

Fig. SWITCHING CONSTRUCTION TECHNOLOGIES: Sun-Brick Walls, Timber Roof to Fired-Brick Walls, R.C. Roof.
 (cnswhicf) INCOME GAINS & LOSSES: First Round Effects; among Input Suppliers
 (Per Rs100 Construction Expenditures/Investment)

INPUTS	CONSTRUCTION TYPE		IMPORTED	SWITCHING
	INDIGENOUS			
	Sun-Brick	Fired-Brick		Net Income
	Walls, Timber	Walls, R.C.		Gains &
	Roof	Roof		Losses
TOTAL	100	100		0
1.0 MATERIALS	55	76		21
1.1 Local	55	31		-24
Straw, Dung, Grass	0	0		0
Earth, Clay	11	1		-10
Sand	0	10		10
Wood Forms (Rental)	0	3		3
Reed Mats	6	0		-6
Timber Beams, Battens	20	0		-20
Sun-Bricks	19	0		-19
Fired Bricks, Tiles, Ballast	0	17		17
1.2 Non-Local	0	45		45
Bitumin	0	8		8
Polythene	0	1		1
Aggregate	0	8		8
Cement	0	22		22
M.S. Bars 1/2"	0	7		7
2.0 LABOUR (man days)	45	24		-21
Skilled	22	14		-8
Unskilled	23	10		-13

Fig. SWITCHING FROM INDIGENOUS TO IMPORTED CONSTRUCTION TECHNOLOGIES.
 (cnswhcf2) From Sun-Brick Wall, Timber Roof Type to Fired Brick Wall, Reinforced Concrete Roof Type Technology
 NET EFFECTS ON INCOME DISTRIBUTION, EMPLOYMENT, LABOUR PRODUCTIVITY, COSTS, & SAVINGS.
 (Comparing Results of CASH - FLOW Analysis)

A: INCOME DISTRIBUTION									
Through Cash - Flow from Construction Expenditures									
Spatially									
By Income Group									
External District									
Within District									
Urban									
Rural									
Upper Y.									
Lower Y.									
Govt.									
Construction Technology Type									
c	d	f	g	i	j	l	m		o
14	Indigenous (Sun-Brick Walls, Timber Roof)	3.23	96.82	18.22	78.60	26.73	70.03		3.13
15	Imported (Fired Brick Walls, Concrete-Steel Roof)	50.45	49.85	25.29	24.74	18.10	32.15		2.68
16		67	28	26.33	22.69	12.26	10		1.21
17	INCOME DISTRIBUTION	46.92	-46.97	7.07	-53.86	-8.63	-37.88		-0.45
18	NET INCOME EFFECT		-0.05		-46.79		-46.51		-0.45
20									
21									
22									
23									
24									
25									
26	D: SAVINGS THROUGH:								
27	D1: Income Distribution								
28	Spatially								
29	By Income Group								
30	External District								
31	Within District								
32	Urban								
33	Rural								
34	Upper Y.								
35	Lower Y.								
36	Govt.								
32	Net Income Distribution	46.92	-46.97	7.07	-53.86	-8.63	-37.88		-0.45
33	Marginal Propensity to Save	0.10	0.02	0.03	0.02	0.10	0.00		0.20
35	SAVINGS DISTRIBUTION	4.69	-0.85	0.21	-1.08	-0.86	0.00		-0.09
36	NET SAVINGS	3.85	3.85		-0.87		-0.86		-0.09

B1: EMPLOYMENT (Mdays/Rs100)		
	Total	Unskilled
s	u	v
Indigenous	2.07	1.53
Imported	0.72	0.48
NET EMPLOYMENT	-1.35	-1.05

