Fig. CASH-FLOW FROM PURCHASES OF CONSTRUCTION INPUTS. (In %)
Spatially & by Income Groups.

No.	DISTRIBUTION						
	External District		Within District				Govt.
			Urban	Rural	Income Group		
					Upper	Lower	
INPUTS Into: 4/	f	g	i	j	l	m	o
1.00 MATERIALS PRODUCTION							
Water.	0.00	100.00	0.00	100.00	100.00	0.00	0.00
Clay.	0.00	100.00	0.00	100.00	100.00	0.00	0.00
Wood Fuel.	0.00	100.00	0.00	100.00	100.00	0.00	0.00
Agricultural Waste	0.00	100.00	0.00	100.00	100.00	0.00	0.10
Coal. 3/	~~20.00~~ 1	~~80.00~~ 0.00	~~20.00~~ 0.00	0.00	~~20.00~~ 0.00	~~80.00~~ 0.00	~~0.04~~ 0.0
Furnace Oil. 3/	80.00	20.00	20.00	0.00	~~10.00~~ 10.00	~~10.00~~ 10.00	1.14
Diesel/Electric Motors.	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Rotary Saw.	100.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00 CONSTRUCTION							
Earth, Clay.	0.00	100.00	0.00	100.00	50.00	50.00	0.00
Straw, Dung, Grass.	0.00	100.00	0.00	100.00	50.00	50.00	0.00
Sand. 1/	0.00	100.00	~~23.33~~ 21	~~7.67~~ 24	76.67	23.33	6.67
Aggregate. 1/	80.00	20.00	20.00	0.00	18.00	2.00	1.14
Bricks	10.18	89.82	24.07		43.42	46.2	
Sun-Baked. 2/	0.56	99.40	14.91	84.53	31.88	67.56	1.94
Agri-Waste Fired. 2/	~~29.88~~	~~78.32~~	~~4.57~~	~~65.75~~	~~33.82~~	~~36.45~~	3.96
Coal, Oil, Wood Fired 2/	~~63.66~~	~~46.34~~	10.67	~~15.44~~	~~18.65~~	~~28.33~~	0.92
	~~37.31~~	~~42.69~~	7.02	26.31	14.00	~~23.02~~ 28.07	.80
Reed Mats. 2/	29.94	70.54	46.71	23.83	22.32	48.32	2.68
Timber Beams, Battens. 2/6/	7.32	92.68	9.41	83.04	71.02	21.43	12.64
Steel Girders, T Irons. 1/	96.49	3.51	3.51	0.00	3.32	0.19	0.13
Mild Steel Rods. 1/	91.33	8.67	8.67	0.00	8.37	0.30	0.16
Cement. 1/	93.62	6.38	6.21	0.18	5.78	0.60	0.50
Bitumin. 7/	93.00	7.00	7.00	0.00	4.00	3.00	0.13
Polythene. 7/	93.00	7.00	7.00	0.00	4.00	3.00	0.13
Hand Tools/Equipment							
Formwork							
3.00 TRANSPORT (Trucks)	1.0	6.0	0	0	0	0	.10
4.00 LABOUR						1.00	
Highly Skilled.	0.00	100.00	100.00	0.00	~~100.00~~	~~0.00~~	0.00
Skilled.	0.00	100.00	50.00	50.00	0.00	100.00	0.00
Unskilled.	0.00	100.00	~~0.25~~ 0 0	~~0.75~~ 100.0	0.00	100.00	0.00
5.00 BUILDING CONSTRUCTION				78.6			
Traditional (Indigenous) 2/	3.23	96.82	18.22	~~55.91~~	26.73	70.03	3.13
Intermediate 2/							
Modern (Imported) 2/	51.10	45.37	20.46	~~15.36~~ 2492	13.79	31.8	3.55

1/ Based on summary calculations. (see relevant figure)
2/ Based on detailed calculations. (see relevant figure)
3/ Based on ~~aggregate~~ production & supply figures Jayyanta
4/ Inputs without superscript based on interview estimates

