3.3.4 Classification of construction equipment

The most influential factor for estimates of the hourly cost of equipment is the rate of import duties. Table 3.3-3 shows the category of equipment by the rate of import duties. In the table the rate of import duties derives from the Table 3.3-4, which are made on the basis of the Customs Tariff Act, 1969. Table 3.3-5 indicates the extracted custom tariff for such constructional equipment and materials as are anticipated to be in use for the construction of the project. The rate of import duties for equipment varies from 0 % to 175 %, but as for almost all main equipment it is 0%. On the other hand, the rate for parts thereby are relatively higher.

3.3.5 Relationship between CIF Port Louis value and delivered price

The procedure where delivered prices are converted from CIF Port Louis values of equipment is the same with that for construction materials described in detail in the following section of the volume.

3.3.6 Depreciation system

In Mauritius there are no definite guidelines to the depreciation system for construction equipment. According to interviews with local contractors, it is a common practice to depreciate 40% of the initial purchase value at the first year, and afterwards 20% of the residual value annually, however, in this project the fixed amount depreciation method will be employed for simplifying calculations. Table 3.3-6 shows the depreciation factors for each categorized equipment by the import duties. The factors come from assumptions shown in Fig. 3.3-1 and Table 3.3-7.

3.3.7 Hourly cost of equipment for the project

Through the analyses, the hourly costs for each type of equipment are computed on the sheets as shown in Table 3.3-8 to 3.3-24. The following are assumed for the calculations.

(a) The hourly cost of equipment consists of the owing and operating costs.

(b) The operating cost is exclusive of wages and allowances for the operators, which will be summed up separately into the labour cost element in the Unit Price Analysis Sheets.

(c) The percentage of cost components (local, foreign and taxes) for the hourly cost basis is deemed the same with that for the delivered price.

(d) Each cost component percentage for each piece of equipment or consumable item put into the sheets is derived from the relevant analysis tables or figures in the following section of this volume.

(e) The trade in value is assumed as 30% of the delivered price.

(f) The depreciation period is established as 12,000 hours for almost all the equipment.

(g) The rate covering an interest and insurance is assumed as 12% per annum, hence the factor comes approximately to 0.72 from Fig. 3.3-1.

(h) The cost for fuel and lubrication oils is put into the sheets on the basis of price level in September of 1979.

The analyses show that the cost component percentage of heavy equipment such as bulldozers or dozer shovels comes to 25 % and 75 % respectively for for the local and foreign currency portions, and the tax percentage accounts approximately 15 % against the total cost. The percentage of tax factors of import duties, corporated tax and personal tax against the total tax component are shown in Table 3.3-25 to 3.3-33. Consequently, the hourly cost of equipment for the project is summarized in Table 3.3-34.

Table 3.3-1 Hourly Cost in Market of Main Construction Equipment

Item	Description	Hourly Cost (Rs)		
		1977	1979	79/77
Excavator	0.5 M3	50	60	1.2
ditto	0.7 M3	150	180	1.2
ditto	0.9 M3	180	215	1.2
Traxcavator	977L or D7	210	250	1.2
ditto	955K or D6	180	215	1.2
Tractor	4.5 HP	25	30	1.2
Loader	1.8 M3	160	190	1.2
ditto	1.4 M3	100	120	1.2
Road Roller Vibrating	11 t	70	85	1.2
ditto	4 t	30	40	1.3
ditto	3 t		50	
ditto	0.75 t	15	20	1.3
Vib-roll Roller	72 t		50	
Dump Truck	12 - 15 t	120	150	1.25
Lorry	12 - 15 t	120	150	1.25
ditto	10 - 12 t	90	110	1.20
ditto	8 - 10 t	70	90	1.30
ditto	6 - 8 t	60	75	1.25
Lorry (Prime-mover)			180	
Mixer Lorry			170	
Trailer			8	
Water Tank Lorry	1600 gals		110	
Paver	W2.4 - 5.1M		150	
Grader			170	

Item	Description	Hourly Cost (Rs)		
		1977	1979	79/77
Dumper	0.75 t	20	25	1.25
Crane	0.75 t	25	30	1.2
Concrete Mixer	0.28 M3	25	30	1.2
ditto	0.2 M3	15	20	1.3
Air Compressor	17 M3/min.	110	130	1.2
ditto	10 M3/min.	80	100	1.25
ditto	7 M3/min.	60	75	1.25
ditto	4.2 M3/min.	40	50	1.25
ditto	3.5 M3/min.	35	45	1.30
ditto	2.4 M3/min.	30	35	1.20
Water Pump Diesel	4"	20	25	1.25
Water Pump (air)			20	
Water Pump Electric	7 HP	15	25	1.70
ditto	5 HP	12	20	1.70
Electric Welding Machine	Diesel	30	40	1.30
Jeep Land Rover			60	
Concrete Saw		30	70	2.3
Bulldozer	D8		300	
ditto	D355		350	
Crane	30 t		3600/day	

Note 1: Sources are from local contractors.

2: Prices of 1977 was presented in February of 1977, and those of 1977 were obtained in September 1979.

3: Estimate condition for those are as follows.

(a) Hire rate includes the operator, fuel, oil, spares and repairs to plant.

(b) In all cases transport of plant and equipment to and from site of work will be charged in addition to the hire rate.

(c) The minimum charge per day will be six hours for week days and four on Saturday.

(d) For plant and equipment working on public holidays and Sundays a surcharge of (20%) twenty per cent will be applicable and the minimum charge will be six hours.

(e) In case of breakdown only the actual working hours worked on that day will be claimed.

(f) No claim for consequential loss, damage or compensation of any sort will be accepted by the Company either as a result of machine breakdown or for any other reason.

(g) All plant and equipment will be operated under the supervision and responsibility of the person hiring the plant who will give all necessary instructions as to the execution of the work to the Operator.

Table 3.3-2 CIF Value of Construction Equipment in Port Louis in September 1979

(1000Rs)

Model	Main Specifications			Deliv. Price Japan (1)	FOB Price Japan (2)	Rate (2)/(1)	Freight Ins. (3)	CIF Value Port Louis (4)
Bulldozer								
D53A-16	12.0t	110HP	Angle dozer	303	374	1.23	41	415
D65A-6	16.4t	155HP	Straight tilt dozer	393	510	1.30	57	567
D85A-18	23.6t	220HP		673	778	1.16	87	865
D155A-1	33.7t	320HP		1,024	1,104	1.08	123	1,227
D355A-3	45.4t	410HP		1,420	1,568	1.10	174	1,742
Dozer Shovel								
D57S-1	14.6t	135HP			439		67	506
D65S-6	18.0t	160HP		377	551	1.46	83	634
D75S-3	21.0t	200HP		487	643	1.32	93	740
Motor Grader								
GD500R-1	10.5t	125HP			330		67	397
GD605A-1	12.5t	145HP		377	415	1.10	85	500
GD655A-1	12.7t	165HP		487	441	0.91	90	531
Motor Scraper & Dumper								
WS23S-1	34.8t	425HP	Std.[1)]	1,616	1,530	0.95	308	1,838
HD200-2	18.5t	280HP	Std. 11.2M3		623		125	748
HD320-2	27.2t	405HP	Std. 18.0M3		1,001		202	1,203
HD460-1	46.0t	615HP	Std. 24.0M3		1,479		297	1,776
HD680-2	150.0t	775HP	Std. 32.0M3		1,777		356	2,133
Wheel Loader								
W70	9.4t	105HP			438		87	525
W90	12.3t	152HP			577		115	692
W170	19.1t	239HP			730		146	876

Note 1) Std. means Standard Model.

Table 3.3-3 Classification of Construction Equipment by Import Duties and Hourly Cost Factors

	Category of Equipment	Import Duties (%)	Rate of Owing Cost For Hourly Cost (%)	Rate of Operating Cost for Hourly Cost (%)	Rate of Hourly Cost for CIF Value (r)
1	General Construction Equipment Without Tires	0	40	60	2.7×10^{-4}
	Portable Air Compressor and the like	0	25	75	4.5×10^{-4}
2	General Construction Equipment with Tires	0	40	60	3.0×10^{-4}
3	Machine - tool	0	25	75	4.5×10^{-4}
4	Generator	12.5	40	60	3.5×10^{-4}
5	Welding Appliance	12.5	5	95	3.5×10^{-3}
	Hand Tool	12.5	2	98	1.0×10^{-5}
6	Dump truck	12.5	45	55	2.2×10^{-4}
7	Conveyor, Skip and the like	25	50	50	3.0×10^{-4}
8	Truck, Lorry and Trailer	65	20	80	6.4×10^{-4}
9	Motor Car	175			

Table 3.3-4 Classification of Imported Materials and Equipment by Import Duties

Import Duties (%)	Category	
	Construction Equipment	Materials
0	. Construction equipment . Construction material production plant . Machine-tools	. Steel wire, sheet bar
5		. Cement . Bituminous and parafin products . Oxygen gas . Timbers . Drilling steel . Aluminium products
12.5	. Generator . Dumper . Welding appliance	. Copper products . Hand tools . Nails
20		. Fuel oils and greases
25	. Conveyor, skip . Pumps	
40	. Parts and assemblies for construction equipment	. Plastic products . Plywood . Concrete secondary products . Structural shaped steel . High pressure conduit . Other steel products . Laboratory instrument . Rubber products
65	. Truck, lorry, trailer	. Form oils

Import Duties (%)	Category	
	Construction Equipment	Materials
90	. Tire and tube	. Bridge structural steel products
115		. Explosives . Light oil . Furniture
175	. Motor car	

Table 3.3-5 Customs Tariff - Import Duties in September of 1979

Item	Tariff No.	Unit	Fiscal duty (%)	Custom Duty	
				General (%)	Preferential (%)
Common salt	5.01	Kg	0	0	0
Natural sands of all kinds	5.05	"	0	0	0
Building stone	25.15	"	30	20	0
Pebbles and crushed stone	25.17	"	0	0	0
Gypsum	25.20.10	"	0	0	0
Limestone flux	25.21	"	0	0	0
Portland cement slag and other cement	25.23	"	5	0	0
Slag	26.02	"	0	0	0
Coal	27.01	"	0	0	0
Coke	27.04	"	0	0	0
Gases	27.05 bis	"	0	0	0
Tar	27.06	"	0	0	0
Pitch	27.08	ℓ	0	0	0
Petroleum oils	27.09	"	0	0	0
Light oils	27.10.30	"	150	0	0
Kerosene	27.10.40	"	0	0	0
Greases	27.10.50.30	Kg	20	0	0
Gas oils (Diesel)	27.10.60	ℓ	20	0	0
Fuel oils	27.10.70	"	20	0	0
Lubricating oils	27.10.80	"	Rs15/hℓ	0	0
Lubricating greases	27.10.80.20	Kg	20	0	0

