DETAILED PROJECT REPORT

3D Printing Unit

By

2023

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1. OVERVIEW OF THE JLG MEMBERS

Name of the JLG:

Number of the members.

Name of Gram Panchayat/Taluk:

Name of the District:

Account details of JLG:

Details of JLG members with Hierarchy;

1.

2.

3.

4.

5.

6.

KYC:

Aadhar/PAN/Photo:

3D printing is a technology that allows the creation of three-dimensional objects from digital models. It is also known as additive manufacturing because it involves building objects layer by layer, typically using a printer that deposits material in precise patterns. It allows for the creation of complex geometries and customized objects that may not be possible with traditional manufacturing methods.

2. OBJECTIVES OF SVSY

Under Yuva Niti 2022, the new Swami Vivekananda Yuva Shakti Yojana is proposed on the following grounds to achieve holistic development of 2.1 crore youth of the state and to bring about constructive social change by the youth in keeping with the India@2047 vision of the Hon'ble Prime Minister.

The current scenario of the state on various parameters is as follows:

i. **Political Representation:** Out of total 1,01,308 members in rural local bodies, 12,411 (12.25 per cent) youths and 360 youths (5.36 per cent) out of 6713 municipal councillors are political representatives.
ii. **Education:** Out of a total of 2.1 crore youth, 21.55 lakh (10.37 per cent) students are in high school, 11.75 lakh (5.65 per cent), 6.45 lakh (3.10 per cent) in general degree colleges, 1.51 lakh (2.72 per cent), 1.11 lakh in polytechnics. (0.53 per cent), 0.74 lakh (0.36 per cent) The total number of students studying in medical courses is 43.12 lakh, which is per cent of the total youth. 21 percent will be. Remaining 157.88 lakh youth have below 10th standard education.

iii. **Employment:** According to the National Skill Development Corporation report, out of the total 2.1 crore youth in the state, 82 lakh (41 per cent) youth are in the labour force. As the remaining 119 lakh youth (59 per cent) are not in the professional labour force, they need to be given skill training to make them self-reliant.

iv. **Skill Development:** Out of the total 82 lakh youth in the workforce, 16 lakh youth (20 per cent) have received skill vocational training. The remaining 66 lakh (80 percent) youth need to be given skill development training. Out of this, only one lakh youth are being trained by the NLRM department every year. Therefore 65 lakh untrained rural youth need skill training. To achieve this every school needs to provide vocational education from class 6 onwards.

v. **Internship:** According to the 6th Economic Census, there are a total of 28.80 lakh enterprises in the state, out of which 78,022 enterprises employ more than 8 people. About 30 lakh youths can be trained in skills by undertaking the internship program for a period of three months in local industries related to agriculture and agri-based/MSME/self-employment/service sector.

vi. **Migration Control:** Rural people have migrated from various districts to urban areas for job opportunities, of which 40 lakh (20 percent) youth are in Bangalore city. Therefore, there is a need to provide more employment opportunities at the village level.

vii. **Consolidation of programs for rural employment:** In total there are 27,395 revenue villages in the state and it is proposed to form Swami Vivekananda Self Help Groups, one in each village, on the model of Women's Self-Help Groups to provide self-employment to the unorganized workers in these. There are about 15

to 20 youth in each group, and 5.50 lakh youth in 27,395 self-help groups have received Rs. 1.5 lakh to provide margin money estimated at Rs. 410 crores will be required.

viii. **Bank Linked Schemes:** Coordination and inclusion of Yuva Shakti schemes with schemes linked to 25 banks. There are 35000 shelves of projects under the Mudra loan scheme, and steps will be taken to select the financial activities of the self-help societies based on these models.

ix. **Training:** Skill development training will be imparted to the youth under the National Entrepreneurship Mission under the 18 programs being implemented by various departments under this scheme. Training for agriculture and other activities will be provided through the Rural Development Self Employment Training Institute (RUDSETI).

x. **Formation of State Level Committee:** It is proposed to constitute a committee under the chairmanship of the Minister of Youth Empowerment and Sports at the State level for implementation and monitoring of the programme. RDPR, Commerce and Industry, Labour, Skill Development and Bank representatives will be members of this committee.

xi. **District Level Committee:** It is proposed to constitute a District Level Committee under the Chairmanship of the Chief Executive Officer of the Zilla Panchayat for the implementation and supervision of the program at the district level. The members of this committee are the officers of Rural Development and Panchayat Raj, Commerce and Industry, Labour, Skill Development Departments and District Lead Bank Managers.

xii. **Village level stewardship:** The village level stewardship of this program will be handled by Rural Development and Panchayat Raj Departments and Youth Empowerment and Sports Departments.

