DETAILED TECHNO-ECONOMIC CUM PRE-INVESTMENT PROJECT REPORT

(SHER – E – JAMMU & KASHMIR EMPLOYMENT AND WELFARE PROGRAMME FOR THE YOUTH (SKEWPY)

ON

(WOODEN JOINERY AND FURNITURE)

INTRODUCTION

Wooden Furniture like almirah, Tables, Chairs, Stools, Dining Tables, Setties, Cots, etc. of varying sizes and designs are widely used in Houses offices, Educational Institutions. Wooden furniture finds great demand due to its elegant appearance, attractive designs, durability and low maintainence cost. Apart from utility furniture made out of good quality wood and highly finished adds beauty of the room. Walnut furniture has gained more importance due to its wood carving and finish and is the most expensive furniture among all the woods available in the market.

Joinery is that part of woodworking that involves joining together pieces of wood, to create furniture, structures, toys, and other items. Some wood joints employ fasteners, bindings, or adhesives, while others use only wood elements. The characteristics of wooden joints - strength, flexibility, toughness, etc. - derive from the properties of the joining materials and from how they are used in the joints. Therefore, different joinery techniques are used to meet differing requirements. For example, the joinery used to build a house is different from that used to make puzzle toys, although some concepts overlap.

Many traditional wood joinery techniques use the distinctive material properties of wood, often without resorting to mechanical fasteners or adhesives. While every culture in which pieces of wood are joined together to make furniture or structures has a joinery tradition, wood joinery techniques have been especially well documented and celebrated in the Chinese, European, and Japanese traditions. The Japanese and Chinese traditions in particular include hundreds of types of joints, many of which do not use glue or nails. The Chinese have been using this method for the last seven thousand years.[1]

Different woods

There is a strong relationship between the properties of wood and the properties of the particular tree that yielded it. For every tree species there is a range of density for the wood it yields. There is a rough correlation between density of a wood and its strength (mechanical properties). For example, while mahogany is a medium-dense hardwood which is excellent for fine furniture crafting, balsa is light, making it useful for model building. The densest wood may be black ironwood.

Wood is commonly classified as either softwood or hardwood. The wood from conifers (e.g. pine) is called softwood, and the wood from broad-leaved trees (e.g. oak) is called hardwood. These names are a bit misleading, as hardwoods are not necessarily hard, and softwoods are not necessarily soft. The well-known balsa (a hardwood) is actually softer than any commercial softwood. Conversely, some softwoods (e.g. yew) are harder than most hardwoods.

Wood products such as plywood are typically classified as engineered wood and not considered raw wood.

Structure

Wood is a heterogeneous, hygroscopic, cellular and anisotropic material. It is composed of fibers of cellulose (40% – 50%) and hemicellulose (15% – 25%) impregnated with lignin (15% – 30%).

In coniferous or softwood species the wood cells are mostly of one kind, tracheids, and as a result the material is much more uniform in structure than that of most hardwoods. There are no vessels ("pores") in coniferous wood such as one sees so prominently in oak and ash, for example.

Magnified cross-section of a **diffuse-porous** hardwood (Black Walnut), showing the vessels, rays (white lines) and annual rings

The structure of the hardwoods is more complex. They are more or less filled with vessels: in some cases (oak, chestnut, ash) quite large and distinct, in others (buckeye, poplar, willow) too small to be seen plainly without a small hand lens. In discussing such woods it is customary to divide them into two large classes, *ring-porous* and *diffuse-porous*. In ring-porous species, such as ash, black locust, catalpa, chestnut, elm, hickory, mulberry, and oak, the larger vessels or pores (as cross sections of vessels are called) are localized in the part of the growth ring formed in spring, thus forming a region of more or less open and porous tissue. The rest of the ring, produced in summer, is made up of smaller vessels and a much greater proportion of wood fibres. These fibres are the elements which give strength and toughness to wood, while the vessels are a source of weakness.

In diffuse-porous woods the pores are scattered throughout the growth ring instead of being collected in a band or row. Examples of this kind of wood are basswood, birch, buckeye, maple, poplar, and willow. Some species, such as walnut and cherry, are on the border between the two classes, forming an intermediate group.

If a heavy piece of pine is compared with a light specimen it will be seen at once that the heavier one contains a larger proportion of late wood than the other, and is therefore considerably darker. The late wood of all species is denser than that formed early in the season, hence the greater the proportion of late wood the greater the density and strength. When examined under a microscope the cells of the late wood are seen to be very thick-walled and with very small cavities, while those formed first in the season have thin walls and large cavities. The strength is in the walls, not the cavities. In choosing a piece of pine where strength or stiffness is the important consideration, the principal thing to observe is the comparative amounts of early and late wood. The width of ring is not nearly so important as the proportion of the late wood in the ring.

It is not only the proportion of late wood, but also its quality, that counts. In specimens that show a very large proportion of late wood it may be noticeably more porous and weigh considerably less than the late wood in pieces that contain but little. One can judge comparative density, and therefore to some extent weight and strength, by visual inspection.

