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PROJECT REPORT

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PROJECT:

Helmet Manufacturing unit

PROJECT REPORT

Of

HELMET

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding Helmet Manufacturing unit.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]

PROJECT AT GLANCE

1 Name of Proprietor/Director	XXXXXXXX	
2 Firm Name	XXXXXXXX	
3 Registered Address	XXXXXXXX	
4 Nature of Activity	XXXXXXXX	
5 Category of Applicant	XXXXXXXX	
6 Location of Unit	XXXXXXXX	
7 Cost of Project	18.89	Rs. In Lakhs
8 Means of Finance		
i) Own Contribution	1.89	Rs. In Lakhs
ii) Term Loan	13.82	Rs. In Lakhs
iii) Working Capital	3.18	Rs. In Lakhs
9 Debt Service Coverage Ratio	3.01	
10 Break Even Point	31%	
11 Power Requiremnet	30	KW
12 Employment	10	Persons
13 Major Raw Materials	ABS, EPS expanded polystyrene, polycarbonate resin, adhesive foam, lock straps,stickers, bush, lacquer, water based acrylic paint, cloth and mesh	

14 Details of Cost of Project & Means of Finance

Cost of Project **Amount in Lacs**

Particulars	**Amount**
Land and building	Owned/Leased
Plant & Machinery	13.86
Furniture & Fixture	-
Other Misc Assets	1.50
Working Capital Requirement	3.53
Total	**18.89**

Means of Finance

Particulars	**Amount**
Own Contribution	1.89
Term Loan	13.82
Working capital Loan	3.18
Total	**18.89**

1. INTRODUCTION

A helmet is a protective headgear used by bike or motorcycle riders. The primary goal of a helmet is safety - to protect the rider's head during impact, thus preventing or reducing head injury and saving the rider's life. Some helmets provide additional conveniences, such as ventilation, face shields, ear protection, intercom, etc. There are mainly six types of helmet: Full-face helmet, Modular helmet, Open face helmet, Half helmet, Off-Road Helmet, and Dual Sport helmet. A full-face helmet covers the entire head, the base of the skull, and the chin's front. The chin bar is a distinguishing feature of the full- face helmet, securing the rider's chin during a frontal impact. Open face helmets are full- face helmets without the chin bar. The overall weight of the open-face helmet is a little less than the full-face helmet due to the absence of the chin bar. However, the exposure to the face of the rider significantly reduces its safety. Also, it does not provide the rider protection against road debris, mud, and weather conditions. To protect the face from exposure to sunlight, they are equipped with either partial or full- face visors. Half helmets are structurally similar to a cap made up of carbon fibers. It only covers the top of the rider's head and provides minimal shielding from moisture, road debris, or sunlight. While these helmets facilitate the biker with maximum airflow, they offer much less protection than a full face or an open face helmet. Many half-face helmets are not equipped with a visor or face shield and they cannot be upgraded technologically as there isn't any space for the features to be implanted and installed.

2 PRODUCT DESCRIPTION

2.1 PRODUCT USES

Bike Helmets are useful as safety gear to prevent or minimize injuries to the head and brain in an uncontrolled environment during riding a bike.

2.2 MANUFACTURING PROCESS

This process can be broken down into the following steps-

Raw material procurement

Production Process

Testing

Raw Material Procurement

To ensure complete quality control, all raw materials are checked strictly as per established quality standards and requirements. Individual supplier assessment and supplier rating are done depending upon the rejection levels at the incoming quality control stage. After quality control, sorting of raw material will be done. In the sorting procedure, the different types of materials will be sorted out and they will be stored in a neat storage area for further processing.

Production Process

Structurally, there are three essential parts of a helmet manufacturing process. These are inner liners, followed by an outer shell and straps

1) **Injection Molding:** Multiple parts go into the manufacturing of a bike helmet. One of the important parts is the EPS shell. The journey begins with the resin of polystyrene which is expanded under pressure and heat to create what is commonly known in the industry as foam. In technical terms, the polystyrene now becomes expanded polystyrene (EPS). The non-expanded resins are fed into an injection molding machine which puts out a shell of expanded polystyrene which is the internal shell of a motorcycle helmet. But this shell alone does not have the mechanical resistance to withstand high-impact forces which is why it is covered with a shell made out of ABS. Both of the cells are attached using industrial adhesive into one combined external structure. The visor that is used in helmets is also created in a similar process using transparent polyurethane beans which are pressed together under high pressure and temperature to produce clear visors or mirrored or rainbow-hued visors by adding different additives.

