Techno Economic Viability Report

of

Sauga Bricks Private Limited

for

Setting up a Tunnel Kiln Technology based Perforated Bricks Manufacturing Unit in Baghpat, Uttar Pradesh

1 June, 2023

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Contents

Chapter 1

Executive Summary

<table>
<tr><th>Name of the Company</th><th>Sauga Bricks Private Limited ("The Company" or "SBPL")</th></tr>
<tr><td>Date of Incorporation</td><td>15th May, 2019</td></tr>
<tr><td>Registered Address</td><td>House No. 303, Shabga, Baghpat, Uttar Pradesh - 250617</td></tr>
<tr><td>CIN</td><td>U26990UP2019PTC116944</td></tr>
<tr><td>Company Category</td><td>Private Limited Company</td></tr>
<tr><td>Proposed project</td><td>Setting up a Tunnel Kiln Technology based Perforated Bricks Manufacturing Unit in Baghpat, Uttar Pradesh.</td></tr>
<tr><td>Proposed Plant Location</td><td>Khasra No. 961, Adarsh Nangla – Shabga Road, Village Shabga, Block Baraut, District Baghpat, Uttar Pradesh - 250617</td></tr>
<tr><td>Category of Industry</td><td>Construction- Manufacturing of Bricks</td></tr>
<tr><td>Names of Shareholders</td><td>Mr. Mr. Nitik Arya
Mr. Deepak Chaudhary</td></tr>
<tr><td>Envisaged Cost of Project</td><td>
<table>
<tr><th colspan="2">All Figures in INR Crores</th></tr>
<tr><th>Description</th><th>Total</th></tr>
<tr><td>Land and Land Development</td><td>-</td></tr>
<tr><td>Building and Civil Works</td><td>2.00</td></tr>
<tr><td>Plant and Machinery</td><td>19.40</td></tr>
<tr><td>Miscellaneous Fixed Assets</td><td>0.04</td></tr>
<tr><td>Contingency</td><td>0.54</td></tr>
<tr><td>Preliminary and Pre-operatives</td><td>0.54</td></tr>
<tr><td>Interest During Construction</td><td>0.94</td></tr>
<tr><td>Margin Money for Working Capital</td><td>0.56</td></tr>
<tr><td>Total Project Cost</td><td>24.01</td></tr>
</table>
</td></tr>
<tr><td>Means of Finance</td><td>
<table>
<tr><th colspan="2">All Figures in INR Crores</th></tr>
<tr><th>Description</th><th>Total</th></tr>
<tr><td>Equity</td><td>8.01</td></tr>
<tr><td>Venture Capital Fund – Loan</td><td>-</td></tr>
<tr><td>Term Loan</td><td>16.00</td></tr>
<tr><td>Total Means of Finance</td><td>24.01</td></tr>
</table>
</td></tr>
<tr><td>Current Status of the Project</td><td>

The land required for the proposed project is under the possession of the Company.
Since the proposed project is in preliminary stages, no construction work has commenced at the site.
The Company has procured firmed quotations of major plant and machinery and has also appointed a Civil Consultant for the proposed project.
The Company has also received requisite approvals from Competent Authorities to commence the construction works at the site.

</td></tr>
</table>

Name of the Company	Sauga Bricks Private Limited ("The Company" or "SBPL")
Conclusion	Based on the assumptions considered and information shared by the Company, post understanding the project and economic scenarios we conclude: • The average EBITDA margin of the proposed refurbishment project has been estimated at 51.47 %, which is in line with the industry standards. • The Project is proposed to be funded through a debt-equity ratio of 2.00:1 or Promoter's contribution of INR 8.01 Crore and Term Loan from Banks to the tune of INR 16.00. • The Net Present Value of the Project is INR 15.88 Crore, which is above zero and hence indicates the project is financially viable. • Internal Rate of Return at 24.73% is higher than Weighted Average Post-Tax Cost of Capital at 11.58%, both parameters indicating that the Project is financially viable preposition. • Meanwhile the average Debt Service Coverage Ratio of the Project has been estimated at 2.75 and min DSCR of 1.49, indicating fair term loan repayment capacity of the Project and the Company. Based on the assessment undertaken by CareEdge Advisory, the Project as proposed by SBPL is found to be Techno-Economically Viable.

Chapter 2

Management Assessment of the Company:

Sauga Bricks Private Limited (SBPL) was incorporated by Mr. Nitik Arya and Mr. Deepak Chaudhary, to establish a Tunnel Kiln technology based Perforated Bricks manufacturing unit in Baghpat, Uttar Pradesh. The Promoters have been involved in the traditional style manufacturing of solid bricks for more than 3 decades in the same region. The kiln operated by Promoters was based on coal fired draft kiln with zigzag firing technology, which on an average produced around 50,000 bricks per day. The existing brick kiln was labor intensive and consumed high amount of energy.

Due to shortage of trained labor, the quality of green bricks molding started deteriorating resulting in lesser percentage of first quality bricks manufacturing. Also, the emission parameters of existing kiln were not in line with the stipulated norms of Greenhouse Gas (GHG's) emissions as provided by Government of India. Thus, Promoters approached to Punjab State Council for Science and Technology ('PSCST') for guidance to upgrade their existing brick manufacturing technology to Resource Efficient Bricks ('REBs') unit using State of Art Technology of Tunnel Kiln for firing of bricks.

In line with the guidance of PSCST, Promoters of SBPL are now proposing to establish an extrusion line for manufacturing of clay perforated bricks/hollow bricks utilizing Tunnel Kiln firing technology.

REBs like clay perforated bricks & hollow blocks consume 20-50% lesser soil & coal and also the GHG reduction impact is huge as compared to conventional solid clay brick manufacturing. The SPM emissions are negligible due to 100% internal fuel mixed with clay during clay preparation & emissions would be 70- 80% less than conventional kiln. The Promoters can fetch better prices in comparison to other brick manufacturers.

The proposed project will have following capacity parameters –

- Moulding Technology – Extrusion
- Extrusion Capacity – 15,000 bricks/hr
- Plant Operation – 10 hours
- Drying and Firing Technology – Tunnel Kiln
- Daily Firing Capacity – 1,50,000 bricks
- Connected Load – 901.5 KW

For the timely and proper implementation of the proposed project and technology, Company has given the Supply and Installation works of major plant and machinery to M/s. Xintai Taixing Machinery Co. Limited, a reputed China based supplier and has appointed Ms/. MAK Building System Private Limited for building and civil works in the proposed project. Thus, major hard cost of the proposed project is firmed up.

The Company will now approach Banks/ Lenders/ Financial Institutions for raising the debt component of the Project. In this regard, SBPL has appointed CareEdge Advisory Research and Training Limited (CART) for undertaking the techno-economic evaluation of the said refurbishment Project. The findings/ observations of CareEdge Advisory have been presented in form of this report.

Brief Profile of the Firm

Name of the Company	M/s. Sauga Bricks Private Limited
Year of Incorporation	15th May 2019
Registered office	House No. 303, Shabga, Baghpat, Uttar Pradesh - 250617
CIN No.	U26990UP2019PTC116944
Project Location	Khasra No. 961, Adarsh Nangla – Shabga Road, Village Shabga, Block Baraut, District Baghpat, Uttar Pradesh - 250617
Nature of Business	The Company proposes to set-up a manufacturing unit of Perforated Bricks based on Tunnel Kiln technology in Baghpat, Uttar Pradesh.
Constitution	Closely Held Private Limited Company

Board of Directors

Mr. Nitik Arya

Mr. Nitik Arya handles heads the marketing and financial departments at Sauga Bricks. He has been working in the brick manufacturing industry for the last 6 years. He focuses on the online sales of the company. Prior to being associated with Sauga Bricks, he has worked under multiple construction companies including Shapoorji Pallonji. He has a master's degree in Economics- Planning and Development.

Mr. Deepak Chaudhary

Mr. Deepak Chaudhary heads the production and labour management departments at Sauga Bricks. He also He has been working in the brick manufacturing industry for more than 12 years. He has quality exposure of Green Field Project Planning and Execution. He has experience in running kilns based on BTK and High Draught Technology. Mr. Deepak has a master's degree in Economics.

Shareholding Pattern

Details of shareholding pattern as on 31st October, 2022 is shown in the table below:

Sr. No.	Name	No. of Shares	Face Value Per Share	Nominal Value	% of share holding
1	Mr. Nitik Arya	577460	10	5774600	77.25%
2	Mr. Deepak Chaudhary	167215	10	1672150	22.50%

Source: SBPL

Chapter 3

Technical Assessment

Introduction

SBPL is proposing to establish an extrusion line for manufacturing of clay perforated bricks/hollow bricks utilizing Tunnel Kiln firing technology. The proposed project will have following capacity parameters –

- Moulding Technology – Extrusion
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- Plant Operation – 10 hours
- Drying and Firing Technology – Tunnel Kiln
- Daily Firing Capacity – 1,50,000 bricks
- Connected Load – 901.5 KW

Land Details

Company has acquired the requisite land for the proposed project at Khasra No. 961, Adarsh Nangla – Shabga Road, Village Shabga, Block Baraut, District Baghpat, Uttar Pradesh – 250617. The area of the project land is 20,070 M^2, which has been acquired by the Company on Lease basis for a period of 10 years. The cost of the land allotted is Rs. 3,700/- per square meter. The total value of the plot/land works out to Rs. 7,42,59,000 /-.

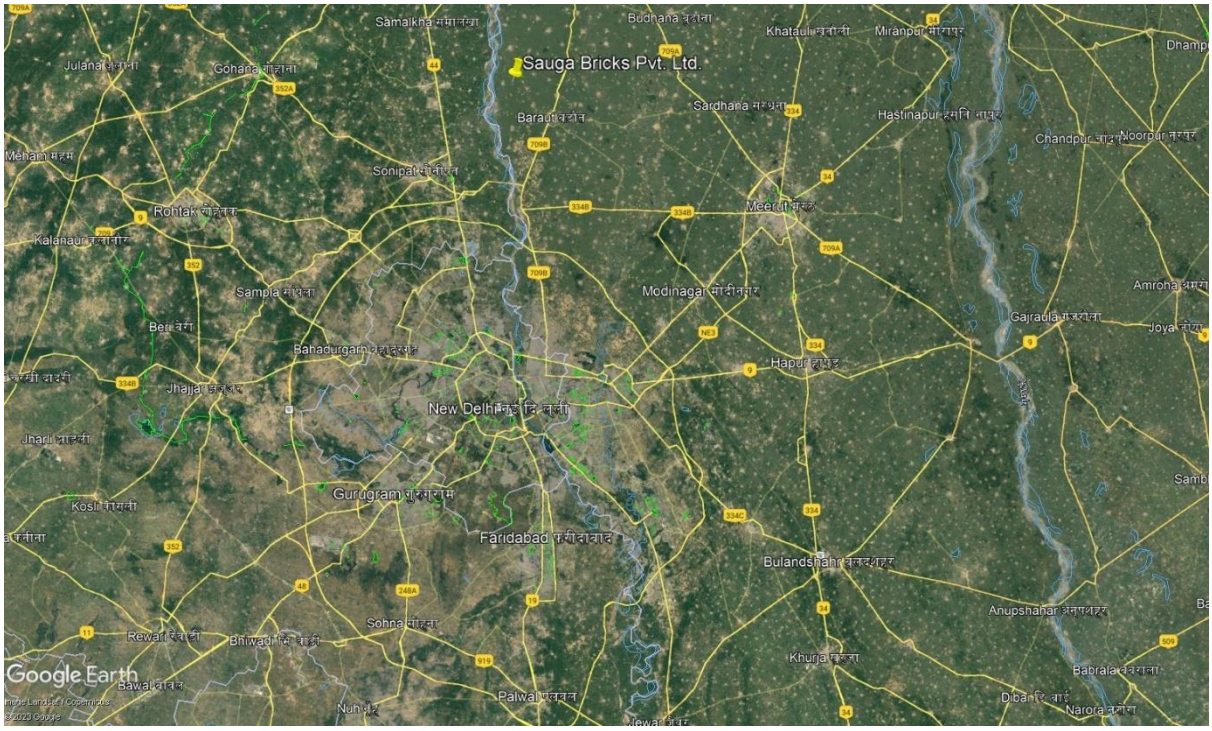
The boundary details of the land are provided in the exhibit below:

Direction	Description
North	Adarsh Nangla – Shabga Road
South	Water Canal Passage
East	Land of Shri Brijpal Singh
West	Land of Shri Udayveer Singh

The satellite image of the acquired unit is shown in the exhibit below

Source: Google Earth

The location of the SBPL, vis-à-vis the nearby landmarks has been presented as exhibit below –



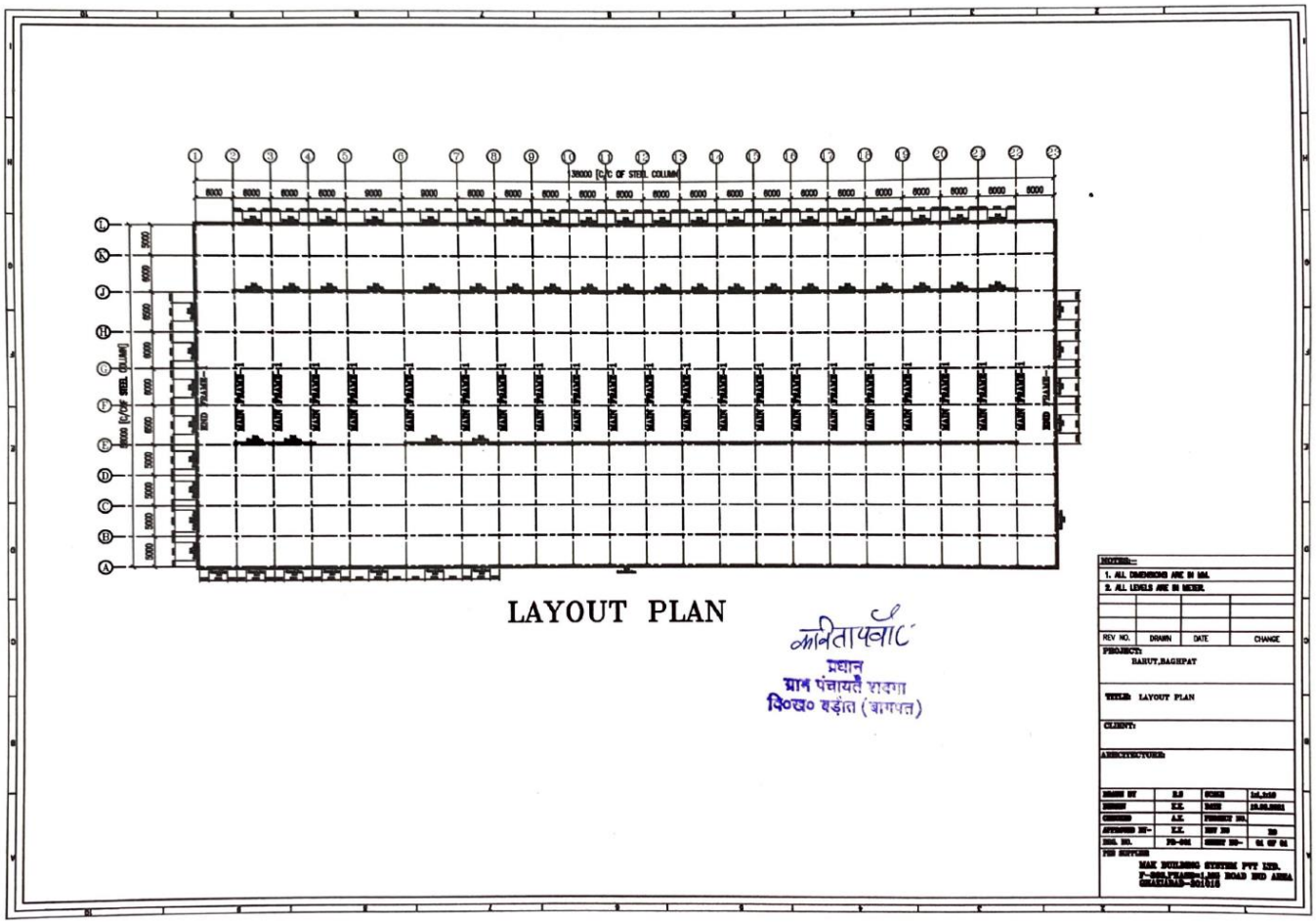
Source: SBPL

The distance of nearby connectivity centres from the proposed unit has been presented in the table below

Description	Connectivity Centres (Distance)
Nearest Road	Shabga- Adarsh Nangla Road (0 km)
Nearest Highway	National Highway – 709B (9.21 km)
Nearest Major Railway Station	Barout Railway Station (12.04 km)
Nearest Airport	Indira Gandhi International Airport (63 km)
Nearest Major City	Barout (9.05 km)

Layout Details

CareEdge Advisory had sought the copy of the probable layout for the Project and the same was duly provided by the Company and has been presented as exhibit below:



