



AN ISO 9001 : 2015 CERTIFIED COMPANY

Detailed project report

Sample edition

Projections from FY 2027-28

Project report

# Glass Bottles

Installed capacity 36 MT per day

Sector Ceramics and glass

Total project cost ₹2,179.14 lakh

**Illustrative sample**  
Figures are representative

## Project at a glance

Glass Bottles  
36 MT per day

| Product                | Glass Bottles         | Sector                  | Ceramics and glass       |
|------------------------|-----------------------|-------------------------|--------------------------|
| Installed capacity     | 36 MT per day         | Annual capacity         | 11,880 MT per year       |
| Selling price (ex-GST) | ₹27,000 per MT        | Working days            | 330 a year               |
| Manpower               | 98 people             | Plant and machinery     | ₹1,080.84 lakh           |
| Total project cost     | <b>₹2,179.14 lakh</b> | Promoter's contribution | ₹544.78 lakh (25%)       |
| Term loan              | ₹1,634.36 lakh (75%)  | Cash credit limit       | ₹225.63 lakh             |
| Revenue, Year 3        | ₹2,245.32 lakh at 70% | Net profit, Year 3      | ₹290.89 lakh             |
| Return on investment   | <b>13.3% a year</b>   | Break-even, Year 3      | <b>44.4% of capacity</b> |
| Average DSCR           | <b>1.77</b>           | Payback period          | 4.6 years                |

This is an illustrative sample. Its figures are generated from industry-typical ratios to show the format and depth of an NPCS project report. They are not taken from any NPCS report or any real project, and should not be used for investment or lending decisions.

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## 1 Introduction

This sample report sets out the techno-economic case for a unit making glass bottles. The model plant has an installed capacity of 36 MT per day, which works out to 11,880 MT per year over 330 working days. Its applications range from soft drink, juice and beverage bottles to beer and brewery bottles.

Each section follows the layout of a bank-format project report: project cost, means of finance, working capital, profitability, cash flow, balance sheet, debt service and break-even. In Year 3, running at 70% of capacity, the model unit sells ₹2,245.32 lakh worth of glass bottles and keeps ₹290.89 lakh as net profit.

## 2 Uses and applications

The product is bought for these main uses:

- Soft drink, juice and beverage bottles
- Pharmaceutical syrup and tablet bottles
- Food jars for pickles, jams and sauces
- Cosmetic and perfume bottles
- Beer and brewery bottles

## 3 Market potential

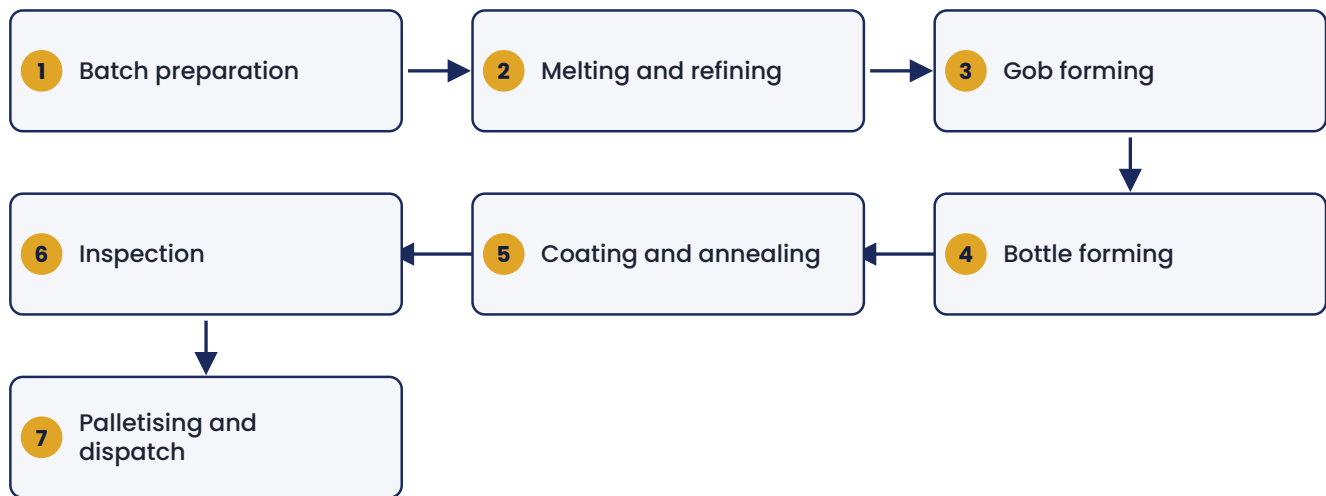
Demand for glass bottles comes from beverage, pharmaceutical, food and cosmetic bottlers who want an inert container that does not react with the product. Bottles are bulky and fragile, so buyers prefer plants within a few hundred kilometres. A new plant wins orders through steady supply, consistent weight and dimensions, and quick mould changes for each bottler's design.

The usual customers for a unit of this kind are soft drink and juice bottlers; pharmaceutical syrup and tablet makers; pickle, jam, sauce and honey packers; breweries and beverage bottling plants; cosmetic and perfume brands; and packaging traders and exporters.

Because demand and competition vary from one district to the next, the market section of a full report is prepared for the promoter's chosen location, with a list of existing manufacturers.

## 4 Manufacturing process

Production of glass bottles follows seven main steps, from batch preparation to palletising and dispatch. The flow chart shows how material moves through the plant.



Process flow for glass bottles

- 1 Batch preparation.** Silica sand, soda ash, limestone, dolomite, feldspar and cullet are weighed and mixed in the batch house.
- 2 Melting and refining.** The batch is melted in the furnace at about 1,500 degrees C and held until gas bubbles clear.
- 3 Gob forming.** Molten glass is cooled to working temperature in the forehearth and sheared into gobs of exact weight.
- 4 Bottle forming.** The IS machine shapes each gob into a parison and then blows it into the final bottle in the mould.
- 5 Coating and annealing.** Bottles get a hot end coating and pass through a lehr that reheats and cools them slowly to remove stress.
- 6 Inspection.** Machines reject bottles with cracks, stones, blisters or wrong dimensions and the rejects go back as cullet.
- 7 Palletising and dispatch.** Good bottles are stacked on pallets, shrink wrapped and sent to bottlers.

