# Material Management and Handling System – A Study in Tirupur Garment Industries

K. Prabhakumari [1] S. R. Naveenkumar[2]
[1]*Assistant Professor, Department of Apparel Manufacturing and Merchandising, NIFT-Tea College of Knitwear Fashion, Tirupur*
[2]*Final Year Student, Department of Apparel Manufacturing and Merchandising, NIFT-Tea College of Knitwear Fashion, Tirupur*

***Abstract*- In the Manufacturing unit the raw material plays a vital role as that material should be handled safely to secure quality finished goods. In order to sustain in the competitive scenario the quality of the end product is very important so in order to maintain quality products the effective material handling and management should be obtained in the organization. The Textile manufactures procures a huge amount of raw material in which they have to maintain properly for conversion of raw material to final products. Nowadays the production units are using a large number of machines and processes for effective handling of materials.**

**During the conversion of raw materials to end product the materials are moving from one department to other and it moves from one machine to other machine and even in most organizations the materials are moving from one floor to other. In order to produce quality product the industries have to maintain safe, efficient and economical material handling. In this paper the researcher analyze the material handling and the management of materials in the garment industries by using percentage analysis and the required suggestions are given to manufacturing unit to develop efficient material handling system.**

**Index Terms- Material handling, material transport, material management.**

## INTRODUCTION

Material handling plays an important role in manufacturing garments in Tirupur city. Every industries in Tirupur city the manufactures are following selective instruments or vehicles for moving the materials and every item of physical commerce was transported on a conveyor or lift truck or other type of material handling equipment in manufacturing plants, warehouses, and retail stores. The Operators in the industries are using material handling equipment to transport various goods to the required places and in a variety of industrial settings with automation in Garment industries. Material handling system plays an important role in improved material flow in order to increase the performance of production in the garment industry.

Fig-1

Material handling can be defined as: "art and science of conveying, elevating, positioning, transporting, packaging and storing of materials starting from the time, of purchasing the raw material such as fabrics or yarns for in the garment industries. The material handling process starts when it enters the industry gate and goes out of the gate in the form of finished products it is handled at all stages within the boundaries such as within and between raw material stores. A material may be handled even 50 times or more before it changes to finished product and It has been estimated that average material handling cost is roughly 10-30% of the total production cost depending upon product to process in the garment industries by saving time in the material handling cost, the cost of production can be reduced considerably by following effective material handling system in the garment industries. Material handling involves the movement of materials, manually or

mechanically in batches or one item at a time within the plant whereas the movement may be horizontal, vertical or the combination of these two in the organization. Material movement adds to the cost but not to the product value where the ideal industries would have an absolute and effective materials handling and more use of mechanical material handling equipments to produce the product with quality.

Fig-2

BENEFITS OF MATERIAL HANDLING SYSTEM

1. improving productivity in the organization
2. Increasing the handling capacity of materials
3. Reducing man-power to the industries
4. Increasing the speed of material movement inside the firm
5. reducing materials wastages for effective handling
6. Promoting easier and cleaner handling of the materials
7. Eliminating idle time of machines, equipment and workers of the organization
8. Viii.reduce fatigue incurred by the workers to the organizations
9. Increasing safety and minimizing accidents to locate and stock material better and in less space
10. Minimizing production cost, etc .in the firm.

REVIEW OF LITERATURE

Lashkari (2006), observed that the material handling accounts for 30–75% of the total cost of a product along the production chain, and efficient material handling can be responsible for reducing the manufacturing system operations cost by 15–30%.e

Stevenson (2001)said that the understands that logistics (including materials and goods flowing in and out of a production facility as well as its internal handling) has become very important to an organization to acquire competitive advantages, as the companies struggle to deliver the right product at the correct place and time. The main challenge is to promote, with low cost, a flow whose velocity allows the execution of manufacturing pro-cess with the expected satisfaction level.

Shingo (1996) indicated that, in the West, production was treated as a process of a sequence of operations. In the Production Function Mechanism, the concepts are directly related to a production analysis focus. A process analysis consists of an observation of the production flows that turn raw materials into final products. From this concept, the author highlights that the main analysis is the one associated with the process, because it follows the production object. The analysis of the operations comes later because it focuses on production subjects (operators and machines). When making this distinction, it is possible to perceive the relevance of materials handling.