2) **Buffing and sanding:** Once the outer shell is ready, it is buffed and sanded down to make it smooth. Bumps, joints, and other marks are removed in the sanding process. Once it is smoothened, the paint will be set on it very well.

3) **Painting of decals and shells:** Before painting can begin, the entire surface has to be dust-free. Cleaning the outer shell with alcohol or vacuum machines wipes out even the slight est trace of dust. Then the paint is mixed, and a first layer is sprayed onto the shell. It is allowed to dry before decals are fixed onto it. These are allowed to set for 3-4 hours before a final topcoat is sprayed on them.


4) **Helmet pad and straps forming:** In a separate part of the manufacturing unit, workers design the straps and strapping mechanism along with other rivets and bushes that go into the helmet for securing the strap in place. Helmet straps are made of nylon or polypropylene. The fabric and the weaving are what make these straps unique to every company. There are two ways in which a strap can be added to the helmet. The first method is when the strap is placed around the liner before it is glued to the outer shell. The second method is used for molded helmets, where the belt is threaded through an anchor attached to the outer shell. Once the helmet comes out of the paint shop, workers in the assembly line merge the painted shell with the visor mechanism along with the strapping mechanism using multiple specialized tools for punching holes and attaching the security of the strap. Die-cut and Laser machines are used to precisely cut the pads and inner lining of the helmet with an accuracy of a few millimeters which ensures that the wearer gets the best comfort and safety while using the product.



5) **Interior and assembly:** Some of the interiors can be removed and cleaned separately, while others are glued to the EPS covering. Sometimes an interior cloth or a plastic liner is also attached to its interiors. The inner lining is responsible for absorbing much of the shock and preventing its transmission to the skull. The little round beads of thermocol, also known as expanded polystyrene, are placed under high steam and pressure to form the foam material that makes up a helmet liner. After the manufacture of the individual parts, the most basic process is a labor-intensive process of assembling the liner, the outer shell, and the strap into one unit by hand.

6) **Final touches or finishing**: The final touches include strict quality checks and inspections to see if the safety device measures up to ISI standards. The helmet can now bear the brand's emblem and be shipped. It is ready to be sold.

Testing

Quality Control: Each of the steps mentioned above passes through a stringent quality check at the end of the process to see whether the child parts meet regulatory requirements and internal quality parameters before it is passed on to the next section of the Assembly Line on the manufactur ing process. Any part that does not meet the required quality parameters is discarded and recycled to reduce waste. Once the quality expert is completely convinced of the helmet meets all requireme nts and safety standards, the element becomes eligible to bear the ISI mark along with the Insignia of the company before it is sent forward to be packaged and shipped.



3 PROJECT COMPONENTS

3.1 Land & Building

The land required for this manufacturing unit will be approx. around 1500 square feet. Land Purchase and Building Civil Work Cost have not been considered as part of the cost of project. It is expected that the premises will be on rental and approximate rentals assumed of the same will be Rs.15,000 per month.

- Workshop Area- This area includes the setup and foundation space for all equipment's, work floor area, etc. Total workshop area is approx.800 Sqft.
- Inventory Area- This area includes the storage space for all the raw materials and finished goods. Total inventory area is approx. 400 Sqft.
- Office Area – This space includes staff working region, their accommodation space. Total workshop area is approx. 200 Sqft. This may be considered above the ground floor.
- Parking Space, Electric Mounting Space, and Others. This could be approx. 100 Sqft.

Land and building requirement may vary depending on the size of project.