Item	Tariff No.	Unit	Fiscal duty (%)	Custom Duty	
				General (%)	Preferential (%)
Parafin wax	27.13	Kg	5	0	0
Bitumen and asphalt	27.15	"	5	0	0
Bituminous mixtures	27.16	"	5	0	0
Carbon	28.03	"	5	0	0
Oxygen gases	28.04	"	5	0	0
Methyl alcohol	29.04.10	"	5	0	0
Surface active agents	34.01	"	50	30	0
Propellent powder	36.01	"	100	30	0
Explosives	36.02	"	100	30	0
Detonating fuse, cap	36.04	"	100	30	0
Photograph film	37.01	"	30	20	0
Plastic moulding powder	39.01.10	"	5	0	0
Plastic products	39.07.90	"	30	20	0
Rubber plate, strip	40.08	"	50	30	0
Rubber pipe, tube	40.09	"	30	20	0
Transmission conveyor	40.10	"	30	20	0
Tire and tube	40.11	"	75	30	0
Wood, roughly squared	44.04	M3	10	0	0
Wood, manufactured	44.05	M3	10	0	0
Plywood	44.15.10	M2	30	20	0
Printed book	49.01.90	Kg	0	0	0
Man-made fibres	56.01	"	0	0	0
Road and paving set, curbs	68.01	"	30	20	0
Monumental stone	68.02	"	30	20	0

Item	Tariff No.	Unit	Fiscal duty (%)	Custom Duty	
				General (%)	Preferential (%)
Steel wire	73.03	Kg	0	0	0
Pilings	73.06	"	0	0	0
Sheet bar, iron or steel	73.07	"	0	0	0
Plate, ditto	73.09	"	0	0	0
Bars and rod, ditto	73.10	"	5	0	0
Angles, shapes, ditto	73.10	"	30	20	0
Drilling steel	73.15.30	"	5	0	0
Tubes and pipes	73.17	"	10	5	0
High pressure conduit galvanized	73.18.10.10	"	30	20	0
Others	73.18.10.90	"	10	5	0
Structural steel (bridge section, lock gate, etc.)	73.21.10	"	75	30	0
Parts thereof	73.21.20	"	30	20	0
Tanks, container (>300ℓ)	73.22	"	50	30	0
Drums, cans, etc.	73.23	"	10	5	0
Stranded wire	73.25	"	10	5	0
Netting, fencing, etc.	73.27	"	50	30	0
Chain	73.29	"	30	20	0
Bolts and nuts	73.32	"	10	5	0
Pins	73.34	"	50	30	0
Springs	73.35	"	30	20	0
Copper plate	74.04	"	5	0	0
Copper wire, cable	74.10	"	10	5	0
Nails, tacks, etc.	74.15	"	10	5	0
Aluminium plate	76.03	"	5	0	0

Item	Tariff No.	Unit	Fiscal duty (%)	Custom Duty	
				General (%)	Preferential (%)
Hand tools, shovel, picks etc.	82.10	Kg	10	5	0
Parts thereof	82.20	"	30	20	0
Engine for propelling vehicle	84.06.30	No.	30	20	0
Parts thereof	84.06.70	Kg	30	20	0
Mechanically propelled road rollers	84.09.10	No.	0	0	0
Parts thereof	84.09.20	Kg	30	20	0
Pumps (motor & turbo)	84.10.10	No.	50	30	0
Centrifugal pumps	84.10.30	"	20	10	0
Rotary pumps	84.10.40	"	20	10	0
Parts thereof	84.10.60	Kg	30	20	0
Air pumps and compressor	84.11.10	No.	20	10	0
Parts thereof	84.11.20	Kg	30	20	0
Fans, blowers	84.11.40.10	"	20	10	0
Parts thereof	84.11.40.20	"	30	20	0
Laboratory ovens	84.14	No.	0	0	0
Parts thereof	84.14.20	Kg	30	20	0
Weighing machinery	84.20.10	"	50	30	0
Parts thereof	84.20.20	"	30	20	0
Lifting, handling, loading, unloading machines and conveyor	84.22.10	"	0	0	0
Conveyor, pneumatic	84.22.30	"	20	10	0
Skip hoists	84.22.40	"	20	10	0
Portable jacks	84.22.60.10	"	30	20	0
Parts thereof	84.27.70	"	30	20	0

Item	Tariff No.	Unit	Fiscal duty (%)	Custom Duty	
				General (%)	Preferential (%)
Excavating, levelling, tamping, boring, extracting machine	84.23	Kg	0	0	0
Parts thereof	84.23.70	"	30	20	0
Ingot moulds & casting machine	84.43	"	0	0	0
Rolling mills	84.44.10	"	0	0	0
Parts thereof	84.44.20	"	30	20	0
Machine-tools for working stone, concrete, etc.	84.46	"	0	0	0
Parts thereof	84.49.20	"	30	20	0
Gas operated welding appliances	84.50.10	"	10	5	0
Parts thereof	84.50.20	"	30	20	0
Calculating machine	84.52.10	No.	50	30	0
Machine for sorting, screening, separating, washing, crushing stones	84.56	Kg	0	0	0
Parts thereof	84.56.50	"	30	20	0
Transmission shafts, cranks, bearings, gearings	84.63	"	30	20	0
Parts thereof	84.65	"	30	20	0
DC motors & generators	85.01.10	No.	10	5	0
AC generators	85.01.20	"	10	5	0
Parts thereof	85.01.35	Kg	30	20	0
Electrical lighting equipment	85.09	"	30	20	0
Electric welder	85.11.20	"	10	5	0

Item	Tariff No.	Unit	Fiscal duty (%)	Custom Duty	
				General (%)	Preferential (%)
Motor car (<1300cc)	87.02.10. 10	No.	125	50	0
ditto (1300cc<engine<1800cc)	87,02,10. 20	"	150	50	0
ditto (>1800cc)	87,02,10. 30	"	200	50	0
Trucks & lorries	87.02.90. 20	"	50	30	0
Dumpers	87,02,90. 30	"	10	5	0
Parts thereof	87.06	Kg	30	20	0
Trailer	87.14.20	No.	50	30	0
Parts thereof	87.14.40	Kg	30	20	0
Furniture	94.02.10	"	100	30	0

Table 3.3-6 Classification of Construction Equipment by Import Duties and Depreciation Factors

Category of Equipment		Import Duties (%)	Tire	Trade-in Rate (%)	Depreciation Period Year	Depreciation Period Annual Use (hr)	Depreciation Period (hr)	Depr. Fact	Repa. Fact	Rate of Owing Cost for Hourly Cost (%)	Rate of Oper. Cost for Hourly Cost (%)	Rate of Hourly Cost for CIF Value (r)	Rate of Import Duties (%)	Rate of Corp. Tax (%)	Rate of Inc. Tax (%)
General Construction Equipment															
1 & 2	. Bulldozer . Dozer shovel . Motor grader . Back hoe . Load roller . Tire roller . Asphalt finisher . Asphalt sprayer . Truck mixer . Concrete pump truck . Wheel loader . Wheel crane	0	With & without	30	6	2000	12000	0.72	1.0	40	60	2.7×10^{-4}	82	16	2
1	. Asphalt plant set		Without							15	85	7.7×10^{-4}			
	. Concrete mixer									20	80	5.2×10^{-4}			
	. Portable air compressor									25	75	4.4×10^{-4}			
3	. Handy compactor . Concrete vibrator . Concrete cutter . Pick hammer . Braker . Winch		ditto						0.4			4.5×10^{-4}			
4	. Generator	12.5	Without	0						35	65	3.5×10^{-4}	86	12	2
5	. Welding appliance									5	95	3.5×10^{-3}			
6	. Dump truck		With	30		2500	15000		0.6	20	80	2.2×10^{-4}			
7	. Conveyor	25	Without	10	5		12500	0.64	0.4	50	50	2.9×10^{-4}			
8	. Truck, lorry, trailer	65	With	30	6		15000	0.72	0.6	20	80	6.4×10^{-4}	92	6	2
9	. Motor car	175	ditto							25	75	9.7×10^{-4}			

