to the company's success. Very few organisations can afford to ignore fluctuations in prices of purchased materials.

Each of these three forecast is shaped partly by unique forces.

There are two methods touchiness are used for the forecasting are

- Thumb rule Technique
- Extrapolate Technique
- (i) Simple Average Method
- (ii) Moving Average Method
- (iii) weighted Average Method
- (iv) Exponential Smoothing Method

Thumb rule Technique :-

Thumb rule technique for price forecasting is nothing but forecasting the price rise or fall on the basis of certain percentage by which prices may either rise or fall in a given period

Extrapolation Technique :-

This technique extrapolates the future price in the price series already complied On the basis of past price series and with the help of statistical calculations price for the future is extrapolated.

While fixing the price there should be value analysis by material manager or authorised exports. Also purchasing department has brought about a considerable increase in prestige as a result of the performance of the important function of value analysis.

Value analyses is the scientific appraisal of functional value. It is a systematic approach to reducing cost while obtaining the same or better performance and quality

The essential steps in value analysis are brought to mind with the mnemonic STAIR

- Select - Select a commodity for study
- Test - Test by a searching examination of it in the light of a series of predetermined questions
- Action - decide on a resulting line of action.
- Implement - Record in black and white each step and make the end result the object of a specific report.

Value analysis may be defined briefly as the determination of the minimum cost at which a function can be performed and to arrive at the conclusion after following a deliberately organised scheme of investigation.

Make or Buy :-

Make or Buy is a main function in such a situation is to evaluate the possibility of both and arrive at a decision which may prove to be advantageous to (i) the firm (ii) the consumer (iii) the society as a whole.

A firm's objective is to arrive at make or buy decisions whose combined effect maximizes the utilization of its productive managerial and financial capabilities.

Two factors stand out above all others when considering the make or buy question : cost and availability of production capacity. A good make or buy decision nevertheless requires the evaluation of many less tangible factors, in addition to the two basic factors. The following considerations influence firms to make or buy the parts used in assembling their finished products.

Consideration which favour Making :-

- Cost consideration
- Desire to integrated plant operations
- Productive use of excess plant capacity to help absorb fixed overhead
- Need to exert direct control over production and or quality
- Design secrecy required unreliable suppliers
- Desire to maintain a stable work force

Consideration which favour Buying :-

- Suppliers research and specialized know how
- Cost considerations
- Small volume requirement
- Limited production facilities

- Desire to maintain a stable work force
- Desire to maintain a multiple source policy
- Indirect managerial control considerations.

Legal Aspect :-

A Purchase manager is always assisted by a legal Adviser of the concern or important matter who is usually consulted time and again. But it is expected that the purchase manager will not bother the legal adviser every now and then. In India, a purchase manager is expected to be conversant with the basic provisions of the law relating to :-

- The contract Act including the Law of Agency.
- The Sale of Goods Act.
- The Insurance Law
- The Insolvency Act
- The negotiable Instruments Act
- The Law relating to Transport.
- The Law relating to Excise Duty and Sales Tax including those of Import and Export Duties and Foreign Exchange Regulations.
- The law relating to Local Taxes such as Octroi Duty, etc.

Regarding to this study it is neither desirable nor possible to deal with each and every detail of the above laws. But a few of the important features relating to purchase transactions is discussed here :-

" Contract is an agreement forceable by law " to make a contract there must be

- An agreement and
- The agreement entered into should be such which is capable of being enforced by law

of Agency :-

Section 182 of the Act defines an agent as a " person employed to do any act for another of to represent another in dealing with third persons. The person for whom such act is done or who is represented ins called the Principal.

An agency is created between the principal and the agent when a relationship between the two is needed.

Sale & Goods :-

Sale is defined by Indian Sale of Goods Act. 1930 as:-

" A contract of sale of goods is a contract whereby the seller transfers or agrees to transfer the property in goods to the buyer for a price ".

The purchase or sale of goods is governed by several laws in the country and buyer should be familiar with the same.

The materials manager cannot be an expert on all of the commercial laws, but he should have access to legal expertise within the company or from external sources.

While considering the legal aspects the purchase order have primary importance. There are some legal notes for purchase order :-

- No Material can be purchased without a duly authorised purchase requisition.
- The purchase order contains the following aspects Date of Issue of purchase order with reference
- Number suppliers name and complete address consignees's name and address
- A set of terms and conditions, is usually printed on the back of the order but this should be indicated on the order.
- Description of the quality, specification brand name and code number
- Price terms, unit price discount sales tax and other taxes
- Packing size and changes
- Detailed shipping instructions on the method of despatch name of port / airport / railways station or place of delivery.
- Inspection methods agency sample size, joint inspections stage wise inspection.
- Removal of rejected materials and substitution of these by quality materials is also mentioned
- Insurance details such as name of the insurance company if the supplier arranges or to be arranged by the buyer.
- Method of payment
- Invoice details number of copies attaching purchase order copy for verification.

- Warranty clauses if desired by the buyer should be sought for
- Resolving disputes by arbitration adjudication Jurisdiction of the court machinery for resolving differences are mentioned particularly for the order of capital equipment.
- Promising for escalation and application of force major clauses.

The buyer should inform the supplier if changes in any of the above conditions including changes in quality, quantity cancellation take place.

While the buyer insists an adhering to his terms and additions some sellers send the materials subject to the terms stipulated on the invoice which may not tally with those specified by the buyer.

Bid evaluation is an important prerequisite before purchase order placing. The analysis of the investment and return on major equipment has slightly different ingredients from regularly purchased items. The technical engineer in collaboration with the buyer should evaluate the bids on all technical, non technical and commercial aspects.

The supply of imported stores and other purchase is effected according to the INCO terms developed by the International chamber of commerce.

Negligence :-

Mistakes loss damages or errors would not absolve the principal of liability vis-a-vis third parties. Fraudulent purchases, secret commission for the officer inferior quality accepted against contract specifications even without dishonesty patent dishonesty in purchase refusal to consider objections by other staff members in the said purchases usually a hasty transaction resulting in loss to employer purchases when not required or when the company carried a heavy inventory of stocks. Are all circumstances where the officer concerned would be liable for disciplinary action. Contracts made by officer / employees in the usual course of business without collusion, fraud or dishonesty would bind the principal.

Agent's negligence in the discharge of duties of principal will not absolve the principal of liability. Negligence does not include acts outside authority it means work done in a careless manner without due care and cautions.

In this research study, researcher had tried to know about the purchasing procedures in the sample units. The researcher has asked about the factors considered of purchase information about materials where they get about the location of supplier about payment of goods about transportation charges about negotiation, about the selection of suppliers, mode of communication relating with the supplier evaluation of the supplier and about the losses born by.

In this research study the researcher has made an attempt to know about the factors which are considered while deciding on where and how much materials has been purchased in Dyeing and printing industry of Jetpur city is given under.

TABLE NO 4.1
FACTORS CONSIDERED WHILE DECIDING
ON WHERE & HOW MUCH TO PURCHASE

S.No.	Type/size of firm	To meet Immediate Requirements	Prices are Low	Chances of shortage	After Determine Exact Requirements
1	SMALL	03	06	00	06
2	MEDIUM	00	01	00	09
3	LARGE	02	02	00	06

A business and production units should calculate its requirements of raw materials and after thought they should purchase materials. Which time and at what price it should purchase materials it important decisions for unit. Here researcher studies about it. Above table shows which sampling units considered factors while purchase materials. 3 units of small size purchase to meet immediate requirements, 2 unit of them and other 4 units total 6 units purchase materials where prices are low and 3 of them and other 3 units purchase materials after determining exact requirements. In the medium size there is 1 unit who purchase materials when prices go low. And 9 units purchase after

determining exact requirements. In large size units 2 of them purchase materials to meet immediate requirements, 2 of them purchase when prices are low and 6 units of large six purchase after determining exact requirements. There are 21 units who decide to purchase materials after determining exact requirements of productions units.

Further the researcher had tried that from where the sampled units got information about the materials is given in below table :-

TABLE NO 4.2

MATERIAL INFORMATION PROCURED FROM

S.No.	Type/size of firm	Trade Journals	Supplier Catalogues	Yellow Pages	Visit of Salespersons	Trade Exhibits
1	SMALL	03	03	00	08	00
2	MEDIUM	01	02	00	07	01
3	LARGE	01	03	00	06	01

Which is the source of information about the materials for these units is main aspect of this table From this table it is understand that from where they get the information about materials. There were 3 units who get information from trade journals, 3 units get it from supplier catalogues and 8 of small size units get information through the sales personnel who visit them. There are 2 units who get information from trade journals, and also through visit of sale presonnel.

In the medium size of units, there is 1 unit who get information from trade journals, 2 get it from supplier catalogues, 7 of them get from sales personnel and 1 unit get information from trade exhibits. There is 1 unit of them who get information from supplier's catalogues and also from trade journals. In the large size of firms there is 1 unit who get information through the trade journals, 2 units get from supplier catalogues, 6 units get information about materials from sales personnel who visit the units, and 1 unit get information from trade exhibits. 1 unit does not give any information about it. There is 1 unit who get information from supplier catalogues and by the visit of sales personnel and there is also a unit who get information about the materials from supplier catalogues, sales personnel and also from trade exhibits.

In this study no one of sampled units has used yellow pages and visit with the sales personnel is the main informative aspect in the dyeing and printing industry of Jetpur city.

In this research study the researcher has also made an attempt to get information about the factor considered by the sampled units while forecasting and deciding on quantity to be brought is given in under mention table.

TABLE NO 4.3
FACTORS CONSIDERED WHILE FORECASTING AND
DECIDING ON QUANTITY TO BE BOUGHT

S.No.	Type/size of firm	General Economic Condition	Specific Market	Suppliers	Statistical Forecasting	Budget
1	SMALL	00	09	01	00	01
2	MEDIUM	00	10	00	00	00
3	LARGE	00	09	01	00	00

Researcher has wanted to know which are the factors that are considered by unit while forecasting and deciding on quantity to be bought. While they purchased the materials which factors emphasized by the unit. Here in the above table the small size 9 units saw specific market condition and decide for purchase of materials and suppliers are the factor for 1 unit but their is 1 unit who decide to purchase the materials by its budget. In the medium size specific market condition is the factor considered while forecasting deciding on quantity to be bought. There are 9 units of large size where also specific market condition is the factor consider for purchase of materials and 1 unit considered supplier as a factor while forecasting and deciding on quantity of materials.

In this industry general economic condition and statistical forecasting are neglected by the sampled units.

After that the researcher has wanted to know about the location of suppliers of the sampled units of the dyeing and printing industry of Jetpur city is given under :-

TABLE NO 4.4

LOCATION OF SUPPLIERS

S.No.	Type/size of firm	In Local Market	Outside Specific Market	No Such Location
1	SMALL	05	03	05
2	MEDIUM	02	01	07
3	LARGE	03	02	06

In the dyeing and Printing industry of Jetpur city their is also local market available and outside market is also to deal with them so here researcher explain which is the location for suppliers of sampling units of study Above table show the information about the location of suppliers. 5 units of small size have local suppliers, 3 of these 5 have also outside specific market for some materials and 5 units have not such location for dealing. They purchased materials as per situation. Locations of suppliers of medium size 2 units have local market, 1 has outside specific market and 7 units have not such location of suppliers. They dealed as per situation. Suppliers of 3 units of large size are located in local market, 1 of them and other 1 unit has outside specific market to purchase materials and 6 units dealed as per situation they have not any such location of suppliers to purchase materials from.

Further the researcher has asked them that they depended only upon regular supply or purchase materials very as per situation. This is described in below table

TABLE NO 4.5

DEPEND UPON FOR SUPPLY OF MATERIAL

S.No.	Type/size of firm	Regular Supplier	Very as per situation
1	SMALL	00	10
2	MEDIUM	00	10
3	LARGE	00	10
4	TOTAL	00	30

Also local market is available for dyeing industry of Jetpur city, so researcher wants to know that they are depending upon only one supplier from where they buy materials regularly or but very as per situation. By this table it's described about the situation. All the sampling units of small size, medium size and large size didn't depend on regular supplier but they deal with vary as per situation of market and demand.

It means 100 % units of the sampled have not depend upon regular supplier only but they decided very as per situation.

After it, the researcher has asked that in selection of suppliers during negotiations which factors considered on 1st preference by the sampling units of the researcher study is given under :-

TABLE NO 4.6
FACTORS CONSIDERED IN SELECTION OF
SUPPLIERS DURING NEGOTIATIONS

S.No.	Type/size of firm	Quality & Quantity	Product Specification	Payment Insurance Terms & Condition	Guarantee or Warrantee	Buy Back Agreement
1	SMALL	07	01	00	00	01
2	MEDIUM	08	01	00	00	01
3	LARGE	09	01	00	00	00
4	TOTAL	24	03	01	00	01

Here researcher wants know that what are the factors that firms emphasis to select suppliers when negotiate. Quality & quantity, product specification, payment terms pricing trade discount and conditions, insurance terms and conditions, guarantee / warrantee and buy back agreement are the factors which firms see in suppliers during negotiations and give the preference to supplier by the factors which they emphasis upon. In the small six of units there are 7 unit who emphasis upon quality 7 quantity, and there are 2 units who give second preference, their is a unit who emphasis upon product specifications, one unit emphasis upon insurance terms and conditions and one unit preferred the suppliers who give buy back agreement for purchase. There are 2 units, who give second preference to

product specifications, and 3 units give 3rd preference to product specifications and also there is a unit who give 4th preference to product specifications. There are 5 units of small size who preferred second factors of insurance terms & conditions, and there are 2 units who give 3rd preference to it and one choose it 5th to choice suppliers. There are 2 units who give 3rd preference to it and one choose it 5th to chose suppliers. There are 2 units who give 3rd preference to guarantee & warrantee of the suppliers 3 units give 4th preferences and 2 give 5th preference to guarantee and warranty. There are 2 units who give proofed the suppliers 3rd by factors of buy back agreement, 2 units also give 4th preference and 2 also give 5th preference to buy back agreement when negotiate with suppliers. In the medium size 8 units give 1st number to quality & quantity, 2 units give 2nd number to quality & quantity. Product specifications is selected by a 1 unit in 1st number and in 2 units 3rd in 3 units, 4 the 1 units and the 4th in 2 units Factors of insurance terms & conditions are selected in the 2nd numbers by 4 units 3rd preference in 4 units, and 4th number in 1 unit. Guarantee/warrantee is on 3rd number in 2 units, 4th number in 2 units and 5th number in 4 units, 2 units of them did not give any number to guarantee/ warrantee. Buy agreement selected 1st in 1 unit 2nd in 1 units, 4th in 4 units 5th in 2 units and 2 units did not

selected this factors in when negotiate with suppliers. Its looks that in the large size quality & quantity considered in 1st preference by 9 units 1 of them didn't give any number to it. Product specifications considered 1st preference by 9 units 2nd in 2 units, 3rd in 3 units, 5th in 1 unit and 1 unit did not give any preference to this factors. Insurance terms & conditions is in 2nd number in 6th unit, 3rd in 1 unit, 5th in 1 unit and 2 units did not give any number to this factors in selection of suppliers. Guarantee / Warrantee is in 2nd number in 2 units, 3rd in 1 unit, 4th in 3 units and 3 units didn't give any number to this factors. 2 units also selected on 3rd number to buy back agreement selected in 4th number and 3 units give 5th preference and 3 units did not give any preference to this factors when negotiate with the suppliers.

From the above table it is clear that quality and quantity is preferred on 1st number by 24 units out of the 30 units of sample. Here in this table researcher has given only that number which is on 1st preference by the units. All the detailed are given is collected in questioners when interview is done by the researcher and given the numbers or preference to the factors.

Also the researcher has wanted to know about the factors are considered for the selection of right supplier. The researcher has given this in the following table.

TABLE NO 4.7
SELECTION OF RIGHT SUPPLIER DEPENDS UPON

S.No.	Type/size of firm	Assurance of Supply	Size & Capacity of Supplier	Honesty & Integrity	Pricing Mechanism	Credit Facilities
1	SMALL	05	03	07	05	02
2	MEDIUM	04	01	06	01	01
3	LARGE	06	06	09	04	06

After negotiation with the suppliers sampled unit selected right supplier. When select the right suppliers their are some factors that selection of supplier depends upon these factors. Above table show in this study selection of right supplier, depended upon which factors. Assurance of supply size and capacity of supplier, honesty & integrity, pricing mechanism and credit facilitates are the factors for selection of right supplier. In the small size unit 7 units had depends upon honesty & integrity, 2 of these seven and other 1 unit depend upon size and capacity of supplier, 1 unit of those 7 and other 4 units depended upon assurance of supply, 4 units of those 7 and other 1 unit emphasis upon pricing mechanism and 2 units of those 7 units depended upon credit facilities. There for there are 4 units whose choice is assurance of supply, one of those choose size & capacity of supplier, honesty & integrity is selected by 6 units where 1 unit also choose assurance of supply, 1 units of these 6 units also emphasis the pricing mechanism of supplier, and in the 1 unit

selection of right supplier depends upon credit facilities. And in the large size selection of suppliers depends upon the factor assurance of supply of supplier, 5 of those and other 1 unit emphasis on size and capacity of suppliers, 5 of those and other 4 units also give preference to honesty & integrity of supplier, there are 4 units depend upon pricing mechanism where 2 units also depend upon assurance of supply and 2 units depend upon honesty & integrity, 6 units depend upon credit facilitates where all these units also depend upon honesty & integrity and also 3 units depend upon pricing mechanism also. It is prove by this table that honesty & integrity is the factors on which selection of suppliers depend more than other factors.

