

# Parta – A Performance Monitoring Tool

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## ABSTRACT

Parta is shown to be an effective performance monitoring tool for pulp and paper mills, not equipped with computer system. The basic information required on raw material, pulping chemicals, power and fuel, water treatment chemicals, baling and packing, are discussed. It is demonstrated in a paper mill using bamboo + hard wood as raw material producing creamwove and maplitho paper.

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## INTRODUCTION

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### What is Parta

Long before the computers were heard of, Birla's, who had a deep insight into the then prevailing business practices, masterminded 'PARTA' as a tool for monitoring daily working results in practically all their industries. 'Parta' is a Rajasthani word which signifies, 'Parameters for performance'. When applied to the industries it becomes a tool to know whether the performance and the inputs required to produce a certain product is within the set parameters or not and what profit or loss is expected from the days working against the set norms.

'Parta' as is normally understood is not a pure finance function. It is a monitoring tool developed by a joint exercise of Finance, Sale, Purchase and Operating personnel. If made and applied properly it gives the executive deep insight into the functioning of the organisation on day-to-day basis.

In other words 'Parta' is a simplified form of complicated cost monitoring and cost control systems for operations, which even the executives with no financial background can use as a tool for financial control. It has been seen that with 'Parta' as a tool even practically uneducated executives have been able to manage the industry efficiently.

The basic concept of 'Parta' is no different for different industries. In actual sense it is a projection of what and where the expenses are incurred to make a product and what is the return. As this philosophy is common to all the industries the concept of 'Parta' explained for one industry will serve the purpose of making 'Parta' for practically all industries.

### How Parta is made

'Parta' makers, before shaping it as a tool for the executives, have to collect a lot of information about the infrastructure facilities, process, input requirements,

intermediate products, variable and fixed expenses, marketability of the product etc. Infact this information is no less than that is required by the modern computers for BPR and ERP systems. However as the information collected for 'Parta' is acted upon in isolation it does not give the advantage of overall performance review, at one point, as is possible by modern computer systems.

It may not be out of place to mention that it is not difficult to simplify the computer generated master performance data on the lines of 'Parta' for a quick assessment by the executive to know the day-to-day performance of the industry.

As has already been said that 'Parta' is a projection of what and where the expenses are to be incurred and what will be the approximate return on the days operation, the first stage 'Parta' is made on factual basis after ascertaining the expenses and return of the previous year. In case of a new project the 'Parta' is made on the basis of standard norms.

The next step is to interact with all the concerned area heads and recast the 'Parta' norms on the basis of expected change in old norms due to improvements, cost escalation / reduction and management's perspective.

To achieve the revised norms some additional capital / revenue expenditure is needed for modification of the process and equipment and the same is allowed over and above the normal budgeted expenditure under a separate head. This concept of 'cost for cost reduction', if judiciously made and acted upon keeps the organisation in good health.

It is said that a good 'Parta' maker, in order to keep continuous pressure for improvement on the operating personnel, do play with the achieved norms and costs to justify, An executive who can achieve the 'Parta' is an inefficient executive and has no vision for improvement.

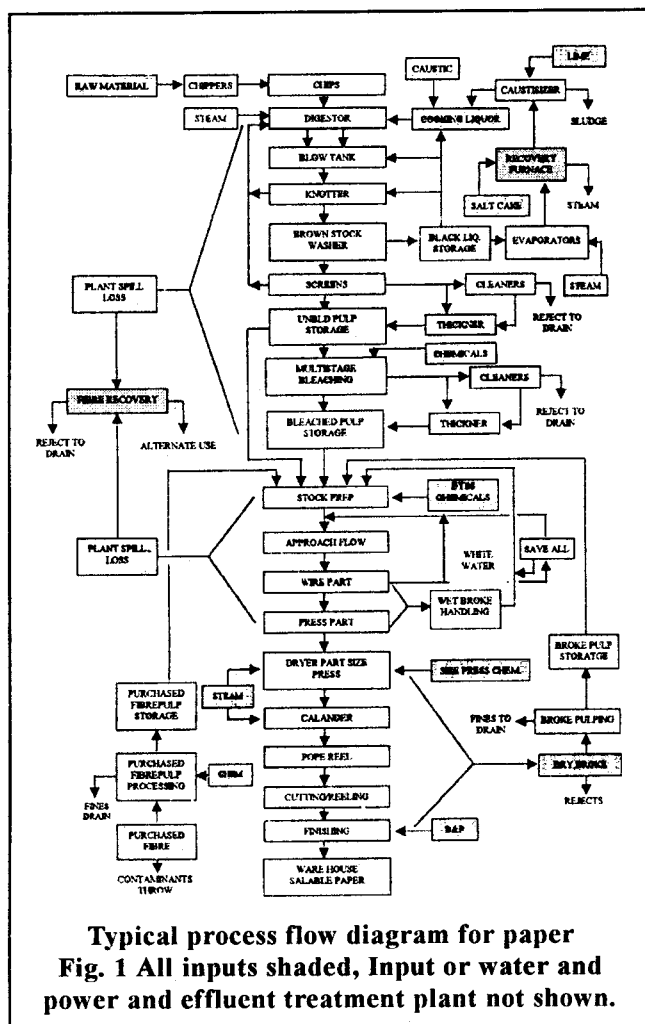
Some 'Parta' makers have a tendency to manipulate the norms to artificially boost the profit with the result that the management gets confused in taking proper decision. This situation should therefore be avoided to