## 5 Raw materials

The plant uses soda ash (dense), silica sand (washed glass grade), cullet (sorted broken glass), limestone and dolomite, feldspar, and sodium sulphate and colourants. Raw material purchases in Year 3 are estimated at ₹631.02 lakh, which is 28.1% of sales. The split by material is shown below.

| Raw material                     | Share of cost | Year 3 cost (₹ lakh) |
|----------------------------------|---------------|----------------------|
| Soda ash (dense)                 | 52.0%         | 328.13               |
| Silica sand (washed glass grade) | 18.0%         | 113.59               |
| Cullet (sorted broken glass)     | 14.0%         | 88.34                |
| Limestone and dolomite           | 8.0%          | 50.48                |
| Feldspar                         | 4.0%          | 25.24                |
| Sodium sulphate and colourants   | 4.0%          | 25.24                |
| <b>Total raw materials</b>       | <b>100.0%</b> | <b>631.02</b>        |

## 6 Plant and machinery

Plant and machinery for the model unit is estimated at ₹1,080.84 lakh, before the contingency allowance. The regenerative end-fired glass melting furnace with refractories is the largest single item. A full NPCS report adds specifications and supplier names for each machine.

| Machinery and equipment                                        | Indicative cost (₹ lakh) |
|----------------------------------------------------------------|--------------------------|
| Regenerative end-fired glass melting furnace with refractories | 389.10                   |
| IS bottle forming machine with gob feeder and forehearth       | 259.40                   |
| Bottle moulds and mould equipment                              | 86.47                    |
| Batch house with silos, weigh feeders and mixer                | 97.28                    |
| Annealing Lehr                                                 | 64.85                    |
| Hot end and cold end coating units                             | 32.42                    |
| Automatic bottle inspection machines                           | 64.85                    |
| Air compressors and mould cooling blowers                      | 64.85                    |
| Cullet crusher and palletiser                                  | 21.62                    |
| <b>Total plant and machinery</b>                               | <b>1,080.84</b>          |

## 7 Land, building and utilities

Land and site development is taken at ₹159.42 lakh and building and civil works at ₹592.19 lakh. Other fixed assets, including electrification, furniture, testing equipment and power backup, add ₹136.51 lakh. Land rates vary widely by location, so these are the figures most likely to change in a real project.

Power and fuel cost ₹329.82 lakh in Year 3, about 14.7% of sales. Water is needed for cleaning, domestic use and, where the process calls for it, production.

## 8 Manpower

Staffing for the model unit is 98 people, at a Year 1 cost of ₹198.24 lakh. Wages are escalated by 5% each year in the projections.

| Category                                   | Number    | Monthly wage (₹) | Annual cost (₹ lakh) |
|--------------------------------------------|-----------|------------------|----------------------|
| Management, supervision and administration | 15        | 29,000           | 52.20                |
| Skilled workers and operators              | 34        | 18,500           | 75.48                |
| Semi-skilled and unskilled workers         | 49        | 12,000           | 70.56                |
| <b>Total (Year 1)</b>                      | <b>98</b> |                  | <b>198.24</b>        |

## 9 Licences and approvals

A unit of this kind typically needs the following registrations and approvals. Requirements vary by state and by the exact product, so confirm them with the local authorities before applying.

- Udyam (MSME) registration
- GST registration
- Consent to establish and consent to operate from the State Pollution Control Board
- Factory licence or registration under the applicable labour law, where the workforce threshold applies
- Fire safety NOC, where required
- Trade licence from the local body
- Test certificate from an NABL accredited laboratory for food contact bottles under the FSS Packaging Regulations 2018
- BIS test methods IS 10516 for internal pressure and IS 11930 for thermal shock as buyer references

## 10 Project cost and means of finance

Project cost is estimated at ₹2,179.14 lakh, including fixed assets of ₹2,052.61 lakh and margin money for working capital of ₹75.21 lakh.

| Cost of project                                                        | ₹ lakh          |
|------------------------------------------------------------------------|-----------------|
| Land and site development                                              | 159.42          |
| Building and civil works                                               | 592.19          |
| Plant and machinery                                                    | 1,080.84        |
| Other fixed assets (electrification, furniture, lab equipment, DG set) | 136.51          |
| Contingencies                                                          | 83.65           |
| Preliminary and pre-operative expenses                                 | 51.32           |
| Margin money for working capital                                       | 75.21           |
| <b>Total cost of project</b>                                           | <b>2,179.14</b> |

### Means of finance

The project is financed 75:25 between bank debt and the promoter's own funds. A term loan covers ₹1,634.36 lakh and the promoter brings in ₹544.78 lakh. Separately, a cash credit limit of ₹225.63 lakh finances 75% of the working capital requirement.

| Source of funds                                         | ₹ lakh          |
|---------------------------------------------------------|-----------------|
| Promoter's contribution (25%)                           | 544.78          |
| Term loan from bank (75%)                               | 1,634.36        |
| <b>Total means of finance</b>                           | <b>2,179.14</b> |
| <i>Cash credit limit for working capital (separate)</i> | 225.63          |