Fig. 3.3-1 Factor of Interest and Insurance

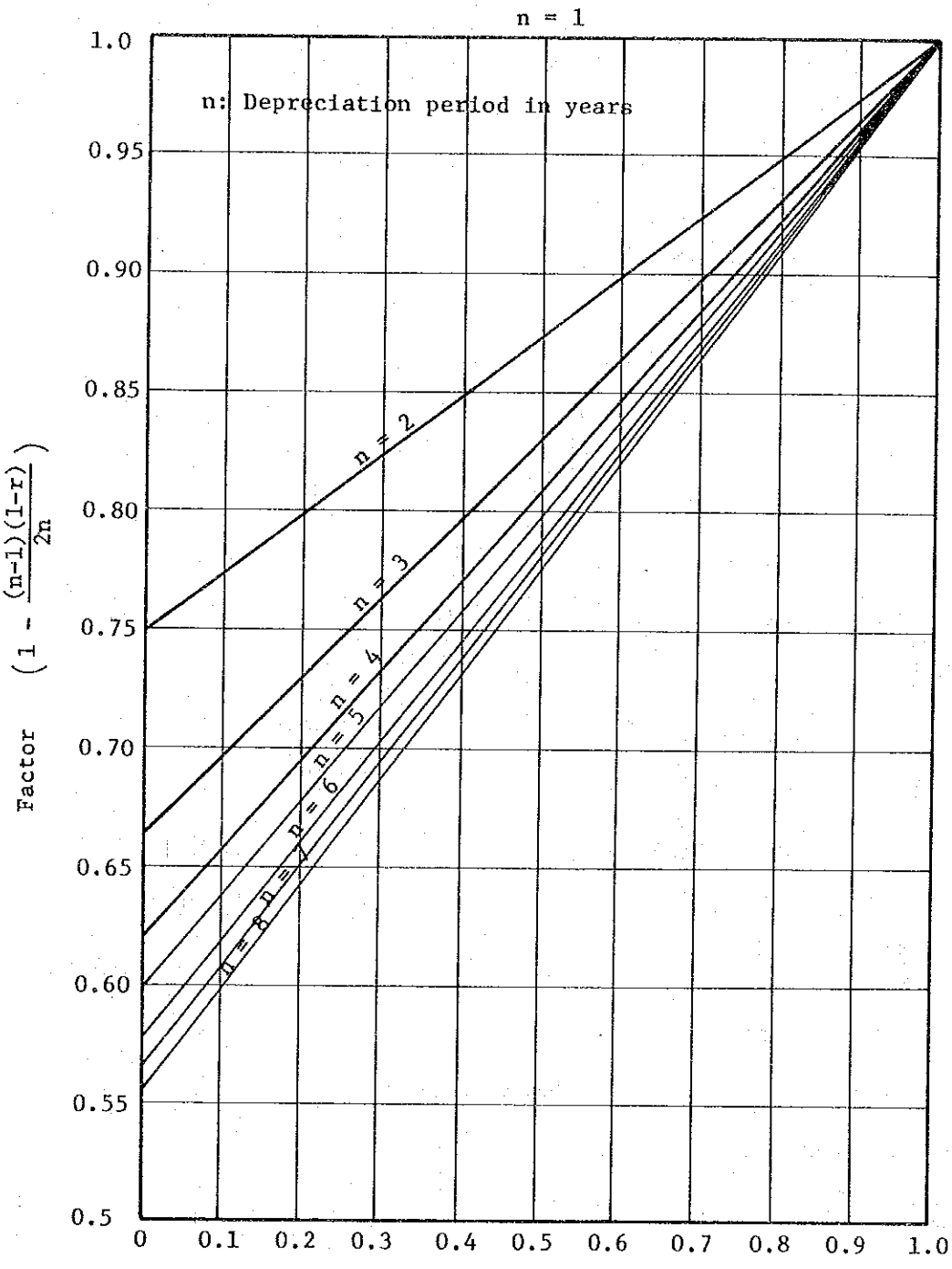

Table 3.3-7 Depreciation Period Based on Application and Operating Conditions

Table	Condition 1	Condition 2	Condition 3
Crawler type tractors	D20-D31 12,000 operating hours D40-D85 15,000 operating hours D150-D355 18,000 operating hours D455 22,000 operating hours Scraper hauling Farming Loading in stock yard, etc. Other light-duty operation	10,000 operating hours 12,000 operating hours 15,000 operating hours 18,000 operating hours Ordinary earthmoving Pushing and ripping Ground condition: soil of medium hardness	8,000 operating hours 10,000 operating hours 12,000 operating hours 15,000 operating hours Ripping on hard rocky terrain Earthmoving on rocky terrain Ground condition: very hard soil on the whole
Crawler type loaders	D10-D31 11,000 operating hours D40-D65 12,000 operating hours D75-D155 16,000 operating hours Simple loading from stockpile Little hauling and turning Material is light in weight	9,000 operating hours 10,000 operating hours 13,000 operating hours Digging on hill Sometimes ripping required concurrently Ordinary-duty operation at occasional full horsepower operation	7,000 operating hours 8,000 operating hours 11,000 operating hours Loading of heavy material like rocks, ores, etc. Operation on rocky terrain Ripping operation of long duration
Pipe layers	18,000 operating hours Little use in mud or water Use on level	15,000 operating hours Ordinary-duty operation	12,000 operating hours Continuous use in mud water or on very hard soil
Motor scrapers	15,000 operating hours Hauling on average road without grades Easy loading operation	12,000 operating hours Loading and hauling of material in various patterns Normal earthmoving operation in general road construction work	8,000 operating hours Loading of rocks in ripped ground, subject to overloading, hauling on rugged surfaces
Towed scrapers	14,000 operating hours	12,000 operating hours	10,000 operating hours
Off-highway dump trucks	Others 25,000 operating hours HD1200 45,000 operating hours Loading by loaders in optimum combination and hauling on good road surface without grades	20,000 operating hours 40,000 operating hours Loading in various conditions and patterns	15,000 operating hours 35,000 operating hours Loading by oversize loader, subject to overloading, hauling on rugged surfaces
Motor graders	15,000 operating hours Road repair, snow-removal, etc. on minor scale or in light-duty operation, mostly consisting of hauling excavated material	10,000 operating hours Road repair including almost all types of operations by motor grader or thorough snow-removal operation	8,000 operating hours Repair of very hard road surfaces Sacrifier operation on asphalt or concrete surface Sacrifier operation on asphalt or concrete surface Other heavy-duty operation
Soil compactors	12,000 operating hours Dozing and compacting operation on sandy soil	10,000 operating hours Dozing and compacting on sandy soil with rocks	8,000 operating hours Dozing and compacting on gravelly and rocky terrain
Trash compactors	12,000 operating hours Disposal of household trash	10,000 operating hours Break-down of comparatively small wooden products, earth spreading and compaction	8,000 operating hours Break-down and compaction of lumber, electrical parts, discarded vehicles, rubbish, etc.
Wheel loaders	W120 12,000 operating hours W170 15,000 operating hours Intermittent truck loading Utility work in industrial application Light snowplowing	10,000 operating hours 12,000 operating hours Continuous truck loading from stockpile Loading from bank (digging easy)	8,000 operating hours 10,000 operating hours Loading short rock Handling high density material Constant loading from tightly compacted bank

Table 3.3-8 Hourly Cost Estimate of Construction Equipment in Category 1, Komatsu D355A-3

(Rs)

	Item: Bulldozer, Komatsu D355A-3	ton 45	HP 410	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		1,742			
2	Delivered Price	(x 1000Rs)		1,914 100%	172 %	1,742 %	77 %
3	Less Tire price:	(x 1000Rs)					
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		1,339 100%	121 9 %	1,218 91 %	54 4 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000hr)			112 100%	10 9 %	102 91 %	4.5 4 %
	Interest, Insurance: 12 %						
	Depreciation Period 6 Years						
	Approximate Annual Use 2000 Hours						
	(0.72)						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			83 100%	7.5 9 %	75.5 91 %	3.3 4 %
8	TOTAL OWING COST			195 100%	17.5 9 %	177.5 91 %	7.8 4 %
	OPERATING COSTS						
9	(12.4) (gal/hr) x (Rs/gal) (7.5) Fuel: Consumption X Unit Cost			93 100%	29 31 %	64 69 %	15.8 17 %
10	Lubricants: 22 % of Fuel in Value			21 100%	6.5 31 %	14.5 69 %	3.6 17 %
11	Tires: Tire Price / Estimated Life						
	(1.0)						
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr)			160 100%	61 38 %	99 62 %	44.8 28 %
13	Special Items: % of (12) in Value						
14	TOTAL OPERATING COST			274 100%	96.5 35 %	177.5 65 %	64.2 23 %
15	TOTAL OWING & OPERATING COST			469 100%	114 24 %	355 76 %	72 15 %
16	OPERATOR'S HOURLY WAGE			100%	%	%	%
	Remarks						

Table 3.3-9 Hourly Cost Estimate of Construction Equipment in Category 1, Komatsu D155A-1

(Rs)

	Item: Bulldozer, Komatsu D155A-1	ton 34	HP 320	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		1,227			
2	Delivered Price	(x 1000Rs)		1,348 100%	121 9 %	1,227 91 %	54 4 %
3	Less Tire price:	(x 1000Rs)					
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		944 100%	85 9 %	859 91 %	38 4 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000hr)			79 100%	7 9 %	72 91 %	3.2 4 %
	Interest, Insurance: 12 %						
	Depreciation Period 6 Years						
	Approximate Annual Use 2000 Hours						
	0.72)						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			58 100%	5 9 %	53 91 %	2.3 4 %
8	TOTAL OWING COST			137 100%	12 9 %	125 91 %	5.5 4 %
	OPERATING COSTS						
9	(9.8) (gal/hr) x (Rs/gal) (7.5) Fuel: Consumption X Unit Cost			74 100%	23 31 %	51 69 %	12.6 17 %
10	Lubricants: 22 % of Fuel in Value			16 100%	5 31 %	11 69 %	2.7 17 %
11	Tires: Tire Price / Estimated Life						
12	Repairs: (1.0) Repair factor X Deliv. Price / Depreciation Period in Hours (12000hr)			112 100%	43 38 %	69 62 %	31.4 28 %
13	Special Items: % of (12) in Value			100%	38 %	62 %	28 %
14	TOTAL OPERATING COST			202 100%	71 35 %	131 65 %	46.7 23 %
15	TOTAL OWING & OPERATING COST			339 100%	83 24 %	256 76 %	52.2 15 %
16	OPERATOR'S HOURLY WAGE			100%	%	%	%
	Remarks						

Table 3.3-10 Hourly Cost Estimate of Construction Equipment in Category 1, Komatsu D85A-18

(Rs)

Item: Bulldozer, Komatsu D85A-18	ton 23.6	HP 220	Total	Component Local	Component Foreign	(Tax)
1 CIF Value	(x 1000Rs)		865			
2 Delivered Price	(x 1000Rs)		950 100%	85 9 %	865 91 %	38 4 %
3 Less Tire price:	(x 1000Rs)					
4 Less Trade-in Value	(x 1000Rs)					
5 Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		665 100%	60 9 %	605 91 %	27 4 %
OWING COSTS						
Depreciation:						
6 Net Depreciation Value / Depreciation Period in Hours (12000 hr)			55 100%	5 9 %	50 91 %	2.2 4 %
Interest, Insurance: 12 %						
Depreciation Period 6 Years						
Approximate Annual Use 2000 Hours						
0.72						
7 Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			41 100%	3.7 9 %	37.3 91 %	1.6 4 %
8 TOTAL OWING COST			96 100%	8.7 9 %	87.3 91 %	3.8 4 %
OPERATING COSTS						
9 Fuel: (6.5) (gal/hr) x (Rs/gal) (7.5) Consumption X Unit Cost			49 100%	15.2 31 %	33.8 69 %	8.3 17 %
10 Lubricants: 22 % of Fuel in Value			11 100%	3.4 31 %	7.6 69 %	1.9 17 %
11 Tires: Tire Price / Estimated Life						
0.0						
12 Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr)			87 100%	33 38 %	54 62 %	24.3 28 %
13 Special Items: % of (12) in Value						
14 TOTAL OPERATING COST			147 100%	60.3 35 %	182.7 65 %	38.3 23 %
15 TOTAL OWING & OPERATING COST			243 100%	60.3 25 %	182.7 75 %	38.3 16 %

16 OPERATOR'S HOURLY WAGE	100%	%	%	%	
Remarks					

Table 3.3-11 Hourly Cost Estimate of Construction Equipment in Category 1, Komatsu D75S-3

(Rs)

	Item: Dozer Shovel, Komatsu D75S-3	ton 21	HP 200	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		740			
2	Delivered Price	(x 1000Rs)		813 100%	73 9 %	740 91 %	33 4 %
3	Less Tire price:	(x 1000Rs)					
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		569 100%	51 9 %	518 91 %	23 4 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000hr)			47 100%	4 9 %	43 91 %	1.9 4 %
	Interest, Insurance: 12 %						
	Depreciation Period: 6 Years						
	Approximate Annual Use: 2000 Hours						
7	(0.72) Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			35 100%	3 9 %	32 91 %	1.4 4 %
8	TOTAL OWING COST			82 100%	7 9 %	75 91 %	3.3 4 %
	OPERATING COSTS						
9	Fuel: (5.9) (gal/hr) x (Rs/gal) (7.5) Comsumption X Unit Cost			44 100%	14 31 %	30 69 %	7.5 17 %
10	Lubricants: 22 % of Fuel in Value			9 100%	3 31 %	6 69 %	1.6 17 %
11	Tires: Tire Price / Estimated Life (2500 hr) (L.O) (less Tire)						
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr)			68 100%	26 38 %	42 62 %	19 28 %
13	Special Items: % of (12) in Value						
14	TOTAL OPERATING COST			121 100%	41 36 %	78 64 %	28 23 %
15	TOTAL OWING & OPERATING COST			203 100%	51 25 %	153 75 %	31.3 15 %
16	OPERATOR'S HOURLY WAGE			100%	%	%	%
	Remarks						

Table 3.3-12 Hourly Cost Estimate of Construction Equipment in Category 1, Komatsu D65S-1

(Rs)