3.2 Plant & Machinery

Injection molding machine: The shell for helmets are made from plastic resins or granules. Firstly, granules are fed via a hopper into a heated barrel. Where the plastic will be melted at the set temperature. The melted plastic is then injected through a nozzle into a mold cavity where it cools and hardens to the configuration of the cavity and the formed plastic parts are ejected out.

Stitching machine: This machine is used for stitching pads for the interior of helmet.

Riveting machine: This machine is used to fix bush and inner and outer layers with thehelmet.

Dryer: A dryer is used to dry the paint through the heated air that is re-circulatedin the Oven. This is generally done by having a heating chamber where the air is heated and the heated air is circulated inside the drier chambers through fans.

Tensile/Helmet testing machine: This machine is used for tensile testing.

Other: Dies, Mechanical equipment, etc.

Dies are usually made from steel and contain cavities that will form the parts. In an injection molding machine, melted plastic is injected into the dies or molds, filling the cavities. The mold is cooled, and the parts are ejected by pins

Machine	Quantity	Price
Injection molding machine	1	9,00,000
Stitching machine	1	25,000
Riveting machine	1	70,000
Dryer	1	36,000
Tensile testing machine		2,65,000
Miscellaneous(Dies, Mechanical Equipment, etc.)		90,000
TOTAL		**13,86,000**

Note: Total Machinery cost shall be Rs 13.86 lakhs (Approx.) excluding GST and Transportation Cost.

4 LICENSE & APPROVALS

Basic registration required in this project:

- MSME Udyam registration
- GST registration
- NOC for fire safety board and from Pollution Control Board
- Trade License
- Factory License (Optional)
- BIS certification
- Choice of a Brand Name of the product and secure the name with Trademark if required.

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Projected Profitability

PROJECTED PROFITABILITY STATEMENT					(in Lacs)
PARTICULARS	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Capacity Utilisation %	**45%**	**50%**	**55%**	**60%**	**65%**
SALES					
Gross Sale					
Helmet	75.79	90.33	104.32	119.43	135.94
Total	**75.79**	**90.33**	**104.32**	**119.43**	**135.94**
COST OF SALES					
Raw Material Consumed	47.79	55.80	64.55	73.87	84.01
Electricity Expenses	2.59	2.88	3.17	3.46	3.74
Depreciation	2.30	1.96	1.66	1.41	1.20
Wages & labour	8.64	9.94	11.43	13.71	15.36
Repair & maintenance	1.52	1.90	2.30	2.39	2.72
Packaging	0.61	1.08	1.25	1.43	1.63
Cost of Production	63.45	73.56	84.35	96.28	108.66
Add: Opening Stock	-	1.48	1.72	1.97	2.25
Less: Closing Stock	1.48	1.72	1.97	2.25	2.54
Cost of Sales	61.97	73.32	84.10	96.00	108.37
GROSS PROFIT	**13.82**	**17.01**	**20.22**	**23.43**	**27.57**
	18.23%	**18.83%**	**19.38%**	**19.62%**	**20.28%**
Salary to Staff	4.02	4.42	5.31	6.37	7.32
Interest on Term Loan	1.36	1.20	0.86	0.52	0.18
Interest on working Capital	0.35	0.35	0.35	0.35	0.35
Rent	1.80	2.07	2.38	2.74	3.15
Selling & Administrative Exp.	1.14	2.26	2.61	2.99	3.40
TOTAL	**8.66**	**10.30**	**11.50**	**12.96**	**14.40**
NET PROFIT	5.15	6.71	8.72	10.47	13.17
	6.80%	**7.43%**	**8.36%**	**8.77%**	**9.69%**
Taxation	0.03	0.36	0.77	0.46	1.30
PROFIT (After Tax)	5.12	6.36	7.94	10.01	11.87