## 11 Working capital

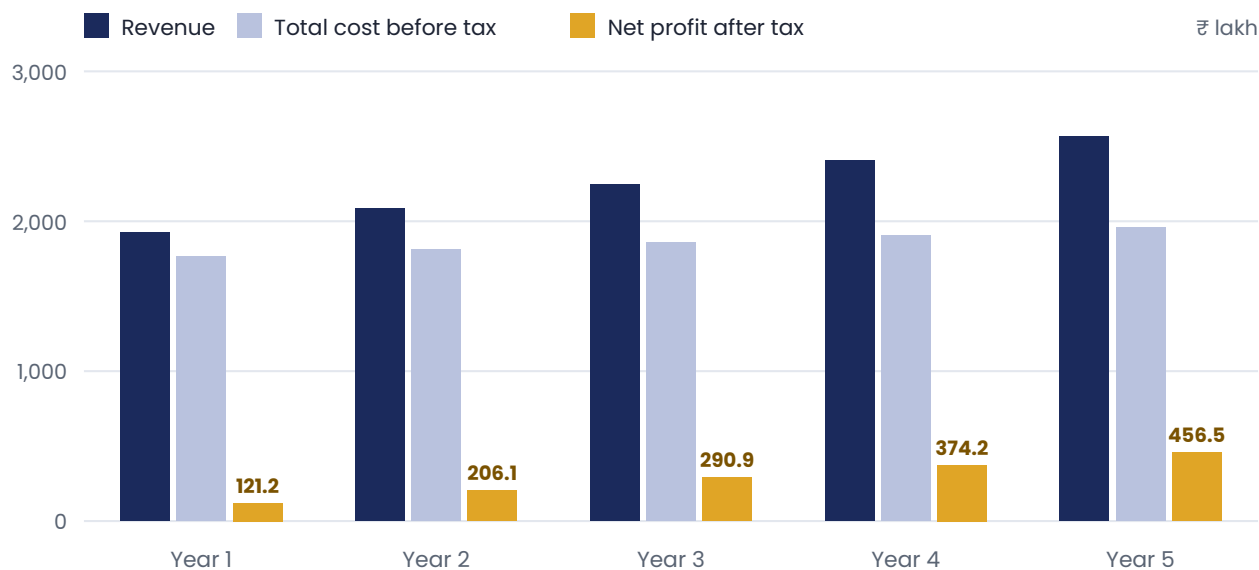
Working capital is worked out from holding periods: 30 days of raw material, 20 days of finished goods and 45 days of credit to customers, less 30 days of credit from suppliers. In Year 1 the requirement is ₹300.84 lakh. The bank funds ₹225.63 lakh through cash credit and the promoter's margin covers ₹75.21 lakh.

| Particulars (₹ lakh)               | Year 1<br>FY 2027-28 | Year 2<br>FY 2028-29 | Year 3<br>FY 2029-30 | Year 4<br>FY 2030-31 | Year 5<br>FY 2031-32 |
|------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Raw material stock (30 days)       | 44.46                | 48.16                | 51.86                | 55.57                | 59.27                |
| Work in progress (3 days)          | 8.40                 | 9.04                 | 9.69                 | 10.35                | 11.01                |
| Finished goods (20 days)           | 62.44                | 67.20                | 72.00                | 76.83                | 81.69                |
| Trade receivables (45 days)        | 237.27               | 257.05               | 276.82               | 296.59               | 316.37               |
| <b>Total current assets</b>        | <b>352.57</b>        | <b>381.45</b>        | <b>410.37</b>        | <b>439.34</b>        | <b>468.34</b>        |
| Less: trade creditors (30 days)    | 51.73                | 56.04                | 60.35                | 64.66                | 68.97                |
| <b>Working capital requirement</b> | <b>300.84</b>        | <b>325.41</b>        | <b>350.02</b>        | <b>374.68</b>        | <b>399.37</b>        |

## 12 Projected profitability

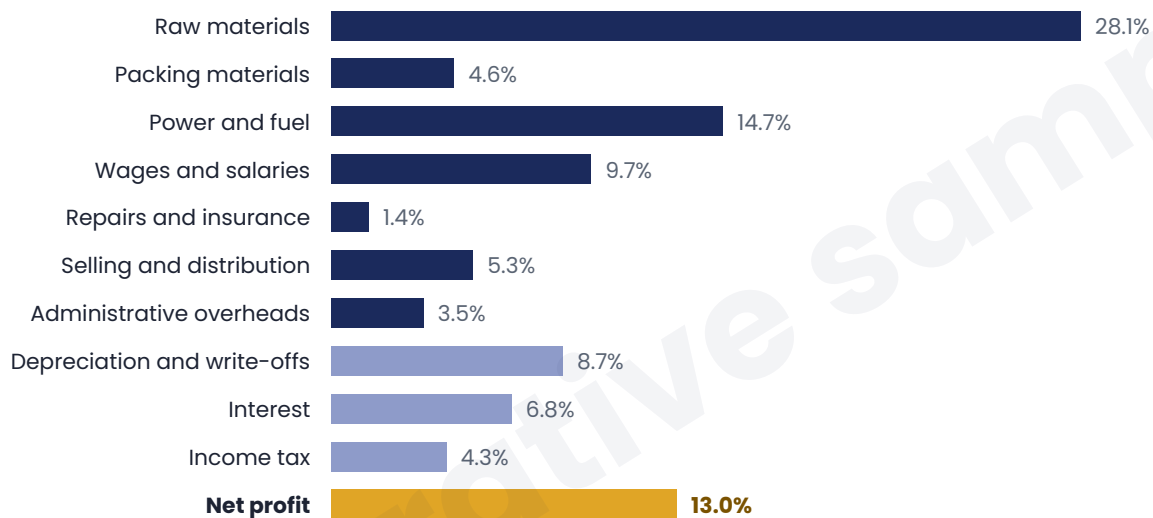
As utilisation climbs from 60% to 80%, sales increase from ₹1,924.56 lakh to ₹2,566.08 lakh. Operating profit in Year 3 is ₹734.16 lakh, a margin of 32.7%, and net profit after tax grows from ₹121.24 lakh in Year 1 to ₹456.50 lakh in Year 5.