3. ABOUT VKF

VKF is a Think Tank of Community Change Champions who are from various walks of Social Spaces with diverse backgrounds and specialists from their domains.

VKF is a platform that enables as a think tank to evolve an aggregation of the social impact service providers and entrepreneurs for bringing about a transformational movement of social Change that is measurable on the lines of the Strategic Sustainable Development Goals (SSDG) of United Nation (UN).

VKF's is primarily focused on the development of Karnataka state in collaboration and co-creation initiatives.

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VKF's strong focus is on enhancing the rural mass entrepreneurship development clubbed with rural livelihood options. In this direction, VKF team is working with the rural livelihood SHGs members and handholding them to elevate themselves to newer socio-economic status and uplifting the whole geography of the cluster by setting up of CFCs.

VKF's experience spans across conceptualizing, cluster mapping, conducting baseline surveys, awareness creation, trust building activities, capacity building, design thinking activities etc., to enhance capabilities of the artisans and livelihood SHGs in the clusters.

VKF also indulges in facilitating Common Facility Centres, Preparation of DPR, Govt. liaising, market linkage activities, brand awareness, branding initiatives, value addition of the products produced by clusters etc. In this, regards we have collaborated and working with MSME, ESTC, IDEMI, Tribes India, NRLM and WCD to support rural masses in terms upgrading their livelihood opportunities.

4. NAME OF PRODUCT AND TECHNOLOGY

3D Printing Unit

A 3D printing machine, or 3D printer, is a device that uses additive manufacturing technology to create three-dimensional objects from digital models. The machine works by depositing or melting material layer by layer to create the final object. The material used in the printing process can vary, including plastics, metals, and even living tissue in some cases. As the technology continues to improve and become more accessible, it is expected to revolutionize the way we create and produce objects.

5. DELIVERABLES AND MARKET OF THE PRODUCT

- **3D printed objects**: The machine can produce 3D printed objects, which can include prototypes, models, figurines, toys, jewelry, and other items.
- **Customized products**: 3D printing technology allows for the creation of customized products, which can be a major selling point for businesses. This can include personalized phone cases, jewelry, and other items.
- **3D scanning services**: Some 3D printing businesses offer 3D scanning services, which involve scanning physical objects and creating digital models that can be printed using a 3D printer.
- **Education and training**: 3D printing businesses can also offer education and training services to help clients learn how to use 3D printing technology and create their own objects.

Project Assumptions: This model DPR for 3D Printing Unit is basically on certain assumptions that may vary with capacity, location, raw materials availability etc. An entrepreneur can use this model DPR format and modify as per requirement and suitability. The assumptions made in preparation of this particular DPR are given in Table. Therefore, land and civil infrastructures are assumed as already available with the entrepreneur.

Table: Detailed Project Assumptions		
Parameter	Value	
Assumed Capacity of 3D printing machine:	25 pieces per day	
Utilization of capacity:	Year 1	65%
	Year 2	70%
	Year 3	75%
	Year 4	80%
	Year 5	85%
Working days per year:	300 days	
Working hours per day:	8-10 hours	
Average price of raw material:	Rs. 200/piece	
Average sale price of product	Rs. 500/piece	

Machineries

Flashforge Dreamer FDM 3D Printer
Build Volume: 230 L x 150 W x 140 H mm (9.0 x 5.9 x 5.5 inch)
Layer Resolution: 100-500 microns (0.0039-0.019 inch)
AC Input: 100-240 V, 2 Amps, 50-60 Hz, 350 W
WOL 3D INDIA PRIVATE LIMITED
Mumbai, Maharashtra

Machinery is also available in Bengaluru and Coimbatore.