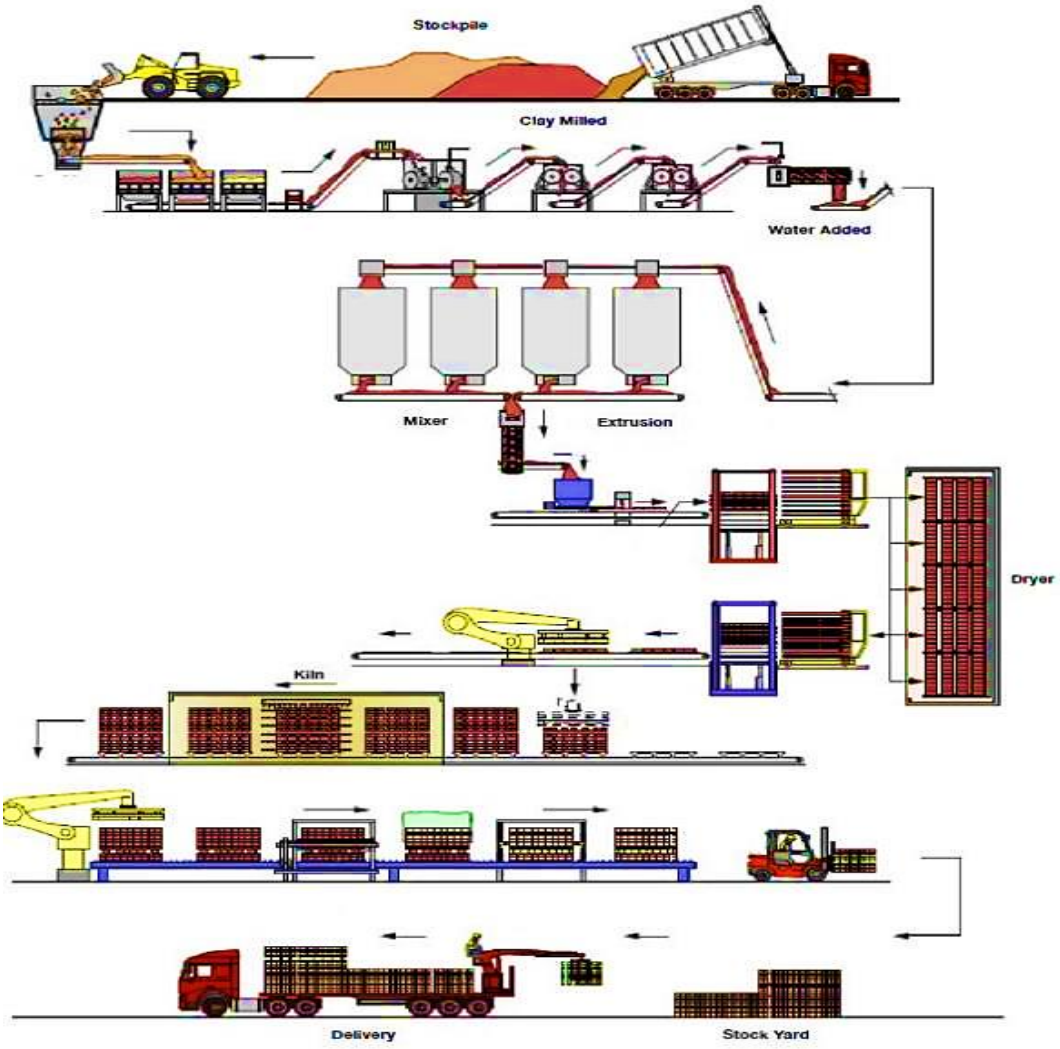
Manufacturing Process of Burnt Clay Perforated Bricks

Clay bricks have featured as a construction product for thousands of years with evidence of their use dating as far back as the time of the Roman Empire. It is a material prevalent across the World's built environment today and continues to be a fundamental ingredient in modern architecture. Bricks are a versatile and sustainable building material, which when combined with good building-design, provide the following benefits –

- Highly durable.
- Offer long-term performance.
- Low maintenance.
- High thermal mass.
- Reusable & recyclable.

Provide healthy and comfortable environments.

A general overview of bricks manufacturing is provided in the exhibit below



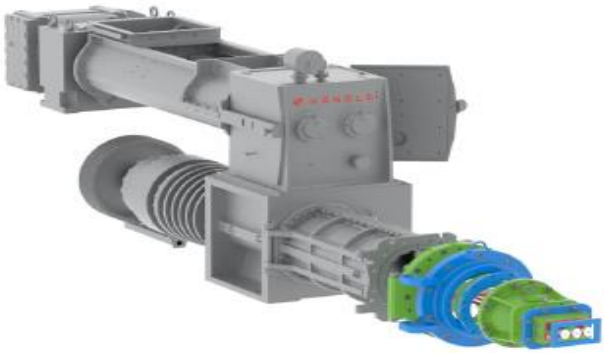
The manufacturing of perforated bricks involves following processes

1. **Raw Material Preparation –** In order to achieve the correct consistency for the brick forming process, appropriate preparation of the clay is essential. The raw material must be transformed from what can be a very hard unyielding state, into a plastic moldable material. There are different methods for achieving this workable level. A primary crusher such as a rotary crusher will initially break down large lumps of rock into a manageable size, (100-200mm). These are fed into a secondary crusher such as a pan mill, which further reduces the size of the clay pieces. At this point, with sizes ranging between 5-15mm, water can be added in what is known as 'wet pan'. Further crushing takes place through pairs of high-speed rolls, which break the clay particles down to about 1-2mm.Various additives can be added during the clay preparation stage, usually before or at the pan, to assist the manufacturing process (such as giving additional dry strength or to assist firing). Other materials are also added to influence aesthetic qualities of the brick, primarily color.

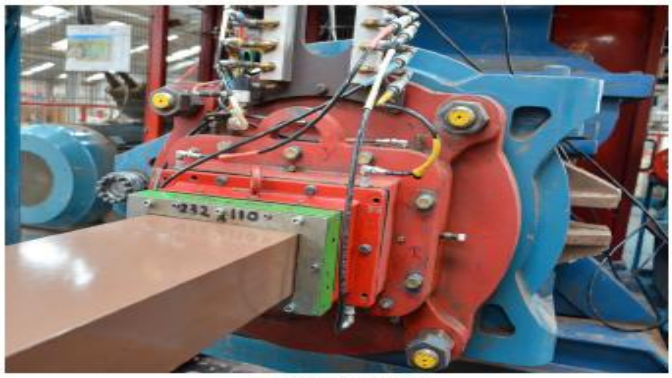
   The clay is fed into a mixer in which final quantities of water are added and thoroughly mixed. Most modern mixers comprise a double shaft with attached blades or paddles, which are set at specific angles, to both mix and convey clay along a large trough.

2. Moulding /Forming through Extrusion –

The clay is fed from the mixer into a vacuum chamber through which air is removed from the clay. The clay is then forced via a corkscrew shaped auger through a mouthpiece and extrusion die. The extruder is usually fitted with perforation bars, which produce the characteristic perforations seen in extruded bricks.



Extruder



Clay being extruded

The extruded column can be subjected to different processes in order to achieve the desired finish. Once the finishes have been applied, the column is then cut into bricks using a set of wires as shown below.

Brick Cutter

Once cut, the bricks are usually placed onto steel rails or pallets before being sent to the dryer. Some brickworks extrude a very firm column of clay which allows wet bricks to be set straight onto kiln cars before drying the entire car.

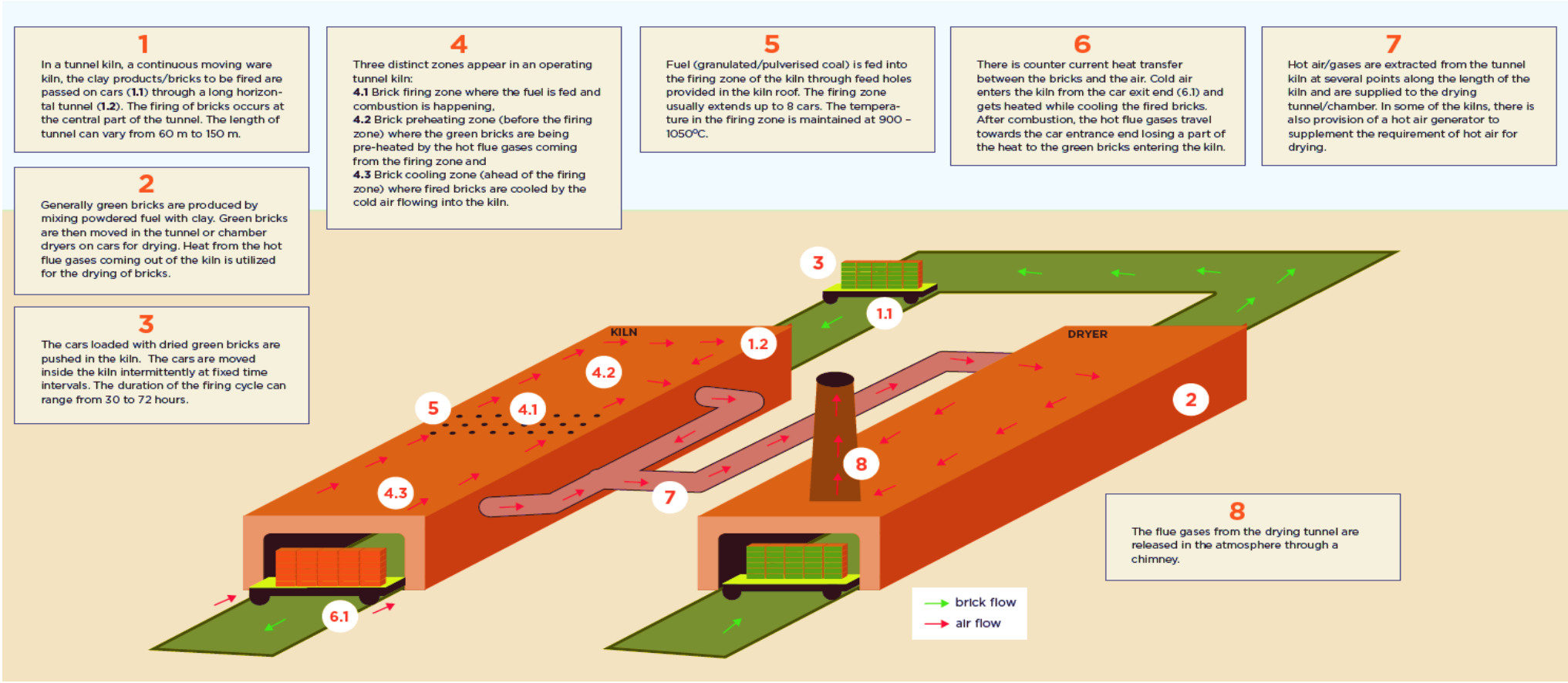
3. Drying – Tunnel Kiln Technology

All clay bricks when formed contain water, this is what makes the clay plastic enough to shape. This can range from 12% for extruded bricks, to above 25% in soft mud application. This water must be removed before the bricks can be fired. This process must be carefully controlled so as not to stress the product, which could lead to distortion and cracking.

The rate at which a brick dries is controlled by adjusting temperature, humidity and air movement. A typical drying cycle starts with low temperature (around 30°C) and high humidity and ends with high temperature (up

to 120°C) and low humidity. The movement of air, controlled by fans, is used to help evenly distribute the air around the product and remove saturated air.

Tunnel kiln is a continuous moving ware kiln in which the clay products to be fired are passed on cars through a long horizontal tunnel. The firing of products occurs at the central part of the tunnel. The tunnel kiln is considered to be the most advanced brick making technology. The main advantages of tunnel kiln technology lie in its ability to fire a wide variety of clay products, better control over the firing process and high quality of the products.



In this process, the bricks are pushed into the kiln on "kiln cars" at one end and come out fired at the other. The majority of tunnel kilns are 100-200m long and are up to 3m high. As the bricks progress through the kiln, they pass through zones of increasing temperature, until they reach the desired soak temperature. Hot air is pulled towards the front of the kiln which heats the bricks in the earlier stages. The bricks are then cooled with the waste heat taken from the cooling zone and fed to the driers. This makes this type of kiln highly efficient in high volume production.

Modern brick factories reuse as much energy as possible. The steel ducting pictured in the image below, takes waste hot air and recycles it to provide heat for the dryers.

Top of Tunnel Kiln

4. Packaging and Distribution

The majority of bricks produced today are handled by machines (known as de-hackers) or robots, at rates of up to 200,000 bricks per shift. These machines gradually remove bricks from kiln cars and reconfigure them into packs of bricks that can be handled by forklift.

During this process, sorting operatives manually inspect and remove any substandard products, usually on sorting conveyors. Different quality products are banded and packaged. Manufacturers have names for the different grade types, but as a general rule, bricks are categorized into best quality and lesser grades. Some brickworks are configured to employ manual packers to sort the bricks, allowing for a greater degree of flexibility in product mix. These packers usually handle between seven and twenty thousand bricks per day, depending on the weight of the product being handled.

Plant and Machinery

CareEdge had sought the list of plant and machinery from the Company for review purposes and the same was provided by the Company. Based on the quotations received, the list of plant and machinery and the supplier details have been presented in the exhibit below

Description	Unit	Rate in RMB	Rate in INR	Cost in INR Crores
Imported Plant and Machinery				
Crushing Workshop	Set	6,95,000	80,96,750	0.81
Moulding Workshop	Set	16,50,000	1,92,22,500	1.92
Roasting Workshop	Set	7,85,000	91,45,250	0.91
Kiln Door (5 fan)	Set	1,22,000	14,21,300	0.14
Kiln Temperature and Monitoring System	Set	2,45,000	28,54,250	0.29
Fans	Set	2,48,000	24,80,000	0.25
Power cabinet, operation cabinet	Set	6,61,500	66,15,000	0.66
Base Cost Imported Plant (China Port)	**-**	**44,06,500**	**4,98,35,050**	**4.98**
Marine Transport and Insurance	%	1.50%		0.07
Price at India Port	**INR Crores**			**5.06**

Description	Unit	Rate in RMB	Rate in INR	Cost in INR Crores
Landing Charges	%	0.10%		0.01
Landed Price at India Port	**INR Crores**			**5.06**
Import Duty	%	8.00%		0.41
Sub-Total	**INR Crores**			**5.47**
Inland Transport and Insurance	%	2.00%		0.11
Total Imported Plant and Machinery	**INR Crores**			**5.58**
Domestic Plant and Machinery				
Kiln Car YC 3.6x3.7 (140 vehicles)	Set		3,12,23,000	3.12
Drying Room with track inside	Set		1,89,00,000	1.89
Tunnel Kiln including track inside	Set		3,10,50,000	3.11
Belt Conveyor	Set		60,00,000	0.60
Track and Auxiliary Material	Set		1,10,00,000	1.10
Wire, cable, workshop lighting	Set		81,00,000	0.81
Equipment Foundation, kiln foundation, carriage return and ferry line construction	Set		1,09,00,000	1.09
Sub-Total	**INR Crores**			**11.72**
GST	%	18%		2.11
Total Domestic Plant and Machinery	**INR Crores**			**13.83**
Net Total Plant and Machinery Cost	**INR Crores**			**19.40**

Vendors- Main Equipment Suppliers

Xintai Taixing Machinery Co. Ltd. China

Xintai Taixing Machinery Co. Ltd. manufactures and sells machinery equipment products. The Company produces kiln machinery, kiln monitoring, brick making, and other equipment. Xintai Taixing Machinery also provides after sale services.

Raw Material

The main raw material required for manufacturing of burnt clay perforated bricks are clay and coal. The clay will be procured from the nearby farmers land on lease basis of per acre land. The coal and other consumables will be procured through the domestic market suppliers.

Utilities

Power

The power required for the proposed project will be procured from Uttar Pradesh Power Corporation Limited through a transformer of 1,000 KVA. For power backup purposes, Company will procure DG sets at the site.

Water

To meet the water requirement, Company is proposing to procure underground water from Borewell connections made available at the site during the implementation of the proposed project. The clearance for withdrawing underground water will be procured at later stages of the proposed project.

Fuel

The proposed manufacturing unit will be using coal as fuel for firing of the bricks in Tunnel Kiln and Electricity would be consumed to run machines for brick moulding, kiln cars movement etc. To manufacture 495 lakh bricks per annum around 4,950-ton coal will be required which be 100% used as internal fuel. The internal fuel will be mixed during mechanical clay preparation. The benefits of using internal fuel are –

- Low suspended particulate matter emission from kiln stack
- Better combustion – As pulverized coal is mixed with clay homogenously thus when the fired bricks reach auto-ignition temperature of fuel, fuel combustion will take place which helps in better firing of clay.
- Low ash generation

Manpower

The manpower requirement for the proposed project plan is ascertained as 43 personnel. The no. of manpower required, and their respective salary has been exhibited below:

Particulars	Unit	Value	Monthly Salary
Administrative and Selling			
Managing Director	Nos.	1	1,75,000
Executive Director	Nos.	2	1,50,000
Finance Head	Nos.	1	1,10,000
Finance Manager	Nos.	3	85,000
Finance Executive	Nos.	5	35,000
Accounts Manager	Nos.	1	60,000
Accounts Executive	Nos.	5	35,000
Marketing Manager	Nos.	1	50,000
Marketing Executive	Nos.	5	32,000
HR & Admin	Nos.	1	32,000
Production and Maintenance			
Plant Manager	Nos.	1	1,00,000
Store Manager	Nos.	2	35,000
Quality Control Staff	Nos.	6	35,000
Manager (Production)	Nos.	4	50,000
Supervisors/ Foreman	Nos.	8	30,000
Security Guards	Nos.	16	12,000
Skilled Operator/ Workers	Nos.	24	25,000
Semi-Skilled Operator/ Workers	Nos.	25	18,000
Helpers /Unskilled Workers	Nos.	100	12,000
Total Manpower Requirement	**Nos.**	**211**	

Statutory Approvals and Clearance

The list of approvals and clearances which are required/acquired by the Company for the proposed project are illustrated in the exhibit below:

S. No.	Approval	Authority	Reference No.	Remarks
Before Construction Start				
1.	Certificate of Incorporation	ROC	CIN No. U26990UP2019PTC116944	Received
2.	PAN Card	Income Tax Department	PAN No. ABCCS0627B	Received
3.	Power Connection	State Electricity Board		Received
4.	Building Plan Approval	Gram Panchayat- Shabga Village - Baghpat	-	Received
5.	Registration under GST	Commercial Tax department	09ABCCS0627B1ZR	Received
6.	Air and Water Pollution Clearance	UPPCB	1785/C/Sauga Brick Private Limited/2021	Received
7.	Consent to Establishment (CTE)	Member Secretary, PCB	-	Received
8.	Groundwater Clearance	Gram Panchayat, Shabga		Received
Before Commercial Operation				
10	Consent to Operation (CTO)	Member Secretary, PCB	-	Received
11	Factory License	Chief Inspector of Factories	-	Awaited; To be obtained before COD
15	Fire NOC	Fire Department	-	Awaited

The Lenders may request the Company to submit the hard copies of these, along with other approvals to the Lenders prior to first disbursement.