make the 'Parta' tool an effective means for control. Sanctity of 'Parta' lies on the top management's perspective and not on whims.

'Parta' is usually made on yearly basis, but if the situation warrants it can be broken down to monthly or quarterly base. Infact the breaking down of 'Parta' to monthly or quarterly base becomes essential if the product mix is changed frequently.

It is not uncommon to make 'Parta' for each product separately if the industry makes different type of products or make a combination of products for manipulating profitability .

To illustrate the 'Parta' making process it may be dealt with a Pulp and Paper making industry, which like most of the other process industries based on naturally produced raw material, has a lot of unknown variables acting on the process. It may not be incorrect to say that though the processes of Paper industry have a number of features common with other process industries there are many important aspects of Pulp and Paper making processes and materials which are unique. The illustration of making 'Parta' for Pulp and Paper industry will therefore serve the purpose for practically



all process industries.

### Parta for a pulp and paper industry

The 'Parta' maker should first understand the process followed for Pulp and Papermaking. This is essential for him to know what goes where and what is the output and byproduct. For general idea of the paper making process see Fig.1.

He should then interact with all the concerned like sales, purchase, finance, operating personal, maintenance and labour to collect the required information. It is now for the top management to decide as what all are to be grouped under the variable and fixed expenses. For illustration purpose the grouping has been done as under.

#### A- Variable

**Raw material:** Bamboo / Wood or any other fibre used.

**Pulp chemicals:** All chemicals for Pulp making.

**Sizing chemicals:** All chemicals for Paper making.

**Power and Fuel:** Though these expenses are partly fixed and partly variable these are considered as fully variable for 'Parta' purpose. If required these expenses can be divided into fixed and variable heads in desired proportion. However at the end of the day this will hardly make any difference in the profitability projection.

**Water treatment chemicals:** These chemicals are for raw water, boiler feed water and effluent treatment. If required these can also be treated separately.

**Baling and packing:** Material required for special packing, not of regular nature, is not included.

Any other item as per the decision of the management.

#### B- Fixed

**Assets maintenance:** There is always some confusion about the items included in this category. Some of the items like chipper knives, refiner tackles, wires and felts, etc. which are related to process are considered under this head by some and some others consider them under a separate head in variable cost. In this illustration the expenses on these items have been considered under fixed assets maintenance cost. All other maintenance costs whether related directly to production or not are also included under this head.

**Overheads:** These will include all employees' cost. Administrative expenses, Welfare expenses etc. as per management's decision.

**Interest:** Total outgo on borrowings. Interest accrued on lending, accrued or paid in business transaction are normally not considered in 'Parta'. However there is no bar in accounting these items under relevant heads. Some Parta makers do not consider even the interest outgo on borrowings in Parta. The input and output figures, cost and quantity, norms and sequences considered in the illustration are hypothetical. Hence it should not be taken

as a bench mark.

### Available Intrastructure

1. Integrated Pulp and Paper making industry based on forest based Raw material i.e. Wood and Bamboo.
2. One Paper making machine of 200 tonnes/day capacity on 60 gsm. substance weight.
3. Matching Pulp mill with Chemical recovery.
4. 90/95% co-generation facility for total Power and Steam demand.
5. Water and Effluent treatment plant of required capacity.
6. Well laid housing colony for nearly 80% staff and the skilled manpower.

### 3a- Basic information required for 'Parta'

1. Product mix (Actual) based on sales projection (Tables 1 and 2):
  - a. Creamwove 52 gsm. 2700 T/m
  - b. S.S. Maplitho 60 gsm. 1050 T/m
  - c. S.S. Maplitho 68 gsm. 1260 T/m

**Total** 5010 T/m on 27 working days/m.

This product mix is for illustration purpose. Any other suitable product mix can be taken for Parta.