B2: LABOUR PRODUCTIVITY (Mdays/KRs.)	
	y
	0.39
	0.61
	-0.22

C: SAVINGS/LOSSES THRU COST DIFFERENCES (Construction Costs)		
	X	Y
	Rs/sf	sf/Rs100
ac	ae	af
Indigenous	18.85	5.31
Imported	85.47	1.17
NET LOSSES (Rs, #s)	-66.62	-4.14
Value/sf (Rs)		18.85
Total Value of sf Lost (Rs)		-77.95

D2: Net Wages	
Net Employment	-1.35
Wages/Mday	30.00
Net Wages	-40.50
M.P. to Save	0.00
SAVINGS EFFECT	0.00
NET SAVINGS	
(D1+D2):	3.85

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D3: Construction Cost Differences		
	If Consumer is:	
	Govt.	Low Y.
Marg. Prop. to Save	0.20	0.00
SAVINGS Effect		
From: X) Rs/K Brs.	-13.32	0.00
Y) Brs/Rs100	-15.59	0.00
NET SAVINGS EFFECT		
(D1 + D2 + X) Rs/sf:	-9.48	
(D1+D2 + Y) Brs/Rs100		3.85
		-11.74
		3.85

Fig. SWITCHING FROM INDIGENOUS TO IMPORTED CONSTRUCTION TECHNOLOGIES
 (From Sun-Brick Wall, Timber Roof to Fired Brick Wall, Reinforced Concrete Roof Types)
 (cnswhcb1) NET EFFECTS ON INCOME DISTRIBUTION, EMPLOYMENT, LABOUR PRODUCTIVITY, COSTS & SAVINGS
 (Comparing Results of COST-BENEFIT Analysis)

A: INCOME DISTRIBUTION	Groups Affected:			
	Proj.	Bsnss.	Wrkr.	Govt.
Construction Technology Type				
c	e	f	g	h
14 Indigenous(Sun-Brick Walls,Timber Roof)	-4.58	0.00	4.58	0.00
15 Imported(Fired Brick Walls,Steel-Concrete Roof)	-11.77	1.50	1.93	8.34
17 NET INCOME DISTRIBUTION	-7.19	1.50	-2.65	8.34
18				
19				
20				
21				
22				
23				
24				
25				
26 D: SAVINGS THROUGH:	D1: Income Distribution			
27				
28	If Project is: Business. Worker Govt.			
29	Govt. or Low Y.			
30				
31 Net Income Distribution	-7.19	-7.19	1.50	-2.65
32 Marginal Propensity to Save	0.20	0.00	0.10	0.00
33				
34 NET SAVINGS DISTRIBUTION	-1.44	0.00	0.15	1.67
35				
36				
37 NET SAVINGS EFFECT				
38 If Project Funded by:	(a) Government			0.38
39	(b) Low-Income Person			1.82

Fig. SWITCHING PRODUCTION TECHNOLOGIES: Brick Kilns: Wall Type, Agri-Waste Fired to Rotary Type, Coal Fired
 (pdswhicf) INCOME GAINS & LOSSES: First Round Effects; among Input suppliers.
 (Per Rs100 Brick Purchases/Investment in Brick Production)

		INDIGENOUS	IMPORTED	SWITCHING
		Wall Type, Agri-Waste Fired Kiln	Rotary Type Coal Fired Kiln	Net Income GAINS & LOSSES
=====		=====	=====	=====
A:	RECEIPTS	100.00	100.00	0.00
	EXPENDITURES	85.04	97.47	12.43
	INCOME (of Entrepreneur)	14.96	2.53	-12.43
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INPUTS				
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1.0	CAPITAL	0.86	1.35	0.49
	Plant	0.63	0.83	0.20
	Equipment	0.23	0.52	0.29
2.0	LAND	0.86	0.62	-0.24
3.0	MATERIALS (incl. Transport)	61.78	71.23	9.45
3.1	Local (incl. Agri-Waste Transport)	61.78 ¹ 32.24	11.72	-50.06 -20.52
	Clay, Water, Sand	1.79	1.55	-0.24
	Wood Fuel	4.26	10.17	5.91
	Agri-Waste	26.19	0.00	-26.19
3.2	Non-Local (incl. ^{oil & coal} Transport)	29.54 ⁰	59.51 ¹	-29.97 +69.51
	Oil (incl. Transport)	0.00	17.19	17.19
	Coal (excl. Transport)	0.00	18.23	18.23
3.3	Transport (Agri-Waste or Coal)	29.54 ¹	24.09	-5.45
4.0	LABOUR (man days)	20.63	22.28	1.65
	Skilled	2.00	1.71	-0.29
	Unskilled	18.63	20.57	1.94
5.0	MISCELLANEOUS	0.91	1.99	1.08
	Taxes	0.67	0.39	-0.28
	Interest	0.24	1.60	1.36