Implementation Schedule

CareEdge Advisory observes that the Company shall be able to achieve financial closure in Quarter 1 of the FY 2023-24 and will be able to complete project over a duration of 21 months construction period from the date of achieving the financial closure.

The first disbursement has been considered as 1st June, 2023 and considering the same the date of commercial operations of the Project has been considered as 1st June, 2024, for the purpose of financial evaluation. Based on these assumptions, CareEdge Advisory have drawn a level zero implementation schedule and the same has been presented in the exhibit below –

Site Visit

The team members from CareEdge Advisory, visited the plant location at Baghpat, Uttar Pradesh on 08th February 2023. The photographs taken by the visiting team members at site have been presented below






Site Assessment:

During the site visit, Consultants have noted following observation which are listed below –

- The project land is in barren condition and not construction work yet started.
- The land is connected through an internal road Sahgba-Adarsh Singhla.
- The project land is well connected with nearby demand centres.
- The Company will procure power connection from UPPCL through an inhouse transformer of 1,000 KVA capacity.
- Company will use borewells at the site for the water requirement purpose.
- The project land is situated in an agricultural belt, thus will have sufficient supply of clay for the manufacturing of perforated bricks.

Technical Assessment Conclusion:

- SBPL has acquired the requisite land for the proposed project at Khasra No. 961, Adarsh Nangla – Shabga Road, Village Shabga, Block Baraut, District Baghpat, Uttar Pradesh – 250617.
- The area of the project land is 20,070 M^2, which has been acquired by the Company on Lease basis for a period of 10 years. The cost of the land allotted is Rs. 3,700/- per square meter. The total value of the plot/land works out to Rs. 7,42,59,000 /-.
- The power required for the proposed project will be procured from Uttar Pradesh Power Corporation Limited through a transformer of 1,000 KVA. For power backup purposes, Company will procure DG sets at the site.
- The proposed manufacturing unit will be using coal as fuel for firing of the bricks in Tunnel Kiln and Electricity would be consumed to run machines for brick moulding, kiln cars movement etc. To manufacture 495 lakh bricks per annum around 4,950-ton coal will be required which be 100% used as internal fuel.
- The manpower requirement for the proposed project plan is ascertained as 43 personnel.
- The main raw material required for manufacturing of burnt clay perforated bricks are clay and coal. The clay will be procured from the nearby farmers land on lease basis of per acre land. The coal and other consumables will be procured through the domestic market suppliers.
- The Company has informed CareEdge Advisory that it will take all necessary steps as and when required for controlling the wastes and will make the unit at least waste generation system.
- The plant location is well connected with Railways, Road via New Delhi and by air via New Delhi which is geographically most suitable to cater All over India as well as foreign country.
- Major raw material and finished goods will be transported by road, while the coal requirement would be received either by road or by rail.
- The Project is found to be technically feasible.

Chapter 4

Industry Analysis

Indian Economy Outlook

GDP Growth and Outlook

Resilience to external shocks remains critical for near-term outlook

The FY21[1] started with the country being hit by the pandemic which saw lockdowns and restrictions being imposed across states. This impeded economic output in Q1FY21 and led to a year-on-year (y-o-y) decline of 23.8% in GDP. By the end of Q4FY21, the economy preceded the way to recovery. In broader sense, the pandemic resulted to 6.6% of negative growth for the Indian economy in FY21.

The Indian economy bounced back strongly in Q1FY22 with 20.1% y-o-y growth due to lower base effect. The easing of lockdowns and restrictions across states since June coupled with the decline in Covid-19 cases and higher vaccination rate facilitated higher economic activity as reflected in the GDP for the Q2FY22, which grew annually by 8.4%. The dip in Q3FY22 of 5.4% can be attributed to the fading base effect. India's economy recorded modest growth of 4.1% in Q4FY22, down from 5.4% in the previous quarter. The economy was hit by the third wave of Covid-19 pandemic during the quarter. Global supply bottlenecks due to the Russia-Ukraine dispute and higher input costs slowed down the pace of recovery in the last quarter. Overall, India is expected to have witnessed 8.7% growth in FY22.

In Q1FY23, India recorded 13.5% growth in GDP which can largely be attributed better performance by agriculture and services sectors. Following to this double-digit growth, Q2FY23 witnessed 6.3% growth. This slowdown in growth compared to the previous quarter can be accounted to the normalization of the base and a contraction in the manufacturing sector's output. Prospectively, the announcements in the Union Budget 2022-23 on boosting public infrastructure through enhanced capital expenditure are expected to augment growth and crowd in private investment through large multiplier effects in FY23. However, heightened inflationary pressures and resultant policy tightening may pose risk to the growth potential.

GDP growth outlook

Table 1: RBI's GDP Growth Outlook (Y-o-Y %)

Q3FY23	Q4FY23	FY23 (complete year)	Q1FY24	Q2FY24
4.4	4.2	6.8	7.1	5.9

Source: Reserve Bank of India

With improvement in demand for contact-intensive sectors as well as positive business and consumer sentiment, the discretionary spending and urban consumption is expected to bolster economic growth. Along with increasing government support and push towards capex, the investment activities are expected to stay upright through improving bank credit and rising capacity utilization. On the other hand, headwinds from geopolitical tensions, tightening global financial conditions and the slowing external demand pose downside risks to net exports and hence to India's GDP outlook.

Taking all these factors into consideration, in December 2022, the RBI in its bi-monthly monetary policy meeting estimated the real GDP growth to be at 6.8% for FY23.

[1]FY – Financial Year

Industrial Growth

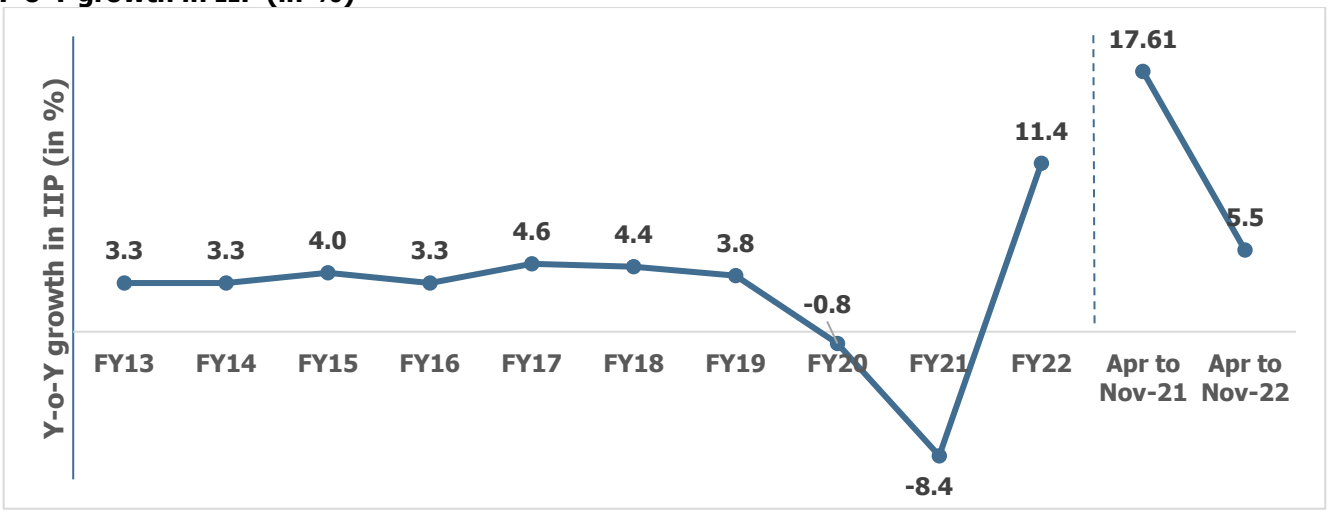
Improved core sector and capital goods sector helps in IIP growth momentum

Index of Industrial production (IIP) is an index to track manufacturing activity in an economy.

On a cumulative basis, IIP grew by 11.4% in FY22. However, this high growth is mainly backed by a low base of FY21. FY22 IIP was higher by 2.0% when compared with the pre-pandemic level of FY20, indicating that while economic recovery is underway, it is still very nascent.

Moreover, in this current year, IIP registered 5.5% growth for the cumulative period April – November 2022. This growth is supported by favorable base and momentum effect. Going ahead, it will be critical for the current growth momentum in the industrial sector to be maintained. In the environment of global slowdown, maintaining growth in Industrial output will depend on the resilience and momentum of domestic demand recovery. Healthy credit growth and moderating inflation in the economy is likely to be supportive of domestic consumption demand in the months to come. Pick up in the investment demand is also expected to be supportive of segments like capital goods and infrastructure. However, industrial sector might feel the pinch of global slowdown as reflected by contraction in the export dependent sectors.

Y-o-Y growth in IIP (in %)



Source: MOSPI

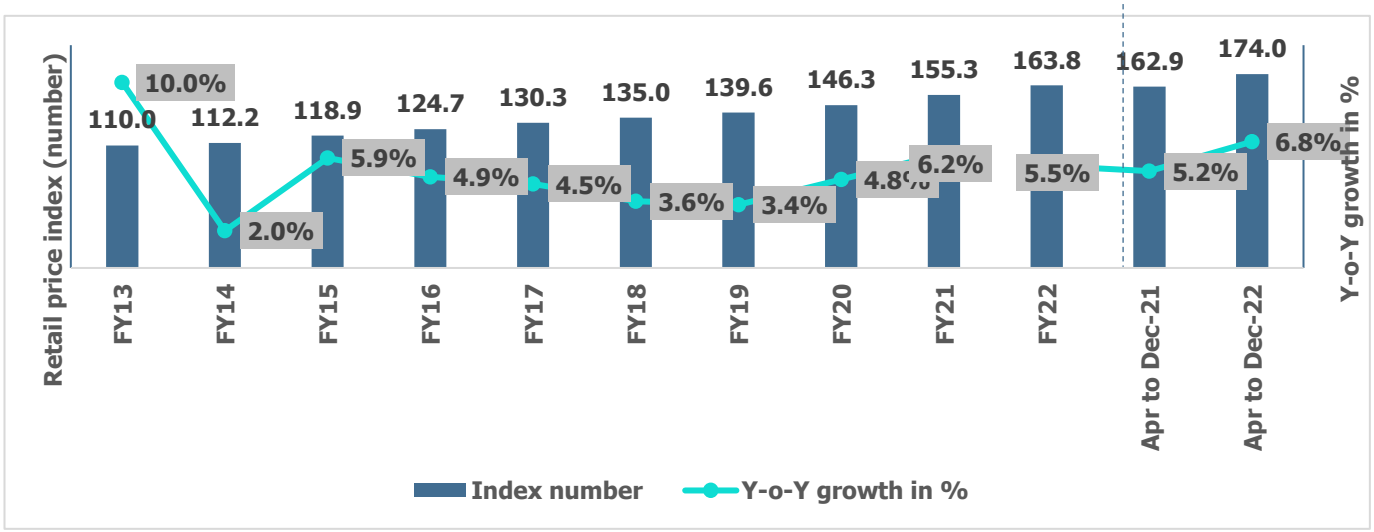
Going ahead, moderating inflation in the economy is likely to be supportive of domestic demand in the months to come. Easing of global commodity prices is also expected to aid the manufacturing sector in the coming quarter by reducing the input cost.

Consumer Price Index

CPI continues to remain high

Inflation has reappeared as a global issue in both advanced and emerging economies. India's retail price inflation stood at 5.5% in FY22 which is within the targeted tolerance band of 6%. The consumer inflation started to upswing from October 2021 onwards. As per the monthly numbers, the inflation rate reached the tolerance level of 6% in January 2022. Following this, the month of March 2022 registered 6.9% rate.

Retail Price Inflation in terms of index numbers and Y-o-Y Growth in % (Base: 2011-12=100)



Source: MOSPI

Consecutively, during the cumulative period of April 2022 – December 2022, the inflation rate remained above the RBI's tolerance level, surpassing the band of 6.8%. The retail inflation eased low of 5.7% in December 2022 retreating back into the RBI's tolerance band for the second cosecutive month after 5.9% in previous month. The moderation in inflation, primarily in food inflation is comforting but it is mostly led by vegetables which are susceptible to weather fluctuations.

The CPI is primarily factored in by RBI while prepapring their bi-monthly monetory policy. At the bi-monthly meeting held in December 2022, RBI projected inflation to be at 6.7% for FY23. For the Q3FY23 projections were made at to 6.6% and for Q4FY23 at 5.9%. Entering into FY24, CPI inflation for Q1FY24 is projected at 5 % and for Q2FY24 at 5.4%.

RBI tightening the monetary policy to tame the inflation

RBI hiked its policy repo rate by 35 basis points (bps) to 6.25% in a meeting held between 5-7 December 2022.. RBI maintained the liquidity adjustment facility (LAF) corridor by adjusting the standing deposit facility (SDF) rate at 6.00% as the floor and the marginal standing facility (MSF) at the upper end of the band at 6.50%.

The central bank continued to maintain its stance as accommodative.

The consecutive rate hike by the RBI has come against the backdrop of intensifying inflationary pressures in the global and domestic economies. With the US dollar index appreciation to a two decade high in July 2022, both advanced and emerging economies witnessed weakening of their currencies against the US dollar. RBI foresees this could lead to imported inflationary pressure. With domestic economic activities gaining traction, RBI has shifted gear to prioritize controlling inflation. RBI continues to remain focused on withdrawal of accommodation to ensure that inflation remains within the target going forward, while supporting growth.

Concluding Remarks

Despite the global growth uncertainties, Indian economy is relatively better placed. The major headwinds to economic growth are escalating geopolitical tensions, volatility in global commodity prices and shortages of key inputs. However, the bright spots for the economy are continued healthy demand, support from government capital expenditure and improving business confidence. Various high-frequency growth indicators including purchasing managers index, auto sales, bank credit, GST collections have shown improvement in the first few months of FY23.

Despite high food and fuel inflation pressure, the normalizing employment situation after the opening up of economy is expected to improve and provide support to consumption expenditure.

Public investment is expected to exhibit healthy growth as the government has budgeted for strong capital expenditure in FY23. The private sector's intent to invest is also showing improvement as per the data on new investment projects announced. However, the volatility in commodity prices and the economic uncertainties emanating from global turbulence is likely to slow down the pick-up in the private capex and investment cycle.

Among sectors, the industrial segment is expected to be negatively impacted due to high input prices. Nonetheless, with flagship programmes like 'Make in India' and the Production Linked Incentive (PLI) schemes, the government is continuing to provide the support to boost the industrial sector. Service sector are expected to see a bounce back in FY23 with good economic revival and growth. However, in the services sector, some segments like Information Technology would feel the pinch of slowdown in the US and European economy.

Product Description

Hollow/Perforated Clay Bricks

Various types of perforated bricks, usually having 3 to 10 holes, are manufactured and have perforations ranging from 7 to 22%. Some of the key properties of burnt clay perforated building bricks as per BIS standard IS 2222:1991 is as follows –

- The area of perforation shall be between 30-45 % of the total area of the corresponding face of the bricks.
- Minimum average compressive strength: 7 N/mm^2
- Water absorption shall not be more than 20 %
- The shorter side of the perforation shall be less than 20 mm in case of rectangular perforations and less than 25 mm diameter in case of circular perforations. The area of each perforation shall not exceed 500 mm^2.

- It should be noted that the perforated bricks being produced in the country are not conforming with the IS standard and that is the reason for the project working with BIS to revise the IS standard for burnt clay perforated bricks.

Application

Brick consumers are mainly government agencies, real estate developers, individuals constructing residential buildings, and contractors for road construction, etc. Given this spread in the user base, the sector is slow to change. For example, in India the share of new type of clay bricks is currently less than 0.5%1 (of the market share); majority bricks being the solid clay brick. Even though, twenty to forty percent of the manufacturing cost of a brick is due to energy, a variety of barriers dis-incentivize modernization in this sector, (inter-alia).

