PLASTIC COMB, MUG, BUCKET, CONTAINERS ETC.

Introduction:

Thermo-plastic materials like High Density Polythene (HDPE), Poly-Vinyl Chloride (PVC) can be blow moulded into containers of different sizes and shapes. Some of the common items that are produced include buckets, mugs and jerry cans. Buckets, cans and mugs are produced from PVC and that of Jerry cans from HDPE. Their light weight, flexibility, corrosion and chemical resistance have made these plastic products popular for storage and handling of water, petrol, diesel etc.

Combs are an item of daily necessity. In earlier days, combs were made out of ivory, horns of cows and buffaloes, which has now becomes costly affairs. In recent years, plastic combs are being used increasingly it being convenient to handle and economic. Plastic combs are being produce by using injection moulding machine.

Market Potential:

Plastic comb, mug, bucket and containers are considered as necessity items for every household. As per 2001 census the population of North Eastern region is 3.90 crores. Considering that five persons constitute a household the total household in the region is 78,00,000. Again considering that every year there is a replacement demand to change these items by at least 30% of total number of households, the requirement of these items on this basis becomes 23,40,000 numbers. This may be in addition to the new demand for these items by at least 15% of total number of household every year which stands at 11,70,000. Therefore, every year at least 35,10,000 numbers of these items are required by the households in the North Eastern Region.

To meet the above demand there exist around 10 numbers of related units in the region in Guwahati, Dibrugarh and Dimapur. The production of these units is limited and bulk of the requirement is being met from outside sources, the leading brands being *"Brite*" and "*Prince".* Again plastic combs are of normal size and pocket size combs. The leading brands the market are *Lily, Brite, Joy* and *Dill.* Therefore there is a scope for additional around 10 numbers of such units with capacity to produce 3 lakh number of plastic mug, bucket, containers and 3 lakh number of plastic combs.

Plant Capacity:

The production basis for a typical tiny unit would be as under:

Working hours/day	: 8 (1 shift)
Working days in a year	: 300
Annual Production capacity	: 3,00,000 Nos: Mug (1,80,000), Bucket (70,000), Containers (50,000 Nos.) Plastic comb (3,00,000 Nos. comprising normal size comb 1,40,000 Nos. and pocket size comb 1,60,000 Nos.)

The unit has been assumed to operate at 70%, 80% and 90% of its installed capacity in the first, second and third year and onwards of its operation.

Raw Material:

The main raw materials required are PVC and injection moulding grade polypropylene. The requirement of raw materials for producing Mug, Bucket and Container is estimated to be 30.7 tonne per annum on the following basis:

Items	Nos required	Approx. weight (gm)	Total weight (tonne/year)
Mug	1,80,000	40	7.2
Bucket	70,000	300	21.0
Container	50,000	50	2.5

PVC is manufactured by a number of companies including PIL, Shriram, Chemplast and NOCIL. When the proposed gas cracker project comes up in Assam, PVC will be available within the region.

The annual requirement of injection moulding grade polypropylene for producing plastic combs of capacity 3,00,000 nos. is estimated at 6 tonnes. The raw materials will be available from IPCL under the trade name “Koylene”. It is also available from Haldia Petro-Chemical Complex.

Process:

Mug, bucket and container are manufactured on a semi-automatic extrusion blow moulding machine. The main process steps involved are –

- Plastic material in the form of granules is subjected to heat and pressure in an extruder.
- Semi-molten plastic in extruder passed through the nozzle known as Parison. Adjustments have to be made in the machine to vary the wall thickness of the parison.
- Suitable parison is then inserted in a female mould and air is blown into parison to force the molten plastic against the sides of the mould.
- The material is then cooled before removal from the mould.
- The article is then trimmed to remove flashes.

The main process steps for plastic combs are as follows:

- Polypropylene is fed into the hopper of the injection moulding machine, which essentially has an injection unit and a multicavity mould system.
- The mould is held between the two platens which are kept closed by the locking pressure.
- The material which gets plasticized in the barrel is injected under higher pressure into the mould which results in a molded article i.e. comb.
- The combs are then finished by removing the injection feed etc.
- The second stage processing operations i.e. buffing, polishing and printing are carried out on the combs.
- The combs are then kept inside plastic water proof paper cover and packed.

Machinery:

The major equipment required by the unit for producing mug, bucket and container are as follows: The equipment has been selected keeping in view the capacity and other process considerations.

- Semi – automatic extrusion blow moulding machine consisting of:
  - 500 mm screw extruder with 10 HP motor, variable speed drive and electrical control cabinet.
  - Cross head dies (single, double and triple cores) and spanner.
  - Mould closing and opening unit with hydraulic system

- Compressor with 5 HP motor.
- Water pump with 1 HP motor.
- Moulds, dies tools etc.

The main equipment required for producing plastic combs are as follows:

- 120 gram semi automatic hydraulic injection moulding machine complete with all accessories. Average capacity 15 kg per hour, fitted with motor of 1.5 HP.
- Scrap grinder with 3 HP motor.
- Buffing, polishing and hot stamping machine.
- Moulds (4 sets)
- Small hand-tools, greasing and cooling equipment.
- Testing instruments such as micrometer, balance etc.