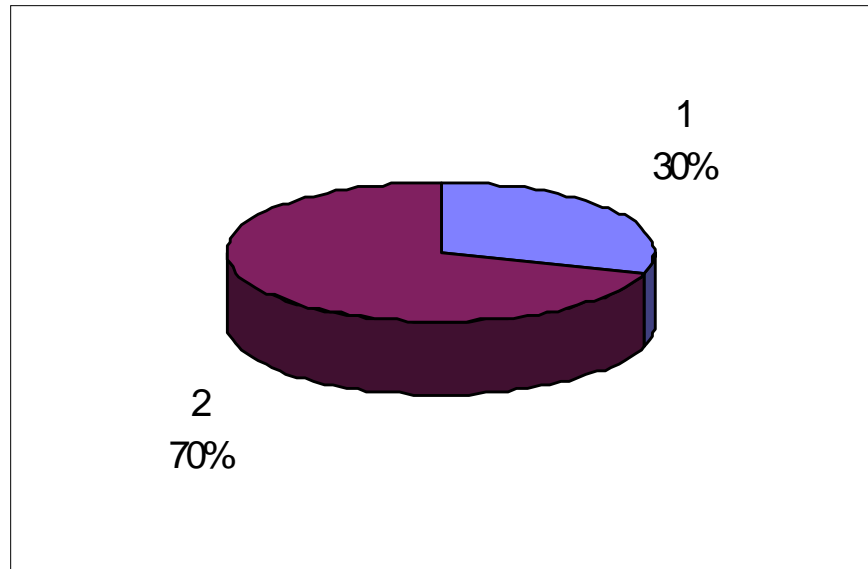
Also local market is available in dyeing and printing industry of Jetpur so the researcher has asked that the sampled unit about the dependency, the researcher has asked them that whether they depend solely on local suppliers or not is given under

TABLE NO 4.8

DO YOU DEPEND SOLELY ON LOCAL SUPPLIERS

S.No.	Type/size of firm	Yes	No
1	SMALL	01	09
2	MEDIUM	04	06
3	LARGE	04	06
4	TOTAL	09	21

This can be given in graph as under :-



From the above table it seemed that there is 1 units of small size depend solely on local suppliers and 9 units did not depend solely on local market. In the medium size of units there are 4 units who depended solely on local suppliers and 6 units did not depend only on local suppliers. And in large size position is the same of medium size units There are also 4 units depended solely on local suppliers and 6 units did not only depended on locals suppliers.

There are only 9 unit among there 30 units who solely depend on local suppliers it means only 30 % units were depended only on local suppliers.

Only 9 units out of 30 units has depended only local suppliers so the researcher has tired to know that what alternative arrangement they have for the required material and it is narrated in below table :-

TABLE NO 4.9
WHAT ALTERNATIVES ARRANGEMENTS
DO YOU HAVE TO ENSURE

S.No.	Type/size of firm	Maintain Buffer Stock	Suppliers OutsideMarket	Good Reports With other Local Suppliers
1	SMALL	00	08	03
2	MEDIUM	00	05	01
3	LARGE	02	02	03

In the dyeing & printing industry firms do not lay only on local market. They have alternative arrangement for regular supply in above table. 8 units of small size have outside supplier and 1 of them and other 2 units maintaining good report with other local suppliers so they can arrange regular supply. There are 5 units who have suppliers in outside market and 1 unit not lied on the one local supplier also good rapport with other local suppliers in the medium size units. In the large size units there are 2 units who maintain buffer stock to meet immediate requirements and for emergency, there are 2 units who have outside suppliers and 3 units who maintain good report with other local suppliers.

There are only 2 units out of 30 units have maintain buffer stock in there is store.

Further the researcher asked the sampled units that which factors considered by them while pricing the raw materials from the supplier. It is described in following table

TABLE NO 4.10
FACTORS CONSIDERED WHILE
PRICING RAW MATERIALS

S.No.	Type/size of firm	Past Experience	Reputation of Supplier	Govt. Tax Policies	Qualities Materials	Payment Terms	Assurance of supply	Buyer Seller Relations
1	SMALL	03	04	00	08	02	03	01
2	MEDIUM	00	04	00	10	00	00	00
3	LARGE	02	06	00	07	04	05	05

Here researcher has wanted to know that while pricing raw materials which factors considered and emphasised by the units. Above table descriptions factors. In the small size 3 units considered past experience with the suppliers while pricing raw materials, 2 of them and other 2 units accepted the good reputation of supplier in market, 1 of those 2 units and other 7 units considered quality of materials, 2 of them saw the payment terms of suppliers, 3 of 10 sampling units considered assurance of supply and 1 unit considered buyer seller relations who also considered quality of materials. In the medium size units all the 10 units considered quality of materials while pricing raw materials and 4 of them also considered reputation of supplier while pricing raw materials. Therefore in the large size units, 7 units considered quality of materials while pricing raw materials. 1 of them and other 1 unit considered past experience with the supplier, 6 units of large size considered reputation of supplier where 3 of them also considered quality of materials, 4 units considered payment terms where 3 units considered quality of materials and 1 units also considered reputation of suppliers, 5 units considered assurance of supply while pricing raw materials where 4 of them also accepted quality of materials and 1 also accepted reputation of supplier, 5 units of large size considered buyer seller relations where 3 units also accepted quality of materials and 2 of them also accepted reputation of supplier. Here the sampling units considered there quality of materials while pricing raw materials and than they put emphasis on reputation of suppliers.

Quality of material in considered by the 25 units out of 30 units of the dyeing and printing industry of Jetpur city.

Who paid the amount of received material is the aspect of the research in the given table.

TABLE NO 4.11

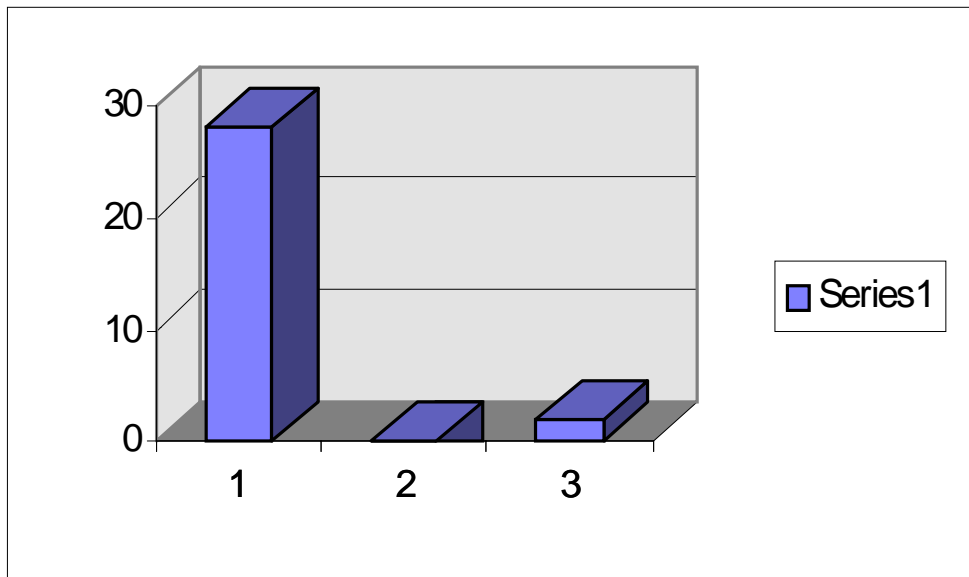
PAYMENT FOR GOODS RECEIVED IS MADE BY

S.No.	Type/size of firm	Owner	Store Department	Finance/Account Department
1	SMALL	09	00	01
2	MEDIUM	10	00	00
3	LARGE	09	00	01
4	TOTAL	28	00	02

Researcher has tried to know that who arrange the payment of received goods. Its find out that in the small scale owner paid for goods in 9 units and finance department arranged the payment in 1 unit. By the table in the medium size owner maid the arrangement for payment of the goods received in all the sampling units. In the large size, owner paid for goods in 9 units and finance or account department arranged the payment in 1 unit like small size units.

It means out of 30 units of sample there are 28 units where payment is done by the owner 93.33 % units where payment is made by the owner of the unit.

It should be mentioned in graph as under :-



Further the researcher has asked about the mode of payment of the sample units of the Dyeing and Printing industry of Jetpur. And it is given in under mention table.

TABLE NO 4.12
MODE OF PAYMENT

S.No.	Type/size of firm	Cash	Cheque	Draft	Through Bank
1	SMALL	03	10	03	01
2	MEDIUM	01	10	02	01
3	LARGE	01	10	05	03

In this study, researcher wants to know about the mode of payment. Researcher has tried to know that which mode of payment is accepted by the firms, which is frequent for them,. In the table small size of units, 3 units accept the cash payment, 10 unit paid by the cheque, 3 unit paid by demand draft and 1 unit paid through bank. In the medium size of units 1 unit paid by cash payment, all the units accepted cheque payment, 2 units arranged the payment by demand draft, 1 unit paid through the bank. In the large size of units 1 unit paid cash payment, all the units arranged the cheque payment, 5 of them accepted demand draft system and 1 unit paid through the bank. It occurred because sometimes firm received the goods from local suppliers of local dealers there they paid cash for quick arrangement of goods. Some supplier required demand draft and some supplier demanded cheque or some believe payment through the bank. Dyeing industry has to

purchase so much of raw materials, so the supplier demanded cheque or some believe payment through the bank. Dyeing industry has to purchase so much of raw materials, so the supplier demanded the mode of payment which ever frequent for them.

100 % units of sample have preferred cheque payment but some times they have selected other mode of payment.

After that the researcher wants to know about the transportation charges are born by firm or supplier and that is given undermentioned table.

TABLE NO 4.13
TRANSPORTATION CHARGE BORN BY

S.No.	Type/size of firm	Firm	Supplier
1	SMALL	10	00
2	MEDIUM	08	02
3	LARGE	09	01
4	TOTAL	27	03

All the business firms who have to purchase the materials, goods from out side of local market have to pay transportation charges. And also local market is charged the transportation charge to supply the goods from market to production unit or store of unit . Here researcher wants to know that who born the transportation charges.

Above table show that in the small size of units firm bear the charges of transportation in all of sampling units In the medium size firm borne the transportation charges in 8 units and in the 2 units' supplier paid the charges of transportation. Thus the above table explains in the large size firm bear the charges in 9 units and supplier bear the charges in 1 unit.

There are 27 units out of 30 units where transportation charges are born by the firm. It means 90 % units have born transportation charges of the materials.

After the transportation charges also the researcher has asked about the local taxes or octroi is paid by the firm, supplier or by transport agency. And it is described below :-

TABLE NO 4.14

LOCAL TAXES / OCTROI PAID BY

S.No.	Type/size of firm	Firm	Supplier	Transport Agency
1	SMALL	07	02	01
2	MEDIUM	08	02	01
3	LARGE	08	02	00

Local taxes or octroi should have to pay in all the business. Here researcher wants to know who paid it in these sampling

units. In the small size of units firm paid taxes in 7 units, supplier paid to in 2 units and transport agency paid taxes in one unit. In the medium size firm beard taxes in 8 units, supplier paid in 2 units and transport agency paid it in one unit. There is a unit where sometimes firm paid taxes and sometimes suppliers paid taxes. In the large of units firm paid taxes 8 units and supplier paid taxes in 2 units of sample.

In this research study there are 23 units out of 30 units where local taxes and octroi to paid by the firm. It means 76.66 % units who bear taxes or octroi in the dyeing and printing industry of Jetpur city.

This is the first business age and the communication is being so fast. In this research study, the researchers wants to know which mode is adapted by the sample units while they communicate with their suppliers is given in undermentioned table

TABLE NO 4.15
GENERAL MODE OF COMMUNICATION ADOPTED
WITH SUPPLIERS

S.No.	Type/size of firm	Telephone	Fex & Telex	Postal Services	Courier	Personal Message
1	SMALL	10	00	02	05	00
2	MEDIUM	10	01	00	01	00
3	LARGE	10	06	02	02	00

By which mode units communicates with the suppliers, is the base of this table. Here the entire sampling units first use telephone to communicate with the suppliers. In the small size 2 units also adopted the postal service and 5 also use courier to communicate with the suppliers. In the medium size of firms 1 unit also used for fax & telex service and 1 unit also used courier service. And in the large size 7 units also adopted fax & telex service, 2 units also used postal service and 2 units also used courier to communicate with suppliers.

100 % units of the sampled units have first used telephone while communicating with their suppliers other modes are alternatively used by them.

Also the researcher has tried to know that the sampling units do evaluate performance of their supplier or not. That is given in following table.

TABLE NO 4.16
DO YOU EVALUATE PERFORMANCE
OF THE SUPPLIER

S.No.	Type/size of firm	Yes	No
1	SMALL	10	00
2	MEDIUM	10	00
3	LARGE	10	00
4	TOTAL	30	00

There finding in the above table that research has wanted to know that if they evaluate performance of the supplier whom they dealt with in the above table all the sampling units small, medium and large size units evaluate the performance of the supplier. They eventual performance of the supplier with whom they did business.

In the dyeing and printing industry of Jetpur 100 % units of sampled units evaluate performance of their suppliers.

Further the researcher has made an attempt to know about the intervals or periods of evaluation of supplier. The researcher has asked about it and it is given in following table

TABLE NO 4.17

INTERVALS OR PERIODS OF EVALUATION

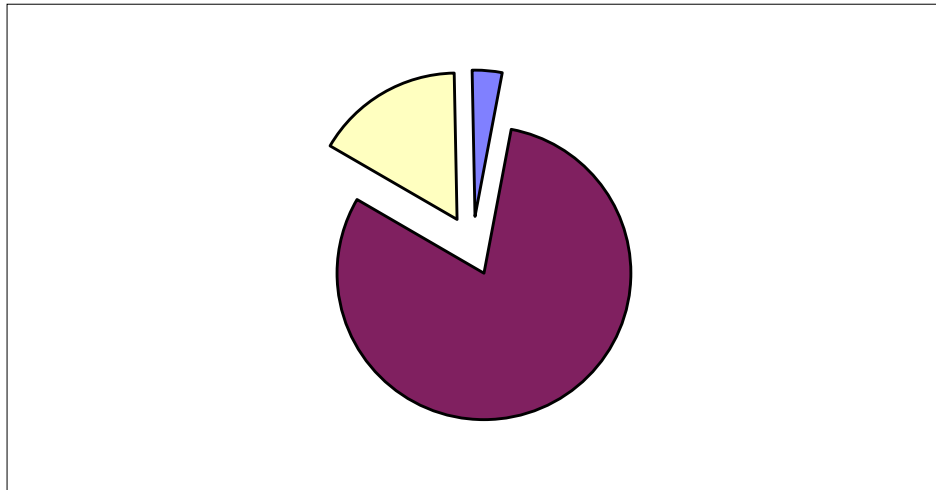
S.No.	Type/size of firm	End of Financial Year	Continuous Evaluation	Only when something Goes Wrong
1	SMALL	00	08	02
2	MEDIUM	01	08	01
3	LARGE	00	08	02
4	TOTAL	01	24	05

All the sampling units evaluate performance of supplier. Here researcher have seen the periods of evaluating of suppliers. There continuous evaluation in 8 units of all the three types of units and 2 units of small, 1 units of medium and 2 units of large evaluate only when something wrong has been done with the suppliers. In the medium size 1 unit evaluate suppliers at the end of financial year.

There are 24 units out of 30 units where contours evaluation is done by the firm in this research study. It means 80 % units are aware for the supplier and their materials.

Which method of evaluation of supplier is adopted by the sampled unit is the aim of the researcher and it is given under mention table

The researcher has given chart of this as follows :-



80 % unit evaluage continue
3.33 % evaluate at the end of financial year &
16.67 % evaluate only when something done wrong
among the sampled units

TABLE NO 4.18

METHOD OF EVALUATION OF YOUR SUPPLIER

S.No.	Type/size of firm	Your Experience & Judgement	Cost Ratio Method	Suppliers Record or Reputation	Supply & Quality Assurance
1	SMALL	08	00	01	02
2	MEDIUM	06	00	03	02
3	LARGE	05	00	00	06

The researcher wants to know that by which method they evaluate suppliers. There are four methods : Experience & judgment, cost ratio method, supplier's record or reputation and supply & quality assurance. Such as in the above table, that 8 units of small size evaluate suppliers by their experience & judgment, 2 units evaluate by supply & quality assurance, 1 of 8 units also evaluate suppliers by their record and reputation. In the medium size there are 6 units who adopted the method of evaluate experience & judgment with the suppliers, 3 units evaluated them by their record or reputation there is one unit who also adopted the method experience & judgment with the suppliers and 2 units who checked supply & quality assurance. In the large size 5 units evaluate by the experience & judgment and one of them and other 5 units checked supply & quality assurance of supply and evaluate them.

They should have cordial relation with the suppliers A good relation with the supplier is necessary aspect of the buyer and so in this research study, the researcher has tried to know about the steps are taken to maintain cordial relation with suppliers and it is given in following table.