	Item: Dozer Shovel, Komatsu D65S-1	ton 18	HP 160	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		634			
2	Delivered Price	(x 1000Rs)		697 100%	63 9 %	634 91 %	28 4 %
3	Less Tire price:	(x 1000Rs)					
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		488 100%	44 9 %	444 91 %	20 4 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000 hr)			41 100%	4 9 %	37 91 %	1.6 4 %
	Interest, Insurance: 12 %						
	Depreciation Period: 6 Years						
	Approximate Annual Use: 2000 Hours						
	(0.72)						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			30 100%	3 9 %	27 91 %	1.2 4 %
8	TOTAL OWING COST			71 100%	7 9 %	64 91 %	2.8 4 %
	OPERATING COSTS						
9	Fuel: (4.3) (gal/hr) x (Rs/gal) (7.5) Consumption X Unit Cost			32 100%	10 31 %	22 69 %	5.4 17 %
10	Lubricants: 22 % of Fuel in Value			7 100%	2 31 %	5 69 %	1.2 17 %
11	Tires: Tire Price / Estimated Life						
12	Repairs: (LO) Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr)			58 100%	22 38 %	36 62 %	16 28 %
13	Special Items: % of (12) in Value						
14	TOTAL OPERATING COST			97 100%	34 35 %	63 65 %	22.6 23 %
15	TOTAL OWING & OPERATING COST			168 100%	41 24 %	127 76 %	25.4 15 %
16	OPERATOR'S HOURLY WAGE			100%	%	%	%
	Remarks						

Table 3.3-13 Hourly Cost Estimate of Construction Equipment in Category 1, Asphalt Plant Set

(Rs)

	Item: Asphalt Plant Set 35 t/hr	ton	HP	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		1122			
2	Delivered Price	(x 1000Rs)		1233 100%	111 9 %	1122 91 %	49 4 %
3	Less Tire price:	(x 1000Rs)					
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		863 100%	78 9 %	785 91 %	34 4 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000 hr)			72 100%	6.5 9 %	65.5 91 %	2.9 4 %
	Interest, Insurance: 12 %						
	Depreciation Period 6 Years						
	Approximate Annual Use 2000 Hours						
7	(0.72) Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			53.3 100%	4.8 9 %	48.5 91 %	2.1 4 %
8	TOTAL OWING COST			125.3 100%	11.3 9 %	114 91 %	5 4 %
	OPERATING COSTS						
9	(70) (gal/hr) x (Rs/gal)(7.5) Fuel:Comsumption X Unit Cost			525 100%	163 31 %	362 69 %	89 17 %
10	Lubricants: 22 % of Fuel in Value			116 100%	36 31 %	80 69 %	20 17 %
11	Tires: Tire Price / Estimated Life						
12	(1.0) Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr)			103 100%	39 38 %	64 62 %	29 28 %
13	Special Items: % of (12) in Value						
14	TOTAL OPERATING COST			744 100%	238 32 %	506 68 %	138 19 %
15	TOTAL OWING & OPERATING COST			869.3 100%	249.3 29 %	620 71 %	143 16 %

16	OPERATOR'S HOURLY WAGE Class 3 x 3 / Class 5 x 5			25.5 100%	25.5 100 %	0 0 %	0.5 2 %
	Remarks: Total including (16)			894.8 100%	274.8 31%	620 69%	143.5 16%
	Production Cost per ton			26 100%	8 31%	18 69%	4 16%

Table 3.3-14 Hourly Cost Estimate of Construction Equipment in Category 1, Portable Air Compressor

(Rs)

	Item: Portable Air Compressor, Komatsu E105V	ton 2.7	HP 103	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		119			
2	Delivered Price	(x 1000Rs)		131 100%	12 9 %	119 91 %	5 4 %
3	Less Tire price:	(x 1000Rs)					
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70% of ((2)-(3))	(x 1000Rs)		92 100%	8 9 %	84 91 %	3.5 4 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000hr)			7.7 100%	0.7 9 %	7.0 91 %	0.3 4 %
	Interest, Insurance: 12 %						
	Depreciation Period: 6 Years						
	Approximate Annual Use: 2000 Hours						
	(0.72)						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			5.7 100%	0.5 9 %	5.2 91 %	0.2 4 %
8	TOTAL OWING COST			13.4 100%	1.2 9 %	12.2 91 %	0.5 4 %
	OPERATING COSTS						
9	Fuel: (3.1) (gal/hr) x (Rs/gal) (7.5) Consumption X Unit Cost			23.2 100%	7.2 31 %	16 69 %	4 17 %
10	Lubricants: 22 % of Fuel in Value			5.1 100%	1.6 31 %	3.5 69 %	0.9 17 %
11	Tires: Tire Price / Estimated Life						
	(1.0)						
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr)			11 100%	4 38 %	7 62 %	3.1 28 %
13	Special Items: % of (12) in Value						
14	TOTAL OPERATING COST			39.3 100%	12.8 %	26.5 %	8 %
15	TOTAL OWING & OPERATING COST			52.7 100%	14 27 %	38.7 73 %	8.5 16 %
16	OPERATOR'S HOURLY WAGE, Class 3			5.5 100%	5.5 100 %	0 0 %	0.1 2 %
	Remarks ; 10.5 M3/min.						
	Rate per 1.0 M3/min.			0.09 100%	0.03 35%	0.06 65%	0.01 16%

Table 3.3-15 Hourly Cost Estimate of Construction Equipment in Category 1, Concrete Mixter

(Rs)

	Item: Concrete Mixer, 1.0 M3	ton	HP	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		98			
2	Delivered Price	(x 1000Rs)		108 100%	10 9 %	98 91 %	4 4 %
3	Less Tire price:	(x 1000Rs)					
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		76 100%	7 9 %	69 91 %	3 4 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000 hr)			6.3 100%	0.6 %	5.7 %	0.3 %
	Interest, Insurance: 12 %						
	Depreciation Period 6 Years						
	Approximate Annual Use 2000 Hours						
	(0.72)						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			4.7 100%	0.4 9 %	4.3 91 %	0.2 4 %
8	TOTAL OWING COST			11 100%	1 9 %	10 91 %	0.5 4 %
	OPERATING COSTS						
9	(44) (Kwh) x (0.7) (Rs/Kwh)			31 100%	13.3 43 %	17.7 57 %	4.3 14 %
10	Electricity:						
11	Tires: Tire Price / Estimated Life						
12	Repairs: Repair factor (1.0) X Deliv. Price / Depreciation Period in Hours (12000 hr)			9 100%	3.4 38 %	5.6 62 %	2.5 28 %
13	Special Items: % of (12) in Value						
14	TOTAL OPERATING COST			40 100%	16.7 42 %	23.3 58 %	6.8 17 %
15	TOTAL OWING & OPERATING COST			51 100%	17.7 35 %	33.3 65 %	7.3 14 %
16	OPERATOR'S HOURLY WAGE Class 3 x 1 / Class 5 x 3			17.5 100%	17.5 100 %	0 %	0.4 2 %
	Remarks: Powered 44 KW			68.5 100%	35.2 51%	33.3 49%	7.7 11%
	Assumed as 30 times/hr; per 1 M3			2.3 100%	1.2 51%	1.1 49%	0.3 11%

Table 3.3-16 Hourly Cost Estimate of Construction Equipment in Category 2, Komatsu GD 655A-1

(Rs)

	Item: Motor Grader, Komatsu GD655A-1	ton 12.7	HP 165	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		531			
2	Delivered Price	(x 1000Rs)		583 100%	52 9 %	531 91%	23 4 %
3	Less Tire price:	(x 1000Rs)		25 100%	13 53 %	12 47%	12 47 %
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		391 100%	27 7 %	363 93%	8 2 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000 hr)			32.6 100%	2.3 7 %	30.3 93 %	0.7 2 %
	Interest, Insurance: 12 %						
	Depreciation Period 6 Years						
	Approximate Annual Use 2000 Hours (0.72)						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			25.2 100%	2.3 9 %	22.9 91 %	1 4 %
8	TOTAL OWING COST			57.8 100%	4.6 8 %	53.2 92 %	1.7 5 %
	OPERATING COSTS						
9	Fuel: (4.3) (gal/hr) x (Rs/gal) (7.5) Consumption X Unit Cost			32 100%	10 31 %	22 69 %	5.4 17 %
10	Lubricants: 22 % of Fuel in Value			7 100%	2 31 %	5 69 %	1.2 17 %
11	Tires: Tire Price / Estimated Life (2500hr) (1.0) (less Tire)			10 100%	5.3 53 %	4.7 47 %	4.7 47 %
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr)			48.6 100%	18.5 38 %	30.1 62 %	13.6 28 %
13	Special Items: % of (12) in Value						
14	TOTAL OPERATING COST			97.6 100%	35.8 37 %	61.8 63 %	24.9 26 %
15	TOTAL OWING & OPERATING COST			155.4 100%	40.4 26 %	114.8 74 %	26.6 17 %
16	OPERATOR'S HOURLY WAGE, Class 3			5.5 100%	5.5 100 %	0 0 %	0.1 2 %
	Remarks						

Table 3.3-17 Hourly Cost Estimate of Construction Equipment in Category 2, Truck Mixer

(Rs)

	Item: Truck Mixer 3.0 M3	ton	HP	Total	Component		(Tax)
		7.5	195		Local	Foreign	
1	CIF Value	(x 1000Rs)		78			
2	Delivered Price	(x 1000Rs)		86 100%	8 9 %	78 91 %	3.4 4 %
3	Less Tire price:	(x 1000Rs)		8.5 100%	4.5 53 %	4 47 %	4 47 %
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		54 100%	2.5 5 %	51.5 95 %	0 0 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000 hr)			4.5 100%	0.2 5 %	4.3 95 %	0 0 %
	Interest, Insurance: 12 %						
	Depreciation Period: 6 Years						
	Approximate Annual Use: 2000 Hours						
	(0.72)						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			3.7 100%	0.3 9 %	3.4 91 %	0.1 4 %
8	TOTAL OWING COST			8.2 100%	0.5 6 %	7.7 94 %	0.1 1 %
	OPERATING COSTS						
9	Fuel: (gal/hr) x (Rs/gal) (7.5) Consumption X Unit Cost			55 100%	17 31 %	38 69 %	9.4 17 %
10	Lubricants: 22 % of Fuel in Value			12 100%	3.7 31 %	8.3 69 %	2 17 %
11	Tires: Tire Price / Estimated Life (2500hr) (1.0) (less Tire)			3.4 100%	1.8 53 %	1.6 47 %	1.6 47 %
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr)			3.4 100%	1.8 53 %	1.6 47 %	1.6 47 %
13	Special Items: % of (12) in Value			6.5 100%	0.6 9 %	5.9 91 %	0.3 4 %
14	TOTAL OPERATING COST			76.9 100%	23.1 30 %	53.8 70 %	13.3 17 %
15	TOTAL OWING & OPERATING COST			85.1 100%	23.1 28 %	61.5 72 %	13.4 16 %
16	OPERATOR'S HOURLY WAGE, Class 3			5.5 100%	5.5 100 %	0 0 %	0.1 2 %
	Remarks						

Table 3.3-18 Hourly Cost Estimate of Construction Equipment in Category 3, Handy Compactor

(Rs)