Market Output:

VKF will hand hold them to facilitating better packing and market linkage.

Market Linkage ❖ **Giftshops** ❖ **Workshops** ❖ **Schools and colleges**	❖ **Art exhibitions** ❖ **Construction**

6. ROLE OF EACH OF THE JLG MEMBERS

How JLG will participate:

- 2 persons for procurement
- 2 persons for production
- 2 persons for logistics & sales
- 2 persons for value addition

7. SOFT INTERVENTION

The following are the soft interventions to be arranged:

- Awareness on financial inclusion will help in getting the assistance from Government and other sources
- Export promotional orientation for the JLG members.
- Awareness/ training programme on product quality, handling practices.
- Capacity Building activity
- Trust Building activities

- Programmes on technical skill enhancement to unit owners.
- Programmes on Business and entrepreneurship skill enhancement to unit owners
- Mass entrepreneurship development program in the JLG eco system.

8. ESTIMATED COST OF THE PROJECT AND THE IMPLEMENTATION SCHEDULE

The proposed cost of the project is as follows:

Sl. No.	Details	Cost in Rs.	Percentage
1	Bank Loan	3,24,000	90%
2	JLG contribution	36,000	10%
3	**Total**	**3,60,000**	**100%**

Sl. No.	Details	Cost in Rs.
1	Machine Cost	2,20,000
2	Furniture	20,000
3	Working capital (Shed deposit, electric connection deposit,	1,20,000

	Miscellaneous and preoperative expenses)	
	TOTAL	**3,60,000**

The proposed project implementation schedule is as follows:

Sl. No.	**Project Component**	**Schedule**
1	Shed for the project on rental basis	Identified
2	Electricity and Water facility Installation	Present
3	Arrival of Machinery	Within 1 month of Order
4	Erection of Machinery	Within 6 days of arrival
5	Commissioning	Within 2-5 days of erection
6	Commercial Usage	Within 1 month from approval

9. LAND/SHED STATUS:

The JLG has already identified the shed required for the project within the project area.

10. SWOT ANALYSIS OF THE PROJECT

I. Strengths

- 3D printing technology is relatively new, and it offers unique benefits over

traditional manufacturing methods such as customization, reduced waste, and faster prototyping.

- 3D printing allows for easy design changes and quick iterations, making it ideal for rapid prototyping.
- 3D printing can be used in various industries, including aerospace, medical, automotive, and architecture.
- The source of raw material procurement is very convenient due to local availability.
- The JLG members are having good coordination and co-operation among themselves.
- Government is very favorable for supporting the youths.

II. Weaknesses

- 3D printing technology can be expensive, especially for high-end printers.
- The machines require regular maintenance, which can add to the overall cost of ownership.
- Products have lower export potential as there is poor quality due to lack of proper technologies.
- The JLG members lack insufficient place for working/processing in their units. All the process was being carried at one small area.
- The JLG members are unable to purchase modern machineries due to financial limitations.

- The JLG members have poor access to national and international markets. This will affect initially the profitability of the JLG members.

III. Opportunities

- The 3D printing market is expected to grow significantly in the coming years, creating new opportunities for businesses operating in this space.
- Online sales platforms can help wood carving businesses reach a wider audience and increase sales.
- The ability to offer customized products can be a significant selling point for businesses that use 3D printing.
- There will be a huge demand because this is a need of the hour globally.
- Young JLG members have long way to go with new Innovation in the recycle production it will help to create global impact on recycling.

IV. Threats

- As 3D printing becomes more widely adopted, competition in the space will increase, potentially driving down prices and profit margins.
- Due to poor market access the profitability of the JLG members may fall bit low level. This may discourage initially to JLG members.
- Wood carving businesses face competition from other crafts and industries, as well as mass-produced goods.

11. YOUTH EMPOWERMENT IMPACT OF THE PROJECT ON ECOSYSTEM

We have surplus youths in the state, graduate, undergraduate etc. supporting them to create self-employment will motivate to become entrepreneurs, they will live independent life**.** Entrepreneurship will greatly impact the lifestyle of the youths, if businesses work along with their involvement of all the members towards creating awareness and promoting positive impacts on others.