1. Agri-waste transport is local. Coal transport is non-local.

Fig. SWITCHING FROM INDIGENOUS TO IMPORTED PRODUCTION TECHNOLOGIES.
 (pdswhcf2) Brick Kilns; Wall Type, Agri - Waste Fired versus Trench Type, Coal & Oil Fired.
 NET EFFECTS ON INCOME DISTRIBUTION, EMPLOYMENT, LABOUR PRODUCTIVITY, PURCHASE COSTS, & SAVINGS.
 (Comparing Results of CASH - FLOW Analysis)

A: INCOME DISTRIBUTION		Through Cash - Flow from Materials' Purchase Expenditures						
		Spatially				By Income Group		
		External District		Within District		Local		
Production Technology Type(Kiln)		Urban		Rural		Upper Y.	Lower Y.	Government
c	d	f	g	i	j	l	m	o
14	Indigenous:Wall,Agri-Waste Fired	16.18	27.82	24.82	45.75	33.87	46.2	3.96
15	Imported:Trench,Coal-Oil Fired	53.66	46.34	40.67	36.31	18.65	28.33	0.92
17	INCOME DISTRIBUTION	23.98	-23.98	6.10	-29.44	-15.22	-8.12	-3.04
18	NET INCOME EFFECT	47.13	1.00	-17.05	-23.34	-29.62	-23.34	-3.04
26	D: SAVINGS THROUGH:	D1: Income Distribution						
28		Spatially				By Income Group		
29		External District		Within District		Local		Govt.
30		Urban		Rural		Upper Y.	Lower Y.	
32	Net Income Distribution	23.98	-23.98	6.10	-29.44	-15.22	-8.12	-3.04
33	Marginal Propensity to Save	0.10	0.02	0.03	0.02	0.10	0.00	0.20
35	SAVINGS DISTRIBUTION	2.40	-0.48	0.15	-0.72	-1.52	0.00	-0.61
36	NET SAVINGS	1.92	1.92		-0.57		-1.52	-0.61

B1: EMPLOYMENT (Mdays/Rs100)		
	Total	Unskilled
s	u	v
Indigenous	1.50	0.00
Imported	1.62	0.00
NET EMPLOYMENT	0.12	0.00

B2: LABOUR PRODUCTIVITY (Mdays/KBrs.)	y
	3.21, 4.50
	4.92
	-0.98 -0.42

C: SAVINGS/LOSSES THRU BRICK PURCHASES		
	X	Y
	Rs/KBrs.	Brs/Rs100
ac	ae	af
Indigenous	263.00	380
Imported	303.00	330
NET LOSSES (Rs, #s)	-40.00	-50.20
Value/Brick (Rs)		0.26
TOTAL Value of Bricks (Rs)		-13.20

D2: Net Wages	
Net Employment	0.12
Wages/Mday	30.00
Net Wages	3.60
M.P. to Save	0.00
SAVINGS EFFECT	0.00
NET SAVINGS	
(D1+D2):	1.92