	Item: Handy Compactor, Daikyoku TP-12D	ton 0.12	HP 4	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		7.4			
2	Delivered Price	(x 1000Rs)		8.1 100%	0.7 9 %	7.4 91 %	0.3 4 %
3	Less Tire price:	(x 1000Rs)					
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		5.7 100%	0.5 9 %	5.2 91 %	0.2 4 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000 hr)			0.47 100%	0.04 9 %	0.43 91 %	0.02 4 %
	Interest, Insurance: 12 %						
	Depreciation Period 6 Years						
	Approximate Annual Use 2000 Hours (0.72)						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			0.35 100%	0.03 9 %	0.32 91 %	0.01 4 %
8	TOTAL OWING COST			0.82 100%	0.07 9 %	0.75 91 %	0.03 4 %
	OPERATING COSTS						
9	Fuel: Consumption X Unit Cost (0.12) (gal/hr) x (Rs/gal) (15.0)			1.8 100%	0.6 31 %	1.2 69 %	0.3 17 %
10	Lubricants: 22 % of Fuel in Value			0.4 100%	0.1 31 %	0.3 69 %	0.1 17 %
11	Tires: Tire Price / Estimated Life						
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr) (0.4)			0.3 100%	0.1 38 %	0.2 62 %	0.1 28 %
13	Special Items: % of (12) in Value						
14	TOTAL OPERATING COST			2.5 100%	0.8 32 %	1.7 68 %	0.5 20 %
15	TOTAL OWING & OPERATING COST			3.32 100%	0.87 26 %	2.45 74 %	0.53 16 %
16	OPERATOR'S HOURLY WAGE, Class 5			4 100%	4 100 %	0 0 %	0 0 %
	Remarks						

Table 3.3-19 Hourly Cost Estimate of Construction Equipment
Generator in Category 4, Portable Generator

(Rs)

	Item: Portable Generator, Hokuetsu PDG73S	ton	HP	Total	Component		(Tax)
		2.6	70		Local	Foreign	
1	CIF Value (x 1000Rs)			108			
2	Delivered Price (x 1000Rs)			135 100%	27 20 %	108 80 %	17.6 13 %
3	Less Tire price: (x 1000Rs)						
4	Less Trade-in Value (x 1000Rs)						
5	Net Depreciation Value: 70 % of ((2)-(3)) (x 1000Rs)			95 100%	19 20 %	76 80 %	12 13 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (12000hr)			8 100%	1.6 20 %	6.4 80 %	1.0 13 %
	Interest, Insurance: 12 %						
	Depreciation Period 6 Years						
	Approximate Annual Use 2000 Hours						
	(0.72)						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			6 100%	1.2 20 %	4.8 80 %	0.8 13 %
8	TOTAL OWING COST			14 100%	2.8 20 %	11.2 80 %	1.8 13 %
	OPERATING COSTS						
9	Fuel: (2.1) (gal/hr) x (Rs/gal) (7.5) Consumption X Unit Cost			16 100%	5 31 %	11 69 %	2.7 17 %
10	Lubricants: 22 % of Fuel in Value			3.5 100%	1.1 31 %	2.4 69 %	0.6 17 %
11	Tires: Tire Price / Estimated Life						
	(0.4)						
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr)			4.5 100%	1.7 38 %	2.8 62 %	1.3 28 %
13	Special Items: % of (12) in Value			100%	38 %	62 %	28 %
14	TOTAL OPERATING COST			24 100%	7.8 33 %	16.2 67 %	4.6 19 %
15	TOTAL OWING & OPERATING COST			38 100%	10.6 28 %	27.4 72 %	6.4 17 %
16	OPERATOR'S HOURLY WAGE , Class 3, 1 man			5.5 100%	5.5 100 %	0 0 %	0 2 %
	Remarks; 60/73 KVA						
	Rate per Kwh:			0.7 100%	0.3 43%	0.4 57%	0.1 14%

Table 3.3-20 Hourly Cost Estimate of Construction Equipment in Category 5, Electric Welding Appliance

(Rs)

	Item: Osaka Denki B40D	ton / HP	Total	Component Local	Component Foreign	(Tax)
		0.125				
1	CIF Value		2720			
2	Delivered Price		3400 100%	680 20 %	2720 80 %	442 13 %
3	Less Tire price:					
4	Less Trade-in Value					
5	Net Depreciation Value: 100 % of ((2)-(3))		3400 100%	680 20 %	2720 80 %	442 13 %
	OWING COSTS					
	Depreciation:					
6	Net Depreciation Value / Depreciation Period in Hours (12000 hr)		0.28 100%	0.06 20 %	0.22 80 %	0.04 13 %
	Interest, Insurance: 12 %					
	Depreciation Period: 6 Years					
	Approximate Annual Use: 2000 Hours					
	(0.72)					
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours		0.15 100%	0.03 20 %	0.12 80 %	0.02 13 %
8	TOTAL OWING COST		0.43 100%	0.09 20 %	0.34 80 %	0.06 13 %
	OPERATING COSTS					
9	(13) (Kwh) x (0.7) (Rs/Kwh) Electricity:		9.1 100%	3.9 43 %	5.2 57 %	1.2 14 %
10						
11	Tires: Tire Price / Estimated Life					
12	Repairs: (0.4) Repair factor X Deliv. Price / Depreciation Period in Hours (12000 hr)		0.11 100%	0.04 38 %	0.07 62 %	0.03 28 %
13	Special Items: % of (12) in Value					
14	TOTAL OPERATING COST		9.21 100%	3.94 %	5.27 %	1.23 %
15	TOTAL OWING & OPERATING COST		9.64 100%	4.03 42 %	5.61 58 %	1.29 13 %
16	OPERATOR'S HOURLY WAGE, Class 3		5.5 100%	5.5 100 %	0 0 %	0.1 2 %
	Remarks: Power: 32.5 KVA, Usage rate: 40%					

Table 3.3-21 Hourly Cost Estimate of Construction Equipment in Category 6, Dump Truck Komatsu HD200-2

(Rs)

	Item: Dump truck, Komatsu HD200-2	ton 18.5	HP 280	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		748			
2	Delivered Price	(x 1000Rs)		935 100%	187 20 %	748 80 %	121 13 %
3	Less Tire price:	(x 1000Rs)		45 100%	24 53 %	21 47 %	21 47 %
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		605 100%	114 19 %	491 81 %	52 9 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (15000 hr)			40 100%	7.6 19 %	32.4 81 %	3.6 9 %
	Interest, Insurance: 12 %						
	Depreciation Period: 6 Years						
	Approximate Annual Use: 2500 Hours (0.72)						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			32 100%	6.4 20 %	25.6 80 %	4.2 13 %
8	TOTAL OWING COST			72 100%	14 19 %	58 81 %	7.8 13 %
	OPERATING COSTS						
9	Fuel: Consumption (3.9) (gal/hr) x Unit Cost (Rs/gal) (7.5)			29.3 100%	9.1 31 %	20.2 69 %	5 17 %
10	Lubricants: 22 % of Fuel in Value			6.4 100%	2.0 31 %	4.4 69 %	1.1 17 %
11	Tires: Tire Price / Estimated Life (2500 hr) (0.6) (less Tire)			18 100%	9.5 53 %	8.5 47 %	8.5 47 %
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (15000 hr)			36 100%	13.7 38 %	22.3 62 %	10.1 28 %
13	Special Items: % of (12) in Value						
14	TOTAL OPERATING COST			89.7 100%	34.3 38 %	55.4 62 %	24.7 28 %
15	TOTAL OWING & OPERATING COST			161.7 100%	48.3 30 %	113.4 70 %	32.5 20 %
16	OPERATOR'S HOURLY WAGE , Class 3			5.5 100%	5.5 100 %	0 0 %	0.1 2 %
	Remarks						

Table 3.3-22 Hourly Cost Estimate of Construction Equipment
Velt Conveyer in Category 7, Belt Conveyer

(Rs)

	Item: Belt Conveyer 450 M/M x 7.5 M	ton / HP	Total	Component Local	Component Foreign	(Tax)
		2.5				
1	CIF Value	(x 1000Rs)	18			
2	Delivered Price	(x 1000Rs)	24.3 100%	6.3 26 %	18 74 %	4.9 20 %
3	Less Tire price:	(x 1000Rs)				
4	Less Trade-in Value	(x 1000Rs)				
5	Net Depreciation Value: 90 % of ((2)-(3))	(x 1000Rs)	22 100%	5.7 26 %	16.3 74 %	4.4 20 %
	OWING COSTS					
	Depreciation:					
6	Net Depreciation Value / Depreciation Period in Hours (12500 hr)		1.8 100%	0.5 26 %	1.3 74 %	0.4 20 %
	Interest, Insurance: 12 %					
	Depreciation Period 5 Years					
	Approximate Annual Use 2500 Hours					
	(0.64)					
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours		0.8 100%	0.2 26 %	0.6 74 %	0.2 20 %
8	TOTAL OWING COST		2.6 100%	0.7 26 %	1.9 74 %	0.6 20 %
	OPERATING COSTS					
9	Electricity : (2.2) (Kwh) x (0.7) (Rs/Kwh)		1.5 100%	0.6 43 %	0.9 57 %	0.2 14 %
10	Lubricants: 20 % of Fuel in Value		0.3 100%	0.1 31 %	0.2 69 %	0.1 17 %
11	Tires: Tire Price / Estimated Life					
	(0.4)					
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (12500 hr)		0.8 100%	0.2 26 %	0.6 74 %	0.2 20 %
13	Special Items: % of (12) in Value					
14	TOTAL OPERATING COST		2.6 100%	0.9 35 %	1.7 65 %	0.5 19 %
15	TOTAL OWING & OPERATING COST		5.2 100%	1.6 31 %	3.6 69 %	1.1 21 %
16	OPERATOR'S HOURLY WAGE , Class 3, 0.2 Hr		1.1 100%	1.1 100 %	0 0 %	0 2 %
	Remarks : Power 2.2 KW					

Table 3.3-23 Hourly Cost Estimate of Construction Equipment in Category 8, Truck 11 t

(Rs)

	Item: Truck, 11 t	ton / HP	Total	Component Local	Component Foreign	(Tax)
		8.2 / 260				
1	CIF Value	(x 1000Rs)	226			
2	Delivered Price	(x 1000Rs)	390 100%	164 42 %	226 58 %	117 30 %
3	Less Tire price: 100-24-14x6	(x 1000Rs)	8.2 100%	4.3 53 %	3.9 47 %	3.9 47 %
4	Less Trade-in Value	(x 1000Rs)				
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)	267.3 100%	111.8 42 %	155.5 58 %	79.2 30 %
	OWING COSTS					
	Depreciation:					
6	Net Depreciation Value / Depreciation Period in Hours (15000hr)		17.8 100%	7.5 42 %	10.3 58 %	5.3 30 %
	Interest, Insurance: 12 %					
	Depreciation Period: 6 Years					
	Approximate Annual Use: 2500 Hours (0.72)					
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours		13.5 100%	5.7 42 %	7.8 58 %	4 30 %
8	TOTAL OWING COST		31.3 100%	13.2 42 %	18.1 58 %	9.3 30 %
	OPERATING COSTS					
9	Fuel: (7.8) (gal/hr) Consumption x (Rs/gal) Unit Cost (7.5)		59 100%	18.3 31 %	40.7 69 %	10 17 %
10	Lubricants: 10 % of Fuel in Value		6 100%	2 31 %	4 69 %	1 17 %
11	Tires: Tire Price / Estimated Life (2500 hr) (0.6) (less Tire)		33 100%	17.5 53 %	15.5 47 %	15.5 47 %
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (15000 hr)		15.3 100%	5.8 38 %	9.5 62 %	4.3 28 %
13	Special Items: % of (12) in Value					
14	TOTAL OPERATING COST		113.3 100%	43.6 38 %	69.7 62 %	30.8 27 %
15	TOTAL OWING & OPERATING COST		144.6 100%	56.8 39 %	87.8 61 %	40.1 28 %
16	OPERATOR'S HOURLY WAGE, Class 3		5.5 100%	5.5 100 %	0 0 %	0.1 2 %
	Remarks					