Projected Balance Sheet

PROJECTED BALANCE SHEET					**(in Lacs)**
PARTICULARS	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Liabilities					
Capital					
Opening balance		3.41	5.57	7.96	10.62
Add:- Own Capital	1.89				
Add:- Retained Profit	5.12	6.36	7.94	10.01	11.87
Less:- Drawings	3.60	4.20	5.55	7.35	9.30
Closing Balance	**3.41**	**5.57**	**7.96**	**10.62**	**13.19**
Term Loan	12.29	9.22	6.14	3.07	-
Working Capital Limit	3.18	3.18	3.18	3.18	3.18
Sundry Creditors	1.59	1.86	2.15	2.46	2.80
Provisions & Other Liability	0.40	0.48	0.58	0.80	0.96
TOTAL :	**20.87**	**20.30**	**20.01**	**20.13**	**20.13**
Assets					
Fixed Assets (Gross)	15.36	15.36	15.36	15.36	15.36
Gross Dep.	2.30	4.26	5.93	7.34	8.54
Net Fixed Assets	**13.06**	**11.10**	**9.43**	**8.02**	**6.82**
Current Assets					
Sundry Debtors	2.53	3.01	3.48	3.98	4.53
Stock in Hand	2.60	3.02	3.47	3.97	4.50
Cash and Bank	0.19	0.17	0.12	0.17	0.19
Loans & Advances /Other Current Assets	2.50	3.00	3.50	4.00	4.10
TOTAL :	**20.87**	**20.30**	**20.01**	**20.13**	**20.13**

Projected Cash Flow Statement

PROJECTED CASH FLOW STATEMENT					**(in Lacs)**
PARTICULARS	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
SOURCES OF FUND					
Own Margin	1.89				
Net Profit	5.15	6.71	8.72	10.47	13.17
Depreciation & Exp. W/off	2.30	1.96	1.66	1.41	1.20
Increase in Cash Credit	3.18	-	-	-	-
Increase In Term Loan	13.82	-	-	-	-
Increase in Creditors	1.59	0.27	0.29	0.31	0.34
Increase in Provisions & Oth labilities	0.40	0.08	0.10	0.22	0.16
	-				
TOTAL :	**28.34**	**9.02**	**10.77**	**12.42**	**14.87**
APPLICATION OF FUND					
Increase in Fixed Assets	15.36				
Increase in Stock	2.60	0.42	0.46	0.50	0.53
Increase in Debtors	2.53	0.48	0.47	0.50	0.55
Repayment of Term Loan	1.54	3.07	3.07	3.07	3.07
Loans & Advances /Other Current Assets	2.50	0.50	0.50	0.50	0.10
Drawings	3.60	4.20	5.55	7.35	9.30
Taxation	0.03	0.36	0.77	0.46	1.30
TOTAL :	**28.15**	**9.04**	**10.82**	**12.38**	**14.85**
Opening Cash & Bank Balance	-	0.19	0.17	0.12	0.17
Add : Surplus	0.19	(0.02)	(0.05)	0.04	0.02
Closing Cash & Bank Balance	**0.19**	**0.17**	**0.12**	**0.17**	**0.19**

DSCR

CALCULATION OF D.S.C.R					
PARTICULARS	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
CASH ACCRUALS	7.43	8.32	9.61	11.43	13.07
Interest on Term Loan	1.36	1.20	0.86	0.52	0.18
Total	8.79	9.51	10.47	11.95	13.26
REPAYMENT					
Instalment of Term Loan	1.54	3.07	3.07	3.07	3.07
Interest on Term Loan	1.36	1.20	0.86	0.52	0.18
Total	2.89	4.27	3.93	3.59	3.26
DEBT SERVICE COVERAGE RATIO	**3.03**	**2.23**	**2.66**	**3.33**	**4.07**
AVERAGE D.S.C.R.					**3.01**