**Raw material:** Requirement of Bamboo and Wood in required proportion (Table 3) with expected bleached pulp yield on Air dry basis for the total production. Retained ash as a substitute for fibre should also of specified, if the same is considered in Rawmaterial as is done in the illustration.

**Pulp chemicals:** Having facility for recovery of cooking chemicals, quantity and cost of all chemicals like caustic, lime, chlorine and others.

**Sizing chemicals:** Quantity and cost of all chemicals required for the product mix, independently for different varieties Table 4.

**Power and Fuel:** Total steam and power required for the establishment having;

- a. Steam from Recovery boiler 40/45 T/hr.
- b. Two coal fired boilers of 50 T/hr capacity.
- c. Steam and Power balance for the process and others with 'a' and 'b' running in parallel.
- d. Double extraction condensing Turbo Alternator of 12.5 M.W. (average 12.00 M.W.) capacity.
- e. Facilities to tap required power from grid.

**Water treatment chemicals:** Quantity and cost of all chemicals required for Raw water, Boiler feed water and Effluent treatment.

**Baling and packing:** All items like wrapper, and other

packing material required for normal packing of paper. Quality and cost Table 5.

**Assets maintenance:** Cost of all maintenance items required for equipment, factory and residential buildings and other facilities.

**Overheads:** Details as decided by the management.

**Interest:** Total out go on borrowings.

### Making parta

#### Raw material

Only Bamboo and Wood are considered as basic raw materials. (Blending with any other raw material can be considered proportionately in a similar manner) Talcum powder or any other loading material though not a fibrous material is counted under this head, as it is a substitute of fibre for pulp and raw material. Mills may consider loading material in sizing chemicals with no apparent change. However loading material considered in raw material account increases the raw material cost and reduce the sizing chemical cost and vice-versa.

#### Basic Parameters:

Creamwove 52 gsm. = 2700 T

i. Bamboo and Wood pulp @85%

ii. Medium bright loading (Telcum) 15% Ash in paper.

S.S. Maplitho 60gsm 1050T+68gsm 1260T = 2310 T

i. Bamboo and Wood pulp @ 90%

ii. High bright loading (Telcum) 10%. Ash in paper.

Loading retention. = 50%

Based on the above parameters the cost of Raw Material for 5010 Tonnes production can be calculated as under. Moisture in paper not considered.

#### Balance for Raw Material Cost

- i. Bamboo 1773 T = Rs. 57,62,000  
@ Rs. 3250 / ADT
  - ii. Wood 10048T@ = Rs. 2,00,96,000  
Rs. 2000/A.D.T.
  - iii. M.B. Loading 810 = Rs. 16,20,000  
T@Rs. 2000/T.
  - iv. H.B. Loading 462 = Rs. 13,86,000  
T @ Rs. 3000/ T.
- Total Raw Material cost = Rs. 2, 88,64,000  
Average Raw material cost = Rs. 5761/T  
for 5010T production

**Pulp Chemicals:** Pulp chemicals are required to produce 4374T of bleached pulp from Bamboo and Wood. In the present case bamboo and wood chips are cooked together.

**Basic parameters:**

- i. Yield 37% bleached pulp on A.D. raw material.
- ii. Cooking chemicals 16.5% as Na<sub>2</sub>O on A.D. Raw material.
- iii. Salt cake 10 T/D for 20% Sulphidity as make up.
- iv. Recovery 90% of gross cooking chemicals.
- v. Lime 1.1 T / T of Na<sub>2</sub>O recovered.
- vi. Chlorine consumption 13.5% on bleached pulp.
- vii. Chlorine gas: hypochlorite for bleaching 60:40
- viii. Caustic for bleaching, 3.5% on bleached pulp.
- ix. Lime for making hypochlorite 1.5 T / T of chlorine.

Based on the above parameters cost of Pulp chemicals for 5010 tonnes production will be as under .

#### Balance for pulp chemical cost:

1. Salt cake 300 T @Rs. 4700/T	= Rs.	14,10,000
2. NaOH (Caustic) 250 T @	= Rs.	27,50,000
	= Rs.	11,000/T
3. Lime 2285 T @ Rs. 1400/T	= Rs.	31,99,000
4. Chlorine 590T @ Rs. 7000/T	= Rs.	41,30,000
5. Other chemicals (assumed)	= Rs.	8,00,000

**Total = Rs. 1,22,89,000**

Average pulp chemicals cost = Rs. 2452/T for 5010 production

#### Sizing chemicals

Sizing Chemicals for Creamwove and Maplitho are not the same. As in Creamwove size press will be running without chemicals, size press chemicals cost will be deleted. However for 'Parta' size press chemicals cost though related only for Maplitho will be considered for average cost.

