

Costing Evaluation For Better Productivity Control

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ABSTRACT

Today is a volatile market. Prices of raw material are fluctuating, so are the prices of chemicals and other inputs. Exactly the same is the case with paper prices. With such fluctuations in the market coupled with low profitability, having a close watch on mill profitability is essential to survive in the market. The present paper deals with a system to evaluate the mills profitability on daily basis.

Introduction

Any industry is set up with a primary objective of making profits. For the same, we try to increase production, yield and improve quality. At the same time, we look for the ways to reduce consumption of inputs, e.g. electrical energy, consumables, boiler fuel, chemicals etc. But, our success depends only on the profits made by our mills. A better understanding of costing helps the mill management to take timely decisions for betterment.

Regular monitoring of mills performance is an essential part of management. Here, with the help of simple spreadsheet and calculations, costing can be worked out on regular basis.

Fundamental Difference with Conventional Accounting

Anyone may ask, "What is the need to have a separate costing system, when we have a complete accounts department in our factory?" Well, there is an accounts department, a number of accountants, all the records are up-to-date, but it is not often possible to get a clear picture of profit or loss regularly with conventional accounting. The basic drawbacks with the conventional accounting can be illustrated as under.

Capital Investment

In the conventional accounting, any capital investment is considered to add up as an asset to the mills. Its value depreciates as per standard rules set by different agencies in the account books. But, every entrepreneur in his own mind considers the equipment

purchased as money gone. The old equipment may or may not sell as per its book value.

Inputs

Many of the inputs, e.g. machinery purchased, are considered to be consumed immediately. For example if a mill installs a new boiler as the old one has deteriorated, the same is a capital investment. In the present system, the same may be considered as either a recurring cost or compensated in the costing assuming at a fixed rate over the product made. Similarly, if there is a wire change, conventional accounting considers the same as issued on that particular day. Here, we consider the same also as a recurring expenditure. As a result, we can get a clearer idea of daily profit or loss, whatever it may be.

Product

Whenever a product is made, and packed, the present system considered it sold, though it may have to be kept in store for a month or more. Thus, actual sale process becomes a process of conversion of paper (product) into money. If there is no production on a day, it is reflected in the present system, as loss on that day, though, actually there might have been a good sale.

Effect of Taxation

Most of the inputs e.g. raw material, chemicals, clothing etc. are excisable,

for which MODVAT may be claimed on the amount of excise paid by the mill. But, sometimes, the amount of MODVAT becomes much more than the excise to be paid on product, the same appears only in the account books, and the mill does not seem to gain much. This often happens with the mills producing paper a little more than 3500 ton per year, and using imported waste paper as raw material. In the present system, the mill management may decide to include excise part in the costing of inputs.

Development of Benchmarks Yield of Waste Paper

Determination of yield of waste paper, particularly when more than one qualities of waste paper is being used seems a rather difficult task. The methodology involves assuming a particular yield, and maintaining a ledger account of the same. On the basis of paper produced, the consumption of waste paper is back calculated, and the same quantity is subtracted from the opening balance to get closing balance for the next day. Typical calculations involved are shown in the next example-

Calculation of waste paper consumption:

a. Product = Newsprint 40.956 T
Newsprint (@88% yield)
40.956/0.88 46.541

Date:DD/MM/YYYY

Sl.	Waste Paper	Opening Balance	Received	Consumed	Closing Balance
1	Newsprint	120786	18740	53572	85954
2	Office Record	80326	NIL	7932	72394
3	Old Books	61742	9050	7774	63018
4	White Cuttings	24320	8800	NIL	33120
5				
TOTAL		287174	36590	69278	254486

Table 1: Sample format for daily waste paper reporting.

Chandpur Enterprises Ltd.,
Chandpur. Dist. Bijnor (U.P.)
Shree Badri Kedar Paper Ltd.,
Nazibabad. (U.P.)

- b. Cream Wove 18.749 T
 Newsprint (33%, @82% yield)
 $0.33 \times 18.749 / 0.88 = 7.031$
 Office Record (33%, @78% yield)
 $0.33 \times 18.749 / 0.78 = 7.932$
 Old Books (34%, @82% yield)
 $0.34 \times 18.749 / 0.82 = 7.774$

After this, the daily waste paper report is prepared as indicated in Table-1.

Periodically, the actual stock is compared with the closing balance. If there is a remarkable difference, the yield figures are revised accordingly. Within a couple of alterations, the operating yield can be found out with good accuracy. Furthermore, having known the consumption, input cost for waste paper can be found out.

Chemical Consumption

Chemical consumption can also be found out by the same way. We broadly use two type of chemicals. Firstly which are used to enhance a parameter, like alum for pH maintaining. We do not have a direct control on the consumption of alum. The operator may need to increase or decrease the dosage of these chemicals as per the process requirement. The other type is an additive chemical. The dosage of these chemicals is usually fixed. These include retention aids, DSR etc. An optimum dosage of these chemicals is selected on the basis of plant trials and then the same is kept fixed over a period of time. Daily reporting is made similar to the report of waste paper.

