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A Study on Material Handling Management in Mahindra Logistics Limited with Reference to Salem

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Abstract: *The main aim of this paper is to study various materials handling equipment & systems used in an Industry for various material handling, and Study various Modern Technique. Material Handling and is required by many safety regulations, national consensus standards and manufacturers. It is the purpose of the daily condition usage to ensure that the overall equipment mechanical and electric components of the equipment have been maintained in a safe and serviceable condition and are functioning properly according to the original equipment manufacturer's specifications. It is the purpose of the inspection test to ensure by actual test that the equipment is capable of safely lifting and moving the rated load through all designed motions. The inspection and load test do not take into account the duty factor of the equipment.*

Keywords: *Material, material handling cost and production cost.*

1. INTRODUCTION OF THE STUDY

Material handling can be defined as: "art and science of conveying, elevating, positioning, transporting, packaging and storing of materials Starting from the time, the raw material (such as fibres for spinning unit or yarns for weaving/ knitting unit and fabrics for wet processing or garmenting units) enters the gate and goes out of the gate in the form of finished products; it is handled at all stages within boundaries such as within and between raw material stores, various section of production department, machine to machine and finished product stores. A material may be handled even 50 times or more before it changes to finished product. It has been estimated that average material handling cost is roughly 10-30% of the total production cost depending upon product to process. By saving in the material handling cost, the cost of production can be reduced considerably. Material handling involves the movement of materials, manually or mechanically in batches or one item at a time within the plant. The movement may be horizontal, vertical or the combination of these two. Material movement adds to the cost but not to the product value. The ideal would have an absolute minimum of materials handling and more use of mechanical material handling equipment. Poor material handling can result in accidents during this process and due to accidents not only the material will get damaged but the risk to the life of workers also increases. Therefore, it is necessary for the sake of workers working in the organization as well as to minimize production costs. The shortage of labour and increasing wages cost demand the most efficient use of labour. Proper material handling offers benefits for:

i. improving productivity
ii. Increasing the handling capacity
iii. Reducing manpower
iv. Increasing the speed of material movement
v. reducing materials wastage
vi. Promoting easier and cleaner handling
vii. Eliminating idle time of machines, equipment and workers
viii. Reduce fatigue incurred by the workers.
ix. Increasing safety and minimizing accidents
x. locate and stock material better and in less space.
xi. Minimizing production cost, etc.

Benefits of material handling system

1. Improving productivity in the organization

2. Increasing the handling capacity of materials
3. Reducing manpower 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. 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.

2. LITERATURE REVIEWS

Patil et al (2019) described that the material management brings the objectives are efficient material planning, buying or purchasing, procuring and receiving, storing and inventory control supply and distribution of material, quality and assurance, good supplier relationship. The material management brings the benefits are reducing the overall cost of material, better handling of material, reduction in duplicate orders, material is on site when needed and in the quantities required, improvements in labour productivity, improvements in products schedule, quality control, better field material control, better relations with suppliers.

Donyavi Sohrab (2019) reported that a large part of the steel sector is represented by small and medium sized enterprises (SMEs). Large firms have the opportunity and capacity to use advanced information systems and management technology to monitor job and products materials. Materials can account for up to 70% of the steel cost of the products, hence any ways to minimize waste and improve productivity will have substantial cost and time advantages. A technology also helps in control the movement of products and support contractors with decreased costs and lower prices for consumers. They concluded that SMEs would increase their efficiency in the material management and reduce their costs to improve the delivery of products.

Elijah E. Ogbadu (2019) carried out a study to improve benefit through better materials management. The respondents decided that a hitch in materials management is the delivery of low-quality raw materials. He concluded that profitability was diminished by the inefficiencies, failure and shutdown of the factory. Profitability increased by maintaining good relationships with suppliers of spare parts to reduce losses resulting from frequent breakdowns. It focuses on how, through successful materials management, steel business organizations can achieve profitability.