Table 3.3-24 Hourly Cost Estimate of Construction Equipment in Category 9, Land Rover

(Rs)

	Item: Land Rouver	ton	HP 150	Total	Component Local	Component Foreign	(Tax)
1	CIF Value	(x 1000Rs)		138			
2	Delivered Price	(x 1000Rs)		394 100%	256 65 %	138 35 %	244 62 %
3	Less Tire price:	(x 1000Rs)		6 100%	3 53 %	2.8 47 %	0.2 47 %
4	Less Trade-in Value	(x 1000Rs)					
5	Net Depreciation Value: 70 % of ((2)-(3))	(x 1000Rs)		272 100%	177 65 %	95 35 %	171 63 %
	OWING COSTS						
	Depreciation:						
6	Net Depreciation Value / Depreciation Period in Hours (15000hr)			18 100%	11.7 65 %	6.3 35 %	11.3 63 %
	Interest, Insurance: 12 %						
	Depreciation Period 6 Years						
	Approximate Annual Use (072) 2500 Hours						
7	Factor X Deliv. Price X Ann. Rate / Annual Use in Hours			14 100%	9.1 65 %	4.9 35 %	8.7 62 %
8	TOTAL OWING COST			32 100%	20.8 65 %	11.2 35 %	20 63 %
	OPERATING COSTS						
9	Fuel: Consumption (4.5) (gal/hr) x Unit Cost (Rs/gal) (15.0)			68 100%	21 31 %	47 69 %	12 17 %
10	Lubricants: 22 % of Fuel in Value			15 100%	4.7 31 %	10.3 69 %	2.6 17 %
11	Tires: Tire Price / Estimated Life (2500 hr) 0.6 (less Tire)			2.4 100%	1.3 53 %	1.1 47 %	1.1 47 %
12	Repairs: Repair factor X Deliv. Price / Depreciation Period in Hours (15000 hr)			16 100%	6 38 %	10 62 %	4.5 28 %
13	Special Items: % of (12) in Value						
14	TOTAL OPERATING COST			101.4 100%	33 33 %	68.4 67 %	20.2 20 %
15	TOTAL OWING & OPERATING COST			133.4 100%	53.8 40 %	79.6 60 %	40.2 30 %
16	OPERATOR'S HOURLY WAGE, Class 3			5.5 100%	5.5 100 %	0 0 %	0.1 2 %
	Remarks						

Table 3.3-25 Ratio of Taxes for Total Tax Cost Component for Hourly Cost, Komatsu D355A-3

Description	Total Taxes	Import Duties	Corporate Tax	Income Tax
Owing Cost				
Depreciation, Interest and Insurance	Rs 7.80 100%	Rs 0.3 4%	Rs 7.3 94%	Rs 0.2 2%
Operating Cost				
Fuel and Lubricants	Rs 19.4 100%	Rs 16.3 84%	Rs 2.5 13%	Rs 0.6 3%
Repairs	Rs 44.8 100%	Rs 42.6 95%	Rs 1.8 4%	Rs 0.4 1%
Total	Rs 72.2 100%	Rs 59.4 82%	Rs 11.6 16%	Rs 1.2 2%

Table 3.3-26 Ratio of Taxes for Total Tax Cost Component for Hourly Cost, Concrete Mixer

Description	Total Taxes	Import Duties	Corporate Tax	Income Tax
Owing Cost				
Depreciation, Interest and Insurance	Rs 0.5 100%	Rs 0.02 4%	Rs 0.47 94%	Rs 0.01 2%
Operating Cost				
Fuel and Lubricants	Rs 4.3 100%	Rs 3.6 84%	Rs 0.6 13%	Rs 0.1 3%
Repairs	Rs 2.5 100%	Rs 2.4 95%	Rs 0.1 4%	Rs 0 1%
Total	Rs 7.3 100%	Rs 6.02 82%	Rs 1.17 16%	Rs 0.11 2%

Table 3.3-27 Ratio of Taxes for Total Tax Cost Component for Hourly Cost, Asphalt Plant Set

Description	Total Taxes	Import Duties	Corporate Tax	Income Tax
Owing Cost				
Depreciation, Interest and Insurance	Rs 5 100%	Rs 0.2 4%	Rs 4.7 94%	Rs 0.1 2%
Operating Cost				
Fuel and Lubricants	Rs 109 100%	Rs 92 84%	Rs 14 13%	Rs 3 3%
Repairs	Rs 29 100%	Rs 27.6 95%	Rs 1.2 4%	Rs 0.2 1%
Total	Rs 143 100%	Rs 119.8 84%	Rs 19.9 14%	Rs 3.3 2%

Table 3.3-28 Ratio of Taxes for Total Tax Cost Component for Hourly Cost, Portable Generator

Description	Total Taxes	Import Duties	Corporate Tax	Income Tax
Owing Cost				
Depreciation, Interest and Insurance	Rs 1.8 100%	Rs 1.5 81%	Rs 0.3 19%	Rs 0 0%
Operating Cost				
Fuel and Lubricants	Rs 3.3 100%	Rs 2.8 84%	Rs 0.4 13%	Rs 0.1 3%
Repairs	Rs 1.3 100%	Rs 1.23 95%	Rs 0.05 4%	Rs 0.02 1%
Total	Rs 6.4 100%	Rs 5.53 86%	Rs 0.75 12%	Rs 0.12 2%

Table 3.3-29 Ratio of Taxes for Total Tax Cost Component for Hourly Cost, Electric Welding Appliance

Description	Total Taxes	Import Duties	Corporate Tax	Income Tax
Owing cost				
Depreciation, Interest and Insurance	Rs 0.06 100%	Rs 0 4%	Rs 0.06 94%	Rs 0 2%
Operating Cost				
Fuel and Lubricants	Rs 1.2 100%	Rs 1.00 84%	Rs 0.16 13%	Rs 0.04 3%
Repairs	Rs 0.03 100%	Rs 0.03 95%	Rs 0 4%	Rs 0 1%
Total	Rs 1.29 100%	Rs 1.03 80%	Rs 0.22 18%	Rs 0.04 2%

Table 3.3-30 Ratio of Taxes for Total Tax Cost Component for Hourly Cost, Dump Truck

Description	Total Taxes	Import Duties	Corporate Tax	Income Tax
Owing Cost				
Depreciation, Interest and Insurance	Rs 7.8 100%	Rs 0.3 4%	Rs 7.3 94%	Rs 0.2 2%
Operating Cost				
Fuel and Lubricants	Rs 6.1 100%	Rs 5.1 84%	Rs 0.8 13%	Rs 0.2 3%
Repairs	Rs 18.6 100%	Rs 17.7 95%	Rs 0.7 4%	Rs 0.2 1%
Total	Rs 32.5 100%	Rs 23.1 70%	Rs 8.8 28%	Rs 0.6 2%

Table 3.3-31 Ratio of Taxes for Total Tax Cost Component for Hourly Cost, Belt Conveyer

Description	Total Taxes	Import Duties	Corporate Tax	Income Tax
Owing cost				
Depreciation, Interest and Insurance	Rs 0.6 100%	Rs 0.5 89%	Rs 0.1 12%	Rs 0 1%
Operating Cost				
Fuel and Lubricants	Rs 0.3 100%	Rs 0.25 84%	Rs 0.04 13%	Rs 0.01 3%
Repairs	Rs 0.2 100%	Rs 0.2 95%	Rs 0 4%	Rs 0 1%
Total	Rs 1.1 100%	Rs 0.95 86%	Rs 0.14 13%	Rs 0.01 1%

Table 3.3-32 Ratio of Taxes for Total Tax Cost Component for Hourly Cost, Truck 11 t

Description	Total Taxes	Import Duties	Corporate Tax	Income Tax
Owing Cost				
Depreciation, Interest and Insurance	Rs 9.3 100%	Rs 8.7 94%	Rs 0.6 6%	Rs 0 0%
Operating Cost				
Fuel and Lubricants	Rs 11 100%	Rs 9.3 84%	Rs 1.4 13%	Rs 0.3 3%
Repairs	Rs 19.8 100%	Rs 18.8 95%	Rs 0.8 4%	Rs 0.2 1%
Total	Rs 40.1 100%	Rs 36.8 92%	Rs 2.8 7%	Rs 0.5 1%

Table 3.3-33 Ratio of Taxes for Total Tax Cost Component for Hourly Cost, Land Rouver

Description	Total Taxes	Import Duties	Corporate Tax	Income Tax
Owing Cost				
Depreciation, Interest and Insurance	Rs 20 100%	Rs 19.4 97%	Rs 0.4 2%	Rs 0.2 1%
Operating Cost				
Fuel and Lubricants	Rs 14.6 100%	Rs 12.3 84%	Rs 1.9 13%	Rs 0.4 3%
Repairs	Rs 5.6 100%	Rs 5.3 95%	Rs 0.2 4%	Rs 0.1 1%
Total	Rs 40.2 100%	Rs 37 92%	Rs 2.5 6%	Rs 0.7 2%