| Particulars (₹ lakh)              | Year 1<br>FY 2027-28 | Year 2<br>FY 2028-29 | Year 3<br>FY 2029-30 | Year 4<br>FY 2030-31 | Year 5<br>FY 2031-32 |
|-----------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Capacity utilisation (%)          | 60%                  | 65%                  | 70%                  | 75%                  | 80%                  |
| Revenue from operations           | 1,924.56             | 2,084.94             | 2,245.32             | 2,405.70             | 2,566.08             |
| Raw materials consumed            | 540.88               | 585.95               | 631.02               | 676.10               | 721.17               |
| Packing materials                 | 88.47                | 95.84                | 103.22               | 110.59               | 117.96               |
| Power and fuel                    | 282.70               | 306.26               | 329.82               | 353.37               | 376.93               |
| Wages and salaries                | 198.24               | 208.15               | 218.56               | 229.49               | 240.96               |
| Repairs and maintenance           | 21.62                | 22.70                | 23.83                | 25.02                | 26.28                |
| Insurance                         | 7.57                 | 7.57                 | 7.57                 | 7.57                 | 7.57                 |
| Cost of production                | 1,139.48             | 1,226.47             | 1,314.02             | 1,402.14             | 1,490.87             |
| <b>Gross profit</b>               | <b>785.08</b>        | <b>858.47</b>        | <b>931.30</b>        | <b>1,003.56</b>      | <b>1,075.21</b>      |
| Selling and distribution expenses | 102.39               | 110.92               | 119.45               | 127.98               | 136.52               |
| Administrative overheads          | 70.47                | 73.99                | 77.69                | 81.58                | 85.66                |
| <b>Operating profit (EBITDA)</b>  | <b>612.22</b>        | <b>673.56</b>        | <b>734.16</b>        | <b>794.00</b>        | <b>853.03</b>        |
| Depreciation                      | 246.06               | 212.95               | 184.42               | 159.82               | 138.62               |
| Preliminary expenses written off  | 10.26                | 10.26                | 10.26                | 10.26                | 10.28                |
| Interest on term loan             | 169.43               | 150.78               | 126.81               | 100.20               | 70.65                |
| Interest on cash credit           | 24.82                | 24.82                | 24.82                | 24.82                | 24.82                |
| <b>Profit before tax</b>          | <b>161.65</b>        | <b>274.75</b>        | <b>387.85</b>        | <b>498.90</b>        | <b>608.66</b>        |
| Income tax                        | 40.41                | 68.69                | 96.96                | 124.72               | 152.16               |
| <b>Profit after tax</b>           | <b>121.24</b>        | <b>206.06</b>        | <b>290.89</b>        | <b>374.18</b>        | <b>456.50</b>        |



Revenue, total cost before tax and net profit after tax, ₹ lakh

### Where each rupee of sales goes in Year 3



Each cost head as a percentage of Year 3 sales

## 13 Cash flow statement

The cash flow statement sets out the sources and uses of funds year by year. The unit stays cash positive throughout and closes Year 5 with a cash balance of ₹1,218.26 lakh after meeting the loan repayments due.

| Particulars (₹ lakh)                    | Year 1<br>FY 2027-28 | Year 2<br>FY 2028-29 | Year 3<br>FY 2029-30 | Year 4<br>FY 2030-31 | Year 5<br>FY 2031-32 |
|-----------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <b>Sources of funds</b>                 |                      |                      |                      |                      |                      |
| Promoter's contribution                 | 544.78               | –                    | –                    | –                    | –                    |
| Term loan from bank                     | 1,634.36             | –                    | –                    | –                    | –                    |
| Cash credit (working capital) from bank | 225.63               | –                    | –                    | –                    | –                    |
| Net profit after tax                    | 121.24               | 206.06               | 290.89               | 374.18               | 456.50               |
| Depreciation                            | 246.06               | 212.95               | 184.42               | 159.82               | 138.62               |
| Preliminary expenses written off        | 10.26                | 10.26                | 10.26                | 10.26                | 10.28                |
| Increase in trade creditors             | 51.73                | 4.31                 | 4.31                 | 4.31                 | 4.31                 |
| <b>Total sources</b>                    | <b>2,834.06</b>      | <b>433.58</b>        | <b>489.88</b>        | <b>548.57</b>        | <b>609.71</b>        |
| <b>Application of funds</b>             |                      |                      |                      |                      |                      |
| Fixed assets                            | 2,052.61             | –                    | –                    | –                    | –                    |
| Preliminary and pre-operative expenses  | 51.32                | –                    | –                    | –                    | –                    |
| Increase in inventories                 | 115.30               | 9.10                 | 9.15                 | 9.20                 | 9.22                 |
| Increase in trade receivables           | 237.27               | 19.78                | 19.77                | 19.77                | 19.78                |
| Repayment of term loan                  | 100.52               | 217.52               | 241.49               | 268.10               | 297.64               |
| Drawings                                | –                    | –                    | –                    | –                    | –                    |
| <b>Total application</b>                | <b>2,557.02</b>      | <b>246.40</b>        | <b>270.41</b>        | <b>297.07</b>        | <b>326.64</b>        |
| <b>Net cash flow</b>                    | <b>277.04</b>        | <b>187.18</b>        | <b>219.47</b>        | <b>251.50</b>        | <b>283.07</b>        |
| Opening cash balance                    | –                    | 277.04               | 464.22               | 683.69               | 935.19               |
| <b>Closing cash balance</b>             | <b>277.04</b>        | <b>464.22</b>        | <b>683.69</b>        | <b>935.19</b>        | <b>1,218.26</b>      |

## 14 Projected balance sheet

Over the projection, retained profits build the promoter's net worth from ₹624.96 lakh to ₹1,993.65 lakh, and the term loan reduces from ₹1,533.84 lakh to ₹509.09 lakh as it is repaid.