No satisfactory explanation can as yet be given for the real causes underlying the formation of early and late wood. Several factors may be involved. In conifers, at least,

rate of growth alone does not determine the proportion of the two portions of the ring, for in some cases the wood of slow growth is very hard and heavy, while in others the opposite is true. The quality of the site where the tree grows undoubtedly affects the character of the wood formed, though it is not possible to formulate a rule governing it. In general, however, it may be said that where strength or ease of working is essential, woods of moderate to slow growth should be chosen. But in choosing a particular specimen it is not the width of ring, but the proportion and character of the late wood which should govern.

In the case of the ring-porous hardwoods there seems to exist a pretty definite relation between the rate of growth of timber and its properties. This may be briefly summed up in the general statement that the more rapid the growth or the wider the rings of growth, the heavier, harder, stronger, and stiffer the wood. This, it must be remembered, applies only to ring-porous woods such as oak, ash, hickory, and others of the same group, and is, of course, subject to some exceptions and limitations.

In ring-porous woods of good growth it is usually the middle portion of the ring in which the thick-walled, strength-giving fibers are most abundant. As the breadth of ring diminishes, this middle portion is reduced so that very slow growth produces comparatively light, porous wood composed of thin-walled vessels and wood parenchyma. In good oak these large vessels of the early wood occupy from 6 to 10 per cent of the volume of the log, while in inferior material they may make up 25 per cent or more. The late wood of good oak, except for radial grayish patches of small pores, is dark colored and firm, and consists of thick-walled fibers which form one-half or more of the wood. In inferior oak, such fiber areas are much reduced both in quantity and quality. Such variation is very largely the result of rate of growth.

Wide-ringed wood is often called "second-growth", because the growth of the young timber in open stands after the old trees have been removed is more rapid than in trees in the forest, and in the manufacture of articles where strength is an important consideration such "second-growth" hardwood material is preferred. This is particularly the case in the choice of hickory for handles and spokes. Here not only strength, but toughness and resilience are important. The results of a series of tests on hickory by the U.S. Forest Service show that:

> "The work or shock-resisting ability is greatest in wide-ringed wood that has from 5 to 14 rings per inch (rings 1.8-5 mm thick), is fairly constant from 14 to 38 rings per inch (rings 0.7-1.8 mm thick), and decreases rapidly from 38 to 47 rings per inch (rings 0.5-0.7 mm thick). The strength at maximum load is not so great with the most rapid-growing wood; it is maximum with from 14 to 20 rings per inch (rings 1.3-1.8 mm thick), and again becomes less as the wood becomes more closely ringed. The natural deduction is that wood of first-class mechanical value shows from 5 to 20 rings per inch (rings 1.3-5 mm thick) and that slower growth yields poorer stock. Thus the inspector or buyer of hickory should discriminate against timber that has more than 20 rings per inch (rings less than 1.3 mm thick). Exceptions exist, however, in the case of normal growth upon dry situations, in which the slow-growing material may be strong and tough."[6]

The effect of rate of growth on the qualities of chestnut wood is summarized by the same authority as follows:

> "When the rings are wide, the transition from spring wood to summer wood is gradual, while in the narrow rings the spring wood passes into summer wood abruptly. The width of the spring wood changes but little with the width of the annual ring, so that the narrowing or broadening of the annual ring is always at the expense of the summer wood. The narrow vessels of the summer wood make it richer in wood substance than the spring wood composed of wide vessels. Therefore, rapid-growing specimens with wide rings have more wood substance than slow-growing trees with narrow rings. Since the more the wood substance the greater the weight, and the greater the weight the stronger the wood, chestnuts with wide rings must have stronger wood than chestnuts with narrow rings. This agrees with the accepted view that sprouts (which always have wide rings) yield better and stronger wood than seedling chestnuts, which grow more slowly in diameter."[6]

In diffuse-porous woods, as has been stated, the vessels or pores are scattered throughout the ring instead of collected in the early wood. The effect of rate of growth is, therefore, not the same as in the ring-porous woods, approaching more nearly the conditions in the conifers. In general it may be stated that such woods of medium growth afford stronger material than when very rapidly or very slowly grown. In many uses of wood, strength is not the main consideration. If ease of working is prized, wood should be chosen with regard to its uniformity of texture and straightness of grain, which will in most cases occur when there is little contrast between the late wood of one season's growth and the early wood of the next.

Monocot wood

Structural tissue resembling ordinary 'dicot' wood is produced by a number of monocot plants, and these are also usually called wood. Of these, the wood of the grass bamboo has considerable economic importance, larger culms being used in the manufacture of engineered flooring, panels and veneer. Other plant groups that produce woody tissue are palms, and members of the Liliales, such as Dracaena and Cordyline. With all these woods, the structure and composition of the structural tissue is quite different from ordinary wood.

MARKET AND DEMAND

Construction

Wood has been an important construction material since humans began building shelters, houses and boats. Nearly all boats were made out of wood till the late 19th century, and wood remains in common use today in boat construction. New domestic housing in many parts of the world today is commonly made from timber-framed construction. In buildings made of other materials, wood will still be found as a supporting material, especially in roof construction, in interior doors and their frames, and as exterior cladding. Wood to be used for construction work is commonly known as *lumber* in North America. Elsewhere, *lumber* usually refers to felled trees, and the word for sawn planks ready for use is *timber*. Wood is also commonly used as shuttering material to form the mould into which concrete is poured during reinforced concrete construction.