Buildings already account for more than 30 percent of electricity use, with rapid urbanization expected in the coming decade has implications for national energy security (as electricity is largely generated in coal-fired power plants) and greenhouse gas emissions.

A technological makeover of the traditional solid bricks to porous and hollow products would offer both energy and raw material efficiency, with the potential to put India on a more sustainable pathway in infrastructure development. Perforated and hollow products allow for the use of clay other than topsoil, which can thus be preserved.

Benefits of Resource Efficient Bricks

The main benefits of burnt clay REBs are –

- Savings in clay and energy ranging (~ 5 to 59%) per m^3 of bricks produced, compared to extruded solid bricks depending on the specification of holes and perforation provided. The savings in energy occurs as less mass of clay needs to be baked for producing 1 m^3 of bricks.
- Reduction in air pollution as less amount of fuel is used for firing bricks. Often, less polluting kiln technologies, such as, zig-zag or tunnel kilns are used for producing resource efficient clay fired bricks, which further reduces the amount of air pollution.
- Lower thermal conductivity, particularly of burnt clay hollow blocks results in lower conduction of heat across walls made from hollow blocks and hence provide better thermal comfort for the occupants in buildings and savings in energy cost for space conditioning
- Larger size and lighter weight, particularly of burnt clay hollow blocks helps in faster construction, savings in mortar and savings in structural cost due to reduction in dead load of buildings.
- Uniformity in surface finish and size of burnt clay REBs results in better wall finish and lower cost for plastering; in several cases where the building owner is looking for brick façade, the plastering can be totally avoided
- Burnt clay perforated bricks with high compressive strength can be used for load bearing construction thus reducing the consumption of steel and concrete

The key benefits of burnt clay REBs on the life cycle diagram are shown in figure below

Source: CareEdge Advisory Secondary Research

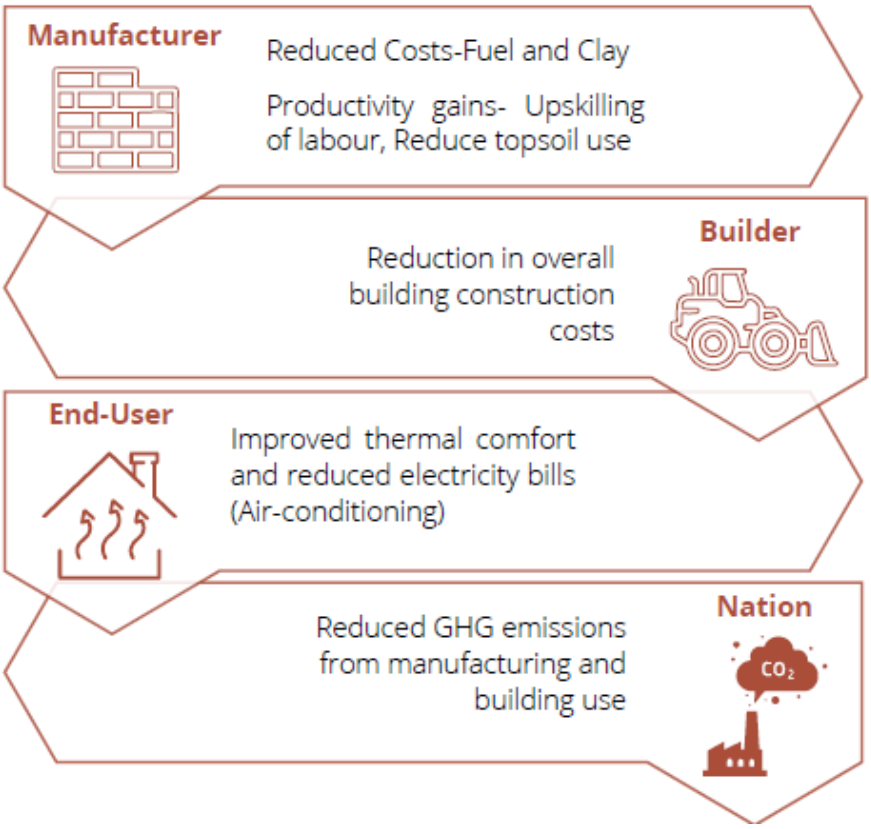
Market Transformation - Energy Efficiency in Brick Sector

The traditional red clay brick is a time-tested walling material of choice and an important raw material for the construction industry. India is the world's second-largest producer of bricks, and this demand is expected to multiply three to four times over the next 20 years. The sector contributes nearly 0.7% to the country's GDP, offers seasonal employment generation to over 10 million workers and has strong influence on other economic sectors such as transportation and construction.

Bricks have been produced since ancient times (dating back to 6000 B.C) by mixing ground clay with water, forming bricks into desired shape and size, drying them and then firing them (at around 1100 ^{0}C) to impart durability and weathering resistance.

The clay depending on its mineral content, geological occurrence yields bricks of varying density, strength, water absorption, and thermal conductivity. This conventional method of brick manufacturing carries environmental consequences represented by the emissions of greenhouse gases (GHG), due to fuel firing in the brick kilns, which contributes to climate change and raises concerns on the extraction of clay and the removal of topsoil. Newer man-made materials have emerged which emphasize on either aesthetics, maintenance, time/effort of construction, etc. The focus on short run incentives e.g. cost savings; often overlook aspects like thermal comfort or the 'long-run sustainability like end of-life issues' of the new technology.

Over the last decade, innovations in the use of clay bricks have been noted, leading to reduced resource use (energy and clay). The innovated clay product (typically perforated and hollow clay bricks and blocks) has lower densities, consume less clay/energy in manufacturing, have lower thermal conductivity values, and can also be produced in larger size format. These attributes bring-in several benefits along the construction value chain.



Source: CareEdge Advisory Secondary Research

In India, the Bureau of Energy Efficiency is the nodal agency to assist Government in developing policies and strategies with a thrust on self-regulation and market principles, under the overall framework of the Energy Conservation Act, 2001 with the primary objective of reducing the energy intensity of the Indian economy.

Energy Efficiency in Bricks Manufacturing

Solid burnt clay bricks are manufactured in small manufacturing units belonging to the unorganized/informal sector. The estimated number of such manufacturing units range from 1,50,000 to 2,80,000. Most of the brick production (around 75% of the total bricks produced) is accounted by 50,000 - 60,000 relatively bigger units based on arch-less moving-fire continuous kiln technologies (fixed chimney bull's trench kiln technology and zig-zag kiln technology), with a typical production capacity of 30-70 lakh bricks/year/enterprise. A few medium/large scale enterprises are also in operation, involved in the production of mostly perforated and hollow burnt clay bricks8. Coal and biomass fuels are used for firing bricks and the annual consumption is estimated at around 30-35 million tons of coal and 10 million tons of biomass fuels.

The average specific energy of manufacturing burnt clay bricks ranges from 1300 – 3200 MJ/m^3 based on factors such as –

- Type of brick kiln technology employed (viz. the Specific Energy Consumption (SEC) of the kiln technology) and
- Brick material density (mainly depends on the type of final product – solid/perforated/hollow)

In recent years, the burnt clay brick production has seen some improvements in energy efficiency due to the implementation of pollution control board directives to reduce air pollution from brick kilns through a shift to Zigzag kiln technology from FCBTK technology. It is to be noted that despite a change in the brick kiln technology, the type of brick product produced has not changed and remains the solid burnt clay brick.

There will a significant improvement in energy efficiency if the kiln technology is further upgraded to, say, tunnel kilns, as well as there is a shift from solid bricks to hollow/perforated bricks. Even Zigzag kilns with a change in product will yield substantial energy efficiency gains. Thus, the key to energy efficiency in the Brick manufacturing sector is to encourage a comprehensive shift rather than incremental changes.

Indicative Average Specific Manufacturing Energy (MJ/m3, by Product/Process)

Type of Brick Product	Indicative Average Specific Manufacturing Energy (MJ/m3)	Process & Assumption
Solid burnt clay brick – Clamp kiln	3200 MJ/m^3	Mostly manual clay preparation and moulding; sun drying; Fired in clamp/downdraught kiln; Specific Energy Consumption 1.5 2.5 MJ/kg, Average SEC – 2.0 MJ// kg; Average brick density of 1600 kg/m^3.
Solid burnt clay brick - FCBTK	2100 MJ/m^3	Mostly manual clay preparation and moulding; sun drying; Fired in FCBTK; Specific Energy Consumption of 1.1 1.5 MJ/kg of fired brick, Average SEC 1.3 MJ//kg; Average brick density of 1600 kg/m^3.
Solid burnt clay brick – Zigzag kiln	1800 MJ/m^3	Mostly manual clay preparation and moulding; sun drying; Fired in Zigzag kiln; Specific Energy Consumption of 0.95-1.3 MJ/kg, Average SEC 1.125 MJ//kg; Average brick density of 1600 kg/m^3.
Burnt perforated clay brick – Zigzag kiln (around 25% perforation)	1600 MJ/m^3	Semi-mechanized clay preparation; extrusion; shed/ sun-drying; Fired in a Zigzag kiln; Specific Energy Consumption of 1.0-1.35 MJ/kg, Average SEC 1.175 MJ//kg; Average brick density of 1350 kg/m^3
Burnt hollow clay block – Tunnel kiln (around 60% perforation)	1300 MJ/m^3	Mechanized clay preparation, extrusion, followed by artificial drying; Fired in a Tunnel kiln; Specific Manufacturing Energy Consumption of around 1.6 MJ/kg of fired brick; Average brick density of 800 kg/m^3.

Source: CareEdge Advisory Secondary Research

Brick Market Segmentation

It is estimated that out of the total market of bricks, around 75-80% of the market is for common burnt clay bricks38. The cement and flyash based products or non-fired bricks (mainly three products – flyash bricks, AAC blocks and cement concrete blocks) are estimated to have around 15-20 % of the market39. The use of other traditional materials for wall construction like stone is also prevalent in some areas but is showing a decreasing trend. In recent years, use of glass, various kinds of boards and aluminium panels and monolithic construction for constructing walls is showing an increasing trend.

Based on Geographical Location

Geographically, India can be divided into two distinct geographic areas as far as market for bricks is concerned.

Source: CareEdge Advisory Secondary Research

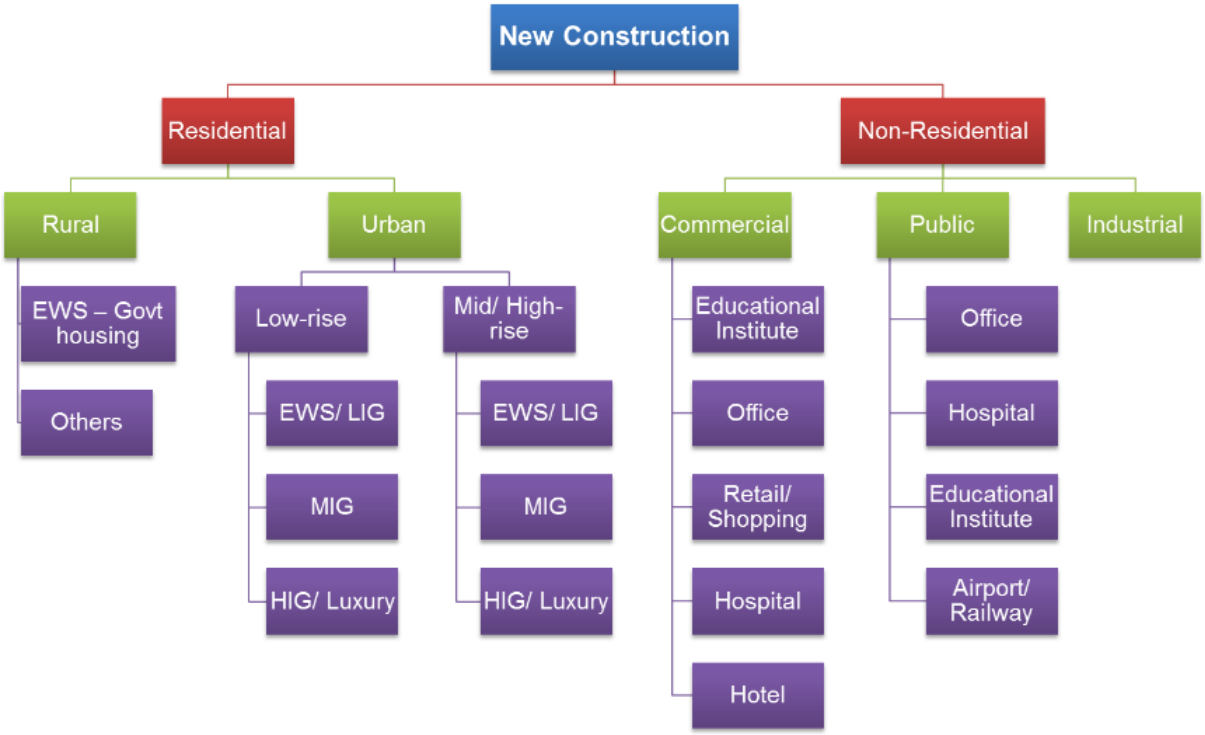
Zone 1: The Indo-Gangetic plains, Himalayan states and North-Eastern states form a region which is predominantly burnt clay brick region. Burnt clay brick production is prevalent all through the Indo-Gangetic plains as clay for brick making is easily available. The burnt clay bricks produced in the plains and in valleys are transported to be used in the nearby hilly areas also. In this region, it is only recently that non-fired bricks have been introduced. AAC blocks have emerged as a strong alternative for burnt clay bricks for high rise construction in the NCR region. Fly ash bricks

are being produced in small quantities at various places depending on the fly ash availability and market. Concrete blocks are produced in small quantities, mostly in the hilly region as well as in north-eastern states.

Zone 2: In the rest of the country both non-fired bricks and burnt clay bricks are used. In major metro cities, such as Mumbai, Pune, Hyderabad, Bengaluru, Chennai etc., significantly large quantities of non-fired bricks are being used. Several of the large burnt clay brick production clusters in this region are located near rivers and water bodies where clay and water is available to produce burnt clay bricks. Area around Surat, Pune and Hyderabad have emerged as important production centers for AAC blocks. Maharashtra and Andhra Pradesh have large number of fly ash manufacturing units. States like Odisha are actively promoting the manufacturing of fly ash bricks.

Based on Building Type

The building construction can be classified under different kinds of buildings. Different types of building construction have preference for different types of bricks. A classification is provided in the exhibit below



Following are some important observations –

- The brick market in rural residential and low rise urban residential construction which is mostly undertaken by local masons, small civil contractors or the house owners themselves is mostly dominated by burnt clay fired bricks or other locally available materials.
- Burnt clay bricks are still used extensively in the urban residential high-rise construction. But across the country this segment has seen increasing application of light weight walling materials like AAC blocks and new construction technique like monolithic concrete wall construction.

Commercial buildings have shown increasing use of new building materials ranging from AAC blocks to glass and aluminum panels for external façade.

Burnt Clay Perforated Bricks

Geographically, the current market for perforated bricks is concentrated in the NCR region, Punjab and Haryana. Institutional buildings are one of the main buyers of perforated bricks as several of these buildings opt for exposed brick façade. Perforated bricks have also been used in affordable mass housing load bearing construction. Apart from walling applications, perforated bricks are also used as sewer bricks due to high compressive strength and low water absorption properties. The three main reasons for them choosing burnt clay perforated bricks over other walling materials are –

- **Good Aesthetics –** In several cases the building owners (usually housing and institutional buildings like educational institutions) demand for exposed brick work for which perforated bricks can be used.
- **High compressive strength** –The perforated bricks made using extruders have high density and high compressive strength. These bricks can be used for constructing load-bearing structures, thus avoiding option of concrete frame structure, which reduces the requirement for cement and steel. This is one of the reasons for the use of perforated bricks for affordable low-rise buildings.

Uniform shape and quality – Lower variations in the dimensions of perforated bricks results in better finish of walls and a reduced requirement of plastering.

Indian Construction Industry

The construction sector is the backbone of the Indian economy and as such is one of the key focus areas of the government in its fight against the COVID-19-induced economic slowdown in the country. The construction sector offers direct and indirect employment to nearly 40 million people. Though FY2020 was difficult for the construction sector owing to the pandemic, India's demand for real estate and infrastructure is enormous in an economy priding itself to be among the fastest growing in the world. The construction sector in India comprises two segments, namely real estate and urban development, or infrastructure.