| As at year end (₹ lakh)              | Year 1<br>FY 2027-28 | Year 2<br>FY 2028-29 | Year 3<br>FY 2029-30 | Year 4<br>FY 2030-31 | Year 5<br>FY 2031-32 |
|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <b>Liabilities</b>                   |                      |                      |                      |                      |                      |
| Promoter's capital                   | 544.78               | 544.78               | 544.78               | 544.78               | 544.78               |
| Reserves and surplus                 | 121.24               | 327.30               | 618.19               | 992.37               | 1,448.87             |
| Term loan                            | 1,533.84             | 1,316.32             | 1,074.83             | 806.73               | 509.09               |
| Cash credit from bank                | 225.63               | 225.63               | 225.63               | 225.63               | 225.63               |
| Trade creditors                      | 51.73                | 56.04                | 60.35                | 64.66                | 68.97                |
| <b>Total liabilities</b>             | <b>2,477.22</b>      | <b>2,470.07</b>      | <b>2,523.78</b>      | <b>2,634.17</b>      | <b>2,797.34</b>      |
| <b>Assets</b>                        |                      |                      |                      |                      |                      |
| Gross fixed assets                   | 2,052.61             | 2,052.61             | 2,052.61             | 2,052.61             | 2,052.61             |
| Less: accumulated depreciation       | (246.06)             | (459.01)             | (643.43)             | (803.25)             | (941.87)             |
| <b>Net fixed assets</b>              | <b>1,806.55</b>      | <b>1,593.60</b>      | <b>1,409.18</b>      | <b>1,249.36</b>      | <b>1,110.74</b>      |
| Preliminary expenses not written off | 41.06                | 30.80                | 20.54                | 10.28                | –                    |
| Inventories                          | 115.30               | 124.40               | 133.55               | 142.75               | 151.97               |
| Trade receivables                    | 237.27               | 257.05               | 276.82               | 296.59               | 316.37               |
| Cash and bank balance                | 277.04               | 464.22               | 683.69               | 935.19               | 1,218.26             |
| <b>Total assets</b>                  | <b>2,477.22</b>      | <b>2,470.07</b>      | <b>2,523.78</b>      | <b>2,634.17</b>      | <b>2,797.34</b>      |

## 15 Depreciation

Depreciation is charged on the written-down value method at Income Tax Act rates: 10% on building, 15% on plant and machinery and 10% on other fixed assets. Land is not depreciated, and preliminary expenses are written off over five years.

| Particulars (₹ lakh)                                         | Year 1<br>FY 2027-28 | Year 2<br>FY 2028-29 | Year 3<br>FY 2029-30 | Year 4<br>FY 2030-31 | Year 5<br>FY 2031-32 |
|--------------------------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <b>Building and civil works (cost ₹621.80 lakh, 10% WDV)</b> |                      |                      |                      |                      |                      |
| Opening written-down value                                   | 621.80               | 559.62               | 503.66               | 453.29               | 407.96               |
| Depreciation                                                 | 62.18                | 55.96                | 50.37                | 45.33                | 40.80                |
| Closing written-down value                                   | 559.62               | 503.66               | 453.29               | 407.96               | 367.16               |
| <b>Plant and machinery (cost ₹1,134.88 lakh, 15% WDV)</b>    |                      |                      |                      |                      |                      |
| Opening written-down value                                   | 1,134.88             | 964.65               | 819.95               | 696.96               | 592.42               |
| Depreciation                                                 | 170.23               | 144.70               | 122.99               | 104.54               | 88.86                |
| Closing written-down value                                   | 964.65               | 819.95               | 696.96               | 592.42               | 503.56               |
| <b>Other fixed assets (cost ₹136.51 lakh, 10% WDV)</b>       |                      |                      |                      |                      |                      |
| Opening written-down value                                   | 136.51               | 122.86               | 110.57               | 99.51                | 89.56                |
| Depreciation                                                 | 13.65                | 12.29                | 11.06                | 9.95                 | 8.96                 |
| Closing written-down value                                   | 122.86               | 110.57               | 99.51                | 89.56                | 80.60                |
| <b>Total depreciation</b>                                    | <b>246.06</b>        | <b>212.95</b>        | <b>184.42</b>        | <b>159.82</b>        | <b>138.62</b>        |
| Preliminary expenses written off                             | 10.26                | 10.26                | 10.26                | 10.26                | 10.28                |

## 16 Term loan repayment

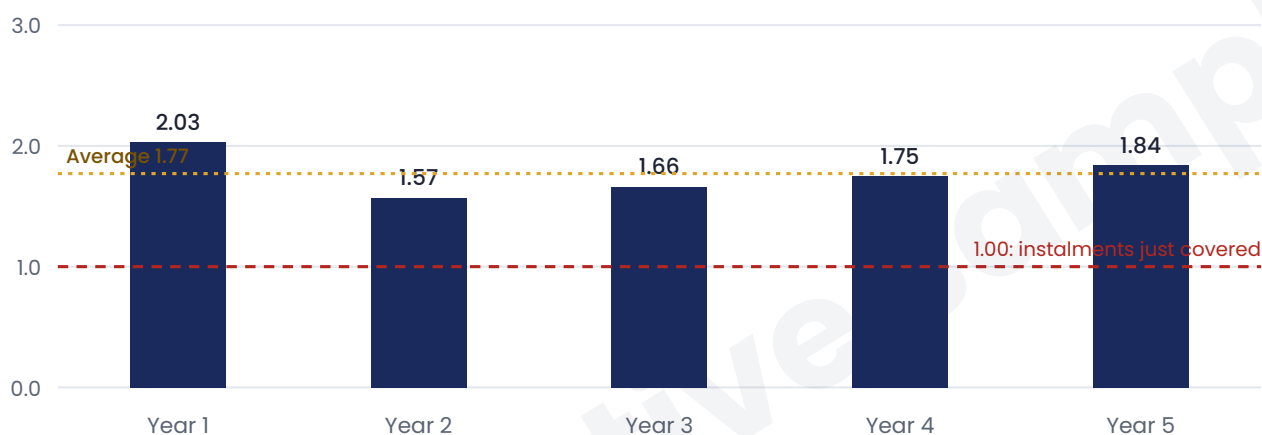
The term loan of ₹1,634.36 lakh carries interest at 10.5% a year. Only interest is paid during the 6-month moratorium, after which the loan is repaid in 72 equal monthly instalments of ₹30,69,160. The month-by-month schedule is in the annexure.

| Particulars (₹ lakh)   | Year 1<br>FY 2027-28 | Year 2<br>FY 2028-29 | Year 3<br>FY 2029-30 | Year 4<br>FY 2030-31 | Year 5<br>FY 2031-32 |
|------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Opening balance        | 1,634.36             | 1,533.84             | 1,316.32             | 1,074.83             | 806.73               |
| Interest               | 169.43               | 150.78               | 126.81               | 100.20               | 70.65                |
| Principal repaid       | 100.52               | 217.52               | 241.49               | 268.10               | 297.64               |
| <b>Closing balance</b> | <b>1,533.84</b>      | <b>1,316.32</b>      | <b>1,074.83</b>      | <b>806.73</b>        | <b>509.09</b>        |