Wood unsuitable for construction in its native form may be broken down mechanically (into fibres or chips) or chemically (into cellulose) and used as a raw material for other building materials such as chipboard, engineered wood, hardboard, medium-density fiberboard (MDF), oriented strand board (OSB). Such wood derivatives are widely used: wood fibers are an important component of most paper, and cellulose is used as a component of some synthetic materials. Wood derivatives can also be used for kinds of flooring, for example laminate flooring.

Wood is also used for cutlery, such as chopsticks, toothpicks, and other utensils, like the wooden spoon.

In the arts

Wood has long been used as an artistic medium. It has been used to make sculptures and carvings for centuries. Examples include the totem poles carved by North American indigenous people from conifer trunks, often Western Red Cedar (*Thuja plicata*), and the Millenium clock tower, now housed in the National Museum of Scotland in Edinburgh.

It is also used in woodcut printmaking, and for engraving.

Certain types of musical instruments, such as those of the violin family, the guitar, the clarinet and recorder, the xylophone, and the marimba, are made mostly or entirely of wood. The choice of wood may make a significant difference to the tone and resonant qualities of the instrument, and tonewoods have widely differing properties, ranging from the hard and dense (african blackwood used for the bodies of clarinets to the light but resonant european spruce (*Picea abies*)) traditionally used for the soundboards of violins. The most valuable tonewoods, such as the ripple sycamore (*Acer pseudoplatanus*), used for the backs of violins, combine acoustic properties with decorative colour and grain which enhance the appearance of the finished instrument.

Though there is competition from steel furniture, wooden furniture share a significant market due to its specialties and advantages. These items cater to the requirements of domestic as well as bulk institutional consumers like schools hotels etc. and the demand is on increase. Hence there is a good scope for quality wooden furniture.

PROJECT COST SUMMARY			
S.NO	**PARTICULARS**		**AMOUNT(LACS)**
1	Land TEN MARALS		-----
2	Civil Works		NIL
3	Plant & Machinery		1.90
4	Miscellaneous Fixed Assets		0.50
5	Preliminary & Preoperative expenses		0.30
6	Working Capital Requirement		5.87
			8.57
MEANS OF FINANCE			
1	Seed Capital (Maximum for this Category)		3.00
2	Promoters Contribution		0.00
2	Loan from Bank (65 %)		5.57
DETAILS OF LOANS			
A	**Long Term Investment**		**2.70**
1	Promoters Contribution/Seed Money		0.95
2	Term Loan From Bank		1.75
B	**Working Capital Requirement**		**5.87**
1	Promoters Contribution/Seed Money		2.05
2	Working Capital Finance From Bank		3.82

POLLUTION NORMS

The technology involved for the manufacture of WOODEN JOINERY AND FURNITURE is simple and is available indigenously. In the proposed unit WOODEN JOINERY AND FURNITURE shall be manufactured out of TIMBER. During CUTTING certain amount of noise will be produced which is well within the limits. Since the unit shall maintain the production section in enclosed walls, therefore it will not have any adverse effect on the local inhabitants.

1: Apart from the other recommendations, the promoter has agreed in principle that he will strictly adhere pollution norms as and when shall be implemented and shall use all possible devices to prevent pollution measures.

2: The machines provided in the project report shall be housed in acoustic proof room and shall be provided with anti –vibration mounting/pads in order to reduce the pitch of the noise within the prescribed norms, therefore, the promoter is advised to purchase machinery from the approved manufacture having BIS certifications both for quality as well as safety measures, while as the captive power i.e. D'G set as and when installed shall be provided with canopies and other certified equipment's, which would reduce the emission level within the prescribed norms, therefore, the cost to be incurred for such equipment's has been worked out and is provided under Misc. fixed head of the project report.

3: Adequate provisions of toilets, septic and soakage pit has been made to take care of human wastage and the waste water before discharging in the main drainage system, hence, there is no effluents discharged in the form of solid, liquid and gaseous and the plant, thus is considered free from the pollution aspects.

SEED CAPITAL ASSISTANCE

The Promoter is setting up the unit under Sher-E-Kashmir Employment & Welfare Programme for the Youth (SKEWPY), an initiative of Government of Jammu and Kashmir for unemployed youth of J&K State. Under the Scheme, the Promoter, being a 10+2, will be eligible for Seed Capital equivalent to 35% of the Project Cost of Rs.8.57 lakhs upto a maximum of Rs.3.00. The Seed Captal Scheme is implemented through J&K Entrepreneurship Development Institute (JKEDI). Loan assistance of Rs.5.57 lakhs at 65% of the Project Cost is proposed to be sanctioned by J&K Bank Ltd. at 9.00% rate of Interest.

CONCLUSION

On critical examination and analysis of various indicators, it may be stated that the proposed unit is a bankable proposition, deserving the support and favourable consideration of Institution/Bank(s)

Manpower

The category wise break-up manpower including salary as shown at Annexure. A Manager who would be assisted by his selected staff member to look after accounts as well as procurement of raw material and sale of the product would look after the operations of the factory. Regarding technical staff, the production function would be looked after by a production foreman/supervisor who would be assisted by machine and other skilled operators to look after various jobs. The unit would provide employment opportunities to 5 numbers of persons including those required under administrative categories. The break up of requirement, monthly salary, annual salary as well as total cost on manpower. Necessary provision of perks and annual increase in salaries made in the estimates. It may be mentioned that except for the technical staff all the manpower will be recruited from local sources, if need arises, the same could be recruited form the neighboring states.