TABLE NO 4.19
STEPS UNDERTAKEN TO MAINTAIN CORDIAL
RELATION WITH SUPPLIERS

S.No.	Type/size of firm	Treat Sales Personnel Cordially	Periodical Meeting Supplier	Prompt Settlement of Accounts	Enquire Suppliers Problems	Provide technical & financial Help	Any other Step
1	SMALL	05	07	04	01	02	00
2	MEDIUM	02	06	02	01	01	00
3	LARGE	03	05	07	03	01	00

The sampling firm of research study take some steps to maintain cordial relation with supplier like treat sales personnel cordially, periodically, meeting with supplier, prompt settlement of accounts enquired suppliers problems, period technical & financial help and any other steps. Some units take more than one step here that shown in above table. In the small size 5 units treat sales personnel cordially, 7 units arranged periodical meeting with suppliers and discussed with them, 4 units settled prompt payment 1 unit enquired problems of suppliers, 2 units provide

technical & financial help to suppliers. There are 2 units who treat sales personnel cordially, 6 units arranged periodical meeting with suppliers, 2 units arranged prompt settlement of accounts, 1 unit enquired supplier's problems and 1 unit provide technical and financial help to suppliers in medium size units. In the large size there are 3 units who treat sales personnel cordially, 5 units arranged periodical meeting with supplier, 7 units settled prompt payment of account, 3 units enquired problems of suppliers and 1 unit provide technical & financial help to suppliers to maintain cordial relation.

All the units of sampled units are aware for the cordial relation with suppliers.

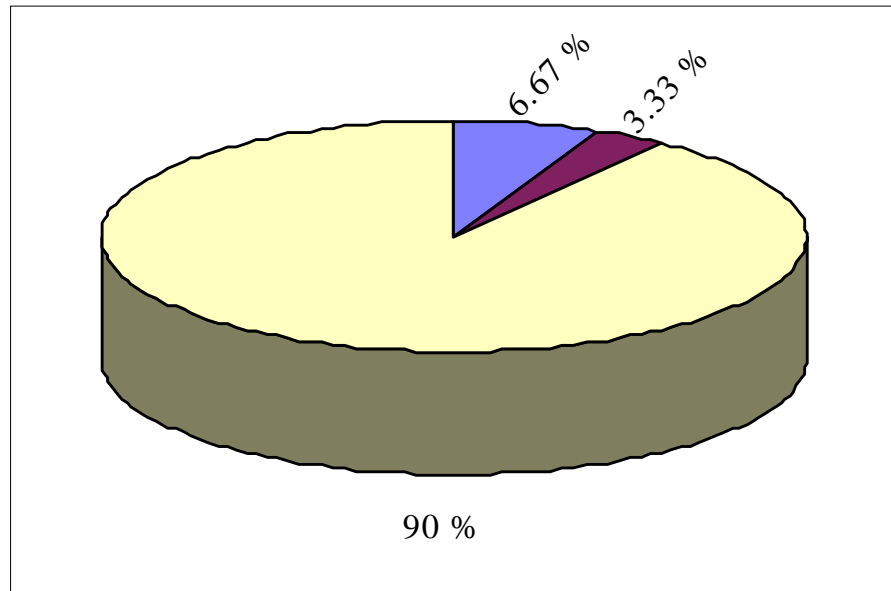
Due to late delivery also production is affected and the firm has to bear it. Some times supplier or transport agency is responsible for that they bear the losses which is affected the buyer. In this research study of the dyeing and printing industry of Jetpur the researcher has made an attempt to know about the losses is born by the supplier, transport agency or owner this information is given in under mention table.

TABLE NO 4.20

LOSSES DUE TO LATE DELIVERY BORN BY

S.No.	Type/size of firm	Supplier	Transport Agency	Self (Owner)
1	SMALL	02	00	08
2	MEDIUM	00	01	09
3	LARGE	00	00	10
4	TOTAL	02	01	27

It is also given in chart as under :-



Sometimes it may be possible the case of late delivery and at the time of emergency or high demand situation units have bear the loses. Here researcher has wanted to know who bear this loses which occurred due to late delivery. In the small size of units supplier bear loses in 2 units and owner bear it in 8 units. In the medium size of units transport agency bear loses in one unit and owner bear the loses in 9 units of samples. And in the large size of firms owner bear loses which occurred due to late delivery in all the sampling units.

Out 30 units there are 27 units where losses due to late delivery is born by the unit in the dyeing and printing industry of Jetpur city It means 90 % unit have born losses which are occurred due to late delivery.

CHAPTER - 5
MATERIAL HANDLING, SCRAPE,
WASTAGE AND TRANSPORTATION

Material Handling is the main activity in the store room. Materials Handling is the art and science involving movement, packing and storing of materials in any form by means of gravity, manual effort or power actuated machinery.

" Material handling is concerned with moving the right quantity of materials raw material; machinery spares, work in progress and finished goods at the right time in a given space." It deals with the science involving movement, packing and sorting of materials manually or mechanically.

Materials handling may be regarded as the scientific method and analysis of all handling and movements of materials. It should not be confused with mechanical handling, which is only one of the ways by which problems of materials handling may be solved. Too much of handling of certain sensitive materials may even lead to wastage. In fact, in certain goods it may be estimated that the cost of handling from the source of raw materials to final distribution may be anything up to 70 % of the total cost.

The principal function of material handling should be aimed to eliminate unnecessary handling cost wherever possible, and if storage cannot be done, to develop a method of improved handling scheme.

Materials handling involves packaging, storing and transporting of materials. Although better material handling is available guide to waste elimination and cost reduction also. Primary movement of materials is between work storage or inspection areas. Secondary movement is at individual work, sites of branches for loading on and unloading off machinery, jig, fixture.

Materials handling deals with the preparation, placement and positioning of materials with a view to facilitate their storage, preparation and movement. It is a function which facilitates the movement of materials in and outside the store house.

Importance of Material Handling :-

Materials are received, stored and moved to processing departments, where also they are moved from machine to machine. Semi-processed materials are moved from one processing department to another and further moved to final assembly section. The final products are then moved to inspection department and finally to the despatch section. Man plays an important role in such movements. Man moves the material either by his manual labour or with the help of the equipment at his disposal.

The importance of materials handling, therefore, lies in the fact the cost and the time of materials handling can be reduced to a greater extent by adopting sound system of materials handling procedure. The purchase of materials handling equipment involves cost so also their operation. And here arises the important of materials handling.

An improved and efficient materials handling system offers not only scope for time and cost reduction but it also ensure the following :-

- ➔ Reduction in accident.
- ➔ Greater job satisfaction by reduction in or elimination of manual labour.
- ➔ Reduction in inventory of work in progress and
- ➔ Increase in production.

A study conducted in an American industry revealed that " inventory in the industry " had been reduced by good handling from 21 days equivalent of work down to less than 2 days equivalent working in a period of 5 to 6 years.... Increased production due to elimination of work delays was known to have been guided. In some plants the increase in production was much as 60 percent ".¹

Advantage of Materials Handling :-

An advantage of Materials Handling procedure result in the following.

- ➔ Increased productivity of labour.
- ➔ Increased production capacity of the plants.
- ➔ Full utilisation of plant capacity.

1 National Productivity council of India, Materials Handling
New Delhi, NPC Report No. 38 1964 P. 37

- ➔ Saving in man hour resulting in reduction in the cost of production.
- ➔ Reduction in inventory thereby helping in advantageous use of working capital.
- ➔ Making the factory working easy.
- ➔ Clean shop floors enabling smooth, less strenuous and efficient function of the factory.
- ➔ Less utilisation of available space which helps in the processing of products within least possible time and that too with less effort and better results.
- ➔ Less wastage, spoilage and damages.
- ➔ Minimum supervision due to minimisation of interruption in production schedule.
- ➔ Reduction in fatigue of workers leading to greater job satisfaction and more work with greater safety.

Economic utilisation of materials brings prosperity to the organisation.

Materials Handling Equipment :-

The selection of equipment for the unit depend upon the types of store, handled, quality involved, distance to be covered and facilities available for the use of equipment. Commonly used equipment in a store house are two types of :-

- (1) Hand Operated
- (1) Power Driven Equipment.

Hand Operated Equipment :-

Material Handling involves moving packing and storing articles in any form. The hand operated equipment generally used as under :-

★ **Hand Barrow :-**

It comprises a frame which is provided with short shafts. It is used by two or more men for carrying load from one place to another.

★ **Wheel Barrow :-**

It is a shallow box with shafts and wheels and is used for movement of small parts within the store.

★ **Hand Truck or Sack Truck :-**

The column Wheel Barrow is suitable for carrying small quantities of sand, gravel and other loose materials. Sack barrows are intended for bagged goods.

★ **Handy Trolley :-**

It can have three or four wheels. It is worked by a hand lever.

★ **Sliding Wheel Trucks :-**

Sliding Wheel box trucks built to carry loose parts are made with wooden or steel.

★ **Lift Truck** :-

Hand operated lifting trucks are adopted for running beneath stillages on which parts are loaded; a back ground pull on the handle raises the platform by means of linkages and enables the loaded stillages to be wheeled away. Hand operated trucks are also available. These are fitted with a platform which can be raised to a height of about 103 meter. By means of a handle which is attached to the frame work of the truck.

★ **Pallet Truck** :-

These are very similar to stillage trucks the only difference being that they are fitted with forks instead of platform and are meant to handle pallets and stillages.

★ **Stillage Trucks** :-

These consists of wheeled platform managed by a drawbar and are fitted with a small hydraulic unit actuated by plumping the drawbar to raise or lower the platform. The trucks platform when lowered is run in between the legs of the stillages the platform is raised and the truck complete with load is taken away.

★ **Handy Stacker** :-

It consists of a vertical frame work of angle iron carrying a platform which can be raised or lowered for stacking or unstacking.

★ **Pulley Block** :-

This is geared pulley system fixed to on overhead beam and fitted with a lifting hook at the end of a chain.

★ **Monorails** :-

A monorails is a single ' I ' section rails fixed overhead and bearing small wheeled trolleys which run on the rails. Monorails are often used in conjunction with pulley blocks or handling heavy loads out of or into vehicles in receipt or dispatch hays.

★ **Chutes** :-

Wooden or metal trough inclined at such an angle that articles will slide down when placed upon it. It used for transporting stores from upper to lower floors, but they are convenient only for loose materials.

★ **Roller conveyors** :-

Metal frame work bearing horizontal rollers spaced at intervals, and the goods to be conveyed are pushed along the top of the rollers. Conveyors will transport between floors like as chutes and can also be used for horizontal movement at or above floor level

★ **POWER DRIVEN EQUIPMENT** :-

With the development of advanced technology a variety of equipment are coming into use depending upon the requirements of individual stores. Commonly used in the store room are as under :-

★ **Fork lift Trucks** :-

Fork lift Trucks are now available in several kinds. Trucks with smaller wheels are used both for operations inside and outside. The heavier types have diesel or petrol engines others are electrically driven and are free from fumes or smoke. The attached ' fork ' consists of two flattened prongs which can be pushed under a load and then raised to lift the same. Some trucks are only of low lift types. They are also called pallet transporters and are suitable for only lifting, transporting and laying down stores, but they can not stock. Also there are high lift type and having detachable forks type trucks. It will be desirable to provide raised loading dock near the receipt and despatch counters or the storeroom.

★ **Platform trucks** :-

These are available in two types :- fixed platform and platforms lift trucks

The lifting platform type has a platform which can run a suitable container and lift the load clear of the floor. It does not have the forks which are attached to the other type. Platform trucks are generally used for carrying stores over long distances.

★ **Tractors** :-

Those are available in various sizes and it is conjuncted with trailers contain the stores to be moved. Two or more trailers

can be attached with a tractor, thus making the process of material handling quite economical. This type of vehicle is like platform trucks and is mostly used for long distances.

★ **Overhead Electric Cranes :-**

The 5 tonne and 10 tonne overhead electric cranes are commonly used in stores work. There are two types of crane floor controlled.

Cab controlled.

Floor controlled crane is best in cases where its use is spasmodic, as the man concerned can easily move away to do other job when he is not required for the crane. Cab control is quicker to operate but is more expensive.

These cranes are very useful in lifting heavy stores, particularly for loading or unloading road vehicles or railway wagons with ' box ' bodies.

★ **Mobile Jib Cranes :-**

Small mobile jib cranes are suitable for lifting and unloading materials of medium weight inside workshop. The machines used in stores work are 2 to 6 tonnes with jibs up to 40 feet, which can be lifted or lowered to suit the reach of the crane.

Large mobile jib cranes are suitable for work in stock-yards.

★ **Power conveyors** :-

There are many types of powered conveyors used in store houses. They are roller, belt overhead, tow - line and sub flow tow line conveyors.

Conveyors are most satisfactorily used where large number of comparatively small items are to be transported quickly, regularly and in bulk.

★ **Vacuum lifting Devices** :-

These are also associated with cranes, but they can serve as special attachments to truck fork lift trucks. An air compressor provides the power, and the device works by attaching a suction pad to such a device is of idle use for handling bulky but comparatively light articles in large cartons.

★ **Scissor Lifts** :-

They are used with advantage at airport and for unloading from aircraft.

★ **Lifts and Hoists** :-

Hoists and lifts are frequently used in store houses for carrying goods from floor to floor.

★ **Selection of equipment** :-

For the saving of time, saving of labour and saving of space mechanical handling equipment are used in the organisation. Machines can lift and transported materials much more quickly than the manual labour.

The use of modern techniques and the modern materials handling equipment has proved that a business manager can reduce the cost of handling by as much as 15 % of the total cost of materials and supplies. So great care is required while selection the equipment.

In this research study of Dyeing and Printing Industry of Jetpur city it is necessary to come about material handling equipment have been used by the sampling units or not which types of handling equipment are adopted by the units, it is given below :-

TABLE NO 5.1

HANDLING EQUIPMENT USED IN THE STORE

S.No.	Type/size of firm	Workmen Labourers		Trolleys Rekdi		Lift & Cranes		Others Equipment	
		Yes	No	Yes	No	Yes	No	Yes	No
1	SMALL	08	02	06	04	00	10	02	08
2	MEDIUM	07	03	03	07	00	10	00	10
3	LARGE	08	02	09	01	00	10	03	07
4	TOTAL	23	07	18	12	00	30	05	25

The researcher here asked about the handling equipments used in the store. There so many kinds of handling equipments should be use in the store to handle the materials. This table, in small size of units, 8 units has workmen

6 units have trolleys or Rekdi handled, no one has lift and cranes in the store and 2 units have other equipments in the store to handled materials. In the medium size firms, 7 units have workmen, 3 units of them have trolleys or Rekdi, and no has lift and cranes and other equipments in large size of units 8 units have workmen, 9 units have trolleys or Rekdi, no has lift and cranes and 3 units have other equipments in the store to handled the materials from store to production unit.

Handling by the equipment it can reduced the cost, lead time and work labour. In this industries also the sampled units are using workmen or labourers for the handling of materials. Among the described equipment which one has proved as an efficient equipment in the sampled units is described in the under mention table :-

TABLE NO 5.2

MOST EFFICIENT HANDLING EQUIPMENTS

S.No.	Type/size of firm	Workmen Labourers	Trolleys Rekdi	Lift & Cranes	Others Equipment
1	SMALL	05	00	00	02
2	MEDIUM	06	03	00	00
3	LARGE	03	04	00	01

Here researcher wants to know about the most efficient handling equipment for the units. Which are the most efficient handling equipments in the units ? Replied the small size of units, according to 5 units workmen are the most efficient and 2 said other, left 3 didn't gave the answer. In the medium size of firms 6 said workmen are the most efficient, 3 said trolley or Rekdi is the most efficient and one didn't gave the answer. According to large size of units 3 firms believe that workmen are the most efficient, 4 units said trolley or Rekdi, 1 unit said other equipment is the most efficient and 2 units didn't gave the answer of this question.

Waste and scrap of the materials in store :-

In India, there are persons gainfully employed in collecting and processing scrap and waste of every kind. " waste not want not " It had said but now scrap industry is a big business.

In the industrial sector, wastages arise because of over specification or under specification. The process of over specification forces up to purchase costlier items, while under specification leads to a higher percentage of defectively causing frequent replacement. A value analysis approach is required to adopt by the unit so quantity can be purchased according to the need wastages occur because of over buying, wrong identification of requirements, unnecessary buying inaccurate planing etc.

* **OBSOLETE** :-

Obsolete items are those materials and equipment which are not damaged and which have economic worth but which are no longer useful for the company's operation owing to many reasons such as changes in product line, process, materials and so on.

* **SURPLUS** :-

Surplus items are those material and equipments which have no immediate use but have accumulated due to faulty planning, forecasting and purchasing. However, they have usage value in future.

* **SCRAP** :-

Scrap is defined as process wastage such as turning, boring sprues and flashes. They may have an end-use within the plant. They do have an end-use and they have economic worth can have market value should have fetch some value out of them.

* **EFFECTIVE MANAGEMENT FOR THE WASTE** :-

The management of obsolete surplus and scraps calls for an effective organisation for location, collection and disposal of obsolete surplus and scrap materials. There should have deputed one or two employee to look after the problems relating to obsolete, surplus and waste materials.