6/ Coefficients averaged from different sawmill performances depending on ratio of battens to beam sales

Only battens sold	3.24	96.74	2.96	93.73	77.84	18.85	16.76
Only beams sold	11.38	88.62	15.79	72.31	44.24	23.92	8.51
	14.64	185.36	18.75	166.04	182.08	42.77	25.27
Average	7.32	92.68	9.38	83.02	71.04	21.39	12.64

7/ Lahore.Rs28/kilo, Gabula Rs30/kilo.Source: Mohd. Ashraf, Gabula merchant
Stocked only in urban shops. Taxed similar to girders. Labour handling included in Rs2/profits

56·23, 41·05, 2·43, 35·88, 12·98, 28·07 0·8

Fig. (klcoim1) IMPORTED PRODUCTION Technology 1: Rotary - Trench Type, Coal - Oil Fired Brick Kiln.
Model of Production Variables & their Effects on BASIC, COST - BENEFIT, & SAVINGS CRITERIA

2A: PRODUCTION ANALYSIS: Summary One.

VARIABLES 1	Unit	Description
1 Capacity:Bricks/load/year	400	400 K bricks/30 days/load.9 loads/year 3600 K bricks
2 Output; Production Cycles	12	12 loads/year. 4800 K bricks
3 Production Period	12	12 months. October to June. 5 year lease
4 Financing	0.372 CRF for	5 year loan at 25% interest

VARIABLES 2.	Qty. (KBrs.) /load			Price (Rs.) /KBrs.	/load	/year	/Kbrs	/Rs100
d	f	g	h	j	l	m	o	p
A RECEIPTS	400			303	121200	1454400	303.00	100.00
B EXPENDITURES					113975	1367702	284.94	94.04
C INCOME					7225	86698	18.06	5.96

B: INPUTS (EXPENDITURES) VARIABLES 3.	QUANTITIES /kiln	/KBrs.	/Rs100	COSTS(Rs) /unit	/load	/year	/KBrs.	/Rs100
1.0.Capital				67460	818	9815	2.04	0.67
1.1.Plant				60000	500	6000	1.25	0.41
1.2.Equipment (#s)				7460	318	3815	0.79	0.26
2.0.Kiln Land (Ac.)	1.5	0.0038	0.0012	3000	375	4500	0.94	0.31
	/load	/Kbrs.	/Rs100	/unit	/load	/year	/KBrs.	/Rs100
3.0 Materials					86332	1035984	215.83	71.23
3.1 Local (Low Import)					14204	170448	35.51	11.72
Clay Land (Acres)	0.28	0.0007	0.0002	3000	840	10080	2.10	0.69
Water (hrs)	12	0.0300	0.0099	20	240	2880	0.60	0.20
Sand (cf)	1200	3.0000	0.9901	0.67	804	9648	2.01	0.66
Wood (mds)	880	2.2000	0.7261	14	12320	147840	30.80	10.17
3.2 Non Local(High Import)					72128	865536	180.32	59.51
Oil (drum=50 galls)	48	0.1200	0.0396	434	20832	249984	52.08	17.19
Coal(Truck=10tons)	8	0.0200	0.0066	2762	22096	265152	55.24	18.23
Transport (coal trucks)	8	0.0200	0.0066	3650	29200	350400	73.00	24.09
	/kiln	Md/KBrs.	/Rs100	/unit	/load	/year	/KBrs.	/Rs100
4 Labour (#s,ManDays,Rs)	59	3.69	1.22		25250	303000	63.13	20.83
4.1 Skilled/Up.Y.(Rs/mth)	2	0.13	0.04	1550	1550	18600	3.88	1.28
4.2 Unskilled/Lo.Y(Rest)	57	3.56	1.18		23700	284400	59.25	19.55
Piece Workers(Rs/Kbrs)	50	3.13	1.03	50	20000	240000	50.00	16.50
Wage Workers(Rs/mth)	7	0.44	0.14	3700	3700	44400	9.25	3.05
				/KBr				
5.0 Miscellaneous				(load)	1200	14403	3.00	0.99
Taxes(Rs/year)				7	233	2800	0.58	0.19
Interest(Rs/year)					967	11603	2.42	0.80