DETAILS OF PRELIMMINARY & PRE-OPERATIVE EXPENSES			
S.NO	**PARTICULARS**		**AMOUNT(LACS)**
1	Traveling & Conveyance		0.04
2	Printing & Stationary		0.02
3	Professional Charges		0.02
4	Misc. Expenses		0.05
5	Interest during Moratorium Period		0.16
			0.30

DETAILS OF MISC. FIXED ASSETS			
S.No.	**Particulars**		**Amount(Lacs)**
1	Furniture/Fixture		0.10
2	Working Tables, and Electric fittings		0.20
3	Fire Fighting Equipments	2 No. @ Rs. 5000	0.20
	Total		**0.50**

DETAILS AND ESTIMATED COST ON PLANT AND MACHINERY

While arriving at the requirement of various types of equipment and machinery required for the plant, due consideration has been given to the following points.

- Minimum wastage.
- High productivity.
- Maximum flexibility in operation.
- Adequate stand by provision where ever necessary.

The production plant and equipment proposed have been selected for the envisaged production capacity and incorporates features that permit smooth operation of the plant. After making a preliminary study of the source of supply of such equipment it has been identified that all the equipments will be available indigenously and no imports will be necessary.

The concern is expected to purchase the requisite machinery from reputed authorized dealer, who would also assist in the installation of plant and machinery. For estimating the cost on plant and machinery the quotations provided to us by the promoter has been taken into account.

The details of plant & machinery is as follows: –

DETAILS OF PLANT & MACHINARY				
Qty	**Particulars**	**Qty**	**Rate**	**Amount(Rs)**
1	Small Surface Planner	2 Nos	40000	80000.00
2	Electric Motors	2 Nos	10000	20000.00
3	Electric Installation & Equipments			25000.00

(4)	Description	UOM	Qty
1	Carving Knife	Set	5
2	Gouge	Set	5
3	Chisel	Set	5
4	V-tool	Set	5
5	Work bench with Special screw	Set	5
6	Veiner	Pcs	5
7	Wooden mallet	Pcs	5
8	Router	Pcs	5
9	Electrical Hand drilling machine	Pcs	5
Cost of above items	Rs. 65000.00		

TOTAL COST OF PLANT AND MACHINERY : RS. 1.90 LACS

INSTALLED CAPACITY AND PRODUCTION PROGRAMME

Keeping in view the climatic conditions and other factors prevailing in the valley into consideration, the operational hours shall be assumed as:-

RAW MATERIAL REQUIREMENT AT INSTALLED CAPACITY

Total Production Capacity of the unit based on 300 Working Days & on Single Shift basis

It has been estimated on an average that there will be 15% wastage in Processing & finishing

	Therefore total Raw material Requirement Per annum will be 2400 CFT OF TIMBER					
	S.No	**Particulars**		**Total CFTS**	**Purchase p Per CFT(Rs)**	**Total Value(Rs IN LACS)**
	1	TIMBER		2400	2100	50.40
	2	WOOD GLUE				1.60
	3	SAND PAPERS				0.20
	4	NAILS FIXING				0.10
	5	NAILS DECORATIVE				0.10
	6	VARNISH/LAQUER				1.00
	7	PAINTS				1.00
		TOTAL PURCHASES				54.40

SALES REALIZATION AND PURCHASES IN PHASED MANNER

YEAR		CAPACITY UTILISATION	SAL/WAG	PURCHASE (Lacs)	UTILITIES	SALES (lacs)
1ST		**50.00**	**1.32**	**27.20**	**0.48**	**33.50**
2ND		**55.00**	**1.45**	**29.92**	**0.53**	**36.85**
3RD		**60.00**	**1.58**	**32.64**	**0.58**	**40.20**
4TH		**65.00**	**1.72**	**35.36**	**0.62**	**43.55**
5TH		**70.00**	**1.85**	**38.08**	**0.67**	**46.90**
6TH		**75.00**	**1.98**	**40.80**	**0.72**	**50.25**
7TH		**80.00**	**2.11**	**43.52**	**0.77**	**53.60**
8TH		**80.00**	**2.11**	**43.52**	**0.77**	**53.60**

STATEMENT OF CALCULATION OF MANPOWER REQUIREMENT & THEIR				
	REMUNERATION			
S.NO	**PARTICULARS**	**Nos**	**Salary Per Month**	**Total Per Annum**
1	Supervisor	1	6000	72000.00
2	Skilled Workers	4	4000	192000.00
	Total	5		**264000.00**
			Say	**2.64 Lacs**

ESTIMATED COST OF UTILITIES PER ANNUM

The main utilities for running the unit successfully are water and electricity.

- **Power**
- **Water**

1	Total connected load	= 10 hp or 7.5 KW
2.	Total power load after taking load factor (0.89)	= 6.675 KW
3.	Power consumption per annum	= 16020 Kwhr
4.	From PDD (80%) @ 2.50 Kwhr	= Rs 32040 /
5.	From own generator	= Rs 62960 /
	Total	**= Rs 95000/**

B) Water

The PHE departmental supply shall mostly be utilized for drinking and sanitation purposes, which is available at cheaper rates from P.H.E Department. However under certain unfavorable conditions Rs 1,000 / annum has been kept on account of water

Total cost on Utilities (A + B + C) Rs 96000/ Say Rs 0.96 Lacs

REPAIRS AND MAINTENANCE PER ANNUM.