#### Basic parameters:

- i. Alum or its equivalent for total production. @8%
- ii. Rosin or its equivalent for total production. @0.9%
- iii. Dyes and other chemicals for total production. Rs. 225/T
- iv. Size press chemicals for Maplitho. Rs. 350/T

#### Balance for Sizing chemicals cost

Alum @ Rs. 2700/T	= Rs.	10,83,000
Rosin @ Rs. 33000/T	= Rs.	14,85,000
Dyes and other chemicals	= Rs.	11,27,000
Size press chemicals	= Rs.	8,08,000
Total	= Rs.	45,03,000
Average sizing chemicals cost for 5010 T production	= Rs.	900/T

## Power and Fuel

### Basic Parameters:

The mill has two 50 T/hr coal fired boilers. Soda recovery plant gives 40/45 T/hr. steam. The power generation is by a 12.5 MW double extraction/condensing turbine. Average generation 12 MW.

Coal consumption for power generation and meeting the process steam demand (steam from recovery boiler included) is around 500 T/D. This is based on steam balance. Power units consumed for paper 1800 kWh/T. This includes the power consumed for all other facilities. (Power consumption not directly related to papermaking can be deleted and added elsewhere say overheads. Consumption of fuel oil is not regular, but taken on a yearly basis nearly 10 KL of fuel oil is apportioned per month.

Shortfall of power is met from the grid. The average cost of which is Rs. 3. 50/kWh. including all charges.

### Balance for Power and Fuel Cost:

Coal 15000 T@ Rs. 1200/T.	=Rs.	1,80,00,000
Fuel Oil 10 KL @ Rs. 6500/KL.	=Rs.	65,000
Total power demand 90, 18,000Kwh/m.		

Power generated 86,400,000Kwh/m.

Purchase power @ Rs. 3.50/Kwh. = Rs. 13,23,000  
Total for one month. = Rs. 1,93,88,000

Average Power & Fuel cost =Rs. 3870/T for 5010 T production.

**Water Treatment Chemicals: = Rs. 175/T**

Cost of water treatment chemicals can be clubbed with power and fuel cost. However these are treated as independent expenses as they not only relate to boiler water treatment but also for raw water and effluent treatment. As these expenses vary with the season hence total yearly expenses are taken and averaged out on per tonne basis.

**Baling and Packing: =Rs. 250/T**

Baling and packing expenses vary depending upon the quality, in reel form or sheet form and other requirement of the consumer. The total cost incurred during the year is averaged out on per tonne basis. (Extra packing expenses for export orders or other specialised packing are not considered in the base Parta).

### Assets maintenance material

All the materials that is purchased and issued by stores for maintenance of plant & machinery , factory and residential buildings, and all other facilities available in the mills area which are to be maintained by the industry comes in this category. Confusion some times crops up if the purpose of stores material issued is not properly defined. As such it is necessary to clearly as to

which material issued from the stores will go under which head. This will provide better control on expenses. However for 'Parta' purposes we consider stores issues under 3 heads only.

1. For process and production.
2. For repairs and maintenance of all type of assets.
3. All other in overhead account under relevant head.

Store issues of chemicals etc. for process and production are considered in variable expenditure under individual heads. Based on experience of previous year, expected activities in the coming year, effect of efficiency measures and average price escalation a lump sum is fixed for repairs and maintenance for the year and apportioned on monthly basis. Though this system is not very scientific it work as long as the vision of the management is reasonably accurate.

In this case we have considered nearly Rs. 1200 per tonne of paper for normal repairs and maintenance. (Revenue and capital expenditure not of regular nature are not considered)

For annual production. = Rs. 7,21,44,000  
 For the month. = Rs. 60,12,000  
 Average Per day on 30 days/m. = Rs. 2,00,400

#### Overheads

Overheads include all the other costs, except interest. Expenses under all the subheads of overheads are based on previous years working results, normal escalation and effect of efficiency measures. In the present case we have considered the overheads as under. (It is better to have a separate work sheet of all items considered in Overheads.)

