



A STUDY OF FSN ANALYSIS FOR INVENTORY MANAGEMENT IN KORADI THERMAL POWER STATION (KTPS), MAHARASHTRA

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ABSTRACT

Inventory management is used in a company to plan the purchase, handle, store and accounting of the material. In this study the process of inventory management used in the KTPS, Koradi is elaborated. In manufacturing industry the raw material is purchased initially and then it is transformed into the final product. Here, purchasing the raw material, handling the raw material by the machines and labors takes place simultaneously storing the material takes place and finally the final product is going for customer buying. But in power generation company the finished or semi finished material is purchased from vendors, is going to use for maintenance purpose of various sections such as boiler maintenance, turbine maintenance, electric maintenance, checking and instrumentation, coal handling plant, ash handling plant etc. only for the generation of electricity. This study documented the various methods of inventory management amongst FSN analysis in detailed.

KEYWORDS: *Koradi Thermal Power Station, Nagpur; Inventory management, FSN analysis*

INTRODUCTION

The term inventory means the accumulation of the material with company so that the activities can be made smoothly. Inventory management refers to the continuous supply of material so that no work should be held up. It also indicates the decision made by higher authorities, store manager and store keeper with respect to the need on site for the maintenance purpose. In any industry today inventory optimization is such a vital function. Excess and Shortage of inventory in all levels of the supply chain can affect the availability of products and/or services to consumers. Several monitoring systems and processes can be employed to check inventory imbalances to minimize the supply and demand dynamics. To simply these monitoring systems and process items/materials/products are classified into different

groups” (Mitchell *et al.*, 2013). A case study on BHEL in which inventory management, the accumulation of surplus stores and non-moving items in the organization and recommends the surplus and absolute stores with the month wise preparation of inventory statements (Bansal, 1976). The study also looks up the flow of material from the entry to the final use mostly in the maintenance purpose. Various departments of KTPS appear under the process of inventory. As the initial cost is very high required for the setting up of power plant afterwards there is only need to maintain the plant for generating electricity. So, finished or semi finished material only required for maintenance of the various sections of the KTPS. The inventory is thus procured, stores, and use for maintenance purpose with the help of various methods used for inventory management.



Following characteristics are considered in inventory management process:

- Number of items.
- Time duration of the material.
- Number of stocking points or locations
- Product nature

METHODOLOGY

Research methodology is carried out by the two methods of data collection mainly Primary data and Secondary data.

Primary data

Primary data is collected from the field of control and supervision of researcher. The data has been gathered through interaction and discussion with the executives and store keeper working in the division. Some of the information is also gathered from the other employees working in the division such as, when do they require materials, how they convey the information to the store keeper etc.

Secondary data

The inventory management study is based on secondary data. The secondary data has been collected from annual reports, manuals; purchase registers, storage records of the organization. Data collection has also been done by the Bin cards and records in the store of the division. Data is also collected from the manuals and monthly magazines of Koradi Thermal Power Station, MahaGenco etc.

Various types of inventory management analysis techniques are FSN, XYZ, ABC, HML, VED, S-OS etc. SAP system is the main methodology used by Koradi thermal Power Station. KTPS uses SAP system is used for many purposes such of applying defects, issue of defects, and cancelling the work permits, consumption of materials etc. Consumption of materials through SAP system helps management to determine and calculate the exact amount of material is consumed during the operation and maintenance work. Here the study is carried on FSN analysis (Yogesh Kumar *et al.* 2017; Mitra *et al.* 2015).

- Nature of supply process.

OBJECTIVES OF STUDY

To evaluate the inventory management by FSN analysis at Koradi Thermal Power Station, Koradi, Dist. Nagpur.

FSN analysis

FSN analysis is used for the determination of movement of the items based on the determined period of six months. FSN analysis is an inventory management technique. The items are classified according to their rate of consumption. The items are classified broadly into three groups: F: Fast moving, S: Slow moving, N: Non-moving.

Fast moving means the materials which are consumed within 6 months time frequently.

Slow moving means the materials which are consumed within the period of 6 months to 12 months. This shows the active inventory of the section. The active, fast-moving goods need to be reviewed regularly. This helps section make smarter buying decisions from suppliers and keep inventory relevant to demand. It can also show section which items are no longer necessary to keep in stock.

Non moving means the materials which are not consumed within 12 months. The non moving material is normally dead material.

Based on the date of receipt or the last date of issue of material Major stores remind the slow moving and non moving stock to the respective section to consume the slow moving and non moving material timely. The respective section has to show the period on which the slow moving and non moving material is going to be consumed within the year.