X: TECHNOLOGY CHOICE CRITERIA 1: BASIC CRITERIA

Criteria	Description	/KBrs.	/Rs100
1.0 Cost Minimisation	Production Cost/Unit Output	284.94	94.04
2.0 Profitability	Net Return on Expenditures	18.06	5.96
3.0 Capital Productivity	1) Capital Investment/Unit Output	2.04	0.67
	2) Capital Investment/Unit Employment(Mdays) Total		0.55
	" " / " Unskilled		0.57
4.0 Labour Productivity	Mandays/Unit Output	3.69	1.22

Fig. INDIGENOUS PRODUCTION TECHNOLOGY 1: Wall Type, Agri-Waste Fired, Brick Kiln.
(klagim1) Production Variables & Their Effects on BASIC, COST - BENEFIT, & SAVINGS CRITERIA.

2A: PRODUCTION ANALYSIS; Summary One.

VARIABLES 1.	Unit	Description
1 Capacity:Bricks/load/year	200	200 K Bricks/30days/load. 9 loads/year 1800 K brick
2 Output; Production Cycles	4.5	4.5 loads/year. 900 K Bricks
3 Production Period	6	6 months. December to June
4 Financing	0.372	CRF for 5 year loan at 25% interest

VARIABLES 2.	QTY. (K Bricks) /load			PRICE (Rs) /KBrs	/load	/year	/KBrs	/Rs100
c d	f	g	h	j	l	l	o	p
A: RECEIPTS	200			263	52600	236700	263.00	100.00
B: EXPENDITURES					44324	199457	221.62	84.27
C: INCOME					8276	37243	41.38	15.73

B: INPUTS (EXPENDITURES) VARIABLES 3.	QUANTITIES /kiln	/KBrs.	/Rs100	COSTS(Rs) /unit	/load	/year	/KBrs.	/Rs100
1.0.Capital				2923	403	1813	2.01	0.77
1.1.Plant				2134	294	1324	1.47	0.56
1.2.Equipment (#s)				789	109	489	0.54	0.21
2.0.Kiln Land (Ac.)	0.6	0.003	0.001140	3000	400	1800	2.00	0.76
	/load	/Kbrs.	/Rs100	/unit	/load	/year	/KBrs.	/Rs100
3.0 Materials					32498	146241	162.49	61.78
3.1 Local (Low Import)					16958	76311	84.79	32.24
Clay Land (Acres)	0.14	0.0007	0.0003	3000	420	1890	2.10	0.80
Water (hrs)	6	0.03	0.01	20	120	540	0.60	0.23
Sand (cf)	600	3	1.14	0.67	402	1809	2.01	0.76
Wood (mds)	160	0.8	0.30	14	2240	10080	11.20	4.26
Agri-Waste(Truck=250cf)	42	0.21	0.08	328	13776	61992	68.88	26.19
3.2 Transport (trucks)	42	0.21	0.08	370	15540	69930	77.70	29.54
	/kiln	Md/KBrs.	/Rs100	/unit	/load	/year	/KBrs.	/Rs100
4.0 Labour (#s,ManDays,Rs)	21	3.50	1.33		10600	47700	53.00	20.15
4.1 Skilled/Up.Y.(Rs/mth)	1	0.17	0.06	700	933	4200	4.67	1.77
4.2 Unskilled/Lo.Y(Rest)	20	3.33	1.27		9667	43500	48.33	18.38
Piece Workers(Rs/Kbrs)	18	3.00	1.14	43	8600	38700	43.00	16.35
Wage Workers(Rs/mth)	2	0.33	0.13	800	1067	4800	5.33	2.03
5.0 Miscellaneous				/KBr (load	423	1903	2.11	0.80
Taxes(Rs/year)				7	311	1400	1.56	0.59
Interest(Rs/year)					112	503	0.56	0.21