Overheads for the year. =Rs. 24,00,00,000  
 Overheads for the month. =Rs. 2,00,00,000  
 Overheads for the day. 30 days/m. =Rs. 6,66,670

#### Interest

There are two ways of showing interest i.e.

1. Net out go.
2. Interest accrued and interest paid separately. (net of these can be considered under extra income/ loss in balance sheet.)

In this case we have considered Rs. 3,00,00,000 as the net outgo interest per year.

As such for Parta purpose the interest will be considered as under.

Interest for the year. = Rs. 3,00,00,000  
 Interest for the month of 30 days. = Rs. 25,00,000  
 Interest for the day. = Rs. 83,330

For 'Parta' all the above variable and fixed expenses are consolidated and the 'Parta' then looks as under .

If required particulars under heads A to I can be broken down to further details. To this profit all extra income/expenditure from other sources can be added/

Table 2

Net production from machine S.S. Map litho 60 GSM	
Net production.	163.8 MT
Net realisation as per Parta 163.8 x 21410	Rs.35,06,960
Net realisation actual 163.8 x 22300	Rs. 36,52,740
Realisation gain against Parta	Rs. 1,45,780
<b>Raw Material</b>	
Bamboo 60 T @ Rs. 3250/ T	Rs. 1,95,000
Wood 360 T @ Rs. 2000/ T	Rs. 7,20,000
H.B. Talc 36 T @ Rs. 3000/ T	Rs. 1,08,000
Total	Rs.10,23,000
Should be cost as per Parta 163.8 x 5761	Rs. 9,43,650
Raw Material loss against Parta	Rs. 79,350
<b>Pulp Chemicals:</b>	
Salt Cake 8 T @ Rs. 47001 T	Rs. 37,600
Caustic5 T @ Rs. 110001 T	Rs. 55,000
Lime 70 T @ Rs. 14001 T	Rs. 98,000
Chlorine 21 T @ Rs. 70001 T	Rs.1,47,000
Other chemicals	Rs. 30,000
Total	Rs.3,68,150
Should be cost as per Parta 163.8 x 2452	Rs.4,01,640
Pulp Chemical gain against Parta	Rs. 33,490

Table-1

#### 'Parta' for 5010 T/m production:

30 days working -37% yield -90% Recovery. 12.0 MW average generation.		
Product Mix.		
Creamwove.	52 gsm.	2700T/m
S.S. Maplitho SS.	60 gsm.	1050T/m
S.S. Maplitho SS.	68 gsm.	1260T/m
Realisation (net after sales discount)		
Creamwove	52 gsm.	Rs. (22500- 1500) x 2700 = Rs.5,67,00,000
Maplitho SS	60gsm.	Rs. (24000-1700)x 1050 = Rs.2,34,15,000
S.S. Maplitho SS	68. gsm.	Rs. (23250- 1700) x 1260 = Rs. 2,71,53,000
	<b>Total</b>	<b>= Rs.1 0,72,68,000</b>
Average net realisation, for 5010 T Production.		<b>= Rs. 21410/MT</b>

Table 3

S.No.	Particulars	Qty. Per MT	Qty. MT	Rate Rs/MT	Amount '000Rs.	Total '000Rs.	Cost/MT Rs.
	<b>Raw material</b>						
A	i. Bamboo	0.3538	1773	3250	5762		
	ii. Wood	2.0056	10048	2000	20096		
	iii. MB Talcum	0.1617	810	2000	1620		
	iv. HB Talcum	0.0922	462	3000	1386		
	For 5010 MT					28864	5761
	<b>Pulp chemicals</b>						
B	i. Salt cake	0.0599	300	4700	1410		
	ii. Caustic (NaOH)	0.0499	250	11000	2750		
	iii. Lime	0.4561	2285	1400	3199		
	iv. Chlorine	0.1177	590	7000	4130		
	v. Other chemicals				800		
	For 5010 MT					12289	2451
	<b>Sizing chemicals</b>						
C	Alum	0.08	401	2700	1083		
	Rosin	0.009	45	33000	1485		
	Dyes & Chemicals				1127		
	Size press chemicals				808		
	For 5010 MT					4503	900
	<b>Power &amp; Fuel</b>						
D	i. Purchase power	kwh/m	378000	3.50	1323		
	ii. Coal	MT/m	15000	1200	1800		
	iii. Fuel Oil	kl/m	10	650	65		
	For 5010 MT					19388	3870
E	W.T. chemicals					875	175
F	Baling & Packing					1252	250
G	Assets Maintenance					6012	1200
H	Overheads					20000	3992
I	Interest					2500	499
J	Total Cost					95683	19098
K	Net Realisation					107268	21410
L	Profit before Tax & depreciation					11585	2312