Eckert et al. (2020) described an inventory management and its effects on customer satisfaction. A larger sampling of the population determines the customers that were having problems with shipments and their overall customer satisfaction. The large sale, sampling should show more about the shortages and the effect on the financial performance of both the distributors and the retailers.

SantuKar et.al (2020) conducted a study on effect of material management issues on the schedule and cost performance of steel industry. And found that improper delivery of materials is the most critical factor disrupting products' schedule and cost performances. Delivery of material at the wrong time and incorrect delivery cause problems in steel industry. Delivery of lesser quantity and higher quantity of materials has the same effects as the late and early arrival of material, respectively. Inadequate planning of the materials was found to be the second most critical factor. Lack of information and communication was the third most critical factor. Low usage of information technology is also a problem in material management. Financial issues in procurement placed fourth.

Rajeev (2020) made a study of forty small and medium enterprises (SMEs) in Bangalore, India and observed that even in an inventory intensive manufacturing steel industry sector, Inventory Management (nay, material management) practices were poor. He went further that the use of formal practices for managing inventories was also inadequate. According to him, poor material management practices were characterized by a lack of an integrated approach in the form of the absence of links between physical stock and accounting system. A lack of appreciation for Inventory Management (IM) among the entrepreneurs and the lack of qualified staff were the two major factors contributing to low Inventory Management practices.

Muhammad, Razi & Tarn (2021) This situation was complicated further by other factors such as steel industry on material management, a lack of progress in the area of HRD and the Steel organizational characteristics of the SMEs. The use of a formal inventory ordering policy, such as fixed quantity ordering, or fixed period ordering policy was not observed in the SMEs. Instead, a random policy was followed by the SMEs for material

procurement. The study also identified the use of rule of thumb for IM, a low importance given to forecasting and random ordering for material procurement, low level use of computers and a low level of importance given to purchasing and variable lead-time.

Shubham Sharma. (2021) explained the advantages of the organization's material handling by his paper. The author also stated that the material management objectives of continuous uninterrupted supply of raw materials ensure a high turnover in inventory, providing a purchasing economy and minimize waste, minimize total procurement costs and maintain a high level of cooperation and collaboration with user departments. He concluded that unnecessary investment in stocks would be avoided, there will be no stoppage of work due to lack of materials, efficiency will be increased, inventory losses will be reduced, and waste will be minimized as a major benefit of material management.

Olusakin S Akindipe (2021) has shown that the management of raw materials in steel manufacturing organisations is a critical operational problem. His paper aims to bring to the fore, through theoretical analysis, the important problem of inefficiency in the practice of raw material management and its impact on production operations of manufacturing concerns. The paper concludes that, should practitioners become pragmatic through the implementation of the solutions provided, productivity in raw materials management and production operations can be achieved.

Salome Richu (2022) evaluated the role of material management in organizational performance. Finally, due to inventory management system participation, it was concluded that there was an improvement in steel organizational efficiency. Additionally, the results showed that by acquiring and delivering the required materials within the shortest time in lead time was extremely important.

Ashokkumar (2022) stated that industry growth depends on the quality of products. In the success of products, quality is one of the important factors. This product focuses primarily on the significance and variables that influence quality control in the execution process. He concluded that, due to quality deficiencies, the main factors affecting are quality and growing steel costs. This study will create awareness of quality control for especially small-scale enterprises at all levels of companies. He gets the key variables and problems that impact the output and provide an opportunity to figure out the remedial action. This research is helpful in reducing waste of materials, waste of workmanship, waste of time and indirect costs.

Ezeokonkwo John U (2022) identified the key areas in which material management is inadequate and so improvements were made that changes could be made to increase productivity. For proper review and recommendations, the data collected formed the context of the standardized questionnaires. The ninety questionnaires launched at the sites, eighty-seven were duly completed and returned. The material schedule will also help in the scheduling of supplies, identifying the necessary materials and making deliveries at scheduled times and dates. Since the problem areas have been detected, steel organizations should take steps to improve their performance. By engaging fulltime estimators or quantity surveyors and material controllers, this could be done.