***THE DUTIES OF ORGANISATION FOR WASTE ARE :-**

- ✂ To take steps for their collection from their places of occurrence.
- ✂ To take necessary steps to locate their place within reasonable time with minimum efforts,
- ✂ To take effective steps to minimise the volume of these items.
- ✂ To take appropriate steps for their disposal with maximum efficiency with a view to fetch more value from them in the market, would naturally help in (a) minimising their volume and (b) maximising the efficiency in disposing of these materials.

In some organisation, they have designated as waste management department and the incharge may be designated as waste manager, who should be answerable to the production manager and who should be asked to work in full co ordination with Materials and Purchase Department. For a small and medium organisation it is suggested that an expert preferably under production Manager may be asked to look after the management of obsolete, surplus and scrap items. He should asked to co ordinate his efforts with materials and purchase Department. He then will be able to justice with his assigned work and help the organisation in the same manner in which a full time department in a large organisation does on is expected to do.

*** DISPOSAL OF SCRAP AND WASTE MATERIALS :-**

In the organisation, when there is obsolete, surplus, scrap or waste items anywhere, it is the duty of concerned unit to inform waste management or authorised department or person with all details so as to enable the concerned department to take appropriate and timely action for its collection and disposal at the end of a period usually a quarter or a year. That items should be disposed off at the earliest possible time to avoid unnecessary blocking up of capital and increase in inventory carrying cost on such items.

Disposal action follows when the scrap can not be utilised within the organisation. In practice, it has been found that it is profitable to dispose the scrap directly to end users rather than to middleman who normally form a cartel of their own which leads to lower returns.

Before disposal action it is essential that the scrap is segregated according to metal, size, etc. When the scrap is mixed up the return is even lower than the lowest element in the mixture.

Many methods are used for the disposal in the organisation but there are two methods which are frequently used are :-

By auction and

By tender

It is better to ensure within the organisation itself that the scraps can not be effectively used in different units. Scraps of one organisation may be the raw materials of another, there prefer disposal of scraps must be arranged in the organisation.

In the Dyeing and Printing Industry of Jetpur, also there were a problem of waste and scrap. Researcher has made an attempt to know about the scrap and waste problem in the sampled unit are in under mentioned table :-

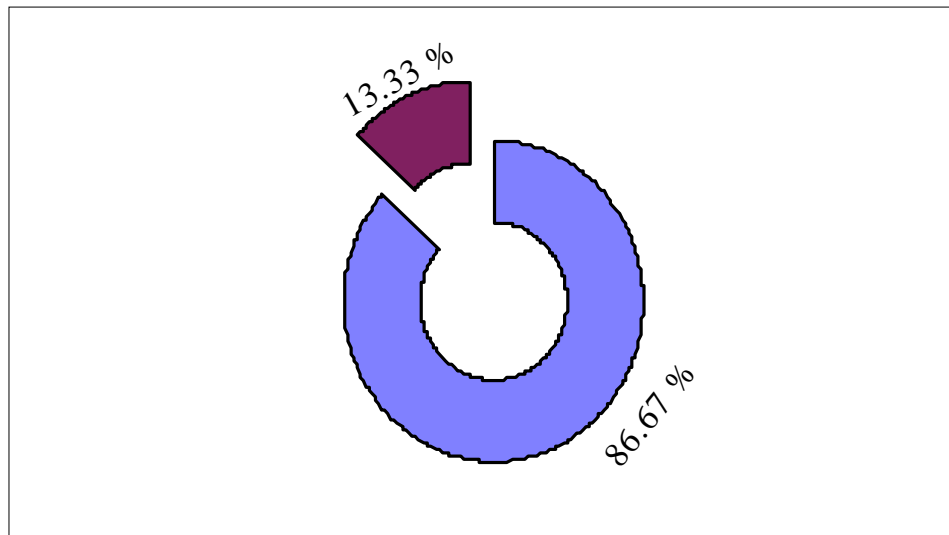
TABLE NO 5.3

DOES PROBLEM OF SCRAP & WASTE ARISE

S.No.	Type/size of firm	YES	NO
1	SMALL	07	03
2	MEDIUM	10	00
3	LARGE	09	01
4	TOTAL	26	04

Here researcher wants to know about problem of scrap & waste is arise in the Dyeing and Printing Industry of Jetpur city. Researcher asked about it to all the sampling units. Described in the above table that the problem of waste and scrap is arise in 7 units of small size, 10 units of medium size & 9 units of large size units

It should be narrated in graph as under :-



There are total 26 units out of 30 units of sample have said that they have a problem of scrap and waste. It means there are 86.66 % units who have this problems in their units.

In the industry there are many factors for the losses in the stores department. The Researcher has tried to get information about the losses in the stores department. Below table has narrated that :-

TABLE NO 5.4

COMMON FACTORS FOR LOSSES IN STORES DEPARTMENT.(%Loss)

S.No.	Type/size of firm	Leakages	Pilferage	Waste & Scrape	Handling Losses	Others
1	SMALL	0.11	0.06	0.19	0.12	0.04
2	MEDIUM	0.14	0.04	0.19	0.14	0.07
3	LARGE	0.95	0.03	0.11	0.09	0.00

Losses occurred in stores department and there are some common factors for losses. Here researcher tried to know the percentage of losses in all the common factors which occurred in stores department. From the above table is it is described that in the small size of unit's leakages is 0.11 % Pilferage is 0.06 %, waste & scrape is 0.19 % handling losses is 0.12 % and others is 0.04 %. In the medium size units losses occurred by leakages 0.14 % by pilferage 0.04 % by waste & scrape 0.19 by handling 0.14 % and by the others 0.07. And in the large size of units losses occurred due to leakage 0.95 % pilferage 0.03 % waste & scrape 0.11 % during handling 0.09 % and nothing losses due to others.

The above table mentioned that how they dispose off waste & scrap. In the small size of unit 1 unit reuse it within the unit. 4 units sell off the customers/employees and 7 units sell off to vendors. In the medium size 2 units reused within units 1 had returned to supplier, 3 sell off to customers/employees and 8 units sell off to vendors. In the large size of units 1 unit reused within unit, 1 returned to supplier, 3 units

sell off to customers/employees and 7 units sell off to vendors. Here each types of firms has 10 units for sample but table show that more than 10 because of sometimes some materials should reused within the unit and some materials.

Leakages and pilferage means total loss of the unit but waste and scrape and due to handling losses have given. Some return to the owner of the unit. The unit should have to try dispose waste and scrap as soon as possible. How do they dispose waste and scrap in the question The researcher has received some information which is described as under table :-

TABLE NO 5.5

HOW DO YOU DISPOSE-OFF WASTE AND SCRAPS

S.No.	Type/size of firm	Reuses within unit	Return to Supplier	Sell off to Customers Employees	Sell off to Venders
1	SMALL	01	00	04	07
2	MEDIUM	02	01	03	08
3	LARGE	01	01	03	07

The above table mentioned that how they dispose off waste & scrap. In the small size of unit 1 unit reuse it within the unit. 4 units sell off the customers/employees and 7 units sell off to vendors. In the medium size 2 units reused within units 1 had returned to supplier, 3 sell off to customers/employees and 8 units sell off to vendors. In the large size of units 1 unit reused within

unit, 1 returned to supplier, 3 units sell off to customers/employees and 7 units sell off to vendors. Here each types of firms has 10 units for sample but table show that more than 10 because of sometimes some materials should reused within the unit and some materials can't returned supplier but should sell off to customers/ employees by low rate. Sometimes some materials are in the position to sell off to vendors. No one can use it or returned or reused within the unit.

There were 33.33 % units who sell off the scrap materials to customers or their employees and about 73.33 % units who sell of it to vendors.

There are two methods which is generally used these by tender and by auction is said before. In this research study the researcher has made an attempt to know about the adoption of method or in some case also the units destroy. Or disposed it by any other method. It is described in given table :-

TABLE NO 5.6

DISPOSAL OF WASTE & SCRAP MATERIALS

S.No.	Type/size of firm	Invite Tender	Auction	Destroy	Other Methods
1	SMALL	00	00	00	10
2	MEDIUM	00	00	01	10
3	LARGE	00	02	01	08

All the 10 units of small size adopted other methods for disposal of waste & scrap materials. All the units of medium size also adopted other methods and 1 unit destroy too waste & scrap materials. In the large size 2 units adopted auction method, 1 unit adopted destroy method & 8 units (7+1 who also adopted auction method) disposed waste & scrap by other methods.

TRANSPARATION OF MATERIALS :-

Transport is the very life and blood of business management and commerce. The purchaser's job is not complete until and unless he ensures that the material is leaded from the vendor's premises located in deferent areas to his organisation.

As the organisation grow in size, transportation becomes very crucial and effectiveness depends upon the knowledge of alternatives, their rates, schedules, merits and demerits for all types of materials coming from diverse source such as local, regional, national or international. There should have a separate department to coordinate the movement of all materials - inside and outside - the factory to ensure safe, rapid and economic transportation.

It is possible to reduce the transportation cost by appropriate choice of mode of transport.

Invite tender, auction, destroy & other methods are the mode of disposal of waste & scrap materials. To sell the materials in discount rate sell to vendor are the methods. How can they dispose the waste & scrap materials is the an aspects of this table.

Important consideration in the choice of transport are as follows :-

- ✻ Type of material
- ✻ Rates
- ✻ Discounts
- ✻ Distance

- ❄ Time available
- ❄ Volume of material
- ❄ Location of Vendor
- ❄ Location of Factory
- ❄ Route selection
- ❄ Shelf-life of material
- ❄ Urgency of requirement
- ❄ Terms of contract
- ❄ Fully lorry load / or wagon load
- ❄ Pilferage proofing
- ❄ Corrosive nature of material
- ❄ Type of packing
- ❄ Safety of the transport system
- ❄ Handling breakage losses in movement
- ❄ Communication system
- ❄ Loading / Unloading charge
- ❄ Octroi / Entry taxes
- ❄ Payment terms
- ❄ Value of materials
- ❄ Exposure to mob attack due to riots and risks
- ❄ Insurance premium
- ❄ Settlement of claims

USUAL METHOD OF TRANSPORT :-

The usual modes of transport are railways, lorries, air cargo, inland water ways, international shipping, parcel post and courier service.

In the organisation the selection of transport mode largely depends on the following factors :-

- ✱ Cost of transport,
- ✱ Commodity value
- ✱ Size of shipment
- ✱ Distance covered
- ✱ Type of transport available and required under the circumstances and
- ✱ Speed at which the materials are to be transported.

COST OF TRANSPORT :-

Cost of transport depend on place, time and type of transport to be used. Route choice also plays a significant role in reducing or increasing the cost of transport. Type of transport and speed are some of the important determinants which largely influence transportation.

COMMODITY VALUE :-

Value of commodity is the first factor which largely influences the cost of transportation and hence is the fundamental determinate so far as the selection of the mode of transport is concerned.

Costly items require more careful handling and carry greater liability on the part of the transports agency But also its transportation cost may be higher.

SIZE OF SHIPMENT :-

Depending upon the size of shipment the cost of transport is determined. The larger is the shipment the lesser is the cost. Transport cost here increase at decreasing rate. This based on the principle that terminal costs are same whether the shipment is for fuller capacity or for part of it.

Distance Covered :-

Transport cost shows variations depending on the distance covered by the shipment but the unit transport cost increase at a lower rate with increase in the distance to be covered. In all the modes of transport it is true. The transport cost remains more or less the same for certain block of distance in all the modes of transport.

Type of transport :-

There is direction relation between speed, transports cost and choice of mode of transport flexibility and serviceability of the from transportation is also directly linked with both the choice as well as cost.

SPEED AT WHICH MATERIALS ARE TO BETRANSPORTED

Speed and time go hand in hand when consigned needs consignment most it must reach in time and delivered to him. Speed may influence the selection of mode as well as determine the out of a greater extent if the goods transported are to reach the destination at its earliest, otherwise, the very

purpose of purchase and consequent shipment may be defeated volume Analysis may have to be resorted to there.

In order to sure a valuable life of patient medicine has to be transported at a much faster speed, preferably by air.

Types of transport :-

Road transport

Railway transport

Water transport

Air transport

ROAD TRANSPORT :-

There are a large number of private transport organisation in the country having a fleet of trucks. The road transport can carry consignment of smaller weights at a lesser cost, if it is compared with other modes.

There are one of the major implements in the innumerable number of octori check posts resulting in considerable delays and uneconomical operation.

Railway :-

In India, The Indian Railways is the chief transportation agency carrying the bulk of goods and packages. The railways charge about half of the rates of the road transport and the gross revenue is about Rs. 50 Million daily. Railways are ideally suited for long distances within the country. Movement of the heavy unit loads, raw materials, coal, steel etc. are more economically handled by the railway.

Water Transport :-

Transport by shipping is generally restarted to in case of imports and is usually the cheaper mode of transport. Moving materials from one port of the country to another part through inland water ways is considered under shipping. This is the cheapest but takes a longer time.

Air Transport :-

Air transportation is the costliest of all modes of transport, but it is the fastest. When the buyer needs the consignment most in time, they are handled by air transport. Food items in flood effective area, medical items, highly corrosive parts and critical items, are the classic examples where air transport has to be used. In this mode an organisation has to pay more transportation charge.

In this research study of Dyeing and Printing industry, the researcher has tried to know about the transportation factors, mode and any reason for production delay by the transportation.

At first, researcher has given an formation about the factors have considered in selection of transport by the sampled unit is under mention table.

TABLE NO 5.7

FACTORS CONSIDERED IN SELECTION OF TRANSPORT

S.No	Type/size of firm	Type of Material Transported	Rates & Discount	Distance & Lead time	Location of Supplier & Unit	Urgency	Safety Punctuality	Payment & terms conditions
1	SMALL	01	02	02	02	00	08	01
2	MEDIUM	00	00	00	02	00	10	00
3	LARGE	02	01	01	02	02	10	02

Types of material transported, rates & discounts, distance & Lead time, location of supplier, unit, urgency safety & punctuality and payment terms & conditions are the main factors which are considered by the unit when select the transport way. Above table show which factors considerately the sampling units. 1 unit of small size considered types of material transported which also considered distance & lead time and safety & punctuality. 2 units saw the rates & discount and 2 units saw distance & lead time, 2 units considered locations of supplier unit and 8 units considered safety & punctuality. Here units become more than 10 because more than one aspect is considered by the unit. In the medium size all the units considered safety & punctuality and 2 of them also saw location of supplier unit. In the large size all the 10 units also considered safety & punctuality, 2 of them also considered type of material transported, 1 of them also saw rates & discounts, 1 of them considered distance & lead time, 2 of 10

units also saw location of supplier units, 2 also considered urgency of material and 2 unit considered payment terms & condition.

In above table researcher has said about the factors considered by the units, further researcher has asked about the selection of mode of transportation Mode of the transportation has preferred by the sampled units of research study is given in following table.

TABLE NO 5.8

MODE OF TRANSPORT PREFERRED

S.No.	Type/size of firm	Road Transport	Railway	Water ways	Air Transport
1	SMALL	10	00	00	00
2	MEDIUM	10	01	00	00
3	LARGE	10	00	04	00

The above table that considered all the units of sample preferred the road transport. Moreover 1 unit of medium size also preferred railways for transportation & 4 units of large size preferred also waterways for transportation of goods.

100 % sampling units have preferred road transport among these 13.33 % units have preferred water ways and only 3.33 % units have preferred railways.

Sometimes, an organisation has maintain their own vehicles for transport materials. Sometimes there are distance between the processing units so they have their own vehicle. In this research study, the researcher has made an attempt to know about the vehicle is owned by them or not is mentioned in below table :-

TABLE NO 5.9

DO YOU OWN HAVE TRANSPORT VEHICLES

S.No.	Type/size of firm	YES	NO
1	SMALL	05	05
2	MEDIUM	09	01
3	LARGE	07	03
4	TOTAL	21	09

Here researcher wants to know about own transport vehicles. The above table gave the information about it 5 units of small size, 9 units of medium size & 7 units of large size have their own transport vehicles to transport materials & goods.

There are 70 % units among the sampled units who have their won vehicles for transport materials.