Table 4 Sizing Chemicals

Alum 14 T @ Rs. 27001 T	•	Rs. 37,800
Rosin 1.5 T @ Rs. 330001 T	•	Rs. 49,500
Dyes/Chemicals.	•	Rs. 35,200
Size press chemicals.		Rs. 57,300
Total		Rs.1, 79,700
Should be cost as per Parta 163.8 x 900		Rs.1, 47,420
Pulp Chemical loss against Parta		Rs. 32, 280
<b>Power and Fuel:</b>		
Coal 510 T @ Rs. 12001 T	•	Rs.6, 12,000
Furnace Oil 1 KL @ Rs. 65001 T	•	Rs. 6,500
Purchased power 700 Kwh @ Rs. 3.50Kwh	•	Rs. 2,450
Total		Rs.6,20,950
Should be cost as per Parta 163.8 x 3870		Rs.6,33,910
Power and Fuel gain against Parta		Rs. 12, 960
<b>Water Treatment Chemicals:</b>		
Chemicals issued by Stores.		Rs. 19,650
Should be cost as per Parta 163.8 x 175		Rs.28,670
W.T. Chemical gain against Parta		Rs. 9,020

Table 5 Baling and Packing

Material supplied by stores.	•	Rs. 47,350
Should be cost as per Parta 163.8 x 250.		Rs. 40,950
Baling/packing loss as against Parta.		Rs. 6, 400
<b>Stores for repairs and maintenance:</b>		
Material supplied by stores.	•	Rs. 2, 93, 720
Should be cost as per Parta.		Rs. 2, 00,400
Stores loss as against Parta.		Rs. 93, 3200
Overheads are independent of how much paper is produced and hence taken as constant @		Rs. 6, 6_6, 670/day in Parta.
Interest out go is constant @		Rs. 83,330/ day
Parta envisage a profit of		Rs. 3, 86, 167/day
<b>Production:</b>		
Parta production	•	167T/D
Days production.		163. 8T
Parta profit		Rs.3,86,167
Profit to day on Parta base norms		Rs. 3,60,320
Loss due to less production		Rs. 25,847

subtracted either on monthly or ultimately on the yearly basis. This is a master Parta in which consumption parameters have been fixed and the cost of various inputs and the realisation of the product has been considered on the date of making the Parta. Normally the day-to-day working is compared with the norms of consumption and cost taken in Parta and the deviations in either are adjusted by the end of the month by variance analysis. We shall now see as to how the daily working is compared with the Parta and the variances are noted for further decisions.

On a particular day the following (marked \*) are reported by the concerned areas. This exercise is done everyday based on master Parta.

Having calculated the day's variances as above a Profit and Loss tally is made the same day as shown in table 6. The tally will depend upon the correctness of information given by the concerned areas. Even then lot of variation will be seen under various heads. This is because of lot of process variables can neither be measured nor assessed. As in 'Parta' the details are taken on an average basis for the month the real picture will emerge only by the end of the month. However the daily and up-to-date figures in the tally will give sufficient information to the executive for action. Such a tally is made every day and the variances are shown on daily and to-date basis. To-date variances take care of many variable factors and ups and down in practically all

variable heads and assets maintenance cost.

The P/L tally from the above table indicates that the profit on the days is Rs. 350220 which is short by Rs. 35947 from the parta projected profit of Rs. 386167. The areas where the loss or gain has accrued is also shown in the table. Its now for the executive to attack the loosing gaining area by going in the details as to why the loss or gain has accrued in that area.

#### Example for raw material

For 163.8- 60 gsm maplitho the Raw Material consumption should be

Bamboo + Wood pulp @ 90% 147.42 T.  
H.B. Talcum @ 10% 16.38 T.  
Bamboo + Wood @ 37% yield and 15:85 proportion. 398.40 T.

Bamboo 59.70 T.  
Wood 338.80 T.  
H.B. Talcum @ 50% retention 32.76 T.  
As against this the mill has consumed -  
Bamboo 60 T i.e. 0.3 T extra =Rs. 975  
@ Rs. 3250/ T.  
Wood 360 T i.e. 21.2 T extra =Rs.42,400  
@ Rs. 2000/ T.  
H.B. Talc. 36 T i.e. 3.24 T extra =Rs. 9,720  
@ Rs. 3000/ T.