3. RESEARCH METHODOLOGY

This assessment used the sensible way of thinking for research. This examination relies upon ETS method, giving sensible monetary ascribes rather than speculative credits. Using overwhelm spread sheet regard, we have gathered a money related appraisal model used in this assessment.

4. OBJECTIVES OF THE STUDY

To observe the material handling process in Salem city.
To study the internal material handling flows in the industry.
To analyses the internal customers satisfaction levels of material management.
To offer suggestions to improve the material handling system in industries.
To evaluate the industry and to study the challenges faced by the industry in India.
To analyze the industry and to focus on contribution to the company.
To give suggestions to overcome the challenges of the industry.

5. SCOPE OF THE STUDY

This research aims to increase the efficiency of managing materials on industry. On the company, site supervisors, operational managers' ineffective resources, and time management are significant causes of worry. Workers are sometimes not entirely occupied for extended periods because materials are not delivered on time or previous work has not been completed correctly. Materials Management strives to ensure that the material cost component of the total product cost be the least. In order to achieve this, the control is exercised in the following fields.

6. DATA ANALYSIS

Simple percentage analysis:

TABLE 1. Functions to perform material handling equipment

FUNCTIONS	RESPONDENTS	PERCENTAGE
Movement	26	21.7%
Protection	31	25.8%
Storage	32	26.7%
Control of materials and products	30	25.8%
Total	**120**	**100.0%**

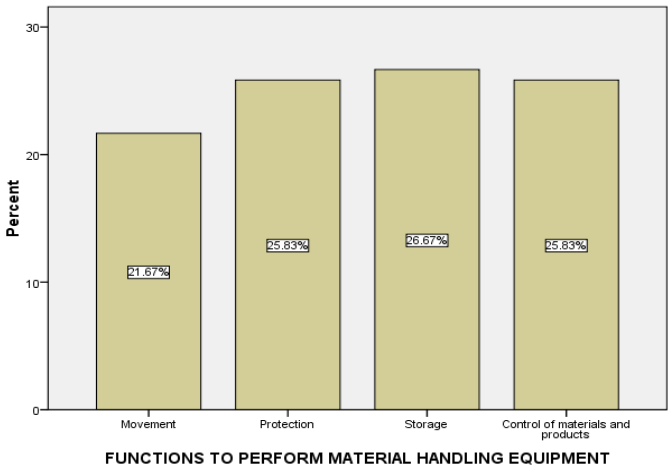

FIGURE 1

Chi-square tests:

TABLE 2. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.150E2[a]	12	.000
Likelihood Ratio	302.098	12	.000
Linear-by-Linear Association	111.357	1	.000
N of Valid Cases	120		

a. 6 cells (30.0%) have expected count less than 5. The minimum expected count is 2.40.

7. FINDINGS

1. Majority 90.0% of the respondents are male.
2. Majority 28.3% of the respondents are in the age group between 31-35 years.
3. The majority, 38.3% of the respondents, are qualified in PG.
4. Majority 35.0% of the respondents are employees.
5. Majority 27.5% of the respondents earned between Rs.20,000-30,000.
6. Majority 51.7% of the respondents are experienced in 2 -5 years.
7. The majority, 51.7% of the respondents, are highly satisfied with flow and improved material handling efficiency.

8. SUGGESTIONS

Implementation of chart-based system for scheduling and routing in the organization. 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. Network flow models can be used together with mean variance analysis can be used to specify configuration of conveyor systems in manufacturing effectively. 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. The 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.

5. CONCLUSION

Although in the market a large variety of material handling equipment available in which some are very conventional, and some are modern. Modern material handling equipment's are economical, safer and can handle more material in unit time than conventional equipment's. The material handling department basically performs two functions: eliminate the need of material handling as for as possible by choosing appropriate production machinery and choose most appropriate material handling equipment which is safe, efficient and economical. The selection of material handling mainly depends upon: Type of material to be handled, building, layout, speed & type of production and material flow pattern.

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