Ecosystem Support from Project

- **Reduced waste:** Traditional manufacturing methods often generate a significant amount of waste material, but 3D printing can produce parts with minimal waste.
- **Reduced carbon emissions**: 3D printing can reduce carbon emissions by eliminating the need for shipping products from one location to another. Instead, products can be produced on-site or closer to the end-user, reducing transportation emissions.
- **Sustainable materials:** Some 3D printing materials are biodegradable, and some can be recycled or reused. This can reduce the environmental impact of production by reducing the amount of waste sent to landfills.
- **Local production**: 3D printing can enable local production, which reduces the need for long-distance shipping and transportation. This can significantly reduce the carbon footprint associated with transportation and can also support local economies.

12. THE END PRODUCTS PRODUCED FROM 3D PRINTING UNIT

13. FINANCIALS

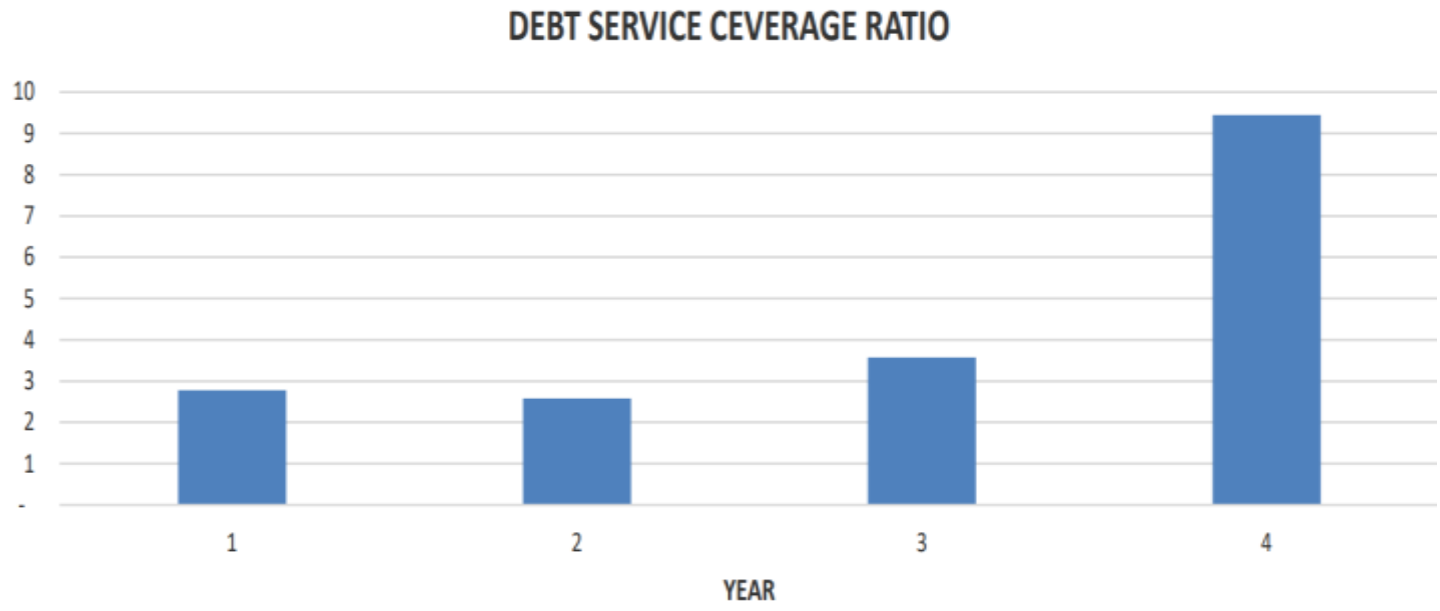
CASH FLOW STATEMENT

Particulars \ Year	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUE FROM SALE OF 3D PRINTING					
No. of working days in a Year	300	300	300	300	300
Less : Days for off Season	-	-	-	-	-
No. of Machine Running days in a Year	300	300	300	300	300
Capacity of the machine in piece per Day	25	25	25	25	25
Utilisation of the Capacity (%)	65%	70%	75%	80%	85%
Number of Piece in a year	4,875	5,250	5,625	6,000	6,375
Rate per Piece	500	550	605	666	732
Gross Revenue earned per annum - A	**24,37,500**	**28,87,500**	**34,03,125**	**39,93,000**	**46,66,819**
COST OF CONSUMABLES					
Number of Pieces	4,875	5,250	5,625	6,000	6,375
Rate per Piece	200	220	242	266	293
Total Cost of Consumable per annum - B	**9,75,000**	**11,55,000**	**13,61,250**	**15,97,200**	**18,66,728**
EXPENDITURE					
Salaries and Wages	7,80,000	8,97,000	10,31,550	11,86,283	13,64,225
Electricity Charges	1,32,000	1,45,200	1,59,720	1,75,692	1,93,261
Other Expenses	72,000	79,200	87,120	95,832	1,05,415
Transportation and Travelling	24,000	26,400	29,040	31,944	35,138
Rent	1,68,000	1,84,800	2,03,280	2,23,608	2,45,969