On the basis of norms available from similar plants in actual operation provision has been made for annual cost of maintenance and repairs for the proposed items of fixed out lay. It has been taken as 2%, 3%, 4%, 5%, 5%, 6%, 6% and 6% on sales for 1st, 2nd, 3rd, 4th, 5th, 6th, 7thand 8th year to keep the fixed assets in working conditions.

REPAIRS AND MAINTENANCE PER ANNUM.

Year	Percentage	Building	P&M	MFA	Total	R & M
1st	2%	0.00	1.90	0.50	2.40	0.05
2nd	3%	0.00	1.90	0.50	2.40	0.07
3rd	4%	0.00	1.90	0.50	2.40	0.10
4th	5%	0.00	1.90	0.50	2.40	0.12
5th	5%	0.00	1.90	0.50	2.40	0.12
6th	6%	0.00	1.90	0.50	2.40	0.14
7th	6%	0.00	1.90	0.50	2.40	0.14
8th	6%	0.00	1.90	0.50	2.40	0.14

DETAILS OF ADMINISTRATIVE EXPENSES PER ANNUM

It is taken as 1% of net sales in every year which includes printing, traveling, telegraph, petty expenses, audit fee, telephone bills, legal fee, bank charges and other sundry expenses both for the basic program shall be worked out as:

Year	Capacity Utilization	Sales	%	
1st	**50.00**	33.50	1	**0.34**
2nd	**55.00**	36.85	1	**0.37**
3rd	**60.00**	40.20	1	**0.40**
4th	**65.00**	43.55	1	**0.44**
5th	**70.00**	46.90	1	**0.47**
6th	**75.00**	50.25	1	**0.50**
7th	**80.00**	53.60	1	**0.54**
8th	**80.00**	53.60	1	**0.54**

DETAILS OF SELLING EXPENSES PER ANNUM

It is taken as 3 % of net sales in every year, which includes sales promotion expenses, advertising expenses, Commission to intermediaries, carriage outwards, discount, brokerage, Annual Rent of Rs. 12000 etc.

Year	Cap. Utiliz	Sales	%	Selling expenses/annum	
1st	50.00	33.50	3	**1.01**	
2nd	55.00	36.85	3	**1.11**	
3rd	60.00	40.20	3	**1.21**	
4th	65.00	43.55	3	**1.31**	
5th	70.00	46.90	3	**1.41**	
6th	75.00	50.25	3	**1.51**	
7th	80.00	53.60	3	**1.61**	
8th	80.00	53.60	3	**1.61**	

DETAILS OF WORKING CAPITAL REQUIREMENT AT DIFFERENT LEVELS.

YEAR	CAPACITY UTILISATION	SAL/WAG	PURCHASE (Lacs)	UTILITIES	SALES (lacs)	Repair Maint.	Admn. Expen.	Selling Expen.	WIP	F.Goods
1ST	50.00	1.32	27.20	0.48	33.50	0.05	0.34	1.01	29.00	30.34
2ND	55.00	1.45	29.92	0.53	36.85	0.07	0.37	1.11	31.90	33.37
3RD	60.00	1.58	32.64	0.58	40.20	0.10	0.40	1.21	34.80	36.41

S.no	Particulars		Ist Year		2nd year		3rd year	
			50.00		55.00		60.00	
			Amount	Margin	Amount	Margin	Amount	Margin
1	Stock of Raw Material	30	2.72	0.00	2.99	0.00	3.26	0.00
2	Stock of work in progress	2	0.19	0.00	0.21	0.00	0.23	0.00
3	Stock of finished goods	15	1.52	0.00	1.67	0.00	1.82	0.00
4	Sundry debtors	20	2.23	0.00	2.46	0.00	2.68	0.00
5	Working expenses	30	0.02	0.02	0.02	0.02	0.02	0.02
6	Sundry Creditors	9	**0.82**		**0.90**		**0.98**	
7	Working capital requirement		**5.87**		**6.45**		**7.04**	
8	Margin money			**2.05**		**2.05**		**2.05**
9	Working capital limit		**3.82**		**4.40**		**4.99**	

ANTICIPATED SALES REALIZATION PER ANNUM

The anticipated sales on the products envisaged in the report, while calculating total quantity of materials required for manufacture of WOODEN JOINERY AND FURNITURE have been analyzed on the basis of conservative rules. The specific detail in view of installed capacity of plant follows as: -

INSTALLED CAPACITY & SALES REALISATION AT 100% OF THE INSTALLED CAPACITY

The Installed capacity of the unit has been calculated after taking into consideration Producing Capacity of the unit, availability of Manpower, capacity of installed machinery

Total Production Capacity of the unit based on 300 Working Days & on Single Shift basis is 2400 CFTs Per annum