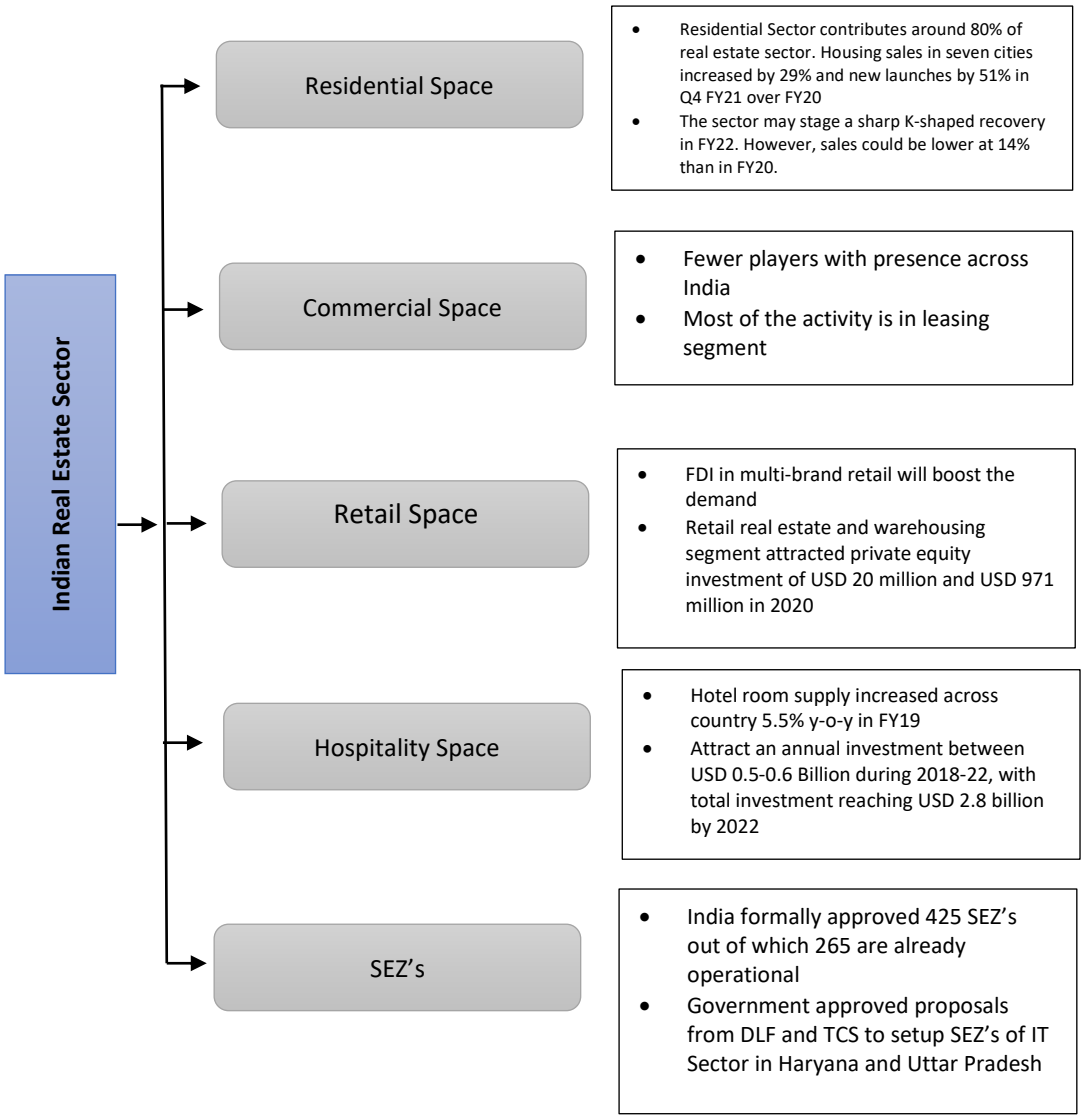
Given the country's ambition to modernize infrastructure, advance its cities with 'smart' development, and boost employment, India is expected to become the third largest construction market in the world by 2025. To facilitate growth, India has relaxed foreign investment norms in this industry and in 2020, the real estate sector alone received investment worth US$5 billion. In terms of job creation, the Indian construction sector is responsible for employing 51 million people and earned the title of the most employed sector in 2017. The Gross Value Added (GVA at Current Prices) by the Construction Sector in India is estimated to be about USD 192 Bn in 2019-20 as compared to USD 183.5 Bn in 2018-19.6 Investments valued at USD 965.5 Mn will be required by the infrastructure sector by 2040.

Real Estate Sector

Real estate sector is one of the most globally recognized sectors. It comprises of four sub sectors - housing, retail, hospitality, and commercial. The growth of this sector is well complemented by the growth in the corporate environment and the demand for office space as well as urban and semi-urban accommodations. The construction industry ranks third among the 14 major sectors in terms of direct, indirect and induced effects in all sectors of the economy.

In India, the real estate sector is the second-highest employment generator, after the agriculture sector. It is also expected that this sector will incur more non-resident Indian (NRI) investment, both in the short term and the long term. Bengaluru is expected to be the most favoured property investment destination for NRIs, followed by Ahmedabad, Pune, Chennai, Goa, Delhi and Dehradun.

The segment wise assessment of real sector is provided in the exhibit below –



Budget 2022-23 Urban Development Highlights

In the Budget 2022-23, tabled by honourable Finance Minister, it has been proposed that the government will set up an Urban Infrastructure Development Fund (UIDF) of Rs 10,000 crore per year for creating infrastructure in Tier-2 and Tier-3 cities. The fund would be established through the use of priority sector lending shortfall. This will be managed by the National Housing Bank and will be used by public agencies to create urban infrastructure in Tier-2 and Tier-3 cities. States will be encouraged to leverage resources from the grants of the 15th Finance Commission, as well as existing schemes, to adopt appropriate user charges while accessing the UIDF. We expect to make available Rs 10,000 crore per annum for this purpose.

States and cities would be encouraged to undertake reforms in urban planning and take steps to make cities more sustainable meaning efficient use of land resources, adequate resources for urban infrastructure, transit-oriented development, enhanced availability and affordability of urban land, and opportunities for all. Among the reforms would be property tax governance reforms and ring-fencing user charges on urban infrastructure. Cities would be given incentives to improve credit worthiness for municipal bonds.

On the sanitation front, all cities and towns will be enabled for 100% mechanical desludging of septic tanks and sewers to transition from manhole to machine-hole mode. Enhanced focus will be provided for scientific management of dry and wet waste.

In keeping with the focus on sanitation, the Budget for the Union Housing and Urban Affairs Ministry included Rs 5,000 crore for the Swachh Bharat Mission-Urban (2.0) in 2023-24, more than double of Rs 2,300 crore in the budget

estimates (BE) 2022-23 and Rs 2,000 crore in revised estimates (RE) 2022-23. According to sources, while desludging of septic tanks was among the activities permitted under SBM-U, now it would be a focus area. Overall, the ministry's expenditure budget for 2023-24 remained similar to last years, with Rs 76,431.60 crore as opposed to Rs 74,545.64 crore in the RE, and Rs 76,549.46 crore in BE 2022-23.

Two of the ministry's schemes — PM-SVANidhi, which is a loan scheme for street vendors, and the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) — were given higher funding compared to last year. For PM SVANidhi, the increase was over three times from Rs 150 crore in BE 2022-23 to Rs 468 crore in 2023-24. Expenditure on the scheme went up in the RE 2022-23 to Rs 433.94 crore.

On the other hand, funding for urban housing saw a decrease as the Pradhan Mantri Awas Yojana (Urban) will be coming to an end in 2024. Expenditure on PMAY-U decreased from Rs 28,000 crore in BE 2022-23 to Rs 25,103.03 crore in BE 2023-24. Expenditure on the Smart Cities Mission, which is set to end in June this year, was also reduced in 2023-24 to Rs 8,000 crore from Rs 8,800 crore in RE 2022-23.

The government would spend Rs 23,175.01 crore on Metro and mass rapid transit system projects, including the National Capital Region Transport Corporation that is implementing the Delhi-Meerut rapid transit project, in 2023-24, similar to 2022-23's BE Rs 23,875 crore.

Growth Drivers of Construction Industry

The growth drivers assessed by sector experts and analyzed by consultants are provided in the exhibit below –

- Growth in Economy an Urbanization – The Indian economy has experienced robust growth in past decade and is expected to be one of fast-growing economies in coming years. Also, India's urban population is expected to reach 525 million by 2025 with a raising income and employment opportunities which led to more urbanization and more affordability for real estate in cities.
- Easier Financing and Favourable Government Policies – RBI proposed to allow banks to invest in real estate investment trusts and infra trusts, attracting more institutional investors to such assets. Indian banks, which are allowed about 20% of their net-owned funds in equity-linked mutual funds, venture capital funds and stocks, could invest in these trusts within this limit. Also, the real estate segment attracted private equity investments of RS. 23,946 Crore across 19 deals in Q4 FY21. Investments in sector grew 16 times compared with Rs. 1,470 Crore in Q4 FY20.
- FDI Policy – 100% FDI is permitted for developing townships within SEZ's with residential areas, markets, playgrounds, clubs etc.
- Flexible Commercial Space Segment – The flexible stock is likely to expand 10-15% y-o-y basis, from the current 36 msf, in next three years.
- Smaller Office Spaces Trend – As work from home and office has become the new normal, many companies are now shifting to smaller workspaces. This transition is now helping the real estate economy that has come to a standstill in the last six months due to COVID-19.

Government Initiatives

Government of India along with the governments of respective States has taken several initiatives to encourage development in the sector. The Smart City Project, with a plan to build 100 smart cities, is a prime opportunity for real estate companies. Below are some of the other major Government initiatives –

- The government will set up an Urban Infrastructure Development Fund (UIDF) of Rs 10,000 crore per year for creating infrastructure in Tier-2 and Tier-3 cities. The fund would be established through the use of priority sector lending shortfall. This will be managed by the National Housing Bank and will be used by public agencies to create urban infrastructure in Tier-2 and Tier-3 cities. States will be encouraged to leverage resources from the grants of the 15th Finance Commission, as well as existing schemes, to adopt appropriate user charges while accessing the UIDF. We expect to make available Rs 10,000 crore per annum for this purpose.
- Under Union Budget 2021-22, tax deduction up to Rs. 1.5 lakh (US$ 2069.89) on interest on housing loan, and tax holiday for affordable housing projects have been extended until the end of fiscal 2021-22.

- The Atmanirbhar Bharat 3.0 package announced by Finance Minister Mrs. Nirmala Sitharaman in November 2020 included income tax relief measures for real estate developers and homebuyers for primary purchase/sale of residential units of value (up to Rs. 2 crore (US$ 271,450.60) from November 12, 2020 to June 30, 2021).
- In October 2020, the Ministry of Housing and Urban Affairs (MoHUA) launched an affordable rental housing complex portal.
- On October 27, 2020, the government announced the application of Real Estate (Regulation & Development) Act, 2016 in the union territory of Jammu & Kashmir. This has paved the way for any Indian citizen to buy non-agricultural land and property, as opposed to the eligibility of only local residents earlier.
- In order to revive around 1,600 stalled housing projects across top cities in the country, the Union Cabinet has approved the setting up of Rs. 25,000 crore (US$ 3.58 billion) alternative investment fund (AIF).
- Government has created an Affordable Housing Fund (AHF) in the National Housing Bank (NHB) with an initial corpus of Rs. 10,000 crore (US$ 1.43 billion) using priority sector lending short fall of banks/financial institutions for micro financing of the HFCs.
- As of January 31, 2021, India formally approved 425 SEZs, of which 265 were already operational. Most special economic zones (SEZs) are in the IT/ BPM sector.

Chapter 5

Project Cost

The overall project cost for the Project has been estimated at Rs 24.01 Crore, which has been summarized in the table below:

All Figures in INR Crores			
Description	**31-Mar-24**	**31-Mar-25**	**Total**
Land and Land Development	-	-	-
Building and Civil Works	2.00	-	2.00
Plant and Machinery	19.40	-	19.40
Miscellaneous Fixed Assets	0.03	0.00	0.04
Contingency		0.54	0.54
Preliminary and Pre-operatives	0.43	0.11	0.54
Interest During Construction	0.67	0.28	0.94
Margin Money for Working Capital		0.56	0.56
Total Project Cost	**22.53**	**1.48**	**24.01**

Source: SBPL and CareEdge Advisory Estimates

Land and Land Development Cost

The proposed manufacturing project of clay perforated bricks will be implemented on a land of 20,070 M2 area. The project land is acquired on lease basis of 10 years by the Company. The land is acquired by the Company from their own source of funds and will be developed by building and machinery contractors, as per the requirement. Thus, no land and land development cost are considered for the financial evaluation of the proposed project.

Building and Civil Works Cost

The building and civil works cost for the Project has been estimated at Rs 2.00 Crores, which has been detailed in the table below:

Description	Unit	Quantity	Rate	Amount in INR Crore
Supply and installation cost of PEB building structure and sheeting with paint finish as per design	Tons	155	75,000	1.16
Supply and installation cost of gutter, corner and flashing	Sq.M.	10600	400	0.42
Supply and installation cost of 2mm polycarbonate sheet	Sq.M.	410	800	0.03
Supply and installation cost of roof turbo fan 600mm dia.	Nos.	44	5,000	0.02
Basic Cost of Project				**1.64**
Transportation @1.5%		1.50%		0.02
GST 18%		18%		0.30
Total Building and Civil Works Cost	**INR Crore**			**2.00**

Source: SBPL and CareEdge Estimate

Plant and Machinery Cost

The plant and machinery cost for the Project has been estimated at Rs 19.40 Crores. The plant and machinery cost for the Project has been detailed in the table below:

Description	Unit	Rate in RMB	Rate in INR	Cost in INR Crores
Imported Plant and Machinery				
Crushing Workshop	Set	6,95,000	80,96,750	0.81
Moulding Workshop	Set	16,50,000	1,92,22,500	1.92
Roasting Workshop	Set	7,85,000	91,45,250	0.91
Kiln Door (5 fan)	Set	1,22,000	14,21,300	0.14
Kiln Temperature and Monitoring System	Set	2,45,000	28,54,250	0.29
Fans	Set	2,48,000	24,80,000	0.25
Power cabinet, operation cabinet	Set	6,61,500	66,15,000	0.66
Base Cost Imported Plant (China Port)	**-**	**44,06,500**	**4,98,35,050**	**4.98**
Marine Transport and Insurance	%	1.50%		0.07
Price at India Port	**INR Crores**			**5.06**
Landing Charges	%	0.10%		0.01
Landed Price at India Port	**INR Crores**			**5.06**
Import Duty	%	8.00%		0.41
Sub-Total	**INR Crores**			**5.47**
Inland Transport and Insurance	%	2.00%		0.11
Total Imported Plant and Machinery	**INR Crores**			**5.58**
Domestic Plant and Machinery				
Kiln Car YC 3.6x3.7 (140 vehicles)	Set		3,12,23,000	3.12
Drying Room with track inside	Set		1,89,00,000	1.89
Tunnel Kiln including track inside	Set		3,10,50,000	3.11
Belt Conveyor	Set		60,00,000	0.60
Track and Auxiliary Material	Set		1,10,00,000	1.10
Wire, cable, workshop lighting	Set		81,00,000	0.81
Equipment Foundation, kiln foundation, carriage return and ferry line construction	Set		1,09,00,000	1.09
Sub-Total	**INR Crores**			**11.72**
GST	%	18%		2.11
Total Domestic Plant and Machinery	**INR Crores**			**13.83**
Net Total Plant and Machinery Cost	**INR Crores**			**19.40**

Source: SBPL and CareEdge Estimate

Miscellaneous Fixed Assets

The miscellaneous fixed assets have been estimated at Rs 0.04 Crores, which have been detailed as below: –

Description	Amount in INR	Amount in INR Crore
Computers	1,00,000	0.01
Furniture and Fixtures	1,50,000	0.02
Other Miscellaneous Assets	1,00,000	0.01
Total Miscellaneous Fixed Asset Cost		**0.04**

Source: CareEdge Estimate

Preliminary and Pre-operative Expenses

The preliminary and pre-operative expenses for the Project have been estimated at Rs 0.55 Crores, detailed are provided below:

Description	Unit	Quantity	Rate	Value in Rs. Crores
Erection, Commissioning and Trail Runs	% of P&M and MFA	2%		0.20
Consultancy Charges	%	2%		-
Establishment Cost				
Salaries	Months	10	1,50,000	0.15
Travelling Boarding and Lodging	Months	10	1,00,000	0.10
Communication	Months	10	10,000	0.01
Bank Processing Charges	%	0.50%		0.08
Preliminary and Pre-operatives	**set**			**0.54**

Source: SBPL and CareEdge Advisory Estimates

Contingency:

The consultants have ascertained a contingency of 2.50% on the hardware cost including building and civil work, plant and machinery and miscellaneous fixed assets to take care of any escalation in the Project cost on account of increase in commodity prices like cement and steel, during the course of implementation of the Project. The contingency for the Project has been estimated at INR 0.54 Crore.

Interest During Construction Period

The Project is proposed to be funded in a DER of 2.00:1, whereby the Company will be availing term loan of Rs. 16.00 Crores from the Bank. The interest during construction period for the Project has been estimated at Rs 0.94 Crore. The interest rate while calculating the IDC has been considered at 10.65%.

Margin Money

The margin money for working capital has been estimated at 25% of the overall working capital gap, amounting to Rs. 0.56 Crores. The working of margin money has been discussed along with working capital working in subsequent chapter.

Means of Finance

The overall Project is proposed to be funded in a Debt-Equity Ratio of 2.00: 1, meaning debt component of Rs 17.00 Crores and Equity of Rs 8.04 Crores. The means of finance for the Project as estimated has been presented in the table below:

All Figures in INR Crores			
Description	**31-Mar-24**	**31-Mar-25**	**Total**
Equity	7.53	0.48	8.01
Term Loan	15.00	1.00	16.00
Total Means of Finance	**22.53**	**1.48**	**24.01**

Source: SBPL and CareEdge Estimate

Equity

Project cost is proposed to be funded in debt equity ratio of 2.00:1 accordingly, total estimated equity requirement shall be of Rs 8.04 Crores. As advised by the company, promoter shall infuse funds for the proposed project.