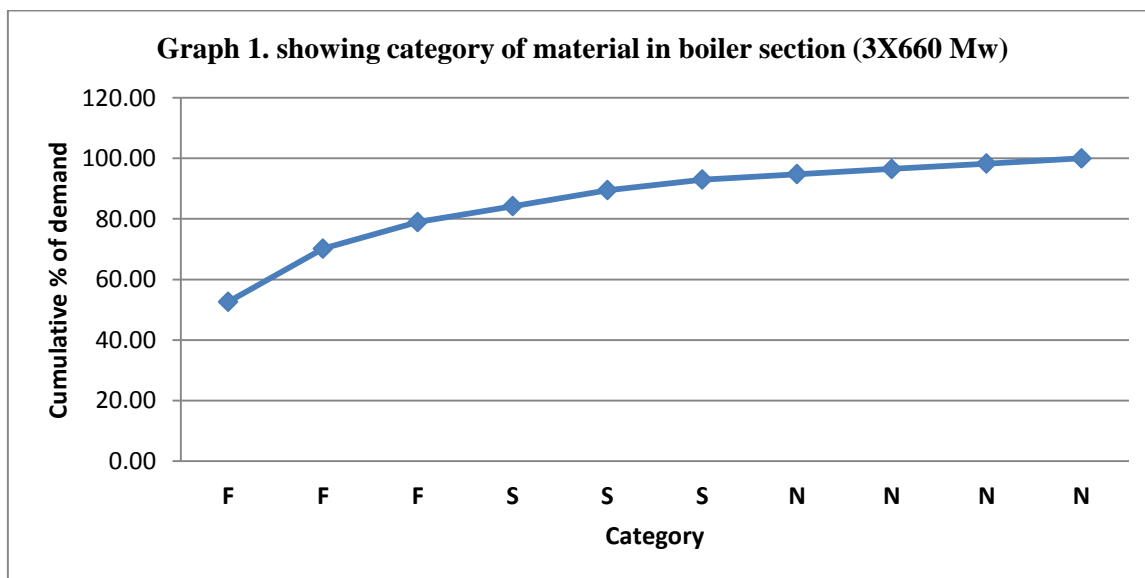
Therefore, section use the information from the FSN analysis to shape which goods should have priority in the store and which items should go. Section can hold clearance sales or give items to other sections or other plants. It's important to get them off so they don't continue to cost money to KTPS.



OBSERVATIONS

Table No. 1. Category of Oil in Koradi Thermal Power Station

CATEGORY OF OIL IN KORADI THERMAL POWER STATION					
SR. NO.	MATERIAL	ANNUAL DEMAND	% ANNUAL DEMAND	CUMULATIVE PERCENTAGE	CATEGORY
1	SERVO MESH GOLD 320	18900	52.63	52.63	F
2	HYDRAULIC SP SY HLP 68	6300	17.54	70.18	F
3	SERVO MESH SP 680	3150	8.77	78.95	F
4	SERVO SYSTEM 46	1890	5.26	84.21	S
5	SERVO SYSTEM 32	1890	5.26	89.47	S
6	SERVO PRESS 220	1260	3.51	92.98	S
7	SERVO MESH SP 220	630	1.75	94.74	N
8	SERVO CYL M-1000	630	1.75	96.49	N
9	SERVO MESH SP 320	630	1.75	98.25	N
10	SHELL - 46	630	1.75	100.00	N

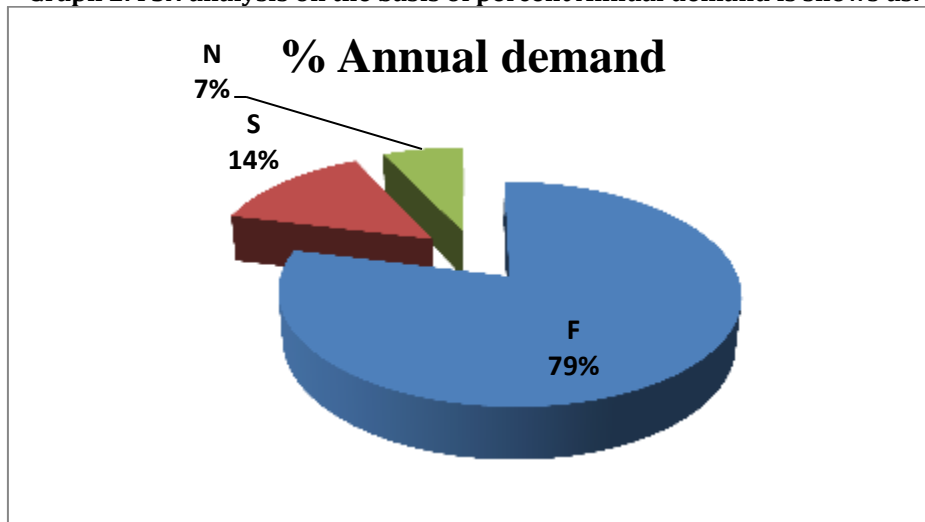


RESULT of FSN analysis

In this analysis only generally used twenty items is used. So their result is shown below

Table No. 2. FSN analysis on the basis of percent Annual demand

RESULT OF FSN ANALYSIS				
Category	Annual demand	% Annual demand	Item used	% item used
F	28350	78.95	6	30
S	5040	14.04	6	30
N	2520	7.02	8	40
TOTAL	35910	100	20	100

**Graph 2. FSN analysis on the basis of percent Annual demand is shows as:**

DATA ANALYSIS AND INTERPRETATION

The inventory of the KTPS is mainly provided and controlled by the major group known as Major/central stores. The inventory procurement and controlling is done by the major stores to the various other departments of the Koradi Thermal Power Station. The quality of the material is checked by the Quality department when the material is arrived in the Major stores or Section store if required on emergency basis unloaded directly on site.

CONCLUSION

From the above study we have concluded that FSN analysis helps to the organization to manage the inventory item effectively not only for unprocessed material but also for output. It will help to understand the problems occur during purchasing, handling, storing of the material. As well as better use of the inventory to minimize the time and effort of the employees so as to obtain smooth functioning of the organisation.

The FSN analysis of inventory management focus to maintain good quality and supply of raw material so as to obtain the good quality of output at minimum use of raw material.

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Various methods used for inventory management are also described in this report such as ABC analysis, HML analysis, FSN technology, VED Analysis, Re-Order Level, Safety stock and SAP methods used for the smooth functioning of Koradi Thermal Power Station. Arrangement of the inventory (if not available with the stores) from the other sections and plants is prior important as no work should be delayed so as to maintain the continuous supply of the electricity to community.

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