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D3: Savings/Losses Thru Brick Purchases		
	If Consumer is:	
	Govt.	Low Y.
Marg. Prop. to Save	0.20	0.00
SAVINGS Effect		
From: X) Rs/K Brs.	-8.00	0.00
Y) Brs/Rs100	-2.64	0.00
NET SAVINGS EFFECT		
D1 + D2 + X)Rs/sf:	-8.00	1.92
D1+D2 + Y)Brs/Rs100	-2.64	1.92

Fig. SWITCHING FROM INDIGENOUS TO IMPORTED PRODUCTION TECHNOLOGIES:
 (pdswhbsc) Brick Kilns; Wall Type, Agri - Waste Fired versus Trench Type, Coal & Oil Fired.
 NET EFFECTS ON BASIC CRITERIA: PROFITABILITY, CAPITAL & LABOUR PRODUCTIVITY, EMPLOYMENT.

A: At usual capacity utilisations: Wall kiln = 66%, Rotary kiln = 75%.

BASIC CRITERIA		PROFITABILITY(/Rs100 Output)			PRODUCTIVITY				
		Financial	Economic		Capital	Labour (Man Days)			
		At Discount Rates			Employment				
Production Technology	Type(Kiln)	0%	0%	20%	/K Bricks	/Rs 100	/Man Day	/K Bricks	/Rs 100
c	d	f	g	i	k	l	m	o	p
13	Indigenous:Wall,Agri-Waste Fired	14.97	19.86	52.07 11.82	2.27	0.86	0.58	3.94	1.50
14	Imported:Trench,Coal-Oil Fired	2.54	7.38	44.60 4.41	4.09	1.35	0.83	4.92	1.62
15									
16	NET EFFECT	-12.43	-12.48	-7.47	-1.82	-0.49	-0.25	0.98	0.12

COST MINIMISAT.
 Cost/unit output
 /K /Rs100
 223.63 85.03
 295.13 97.46
 B: At 100% Capacity Utilisation 71.67 -12.43

BASIC CRITERIA		PROFITABILITY(/Rs100 Output)			PRODUCTIVITY				
		Financial	Economic		Capital	Labour (Man Days)			
		At Discount Rates			Employment				
Production Technology	Type(Kiln)	0%	0%	20%	/K Bricks	/Rs 100	/Man Day	/K Bricks	/Rs 100
c	d	f	g	i	k	l	m	o	p
33	Indigenous:Wall,Agri-Waste Fired	18.14	22.89	53.88	0.76	0.29	0.29	2.63	1.00
34	Imported:Trench,Coal-Oil Fired	5.96	10.59	46.52	2.04	0.67	0.55	3.69	1.22
35									
36	NET EFFECT	-12.18	-12.30	-7.36	-1.28	-0.38	-0.26	1.06	0.22

Fig. SWITCHING FROM INDIGENOUS TO IMPORTED PRODUCTION TECHNOLOGIES:
 (pdswhbsc) Brick Kilns; Wall Type, Agri - Waste Fired versus Trench Type, Coal & Oil Fired.
 NET EFFECTS ON BASIC CRITERIA: PROFITABILITY, CAPITAL & LABOUR PRODUCTIVITY, EMPLOYMENT.

A: At 75% capacity utilisation

BASIC CRITERIA		PROFITABILITY(/Rs100 Output)			PRODUCTIVITY				
		Financial	Economic		Capital	Labour (Man Days)			
		At Discount Rates			Employment				
Production Technology Type(Kiln)		0%	0%	20%	/K Bricks	/Rs 100	/Man Day	/K Bricks	/Rs 100
c	d	f	g	i	k	l	m	o	p
17	Indigenous:Wall,Agri-Waste Fired	15.73	20.58	52.50	2.01	0.77	0.58	3.50	1.33
18	Imported:Trench,Coal-Oil Fired	2.54	7.38	44.60	4.09	1.35	0.83	4.92	1.62
19									
20	NET EFFECT	-13.19	-13.20	-7.90	-2.08	-0.58	-0.25	1.42	0.29