Debt

Total estimated loan is Rs 16.00 Cr is proposed to be availed through term loan details on key debt parameters are assumed in model are as below:

Description	Details – Term Loan
Amount of Term Loan	INR 16.00 Crores
Interest Rate	10.65% PA
Door to Door Period	10 Years or 120 Months
Construction Period	12 Months
Commercial Operations Date	June, 2024
Moratorium Period	12 Months
First Draw Down	June, 2023
Last Draw Down	April, 2024
Repayment Duration	108 Months
First Installment	June 2024
Last Installment	May 2033

Source: SBPL and CareEdge Estimate

Loan repayment schedule

The summary of the repayment schedule for the acquisition project has been presented in the exhibit below

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Interest Rate	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%
Annual Summary											
Opening Balance	-	15.00	14.52	12.74	10.96	9.19	7.41	5.63	3.85	2.07	0.30
Addition during Period	15.00	1.00	-	-	-	-	-	-	-	-	0.00
Repayment of Term Loan	-	1.48	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	0.30
Closing Balance	15.00	14.52	12.74	10.96	9.19	7.41	5.63	3.85	2.07	0.30	-
Interest for P&L		1.35	1.45	1.26	1.07	0.88	0.69	0.50	0.32	0.13	0.00

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Interest Rate	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%	10.65%
April											
Opening Balance		15.00	14.52	12.74	10.96	9.19	7.41	5.63	3.85	2.07	0.30
Addition during Period		0.50									
Repayment of Term Loan			0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Closing Balance	-	15.50	14.37	12.59	10.82	9.04	7.26	5.48	3.70	1.93	0.15
Interest for Period	-	0.14	0.13	0.11	0.10	0.08	0.07	0.05	0.03	0.02	0.00
May											
Opening Balance	-	15.50	14.37	12.59	10.82	9.04	7.26	5.48	3.70	1.93	0.15
Addition during Period		0.50									
Repayment of Term Loan			0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Closing Balance	-	16.00	14.22	12.44	10.67	8.89	7.11	5.33	3.56	1.78	0.00
Interest for Period	-	0.14	0.13	0.11	0.10	0.08	0.06	0.05	0.03	0.02	0.00
June											
Opening Balance	-	16.00	14.22	12.44	10.67	8.89	7.11	5.33	3.56	1.78	0.00
Addition during Period	1.50										0.00
Repayment of Term Loan		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Closing Balance	1.50	15.85	14.07	12.30	10.52	8.74	6.96	5.19	3.41	1.63	-
Interest for Period	0.01	0.14	0.13	0.11	0.09	0.08	0.06	0.05	0.03	0.02	0.00
July											0.00
Opening Balance	1.50	15.85	14.07	12.30	10.52	8.74	6.96	5.19	3.41	1.63	
Addition during Period	1.50										0.00
Repayment of Term Loan		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
Closing Balance	3.00	15.70	13.93	12.15	10.37	8.59	6.82	5.04	3.26	1.48	0.00
Interest for Period	0.02	0.14	0.12	0.11	0.09	0.08	0.06	0.05	0.03	0.01	0.00
August											
Opening Balance	3.00	15.70	13.93	12.15	10.37	8.59	6.82	5.04	3.26	1.48	0.00
Addition during Period	1.50										
Repayment of Term Loan		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
Closing Balance	4.50	15.56	13.78	12.00	10.22	8.44	6.67	4.89	3.11	1.33	0.00
Interest for Period	0.03	0.14	0.12	0.11	0.09	0.08	0.06	0.04	0.03	0.01	0.00
September											
Opening Balance	4.50	15.56	13.78	12.00	10.22	8.44	6.67	4.89	3.11	1.33	0.00
Addition during Period	1.50										
Repayment of Term Loan		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
Closing Balance	6.00	15.41	13.63	11.85	10.07	8.30	6.52	4.74	2.96	1.19	0.00
Interest for Period	0.05	0.14	0.12	0.11	0.09	0.07	0.06	0.04	0.03	0.01	0.00
October											
Opening Balance	6.00	15.41	13.63	11.85	10.07	8.30	6.52	4.74	2.96	1.19	0.00
Addition during Period	1.50	-									
Repayment of Term Loan		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
Closing Balance	7.50	15.26	13.48	11.70	9.93	8.15	6.37	4.59	2.82	1.04	0.00
Interest for Period	0.06	0.14	0.12	0.10	0.09	0.07	0.06	0.04	0.03	0.01	0.00
November											
Opening Balance	7.50	15.26	13.48	11.70	9.93	8.15	6.37	4.59	2.82	1.04	0.00
Addition during Period	1.50										
Repayment of Term Loan		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
Closing Balance	9.00	15.11	13.33	11.56	9.78	8.00	6.22	4.45	2.67	0.89	0.00
Interest for Period	0.07	0.13	0.12	0.10	0.09	0.07	0.06	0.04	0.02	0.01	0.00

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
December											
Opening Balance	9.00	15.11	13.33	11.56	9.78	8.00	6.22	4.45	2.67	0.89	0.00
Addition during Period	1.50										
Repayment of Term Loan		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
Closing Balance	10.50	14.96	13.19	11.41	9.63	7.85	6.07	4.30	2.52	0.74	0.00
Interest for Period	0.09	0.13	0.12	0.10	0.09	0.07	0.05	0.04	0.02	0.01	0.00
January											
Opening Balance	10.50	14.96	13.19	11.41	9.63	7.85	6.07	4.30	2.52	0.74	0.00
Addition during Period	1.50										
Repayment of Term Loan		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
Closing Balance	12.00	14.81	13.04	11.26	9.48	7.70	5.93	4.15	2.37	0.59	0.00
Interest for Period	0.10	0.13	0.12	0.10	0.08	0.07	0.05	0.04	0.02	0.01	0.00
February											
Opening Balance	12.00	14.81	13.04	11.26	9.48	7.70	5.93	4.15	2.37	0.59	0.00
Addition during Period	1.50	-									
Repayment of Term Loan		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
Closing Balance	13.50	14.67	12.89	11.11	9.33	7.56	5.78	4.00	2.22	0.45	0.00
Interest for Period	0.11	0.13	0.12	0.10	0.08	0.07	0.05	0.04	0.02	0.00	0.00
March											
Opening Balance	13.50	14.67	12.89	11.11	9.33	7.56	5.78	4.00	2.22	0.45	0.00
Addition during Period	1.50										
Repayment of Term Loan		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
Closing Balance	15.00	14.52	12.74	10.96	9.19	7.41	5.63	3.85	2.07	0.30	0.00
Interest for Period	0.13	0.13	0.11	0.10	0.08	0.07	0.05	0.03	0.02	0.00	0.00

Working Capital Assessment:

The working capital holding norms of the Project have been considered in line with the industry standards and the experience of the Company in renovation of the existing P&M and setting up of new unit of the Project. The holding norms as considered have been presented in the table below

Description	Unit	Value
Working Capital Holding Norms		
Raw Material	Days	45
Work in Progress	Days	3
Finished Goods	Days	30
Debtors/Receivables	Days	45
Trade Creditors	Days	15
Expense Creditors	Days	30

Based on the working capital holding norms as provided in the table above, the working capital/ cash credit requirement of the Project has been presented in the table below

All Figures in INR Crores										
Description	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Raw Material	0.39	0.40	0.44	0.49	0.54	0.60	0.65	0.67	0.69	0.72
Work In Progress	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.06
Finished Goods	0.43	0.52	0.58	0.64	0.70	0.77	0.85	0.88	0.91	0.94
Debtors/ Receivables	1.43	1.57	1.77	1.97	2.17	2.39	2.61	2.71	2.79	2.87
Current Assets	**2.28**	**2.52**	**2.83**	**3.14**	**3.47**	**3.81**	**4.17**	**4.32**	**4.45**	**4.59**
Trade Creditors	0.13	0.13	0.15	0.16	0.18	0.20	0.22	0.22	0.23	0.24
Expense Creditors	0.17	0.17	0.18	0.20	0.22	0.24	0.27	0.28	0.28	0.29
Current Laibilities	**0.30**	**0.30**	**0.33**	**0.37**	**0.40**	**0.44**	**0.49**	**0.50**	**0.52**	**0.53**
Working Capital Gap	**1.98**	**2.23**	**2.50**	**2.77**	**3.06**	**3.37**	**3.68**	**3.81**	**3.93**	**4.06**
Margin Money	0.49	0.56	0.63	0.69	0.77	0.84	0.92	0.95	0.98	1.01
Sanctioned Limited	**1.48**	**1.50**	**1.50**	**1.50**	**1.50**	**1.50**	**1.50**	**1.50**	**1.50**	**1.50**
Utilisation Level	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Utilised Limit	1.48	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Interest Rate	10.75%	10.75%	10.75%	10.75%	10.75%	10.75%	10.75%	10.75%	10.75%	10.75%
Interest for the Period	**0.13**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**

It is noted from the table above that the margin money for working capital requirement has been ascertained at Rs. 0.56 Crores and the same has been considered as part of the Project Cost.

Chapter 6

Financial Analysis

SBPL is proposing to establish clay perforated bricks manufacturing unit, based on Tunnel Kiln technology, in Baghpat Uttar Pradesh. In this section of the report, CareEdge Advisory has reviewed the viability of the proposed project on standalone basis and have ascertained the revenue stream, cost stream for the Project.

CareEdge Advisory has also assessed the various key financial parameters like Net Present Value, Internal Rate of Return, Post Tax Cost of Capital and Debt Service Coverage ratio and commented on the long-term viability of the proposed Project.

Income Assumption:

Installed Capacity and Capacity Utilization-

The date assumed for start of commercial operations is 1st June, 2024. The installed capacity and the expected capacity utilization level of the proposed project has been presented in the table below

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Days in Year	Days	304	365	365	365	365	365	365	365	365	365
Operating Days		270	330	330	330	330	330	330	330	330	330
Capacity	LPD	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Capacity	LPPA	405	495	495	495	495	495	495	495	495	495
Utilisation Level	%	60%	60%	65%	70%	75%	80%	85%	85%	85%	85%
Annual Production	Pieces	243.00	297.00	321.75	346.50	371.25	396.00	420.75	420.75	420.75	420.75
Less - Waste Generated	Pieces	4.76	5.82	6.31	6.79	7.28	7.76	8.25	8.25	8.25	8.25
Net Production	**Pieces**	**238.24**	**291.18**	**315.44**	**339.71**	**363.97**	**388.24**	**412.50**	**412.50**	**412.50**	**412.50**

Source: CareEdge Advisory Estimates

Stock Available for Sales

The stock movement for the proposed project has been presented in the exhibit below

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Opening Balance	Pieces	-	21.54	26.33	28.52	30.71	32.91	35.10	37.29	37.29	37.29
Production	**Pieces**	**238.24**	**291.18**	**315.44**	**339.71**	**363.97**	**388.24**	**412.50**	**412.50**	**412.50**	**412.50**
Closing Balance	Pieces	21.54	26.33	28.52	30.71	32.91	35.10	37.29	37.29	37.29	37.29
Sales Quantity	Pieces	216.70	286.39	313.25	337.51	361.78	386.04	410.31	412.50	412.50	412.50

Source: CareEdge Advisory Estimates

Product Mix

The product mix of the finished perforated bricks is illustrated in the exhibit below

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Product Mix											
First Quality	%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Second Quality	%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Broken Bricks	%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Product Mix	**Pieces**	**216.70**	**286.39**	**313.25**	**337.51**	**361.78**	**386.04**	**410.31**	**412.50**	**412.50**	**412.50**
First Quality	Pieces	205.86	272.07	297.59	320.64	343.69	366.74	389.79	391.88	391.88	391.88
Second Quality	Pieces	6.50	8.59	9.40	10.13	10.85	11.58	12.31	12.38	12.38	12.38
Broken Bricks	Pieces	4.33	5.73	6.26	6.75	7.24	7.72	8.21	8.25	8.25	8.25

Source: CareEdge Advisory Estimates

Sales Realization

Considering the stock movement and product mix as discussed above, the sales realization as estimated from the proposed project has been presented in the exhibit below

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
First Quality	INR Crores	9.26	12.24	13.79	15.31	16.90	18.57	20.33	21.06	21.69	22.34
Second Quality	INR Crores	0.26	0.34	0.39	0.43	0.47	0.52	0.57	0.59	0.61	0.63
Broken Bricks	INR Crores	0.13	0.17	0.19	0.21	0.24	0.26	0.29	0.30	0.30	0.31
Total Sales Realisation	**INR Crores**	**9.65**	**12.76**	**14.37**	**15.95**	**17.61**	**19.36**	**21.19**	**21.94**	**22.60**	**23.28**

Source: CareEdge Advisory Estimates

Selling Price

The selling prices considered for the finished goods are based on recent prevalent market prices. The same is illustrated in the exhibit below

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
First Quality	INR/ Piece	4.50	4.50	4.64	4.77	4.92	5.06	5.22	5.37	5.53	5.70
Second Quality	INR/ Piece	4.00	4.00	4.12	4.24	4.37	4.50	4.64	4.78	4.92	5.07
Broken Bricks	INR/ Piece	3.00	3.00	3.09	3.18	3.28	3.38	3.48	3.58	3.69	3.80
Annual Increment	%			3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%

Source: CareEdge Advisory Estimates

It has to be noted that an annual increase of 3%, post FY 2026-27, on average basis is considered in the selling prices for each product to mitigate the price fluctuations factor of the market.

Cost Assumption:

Raw Material Cost:

The raw material shall be varying in accordance with its final product and shall be used in a proportion in the mix to get the quality product. The raw material cost of the proposed project as estimated has been presented in the table below:

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Raw Material Norm											
Clay	INR/Piece	0.12	0.12	0.12	0.13	0.13	0.14	0.14	0.14	0.15	0.15
Coal	INR/Piece	0.99	0.99	1.02	1.05	1.08	1.11	1.15	1.18	1.22	1.25
Annul Increment	%	0.00%	0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Raw Material Cost											
Clay	INR Crores	0.29	0.35	0.39	0.43	0.48	0.52	0.57	0.59	0.61	0.63
Coal	INR Crores	2.36	2.88	3.22	3.57	3.94	4.33	4.73	4.88	5.02	5.17
Raw Material Cost	**INR Crores**	**2.64**	**3.23**	**3.61**	**4.00**	**4.41**	**4.85**	**5.31**	**5.47**	**5.63**	**5.80**

Source: CareEdge Advisory Estimates

The raw material purchases prices as considered for the purpose of financial evaluation is based on the prevailing market rates as experienced by the Company. Consultants have also considered an increase of 3%, post FY206-27, in the purchase price of the raw materials to mitigate the price fluctuation factor of the market.

Stores and Consumables Cost

Apart from the raw material some other consumables shall be used to produce the finished products. The stores and consumables cost taken into consideration is exhibited below

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Stores and Consumables	INR/Piece	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06
Annul Increment	%	0.00%	0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Stores and Consumables	**INR Crores**	**0.12**	**0.15**	**0.17**	**0.18**	**0.20**	**0.22**	**0.24**	**0.25**	**0.26**	**0.27**

Source: CareEdge Advisory Estimates

Power Cost

The power for the proposed project will be procured from Uttar Pradesh Power Corporation Limited through an in-house transformer of 1,000 KVA. The power cost for the Project has been presented in the table below

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Power Consumption	Kwh/ Piece	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Price of Power	INR/ Kwh	6.00	6.00	6.18	6.37	6.56	6.75	6.96	7.16	7.38	7.60
Annul Increment	%	0.00%	0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Cost of Power	**INR Crores**	**1.31**	**1.60**	**1.79**	**1.99**	**2.19**	**2.41**	**2.63**	**2.71**	**2.79**	**2.88**

Source: CareEdge Advisory Estimates

Repairs and Maintenance Cost

The repairs and maintenance cost include the cost incurred for repairs and maintenance works on building and plant and machinery, apart from this the annual maintenance cost of select critical plant and machinery to take care of the wear and tear of the hardware, during the course of operations of the unit.

