A STUDY ON ROLE OF MATERIAL MANAGEMENT ON PERFORMANCE OF THE SALEM CO-OPERATIVE SUGAR MILLS LTD AT MOHANUR

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ABSTRACT

Material management is a tool to optimize performance in meeting customer service requirements at the same time adding to profitability by minimizing cost and making the best use of available resources. The main objective of the study was to assess the role of material management on the performance of "The Salem cooperative sugar mills ltd". A sample of 150 respondents was selected from this population using the stratified random sampling technique. Data was collected through a structured questionnaire, consisting mainly of closed ended and open ended questions. The data was analyzed by the descriptive statistics such as mean, standard deviation, and percentages. The study advocated that a lot of emphasis need to be directed to material management in sugar mills in order to achieve significant cost saving, reduction in wastes and production cost and to achieve increase in profitability and product quality. The study recommended that sugar mill have to adopt information technology and to be fully computerized, use of proper codes in all materials and have to train the employees to increase the knowledge on the use of inventory control systems in the future.

KEYWORDS: Material management, organizational performance, inventory control systems.

INTRODUCTION

In the earlier years, the material management was considered as a cost center. Purchasing department was spending more cost on the goods and materials, while store huge amount of materials in inventory, blocking money and space (Ramakrishna 2005). Majority of the company saves the 60% of the cost from the effective material management. Effective material management can lead to reduction in wastages, reduction in cost and improvement in the lead time. In an industry the unnecessary cost is reduced by the effective material management,

specifically in sugar industries they are facing more competition around the current markets to improve in better ways. By implementing proper planning and control so as to reduce the wastages and cost which affects the performance of the organization. Sugar industries play a vital role in the progress of the economic growth of a country. The difficulties among the sugar industries like poor material handling, lack of flexibility, improper inventory control and lack of information flow. In sugar mills they are facing different kinds of challenges like high cost of sugar production, factor maintenance is poor, and crushing capacity is low, running with old technology, insufficient storage, wastages in cane yard and low sugar extraction rate. These are the major challenges facing by the sugar mills and it is to be overcome by implementing proper planning and controlling by material management in sugar mills. The ultimate aim of the material management is to provide materials at right quantity at right quality and to be handover at right time to increase the production rate of the sugar mills without any wastage. Without the material management it leads to early purchasing of goods and holding of stocks in inventory. These explore poor material management in the sugar mills. The fundamental weakness of sugar mills is using the traditional approach it based on physical work even move to automation, they often following the old procedures so it taking too long time and being expensive. The inventory control techniques are almost implemented but the knowledge for workers is low on it. So they must be trained well and gain knowledge on the inventory control systems. So the effective material management is the fundamental for the survival of business, economy and industries.

OBJECTIVES OF THE STUDY

The general objective of the study was to examine the role of material management in the performance of "The Salem cooperative sugar mills LTD". The specific objectives were;

- To determine the role of material procurement on performance of sugar mills.
- To assess the role of inventory control on performance of sugar mills.
- To analyze the relationship of material procurement and inventory control with performance of sugar mills.
- To examine the performance of material management in sugar mills.

LITERATURE REVIEW

Theoretical background

According to Barker(1989), has identified five areas of functions in the material management, that are purchasing, production and inventory control, storage, quality control and warehousing & distribution of materials. In other literatures(Donald, 1975 ;Why Bark& William,1986; Linton etal., 2007) expanded the area to include better supplier and customer relationship, quantity materials requirements and demand forecasting, foreign materials have source of supply, improving skills for worker in material management, increase the efficiency of research and development (R&D) department. Purchasing, controlling, material handling and their training is also managed by department of material management. According to Chary (2008), observed that the inventory control helps the organization to improve the inventory by economic order quantity (EOQ) and by tracking the level of system by two bin method and red line method. Inventory control prevents the company from unnecessary losses by other departments. Material inventory is kept for three reasons; precaution, speculation and transactions. According to Navon & Berkovich (2006), in an organization the main responsibility of logistics is to formulate the programmer for the work in progress and timely provision of components and materials. Stevenson (2001) explained that logistics is playing big vital role in the competitive advantage of organization, including flow of materials and goods in and out of the production. Bowersox & Closs (2002) identified that improvement in continuity of supplies with reduced lead time will results in the improvement in cooperation, communication and enhancement.