Placement of order and receipt of material between this time is passed, it is called lead time. In this research study of the dying and printing industry researcher has tried to know about the time passed between the order and receipt of materials, that is described in below table :-

It should be given in chart as follows :-

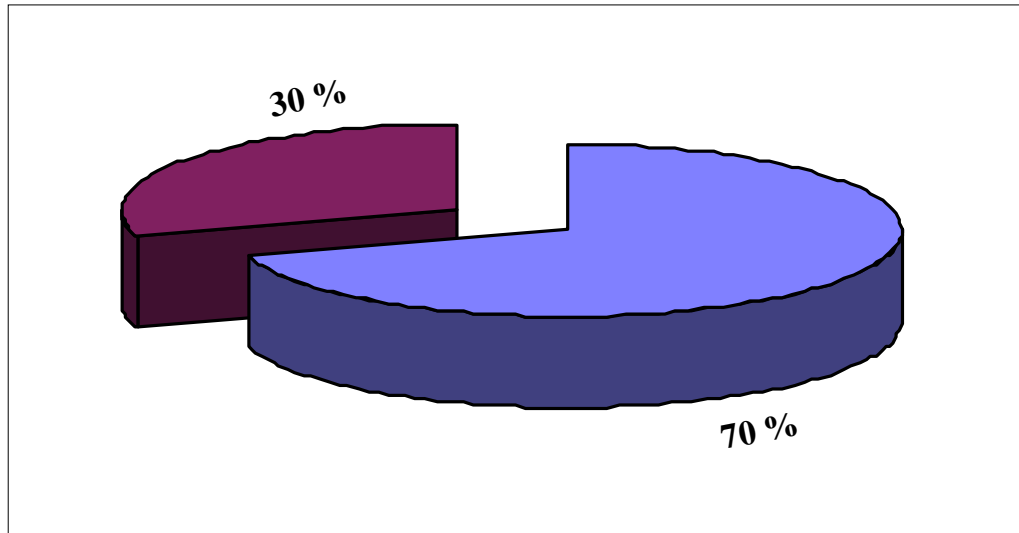


TABLE NO 5.10

LEAD TIME BETWEEN PLACEMENT OF
ORDERS AND ACTUAL RECEIPT OF MATERIALS

S.No.	Type/size of firm	Instant	One week	Two week	1 month & above
1	SMALL	03	03	04	00
2	MEDIUM	01	02	06	01
3	LARGE	02	02	06	00
4	TOTAL	06	07	16	01

The above table, considered about how much time takes between placement of orders and actual receipt of materials. 3 units of small size get the materials instant after placement of order, 3 units get materials after one week & 4 units get materials after two weeks. In the medium size units 1

unit have instant materials after order, 2 units have lead time of one week, 6 units have lead time two weeks & there is 1 month & above in one unit. In the large size 2 units get instant materials after the placement of order, 2 units take one week between placement of order and receipt of order and there are two week go on in 6 units between placement of orders & actual receipt of materials.

Lead time is major consideration of inventory High lead time leads to efficient administrative policy and how lead time express effective method of operation. Further in this study the researcher has tried to find out the cause of lead time. It is listed below :-

TABLE NO 5.11

MAIN REASONS OF DELAY ACCORDING

S.No.	Type/size of firm	Processing Placement	Transit	Inspection	Other factors
1	SMALL	02	06	00	01
2	MEDIUM	01	06	02	01
3	LARGE	01	05	01	01
4	TOTAL	04	17	03	03

In this study researcher asked them about the main reason of delay in actual receipt of materials according to units/ firms 2 units of small size said processing & placement of materials is the main reason of delay, 6 units of small size said transit of materials & according to 1 unit other factors for delay

of materials in transport. One unit of small size didn't give any reason of delay. According to 1 unit processing & placement is the main reason of delay. According to 6 units transit is the main reason, , inspection is the main reason for 2 units & other factors works after delay of materials said 1 unit in the medium size. Processing & placement is the main reason of delay according to 1 unit of large size, transit is the main reason in 5 units, and inspection is the main reason in 1 unit & other factors is the main reason in one unit. 2 unit of large size didn't give any reason of delay of materials.

There are 56.66 % units have affected by the transit in transportation.

Because of delay in transportation production may affected. In this research study in Dyeing and Printing Industry, production has affected by the delayed supply of materials or not it has been tried to know by the researcher. That information is given in following table :-

TABLE NO 5.12
HAS PRODUCTION PROCESS BY AFFECTED
DELAYED SUPPLY OF MATERIALS

S.No.	Type/size of firm	YES	NO
1	SMALL	01	09
2	MEDIUM	01	09
3	LARGE	01	09
4	TOTAL	03	27

Sometimes supply of materials delayed and so production process is affected which is not the main base of this table. In 1 unit of all the types of units is affected but 9 units of all the three types of units has not been affected by delayed supply of materials & production process going on in 27 units of 30 sample units.

There are only 10 % units of sampled units have been affected by delayed supply of materials

CHAPTER 6

HUMAN RESOURCE AND INVENTORY AUDIT

Labour is a major constituent of any productive organisation. An employee or a staff member of any organisation is a social as well as economic entity. It possess different characteristics in different circumstance and in various working conditions. Human behaviour at work place is ever changing, unpredictable and uncontrollable people beings their social and physiological mental trait work place so one can say that social and economical behavioural aspect is not indenspensable character of organisation.

Factory system in early stage dealt only with the physical organisation of the manufacturing unit. So scant attention was paid to labourer staff, its organisation and management. In those early days production was meant for a privileged few. Common man had no place under their production scheme, nor came the worker under their scheme. But now time has changed. This concept went under a sea change. The employers came to realise that it is the worker who is instrumental in the monumental growth and progress is of industries, trade and commerce. Employee has now come to be recognised in the totality of the worker in his work unit. And than idea of personal management arrived.

Personal management is that field of management which has to do with planning, organising and controlling various operative functions of procuring, developing, maintaining and utilizing a labour force in such a way that the (a) objectives for which the company is established are attained economically and effectively (b) objectives of all levels of personnel are served to the highest possible degree, (c) objectives of the community are duly considered and served " Professor Michael Jucius.

" To practical man personnel management means knitting together the personnel working in an organisation into a high potentiality team. To knit a team together and get the best result, there are certain clear-cut process of management which if adopted, will be found very useful. " K. Swarup(Food Corporation)

And -

" Personnel administration is a code of the ways of organising and treating individuals at work so that they will get the greatest possible realisation of their intrinsic abilities, thus attaining maximum efficiency for themselves and their group and thereby giving to the enterprise, of which they are a part, its determining competitive advantage and its optimum result "

- Thomas G. Spates

All of these are narrated in principles of management by Dr. M. M. Varma and R. K. Aggarwal (King books, Educational publishers, Delhi 1999- P.135)

For the better management over the staff and get initial work from them organisation should think about the staff, its appointment, equational qualification of employee, training, motivation, promotion policy for staff.

In the organisation there,

- * Should has a staff function,
- * Should has draw a line of responsibility
- * Should has served all personnel at all levels to the highest possible degree and to realise the instrinsic worth of the employees serving the organization.
- * Should has a process of planning, organising, building a team, executive action and controlling the personnel. With a view to attains maximum efficiency and get best result.
- * Should has a technique of handling men at work and also a point of view to be served and realised.
- * Should has no prepare a way for the realisation of maximum individual satisfaction,
- * Should has an aim to personnel development.

MOTIVATION :-

A method of developing potentiality of employee should be adopted by the firm. So that they can get maximum satisfaction out of their work and give their best efforts to the organisation.

Improvement of job conditions will ensure full commitment of the involved personnel proper procedures and well formulated policies of selection, training, induction, promotion and grievance handling improve the moral of the staff and the quality of working environment. This improvement can also be brought about by financial incentives, productivity, bonus, job rotation, job satisfaction, job enrichment, parity of emoluments for similar jobs, improvement in working condition, non financial incentives, ergonomics, capable leadership etc.

While organisational rewards may or may not be directly correlated with what the knowledge workers perceive as professional achievements employee satisfaction is obtained through the intrinsic quality of work. The objective should be to integrate the human resources effectively in the corporate culture of the organisation. The top management has to play an important role in improving the motivation of its employees. An organisation should have introduced financial stakes for their employees by making them shareholders in order to make them more committed and involved in the work.

Motivation is a hazy concept and difficult to define. In the context of motivation Maslows hierarchy of needs occupies an important place. At the bottom of the scale are the basic needs like food, clothing and home which are met by salaries and permit man to exist in his environment.

The next step is ' safety need '. It covers aspects such as pensions, long contracts, job security, promotion, opportunities etc. ' The sense of belonging ' to a department, team, company, industry, social group or society is the third step in the hierarchy. ' The ego status ' is forth stage, is motivated by a desire for recognition as an individual by means of his significant contributions, particularly new method and knowledge and the final ' self actualisation stage ' is reached when a person is able to integrate personal achievement within the total organisation goal. The best managers are found, as such a person will get the best performance of the team.

PROMOTION POLICIES :-

In organisation, the promotion policies play a crucial role in the sphere of motivation. Promotions can be by merit, cum seniority, or reservation for some job. A well laid out promotion policy is acceptable to most of the peers by means of a well tested appraisal scheme will benefit the company in the long run. In many progressive companies, the principle of self evaluation is being increasingly adopted.

JOB SPECIFICATION :-

In the context of human resource management, matching the man to the job requirements and job to the individual is an important aspect. For this purpose, the job is studied in depth and a job analysis is carried out.

The following parameters established in job specifications :-

- ✂ Title of the post
- ✂ superior to whom the individual has to report,
- ✂ Authority limits,
- ✂ Individuals task,
- ✂ Time constraints,
- ✂ Higher level promotion,
- ✂ Expected educational programme,
- ✂ Expected knowledge and skill,
- ✂ Additional ability
- ✂ Counselling in times of distress
- ✂ Preparing for advanced positions,
- ✂ On the job training,
- ✂ External training.

Recruitment and Legal Specification :-

The significant Government regulations include the following executive orders in India, in the context of human resource management :-

- ★ Apprentice Act 1961
- ★ Contract Labour Regulations and Abolitions Act 1970
- ★ Employees Family Pension Act 1971
- ★ Equal Remuneration Act 1976
- ★ Maternity Benefit Act 1961
- ★ Payment of Bonus Act 1965
- ★ Payment of Gratuity Act 1972
- ★ Interstate immigrant workmen on regulations of movement 1979

- ★ Amendments of Industrial Disputes Act of 1947 etc.
- ★ Restraints in recruitment through employment exchanges and pressures from top management as well as politicians.

Work Measurement :-

Measuring the work content of such job is quite difficult. Methods because performance depends on the individual. A strategy that can be adopted is to undertake a cost-time benefit analysis of the utilisation of such personnel. The deployment of personnel on a permanent basis, for the decision - making and analysis levels, depends on the culture of the organisation. It is describe however, to have a nucleus of personnel as a small care group initially. In some organisation, there is a 5 days a week but some organisation over work officers for long hours on 6 days and by converting and Sunday also as unofficial working day.

Development of personnel :-

Personnel is basic resource of any organisation. Organisation should developed their employees according to their qualification further, they can learn evaluate and think the structure climate and culture of the organisation than they come forward with individual growth strategy and group growth strategy so it is essential for organisation to provide certain environment in the unit. Trading organisations can absorb commerce graduated in the clerical cadre as numerical accounting has to be done. It is very advantageous to take in raw graduates and let them grow with the organisation by providing them with ample training and growth opportunities as this helps in motivation.

Direct recruitment for the decision. Making levels can be post graduates, who have specialised in materials management. Direct recruits at the middle and higher level should not be perceived as an impediment to growth by the storekeeper. There should given an opportunity to compete and if they are fond fit, they should be preferred. .

Training :-

A developing economy requires more professionals efficient manager and skilled personnel. Improvement in skill and professionalisation can be enriched by training individuals. This is particularly significant in respect of material function also

The purpose of the training in materials management should be :-

- ❁ To improve the man on his present job, so that he is up to date on the latest methods, techniques analytical skills and is able to plan his activities.
- ❁ To widen the area of the persons skills, so that he learns not only about his present job, but also about other interrelated functional activities.
- ❁ To tap the potentialities of persons in order, so that they not only perform their jobs better, but are prepared for the next higher jobs as well.

Skilled and trained staff are required to meet the increasing scientific and special technical requirements for supply materials management. The prime need is top level direction aimed at establishing comprehensive programmes and plans that can attract qualified staff into supply work at different levels and functions, by proper policy directives, with adequate executive follow-up action.

An electric approach to the learning technology is needed is the management development programmes. Relevant to purchasing and materials management. For this purpose a variety of pedagogical tools such as lectures, case studies exercises, project works, group discussions role playing, problem solving, computerized demonstration, simulation, unstructured quiz panel discussions group work guided reading programmed instructions, tutorials, field visits to local enterprises and audio visual presentations are available. A judicious blend of these training methods must be recommended after a critical review of the level of participants. The teaching method must also include latest aspects such as video, audio electronic communications from design handling documents duplicating graphics, photographics and micrographic. The methods must enable the participant to learn develop and grow as a professional to understand his contribution in the group and provide opportunity to practice skills including those related to transfer of learning to the departmental setting.

In this research study, the researcher tried to know about the recruitment of employees on the basis about the training facilities, evaluation of employees work and it basis upon about the salary personal qualities expected in the employees, skilled staff, about motivation for the employees in Dyeing and Printing industry of Jetpur city.

The researcher has given the information about the recruitment base of the employees in the Dyeing and Printing industry of Jetpur in under given table

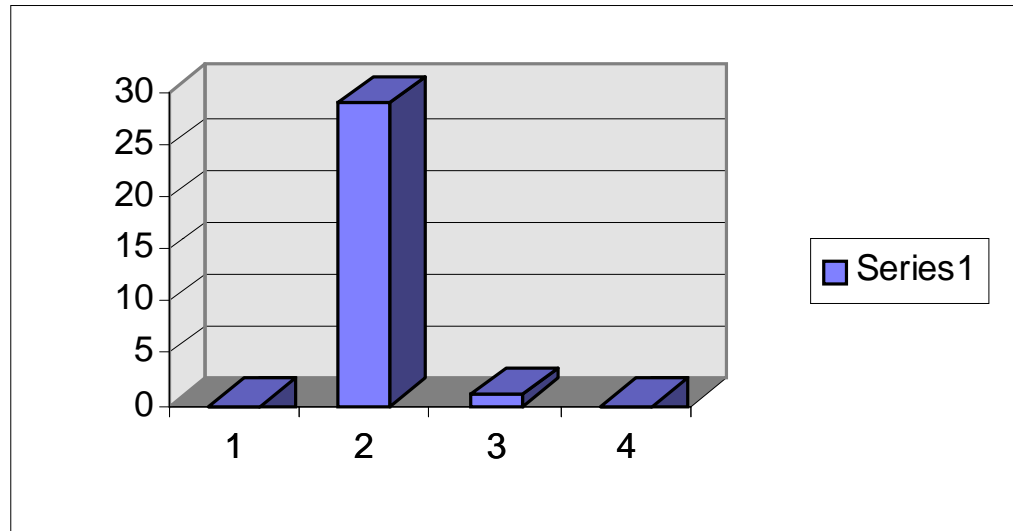
TABLE NO 6.1

RECRUITMENT OF EMPLOYEES OF THE BASIS OF

S.No.	Type/size of firm	Educational Qualification	Experience	Recommendation	Other Basis
1	SMALL	00	10	00	00
2	MEDIUM	00	09	01	00
3	LARGE	00	10	00	00
4	TOTAL	00	29	01	00

Researcher studied about the employees' recruitment. On which basis firms recruit employees is the base of this table. By this table, in small size and large size units all the sampling units recruit employees on the experience basis. In medium size unit there are 9 units who recruit employees on the basis of experience and 1 unit who recruit employees due to recommendation.

It should be mention in graph as under :-



This table explained that educational qualification in neglected by the sampled units. There were 96.66 % units from sampled units where they recruit their employees on the experience base.

Training is essential to develop skill among the employees. In this study the researcher asked about the training. The researcher tried to know whether they impart training to their employees or not is given in under mention table.

TABLE NO 6.2

DO YOU IMPART TRAINING TO YOUR EMPLOYEES

S.No.	Type/size of firm	YES	NO
1	SMALL	08	01
2	MEDIUM	07	03
3	LARGE	07	02
4	TOTAL	22	06

From the above table it is mentioned that if they impart training to their employees or not. In the small scale there are 8 units who impart training to their employees and 1 unit do not impart training and 1 unit do not answered of this questions. In the medium size of firms there are 7 units who give training to their employees and 3 do not impar training to their employees. There are 7 units where taring are obtaing to their employees in the large size of firms and 2 units did not impart training and 1 unit did not give any answer of this question.

Among the 30 units there were 73.33 % units who have imparted training to their employees.

Further the research has made an attempt to know about the training method in Dyeing and Printing industry of Jetpur. The researcher has asked that how do they impart training to their employees is narrated below :-

TABLE NO 6.3

HOW DO YOU IMPART TRAINING TO YOUR EMPLOYEES

S.No.	Type/size of firm	On the Job Training	Classroom Training	Job Rotation Training	Self Training
1	SMALL	08	00	00	00
2	MEDIUM	07	00	00	00
3	LARGE	07	00	01	01

22 units out 30 units of sample give the training to their employees. With the help of above table, reveals the information about how do they impart training to their employees. All the 8 units of small size believed in on the job training and they impart job training to their employees. 2 units of small size do not give training to their employees. Also in the medium size of firms 7 units who give training to their employees give job training to their employees. 7 units of large size give job training and 1 of them also give job rotation training and one of them give self training to their employees. In the large size unit there are 7 units who impart training to their employees. And they impart training on the job, by job rotation and self training.

There should have an evaluation for the performance of employees in the industry. The researcher tried to know that in this industry are the sampled units evaluate the performance of their employees. That given in below table.

TABLE NO 6.4

DO YOU EVALUATE PERFORMANCES OF EMPLOYEES

S.No.	Type/size of firm	YES	NO
1	SMALL	09	01
2	MEDIUM	10	00
3	LARGE	10	00
4	TOTAL	29	01

The entire business firm should have to evaluate performance of their employees. Here researcher wanted to know that if the firms of study area evaluate performance of their employees or not. Form the above table, it reveals that in the small size of firms 9 units evaluate performance and 1 do not evaluate performance of employees. In the medium, size and large size of sampling units all the units evaluate performance of employees.

There were 96.66 % units evaluate the performance of their employees in this research study.

Further the researcher made an attempt to know about the basis of evaluation. The researcher has given this in the under given table.