X: TECHNOLOGY CHOICE CRITERIA 1: BASIC CRITERIA

Criteria	Description	/Kbrs	/Rs100
1 Cost Minimisation:	Production Cost/Unit Output	221.62	84.27
2 Profitability:	Net Return on Expenditures	41.38	15.73
3 Capital Productivity:	1) Capital Investment/Unit Output	2.01	0.77
	2) Capital Investment/Unit Employment(Md)		0.58
	" " / " (Unskilled)		0.60
4 Labour Productivity:	Mandays/Unit Output	3.50	1.33

Fig. CASH-FLOW FROM PUCHASES OF CONSTRUCTION INPUTS. (In COEFFICIENTS)
Spatially & by Income Groups.

No.		DISTRIBUTION							
		External District		Within District				Govt.	Govt. 5/
				Urban	Rural	Income Group			
	4/					Upper	Lower		
	INPUTS Into:								
	v	x	y	aa	ab	ad	ae	ag	ai
	1.0 MATERIALS PRODUCTION								
	Water.	0.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00
	Clay.	0.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00
	Wood Fuel.	0.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00
	Agricultural Waste	0.00	1.00	0.00	1.00	1.00	0.00	0.00	0.01
	Coal. 3/	0.80	0.20	0.20	0.00	0.18	0.02	0.01	1.14
	Furnace Oil. 3/	0.80	0.20	0.20	0.00	0.18	0.02	0.01	1.14
	Diesel/Electric Motors.	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Rotary Saw.	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2.0 CONSTRUCTION								
	Earth, Clay.	0.00	1.00	0.00	1.00	0.50	0.50	0.00	0.00
	Straw, Dung, Grass.	0.00	1.00	0.00	1.00	0.50	0.50	0.00	0.00
	Sand. 1/	0.00	1.00	0.93	0.07	0.77	0.23	0.07	6.67
	Aggregate. 1/	0.80	0.20	0.20	0.00	0.18	0.02	0.01	1.14
	Bricks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Sun-Baked. 2/	0.01	0.99	0.15	0.85	0.32	0.68	0.02	1.94
	Agri-Waste Fired. 2/	0.30	0.70	0.05	0.66	0.34	0.36	0.04	3.96
	Coal, Oil, Wood Fired 2/	0.52	0.46	0.11	0.36	0.19	0.28 -.28	0.02 .01	1.94
	Reed Mats. 2/	0.30	0.71	0.47	0.24	0.22	0.48	0.03	2.68
	Timber Beams, Battens. 2/6/	0.07	0.93	0.09	0.85	0.71	0.21	0.13	12.64
	Steel Girders, T Irons. 1/	0.96	0.04	0.04	0.00	0.03	.00	.00	0.13
	Mild Steel Rods. 1/	0.91	0.09	0.09	0.00	0.09	.00	.00	0.16
	Cement. 1/	0.94	0.06	0.06	.00	0.06	0.01	0.01	0.50
	Bitumin.	0.93	0.07	0.07	0.00	0.04	0.03	.00	0.13
	Polythene.	0.93	0.07	0.07	0.00	0.04	0.03	.00	0.13
	Hand Tools/Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Formwork	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3.0 TRANSPORT (Trucks by Goods)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
	4.0 LABOUR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Highly Skilled.	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
	Skilled.	0.00	1.00	0.50	0.50	0.00	1.00	0.00	0.00
	Unskilled.	0.00	1.00	.00	0.01	0.00	1.00	0.00	0.00
	5.0 BUILDING CONSTRUCTION								
	Traditional (Indigenous) 2/	0.03	0.97	0.18	0.79	0.27	0.70	0.03	3.13
	Intermediate 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Modern (Imported) 2/	0.51	0.45	0.20	0.25	0.14	0.32	0.04	3.55

1/ Based on summary calculations. (see relevant figure)
2/ Based on detailed calculations. (see relevant figure)
3/ Based on aggregate calculations
4/ Inputs without superscript based on interview estimates
5/ Local Government tax earnings too small for coefficient but reflected in X100

(6 Coefficients averaged from different sawmill performances depending on ratio of battens to beam sales