The repairs and maintenance cost for the Project as estimate has been presented in the exhibits below

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Repairs and Maintenance Cost	% of GFA	1.00%	1.00%	1.00%	1.25%	1.25%	1.25%	1.50%	1.50%	1.50%	1.50%
Repairs and Maintenance Cost	**INR Crores**	**0.23**	**0.23**	**0.23**	**0.29**	**0.29**	**0.29**	**0.35**	**0.35**	**0.35**	**0.35**

Source: CareEdge Advisory Estimates

Manpower Expenses

The total manpower requirement to successfully operate the Project has been ascertained at 43 personnel. The manpower cost of the Project as assessed has been presented in exhibit below:

Annual increase in the salaries of 10%, post FY 2024-25, is taken into consideration

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Operational Months		**10**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
Manpower Requirement											
Factory Manager/Inventory Controller	Nos.	1	1	1	1	1	1	1	1	1	1
Technician	Nos.	1	1	1	1	1	1	1	1	1	1
Accountant	Nos.	1	1	1	1	1	1	1	1	1	1
Watchman	Nos.	1	1	1	1	1	1	1	1	1	1
Clay Feeder	Nos.	2	2	2	2	2	2	2	2	2	2
Mixer Operator	Nos.	1	1	1	1	1	1	1	1	1	1
Extruder Forman	Nos.	1	1	1	1	1	1	1	1	1	1
Green Brick Cutting Operator	Nos.	2	2	2	2	2	2	2	2	2	2
Green brick Loader	Nos.	5	5	5	5	5	5	5	5	5	5
Green Brick Carriers	Nos.	6	6	6	6	6	6	6	6	6	6
Green Brick Unloader	Nos.	6	6	6	6	6	6	6	6	6	6
Driver Tractor	Nos.	1	1	1	1	1	1	1	1	1	1
Wasting	Nos.	2	2	2	2	2	2	2	2	2	2
Ghumyaar (carriage to kiln)	Nos.	2	2	2	2	2	2	2	2	2	2
Loader	Nos.	5	5	5	5	5	5	5	5	5	5
Unloader	Nos.	5	5	5	5	5	5	5	5	5	5
Tunnel kiln operator	Nos.	1	1	1	1	1	1	1	1	1	1
Total Manpower Required	**Nos.**	**43**	**43**	**43**	**43**	**43**	**43**	**43**	**43**	**43**	**43**
Monthly Salaries											
Factory Manager/Inventory Controller	Nos.	30,000	30,000	33,000	36,300	39,930	43,923	48,315	53,147	58,462	64,308
Technician	Nos.	20,000	20,000	22,000	24,200	26,620	29,282	32,210	35,431	38,974	42,872
Accountant	Nos.	20,000	20,000	22,000	24,200	26,620	29,282	32,210	35,431	38,974	42,872
Watchman	Nos.	12,000	12,000	13,200	14,520	15,972	17,569	19,326	21,259	23,385	25,723
Clay Feeder	Nos.	10,000	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436
Mixer Operator	Nos.	12,000	12,000	13,200	14,520	15,972	17,569	19,326	21,259	23,385	25,723
Extruder Forman	Nos.	15,000	15,000	16,500	18,150	19,965	21,962	24,158	26,573	29,231	32,154

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Green Brick Cutting Operator	Nos.	10,000	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436
Green brick Loader	Nos.	8,000	8,000	8,800	9,680	10,648	11,713	12,884	14,172	15,590	17,149
Green Brick Carriers	Nos.	8,000	8,000	8,800	9,680	10,648	11,713	12,884	14,172	15,590	17,149
Green Brick Unloader	Nos.	8,000	8,000	8,800	9,680	10,648	11,713	12,884	14,172	15,590	17,149
Driver Tractor	Nos.	10,000	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436
Wastings	Nos.	8,000	8,000	8,800	9,680	10,648	11,713	12,884	14,172	15,590	17,149
Ghumyaar (carriage to kiln)	Nos.	8,000	8,000	8,800	9,680	10,648	11,713	12,884	14,172	15,590	17,149
Loader	Nos.	10,000	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436
Unloader	Nos.	10,000	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436
Tunnel kiln operator	Nos.	15,000	15,000	16,500	18,150	19,965	21,962	24,158	26,573	29,231	32,154
Annul Increment	%	0.00%	0.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Manpower Cost	**INR Crores**	**0.40**	**0.53**	**0.58**	**0.64**	**0.71**	**0.78**	**0.85**	**0.94**	**1.03**	**1.14**

Source: CareEdge Advisory Estimates

Rent Expenses:

The company has acquired the land on leases basis. The lease agreement copy was shared with CareEdge Advisory.

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Rent Expenses	INR Crores	0.09	0.11	0.12	0.13	0.15	0.16	0.18	0.19	0.21	0.24
Annul Increment	%	0.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Rent Expenses	**INR Crores**	**0.09**	**0.11**	**0.12**	**0.13**	**0.15**	**0.16**	**0.18**	**0.19**	**0.21**	**0.24**

Fixed Cost:

The fixed cost considered is General, Administrative and Selling expenses, which has been considered at 1.00 % and 2.00% of overall sales. The same is shown in the exhibit below

Description	Unit	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34
Administrative Expenses	% of Sales	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Selling and Distribution Expenses	% of Sales	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Administrative Expenses	INR Crores	0.10	0.13	0.14	0.16	0.18	0.19	0.21	0.22	0.23	0.23
Selling and Distribution Expenses	INR Crores	0.19	0.26	0.29	0.32	0.35	0.39	0.42	0.44	0.45	0.47

Source: CareEdge Advisory Estimates

The fixed costs as considered include –

- Remuneration to the Directors of the Company
- Remuneration for Sales Team
- Travelling Boarding and Lodging Costs
- Auditors' expenses
- Rentals and Taxes
- Pilferages
- Insurance etc.

Depreciation Assumptions:
The depreciation rates as considered for evaluation purpose has been tabulated below

Description	Units	Value
Depreciation Schedule - The Company Act - SLM		
Land and Land Development	%	0.00%
Building and Civil Works	%	3.45%
Plant and Machinery	%	4.17%
Miscellaneous Fixed Assets	%	4.17%
Depreciation Schedule - Income Tax Act - WDV		
Land and Land Development	%	0.00%
Building and Civil Works	%	10.00%
Plant and Machinery	%	15.00%
Miscellaneous Fixed Assets	%	15.00%

Financial Projections:

Profit and Loss Statement Projection:

All Figures in INR Crores										
Description	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Sales from Operations	9.65	12.76	14.37	15.95	17.61	19.36	21.19	21.94	22.60	23.28
Other Income										
Net Revenue	9.65	12.76	14.37	15.95	17.61	19.36	21.19	21.94	22.60	23.28
Variable Cost										
Raw Material Cost	2.64	3.23	3.61	4.00	4.41	4.85	5.31	5.47	5.63	5.80
Stores and spares	0.12	0.15	0.17	0.18	0.20	0.22	0.24	0.25	0.26	0.27
Power Cost	1.31	1.60	1.79	1.99	2.19	2.41	2.63	2.71	2.79	2.88
Repairs and Maintenance Cost	0.23	0.23	0.23	0.29	0.29	0.29	0.35	0.35	0.35	0.35
Other Direct Costs	0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.10	0.10	0.11
Rent Expenses	0.09	0.11	0.12	0.13	0.15	0.16	0.18	0.19	0.21	0.24
Manpower Cost	0.44	0.53	0.58	0.64	0.71	0.78	0.85	0.94	1.03	1.14
Total Variable Cost	4.89	5.92	6.57	7.31	8.03	8.80	9.67	10.02	10.39	10.78
Opening Stock - WIP	-	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.06
Sub-Total	4.89	5.95	6.60	7.35	8.08	8.85	9.72	10.08	10.45	10.84
Closing Stock - WIP	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.06
Opening Stock - FG	-	0.43	0.52	0.58	0.64	0.70	0.77	0.85	0.88	0.91
Sub-Total	4.87	6.34	7.08	7.88	8.67	9.50	10.43	10.86	11.26	11.68
Closing Stock - FG	0.43	0.52	0.58	0.64	0.70	0.77	0.85	0.88	0.91	0.94
Cost of Sales	4.44	5.82	6.51	7.24	7.97	8.73	9.59	9.99	10.35	10.74
Fixed Costs										
Administrative Expenses	0.10	0.13	0.14	0.16	0.18	0.19	0.21	0.22	0.23	0.23
Selling and Distribution Expenses	0.19	0.26	0.29	0.32	0.35	0.39	0.42	0.44	0.45	0.47

All Figures in INR Crores										
Description	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Fixed Costs	0.29	0.38	0.43	0.48	0.53	0.58	0.64	0.66	0.68	0.70
Total Operating Costs	4.73	6.20	6.94	7.72	8.50	9.31	10.22	10.64	11.03	11.44
EBDITA	4.92	6.56	7.44	8.23	9.12	10.05	10.97	11.30	11.57	11.84
EBDITA Margin	51.01%	51.38%	51.74%	51.60%	51.76%	51.91%	51.76%	51.49%	51.19%	50.86%
Other Expenses										
Depreciation	0.08	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Interest on Term Loan	1.35	1.45	1.26	1.07	0.88	0.69	0.50	0.32	0.13	0.00
Interest on Working Capital Loan	0.13	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Expenses Written Off	-	-	-	-	-	-	-	-	-	-
Non-Operating Expenses	-	-	-	-	-	-	-	-	-	-
Total Other Expenses	1.57	2.58	2.39	2.20	2.01	1.82	1.63	1.44	1.25	1.13
Total Expenditure	6.30	8.78	9.32	9.92	10.50	11.13	11.85	12.08	12.28	12.57
Profit Before Tax	3.36	3.98	5.05	6.04	7.11	8.23	9.34	9.86	10.32	10.71
Applicable Tax	0.56	0.66	0.84	1.01	1.70	2.09	2.60	2.67	2.98	3.14
Profit After Tax	2.80	3.32	4.21	5.03	5.41	6.14	6.74	7.19	7.34	7.57
PAT Margin	28.97%	25.99%	29.28%	31.52%	30.72%	31.72%	31.82%	32.76%	32.47%	32.53%

Source: CareEdge Advisory Estimates

Balance sheet Projection

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Sources of Funds											
Shareholders Funds											
Equity Capital	7.53	8.01	8.01	8.01	8.01	8.01	8.01	8.01	8.01	8.01	8.01
Reserves and Surplus	-	2.80	6.11	10.32	15.35	20.76	26.90	33.64	40.83	48.17	55.74
Total Shareholder Funds	**7.53**	**10.81**	**14.12**	**18.33**	**23.36**	**28.77**	**34.91**	**41.65**	**48.84**	**56.18**	**63.76**
Debt Funds											
Term Loan	15.00	14.52	12.74	10.96	9.19	7.41	5.63	3.85	2.07	0.30	0.00
Working Capital Loan	-	1.48	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Unsecured Loan - Promoters		-	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Total Debt Funds	**15.00**	**16.00**	**14.74**	**12.96**	**11.19**	**9.41**	**7.63**	**5.85**	**4.07**	**2.30**	**2.00**
Total Sources of Funds	**22.53**	**26.81**	**28.87**	**31.30**	**34.55**	**38.18**	**42.54**	**47.51**	**52.92**	**58.48**	**65.76**
Application of Funds											
Gross Fixed Assets	22.53	23.46	23.46	23.46	23.46	23.46	23.46	23.46	23.46	23.46	23.46
Cumulative Depreciation	-	0.08	1.04	2.00	2.97	3.93	4.89	5.85	6.82	7.78	8.74
Net Fixed Assets	**22.53**	**23.38**	**22.41**	**21.45**	**20.49**	**19.53**	**18.56**	**17.60**	**16.64**	**15.68**	**14.72**
Investments/ Non-Current Assets											
Current Assets	**-**	**3.73**	**6.75**	**10.17**	**14.43**	**19.06**	**24.42**	**30.39**	**36.78**	**43.32**	**51.57**
Inventories	-	0.85	0.95	1.06	1.18	1.30	1.42	1.56	1.61	1.66	1.72
Debtors/ Receivables	-	1.43	1.57	1.77	1.97	2.17	2.39	2.61	2.71	2.79	2.87
Cash and Cash Equivalent	-	1.46	4.23	7.34	11.28	15.59	20.61	26.22	32.46	38.87	46.98
Current Liabilities	**-**	**0.30**	**0.30**	**0.33**	**0.37**	**0.40**	**0.44**	**0.49**	**0.50**	**0.52**	**0.53**
Trade Creditors	-	0.13	0.13	0.15	0.16	0.18	0.20	0.22	0.22	0.23	0.24
Expense Creditors	-	0.17	0.17	0.18	0.20	0.22	0.24	0.27	0.28	0.28	0.29
Net Current Assets	**-**	**3.44**	**6.45**	**9.84**	**14.06**	**18.65**	**23.98**	**29.90**	**36.28**	**42.80**	**51.04**
Total Application of Funds	**22.53**	**26.81**	**28.87**	**31.30**	**34.55**	**38.18**	**42.54**	**47.51**	**52.92**	**58.48**	**65.76**

Cash Flow Statement:

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Cashflow from Operating Activities											
Profit Before Tax	-	3.36	3.98	5.05	6.04	7.11	8.23	9.34	9.86	10.32	10.71
Add: Depreciation	-	0.08	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Add: Expense Written Off	-	-	-	-	-	-	-	-	-	-	-
Add: Interest on Term Loan	-	1.35	1.45	1.26	1.07	0.88	0.69	0.50	0.32	0.13	0.00
Add: Interest on Working Capital Loan	-	0.13	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Less: Income Tax Paid	-	0.56	0.66	0.84	1.01	1.70	2.09	2.60	2.67	2.98	3.14
Cashflow from Operations Prior to Working Capital	**-**	**4.36**	**5.89**	**6.59**	**7.22**	**7.42**	**7.96**	**8.37**	**8.63**	**8.59**	**8.70**
Working Capital Changes											
Add: Current Liabilities	-	0.30	0.00	0.03	0.04	0.04	0.04	0.04	0.01	0.02	0.02
Trade Creditors	-	0.13	0.00	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01
Expense Creditors	-	0.17	(0.00)	0.02	0.02	0.02	0.02	0.03	0.01	0.01	0.01
Less: Current Assets	-	2.28	0.25	0.31	0.31	0.32	0.34	0.36	0.14	0.14	0.14
Inventories	-	0.85	0.10	0.11	0.12	0.12	0.13	0.14	0.05	0.05	0.06
Debtors/ Receivables	-	1.43	0.14	0.20	0.19	0.20	0.22	0.23	0.09	0.08	0.08
Cashflow from Operating Activities	**-**	**2.39**	**5.64**	**6.32**	**6.95**	**7.13**	**7.65**	**8.05**	**8.50**	**8.47**	**8.58**
Cashflow from Investment Activities											
(Purchase)/sale of Fixed Assets	(22.53)	(0.92)	-	-	-	-	-	-	-	-	-
(Increase)/Decrease in Investments	-	-	-	-	-	-	-	-	-	-	-
Sub-Total	**(22.53)**	**(0.92)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Net Cashflow after Operating and Investment Activities	**(22.53)**	**1.46**	**5.64**	**6.32**	**6.95**	**7.13**	**7.65**	**8.05**	**8.50**	**8.47**	**8.58**

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Cashflow from Financing Activities											
Increase/ (Decrease) in Equity	7.53	0.48	-	-	-	-	-	-	-	-	-
Increase/ (Decrease) in Term Loan	15.00	(0.48)	(1.78)	(1.78)	(1.78)	(1.78)	(1.78)	(1.78)	(1.78)	(1.78)	(0.30)
Increase/ (Decrease) in Working Capital Loan	-	1.48	0.02	-	-	-	-	-	-	-	-
Increase/ (Decrease) in Unsecured Loan	-	-	0.50	-	-	-	-	-	-	-	-
Less: Payment of Interest	-	(1.49)	(1.61)	(1.42)	(1.23)	(1.04)	(0.86)	(0.67)	(0.48)	(0.29)	(0.16)
Sub-Total	**22.53**	**(0.01)**	**(2.87)**	**(3.20)**	**(3.01)**	**(2.82)**	**(2.63)**	**(2.44)**	**(2.25)**	**(2.07)**	**(0.46)**
Net Cashflow Generated	-	1.46	2.77	3.12	3.94	4.31	5.02	5.61	6.24	6.40	8.12
Cash from Prior Period	-	-	1.46	4.23	7.34	11.28	15.59	20.61	26.22	32.46	38.87
Closing Cash and Cash Equivalent	-	1.46	4.23	7.34	11.28	15.59	20.61	26.22	32.46	38.87	46.98

Source: CareEdge Advisory Estimates

Depreciation Schedule– The Company Act – Written Down Value Method

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Opening Gross Block	**-**	**22.53**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**
Land and Land Development		-	-	-	-	-	-	-	-	-	-
Building and Civil Works		2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
Plant and Machinery		20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40
Miscellaenous Fixed Assets		0.03	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Addition (Deletion)	**22.53**	**0.92**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Land and Land Development	-	-	-	-	-	-	-	-	-	-	-
Building and Civil Works	2.10	-	-	-	-	-	-	-	-	-	-
Plant and Machinery	20.40	-	-	-	-	-	-	-	-	-	-
Miscellaneous Fixed Assets	0.03	0.92	-	-	-	-	-	-	-	-	-
Closing Gross Block	**22.53**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**
Land and Land Development	-	-	-	-	-	-	-	-	-	-	-
Building and Civil Works	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
Plant and Machinery	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40
Miscellaneous Fixed Assets	0.03	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Depreciation for Year	**-**	**0.08**	**0.96**	**0.96**	**0.96**	**0.96**	**0.96**	**0.96**	**0.96**	**0.96**	**0.96**
Land and Land Development		-	-	-	-	-	-	-	-	-	-
Building and Civil Works		0.01	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Plant and Machinery		0.07	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Miscellaneous Fixed Assets		0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Cumulative Depreciation	**-**	**0.08**	**1.04**	**2.00**	**2.97**	**3.93**	**4.89**	**5.85**	**6.82**	**7.78**	**8.74**
Building and Civil Works		0.01	0.08	0.15	0.22	0.30	0.37	0.44	0.51	0.59	0.66
Plant and Machinery		0.07	0.92	1.77	2.62	3.47	4.32	5.17	6.02	6.87	7.72
Miscellaneous Fixed Assets		0.00	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36
Net Fixed Assets	**22.53**	**23.38**	**22.41**	**21.45**	**20.49**	**19.53**	**18.56**	**17.60**	**16.64**	**15.68**	**14.72**
Land and Land Development	-	-	-	-	-	-	-	-	-	-	-
Building and Civil Works	2.10	2.10	2.02	1.95	1.88	1.81	1.73	1.66	1.59	1.52	1.44
Plant and Machinery	20.40	20.33	19.48	18.63	17.78	16.93	16.08	15.23	14.38	13.53	12.68
Miscellaneous Fixed Assets	0.03	0.95	0.91	0.87	0.83	0.79	0.75	0.71	0.67	0.63	0.59