METHODOLOGY

This paper adopted descriptive design and the analysis is based on primary data through the structured questionnaire by using five point likert scale on the respondent. The population of the study consists of 240 members of staff and workers in The Salem co-operative sugar mills LTD. By using solvin's formula, a sample size of 150 was determine from the population. A pilot study was carried among 30 respondents before the study. It was conducted to verify the reliability of the questionnaire. The validity was checked by Cronbach Alpha test, by which the structured questionnaire was framed. The statistical tool used for the analysis is Percentage analysis and Correlation test using the 23.0 versions of statistical package for social sciences (SPSS).

RESULTS AND DISCUSSIONS

Inventory control system – degree of involvement

Table 1: inventory control system – degree of involvement

Degree of involvement	N	Mean	Std. Deviation
just in time	150	2.1000	.70235
lot for lot	150	2.1600	.73348
buffer stock	150	2.5867	.88376
Material Requirement Planning	**150**	**1.3600**	**.53445**
Enterprise Resource Planning	150	2.3267	.76410
ABC analysis	150	3.0600	.97781
intelligence resource planning	150	2.4533	.87152
Valid N (list wise)	150		

From the table 1, it is inferred that the respondents are agreeing very high involvement on Material Requirement Planning(1.36), intelligence resource planning(2.45), buffer stock(2.58), lot for lot(2.16), just in time(2.10), Enterprise Resource Planning(2.32). The mean value implies that the low involvement on ABC analysis(3.06) and standard deviation is also high(0.977) it implies low involvement.

Effect of material procurement on performance of sugar mills

Table 2: Effect of material procurement on performance of sugar mills

Material procurement	N	Mean	Std. Deviation
order quantity	150	3.7733	1.03071
Negotiation	150	4.0200	.87830
purchasing of goods	150	3.8267	.99493
supplier appraisal	150	3.7667	.97909
Auditing	**150**	**4.4933**	**.76629**
payment clarification	150	4.3600	.86140
quality control	150	3.6600	.94713
agile sourcing	150	3.8067	.94618
inspection of goods and receipts	150	4.3933	.71322
Valid N (list wise)	150		

From the table 2, it is inferred that the respondents are highly agreed that negotiation(4.02), auditing(4.49), payment clarification(4.36) and inspection of goods and receipts(4.39) these all shows that mean values are very highly affect the performance of the sugar mill and order quantity(3.77), purchasing of goods(3.82), quality control(3.66), supplier appraisal(3.76) and agile souring(3.80) these all shows that mean values are normally highly affect the performance of the sugar mill.

Effect of inventory control on performance of sugar mills

Table 3: Effect of inventory control on performance of sugar mills

Inventory control	N	Mean	Std. Deviation
stock planning	150	4.1600	.84409
stock ordering	150	4.1000	.84940
stock scheduling	**150**	**4.3400**	**.70311**
warehouse and storage	150	3.8933	.90596
Turnover	150	3.6800	1.08263
Reordering	150	4.0600	.82111
Valid N (list wise)	150		

From the table 3, it is inferred that the respondents are strongly agreeing stock planning(4.16), stock ordering(4.10), stock scheduling(4.34) and reordering(4.06) are very highly affecting the performance of the sugar mill and warehouse and storage(3.89), turnover(3.68) are mean value is normally high and affecting the performance of the sugar mill.

Performance of sugar mills

Table 4: performance of sugar mills

Performance of sugar mill	N	Mean	Std. Deviation
Profitability	150	4.2667	.80824
customer satisfaction	150	3.4800	1.01479
market share	150	3.8400	.94890
production efficiency	150	4.5467	.66137
timely deliveries	150	4.0467	.76269
system flexibility	150	3.8667	.90980
reduce the wastage	**150**	**4.5800**	**.75325**
cost of production	150	4.2400	.91725
Valid N (list wise)	150		

From the table 4, it is inferred that the respondents are very strongly agreeing that profitability(4.26), production efficiency(4.54), timely deliveries(4.04), reduce the wastage(4.58) and cost of production(4.24) are very highly affecting the performance of the sugar mill and customer satisfaction(3.48), market share(3.84), system flexibility(3.86) are normally high and affecting the performance of the sugar mill.

Correlation of study variables

Hypothesis 1

a) H_0: There is no significant relationship between the material procurement and performance of sugar mill.

b) H_1: There is significant relationship between the material procurement and performance of sugar mill.

Table 5: correlation analysis for hypothesis 1

Correlations		Material procurement	Performance of sugar mill
Material procurement	Pearson Correlation	1	.641**
	Sig. (2-tailed)		.000
	N	150	150
performance of sugar mill	Pearson Correlation	.641**	1
	Sig. (2-tailed)	.000	
	N	150	150
**. Correlation is significant at the 0.01 level (2-tailed).			