Location:

The suitable locations for the project may be –

- Guwahati, Tinsukia, Silchar, Bongaigaon in Assam.
- Jorabat/ Byrnihat in Meghalaya.
- Naharlagun in Arunachal Pradesh.

- Dimapur in Nagalan.
- Imphal in Manipur
- Agartala in Tripura
- Gangtok, Jorthang in Sikkim

Infrastructure:

The basic infrastructure required are :

Land	:	9,000 sq.ft.
Building	:	3,000 sq.ft.
Power	:	30 KW
Water	:	5,000 Ltr. Per day.
Manpower	:	14 Nos. (Administrative (4), Factory Staff (10),

Total Capital Requirement:

The total capital requirement including fixed capital and working capital is estimated at Rs 47.10 lakhs as follows. Of this, the project cost comprising fixed capital and margin money on working capital is Rs 41.70 lakhs.

A.	**Fixed Capital:**		**(Rs in lakh)**
	Land		3.00
	Building		12.50
	Machinery		18.00
	Miscellaneous fixed assets		3.00
	Preliminary and pre-operative expenses		2.20
		Total (A)	**38.70**
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B.	**Working Capital:**		
	Raw materials & Packing material	1 month	3.20
	Finished goods	2 weeks	1.60
	Working expenses	1 month	0.90
	Receivables	1 week	2.70
		Total (B)	**8.40**
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		Total (A)+(B)	**47.10**

Note: Working capital may be financed as:

Bank Finance	…..	Rs 5.40 lakhs
Margin Money	…..	Rs 3.00 lakhs
		Rs 8.40 lakhs
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Means of Finance:

The project cost of Rs 41.70 lakhs including margin money for working capital may be financed as under:

Promoter's contribution (35%)	….	Rs 14.60 lakhs
Term Loan (65%)	….	Rs 27.10 lakhs
		Rs.41.70 Lakhs
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Operating Expenses:

The annual operating expenses are estimated at Rs 35.15 lakhs (70% capacity utilization) as given below:

		(Rs in lakhs)
1.	Raw materials	22.20
2.	Utilities	1.00
3.	Wages & Salaries	3.80

4.	Overheads	1.65
5.	Selling expenses @ 1.5% on annual sales	0.70
6.	Interest on term loan	3.70
7.	Interest on Bank Finance for working capital (13%)	0.75
8.	Depreciation @10%	2.00
		35.15

Sales Realization:

The basis on which average ex-factory sales realization from the sale of Mug, Bucket, Container & Plastic Combs are based is provided below:

Items	Nos.	Unit Sales Price (Rs)	Annual Sales Price (Rs)
Mug	1,80,000	12/-	21,60,000
Bucket	70,000	30/-	21,00,000
Container	50,000	15/-	7,50,000
Plastic Combs	3,00,000	5/-	15,00,000
TOTAL			**65,10,000**

Based on this the annual sales realization is estimated to be Rs 65.10 lakhs and at 70% capacity utilization the same is Rs 45.50 lakhs.

Profitability :

Based on the sales realization and the operating expenses, the profit would be Rs 10.35 lakhs per year (70% capacity utilization). This works out to a return on investment of 24%. The plant will break even at 52% of the rated capacity.

Highlight:

The major highlights of the project are as follows:

Total capital requirement	:	Rs 41.70 lakhs
Promoter's contribution	:	Rs 14.60 lakhs
Annual sales realization (70% cap.)	:	Rs 45.50 lakhs
Annual operating expenses (70% cap.)	:	Rs 35.15 lakhs
Annual profit (pre-tax)	:	Rs 10.35 lakhs
Pre-tax Return on Sales	:	22%
Break Even Point	:	52%
No.of persons employed	:	14

List of Machinery Suppliers: **List of Raw Materials Suppliers:**

1.	M/s R.H. Windsor (India) Ltd. E-6 – UZ Road, Thane Industrial Estate, Thane – 400 604	1.	M/s Mittal Station Works, 12/3297, Agrapura Roshampura Road, Subji Mandi, New Delhi – 110 007
2.	M/s British Plastic & Engineering Works 89.2, Block – A, Naraina Industrial Area, Phase-1, New Delhi – 110 028	2.	M/s R.K. Traders, 43, A, Dilshad Garden, G.T. Road, Sahodora, New Delhi
3.	M/s Oswal Engineering Corpn. 142/48 S.V. Road, Ghaswala Industrial Estate, Jogeswari (West) Mumbai – 400 102	3.	M/s Indian Petrochemicals Corpn.Ltd. 33A, Chowringhee Road, 3rd floor, Kolkata – 700 071
4.	M/s Kwality Engineering works, 48A, Muktaram Babu Street, Kolkata – 700 007	4.	M/s Swastic Plastics, 24/25, Roopchand Roy Street, Kolkata – 700 001