Depreciation - Income Tax Act –Written Down Value Method

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Opening Gross Block	**-**	**22.53**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**
Land and Land Development		-	-	-	-	-	-	-	-	-	-
Building and Civil Works		2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
Plant and Machinery		20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40
Miscellaneous Fixed Assets		0.03	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Addition (Deletion)	**22.53**	**0.92**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Land and Land Development	-	-	-	-	-	-	-	-	-	-	-
Building and Civil Works	2.10	-	-	-	-	-	-	-	-	-	-
Plant and Machinery	20.40	-	-	-	-	-	-	-	-	-	-
Miscellaneous Fixed Assets	0.03	0.92	-	-	-	-	-	-	-	-	-
Closing Gross Block	**22.53**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**	**23.46**
Land and Land Development	-	-	-	-	-	-	-	-	-	-	-
Building and Civil Works	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
Plant and Machinery	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40
Miscellaneous Fixed Assets	0.03	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Depreciation for Year	**-**	**1.71**	**3.16**	**2.70**	**2.30**	**1.97**	**1.68**	**1.43**	**1.22**	**1.05**	**0.89**
Land and Land Development		-	-	-	-	-	-	-	-	-	-
Building and Civil Works		0.11	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09
Plant and Machinery		1.53	2.83	2.41	2.04	1.74	1.48	1.26	1.07	0.91	0.77
Miscellaneous Fixed Assets		0.07	0.13	0.11	0.10	0.08	0.07	0.06	0.05	0.04	0.04
Cumulative Depreciation	**-**	**1.71**	**4.87**	**7.57**	**9.87**	**11.83**	**13.51**	**14.95**	**16.17**	**17.21**	**18.11**
Building and Civil Works		0.11	0.30	0.48	0.65	0.79	0.92	1.04	1.15	1.24	1.33
Plant and Machinery		1.53	4.36	6.77	8.81	10.55	12.03	13.28	14.35	15.26	16.03
Miscellaneous Fixed Assets		0.07	0.20	0.32	0.41	0.49	0.56	0.62	0.67	0.71	0.75
Net Fixed Assets	**22.53**	**21.75**	**18.59**	**15.89**	**13.59**	**11.62**	**9.94**	**8.51**	**7.29**	**6.24**	**5.35**
Land and Land Development	-	-	-	-	-	-	-	-	-	-	-
Building and Civil Works	2.10	2.00	1.80	1.62	1.46	1.31	1.18	1.06	0.96	0.86	0.77
Plant and Machinery	20.40	18.87	16.04	13.63	11.59	9.85	8.37	7.12	6.05	5.14	4.37
Miscellaneous Fixed Assets	0.03	0.88	0.75	0.64	0.54	0.46	0.39	0.33	0.28	0.24	0.20

Apportionment of Soft Cost:

All Figures in INR Crores		
Description	**31-Mar-24**	**31-Mar-25**
Closing Gross Block	**21.44**	**0.00**
Building and Civil Works	2.00	-
Plant and Machinery	19.40	-
Miscellaneous Fixed Assets	0.03	0.00
Percentage	**100%**	**100%**
Building and Civil Works	9%	0%
Plant and Machinery	91%	0%
Miscellaneous Fixed Assets	0%	100%
Apportionment Amount	**1.10**	**0.92**
Building and Civil Works	0.10	-
Plant and Machinery	0.99	-
Miscellaneous Fixed Assets	0.00	0.92

Financial Indicators:

Debt service coverage ratio (DSCR)

All Figures in INR Crores										
Description	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
PAT	2.80	3.32	4.21	5.03	5.41	6.14	6.74	7.19	7.34	1.26
Depreciation	0.08	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.16
Expense Write Off	-	-	-	-	-	-	-	-	-	-
Interest on Term Loan	1.35	1.45	1.26	1.07	0.88	0.69	0.50	0.32	0.13	0.00
Sub-Total (A)	4.23	5.73	6.43	7.06	7.26	7.80	8.21	8.47	8.43	1.43
Interest on Term Loan	1.35	1.45	1.26	1.07	0.88	0.69	0.50	0.32	0.13	0.00
Repayment of Term Loan	1.48	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	0.30
Repayment of Venture Capital	-	-	-	-	-	-	-	-	-	-
Sub-Total (B)	2.84	3.23	3.04	2.85	2.66	2.47	2.28	2.09	1.90	0.30
DSCR (A/B)	**1.49**	**1.77**	**2.12**	**2.48**	**2.73**	**3.15**	**3.60**	**4.04**	**4.43**	**4.75**
Average DSCR	**2.75**									

Company is having comfortable DSCR position. However, in case of insufficient cash accruals from the project the promoter to service the debt repayment.

NPV and Internal Rate of Return (IRR)

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Initial Cash Outflow											
Capital Investment	(22.53)	(0.92)	-	-	-	-	-	-	-	-	-
Margin Money	-	(0.56)	-	-	-	-	-	-	-	-	-
Total Initial Cash Outflow	**(22.53)**	**(1.48)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Operating Cash Flow											
PAT	-	2.80	3.32	4.21	5.03	5.41	6.14	6.74	7.19	7.34	1.26
Depreciation	-	0.08	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.16
Expenses Written Off	-	-	-	-	-	-	-	-	-	-	-
Interest Coverage		1.24	1.34	1.19	1.03	0.80	0.64	0.48	0.35	0.20	0.12
Total Operating Cash Flow	**-**	**4.12**	**5.62**	**6.36**	**7.02**	**7.17**	**7.74**	**8.19**	**8.50**	**8.51**	**1.54**
Terminal Cash Flow											
Salvage Value											14.72
Working Capital										-	0.56
Total Terminal Cash Flow	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		**-**	**15.27**
Net Cashflow	**(22.53)**	**2.64**	**5.62**	**6.36**	**7.02**	**7.17**	**7.74**	**8.19**	**8.50**	**8.51**	**16.81**
NPV	15.88										
IRR	24.73%										
Post-tax Cost of Capital	11.59%										

Break Even Point

All Figures in INR Crores										
Description	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Revenue	9.65	12.76	14.37	15.95	17.61	19.36	21.19	21.94	22.60	23.28
Total Operating Costs	4.73	6.20	6.94	7.72	8.50	9.31	10.22	10.64	11.03	11.44
EBDITA	4.92	6.56	7.44	8.23	9.12	10.05	10.97	11.30	11.57	11.84
EBDITA Margin	51.01%	51.38%	51.74%	51.60%	51.76%	51.91%	51.76%	51.49%	51.19%	50.86%
Contribution	5.21	6.94	7.87	8.71	9.64	10.63	11.60	11.96	12.25	12.54
Contribution Margin	54.01%	54.38%	54.74%	54.60%	54.76%	54.91%	54.76%	54.49%	54.19%	53.86%
BEP Sales	3.44	5.44	5.15	4.90	4.63	4.37	4.13	3.85	3.56	3.39
BEP Capacity Utilisation	35.62%	42.63%	35.80%	30.71%	26.29%	22.57%	19.51%	17.54%	15.74%	14.56%
Cash Break Even	3.29	3.67	3.39	3.14	2.87	2.62	2.38	2.08	1.78	1.60
Cash Break Even Margin	34.08%	28.76%	23.57%	19.66%	16.31%	13.51%	11.22%	9.49%	7.88%	6.88%
Net Profit Margin	28.97%	25.99%	29.28%	31.52%	30.72%	31.72%	31.82%	32.76%	32.47%	32.53%

The Breakeven Margins are for SBPL are in line with the industry standards.

Key Financial Ratio:

All Figures in INR Crores											
Description	**Mar-24**	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**	**Mar-30**	**Mar-31**	**Mar-32**	**Mar-33**	**Mar-34**
Revenue		9.65	12.76	14.37	15.95	17.61	19.36	21.19	21.94	22.60	23.28
Total Operating Costs		4.73	6.20	6.94	7.72	8.50	9.31	10.22	10.64	11.03	11.44
EBDITA		4.92	6.56	7.44	8.23	9.12	10.05	10.97	11.30	11.57	11.84
EBDITA Margin		51.01%	51.38%	51.74%	51.60%	51.76%	51.91%	51.76%	51.49%	51.19%	50.86%
Contribution		5.21	6.94	7.87	8.71	9.64	10.63	11.60	11.96	12.25	12.54
Contribution Margin		54.01%	54.38%	54.74%	54.60%	54.76%	54.91%	54.76%	54.49%	54.19%	53.86%
BEP Sales		3.44	5.44	5.15	4.90	4.63	4.37	4.13	3.85	3.56	3.39
BEP Capacity Utilisation		35.62%	42.63%	35.80%	30.71%	26.29%	22.57%	19.51%	17.54%	15.74%	14.56%
Cash Break Even		3.29	3.67	3.39	3.14	2.87	2.62	2.38	2.08	1.78	1.60
Cash Break Even Margin		34.08%	28.76%	23.57%	19.66%	16.31%	13.51%	11.22%	9.49%	7.88%	6.88%
Net Profit Margin		28.97%	25.99%	29.28%	31.52%	30.72%	31.72%	31.82%	32.76%	32.47%	32.53%
Promoters Contribution	7.53	8.01	8.01	8.01	8.01	8.01	8.01	8.01	8.01	8.01	8.01
Reserves and Surplus	-	2.80	6.11	10.32	15.35	20.76	26.90	33.64	40.83	48.17	55.74
Tangible Net Worth (TNW)	7.53	10.81	14.12	18.33	23.36	28.77	34.91	41.65	48.84	56.18	63.76
Term Loan	15.00	14.52	12.74	10.96	9.19	7.41	5.63	3.85	2.07	0.30	0.00
Debt Equity Ratio	1.99	1.34	0.90	0.60	0.39	0.26	0.16	0.09	0.04	0.01	0.00
Total Outside Liability (TOL)	15.00	16.30	14.54	12.79	11.05	9.31	7.57	5.84	4.08	2.31	2.03
TOL/ TNW (Ratio)	1.99	1.51	1.03	0.70	0.47	0.32	0.22	0.14	0.08	0.04	0.03
Closing Cash Balance	-	1.46	4.23	7.34	11.28	15.59	20.61	26.22	32.46	38.87	46.98

CareEdge Advisory Comments:

- TOL / TNW position is improving, with increase in TNW on account of retaining the profit back into the business.
- Project is proposed to be funded at Debt Equity Ratio 2.00 :1 position is projected to improve with annual repayments.
- The Net Present Value (NPV) of the Project is INR 15.88 Crore, which is above zero and hence indicates the project is financially viable.
- Also, Internal Rate of Return (IRR) at 24.73% is higher than Weighted Average Post-Tax Cost of Capital (WACC) at 11.59%, both parameters indicating that the Project is financially viable preposition.
- Meanwhile the average Debt Service Coverage Ratio (DSCR) of the Project has been estimated at 2.75 and min DSCR of 1.49, indicating fair term loan repayment capacity of the Project and the Company.

Sensitivity Analysis:

CareEdge Advisory has undertaken as sensitivity analysis, to assess the impact of various negative scenarios of the key financial parameters of the Project/ Company. The outcome of the sensitivity analysis has been presented in the table below:

Description	NPV	IRR	WACC	Min. DSCR	Avg. DSCR
	INR Crores	%	%	Ratio	Ratio
Base Case	15.88	24.73%	11.59%	1.49	2.75
5% decrease in capacity utilisation	14.25	23.50%	11.62%	1.41	2.61
5% decrease in selling price	13.09	22.59%	11.63%	1.36	2.52
5% increase in raw material cost	15.13	24.15%	11.60%	1.46	2.69
10% increase in hadrware cost	13.45	22.73%	12.15%	1.49	2.76
1% increase in interest rates	14.79	24.66%	12.14%	1.43	2.67
2% increase in interest rates	13.80	24.69%	12.71%	1.38	2.60

Comments:

Based on the review of the above table, the Consultants understand that the Project/ Company is susceptible to 15% decrease in selling price

However, despite dip in the critical parameters under adverse scenarios, project remains viable under these scenarios.

Chapter 7

SWOT Analysis

Strengths

1. The Promoters and Management of the Company have wide and quality experience in the line of bricks manufacturing. The Management of Company, which oversees the day-to-day operations, has experience of decades in the line of business.
2. The Group has existing distribution network, which it will be leveraging for sale of finished products of SBPL.
3. Various cost and energy advantages of proposed Tunnel Kiln technology over other traditional bricks manufacturing methods in India.

Weakness

1. Lack of skilled manpower
2. Lower market penetration of perforated bricks in India.

Opportunities

1. Supporting policies of Government of India towards urban development and incentivization.
2. Increase in the number of infrastructure projects announced in Budget 2023.
3. Exporting bricks in the international market.

Threats

1. The generic threat of global and domestic slow down on account of various geo-political issues, inflationary environment, out of control of Company, like CoVid-19 pandemic etc.
2. The threat of new entrants in the same line of business.

Chapter 8

Risk Analysis

CareEdge Advisory has prepared risk matrix and also commented on mitigation strategy keeping in mind the probable risks that may be faced by the project.

Risk	Risk Bearer	Remark/ Mitigation
Experience Risk	SBPL	The Promoter and Management of SBPL have decades of experience in the solid clay bricks manufacturing. The new Tunnel Kiln technology has been proposed by the Promoters after having conducting due diligence with Punjab State Council for Science and Technology. Further, the Management proposes to hire experience personnel from industry to take care of day-to-day operations of the Company. Hence, experience related risk is not envisaged for the Company.
Funding Risk	SBPL	The Project is proposed to be funded through a debt-equity ratio of 2.00:1 or Promoter's contribution of INR 8.01 Crore and Term Loan from Banks to the tune of INR 16.00 Crore. The financial closure of the Project has not been achieved as off now and hence there is a funding related risk associated with the Project till the time the financial closure is achieved. Once the financial closure of the Project is achieved, the funding risk associated with the Project will be minimal.
Time Overrun Risk	SBPL	The Project is not complicated in terms of implementation and the Promoters have wide and quality experience in brick manufacturing which will play a pivotal role in the timely implementation of the proposed project. Furthermore, the Company has already placed order to various reputed plant and machinery vendors located in domestic as well as in international market. The proposed plant and machinery vendors will look out the Supply and Installation of the proposed tunnel Kiln technology. To further mitigate the time overrun, Promoters can execute an Agreement with plant and machinery suppliers for timely implementation of the proposed works. Hence, time overrun related risk is associated with the Project till the completion of the Project. However, in case of time overrun, the increase in the cost will be funded by the Company from own sources.

Risk	Risk Bearer	Remark/ Mitigation
Cost Overrun Risk	SBPL	Company has already finalized reputed plant and machinery vendors for the proposed project and has also received the firm quotations regarding the same. Hence, more or less the Project Cost is firmed up. Still to take care of any escalation in Project Cost, the Consultants have considered a 2.50% contingency to take care of any escalation in the Project Cost. Further, to check the viability of proposed project in adverse scenario, Consultants have also considered 10% increase in hardware cost as sensitivity concluding the Project and Company remain viable under this stress scenario. Hence, cost overrun related risk is not envisaged for the Project. However, in case there is cost overrun, then the cost associated with the same will be funded by the Company from its own sources of funds.
Technology Risk	SBPL	The Tunnel Kiln technology to be utilized in the proposed project is an established technology and several plants are operational across the globe based on the same technology. Also, the proposed technology has various advantages over traditional bricks manufacturing methods. Hence, there is no perceived technology risk associated with the Project.
Demand Risk	SBPL	Based on the market assessment undertaken by CareEdge Advisory, there will be good demand for the REB bricks manufactured by the company. Hence demand risk is not associated with the Project.
Price Risk	SBPL	The sector per say passes on any increase or decrease in selling prices/ raw material prices to the end user. Hence, the sector is not prone to fluctuation in increase/ decrease in selling price/ raw material cost. However, CareEdge Advisory has undertaken sensitivity analysis considering 5.00% decrease in selling price and 5.00% increase in raw material prices and the Project remains viable in both scenarios. Hence, pricing related risk to envisaged for the Project, remains manageable.
Force Majeure Risk	SBPL / Insurer	The lenders may insist upon the Company to take adequate insurance cover for insurable Force Majeure risks.

Chapter 9

Conclusion

Based on the assumptions considered and information shared by the Company, post understanding the project and economic scenarios we conclude:

- The average EBITDA margin of the proposed refurbishment project has been estimated at 51.47 %, which is in line with the industry standards.
- The Project is proposed to be funded through a debt-equity ratio of 2.00:1 or Promoter's contribution of INR 8.01 Crore and Term Loan from Banks to the tune of INR 16.00.
- The Net Present Value of the Project is INR 15.88 Crore, which is above zero and hence indicates the project is financially viable.
- Internal Rate of Return at 24.73% is higher than Weighted Average Post-Tax Cost of Capital at 11.58%, both parameters indicating that the Project is financially viable preposition.
- Meanwhile the average Debt Service Coverage Ratio of the Project has been estimated at 2.75 and min DSCR of 1.49, indicating fair term loan repayment capacity of the Project and the Company.

Based on the assessment undertaken by CareEdge Advisory, the Project as proposed by SBPL is found to be Techno-Economically Viable.

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