CALCULATION OF GROSS REVENUE FROM SALE AT INSTALLED CAPACITY

The product mix has been designed keeping in view the demand for the product

Total Production Capacity of the Unit 2400 CFTs Per annum

S.No	Particulars	QUANTITY	Selling Price RS.	Total RS. IN LACS
1	BEDS	100	10000	10.00
2	DINING TABLES	100	10000	10.00
3	CHAIRS	500	2000	10.00
4	DRESSING TABLES	300	8000	24.00
5	OFFICE TABLES	200	6500	13.00
	TOTAL SALES			**67.00 LACS**

SALES REALIZATION AND PURCHASES IN PHASED MANNER

YEAR	CAPACITY UTILISATION	SAL/WAG	PURCHASE (Lacs)	UTILITIES	SALES (lacs)
1ST	**50.00**	**1.32**	**27.20**	**0.48**	**33.50**
2ND	**55.00**	**1.45**	**29.92**	**0.53**	**36.85**
3RD	**60.00**	**1.58**	**32.64**	**0.58**	**40.20**
4TH	**65.00**	**1.72**	**35.36**	**0.62**	**43.55**
5TH	**70.00**	**1.85**	**38.08**	**0.67**	**46.90**
6TH	**75.00**	**1.98**	**40.80**	**0.72**	**50.25**
7TH	**80.00**	**2.11**	**43.52**	**0.77**	**53.60**
8TH	**80.00**	**2.11**	**43.52**	**0.77**	**53.60**

FUNDING OF CAPITAL EXPENDITURE

The total capital investment cost of the project is estimated at Rs.8.57 Lakhs, which shall be financed for term loan as per the projections made in the report subject to furnishing of latest cost comparative quotations from the authorized dealers besides contribution from the promoters during the implementation of the project, the specific details interalia as:

S.no	Particulars	Amt.(Lacs)
1	SEED MONEY	3.00
2	Long term borrowings	1.75

A: Equity

The share capital of the unit has been fixed at Rs.3.00 Lakhs comprising Rs. 3.00 Lacs of the total project cost which will be provided as Seed Capital by the Govt. The unit has to raise share capital within this limit. The promoter shall arrange equity from the ancestral resources and from the established business of the family for the purpose of availing long term borrowings.

B: Term loan

Term loan requirement to the extent of Rs. 1.75 Lakhs for the purpose of purchases of plant & machinery and misc. fixed assets shall be made available from the financial institutions or commercial banks well operating in the valley on the basis that the unit being proven technically feasible and financially viable. As the policies are liberal for such type of ventures to avail packages/incentives to encourage the entrepreneurs to promote industrial culture in the backward area of the country. The state Govt. is equally eager to give all possible support to the development of industry in the area, where the unit is being established.

INTEREST CALCULATION

It is proposed to raise the sum of Rs 1.75 Lacs as long term loans from financial institutions to meet the capital cost of the project. For the purpose of calculating the interest on long-term loans an interest rate of 9.00% per annum is taken into consideration in the project report.

A: Interest on long term loan

S.no	Particulars	Amt.(Lacs)
		1.75
01.	Long term borrowings	
02.	Rate of interest	**9.00%**
03.	Installment	Rs. 0.35 Lacs/Annum
04	Moratorium Period	12 Months
04.	Repayment schedule	5 years

YEAR	INT T/Loan	T.Loan Payment	Decrease Term Loan	Yr.Term Loan Paym.	Rem. Term Loan
1	0.16	0.00	0.00	0.00	1.75
2	0.16	0.35	0.35	0.35	1.40
3	0.13	0.35	0.70	0.35	1.05
4	0.09	0.35	1.05	0.35	0.70
5	0.06	0.35	1.40	0.35	0.35
6	0.03	0.35	1.75	0.35	0.00

B: INTEREST ON WORKING CAPITAL LIMIT

To meet the working capital requirements of the project, the promoters will have to make arrangements for cash credit facilities with the nationalized bank.

RATE OF INTEREST	9.00%

YEAR	INT W/C	Increase w/ Cap	Increase Curr. Asse	Current Assets	Working Capital
1	0.34	3.82	5.87	5.87	3.82
2	0.40	0.58	0.58	6.45	4.40
3	0.45	0.58	0.58	7.04	4.99
4	0.45	0.00	0.00	7.04	4.99
5	0.45	0.00	0.00	7.04	4.99
6	0.45	0.00	0.00	7.04	4.99
7	0.45	0.00	0.00	7.04	4.99
8	0.45	0.00	0.00	7.04	4.99

COMPUTATION OF DEPRECIATION CALCULATION

For the purpose of claiming extra depreciation and amortization, the preoperative expenses and contingencies will be capitalized with the cost of fixed assets. The distribution of pre-operative expenses and contingencies has been done approximately in proportion to the cost of all the fixed assets (except land and site development). In the estimation of cost of sales and in books of accounts of the firm the normally adopted practice is to depreciate the various assets by straight-line method.

For income tax purposes, the depreciation of depreciable assets (all fixed assets except land and site development) is carried out by written down value method.