Table 6

Profit and loss tally		Parta prod. 167MT		Days prodn. 163.8 MT			
S. No.	Particulars	Parta Norms		Expenses On days production		Variance	
		Per MT Rs.	Per day Rs.	Should be on Parta base Rs.	Actual Rs.	+ Rs.	- Rs.
	1	2	3	4	5	6	7
1.	Raw Materials	5761		943650	1023000		79350
2.	Pulp Chemicals	2452		401640	368150	33490	
3.	Sizing Chemicals	900	147420	179700			32280
4.	Power and Fuel	3870		633910	620950	12960	
5.	W.T. Chemicals	175		28670	19650	9020	
6.	Baling & Packing	250		40950	47350		6400
7.	Assets Maint	1200	200400	200400	293720		93320
8.	Overheads	3992	666670	666670	66670		
9.	Interest	499	83330	83330	83330		
10.	Input variance					55470	211350
11.	Total cost	19098		3146640	3302520		155880
12.	Realisation	21410		3506960	3652740	145780	
13.	P/L-variance			360320	350220		10100
14.	Prod. Loss		386167	360320			25847
15.	P/L Today on parta		386167		350220		35947

Total =Rs. 53095.

The loss shown in the tally is Rs. 79350. against actual loss of Rs. 53095 i.e. Rs. 26255 more. This difference of Rs. 26255 is because in Parta the average cost is taken for Creamwove and Maplitho which have different proportion of Bamboo and Wood pulp and loading material. Such an analysis can be done for all heads to know as to for what the expenses/ consumption is more or less against the 'Parta'. This type of variance analysis is done by some mills on the daily basis to check the actual profitability of the product mix.

### Parta of individual products

Production 5010 T/m of 30 days. (For making 5010 T Paper per month the average production per day will be 167 T/D, while if we go variety wise and consider that the machine downtime of 72 hours is divided equally in 3 varieties 52 gsm Creamwove will be made for 16 days i.e., an average of 168.75 T/day. 60 GSM SS Maplitho will be made for 7 days i.e., 150 T/D and 68 Gsm SS Map litho for 7 days i.e., 180 T/day.)

52Gsm Creamwove	168.75 T/D x 16	= 2700/ T
60 Gsm Maplitho	150.00 T/D x 7	= 1050/ T
68 Gsm Maplitho	180.00 T/D x 7	= 1260/T
<b>TOTAL</b>		<b>= 5010/ T</b>

### Raw material

#### For Creamwove 1 MT

Bamboo + Wood Pulp @ 85%	= 850Kg.	
Bamboo + Wood @ 37% yield	= 2297 Kg.	
Bamboo @ 15% = 344 Kg. @ Rs. 3.250/Kg.		=Rs. 1119
Wood @ 85% = 1953 Kg. @Rs. 2000/Kg.		=Rs. 3905
M.B. Talcum 15% ash.	=150Kg	
M.B. Talcum @ 50% retention	= 300Kg	= Rs. 600
	@ Rs. 2.00/Kg.	

**Total R.M. Cost for IT Creamwove = Rs. 5624**

#### For Maplitho 1 MT

Bamboo + Wood Pulp @ 90%	= 900Kg.	
Bamboo + Wood @ 37% yield.	= 2432 Kg.	
Bamboo @ 15% = 365 Kg. @ Rs. 3.250/Kg.		= Rs. 1186
Wood @ 85% = 2067 Kg. @ Rs. 2000/Kg.		= Rs. 4134
M.B. Talcum 10% ash	=100Kg.	
M.B. Talcum @ 50% retention = 200Kg		= Rs. 600
	@ Rs. 3.00/Kg.	

**Total R.M. Cost for IT Maplitho = Rs. 5920**

#### Pulp chemical:

Same for both Creamwove and Maplitho =Rs. 2452

### Sizing Chemicals

#### 1. For 1 MT Creamwove

Alum 8% = 80 Kg. @ Rs. 2.70/Kg.	= Rs. 216
Rosin 0.9% = 9Kg. @ Rs. 33/ Kg.	= Rs 297
Dyes & Chemicals.	= Rs. 225

**Total Sizing Chemicals for 1 Mt Creamwove = Rs. 738**

#### For Maplitho all the above sizing chemicals will be needed

+Rs. 350/T for size press chemicals (Rs.738 + 350) =Rs. 1088

### Baling: and Packing

Cost/T is same for both varieties =Rs. 250

#### Water Treatment chemicals cost

Same for both =Rs. 175

Power and Fuel, Assets maintenance, overheads and interest costs are taken inversely proportional to production i.e. Higher the production lower is the cost and vice - versa.