## 17 Debt service coverage

Cash available for debt service covers the term loan instalments 1.77 times on average, and never less than 1.57 times (Year 2).

| Particulars (₹ lakh)                        | Year 1<br>FY 2027-28 | Year 2<br>FY 2028-29 | Year 3<br>FY 2029-30 | Year 4<br>FY 2030-31 | Year 5<br>FY 2031-32 |
|---------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Net profit after tax                        | 121.24               | 206.06               | 290.89               | 374.18               | 456.50               |
| Depreciation and write-offs                 | 256.32               | 223.21               | 194.68               | 170.08               | 148.90               |
| Interest on term loan                       | 169.43               | 150.78               | 126.81               | 100.20               | 70.65                |
| <b>Total available for debt service (A)</b> | <b>546.99</b>        | <b>580.05</b>        | <b>612.38</b>        | <b>644.46</b>        | <b>676.05</b>        |
| Principal repayment                         | 100.52               | 217.52               | 241.49               | 268.10               | 297.64               |
| Interest on term loan                       | 169.43               | 150.78               | 126.81               | 100.20               | 70.65                |
| <b>Total debt service (B)</b>               | <b>269.95</b>        | <b>368.30</b>        | <b>368.30</b>        | <b>368.30</b>        | <b>368.29</b>        |
| <b>DSCR (A / B)</b>                         | <b>2.03</b>          | <b>1.57</b>          | <b>1.66</b>          | <b>1.75</b>          | <b>1.84</b>          |

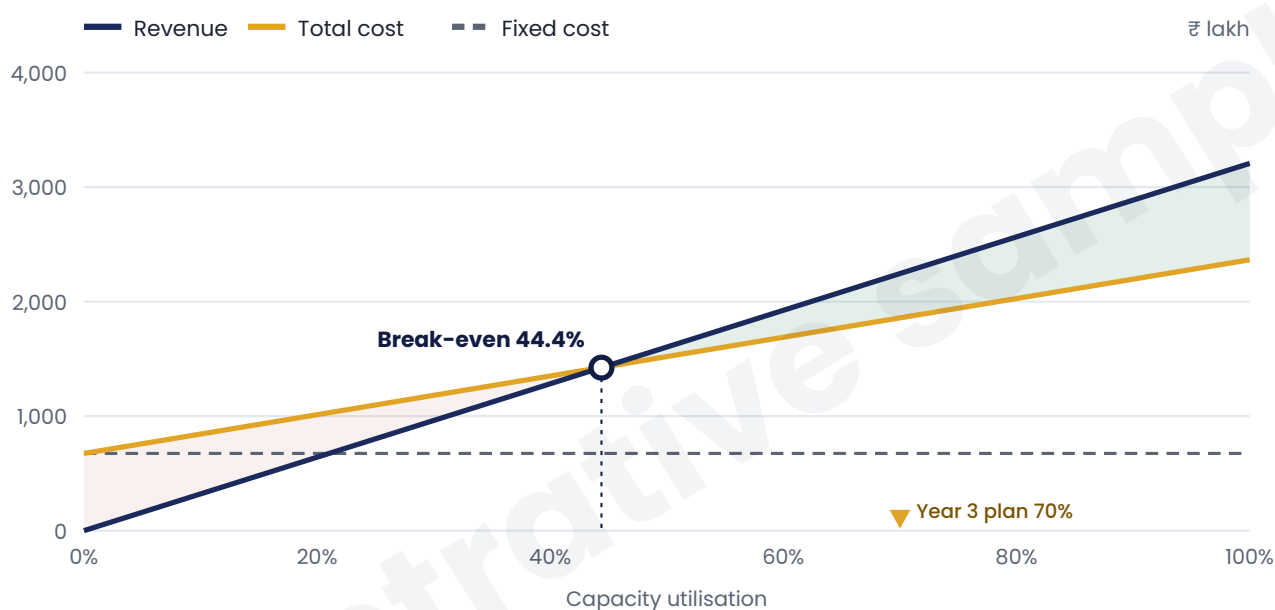


DSCR by year. A ratio above 1.00 means cash accruals cover the term loan instalments.

## 18 Break-even analysis

The break-even point in Year 3 is 44.4% of installed capacity. Below that level the unit would not cover its fixed costs, interest and depreciation; above it, each additional unit sold adds to profit. Cash break-even is lower, at 31.6%.

| Particulars (₹ lakh)                          | Year 1<br>FY 2027-28 | Year 2<br>FY 2028-29 | Year 3<br>FY 2029-30 | Year 4<br>FY 2030-31 | Year 5<br>FY 2031-32 |
|-----------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Revenue from operations                       | 1,924.56             | 2,084.94             | 2,245.32             | 2,405.70             | 2,566.08             |
| Variable costs                                | 1,014.44             | 1,098.97             | 1,183.51             | 1,268.04             | 1,352.58             |
| <b>Contribution</b>                           | <b>910.12</b>        | <b>985.97</b>        | <b>1,061.81</b>      | <b>1,137.66</b>      | <b>1,213.50</b>      |
| Fixed costs (incl. depreciation and interest) | 748.47               | 711.22               | 673.96               | 638.76               | 604.84               |
| Break-even as % of installed capacity         | 49.3                 | 46.9                 | 44.4                 | 42.1                 | 39.9                 |
| Cash break-even as % of installed capacity    | 32.4                 | 32.2                 | 31.6                 | 30.9                 | 30.1                 |
| Break-even sales                              | 1,582.73             | 1,503.95             | 1,425.17             | 1,350.72             | 1,279.00             |



Break-even chart at Year 3 prices and costs, scaled to full capacity. Shaded areas show the loss zone (left) and profit zone (right).