COMPUTATION OF DEPRICIATION

S.no	Particulars	Building	P&M	MFA	Total
1	Cost Price	0.00	1.90	0.50	2.40
2	Preliminary & Preoperative exp.	0.00	0.24	0.06	0.30
	Total	0.00	2.14	0.56	2.70

Depreciation under WDV method

BUILDING

Rate of depreciation **6.25%**

		Cost	Dep	WDV
1st	Year	0.00	0.00	0.00
2nd	Year	0.00	0.00	0.00
3rd	Year	0.00	0.00	0.00
4th	Year	0.00	0.00	0.00
5th	Year	0.00	0.00	0.00
6th	Year	0.00	0.00	0.00
7th	Year	0.00	0.00	0.00
8th	Year	0.00	0.00	0.00

Depreciation under WDV method

Plant & Machinery

Rate of depreciation **10%**

		Cost	Dep	WDV
1st	Year	2.14	0.21	1.92
2nd	Year	1.92	0.19	1.73
3rd	Year	1.73	0.17	1.56
4th	Year	1.56	0.16	1.40
5th	Year	1.40	0.14	1.26
6th	Year	1.26	0.13	1.14
7th	Year	1.14	0.11	1.02

8th	Year	1.02	0.10	0.92

Depreciation under WDV method

Misc. Fixed Assets

Rate of depreciation		**15%**	
	Cost	**Dep**	**WDV**
1st Year	0.56	0.08	0.48
2nd Year	0.48	0.07	0.41
3rd Year	0.41	0.06	0.35
4th Year	0.35	0.05	0.29
5th Year	0.29	0.04	0.25
6th Year	0.25	0.04	0.21
7th Year	0.21	0.03	0.18
8th Year	0.18	0.03	0.15

Depreciation under WDV method

	Building	**P&M**	**M F A**	**Total**
Rate of depreciation	**6.25%**	**10%**	**15%**	
1st Year	0.00	0.21	0.08	0.30
2nd Year	0.00	0.19	0.07	0.26
3rd Year	0.00	0.17	0.06	0.23
4th Year	0.00	0.16	0.05	0.21
5th Year	0.00	0.14	0.04	0.18
6th Year	0.00	0.13	0.04	0.16
7th Year	0.00	0.11	0.03	0.15
8th Year	0.00	0.10	0.03	0.13

Depreciation under SL Method

Rate of depreciation	5.00%	15%	10%	Total
Amount of depreciation	0.00	0.32	0.06	0.38

Projected Profitability Statement

The annual cost of sales and profitability during the first eight years of operation of the plant is estimated in the following table.

S.no	Particulars	Operating Years							
1	Year of operation	1st	2nd	3rd	4th	5th	6th	7th	8th
2	Capacity Utilization (%)	50.00	55.00	60.00	65.00	70.00	75.00	80.00	80.00
3	Sales realization	33.50	36.85	40.20	43.55	46.90	50.25	53.60	53.60
A:	**Cost of production**								
1	Raw Material	27.20	29.92	32.64	35.36	38.08	40.80	43.52	43.52
2	Salary & wages	1.32	1.45	1.58	1.72	1.85	1.98	2.11	2.11
3	Utilities	0.48	0.53	0.58	0.62	0.67	0.72	0.77	0.77
4	Repairs & Maintenance	0.05	0.07	0.10	0.12	0.12	0.14	0.14	0.14
5	Administrative expenses	0.34	0.37	0.40	0.44	0.47	0.50	0.54	0.54
6	Selling expenses	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.61
7	Total	30.39	33.45	36.50	39.56	42.60	45.65	48.69	48.69
8	Gross profit	3.11	3.40	3.70	3.99	4.30	4.60	4.91	4.91
B:	**Financial expenses**								
1	Interest on term loan	0.16	0.16	0.13	0.09	0.06	0.03	0.00	0.00
2	Interest on WCL	0.34	0.40	0.45	0.45	0.45	0.45	0.45	0.45
3	Depreciation (SLM)	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
4	Total	0.88	0.93	0.95	0.92	0.89	0.86	0.83	0.83
5	Profit before tax	2.23	2.47	2.74	3.07	3.42	3.74	4.09	4.09
6	Taxation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Profit after tax	2.23	2.47	2.74	3.07	3.42	3.74	4.09	4.09
8	Withdrawals	**0.00**	0.00	1.00	1.00	**2.00**	2.00	3.00	3.00
9	Profit carried to B/S	2.23	2.47	1.74	2.07	1.42	1.74	1.09	1.09
10	Cumulative profit	2.23	4.71	6.45	8.52	9.93	11.67	12.76	13.85
11	Add back depreciation	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
12	**Total cash surplus**	2.61	5.08	6.83	8.90	10.31	12.05	13.14	14.22
C:	**Less payment**								
1	Term Loan	0.00	0.35	0.35	0.35	0.35	0.35	0.00	0.00
2	Withdrawals	0.00	0.00	1.00	1.00	2.00	2.00	3.00	3.00
3	Total payments	0.00	0.35	1.35	1.35	2.35	2.35	3.00	3.00
4	Net Cash accruals	2.61	4.73	5.48	7.55	7.96	9.70	10.14	11.22

PAY BACK PERIOD

Pay back period is the length of time in which, the unit recovers its initial investment. It may also be defined as the number of months or years required for the unit to generate commutative gross operating surplus equal to the fixed capital investment in the project. The payback period of the unit is estimated in the following table.

Year	**CFAT**	**Cumulative Cash inflow**	
1st	2.61		2.61
2nd	2.85		5.46
3rd	3.12		8.58
4th	3.44		12.03
5th	3.79		15.82
6th	4.12		19.93
7th	4.46		24.40
8th	4.46		28.86
3 year	**+**	**0**	**Months**

DETAILED DEBT SERVICE COVERAGE:

The debt service coverage ratio shows the ability of the unit to repay interest and principal amount of Term loans.

