

Inventory control and concepts in pulp and paper mills

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SUMMARY

Since in a paper mill, the major percentage of working capital is tied up in inventories in the form of raw materials and stores work-in-progress and finished goods, it is necessary to have a suitable inventory policy.

Inventory policy will depend on several factors viz, nature of material, source of procurement, availability of storage space, shelf life of the material, financial position of the company. As the first step towards inventory control all the materials procured by the organisation are to be classified coded and standardized. In order to evolve an effective control system, the various items are processed through an EDP and a suitable control model is designed by applying any of the standard techniques or a combination of various techniques.

Budgeting has been recognised as an useful tool in the control of inventories. If the monthly inventory holding vis-a-vis purchases/consumptions are planned in advance, it will be possible for the Inventory Controller to compare the actual figures against the budgeted figures and take appropriate corrective actions whenever necessary.

In any manufacturing industry, including Pulp & Paper Mills, in order to ensure efficient performance of any MANAGEMENT PROCESS whether inventory control, production management or financial management, a manager plans the activities of his department, develops the required task relationships and communication links, hires and trains his employees, motivates and co-ordinates their efforts and evaluates and controls their performance. The management process is thus made up of five inter-related, yet distinct fundamental functions :

Planning, Organising, Staffing, Actuating and Co ordinating and controlling.

The first function of management is the development of a series of plans that establishes the framework within which future activities will be conducted. Initially, this process involves setting specific objectives and determining operating policies which guide all activities toward the attainment of these objectives. Finally, time schedules and financial budgets must be determined to ensure that each group of procedures can in fact be carried out. Every managerial job demands

that planning be done before the other functions of management are executed. Having said this, I will now generally deal specifically with the Inventory Control Concepts as applicable in a Pulp & Paper industry in India.

INVENTORY PLANNING

For planning purposes, pulp and paper mills can be broadly classified as process industries as distinct from job oriented and mass-production oriented industries.

In a paper mill it is advisable to have a long-term budget, say with a time span of 5 to 10 years which starts from the Company objectives clearly specifying the working capital norms along with broad objectives. As we are aware, working capital consists of current assests minus current liabilities which is also called as net current assests. In a paper mill, the major percentage of working capital is tied up in inventories in the form of raw materials and stores, work in progress and finished goods.

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Starting from the long-term budgets as explained earlier, the annual budgets are prepared well in advance before the start of financial year. Once the annual production budget is decided, the annual purchase plans are finalised which are then broken down to monthly procurement plans and also month-end inventory holding. However, the inventory holding depends on certain basic assumptions policy of the company which is enumerated hereunder.

BASIC POLICIES

Inventory policies will depend on several factors viz., nature of material, sources of procurement e.g. imported or indigenous, storage space available, shelf life of the material, financial position of the company etc. For example in a paper mill, one of the major item is fibrous materials and/or wood pulp. For the items are seasonal in nature the inventory holding policy will also be affected. Similarly for the wood pulp where supply is primarily available from overseas parties, the inventory policy will be affected by import trade control procedures as laid down by Government from time to time. The amount of funds available for procurement will obviously have an important bearing on inventory policy as well as storage space availability, shelf life for the material etc.

Another important factor to be kept in mind is the use of substitute materials for regular production and for research and development activities.

BASIC PROCEDURES

It is essential that once the policies are spelt out, the detailed systems and procedures are evolved for proper implementation of the above policies. Here it is suggested that an official manual is prepared, detailing all the systems and procedures (including periodic revisions).

Basically the manual should clearly specify the procedures that are to be followed in respect of receipt, storage and issue of materials, methods for disposal of surplus/obsolete materials, rotation of stocks depending on shelf life of materials, insurance of various stores, protection against theft, pilferage, obsolescence, fire hazards etc. It is advisable that the manual should also specify the procedures to be followed in respect of capital equipments.

In brief it can be summarised that the detailed procedures should be laid down depending on the operating conditions of individual Mills so as to ensure proper implementation of the inventory policies as laid down.