Table 3.3-34 Summary of Hourly Cost of Construction Equipment

Item	Weight ton	HP	CIF Value (10^3Rs)	Owing Cost (Rs)	%	Operating Cost (Rs)	%	POL	Oth.	Hourly Cost	Component Local (Rs)	%	Foreign (Rs)	%	Tax (Rs)	%	Taxes Import (Rs)	%	Corporate (Rs)	%	Income (Rs)	%
(1) Category 1 and 2																						
. Bulldozer ($\gamma = 2.7 \times 10^{-4}$)																						
	45	410	1742	190	40	280	60	115	165	470	120	25	350	75	70	15	57	82	12	16	1	2
	34	320	1227	130	"	200	"	90	110	330	80	"	250	"	50	"	41	"	8	"	1	"
	24	220	865	95	"	140	"	60	80	235	60	"	175	"	35	"	28.7	"	5.7	"	0.6	"
	17	155	567	60	"	95	"	45	110	155	40	"	115	"	23	"	18.9	"	3.7	"	0.4	"
	12	110	415	40	"	65	"	30	35	110	30	"	80	"	17	"	14	"	2.7	"	0.3	"
. Dozer Shovel ($\gamma = 2.7 \times 10^{-4}$)																						
1.6M3	15	135	506	55	"	80	"	40	40	135	35	"	100	"	20	"	16.4	"	3.2	"	0.4	"
1.8M3	18	160	634	70	"	100	"	45	125	170	40	"	130	"	25	"	20.5	"	4	"	0.5	"
2.2M3	21	200	740	80	"	120	"	55	145	200	50	"	150	"	30	"	24.6	"	4.8	"	0.6	"
. Wheel Loader ($\gamma = 2.7 \times 10^{-4}$)																						
1.7M3	9.5	105	525	55	"	85	"	30	55	140	35	"	105	"	20	"	16.4	"	3.2	"	0.4	"
2.3M3	12.5	152	692	75	"	115	"	45	145	190	50	"	140	"	30	"	24.6	"	4.8	"	0.6	"
. Motor Grader ($\gamma = 2.7 \times 10^{-4}$)																						
W = 3.7M	11	125	397	45	"	65	"	35	30	110	30	"	80	"	15	"	12.3	"	2.4	"	0.3	"
W = 4.0M	13	165	531	60	"	85	"	46	39	145	35	"	110	"	20	"	16.4	"	3.2	"	0.4	"
. Back Hoe ($\gamma = 2.7 \times 10^{-4}$)																						
0.5M3	12	90	430	50	"	70	"	25	45	120	30	"	90	"	18	"	14.8	"	2.9	"	0.3	"
1.0M3	20	120	645	70	"	105	"	34	71	175	45	"	130	"	26	"	21.3	"	4.2	"	0.5	"
1.5M3	25	150	854	90	"	140	"	42	98	230	60	"	170	"	35	"	28.7	"	5.6	"	0.7	"
1.8M3	40	200	1321	145	"	215	"	56	159	360	90	"	270	"	54	"	44.3	"	8.6	"	1.1	"
. Wheel Crane ($\gamma = 2.7 \times 10^{-4}$)																						
3 t	5	100	200	20	"	35	"	28	7	55	15	"	40	"	8	"	6.6	"	1.3	"	0.1	"
5 t	8	125	274	30	"	45	"	35	10	75	20	"	55	"	11	"	9.0	"	1.8	"	0.2	"
10 t	15	170	393	40	"	65	"	48	17	105	25	"	80	"	16	"	13.1	"	2.6	"	0.3	"
16 t	20	175	645	70	"	105	"	49	56	175	45	"	130	"	26	"	21.3	"	4.2	"	0.5	"
20 t	23	180	747	80	"	120	"	50	70	200	50	"	150	"	30	"	24.6	"	4.8	"	0.6	"
25 t	28	185	922	100	"	150	"	52	98	250	60	"	190	"	38	"	31.2	"	6.1	"	0.7	"
35 t	34	200	1290	140	"	210	"	56	154	350	90	"	260	"	53	"	43.5	"	8.5	"	1.0	"
45 t	37	220	1567	170	"	255	"	62	193	425	105	"	320	"	64	"	52.5	"	10.2	"	1.3	"
. Load Roller ($\gamma = 2.7 \times 10^{-4}$)																						
Macadam 10t	10	58	184	20	"	30	"	16	14	50	10	"	40	"	8	"	6.6	"	1.3	16	0.1	"
Macadam 12t	12	87	200	20	"	35	"	24	9	55	15	"	40	"	8	"	6.6	"	1.3	"	0.1	"
Macadam 15t	15	76	277	30	"	45	"	21	24	75	20	"	55	"	11	"	9.0	"	1.8	"	0.2	"
Tandem 8t	8	58	182	20	"	30	"	16	14	50	10	"	40	"	8	"	6.6	"	1.3	"	0.1	"
Tandem 10t	10	58	244	25	"	40	"	16	24	65	15	"	50	"	10	"	8.2	"	1.6	"	0.2	"
. Tire Roller ($\gamma = 2.7 \times 10^{-4}$)																						
3 t	3	16	103	10	"	20	"	4	16	30	10	"	20	"	5	"	4.1	"	0.8	"	0.1	"
8 t	8	41	172	20	"	25	"	11	14	45	10	"	35	"	7	"	5.7	"	1.1	"	0.2	"
10 t	10	41	197	20	"	35	"	11	24	55	15	"	40	"	8	"	6.5	"	1.3	"	0.2	"
20 t	20	67	264	30	"	40	"	19	21	70	20	"	50	"	11	"	9.0	"	1.8	"	0.2	"
28 t	28	95	276	30	"	45	"	27	18	75	20	"	55	"	11	"	9.0	"	1.8	"	0.2	"

Item	Weight ton	HP	CIF Value (10^3Rs)	Owing Cost (Rs)	%	Operating Cost (Rs)	%	POL (Rs)	Oth. (Rs)	Hourly Cost (Rs)	Component Local (Rs)	%	Foreign (Rs)	%	Tax (Rs)	%	Taxes Import (Rs)	%	Corporate (Rs)	%	Income (Rs)	%
. Vibrating Roller (γ = 2.7 x 10^{-4})																						
	0.9	6	39	4	40	6	60	2	4	10	3	25	7	75	2	15	1.6	82	0.3	16	0.1	2
	2.6	12	49	6	"	9	"	3	6	15	4	"	11	"	2	"	1.6	"	0.3	"	0.1	"
. Asphalt Plant Set (γ = 7.7 x 10^{-4})																						
35 t/hr			1122	130	15	740	85	525	215	870	220	30	650	70	130	"	106.6	"	20.8	"	2.6	"
70 t/hr			2483	290	"	1620	"	1050	570	1910	575	"	1335	"	290	"	237.8	"	46.4	"	5.8	"
105 t/hr			3534	410	"	2310	"	1575	735	2720	815	"	1905	"	410	"	336.2	"	65.6	"	8.2	"
. Asphalt Finisher (γ = 2.7 x 10^{-4})																						
W = 2.8M	5	25	227	25	40	35	60	7	28	60	15	25	45	75	9	"	7.4	"	1.4	"	0.2	"
W = 3.6M	6	38	298	30	"	50	"	11	39	80	20	"	60	"	12	"	9.8	"	1.9	"	0.3	"
W = 4.5M	10	53	536	60	"	85	"	15	70	145	35	"	110	"	22	"	18.0	"	3.5	"	0.5	"
W = 5.4M	12	78	611	65	"	100	"	22	78	165	40	"	125	"	25	"	20.5	"	4.0	"	0.5	"
. Asphalt Sprayer (γ = 2.7 x 10^{-4})																						
30 ℓ/min	0.15	5	7	0.8	"	1.2	"	1	0.2	2	0.5	"	1.5	"	0.3	"	0.2	"	0.1	"	0	"
. Concrete Mixer (γ = 5.2 x 10^{-4})																						
0.75M3		30KW	88	10	20	35	80		35	45	15	35	30	65	6	14	4.9	"	1.0	"	0.1	"
1.0 M3		44KW	98	10	"	40	"		40	50	20	"	30	"	7	"	5.7	"	1.1	"	0.2	"
1.5 M3		60KW	129	15	"	55	"		55	70	25	"	45	"	10	"	8.2	"	1.6	"	0.2	"
3.0 M3		120KW	372	40	"	155	"		155	195	70	"	125	"	13	"	10.7	"	2.1	"	0.2	"
. Truck Mixer (Agitator) (γ = 1.1 x 10^{-3})																						
3.0 M3	7.5	195	78	10	10	75	90	55	20	85	25	30	60	70	14	16	11.5	"	2.2	"	0.3	"
4.4 M3	9	220	86	10	"	85	"	62	23	95	30	"	65	"	15	"	12.3	"	2.4	"	0.3	"
. Portable Air Compressor (γ = 4.4 x 10^{-4})																						
3.5 M3/min	0.9	46	46	5	25	15	75	13	2	20	5	27	15	73	3	"	2.5	"	0.5	"	0	"
5.0 "	1.0	46	71	10	"	20	"	13	7	30	10	"	20	"	3	"	2.5	"	0.5	"	0	"
7.5 "	2.0	65	91	10	"	30	"	18	12	40	10	"	30	"	5	"	4.1	"	0.8	"	0.1	"
10.5 "	3.0	103	118	10	"	40	"	29	11	50	15	"	35	"	6	"	4.9	"	1.0	"	0.1	"
. Concrete Pump Truck (γ = 2.7 x 10^{-4})																						
60 M3/hr	8	130	592	65	40	95	60	36	59	160	40	25	120	75	24	15	19.7	"	3.8	"	0.5	"
70 "	14	195	738	80	"	120	"	55	65	200	50	"	150	"	30	"	24.6	"	4.8	"	0.6	"
(2) Category 3																						
. Handy Compactor (γ = 4.5 x 10^{-4})																						
	0.12	4	7.4	0.9	25	2.6	75	2.2	0.4	3.5	0.9	25	2.6	75	0.5	15	0.4	82	0.1	16	0	2
	0.20	5	15.3	2.0	"	5.0	"	1.4	3.6	7.0	2.0	"	5.0	"	1.1	"	0.9	"	0.2	"	0	"
. Concrete Vibrator (γ = 4.5 x 10^{-4})																						
	4Kg	0.2KW	1.2	0.1	"	0.4	"		0.4	0.5	0.1	"	0.4	"	0.1	"	0.1	"	0	"	0	"
	12Kg	0.5KW	2.2	0.2	"	0.8	"		0.8	1.0	0.2	"	0.8	"	0.2	"	0.2	"	0	"	0	"
	34Kg	0.8KW	4.3	0.5	"	1.5	"		1.5	2.0	0.5	"	1.5	"	0.3	"	0.2	"	0.1	"	0	"
Concrete Cutter (γ = 4.5 x 10^{-4})																						
	0.1	6.5	8.5	1.0	"	3.0	"	2.2	0.8	4	1.0	"	3.0	"	0.6	"	0.5	"	0.1	"	0	"
	0.3	15	21.2	2.5	"	7.5	"	5.0	2.5	10	2.5	"	7.5	"	1.5	"	1.2	"	0.3	"	0	"