### Power & Fuel

We have taken the total power and fuel cost for a month of 30 days as Rs. 1,93,88,000 i.e., Rs.6,46,267/day.

As such the Power and Fuel cost for:

1. 52Gsm Creamwove =(Rs. 6,46,267/168.75)	=3830/ T
2. 60 GSM SS Maplitho =(Rs 6,46,267 / 150)	=4308/ T
3. 68 GSM Maplitho = (Rs. 6,46,267 / 180)	=3590/ T

### Assets maintenance

Cost of Rs. 2,00,400 per day for all practical purposes can also be divided on the basis of production per day for the individual variety.

As such the assets maintenance cost for;

1. 52Gsm Creamwove =(Rs. 2,00,400/168.75)	=1188/ T
2. 60 GSM SS Maplitho =(Rs2,00,400 /150)	=1336/ T
3. 68 GSM Maplitho = (Rs. 2,00,400/180)	=1113/ T

### Overheads

Cost per day = Rs. 6,66,670. This is also divided on the basis of production per day of the individual variety.

As such the overheads cost for;

1. 52GSM Creamwove =(Rs. 6,66,670/168.75)	=3951/ T
2. 60 GSM SS Maplitho =(Rs6,66,670 / 150)	=4445/ T
3. 68 GSM SS Maplitho = (Rs. 6,66,670 / 180)	=3704/ T

### Interest

Interest is also treated in the same way as the overheads and as such for the daily interest of

Rs. 83,330 the bifurcation will be as under:

52Gsm Creamwove =(Rs. 83,330/168.75)	=494/ T
60 GSM SS Maplitho =(Rs83,330 /150)	=556/ T
68 GSM SS Maplitho = (Rs. 83,330/180)	=463/ T



Table 7 Parta for product mix

		Creamwove	SS Maplitho	SS Maplitho
Cost per tonne	GSM	52	60	68
	Prodn. per day (MT)	168.8	150.0	180.0
	Total days made	16	7	7
	Total Prodn. (MT)	2700	1050	1260
	Raw Material (Rs.)	5624	5920	5920
	Pulp Chem. (Rs.)	2452	2452	2452
	Sizing Chem (Rs.)	738	1088	1088
	Power & Fuel (Rs.)	3830	4308	3590
	W.T. Chem. (Rs.)	175	175	175
	B & P (Rs.)	250	250	250
	Assets Maint. (Rs.)	1188	1336	1113
	Overheads	3951	4445	3704
	Interest (Rs.)	494	556	463
	Trade discount (Rs.)	1500	1700	1700
	Total Cost (Rs.)	20202	22230	20455
	Realisation (Rs./T)	22500	24000	23250
	P.L. Per tonne (Rs.)	2298	1770	2795
	P.L. Per day (Rs.)	387902	265500	503100
	P.L. Total (Rs.)	6206400	1858500	3521700
	<b>Total Production = 5010 T/m.</b>		<b>Total Profit Rs. 1,15,86,600</b>	

Having calculated like this a table is made as under to know as to which variety will give what profit on the daily basis. Slight variations in the figures are due to rounding off. The above table indicates that out of the 3 varieties 68 gsm. SS Maplitho is the most profitable. The second in the line is 52 gsm. Creamwove and 60 gsm. SS Maplitho is the last. If a table on the similar lines as shown above is made, for other varieties that can be made on the machine and marketed, profitability can be manipulated Table 7. Infact the executives working with Parta make their production programme only after doing this exercise for different type of product that can be made and sold.

## CONCLUSION

As many units are not in a position to invest in computerised operation controls and monitoring systems Parta can be the best alternative. To have a quick review of what is happening in the industries "Parta" was masterminded 'Parta' was as a monitoring tool which had no parallel any where. With this tool it was possible

to watch the performance of the industries sitting hundreds of miles away and give guidance wherever needed. 'Parta' was in such a simple way that it became a monitoring tool for even the unqualified executives to have a close watch on the working of the industry on day-to-day basis.

For those who cannot afford computerised production analysis programmes Parta still remains a basic guide. It does not take much to introduce Parta in an industry except that the daily input-output reports from different areas should be as accurate as possible, and the norms are achievable. Parta is based on averages. As such Parta should be made for each product separately to know as to which product gives what and then consolidated to have the picture of total profitability. Parta no doubt does not give variance analysis, which the computers can give by the flash of a button. But that is not necessary and relevant in process industries like pulp and paper based on naturally produced raw material having lot of unknown input and process variables, which are difficult to measure and record, for day-to-day monitoring.