## 19 Financial ratios

The table summarises the main ratios a lender reviews. The current ratio is 2.27 or better in every year, and the debt-equity ratio falls from 2.45 at the end of Year 1 to 0.26 by Year 5.

| Ratio                                     | Year 1<br>FY 2027-28 | Year 2<br>FY 2028-29 | Year 3<br>FY 2029-30 | Year 4<br>FY 2030-31 | Year 5<br>FY 2031-32 |
|-------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Current ratio                             | 2.27                 | 3.00                 | 3.83                 | 4.74                 | 5.73                 |
| Quick ratio                               | 1.85                 | 2.56                 | 3.36                 | 4.24                 | 5.21                 |
| Debt-equity ratio (term loan / net worth) | 2.45                 | 1.56                 | 0.94                 | 0.53                 | 0.26                 |
| Total outside liabilities / net worth     | 2.90                 | 1.90                 | 1.19                 | 0.72                 | 0.40                 |
| Interest coverage ratio                   | 1.83                 | 2.56                 | 3.56                 | 4.99                 | 7.38                 |
| DSCR                                      | 2.03                 | 1.57                 | 1.66                 | 1.75                 | 1.84                 |
| Gross profit margin (%)                   | 40.8                 | 41.2                 | 41.5                 | 41.7                 | 41.9                 |
| Operating profit (EBITDA) margin (%)      | 31.8                 | 32.3                 | 32.7                 | 33.0                 | 33.2                 |
| Net profit margin (%)                     | 6.3                  | 9.9                  | 13.0                 | 15.6                 | 17.8                 |
| Return on capital employed (%)            | 14.9                 | 18.9                 | 22.1                 | 24.4                 | 25.8                 |
| Break-even (% of installed capacity)      | 49.3                 | 46.9                 | 44.4                 | 42.1                 | 39.9                 |

## 20 Key assumptions

- Commercial production starts in April 2027, and all assets are in use from the first year.
- Capacity utilisation of 60% in Year 1, rising to 80% by Year 5, over 330 working days a year.
- Selling price of ₹27,000 per MT, excluding GST, held constant through the projection.
- Raw materials at 28.1% of sales, packing materials at 4.6%, power and fuel at 14.7%, and selling and distribution at 5.3%.
- Wages and salaries rise by 5% a year; repairs and administrative overheads rise by 5% a year.
- Working capital based on 30 days of raw material, 3 days of work in progress, 20 days of finished goods and 45 days of receivables, less 30 days of creditors.
- Term loan at 10.5% interest with a 6-month moratorium and 72 monthly instalments; cash credit at 11% on 75% of the working capital requirement.
- Depreciation on the written-down value method at Income Tax Act rates; income tax at a flat 25% of profit for simplicity.
- Contingency of 5% on building and machinery; preliminary and pre-operative expenses written off over five years.
- All amounts in ₹ lakh unless stated otherwise, excluding GST.

## 21 Conclusion

On these illustrative assumptions, a glass bottles unit of 36 MT per day costs ₹2,179.14 lakh to set up, earns an average return of 13.3% on that investment and pays back in about 4.6 years. An average DSCR of 1.77 and break-even at 44.4% of capacity point to a project that can carry its bank debt. Actual figures depend on the location, the machinery chosen, input prices and the promoter's plans, which is why a full report is prepared for each project.

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## A Annexure: monthly loan repayment schedule

Term loan of ₹1,634.36 lakh at 10.5% a year. Amounts in ₹ lakh.

| No. | Month    | Opening balance | Interest | Principal | Instalment | Closing balance |
|-----|----------|-----------------|----------|-----------|------------|-----------------|
| 1   | Apr 2027 | 1,634.36        | 14.30    | –         | 14.30      | 1,634.36        |
| 2   | May 2027 | 1,634.36        | 14.30    | –         | 14.30      | 1,634.36        |
| 3   | Jun 2027 | 1,634.36        | 14.30    | –         | 14.30      | 1,634.36        |
| 4   | Jul 2027 | 1,634.36        | 14.30    | –         | 14.30      | 1,634.36        |
| 5   | Aug 2027 | 1,634.36        | 14.30    | –         | 14.30      | 1,634.36        |
| 6   | Sep 2027 | 1,634.36        | 14.30    | –         | 14.30      | 1,634.36        |
| 7   | Oct 2027 | 1,634.36        | 14.30    | 16.39     | 30.69      | 1,617.97        |
| 8   | Nov 2027 | 1,617.97        | 14.16    | 16.53     | 30.69      | 1,601.43        |
| 9   | Dec 2027 | 1,601.43        | 14.01    | 16.68     | 30.69      | 1,584.76        |
| 10  | Jan 2028 | 1,584.76        | 13.87    | 16.82     | 30.69      | 1,567.93        |
| 11  | Feb 2028 | 1,567.93        | 13.72    | 16.97     | 30.69      | 1,550.96        |
| 12  | Mar 2028 | 1,550.96        | 13.57    | 17.12     | 30.69      | 1,533.84        |
| 13  | Apr 2028 | 1,533.84        | 13.42    | 17.27     | 30.69      | 1,516.57        |
| 14  | May 2028 | 1,516.57        | 13.27    | 17.42     | 30.69      | 1,499.15        |
| 15  | Jun 2028 | 1,499.15        | 13.12    | 17.57     | 30.69      | 1,481.57        |
| 16  | Jul 2028 | 1,481.57        | 12.96    | 17.73     | 30.69      | 1,463.84        |
| 17  | Aug 2028 | 1,463.84        | 12.81    | 17.88     | 30.69      | 1,445.96        |
| 18  | Sep 2028 | 1,445.96        | 12.65    | 18.04     | 30.69      | 1,427.92        |
| 19  | Oct 2028 | 1,427.92        | 12.49    | 18.20     | 30.69      | 1,409.72        |
| 20  | Nov 2028 | 1,409.72        | 12.34    | 18.36     | 30.69      | 1,391.37        |
| 21  | Dec 2028 | 1,391.37        | 12.17    | 18.52     | 30.69      | 1,372.85        |
| 22  | Jan 2029 | 1,372.85        | 12.01    | 18.68     | 30.69      | 1,354.17        |
| 23  | Feb 2029 | 1,354.17        | 11.85    | 18.84     | 30.69      | 1,335.33        |
| 24  | Mar 2029 | 1,335.33        | 11.68    | 19.01     | 30.69      | 1,316.32        |
| 25  | Apr 2029 | 1,316.32        | 11.52    | 19.17     | 30.69      | 1,297.15        |
| 26  | May 2029 | 1,297.15        | 11.35    | 19.34     | 30.69      | 1,277.81        |
| 27  | Jun 2029 | 1,277.81        | 11.18    | 19.51     | 30.69      | 1,258.29        |
| 28  | Jul 2029 | 1,258.29        | 11.01    | 19.68     | 30.69      | 1,238.61        |
| 29  | Aug 2029 | 1,238.61        | 10.84    | 19.85     | 30.69      | 1,218.76        |
| 30  | Sep 2029 | 1,218.76        | 10.66    | 20.03     | 30.69      | 1,198.73        |
| 31  | Oct 2029 | 1,198.73        | 10.49    | 20.20     | 30.69      | 1,178.53        |
| 32  | Nov 2029 | 1,178.53        | 10.31    | 20.38     | 30.69      | 1,158.15        |
| 33  | Dec 2029 | 1,158.15        | 10.13    | 20.56     | 30.69      | 1,137.59        |
| 34  | Jan 2030 | 1,137.59        | 9.95     | 20.74     | 30.69      | 1,116.85        |
| 35  | Feb 2030 | 1,116.85        | 9.77     | 20.92     | 30.69      | 1,095.94        |
| 36  | Mar 2030 | 1,095.94        | 9.59     | 21.10     | 30.69      | 1,074.83        |
| 37  | Apr 2030 | 1,074.83        | 9.40     | 21.29     | 30.69      | 1,053.55        |
| 38  | May 2030 | 1,053.55        | 9.22     | 21.47     | 30.69      | 1,032.07        |
| 39  | Jun 2030 | 1,032.07        | 9.03     | 21.66     | 30.69      | 1,010.41        |