Promotion Expenses	36,000	39,600	43,560	47,916	52,708
Miscellaneous Expenses	35,000	38,500	42,350	46,585	51,244
Total Expenditure - C	**12,47,000**	**14,10,700**	**15,96,620**	**18,07,860**	**20,47,960**
Net Profit before Interest /Cash Flow (A-B-C)	**2,15,500**	**3,21,800**	**4,45,255**	**5,87,941**	**7,52,132**

DSCR STATEMENT

PROJECTED TERM LOAN DSCR STATEMENT

	Year 1	Year 2	Year 3	Year 4
	Projected	**Projected**	**Projected**	**Projected**
Profit available to service the debt	2,15,500	3,21,800	4,45,255	5,87,941
Loan Repayment	47,820	1,02,702	1,12,895	60,582
Interest on Term Loan	29,842	21,842	11,649	1,690
Debt to be Served	**77,662**	**1,24,544**	**1,24,544**	**62,272**
Debt Service Coverage Ratio	3	3	4	9
AVERAGE DSCR	**5**			



BREAKEVEN ANALYSIS
Investment Value Including Margin Rs. 360000

Year ended	Year 1 Projected	Year 2 Projected	Year 3 Projected	Year 4 Projected	Year 5 Projected
Cash Flow as per Statement of Income	2,15,500	3,21,800	4,45,255	5,87,941	7,52,132
Less : Interest on Loan	29,842	21,842	11,649	1,690	-
Less : Estimated Drawings/Personal Expenses	1,07,750	1,60,900	2,22,628	2,93,970	3,76,066
Net Cash Flow	**77,908**	**1,39,058**	**2,10,979**	**2,92,281**	**3,76,066**
Cumulative Cash Flow	**77,908**	**2,16,966**	**4,27,945**	**7,20,225**	**10,96,291**
Break Even Investment (in years)	**2 Year and 8.1 Months**				

REPAYMENT

DETAIL REPAYMENT SCHEDULE

Year	Quarter	Loan Installment	Principal Payment	Loan Outstanding	Interest at 9.5%	Cumulative Interest
1	1	7,695	-	3,24,000	7,695	
	2	7,695	-	3,24,000	7,695	
	3	31,136	23,627	3,00,373	7,509	
	4	31,136	24,193	2,76,180	6,943	29,842
2	1	31,136	24,772	2,51,408	6,364	
	2	31,136	25,365	2,26,044	5,771	
	3	31,136	25,972	2,00,072	5,164	
	4	31,136	26,594	1,73,478	4,542	21,842
3	1	31,136	27,230	1,46,247	3,906	
	2	31,136	27,882	1,18,365	3,254	
	3	31,136	28,550	89,816	2,586	
	4	31,136	29,233	60,582	1,903	11,649
4	1	31,136	29,933	30,649	1,203	
	2	31,136	30,649	0	487	1,690
Total		**3,89,022**	**3,24,000**		**65,022**	**65,022**

Designated Contact Details for this project

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