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ANALYSIS ON INVENTORY MANAGEMENT BY USING MICROSOFT PROJECT

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Abstract:

Inventory management is related to planning, organizing, handling and storing materials. Adequate level of inventory which is to optimized consumer's demand. It's linked with safety productivity and schedule performance with the help of Microsoft project software. The main object of our study is to analysis of inventory management with help of Microsoft project and the analysis of inventory control in construction project. As per Microsoft project we pre decided the duration of project and before the construction we prepare a schedule of work, and the resource is levelled. As per activity the material is manage it gives the idea about material requirement when material is needed. The Inventory control techniques first is ABC analysis and EOQ analysis for control the inventory. In our study we can prepare an inventory report as per the activity of construction project it's understand easily. Final output of our study is inventory report which sows the activity and the requirement of material.

Keywords **—Project Management, small firms,project, performance.**

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I. INTRODUCTION

Growth. Inventory management is stock of goods and services, work in progress, consumable etc. Which highly connected to procurement, productivity, and schedule performances and storage of material. Inventory management and control techniques are highly beneficial for material management. Inventory management deals with the optimizing the process of procurement, it's very important for the cost analysis and time analysis in construction project. Without inventory management it's difficult to maintain and handling of material as per requirement. Inventory in this project the inventory management is done for the construction of residential building by analysis of site, in constructions industry material cost is 60% to 70% out of the total cost of the project, and remaining is labor cost and overhead profit etc. In this study deals with abc and eoq analysis for inventory management. It's provide details of financial analysis and effective utilization of material which is help for cost saving.

II. LITERATURE REVIEW

1) **s. sindhuand dr. k. nirmalkumar. (2014).**"performance analysis of inventory management system in construction industries in india'' inventory management system include procurement, identification, storage, transport and retrieval and construction methods in a construction industry. Each is indelibly connected to safety,

productivity and schedule performance. The main objective of the study is to analyse the inventory management and control techniques adopted for the effective utilization of inventory management at the construction industry. In this study the first portion is based on conducting questionnaire survey in various construction companies. In second portion, analysing those results which is using by statistical package for social sciences spss. Abc analysis is one of the most conventionally used approaches for to classifying the inventories and the case study of a company is collected. The inventory model will handle each unsure demand and availability of supply. In these study is findings may mainly reflect the main factors that will affects the inventory management system which is able to achieve and improved efficiency of project management in construction site, and to reduce the wastage of materials in the respective region of construction industries.

K.G.S.ARAVINTH AND B.INDHU. (2016), "case study on inventory management system followed by major builders in chennai region and proposing recommendations to improve the system'' inventory management is belongs to planning, procuring, storing and providing the appropriate material of right quality and right quantity at right place in right time to co-ordinate and schedule of the production activity in an integrative way for an industrial undertaking. inventory management is the process by which an organization is supplied the goods and services that it needs to achieve its objectives of buying, storage and transported of materials. the main objective in this study is identifying the factors that affect the inventory management at construction site, the facts and opinions of inventory management and control technique at the construction industry will be analyzed and to create an effective utilization at construction site, to overcome the difficulties by getting the possible recommendations. the first half is carried out questionnaire survey in various construction companies. in second half, analyzing those result by using statistical package for social science spss.

ROHAN J. MADGI AND PROF. SHASHANK U. VANAKUDARI (2018), "inventory control techniques in material management'' in any infrastructure projects the major constituent is the material where in it involves more than 50% to 60% of the total cost of project, poor planning and control of material in construction site and lack of material when needed, poor identification of material, re-handling and inadequate storage cause losses in productivity and overall delays that can indirectly increase the total cost of the project. effective management of the material could reduce the total cost involved in the project. in this paper describes about the importance of material management and different inventory control techniques that could be applied in order to make effective material management in the infrastructure projects. this study of the material management in different infrastructure projects and analyse the material handling process undertaken by the company and applying inventory control techniques like abc analysis along with eoq analysis etc. to get the requires results and suggest the best suitable techniques.

III.RESEARCH METHODOLOGY

Study evolves importance of inventory cost and its relation with actual project cost. Further it's provide details study of inventory management in construction with help of Microsoft project, for effective utilization of material. After going through all reference and literature paper lead ahead with typical case study of construction project inventory management. Based on the methodology above the case study is carried out and output are drown. Case study is residential building. Analysis is carried

IV. MECHANISM OF MICROSOFT PROJECT (MSP)

Microsoft project is a project management software program, Microsoft project is designed for project manager for developing a plan, assigning resources to task, tracking progress, managing the budget and analysing workload. In construction project owner or client have given the finish date of the project to be completed before that we have a chance to plan for it, so we have to need to get better scheduling

our project and levelling. This is why we able to fixe the unit of resources or we have to fix the duration of the project. Microsoft project helps in utilizing the resource constantly throughout the project work. Ensure the resources is not over allocated. It helps the project manager or contractor to avoid the delays caused by the bad allocation. Microsoft project can automatically level resource calendar, task, dependencies, constrain. We can delay certain task, assign different resources, change the task dependencies, add task, remove task, material requirement etc.