| No. | Month    | Opening balance | Interest | Principal | Instalment | Closing balance |
|-----|----------|-----------------|----------|-----------|------------|-----------------|
| 40  | Jul 2030 | 1,010.41        | 8.84     | 21.85     | 30.69      | 988.56          |
| 41  | Aug 2030 | 988.56          | 8.65     | 22.04     | 30.69      | 966.52          |
| 42  | Sep 2030 | 966.52          | 8.46     | 22.23     | 30.69      | 944.29          |
| 43  | Oct 2030 | 944.29          | 8.26     | 22.43     | 30.69      | 921.86          |
| 44  | Nov 2030 | 921.86          | 8.07     | 22.63     | 30.69      | 899.23          |
| 45  | Dec 2030 | 899.23          | 7.87     | 22.82     | 30.69      | 876.41          |
| 46  | Jan 2031 | 876.41          | 7.67     | 23.02     | 30.69      | 853.39          |
| 47  | Feb 2031 | 853.39          | 7.47     | 23.22     | 30.69      | 830.16          |
| 48  | Mar 2031 | 830.16          | 7.26     | 23.43     | 30.69      | 806.73          |
| 49  | Apr 2031 | 806.73          | 7.06     | 23.63     | 30.69      | 783.10          |
| 50  | May 2031 | 783.10          | 6.85     | 23.84     | 30.69      | 759.26          |
| 51  | Jun 2031 | 759.26          | 6.64     | 24.05     | 30.69      | 735.21          |
| 52  | Jul 2031 | 735.21          | 6.43     | 24.26     | 30.69      | 710.95          |
| 53  | Aug 2031 | 710.95          | 6.22     | 24.47     | 30.69      | 686.48          |
| 54  | Sep 2031 | 686.48          | 6.01     | 24.68     | 30.69      | 661.80          |
| 55  | Oct 2031 | 661.80          | 5.79     | 24.90     | 30.69      | 636.90          |
| 56  | Nov 2031 | 636.90          | 5.57     | 25.12     | 30.69      | 611.78          |
| 57  | Dec 2031 | 611.78          | 5.35     | 25.34     | 30.69      | 586.44          |
| 58  | Jan 2032 | 586.44          | 5.13     | 25.56     | 30.69      | 560.88          |
| 59  | Feb 2032 | 560.88          | 4.91     | 25.78     | 30.69      | 535.10          |
| 60  | Mar 2032 | 535.10          | 4.68     | 26.01     | 30.69      | 509.09          |
| 61  | Apr 2032 | 509.09          | 4.45     | 26.24     | 30.69      | 482.85          |
| 62  | May 2032 | 482.85          | 4.22     | 26.47     | 30.69      | 456.38          |
| 63  | Jun 2032 | 456.38          | 3.99     | 26.70     | 30.69      | 429.68          |
| 64  | Jul 2032 | 429.68          | 3.76     | 26.93     | 30.69      | 402.75          |
| 65  | Aug 2032 | 402.75          | 3.52     | 27.17     | 30.69      | 375.59          |
| 66  | Sep 2032 | 375.59          | 3.29     | 27.41     | 30.69      | 348.18          |
| 67  | Oct 2032 | 348.18          | 3.05     | 27.65     | 30.69      | 320.54          |
| 68  | Nov 2032 | 320.54          | 2.80     | 27.89     | 30.69      | 292.65          |
| 69  | Dec 2032 | 292.65          | 2.56     | 28.13     | 30.69      | 264.52          |
| 70  | Jan 2033 | 264.52          | 2.31     | 28.38     | 30.69      | 236.14          |
| 71  | Feb 2033 | 236.14          | 2.07     | 28.63     | 30.69      | 207.51          |
| 72  | Mar 2033 | 207.51          | 1.82     | 28.88     | 30.69      | 178.64          |
| 73  | Apr 2033 | 178.64          | 1.56     | 29.13     | 30.69      | 149.51          |
| 74  | May 2033 | 149.51          | 1.31     | 29.38     | 30.69      | 120.13          |
| 75  | Jun 2033 | 120.13          | 1.05     | 29.64     | 30.69      | 90.49           |
| 76  | Jul 2033 | 90.49           | 0.79     | 29.90     | 30.69      | 60.59           |
| 77  | Aug 2033 | 60.59           | 0.53     | 30.16     | 30.69      | 30.43           |
| 78  | Sep 2033 | 30.43           | 0.27     | 30.43     | 30.69      | –               |