Repayment schedule

REPAYMENT SCHEDULE OF TERM LOAN							
					Interest		11.00%
Year	**Particulars**	**Amount**	**Addition**	**Total**	**Interest**	**Repayment**	**Closing Balance**
1st	Opening Balance						
	1st month	-	13.82	13.82	-	-	13.82
	2nd month	13.82	-	13.82	0.13	-	13.82
	3rd month	13.82	-	13.82	0.13	-	13.82
	4th month	13.82	-	13.82	0.13		13.82
	5th month	13.82	-	13.82	0.13		13.82
	6th month	13.82	-	13.82	0.13		13.82
	7th month	13.82	-	13.82	0.13	0.26	13.57
	8th month	13.57	-	13.57	0.12	0.26	13.31
	9th month	13.31	-	13.31	0.12	0.26	13.06
	10th month	13.06	-	13.06	0.12	0.26	12.80
	11th month	12.80	-	12.80	0.12	0.26	12.54
	12th month	12.54	-	12.54	0.11	0.26	12.29
					1.36	**1.54**	
2nd	Opening Balance						
	1st month	12.29	-	12.29	0.11	0.26	12.03
	2nd month	12.03	-	12.03	0.11	0.26	11.78
	3rd month	11.78	-	11.78	0.11	0.26	11.52
	4th month	11.52	-	11.52	0.11	0.26	11.26
	5th month	11.26	-	11.26	0.10	0.26	11.01
	6th month	11.01	-	11.01	0.10	0.26	10.75

	7th month	10.75	-	10.75	0.10	0.26	10.50
	8th month	10.50	-	10.50	0.10	0.26	10.24
	9th month	10.24	-	10.24	0.09	0.26	9.98
	10th month	9.98	-	9.98	0.09	0.26	9.73
	11th month	9.73	-	9.73	0.09	0.26	9.47
	12th month	9.47	-	9.47	0.09	0.26	9.22
					1.20	**3.07**	
3rd	Opening Balance						
	1st month	9.22	-	9.22	0.08	0.26	8.96
	2nd month	8.96	-	8.96	0.08	0.26	8.70
	3rd month	8.70	-	8.70	0.08	0.26	8.45
	4th month	8.45	-	8.45	0.08	0.26	8.19
	5th month	8.19	-	8.19	0.08	0.26	7.94
	6th month	7.94	-	7.94	0.07	0.26	7.68
	7th month	7.68	-	7.68	0.07	0.26	7.42
	8th month	7.42	-	7.42	0.07	0.26	7.17
	9th month	7.17	-	7.17	0.07	0.26	6.91
	10th month	6.91	-	6.91	0.06	0.26	6.66
	11th month	6.66	-	6.66	0.06	0.26	6.40
	12th month	6.40	-	6.40	0.06	0.26	6.14
					0.86	**3.07**	
4th	Opening Balance						
	1st month	6.14	-	6.14	0.06	0.26	5.89
	2nd month	5.89	-	5.89	0.05	0.26	5.63
	3rd month	5.63	-	5.63	0.05	0.26	5.38

	4th month	5.38	-	5.38	0.05	0.26	5.12
	5th month	5.12	-	5.12	0.05	0.26	4.86
	6th month	4.86	-	4.86	0.04	0.26	4.61
	7th month	4.61	-	4.61	0.04	0.26	4.35
	8th month	4.35	-	4.35	0.04	0.26	4.10
	9th month	4.10	-	4.10	0.04	0.26	3.84
	10th month	3.84	-	3.84	0.04	0.26	3.58
	11th month	3.58	-	3.58	0.03	0.26	3.33
	12th month	3.33	-	3.33	0.03	0.26	3.07
					0.52	**3.07**	
5th	Opening Balance						
	1st month	3.07	-	3.07	0.03	0.26	2.82
	2nd month	2.82	-	2.82	0.03	0.26	2.56
	3rd month	2.56	-	2.56	0.02	0.26	2.30
	4th month	2.30	-	2.30	0.02	0.26	2.05
	5th month	2.05	-	2.05	0.02	0.26	1.79
	6th month	1.79	-	1.79	0.02	0.26	1.54
	7th month	1.54	-	1.54	0.01	0.26	1.28
	8th month	1.28	-	1.28	0.01	0.26	1.02
	9th month	1.02	-	1.02	0.01	0.26	0.77
	10th month	0.77	-	0.77	0.01	0.26	0.51
	11th month	0.51	-	0.51	0.00	0.26	0.26
	12th month	0.26	-	0.26	0.00	0.26	-
					0.18	**3.07**	
	DOOR TO DOOR	60	MONTHS				
	MORATORIUM PERIOD	6	MONTHS				
	REPAYMENT PERIOD	54	MONTHS				

DISCLAIMER

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