Power Consumption

In most of the cases, determination of power consumption is not a problem. Daily energy meter readings can be used for the same.

Boiler Fuel Consumption

Most of the mills use more than one boiler fuel. The consumption of these fuels can also be accessed in the same way as in the case of waste paper. In fact, the consumption of boiler fuel is not a fixed one. For example, the consumption of bagasse is a strong consumption of moisture. For such cases, necessary compensation may be added particularly in the rainy weather. Typical benchmark for bagasse consumption may look like-

- Normal weather 700 kg/T
 Rainy weather (wet bagasse) 850 kg/T
 Very cold weather 750 kg/T

The bagasse consumption may be obtained by multiplying production with any relevant value from the above.

Store

Different items are issued from store for various requirements as and when required. A daily statement from the store gives information about the same.

Effect of Price Fluctuation

Most of the time, the price of input fluctuates to a significant level. For example the price of bagasse is high at the start of the season (say October), then remains low for say 3-4 months, and after the month of March, it shoots up again. The purchase price may vary between 80%-200% of its mean value. The price of other items also shows a fluctuating trend.

For such items, a standard price is considered for a period of time. The value may be revised periodically, say every month or so.

Fixed Costs

Fixed costs include financial expenses, salary and wages, depreciation, marketing expenses, miscellaneous office expenditure etc. But here, for the purpose of simplification, cost of wire, felt, or other major but less frequent expenses are considered as fixed one. On the basis of average life of wire and felts, a daily benchmark is set in terms of rupees. Similar is the case for other major expenses. For example if a wire costing say rupees three lacs is installed on machine on a particular day. If the price of the same is considered as expense on that day, the profit-loss

Sl.	Inputs	Weight	Rate	Value
1	Newsprint	53572	9	482148
2	Office Record	7932	15	118980
3	Old Books	7774	13	101062
4	White Cuttings	NIL	17	0
5			
A	Waste Paper	69278		702190
1	Retention Aid	14	175	2450
2	AKD	400	29	11600
3	Rosin	100	29	2900
4	Alum	245	4.5	1102.5
5	UF Resin	185	18	3330
6	...			0
B	Chemicals			21383
C	Boiler Fuel	48495	1.5	72742
D	Electricity	34500	4.25	146625
E	Packing Material			15000
F	Consumables			25793
G	Fixed Expenses			120000
I	TOTAL Input			1077939
	Production			
	Newsprint	40956	17	696252
	Cream Wove	18749	24	449976
	...			
	...			
O	TOTAL Output	59705		1146228
O-I	Profit/Loss (Rs.)			68289
	Profit/Ton (Rs./Ton)			1.14

Table 2: A sample format for daily profit/loss evaluation. (The rates and production/consumption figures are illustrative only for understanding the methodology, and are not taken from any mill. These cannot be considered as benchmark for any mill.)

statement will show a major loss that day. But, if the cost of wire is considered over a five month wire life, the figure comes out to be only rupees two thousand per day, which gives a better idea about the costs involved.

The sum of all such fixed costs is used for daily costing evaluation. It is also possible that due to some accident etc. the wire life is much less than expected. In such cases, though the sum of all fixed costs does not vary significantly, yet, the fixed cost may be inflated accordingly.

Input Costs

Input Cost is sum of all inputs, namely waste paper, chemical, boiler fuel, power, store consumables and fixed cost. As indicated earlier, if there is addition of some new equipment or similar item of major cost involvement, it is not added in input cost.

Product Cost

Product cost is the cost of sellable production made by machine at prevailing market rates. In some of the cases, it is possible that the same quality of product is being sold to more than one customer at different rates.

Weighted average price can be taken for such products.

Monitoring Period

The basic advantage of the process is to be able to determine the profitability of a product on daily basis. If desired, the same concept can be applied over a week or month. The data for one day are obtained the next day, and within a short time, the management is able to know the profitability of the product that was being made on machine the earlier day.

Sample Reports

For the purpose of simplicity, a sample report is presented in Table-2. In this table, the packing material and consumable figures are on actual basis, reported from the store department. Fixed expenses include rolls, wire & felts (considering average life of these), salary, office expenditure, bank and financial institution interest, telephone bill, expenditure on social and charity work etc. The figures are taken on the basis of past one year's expenditure divided by 365 days. Similarly, a provisional amount has been considered for meeting future requirements like replacement of pulper with a high consistency one, installation of DCS/QCS system on

paper machine etc. This provisional amount can be worked out by considering say Rs.250-500 per ton of average production depending on mill condition.

Advantages

For Indian mills, producing many varieties of paper in different basis weight ranges, such analysis can significantly help in determining the minimum price (cost price) of their product, below which selling a product is not viable. The mills can easily identify the products for which the profitability is better, so that more focus is given to such qualities. Another great advantage is that being a simple one; persons who are not very good in accounts can use it. On application of this technique, it has been observed that the profit or loss can be computed on daily basis with fair accuracy.

Conclusion

The primary objective of any mill is to make profit. Getting better and timely information about the primary objective always helps to achieve targets and move ahead. With regular monitoring, the mills can improve their profitability, and many corporate decisions can be taken with much ease.