S.no	**Particulars**		1st	2nd	3rd	4th	5th	6th
A	**Source of funds**							
1	Profit after tax		2.23	2.47	2.74	3.07	3.42	3.74
2	Depreciation		0.38	0.38	0.38	0.38	0.38	0.38
3	Interest on term loan		0.16	0.16	0.13	0.09	0.06	0.03
	Total A		**2.77**	**3.01**	**3.25**	**3.54**	**3.86**	**4.15**
B	**Disposition of funds**							
4	Repayment of term loan		0.00	0.35	0.35	0.35	0.35	0.35
	Total B (3+4)		0.16	0.51	0.48	0.44	0.41	0.38
C	Debt service coverage ratio		17.58	5.93	6.82	7.96	9.33	10.87
D	**Average DSCR**		**9.75**					

BREAK EVEN ANALYSIS AT 60% UTILIZATION

The break even point analysis of the plant is developed from the assumed plant efficiency, fixed cost of sales, variable cost of sales and sales revenue.

BREAK EVEN ANALYSIS 60.00 PERCENT

S.no	Particulars	Amount.(Lacs)
A	Sales realization	40.20
B	**Variable cost**	
1	Raw material	32.64
2	Utilities	0.58
3	Selling expenses	1.21
4	Interest on WCL	0.45
	Total	34.87
C	Contribution (A-B)	5.33
D	**Semi-variable/ fixed costs**	
1	Salary & wages	1.58
2	Repairs & maintenance	0.10
3	Administrative expenses	0.40
4	Interest on term loan	0.13
5	Depreciation	0.38
	Total	2.58
	B. E. P. **%**	**48.50**

PROJECTED CASH FLOW STATEMENT

The following table gives the cash flow analysis of 8 years of operation of the plant. A cash flow statement is basically an analysis of sources of availability of funds, extent of the utilization and availability of surplus funds or their deficit at the end of each year of operation.

S.no	Particulars	Const period	1st	2nd	3rd	4th	5th	6th	7th	8th
	Capacity utilization (%)		50.00	55.00	60.00	65.00	70.00	75.00	80.00	80.00
A	Source of funds									
1	Profit before interest, tax but after depn.		2.74	3.03	3.32	3.61	3.93	4.22	4.54	4.54
2	Depreciation		0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
3	Increase in Share Capital	3								
4	Increase in Term loan	1.75								
5	Increase in WCL		3.82	0.58	0.58	0.00	0.00	0.00	0.00	0.00
	Total (A)	4.75	6.93	3.99	4.28	3.99	4.30	4.60	4.91	4.91
B	Application of funds									
1	Capital expenditure	2.70								
2	Prelim / Pre-operative expenses									
3	Increase in current assets		5.87	0.58	0.58	0.00	0.00	0.00	0.00	0.00
4	Decrease in term loan		0.00	0.35	0.35	0.35	0.35	0.35	0.00	0.00
5	Interest on term loan		0.16	0.16	0.13	0.09	0.06	0.03	0.00	0.00
5a	Interest on WCL		0.34	0.40	0.45	0.45	0.45	0.45	0.45	0.45
6	Taxation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Withdrawal		0.00	0.00	1.00	1.00	2.00	2.00	3.00	3.00
	Total (B)	2.70	6.37	1.49	2.51	1.89	2.86	2.83	3.45	3.45
C	Opening Balance		2.05	2.61	5.11	6.88	8.98	10.42	12.18	13.65
D	Net Surplus	2.05	0.56	2.50	1.77	2.09	1.44	1.77	1.46	1.46
E	Closing Balance	2.05	2.61	5.11	6.88	8.98	10.42	12.18	13.65	15.11

PROJECTED BALANCE SHEET

The balance sheet of a unit is a very important feature of the working of the unit. In a healthy unit, there is always a growth in total assets and liabilities every year. In a projected balance sheet on the liabilities side the reserves and surplus and on the assets side the cash and bank balances should show healthy growth.

S.no	Particulars	Year	1st	2nd	3rd	4th	5th	6th	7th	8th
A:	**Liabilities**									
1	Seed Capital		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	Reserves & Surplus		2.23	4.71	6.45	8.52	9.93	11.67	12.76	13.85
3	Term Loan		1.75	1.40	1.05	0.70	0.35	0.00	0.00	0.00
4	WCL		3.82	4.40	4.99	4.99	4.99	4.99	4.99	4.99
	Total		**10.80**	**13.51**	**15.49**	**17.21**	**18.27**	**19.66**	**20.75**	**21.83**
B:	**Assets**									
1	Gross Block		2.7	2.32	1.95	1.57	1.19	0.82	0.44	0.06
2	Depreciation		0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
3	Net Block		2.32	1.95	1.57	1.19	0.82	0.44	0.06	-0.32
4	Current Assets		5.87	6.45	7.04	7.04	7.04	7.04	7.04	7.04
5	Cash and bank Balance		2.61	5.11	6.88	8.98	10.42	12.18	13.65	15.11
	Total		**10.80**	**13.51**	**15.49**	**17.21**	**18.27**	**19.66**	**20.75**	**21.83**