Ballou (1993) states that the storage and handling of goods are essential among the set of logistics activities, and their costs can absorb 12% to 40% of its costs. In addition, the MHIA estimates that 20% to 25% of manufacturing costs are associated to handling (Groover, 2001, p. 281).

Bowersox and Closs (1996) analyzed that the main logistic responsibility in manufacturing is to formulate a master program for the timely provision of materials, components and work-in-process.

OBJECTIVES

1. To observe the material handling process in Tirupur city.
2. To study the internal material handling flows in garment industries.
3. To analyze the internal customers satisfaction levels of material management
4. To offer suggestions to improve the material handling system in Garment industries.

RESEARCH METHODOLOGY

Research is defined as the searching of new knowledge. As in research solutions are given for the problems in the organization. In this research the material handling system is analyzed and solutions are given for effective material handling in the Garment industries.

DESCRIPTIVE RESEARCH DESIGN

"A research design is the arrangement of conditions for collection and analysis of data in a Manner that aims to combine relevance to the research purpose with economy in procedure". The design taken for the study is descriptive where it takes the research detailed of the issues in garment sector.

Data collection:
The primary methods of data collection that is questionnaire technique was used to collect the data required. No of Respondents include both male and female. Convenience sampling method has been adopted under the non-probability sampling technique and about 100 samples have been collected for the study.

Sampling Technique:
Convenient sample technique is used to find sample from the whole population
Sampling size:
The study was conducted towards Garment Industries in Tripura city. The size of the population is 100 and the survey was conducted in Tirupur city.

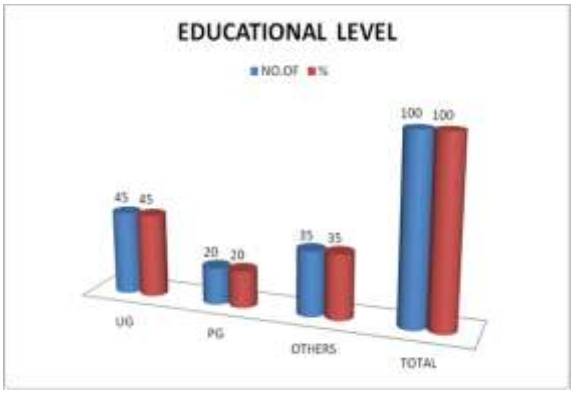
STATISTICAL TOOLS - PERCENTAGE ANALYSIS

The Percentage analysis is an effective tool to study the attributes of the respondents. Each response by the respondent to a particular statement is plotted into frequency table and quantified. The entire response to the statement is considered as 100 percent and each of the choice within the statement is measured as what percentage does it holds to the total response to that particular statement.

PERCENTAGE ANALYSIS- EDUCATION LEVEL OF THE RESPONDENTS

| S.NO | EDUCATION | TOTAL | PERCENTAGE |
|---|---|---|---|
| | LEVEL | | |
| 1 | UG | 45 | 45 |
| 2 | PG | 20 | 20 |
| 3 | OTHERS | 35 | 35 |
| | TOTAL | 100 | 100 |

CHART -EDUCATIONAL LEVEL OF RESPONDENTS




INTERPERTATION

The above table shows that 45 percent are having UG level Education, 20 percent are PG level, and 35 percent are others.

INFERENCE

Majority (45) of the respondent's education level is UG.

SUGGESTIONS

a) Implementation of Chart based system for scheduling and routing in the organization.
b) The material can be handled by using the miniature vehicle inside the production units for moving the material from one place to another for the requirements analysis by representing the vehicle fleet as a single multi-server queue.
c) Network flow models can be used together with mean variance analysis can be used to specify configuration of conveyor systems in manufacturing effectively.
d) For the cranes and hoists in the garment industries it is possible to adapt cycle time formulas from the automated storage retrieval systems that have been studied so much

CONCLUSION

The ultimate goal of this research is to develop an approach to material handling system selection and specification that satisfies the following characteristics such as to produce the quality goods by implementing the bottom-up approach that uses manufacturing data such as facility layout and parts routing. The ma material handling must be rapid enough so that a system designer can evaluate the different options with respect to grouping material handling tasks and technologies, and where it can be used for both design of new plant sand evaluation of existing plants in the face of changing production requirements. The research identifies where and how the information for the material handling requirements is to be gathered in the manufacturing process of garment industries where the manufacturing process interface should be available to the process designs of the manufacturing unit.

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