ORGANISATION

It is normally experienced that in Indian conditions, not enough stress was given to the inventory control system and various other functional heads interfere with the inventory control process, creating confusion at the end. It is strongly recommended that the entire function should be placed under an experienced Inventory Controller with proper guidelines so that he can independently formulate the policies, to the best advantages of the company. Also, he can be held responsible for any omissions and commissions in this functional area.

Next stage will be to develop an organisation structure commensurate with size and the activities of the company.

CLASSIFICATIONS

A typical classification of materials is given below :

- i) Fibrous materials
- ii) Woodpulp
- iii) Chemicals
- iv) Machine Clothing
- v) Packing and wrapping materials
- vi) Cores & Jointing
- vii) Stores and spare parts
- viii) Consumable stores
- ix) Coal

Once the classification is done, then it is necessary to codify and standardise all the materials to have better control on the inventory. As it will be seen later that various tools and techniques are available for effective control, it is necessary to be very clear in our minds what sort of priorities we should fix on the various groups of materials for control of inventories. To my mind, the following factors will play the important parts in deciding the priorities :

- a) Where the annual value of consumption involves the major portion of total value of annual consumption.
- b) For imported items where availability will depend on import licence etc.
- c) Items which are governed by various restrictions imposed by Govt. policies.

Similarly various other points can be laid down and suitable control modes can be developed.

MODE OF CONTROL

Inventory Control is a planned method of determining what to indent, when to indent, how much to indent and how much

to stock so that purchasing and storing costs are the lowest possible, without affecting production and sales.

As already explained earlier it is essential to have codification and standardisation of materials at the first stage in order to initiate a proper control on inventories. In a typical example given below, about 18,000 items are involved under the various categories of materials for a paper mill :

CATEGORIES OF MATERIALS	NO. OF ITEMS
i) Fibrous materials	25
ii) Wood pulp	35
iii) Chemicals	150
iv) Machine clothing	40
v) Packing & Wrapping materials	75
vi) Cores & Jointing	75
vii) Stores & Spare Parts	17,300
viii) Consumable stores	300
ix) Coal	1

	18,000 (Approx)

However, the above figures will depend on size and nature of paper mill and the above figures have been given just to cite an example.

It is rather difficult to evolve an effective control system unless all these items are processed through an Electric Data Processing System. For this purpose, various models are available and I would advise at first to have a thorough idea about the various techniques with us before a suitable control model is designed. To name a few of the important inventory control approaches, we can name the following:-

- ABC analysis
- VED analysis
- Fixed ordering quantity system (Q system)
- Fixed review period system (P system)
- Simulation
- Dynamic programming

It is not necessary to follow the above techniques blindly in each and every case and various combinations can be adopted to suit the individual requirement. In a typical case, for engineering stores

items totalling about 18000 items, a persistent problem once found difficult to tackle, could be found manageable first by applying ABC/VED analysis and simultaneously fixing various 'control levels'. This system is presently working smoothly and without much problem.

PERFORMANCE EVALUATION

The objective of performance evaluation is to determine whether the inventories are being controlled according to predeveloped plan. Evaluation is a function of control and without evaluation drifts can occur which may seriously affect the financial condition of the Company. Various mills may have different methods of controlling but in general budgeting has been recognised as an useful tool in the managerial and planning control.

In our example, as mentioned above, the entire monthly inventory holding vis-a-vis purchases/consumptions were budgeted in advance. If the actual figures against the budgeted figures are tabulated and compared on monthly basis, then it will be quite easier to initiate corrective actions wherever necessary and the entire process is kept well under control.

CONCLUSION

In this paper, I have tried to broadly outline the concepts of inventory control without going into details of any specific methods or tools or techniques. This has been done purposely as there is no set rule by which we can standardise the Inventory Controlling methods in all the paper mills. It is only the local conditions combined with the knowledge and experience which should be the guiding factor.

However, I would like to add one word of caution that anyone who is entrusted to evolve a model of Inventory Control System in a particular situation must be a man of wide knowledge having analytical mind as any mistake in setting up wrong method or model may prove very costly ultimately to the individual firm. Only people with long experience and adequate knowledge should be entrusted with this job.