From the table 5, it is inferred that significant value 0.000 is less than the critical value 0.05. Further, the results showed that the correlation coefficient between material procurement and performance of sugar mills is 0.641. Hence H_0 is rejected and H_1 is accepted. Therefore, there is significant relationship between the material procurement and performance of sugar mill. It means there was a positive relationship between them.

Hypothesis 2

a) H_0: There is no significant relationship between the inventory control and performance of sugar mill.

b) H_1: There is significant relationship between the inventory control and performance of sugar mill.

Table 6: correlation analysis for hypothesis 2

Correlations		Inventory control	Performance of sugar mill
inventory control	Pearson Correlation	1	.345**
	Sig. (2-tailed)		.000
	N	150	150
performance of sugar mill	Pearson Correlation	.345**	1
	Sig. (2-tailed)	.000	
	N	150	150
**. Correlation is significant at the 0.01 level (2-tailed).			

From the table 6, it is inferred that significant value 0.000 is less than the critical value 0.05. Further, the results showed that the correlation coefficients between inventory control and performance of sugar mills is 0.345. Hence H_0 is rejected and H_1 is accepted. Therefore, there is significant relationship between the inventory control and performance of sugar mill. It means there was a positive relationship between them.

CONCLUSION

The objective of the study was geared to provide useful insight to the future prospects of the Salem cooperative sugar mills limited, if at all materials management is given priority as a total concept. The study established that there was a positive and significant relationship between material procurement and inventory control on organizational performance. This implies that through inventory control systems and material procurement in materials management, an organization can achieve the benefits of effective use of labour, providing system flexibility,

increasing productivity, decreasing lead times, reduction in wastes, reduction in production costs, increased product quality are achieved. The ratings showed that inventory control systems played a vital role in organizational performance, and as such, organizations must ensure that inventory control system be highly involved in material management activities hence achieving higher organizational performance. The results also showed that the coefficient correlation between material procurement and performance of sugar mill is 0.641. This meant that there was a strong positive relationship between the material procurement and performance of sugar mill of The Salem cooperative sugar mills limited. It was also evident from the findings of the study that inventory control contributes to performance of sugar mill. The results showed that the correlation coefficient between inventory control and performance of sugar mill is 0.345. Hence it can be deduced that there was a positive relationship between inventory control and performance of sugar mill.

RECOMMENDATIONS

1. The study recommends that there is need to enormously employ inventory control systems and information and communication technology especially in ERP and ABC analysis in its future, hence improving organizational performance.
2. Some respondents are not aware of inventory control techniques and the benefits associated with it. So the management must take necessary step to provide training to the employees in order to work with these techniques.
3. The study recommends that there is need for organizations to adopt the use of information technology, that will not only help in information sharing, but also will help in hastening orders from suppliers hence improving the material procurement.

REFERENCES

1. Monday, J. U (2008). Effects of Efficient Materials Management on Performance of Firms in Food and Beverage Manufacturing Industry in Nigeria, MBA Dissertation, Nigeria: Obafemi Awolowo University.

2. http://www.in.kpmg.com/pdf/Indian_Sugar_Industry.pdf (accessed on 10-5-14)

3. http://www.thehindu.com/todays-paper/tp-national/tp-tamilnadu/arignar-anna-sugarmills-gets-award/article4987774.ece (accessed on 10-5-14)

4. Johan Marklund, Inventory control in divergent supply chains with time-based dispatching and shipment consolidation Naval Research Logistics (NRL), 2010;58(1):

5. Barker, T. (1989) Essentials of Materials Management, McGraw Hill Book Company.

6. Banjoko, S. A. (2000). Production and Operations Management, Lagos: Saban Publishers.

7. Ondiek, G. O. (2009). Assessment of Materials Management in the Kenyan Manufacturing Firms. Exploratory Survey of Manufacturing Firms Based in Nairobi. Journal of Social Sciences, 22(8), 88-110.

8. Donald, F. (1975) Materials Management Concept, Great Britain: McGraw Hills Education Ltd

9. Keitany, J.K., Wanyoike, M. & Richu, S. (2014). Assessment of the role of materials management on organizational performance. A case of new Kenya Cooperative Creameries limited, Eldoret Kenya. European Journal of Material Sciences, 1(1), 1-10.

10. Cyprian Bagaka, Dr.Makori Moronge (2017). Role of material management on performance of sugar manufacturing industries in Kenya, case of Mumias sugar company limited.1 (12), 227-245.

11. P.Ezhilmathi, Dr.T.Shanmugapriya (2016). Study on material management- an art of review.

12. K.Harish (2014). A study on materials management in existing constructions at Coimbatore, 1 (3).