B: At 100% Capacity Utilisation

BASIC CRITERIA		PROFITABILITY(/Rs100 Output)			PRODUCTIVITY				
		Financial	Economic		Capital	Labour (Man Days)			
		At Discount Rates			Employment				
Production Technology Type(Kiln)		0%	0%	20%	/K Bricks	/Rs 100	/Man Day	/K Bricks	/Rs 100
c	d	f	g	i	k	l	m	o	p
37	Indigenous:Wall,Agri-Waste Fired	18.14	22.89	53.88	0.76	0.29	0.29	2.63	1.00
38	Imported:Trench,Coal-Oil Fired	5.96	10.59	46.52	2.04	0.67	0.55	3.69	1.22
39									
40	NET EFFECT	-12.18	-12.30	-7.36	-1.28	-0.38	-0.26	1.06	0.22

Fig. SWITCHING FROM INDIGENOUS TO IMPORTED PRODUCTION TECHNOLOGIES.
 (pdswhcb1) (Ex. Brick Kilns; Wall Type, Agri - Waste Fired versus Trench Type, Coal & Oil Fired.)
 NET EFFECTS ON INCOME DISTRIBUTION, EMPLOYMENT, LABOUR PRODUCTIVITY, PURCHASE COSTS, & SAVINGS.
 (Comparing Results of COST - BENEFIT Analysis)

A: INCOME DISTRIBUTION		Groups Affected:				
		Proj.	Or Cnsmr.	Bsness.	Wrkr.	Govt.
Production Technology Type						
c	e	f	g	h	i	
Indigenous (Agri-Fired Kiln)	-24.48	-24.48	0.00	18.63	5.85	
Imported (Coal-Fired Kiln)	-24.17	-24.17	0.00	20.57	3.60	
NET INCOME DISTRIBUTION	0.31	0.31	0.00	1.94	-2.25	
D: SAVINGS THROUGH:		D1: Income Distribution				
		Cnsmr. is:				
		Govt. or Low Y. Business. Worker Govt.				
Net Income Distribution	0.31	0.31	0.00	1.94	-2.25	
Marginal Propensity to Save	0.20	0.00	0.15	0.00	0.20	
NET SAVINGS DISTRIBUTION	0.06	0.00	0.00	0.00	-0.45	
NET SAVINGS EFFECT	(a) Government:				-0.39	
If Consumer is:	(b) Low - Income Person:				-0.45	

B1: EMPLOYMENT (Man Days/Rs100)			
		Total Unskilled	
m	o	p	
Indigenous	1.50	0.00	
Imported	1.62	0.00	
NET EMPLOYMENT	0.12	0.00	

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B2: LABOUR PRODUCTIVITY (Mdays/KBrS)	
s	
3.94	
4.92	
-0.98	

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C: SAVINGS/LOSSES THRU BRICK PURCHASES			
		X	Y
		Rs/KBrS.	BrS/Rs100
w	y	z	
Indigenous	263.00	380	
Imported	303.00	330	
NET LOSSES (Rs, #s)	-40.00	-50.20	
Value/Brick (Rs)		0.263	
TOTAL Value of Bricks (Rs)		-13.20	

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D2: Net Wages	
Net Employment	0.12
Wages/Mday	30.00
Net Wages	3.60
M.P. to Save	0.00
SAVINGS EFFECT	0.00
NET SAVINGS: a)	-0.39
(D1+D2) b)	-0.45

D3: Savings/Losses Thru Brick Purchases			
		If Consumer is:	
		Govt.	Low Y.
Marg. Prop. to Save	0.20	0.00	
SAVINGS Effect			
From: X) Rs/K Brs.	-8.00	0.00	
Y) Brs/Rs100	-2.64	0.00	
NET SAVINGS EFFECT			
Taking: X) Rs/KBrS	-8.39		
+ D1b) + D2b)			-0.45
Taking Y) Brs/Rs100	-3.03		
+ D1 + D2			-0.45