It is given in chart as under :-

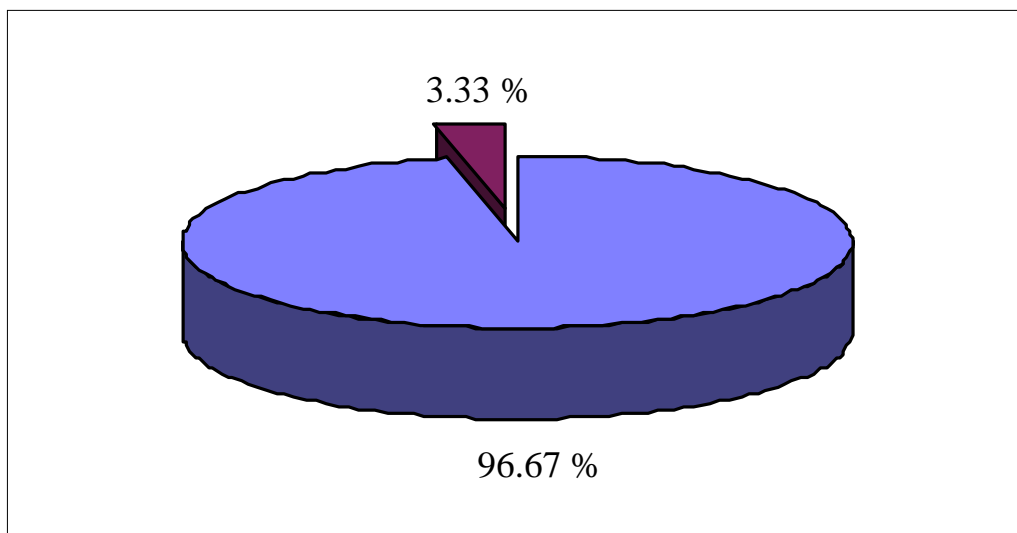


TABLE NO 6.5

WHAT ARE THE BASIS OF EVALUATION

S.No.	Type/size of firm	Quality ofwork	Quality ofwork	Reliability	Productivity	Accuracy	All
1	SMALL	05	01	02	00	01	04
2	MEDIUM	06	02	01	00	02	03
3	LARGE	05	01	02	00	02	04

29 units out of 30 units evaluate the performance of their employees. There are the basis of evaluation which researcher show in the above table. 5 units of small size believed in the quality of work and 1 unit encourage quantity of work, 2 units of them evaluate on reliability, 1 unit of them evaluate on accuracy and 4 units who believed in all this basis for evaluate the employees. So the figure becomes more than 10 units. Medium size units there are 6 units where the quality of work is the basis of evaluation, in the 2 units quantity of work is the basis, in the 1 unit reliability is the basis, in the 2 units accuracy is the basis and 3 units of sample where all this options are basis of evaluation figure becomes more than 10 units because there is 1 unit where quality, quantity, reliability and accuracy are the basis and there are units where quality and quantity of work are the basis of evaluation. In the large size of sample quality of work is the basis in the 5 units, quantity of work is the basis in 1 unit, reliability is the basis in 2 units accuracy is the basis in the 2 units and 4 units have all

the basis of evaluation. These figures occurred because there is 1 unit which have quality and quantity is the basis of evaluation, in 1 unit reliability and accuracy are the basis, in one unit quality, reliability and accuracy are the basis of evaluation.

In this research study the researcher wanted to know that correlation of performance with salary or not. About this following table has been given as under.

TABLE NO 6.6

DO YOU CORRELATE PERFORMANCE WITH SALARY

S.No.	Type/size of firm	YES	NO
1	SMALL	10	00
2	MEDIUM	09	01
3	LARGE	09	01
4	TOTAL	28	02

In the above table researcher tried to know if they correlate the performance with salary. In the small size of firm all the units correlate performance with salary. In the medium and large size of unit 9 units correlate performance with salary and 1 unit of them do not correlate performance with salary.

In the organisation there should have practise of team spirit among the employees for the better result with the team spirit employees should do better work for the organisation.

In this research study in the Dyeing and Printing industry of Jetpur city the researcher tried to know that they believed in team spirit or not. This is given in under mention table :-

TABLE NO 6.7

DO YOU BELIEVE IN THE TEAM SPIRIT AMONG
EMPLOYEES

S.No.	Type/size of firm	YES	NO
1	SMALL	09	01
2	MEDIUM	10	00
3	LARGE	09	00
4	TOTAL	28	01

Here researcher wanted to know that are they believe in team spirit among employees. Above table show the answer of this. 9 units of small size believed in team spirit and 1 unit did not believe in team spirit. All 10 units of medium size believed in team spirit among employees. They believed that there must be team spirit among employees. In the large size of units one unit did not give any answer of it and 9 unit believed in team spirit among employees.

Which qualities are expected in the employees by selected units of Dyeing and Printing industry of Jetpur city has been asked by the researcher. It is narrated in below table.

TABLE NO 6.8

PERSONAL QUALITIES THAT YOU LOOK FOR IN YOUR
EMPLOYEES

S.No.	Type/size of firm	Reliability	Dependability	Leadership quality	Integrity & cooperation	courage
1	SMALL	09	01	01	04	02
2	MEDIUM	09	00	01	03	00
3	LARGE	10	01	00	03	00

Reliability, dependability, leadership quality, integrity & cooperation and courage are the personal qualities that firm owner look for in their employees. Here above table show how many firms look for these personal qualities in their employees. In the small size 9 out of 10 believed in reliability, 1 of them looked for dependability, 1 of them believed in leadership quality, 4 out of 10 looked for integrity & cooperation and 2 of them believed in courage for in their employees. Some units believed in 2 or more qualities in their employees In the medium size 9 units looked for reliability, 1 unit looked for leadership quality in employees and 3 of them believed in integrity & cooperation. Here also more than one qualities are accepted by the owner of the firms. In the large size all the units of sample looked for reliability in their employees more than 1 unit believed in dependability, 3 of them looked for integrity & cooperation and 1 of them believed in courage in their employees.

Skilled employees is proved as an assets for the organisation. Among the sampled units there are 16 units where have a computer in accounting process in their firms. The researcher wanted to know that they have skilled computer operator in their firm or not It is described in following table.

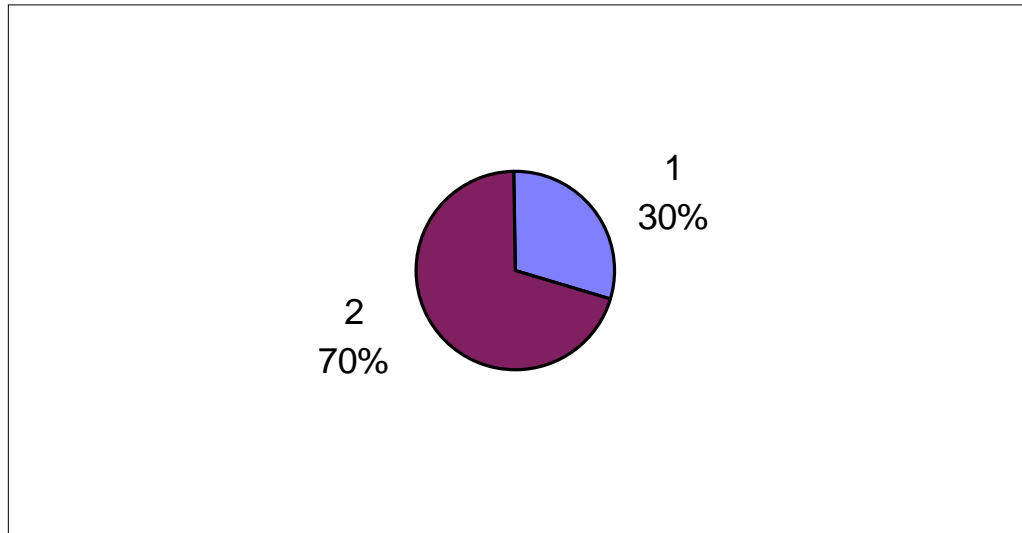
TABLE NO 6.9

DO YOU HAVE SKILLED COMPUTER OPERATOR

S.No.	Type/size of firm	YES	NO
1	SMALL	01	09
2	MEDIUM	01	09
3	LARGE	07	03
4	TOTAL	09	21

16 units out of 30 units used computer in accounting process in their firms. Above table give the information about the skilled computer operator in the firms. There is 1 unit which have skilled computer operator, in the medium size there is also 1 unit which have skilled computer operator. And the large size 7 units have skilled computer operator in their firms. 9 units of 16 units have skilled computer operator in their firms.

The researcher has given a chart us under :-



To get better result for the units there should give motivation to the employees. In this research study the researcher made an attempt to know that how do they motivate their employees. And it is given under mention table.

TABLE NO 6.10

HOW DO YOU MOTIVATE YOUR EMPLOYEES

S.No.	Type/size of firm	Increase in salary	Promotion Policy	Personal Attention/ Appreciation	Adequate Training	Any other Method
1	SMALL	10	00	03	00	01
2	MEDIUM	08	00	03	00	00
3	LARGE	08	01	07	00	00

By which method they motivate their employees it is the object of this table. In the small size all the unit motivate their employees by increasing the salary. 3 units of them also gave personal attention or appreciation and 1 of them also used other method to motive their employees. In the medium size 8 units by increasing salary and motivate their employees and 2 and 1 of 8 units give personal attention or appreciation. In the large size of units there are 8 units who increase the salary and 1 unit used promotion policy for motivate employees. This unit and 5 of 8 units and other 1 unit gave personal attention or appreciation 7 units motivate their employees by personal attention & appreciation.

INVENTORY AUDIT :-

Audit means to examine the financial and performance statement depict the true statement.

The words audit has been derived form the Latin word AUDIRE which means to hear.

TYPES OF AUDIT :-

In order to ensure that the financial and performance statement is draw the true state auditing of accounts and transactions becomes a necessity. Now the auditor is a qualified executive or consultant who has specialised skills and judgment in examining the financial statements and the facts based on which such statements are made by the auditor.

Whether auditor is an internal agents or external agent. Employed on a statutory or government basis carries a great responsibility on his shoulders. The auditor certifies about the transactions are valid and that the decisions are unbiased honest and were taken in the best interest of the company. He has to ascertain the reliability of the records which kept in the organisation and has to ascertain the validity of the basis of valuation and the propriety of the decisions taken in overall hierarchical structure of the organisation.

The audit function is concerned with the evaluation of performance, including non financial areas ensuring internal controls on efficient and effective appraising of the decision making process. For the evaluation of the corporate business performance different type of audit are required.

In the organisation, the materials manager are made responsible to hold and control not only raw materials, spares and other items which go to run the production unit and the organisation as a whole, but they are required to hold and control total inventory including finished goods, work in progress and obsolete items. These items accounts for 90 percent of the working capital. Inventory is also the single largest assets in many organisation. Hence the auditors are interested in the materials transactions.

Audit department should check the quantity, value and control of the semi finished work in progress inventory, which could be sizeable and lying in the shop floor for many months in assembly oriented engineering industries. There is need for the auditor to thoroughly examine the status of control of the semi finished work in progress inventory because sometimes, included in unexpectedly ready-to-despatch material, lying in the shop floor is might be semi finished goods and so the value added may be tremendous.

Type of Audit :-

- ✓ Financial Audit
- ✓ Operations Audit
- ✓ Management Audit
- ✓ Performance Audit
- ✓ Propriety Audit
- ✓ Cost Audit
- ✓ Internal Audit
- ✓ Social Audit
- ✓ C & AG Audit
- ✓ EDP Audit
- ✓ Safety Audit
- ✓ Security Audit
- ✓ Compliance Audit
- ✓ Efficiency Audit
- ✓ Effectiveness Audit

These all are the types of audit functions in the organisation.

AUDIT IN MATERIALS :-

The audit function will be of no avail, if it is performed merely as a postmortem to check the regularity of the transaction and to see that they have had the sanction of the competent authority such an exercise invariably ends up as a fault finding one and is dysfunctional to the extent that it introduces rancour and ill feeling between the auditor and the audited.

Audit checklist includes gathering information through interviews, developing audit questionnaire, developing audit findings based on the questionnaire oral recommendations for improvement discussion with the managers and preparation of the audit management report. Audit should be an appraisal oriented function and delve more thoroughly on efficiency and propriety criteria than mere checking of vouchers and signatures, to prevent negative consequences.

Materials Audit should be audited on the basis of the following points :-

- ✓ Materials functions has served effectively to the consumers
- ✓ The service level has been within the investment constraints
- ✓ The losses have minimised in storage
- ✓ Obsolescence has been controlled or not

- ✓ The purchase intelligence has been effectively used or not.
- ✓ The available manpower has been deployed fruitfully
- ✓ The flow of the paperwork system.
- ✓ Accurate the objective information
- ✓ Achieving the objective of materials function
- ✓ The achieved value of the cost carrying inventory.
- ✓ Extravagant expenditure in materials department
- ✓ Application of make buy lease
- ✓ All aspects have been properly accounted for.
- ✓ All expenditure shown in the accounts is duly authorised by competent authority.
- ✓ All expenditure has actually been incurred as seen from supporting vouchers and documents
- ✓ Prima facie there are no misappropriations or embezzlement.
- ✓ All receipts and expenditure are accounted for under the correct heads.
- ✓ They have been properly allocated between capital and revenue accounts.
- ✓ The appropriation and conventions are in accordance with the laws and conventions.
- ✓ The accounts give a true and fair picture of the state of affairs in the company.
- ✓ The value of money spent has been realised by the firm.

- ✓ Avoidable delays in constructions or operation have been omitted.
- ✓ Extravagant expenditure has not been incurred.
- ✓ Purchasing management is sufficiently qualified to meet only the short term goals, but also the long term benefits of the company.
- ✓ Purchase follows sound policy on source development, vendor rating, right price right contracts and right quality at right time in order to maintain optimum inventory levels.
- ✓ Clear cut policy manuals outlining procedures exist for purchasing warehousing inventory control, cost reduction and working capital management.

Audit in material management involves a lot of hard work, often unrewarding, but occasionally heart warming.

In the Dyeing and Printing industry of Jetpur city the researcher tried to know about the audit of stores account and audit of the firm. The researcher asked them that they are auditing firm regularly or not In this research study how many units among the sampled units audited their firms is described in below table

TABLE NO 6.11
REGULAR AUDIT OF THE FIRM

S.No.	Type/size of firm	YES	NO
1	SMALL	08	02
2	MEDIUM	08	02
3	LARGE	10	00
4	TOTAL	26	04

The researcher wanted to know about the regular audit of the firm in the above table. 8 units of small size & medium size and all the sampling units (10 units) of large size audited the firm regularly. All the units of large size and 16 units of small & medium size units and total 26 units form 30 units audited the firm regularly.

Among the 30 units of sampled 86.66 % units auditing the firm regularly.

The researcher further asked about the external audit and internal audit The researcher wanted to know that they are auditing the firm by external source or internal source, in the 26 units who are auditing their firm regularly is given below :-

TABLE NO 6.12

AUDIT CONDUCTED BY

S.No.	Type/size of firm	External Source	Internal Source
1	SMALL	06	02
2	MEDIUM	08	00
3	LARGE	08	02
4	TOTAL	22	04

To searching the above table that 6 units of small size auditing the firm by the external source & 2 units auditing the firm by the internal sources. 2 units of small don't audit the firms in the medium All the 8 units who are auditing regularly audited from external sources. In the large size audit is conducted by the external sources in 8 units & audit is conducted by internal sources in 2 units

There are 22 units where audit is conducted by external source. Further the researcher tried to know that among these how many units are auditing stores account by any audit firm. This is described in below mention table.

TABLE NO 6.13

DO YOU AUDIT YOUR STORES ACCOUNT
BY ANY AUDIT FIRM

S.No.	Type/size of firm	Yes	No
1	SMALL	02	08
2	MEDIUM	03	07
3	LARGE	01	09
4	TOTAL	06	24

The researcher wanted to know that if they audit their stores account by any audit firm. Above table shows the position. 2 units of small size, 3 units of medium size & 1 units of large size audited their store account by any audit firm.

There were only 6 units where they are auditing their stores account by any audit firm. It means only 20 % units among the sampled units who audited stores account by any audit firm.

A certified audit copies of stock should have kept by the firm. In this research study, in the Dyeing and Printing industry of Jetpur, the sampled units, has kept certified audit copies of stock or not is the aim of the researcher to know by the given table.