Most of the organisations have a hierarchical structure to break down the work. It look like the stage, Phase, Task, and milestone. This is a way to organise and define the total scope of the project by decomposing the work to be done into tasks that the project team execute and create the required deliverables. The tasks. Milestone are components of the project that can be schedule. Cost estimated, monitored and controlled. Microsoft project can generate network diagram automatically. From this Microsoft project scheduling, analysis of the activities and their scheduling can be done. According to their duration of schedule material resource procurement sheet is prepared. As per the procurement sheet we can manage the material in stocks for proper use of material. Its help for inventory management. As per the MSP we can prepare an inventory report.

INVENTORY REPORT		
ACTIVITY	INTERLOCK ACTIVITY	MATERIAL
Excavation	0	STEEL
PCC	reinforcement for column	
mat	column erection	
reinforcement for column	shuttering for slab and beam	
concrete	bar bending	
backfilling and compaction	PCC	CEMENT,SAND, AGGEGATE,BRICKS , LIME,TILES,MURUM, ETC.
plinth beam	concrete	
plinth filling	plinth beam	
column erection	concreting	
shuttering for slab and beam	parapet wall	
bar bending	internal plastering and celling work	
electrical wiring	external plastering	
concreting	water proofing	
curing for slab	flooring	
demoulding	backfilling and compaction	
parapet wall	plinth filling	
piping and electric wiring	electrical wiring	piping and electric wiring, electric wiring, painting
internal plastering and celling work	demoulding	
flooring	curing for slab	
external plastering	piping and electric wiring	
painting	painting	
water proofing	water proofing	

Table no. 1

ANALYSIS ON COST.

1. ABC Analysis

ABC analysis is based on the principle of Pareto in these material is categorised on three category A, B, C given on the table no 2.

ABC ANALYSIS						
SR .NO	**ITEM NAME**	**UNIT OF ITEM**	**TOTAL ITEMS**	**RATE PER/ ITEM**	**VALUE**	**MATERIAL TYPE**
1	STEEL	quintal	31	3250	100750	A TYPE MATERIAL
2	CEMENT	Bag	320	300	96000	
3	FLOORING	sq. ft	900	1100	990000	
4	PLUMBING (INT, EXT)	-	0		0	
5	SS RAILING	Nos	0		0	
6	WINDOWS	Nos	5	3240	16200	B TYPE MATERIAL
7	VENTILATORS	Nos	5	2300	11500	
8	RIVER SAND	Brass	13	4300	55900	
9	CRUSH SAND	Brass	2	3000	6000	
10	4" RED BRICKS	Nos	8000	5	40000	
11	6" FLY ASH BRICKS	nos	11000	6	66000	
12	ELECTRICAL MATERIAL	Nos	0		0	CTYPE MATERIAL
13	AGGREGATE	Brass	11	2550	28050	
14	M.S GRILL	Nos	0	50	0	
15	DOORS	Nos	5	1200	6000	
16	CP FITTINGS	Nos	6	350	2100	
17	SANITORY FITTING	Nos	0	750	0	
18	PAINTING	Liter	0	850	0	
19	RUBBLE SOLING	Brass	3	1200	3600	
20	LIME	Bag	11	50	550	
21	MURUM	Brass	12	1100	13200	
	Total =		**20324**		**1435850**	

Table no. 2

2. EOQ Analysis

Economical order quantity is techniques which is used for inventory management. Economical order quantity an order quantity of inventory to minimise the total cost of inventory management. Inventory cost are in two category ordering cost and carrying cost. Ordering cost incurred on communicating the order, transportation cost, etc. and carrying cost incurred on holding cost inventory and hand. This incurred cost of storage, taxes, etc.

Economic Ordering Quantity $=\sqrt{(2DS/H)}$

D= Annual Demand (units)

S=Cost per Order

Sr No	Item	Unit	Total Demand (units) (D)	Cost per Order (S)	No of Order	Quantity/ Order	Annual Carrying cost per unit (H)	EOQ
1	Cement	Bags	320	21000	4	50	1500	95

From the data collection of the construction site, gives the 50 cement Bags per order for construction. Due to this order carrying cost & inventory cost are increases. But when we applied EOQ analysis on cement bags. Then we got the optimal quantity of cement bags. After EOQ Analysis we got Optimal Order Quantity of cement bags are 95 units. At this order we minimise the ordering and carrying costs. Total demand of Cement bags are 320 units so the construction site to place 4orders (= annual demand of 320 divided of order size 95)

No of order for cement bags = D/EOQ

=320/95

No of order for cement bags = 4

No of frequency for cement bags=1/4*320=80 days.

V.CONCLUSION

1. As per the Analysis it can be concluded that the inventory control is very useful to control the cost of a any construction project.
2. Inventory management can be done effectively by using MSP.
3. It's very important in construction industry.
4. It's a Cost saving and time saving.
5. As per the analysis its concluded that economical order quantity gives the result of right quantity of order at right time.

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