It should be given in chart as follow :-

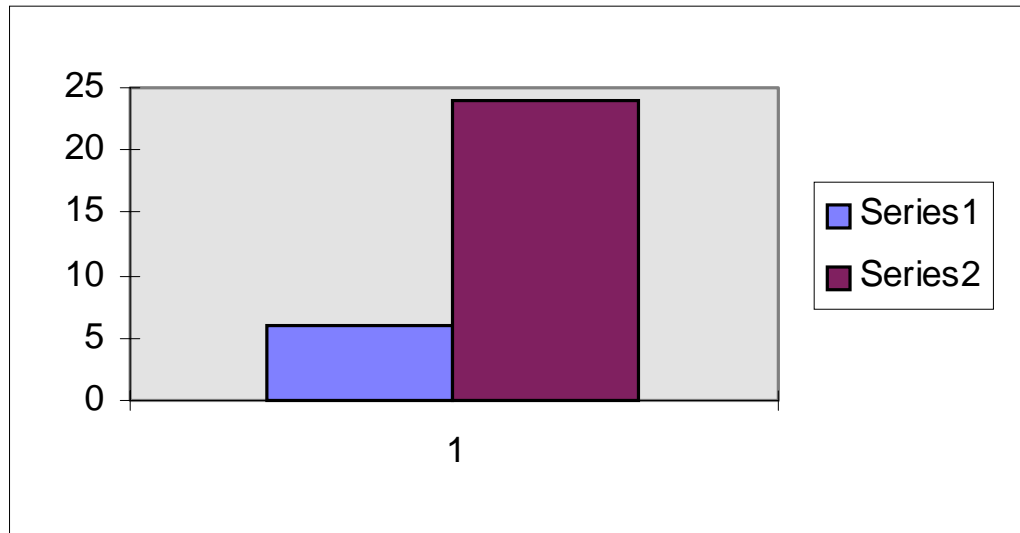


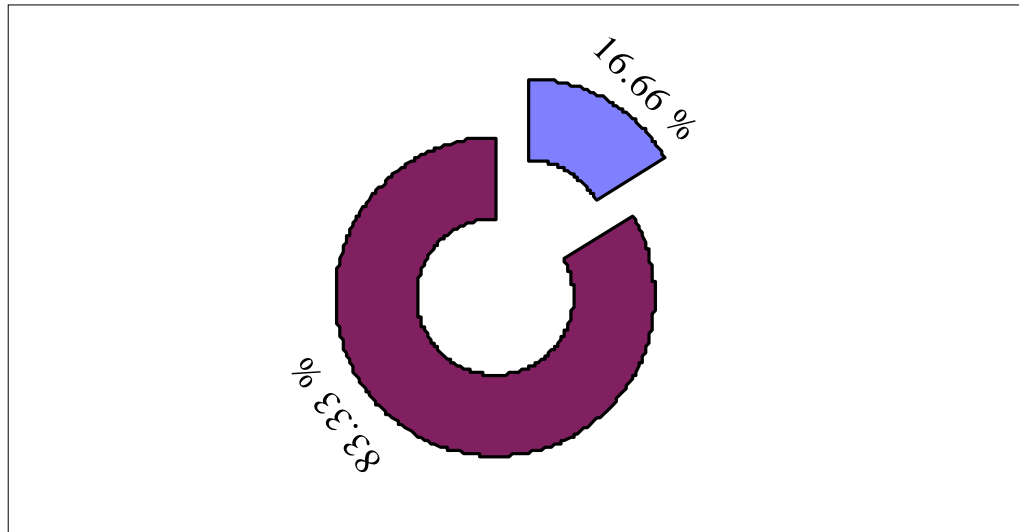
TABLE NO 6.14

DO YOU KEEP CERTIFIED AUDIT COPIES OF STOCK

S.No.	Type/size of firm	Yes	No
1	SMALL	02	08
2	MEDIUM	02	08
3	LARGE	01	09
4	TOTAL	05	25

Above table reveals the information about the certified audit copies of stock are kept by unit or not. In search, 2 units of small size, 2 units of medium size & 1 unit of large size keep certified audit copies of stock in their firms.

Only 20 % units are auditing stores account by any audit firm. And only 5 units keep certified audit copies of stock. It manes 16.66 % units keep certified audit copies of stock. The researcher has made an attempt to give it in chart as under :-



CHAPTER - 7

FINDING AND CONCLUSION

Material Management is important area of any organisation. Effective and efficient operation of materials management leads to words. Cost reduction and profit maximising of firm. The location and layout, levels of inventory, control of inventory, terminating for the staff for inventory mechanism. Effective purchase and procurement procedures, packing and transportation, management of scrap and waste and audit of the firm are related areas of materials management.

Dyeing and Printing industry is basic core sector of Indian economy and specifically for the Gujarat also. Dyeing and Printing industry play its important role by providing ample core for the employment and growth of social structure. The researcher has selected a research topic of " AN ANALYTICAL STUDY ON THE SYSTEM AND METHOD OF MATERIAL MANAGEMENT IN THE DYEING & PRINTING INDUSTRY OF JETPUR CITY "

The Jetpur city is a Taluka place and economically developed area. This dyeing and printing industry is a major area of operations of Jetpur city The researcher has conducted this study with 30 units consist 10 small 10 medium and 10 large scale sector. The year of establishment of sample unit range between 1948 to 1996. 16 units run with sole trader and 14 units were run by partnership firm. The number of employees

working with these units were 8 to 100 in a sampled units. The area of units in square feet is 800 minimum and 54000 sq. feet is maximum. Out of the sample units, 21 units have their 1 to 2 sister concern for their area of work. Out of 30 units, 8 units have been possessing their own processing and printing mechanism and 22 units depends on job work with the contracts. 1 For the marketing purpose 4 units have their local or regional markets, 19 units have a national market area and 7 units have international market area. These unit contributing in a export also by their product. Small and medium scale industries were contributing very low in exports and large units contribution in a exports is remarkable with Saris, Khangas, Bhandhani and dress materials.

2 All 30 sample units have their store departments. Out of 30 units 29 sampled units have own store and 1 unit have rented store room and 28 units of sample have single store room and 2 units have separately located store room. 14 units have 0 to 1000 square feet 10 units have 1000 to 2000 square feet 3 units have 2000 to 3000 square feet area allocated for store department or space available for the stores. All the respondent unit express their view that they have enough store capacity. The distance between store and production unit range between 5 meters to 50 meters.

All Sampled units were agreed that they have permanent structure of store.

The materials stored in the storehouse by all the sampled units are difference. Grey cloth, bleach cloth, colour and chemical, wax, PVC finished product etc. Were different types of raw material stored by the sample units.

Racks, measuring instruments, handling equipment and safe enclosers are required facilities for the store for the racks out of 9 small units have 10 racks 10 medium units have 10 racks and the large sample 8 units have 10 racks, 1 unit have 20 racks and 1 units have 30 racks in stores. All sampled units agreed for measuring instruments and 9 small units, 10 medium units and 8 large units were having handling equipment. Safe enclosers were available in only 3 units. Their inflammamatory materials were stored by 18 units inside the store and 12 units didn't store such material in the store In case of chance of accident 13 units express their agreement for chances of accident and 17 unit denied the chance of accident.

For the reaction for accident in the store, 6 small units, 8 medium units and 10 large units agreed that they have taken prompt action after the accident.

For the safety 7 small units, 9 medium and 7 large units agreed for provision of safety articles while 3 small units, 1 medium and 3 large units have expressed their disagreement for the need of safety articles.



Store keepers :-

With a Reference to official appointment of employees for store of sampled units out of 30, 11 units have required official for store while 19 units have not appoint any official for the store. Further only 2 units have appointed qualified store managers for the work, beside 28 units do not have any qualified staff


✓ Receiving of Materials :-

In all the types of firm there were 3 units where stores materials were received from the suppliers, materials were received by local dealers in the 9 units of small size, 7 units of medium and large. From transport office materials were received in 6 units of small size, 4 units of medium size and 8 units of large size. There were many kinds of materials used in the process and stored in the store room so some materials received from supplier and some received from transport office or local dealers.

When materials received in stores the quality of materials is ensured by owner in 9 units of small and medium and 7 units of large size. Stores manager ensured materials in 1 unit of medium and large size and other authority ensured in 1 unit of small size and 2 units of large size units. Out of 30 units there were 25 units were owner ensured material and only 2 units where stores manager ensured quality of in coming materials

 **Quality Assurance aspects :-**

All the 30 units of sample verified the quality quantity and product specification.

 **Rejection of Materials :-**

9 units of small and 1 medium and all the 10 units of large size of sample returned the materials to the suppliers which were rejected

For supply of material to production out of 30 in 22 units material was supplied by owners and in 2 units material was supplied by stored manager. 6 other authority supplied the material.

 **Requesting Letter :-**

Among the 10 units of each type of firm in each of size there were 9 units where requisition letter is required to acquire goods from store and all the 9 units of small and medium size and 8 units of large size verified the goods with requisition letter.

 **Verification Method :-**

There were 3 units of small size, 1 unit of medium size and 9 units of large size who verified their stock monthly 3 of small and 5 of medium had adopted quarterly verification system, 3 of small type and 3 of medium type verified half yearly and 1 unit of all three size were yearly periodic interval adopted for stock verification out of 30 units 13 units were aware for their stock in store.

 **Supply Method** :-

For the supply of materials from stores to production unit 9 units of small and medium and 5 units of large size adopted FIFO method and 4 units of large size accepted weighted mean method and 1 unit of each size adopted random method for supply of materials 23 units out of 30 units accepted FIFO method for the issue of materials.

 **System for Level of Inventory** :-

There were 2 units of small size and 1 units of medium size where they kept stock to meet immediate requirement, 6 units of small and large size and 8 units of medium size who kept one month inventory in their store and there were 2 units of small size, 1 units of medium and 4 units of large size. where they kept three months inventory in their store. No one units was there among the sample where they kept six month or one year inventory. In this stock quantity of stock and value of stock are the terms of maintaining inventory level there were 2 units of medium and 4 units of large size maintained inventory level in terms of quantity of stock, 2 units of small scale and 1 unit of each medium and large kept inventory in terms of value and there were also units among the sample like 8 units of small size 7 units of medium and 5 units of large size who maintain inventory level in both terms value and quantity of stock Among the 30 units there were total 20 units were they maintain the level of inventory in terms of quantity and value.

 **Insurance** :-

For the safety of financial purpose all the 30 units of sample made provision for insurance of stock in their store room.

 **Inventory** :-

Finished goods level in store was not so much there 1 unit of small scale kept only one week inventory, 1 unit of small and 2 units of large kept two week finished goods level and 1 unit of small and 2 units of large maintained one month inventory level. Zero inventory of finished goods were in 8 units of small 9 units of medium and 4 units of large size units. It means more of the sample units did not take risk for finished goods and did not invest working capital in finished goods.

 **Accounting** :-

For accounting purpose and minimise the paper work 1 units of small scale, 8 units of medium size and 7 units of large size used computer in accounting process. 16 of sampled units used computer in accounting process.

 **Packaging** :-

For purpose of packing of finished goods there was 1 units of small scale kept only to meet immediate requirement, 6 units of small and large and 7 units of medium maintained one month inventory of packing materials, 3 units of small and medium and 4 units of large size kept inventory level of three months. No one units of the sampled units where they maintained six month nor one yearly inventory of packaging

materials. All the units of sampled agreed for the skilled persons for packaging and they had skilled employees since of the package seen by 3 units of small, 1 unit of medium and 4 units of large size, 4 units of small and large 1 unit of medium seen weight of package quality of package accepted by 7 units of small. 5 units of medium and 9 units of large size. Also 3 units of small, 5 units of medium and 7 units of large size were aspect of packing emphasised upon quality of preservation, and cost of packing also seen by 1 unit of small and 3 units of large size of sampling units. Quality of Package and quality of preservation was more accepted by the units than others. For the cure labelling was done by all the units of small and large and 8 units of medium not only one aspect accepted so 8 units of both small and large and 7 units of medium marked package number and quantity on package despatched date done by 3 units of small 2 units of medium and 4 units of large among the sampled units and also special instruction given by 2 units of small and medium also.



PURCHASING ASPECTS :-

For the purchasing of raw materials 3 units of small scale and 2 units of large size decided to purchase only to meet immediate requirement 6 units of small scale 1 units of medium and 2 units of large size decided to purchase material where price became low and 6 units of small and large and 9

units of medium purchase after detainment exact requirements. For the purchasing of materials they got information from trade journal supplier catalogue visit of sales personnel and trade exhibits. 3 units of small and 1 unit of medium and large used trade journal. 3 units of small and large and 2 units of medium sized got from supplier catalogue. 8 units of small 7 units of medium scale and 6 units of large size also got information when sales personnel visited them and also there was 1 unit medium and large interested for trade exhibits.

Quantity of purchase materials they decided on specific market condition in 9 unit of small and large and all the 10 units of medium size and 1 unit of small and large decided by the supplier 1 unit of small size budgeted also and decided for the quantity.

 **Suppliers aspects :-**

For the 5 units of small type 2 units of medium and 3 units of large size suppliers located in local market location of suppliers for 3 units of small 1 unit of medium and 2 units of large were outside specific market and 5 units of small, 7 units of medium and 6 units of large had no any such location. Sometimes bought from local or from outside suppliers and they all were not depended only on regular suppliers but reacted as per situation while negotiate with suppliers. More of them give first performance to quality and quantity, who gave assurance of supply 5 units of small size, 4 units of medium

and 6 units of large size selected that suppliers. And honesty and integrity saw by 7 units of small size, 6 units of medium and 9 units of large size. Also other aspects like sized and capacity of supplier, pricing mechanism and credit facilities were considered while selecting of right suppliers.

1 unit of small and 4 units of medium and large depended solely on local suppliers and for the alternative arrangement for the raw materials 2 units of large size maintained buffer stock 8, units of small scale 5 units of medium scale and 2 units of large scale had outsider suppliers and 3 units of small and large and 1 unit of medium scale also maintained good report with other local suppliers.

Out of 30 sampled units 8, units of small scale 10 units of medium size and 7 units of large scale considered the quality of raw materials while pricing raw materials and reputation of supplier considered by 4 units of small and medium and 6 units of large scale past experienced of payment terms assurance of supply and buyer seller relation also considered more and less by some units of sampled units.

💰 Payment Mode :-

Payment of received good was made by owner in 9 units of small and large and all the 10 units of medium size among the 30 sampled units and there was 1-1 units of small and large were finance department made the payment. All the sampled units preferred cheque payment but some times they had paid by cash by draft or through bank.

 **Transportation charge :-**

Transportation charges born by owner in all the sampled units of small size 8 units of medium and 9 units of large size and suppliers borne it in 2 units of medium and 1 unit of large size and for the incoming materials local taxes or octroi paid by owner in 7 units of small and 8 units of medium and large size there were 2 units in all the size where suppliers paid taxes and transport agency paid it in 1 unit of small size and also sometimes in medium size unit.

 **Communication with Suppliers :-**

For the communicate with the suppliers all the sample units preferred telephone system. Some times they used fax / telex, postal service and courier service to communicate the supplier. 1 unit of medium and 6 units of large size adopted fax / telex, 2 units of small and large size adopted postal service and 5 units of small, 1 unit of medium and 2 units of large size adopted courier sometimes.

 **Evaluation of Suppliers :-**

All the sample units evaluated the performance of their supplier and in 8 units of all the three type who evaluated continue and 1 unit of medium size evaluated at the end of year and 2 units from small and large and 1 unit of medium size evaluated when something done wrong for evaluation, they adopted their experience with supplier and judgment in 8 units of small-scale, 6 units of medium scale and 5 units of large scale, 1 unit of small and 3 units of medium size evaluated by

supplier records and reputation. And supply and quality assurance adopted by 2 units of small and medium and 5 units of large size.

✳️ **Credit Relation** :-

To maintain cordial relation with the suppliers the sample units took steps like treat cordially, arranged periodic meeting, arranged prompt payment of accounts, enquired about the problems, provided technical or financial help etc. Out of 30 units 5 units of small 2, units of medium and 3 units of large size treated cordially, 7 units of small, 6 units of medium and 5 units of large size arranged periodic meeting, 4 units of small, 2 units of medium and 7 units of large size made prompt payment, 1 unit of small and medium and 3 units of large size inquired about their problem and 2 units of small and 1 unit of medium and large provided financial or technical help also. They took more than one step to maintain cordial relation with supplier.

Among the 30 units, 2 units of small size were supplier born losses which were done due to late delivery, transport agency born it 1 unit of medium size and owner born the losses in 7 units of small, 9 units of medium and all the 10 units of large size.

🚚 **Material handling Equipment** :-

Labourers Rekdi, trolleys and other equipment were there for the handling of materials in stores department in this study. Among the 30 units, 23 units had workmen / labourers, 18 units used trolley or Rekdi and 5 units used other equipment.

Among these 5 units of small scale, 6 units of medium scale and 3 units of large scale accepted workmen at the efficient handling equipment. Rekdi or trolley were efficient for 3 units of medium and 4 units of large size and other equipment were efficient for 2 units of small and 1 unit of large size units.

Among the 30 units 26 units were there problem of scrap and waste arised by leakages, pilferage waste and scrape, handling losses and by others. In all the 30 units losses due to leakage 1.2 % pilfering 0.13 % waste and scrape 0.49 % through handling 0.35 % and by others 0.11 % in the sampled units. Among the 30 units, 4 units reused waste and scrap, 2 units returned to supplier, 10 units sold to customer or employees and 22 units sold to vendors. In this which materials were in position to sell off they disposed by this method and when they disposed out of 30 units, 2 units disposed by auction, 2 units destroyed materials and 28 units accepted other methods.

Selection of Transport :-

In selection of transport type of material rates and discount ,distance and lead time location of supplier and units, urgency safety and punctuality and payment terms and conditions were the factors were considered by the sampled units. Among the 30 units 28 units preferred safety and punctuality first for the selection of transport Mode of road transport was preferred by all the sample units In the medium

size 1 unit preferred railway and 4 units of large size preferred waterways sometimes. Also there 21 units who had their own transport vehicles, 6 units of sample units got materials instant after order, 7 units got within a one week 16 units received within a two weeks, and 1 unit belonged to medium size received within 1 month above.

Among the 30 units, 4 units had a main reason for delay was procurement and placement, in 17 units by the transit inspection was the reason, in 3 units and other factors responsible for delay in 3 units and production process affected only in 3 units among the 30 units.

 **Recruitment in store :-**

Among the 30 units, 29 units recruited employees on experience base and 1 unit recruited by recommendation and among those 22 units said they impart training to their employees and these 22 units impart training on the job training method and also 1 unit of large size imparted job rotation and 1 unit of large size imparted self training to their employees.

29 units of the research study said they evaluated the performance of their employees.

Quality of work quantity of work reliability productivity. Accuracy and all are the factors for evaluation of employees. Among the 30 units, 16 units weighted on quality

of work, 11 units had accepted all aspect for evaluation 4 units saw quantity of work reliability had been seen by 4 units and 5 units also accepted accuracy as a basis of evaluation. Among these 30 units, 28 units declared that they correlated performance with salary. Among these 10 units of small size, 9 units of medium and large size also all these 28 units believe in team spirit and they meant team is necessary among the employs.

Reliability, dependability, leadership, integrity and cooperation and courage are the personal qualities that sampled units looked for in their employees. Among the 30 units, 28 units looked for ability of employees. Other aspects also accepted in the employees more and less. 2 units looked for dependability, 2 units wanted leadership among the employees also, 10 units saw integrity and cooperation and courage is accepted by 2 units among the sample units.

There were only 9 units among the 30 units who had skilled computer operator.

For the motivate of employees 26 units motivated by increasing in salary, 1 unit adopted promotion policy and 1 unit accepted other method, 10 units of sample also gave personal attention to their employs and appreciated them.

 **Audit** :-

Among the 30 units, 26 units said they audited their firm regularly and 22 units of them conducted audit by external sources and from these 6 units audited their stores account by any audit firm and only 5 units of them kept certified audit copies of stock in their firms.











SCOPE FOR THE IMPROVEMENT :-










- * Dyeing and Printing industry needs large space for the store According to the research the store space available in this industry is limited so it needs to improve Further material stored in the sampled units are liquid and chemical which needs separate arrangement.
- * Safety in enclosures is available in only 3 units and they are storing the flammability material in the store so they should change the attitude in such aspects besides this 17 units holders refused the change of accident in the process so they should restructure the mental set up for the safety and security of workers and equipment.
- * Store functions can reduce the cost of total production for that knowledge and professional manager is essential only 2 units have recruited a person in this regard 28 units should restructure the personal policy of appointment of store manager.










- * Perhaps all the sample units where systematically procedures for checking of quality quantity by scientific method but for small sector there is a scope further improvement.
- * Stock verification with the periodic inventories was systematic with the large sample but medium and small units policies are different largely they depends on half year and yearly verification in this regard monthly verification can be better.
- * Inventory in a stock required systematic calculating. Small units can rethink for the levels of stock. But they should think for the value and quantity considering the potential demand.
- * Computerised accounting system can be adopted by the sampled units after evaluating the cost and benefits of this decisions because 14 units did not have computerised facilities.
- * Restructuring of suppliers locations decision can give the better result and assurance of the supply price mechanism credit facilities should considered as a strategic component.
- * For the consideration of various factors with pricing decisions the medium scale industry should revised the thinking process Transportation charges were borne by owner in a large sampled units so they can think for proper negotiation in this aspects.

- * Waste and scrape arised during the handling all the units can think about for better handling of raw material and equipment.
- * Recruitment of employees based on experience of person but educational qualification was neglected so they can think about and restructured the recruitment policy and 16 units have computer but only 9 units have skilled computer operator so they should considered this purpose.
- * Audit of stores account is necessary for the industry and in this research industry only 6 units conducted audit of the stores. For the better managements they can think about that.

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**"AN ANALYTICAL STUDY ON SYSTEMS
AND METHODS OF MATERIAL
MANAGEMENT IN DYEING & PRINTING
INDUSTRY OF JETPUR CITY "**

**SAURASHTRA UNIVERSITY
1996 -97
KUM. DIMPLE A. DAVE
(M.Com.),
Fulwadi A/3 Jetpur**

The research work on the Systems and Method of Material Management in the Dyeing and Printing Industry of Jetpur is being done by me for my Doctorate degree. The success of this work depend solely on the information provided by you on various purely academic purpose and will be kept strictly confidential. Your cooperation, support and guidance will greatly appreciated and acknowledge. With due thanks.

(A) General Informations :-

- 1.1 Name of the firm :-
- 1.2 Proprietor :-
- 1.3 Year of Establishment :-
- 1.4 Type of firm :-
- 1.5 Location of the unit :-
- 1.6 Number of Employees :-
- 1.7 Number of Sister-concerns :-
- 1.8. Size of firm :-

1.9 Nature of Business :-

- (a) Own Processing & Printing (b) Job work

1.10 Products Handled :-

- (a) Printed sarees (b) Bhandhani
(c) Khanga (e) Dress Materials
(f) Others

1.11 Is your enterprise a local (regional) national or international unit ? :-

- (a) Local (regional) (b) National (c) International

1.12 Are you concerned with exports ? If so what are the finished goods you deal with -

- (a) Printed sarees (b) Bhandhani
(c) Khanga (e) Dress Materials
(f) Others

(B) Informations About the Unit :-

2.1 Area (size) of the unit in square feet :-

2.2 Do you have a Stores Department in your unit ? :- (Yes/No)

2.3 If yes, what is the location of the store ? :-

2.4 Is the store rented or is it owned by you ? :-

2.5 If you have more than one production unit, do you maintain separate stores in each one of them or maintain a single store ? :-

2.6 How much space is allocated for the stores in the unit :-

2.7 If the store is situated outside the firm, what is the size in the terms of capacity :-

- 2.8. Do you feel that the space/capacity of the store is sufficient to meet your requirements ? :- (Yes/No)
- 2.9. If no, how much additional space do you require? :-
- 2.10 What is the distance between the store and the production of unit ? :- (Yes/No)
- 2.11 Do you feel that the space/capacity of the store is sufficient to meet your requirement ? :- (Yes/No)
- 2.12 What are the materials that you store ?
- (a) Grey cloth yarn
 - (b) Bleached cloth yarn
 - (c) Colours & chemicals
 - (d) Printing gum
 - (e) Silicate
 - (f) Bleaching agents
 - (g) Wax
 - (h) finished good
 - (i) Other accessions
- 2.13 What are the facilities available in your store ? :-
- (a) Racks & stalks
 - (b) Trolleys
 - (c) Handling equipment
 - (d) Lift & cranes
- hazardous chemicals.
- 2.14 What are handling equipment you use ? :-
- (a) The workmen
 - (b) Trolleys
 - (c) Lift & cranes
 - (d) Other equipment.
- 2.15 What according to you is the most efficient handling equipment from the above ? :-
- 2.16 (A)The store department receives materials/goods from:-
- (a) Suppliers
 - (b) Local dealers
 - (c) Transport Office
 - (d) Railway godowns

- 2.16 (B) With whose permission/authority the materials are supplied from the stores ?:-
- (a) Owner/Proprietor
 - (b) Stores Manager
 - (c) Any other authority
- 2.17 Who ensures the quality of the incoming materials ? :-
- (a) Owner/Proprietor
 - (b) Stores Manager
 - (c) Any other authority
- 2.18 Do you verify the quality, quantity and product specifications of the incoming goods ? :- (Yes/No)
- 2.19 How do you check / verify the materials ? :-
- (a) Individual assessment / verification of the materials
 - (b) Sampling
- 2.20 What are the aspect that you verify in the materials ? :-
- (a) Quantitative aspects
 - (b) Qualitative aspects
 - (c) Both
- 2.21 What do you do with the rejected materials ? :-
- (a) Returns the supplier
 - (b) Use them at times of emergency / urgency
 - (c) Deduct the value of the rejected materials from the Bill
 - (d) Dispose off by other means
- 2.22 Who bear the losses due to late delivery of the materials at times of emergency (high demand situation) ? :-
- (a) The Supplier
 - (b) The Transport agency
 - (c) Self

2.23 Who pays the local taxes / octroi ? :-

- (a) The Firm
- (b) Supplier
- (c) The Transport agency

2.24 Who bares the transportation charges as per the contract ? :-

- (a) The Firm
- (b) The Supplier

2.25 Who makes arrangement for the payment of the good received ? :-

- (a) The Owner
- (b) The store department
- (c) The Finance / Accounts department

2.26 What mode of payment do you frequently use ? :-

- (a) Cash Payment
- (b) Cheques
- (c) Drafts
- (d) Through Bank

2.27 What are the common factors for losses in the store department ? :-

- | Factor | Percentage losses |
|--------|-------------------|
|--------|-------------------|

2.28 How do you dispose off the waste and scraps ? :-

- (a) Reuse within the unit
- (b) Return to supplier
- (c) Sell of to employees
- (d) Sell of to vendor/waste collectors.

- 2.29 Are there chances of casualties/accidents during handling ? :-
- 2.30 How do you react to these accidents ? :-
- (a) Take steps once the accident has happened
 - (b) Take necessary precautions to avoid such incidents / Follow safety measures.
- 2.31 Do you store inflammatory materials in you firm ? :-
- 2.32 Do you provide safety articles like gumboots, hand gloves, etc. to your employees ? :-
- 2.33 Do you fill that the safety of the employees is important ? :-
- 2.34 How do you maintain record the inventory level i store? :-
- (a) Quantity of stock
 - (b) Value of the stock
 - (c) In terms of both quantity and value
- 2.35 Do you verify your stocks ? If yes what is the periodic interval ? :-
- (a) Monthly
 - (b) Quarterly
 - (c) Half yearly
 - (d) yearly
- 2.36 Do you make provision for Insurance of the stock in your store ? :- (Yes/No)
- 2.27 What method do you adopt for supplying materials from the store to production unit ? :-
- (a) FIFO Method
 - (b) LIFO Method
 - (c) Simple weighted man (average)Method
 - (d) Random Method.

2.38 Do you give / require authority letter to acquire goods / materials from the store ? :- (Yes/No)

2.39 Do you verify the materials that leaves the store with the requisition / authority letter ? :-

(C) Informations Regarding Staff Matters :-

3.1 Is there a specialised stores official to take care of the stores departments ? :- (Yes/No)

3.2 Do you employ a manager specifically to handle the affairs of the store or any other authority handled it ?

3.3 If you have a store manager, his brief description :-

Name :

Educational Qualifications :

Experience :

3.4 Do you have employees especially for the stores department ? :- (Yes/No)

3.5 How do you recruit the employees ? :-

(a) On the basis of educational qualifications

(b) On the basis of experience

(c) On recommendations

(d) Any other basis

3.6 Do you impart training to you employees as per their requirement ? :- (Yes/No)

3.7 How do you impart training to you employees ? :-

(a) On the Job training (Learning by doing)

(b) Classroom training

(c) Job rotation training

(d) Self training

(D) PURCHASE / PROCUREMENT :-

4.1 How much inventory level of stocks do you keep ? :-

- (a) To meet immediate requirements
- (b) One month inventory
- (c) Three month inventory
- (d) Six month inventory
- (e) Inventory for a year

4.2 Whom do you rely / depend upon for supply of materials ? :-

- (a) You regular supplier
- (b) Vary as per situation

4.3 Where are your suppliers located ? :-

- (a) In the specific local market
- (b) Out side the specific market
- (c) No such fixed / specific supplier

4.4 What factor do you consider while deciding on where & how much to purchase ? :-

- (a) To meet the immediate requirements
- (b) When the prices are low in the market
- (c) When the chances of shortage in the market is detected/ for tested.
- (d) Define quantity after determining the exact requirements for a definite period of time.

4.5 Where from do you get the material information ? :-

- (a) Trade Journals
- (b) Supplier catalogues
- (c) Yellow pages
- (d) Visit of sales personnel
- (e) Trade exhibits

- 4.6 What are the factors the you emphasise upon, in order of preference, while negotiating with the selected supplier? :-
- (a) Quality and Quantity aspects
 - (b) Product specifications
 - (c) Pricing, Trade discounts and payment Terms and conditions.
 - (d) Insurance terms and conditions
 - (e) Guarantee / Warrantee (f) Buy back agreement
- 4.7 What are the factors that you consider while selecting the right supplier ? :-
- (a) Assurance of supply
 - (b) The size & capacity of the supplier
 - (c) Honesty and integrity of the supplier
 - (d) The pricing mechanism of the supplier
 - (e) The credit facilities offered by the supplier
- 4.8 Do you depend solely on the local suppliers or every need of raw materials during the year ? :- (Yes/No)
- 4.9 If no, do you have any alternative arrangements to ensure regular supply of raw materials ? :-
- (a) Maintain buffer stock
 - (b) Rely on supplier from outside market
 - (c) Keep good rapport with the other suppliers of your locality
- 4.10 What are the factors that you consider while pricing the raw materials ? :-
- (a) Past experience (b) Reputation of the supplier
 - (c) Govt. taxation policies (d) Quality of the raw material
 - (e) Payment terms and conditions
 - (f) Assurance of regular supply (g) Buyer - seller relationship

4.11 What steps do you undertake maintain a cordial relationship with your supplier ? :-

- (a) Treat the suppliers sales personnel cordially
- (b) Hold periodical meetings with the suppliers to sort out differences, if any
- (c) Make prompt settlement of accounts
- (d) Enquire about the difficulties faced by the supplier.
- (e) Provide technical and financial assistance as and when required.
- (f) Any other steps.

4.12 What is the general mode of communication adopted by you to keep in touch with your supplier ? :-

- (a) Telephone
- (b) Fax / Telex
- (c) Postal services
- (d) Courier service
- (e) Personal messengers

4.13 Do you evaluate the performance of your supplier ? :-

(Yes/No)

4.14 If you do, at what time intervals do you evaluate ? :-

- (a) At the end of the financial year
- (b) Continuous evaluation
- (c) Only when something goes wrong

4.15 What are the methods adopted by you for evaluation of suppliers ? :-

- (a) Your experience and judgement
- (b) Cost-ratio method (higher cost - lower rating)
- (c) Suppliers record / reputation of meeting your specifications / requirements
- (d) Supply and quality assurance

4.16 What are the factors that you consider while forecasting and deciding on the quantity to be bought ? :-

- (a) General economic conditions
- (b) Specified market conditions
- (c) Supplier (d) Statistical forecasting (e) Budget

(E) PACKING / PACKAGING :-

5.1 How much inventory level of packaging material do you maintain? :-

- (a) To meet immediate requirements
- (b) One month inventory (c) Three month inventory
- (d) Six month inventory (e) One year inventory

5.2 Do you have skilled / specialized employees for packaging ? :-

(Yes/No)

5.3 What are the aspects in packaging that you emphasise upon? :-

- (a) Size of the package (b) Weight of the package
- (c) Quantity of packaging in terms of distance to be transported
- (d) The quality of packaging in terms of preservation of the product
- (e) Cost of packaging

5.4 Do you take care of other aspects of packaging like? :-

(Yes/No)

- (a) Proper labelling (Name & address)
- (b) Package number and quantity
- (c) Date of dispatch
- (d) Special instruction (self life, handling etc.)

(F) TRANSPORTATION ASPECTS :-

6.1 What are the factors that you consider in selection of transport?:-

- (a) Type of materials to be transported
- (b) Rate of discounts (c) Distance and lead time
- (d) Location of the supplier and unit
- (e) Urgency / emergency
- (f) Safety & punctuality of transport system
- (g) Payment terms and condition / assurance etc.

6.2 What mode of transport you prefer ? :-

- (a) Road transport (b) Railway
- (c) Water way (d) Air transport

6.3 Do you have your own fleet for transportation like truck/
tractors / rickshaw etc.? :-

(Yes/No)

6.4 What is the lead time between placement of supply orders
& actual receipts of materials ? :-

- (a) Instant (b) A week
- (c) Two week (d) One month & above

6.5 What do you think are the main reason for delay ? :-

- (a) In processing & placement of supply order / purchase order
- (b) In transit / transportation
- (c) In inspection and quality assurance
- (d) Other factors like nonviability of stock transport strike etc.

- 6.6 Has your production process been affected by the delay in supply of materials ?:- (Yes/No)
- 6.7 If yes what alternative arrangements you have made to mention ? :- (Yes/No)

(G) WASTE & SCRAPES :-

- 7.1 Does the problems of scraps waste & scrape arise in your unit ? :- (Yes/No)
- 7.2 How do you dispose of waste and scrape materials ? :-
(a) Invite tenders (b) Auction in the market
(c) Destroy the waste (d) Other methods.

(H) AUDIT OF THE FIRM :-

- 8.1 Do you get your stores accounts audited by any local / private or Government audit firm / department ? :- (Yes/No)
- 8.2 If so do you keep certified copies of audit statements relating to stores ? :- (Yes/No)
- 8.3 Do you get your firm audited regularly ? :- (Yes/No)
- 8.4 If yes, the audit is being done by ? :-
(a) An internal source (b) An external agency

(I) FINISHED GOODS :-

- 9.1 How much finished goods inventory do you keep ? :-
(a) One week inventory (b) Two week inventory
(c) One month inventory
(d) Zero inventory (as per order only)