Item	Weight ton	HP	CIF Value (10^3Rs)	Owing Cost		Operating Cost				Hourly Cost	Component						Taxes					
								FOL	Oth.		Local		Foreign		Tax		Import		Corporate		Income	
				(Rs)	%	(Rs)	%	(Rs)	(Rs)	(Rs)	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%
. Pick Hammer ($\gamma = 4.5 \times 10^{-4}$)																						
	8 Kg		0.8	1	25	3	75		3.0	4	1	25	3	75	0.6	15	0.5	82	0.1	16	0	2
. Braker (Jack Hammer) ($\gamma = 4.5 \times 10^{-4}$)																						
	20 Kg		1.8	2.0	"	6.0	"		6.0	8	2.0	"	6.0	"	1.2	"	1.0	"	0.2	"	0	2
	30 "		2.0	2.2	"	6.8	"		6.8	9	2.2	"	6.8	"	1.4	"	1.2	"	0.2	"	0	"
. Winch ($\gamma = 4.5 \times 10^{-4}$)																						
2.3 t	1.7	25KW	57	6.5	"	19.5	"		19.5	26	6.5	"	19.5	"	3.9	"	3.2	"	0.6	"	0.1	"
3.0 t	2.0	35KW	68	7.8	"	23.2	"		23.2	31	7.8	"	23.2	"	4.7	"	3.9	"	0.7	"	0.1	"
. Bar Bending and Cutting Machine ($\gamma = 4.5 \times 10^{-4}$)																						
1.5 t	1.5	15KW	100	11.3	"	33.7	"		33.7	45	11.3	"	33.7	"	6.8	"	5.6	"	1.1	"	0.1	"
(3) Category 4																						
. Generator ($\gamma = 3.5 \times 10^{-4}$)																						
15KVA	1.6	19	62	8	35	14	65	5	9	22	6.6	30	15.4	70	3.7	17	3.2	86	0.4	12	0.1	2
75KVA	3.4	94	148	18	"	32	"	26	6	50	15	"	35	"	8.5	"	7.3	"	1.0	"	0.2	"
175KVA	4.6	198	277	35	"	60	"	55	5	95	30	"	65	"	16	"	13.8	"	1.9	"	0.3	"
(4) Category 5																						
. Welding Appliance ($\gamma = 3.5 \times 10^{-3}$)																						
	80Kg		1.5	0.3	5	5.2	95		5.2	5.5	2.2	40	3.3	60	0.7	13	0.6	"	0.1	"	0	2
	125 "		2.8	0.5	"	9.5	"		9.5	10.0	4.0	"	6.0	"	1.3	"	1.1	"	0.2	"	0	"
	172 "		3.4	0.6	"	11.4	"		11.4	12.0	4.8	"	7.2	"	1.6	"	1.4	"	0.2	"	0	"
(5) Category 6																						
. Dump Truck ($\gamma = 2.2 \times 10^{-4}$)																						
68 t	46	615	1776	80	20	310	80	172	138	390	155	40	235	60	109	28	76.3	70	30.5	28	2.2	2
32 t	27	615	1203	55	"	210	"	172	38	265	105	"	160	"	74	"	51.8	"	20.7	"	1.5	"
20 t	19	280	748	35	"	130	"	78	52	165	65	"	100	"	46	"	32.2	"	12.9	"	0.9	"
15 t	15	230	482	20	"	85	"	64	21	105	40	"	65	"	29	"	20.3	"	8.1	"	0.6	"
11 t	9	210	234	10	"	40	"	28	12	50	20	"	30	"	14	"	9.8	"	3.9	"	0.3	"
8 t	7	200	151	5	"	30	"	21	9	35	15	"	20	"	10	"	7.0	"	2.8	"	0.2	"
4 t	4	135	79	3	"	12	"	9	3	15	5	"	10	"	3	"	2.1	"	0.8	"	0.1	"
(6) Category 7																						
. Conveyor ($\gamma = 2.9 \times 10^{-4}$)																						
450mm x 7.5M	2.5		18	2.5	50	2.5	50		2.5	5	2	30	3	70	1	20	0.9	86	0.1	12	0.	2
. Submargible Pump																						
0.2 M3/min	20Kg	0.75KW	1.7	0.25	50	0.25	50		0.25	0.5	0.2	30	0.3	70	0.1	20	0.1	86	0	"	0	"
0.5 "	53 "	3.7 "	3.3	0.50	"	0.50	"		0.50	1.0	0.3	"	0.7	"	0.2	"	0.2	"	0	"	0	"
1.0 "	125 "	5.5 "	6.3	1.00	"	1.00	"		1.00	2.0	0.6	"	1.4	"	0.4	"	0.3	"	0.1	"	0	"
2.0 "	165 "	7.5 "	8.8	1.25	"	1.25	"		1.25	2.5	0.8	"	1.7	"	0.5	"	0.4	"	0.1	"	0	"
3.0 "	320 "	22 "	18.7	2.75	"	2.75	"		2.75	5.5	1.7	"	3.8	"	1.1	"	0.9	"	0.1	"	0	"
4.0 "	750 "	37 "	41.5	6.00	"	6.00	"		6.00	12	3.6	"	8.4	"	2.4	"	2.1	"	0.3	"	0	"

Item	Weight ton	HP	CIF Value (10^3Rs)	Owing Cost		Operating Cost				Hourly Cost	Component						Taxes					
								FOL	Oth.		Local		Foreign		Tax		Import		Corporate		Income	
				(Rs)	%	(Rs)	%	(Rs)	(Rs)	(Rs)	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%
(7) Category 8 ($\gamma = 6.4 \times 10^{-4}$)																						
. Truck																						
1.5 t	1.5	80	35	4	20	16	80	10	6	20	8	40	12	60	6	30	5.5	92	0.4	6	0.1	2
3 t	2.5	84	58	7	"	28	"	20	8	35	15	"	20	"	11	"	10.1	"	0.7	"	0.2	"
6 t	5	130	117	15	"	60	"	36	24	75	30	"	45	"	23	"	21.2	"	1.4	"	0.4	"
8 t	6	194	156	20	"	80	"	54	26	100	40	"	60	"	30	"	27.6	"	1.8	"	0.6	"
11 t	8	260	226	30	"	115	"	73	42	145	60	"	85	"	44	"	40.5	"	2.6	"	0.9	"
. Trailer																						
15 t		250	325	40	"	170	"	70	100	210	85	"	125	"	63	"	58.0	"	3.8	"	1.2	"
20 t		250	416	55	"	210	"	70	140	265	105	"	160	"	80	"	73.6	"	4.8	"	1.6	"
30 t		250	717	90	"	370	"	70	300	460	185	"	275	"	138	"	127.0	"	8.3	"	2.7	"
35 t		250	862	110	"	440	"	70	370	550	220	"	330	"	165	"	151.8	"	9.9	"	3.3	"
(8) Category 9 ($\gamma = 9.7 \times 10^{-4}$)																						
. Land Rover ($\gamma = 9.7 \times 10^{-4}$)																						
		150	138	35	25	100	75	84	16	135	55	40	80	60	41	30	37.7	92	2.5	6	0.8	2
. Passenger Car ($\gamma = 1.75 \times 10^{-3}$)																						
		75	31	7	13	48	87	42	6	55	22	"	33	"	24	43	22.1	"	1.4	"	0.5	"

3.4 Materials Cost

3.4.1 Description

The material cost is defined as a cost element put into the Unit Price Analysis of Work Item sheets, which is required for a specified amount of itemized work. The cost will be discussed generally on the delivered cost basis.

Current prices of materials

The market prices of main materials in September of 1979 are summarized in Table 3.4-1. These prices are obtained from local makers, contractors and governmental notices. The market price means an ex-store price, so the delivery cost to Site shall be included in the estimate of the delivered price of each material. The prices of materials other than shown in the table are obtained from sources by foreign suppliers on the CIF Port Louis price basis.

3.4.2 Classification of materials

Construction materials are classified into the following 3 groups from the point of view of procurement sources.

(a) Imported materials and equipment (including spare parts)
(b) Local product of which raw materials are locally produced
(c) Local products of which raw materials are imported
(d) Materials composed of the above materials

3.4.3 Price structure of materials

(1) Imported materials

The materials are classified as shown in Table 3.4-2 by the rate of import duties. The price factors of the material are as follows:

(a) CIF Port Louis value,
(b) Import duties,
(c) Storage charge,
(d) Port charge,
(e) Agent fee,

(f) Unloading charge,

(g) Inland transport charge,

(h) Indirect cost, and

(i) Delivery to Site cost

The import duties consist of fiscal and custom duties, and the latter is divided into the general and the preferential, so that the approximate rate of import duties is assumed as: fiscal + (general + preferential).

The rates for the storage charge, port charge and unloading charge are derived from "Fact Sheet No.5, July 1978, Ministry of Commerce and Industry."

The indirect cost (h) is additional expenses and profits of the importer to the sum of cost (a) to (g). (assumed as 10% of the sum) And the half value of the indirect cost shall be deemed as profits reliable susceptible to taxation.

The sum of cost (a) to (h) means the ex store price. The delivery cost to Site is assumed as 18 Rs/ton according to Table 3.4-3 (transport distance 15 miles, 15 tonner). The component analyses for some imported materials are shown in Table 3.4-4, 3.4-5 and 3.4-6, and summarized in Table 3.4-7.

In general, the price making elements for the imported materials can be expressed simply as shown in Table 3.4-8, hence, the curves showing the approximate relationships between the CIF Port Louis value and the foreign exchange cost component or other components will be obtained as in Fig. 3.4-1, 3.4-2 and 3.4-3.

From those 3 curves, Table 3.4-9 and 3.4-10 are made subject to the ranks of CIF value (Rs/ton). The summary based on the above assumptions for general materials is attached.

(2) Local products of which raw materials are locally produced

The materials such as aggregates and local timbers belong to this category. An attempt of cost component analysis for the coarse aggregate is shown in Table 3.4-12. Using the result, the summary of analysis for the category is represented in the attached table.

(3) Local products of which raw materials are imported

The cost component for materials such as reinforcement bars and PVC pipes belonging to this category are analyzed as shown in Table 3.4-14 to 3.4-17.

(4) Composed materials

The ready-mixed concrete of this category, which cost component is analyzed as shown in Table 3.4-18.

Table 3.4-1 Investigation of Market Price for Main Construction Material in September of 1979

Item	Description	Unit	Market price (Rs)			Remarks
			1977	1978	1979	
Reinforcement Bar						
Mild round steel	8 m/m	t		2,925	3,330	
	9 m/m	t		2,800	3,205	
	10 m/m	t		2,800	3,205	
	12 m/m	t			3,155	
	16 m/m	t		2,600	3,005	
	20 m/m	t		2,550	2,955	
	25 m/m	t		2,400	2,805	
High tensile steel	8 m/m	t		3,200	3,605	
	10 m/m	t		3,060	3,455	
	12 m/m	t		3,000	3,405	
	16 m/m	t		2,900	3,305	
	20 m/m	t		2,850	3,255	
	25 m/m	t		2,800	3,205	
Cement						
	50 Kg bag	Bag	24.5		25.8	
	Bulk	t			505	
Aggregate						
Coarse	2" - 1 1/4"	t		32	32	
	3/4"	t		34	34	
	1/2"	t		35	35	
	3/8"	t		36	36	
	1/4"	t		36	36	
Fine	Rock sand sugar size	t		47	57	
	Basalt sand	t		47	62	
	Coral sand	t			40	
Spall	6" - 0"	t		26	28	
	3" - 0"	t		30	30	
Crusher run				34	36	

Item	Description	Unit	Market price (Rs)			Remarks
			1977	1978	1979	
Ready mixed concrete						
	Grade 20	M3			424	
	Grade 25	M3			451	
	Grade 30	M3			477	
	Grade 40	M3			525	
Hollow concrete block						
Class A (3.5)	4" x 18" x 8"	Nr	2.65		2.65	
	6" x 18" x 8"	Nr	2.95		2.95	
	8" x 18" x 8"	Nr	3.15		3.15	
Class B (2.8)	4" x 18" x 8"	Nr	2.10		2.20	
	6" x 18" x 8"	Nr	2.25		2.40	
	8" x 18" x 8"	Nr	2.55		2.65	
Concrete pipe						
	42" x 8 ft	m		656	722	
	39" x 8 ft	m		525	577	
	36" x 8 ft	m		459	505	
	30" x 8 ft	m		312	344	
	27" x 8 ft	m		279	308	
	24" x 8 ft	m		246	272	
	21" x 8 ft	m		197	217	
	18" x 8 ft	m		148	164	
	15" x 8 ft	m		115	128	
	12" x 8 ft	m		98	108	
	9" x 8 ft	m		82	92	
	6" x 6 ft	m		49	56	
	4" x 6 ft	m		36	39	
	4" x 3 ft	m		43	46	

Item	Description	Unit	Market price (Rs)			Remarks
			1977	1978	1979	
Galvanized pipe						
	13 m/m x 6 m	m			3.83	
	19 m/m x 6 m	m			5.33	
	25 m/m x 6 m	m			7.50	
	31 m/m x 6 m	m			10.00	
	38 m/m x 6 m	m			12.50	
	50 m/m x 6 m	m			15.00	
PVC pipe						
	m/m m/m m					
	75 x 3.2 x 6	m			19.67	
	75 x 5.9 x 6	m			24.17	
	80 x 2.7 x 6	m			13.67	
	90 x 4.7 x 6	m			29.17	
	90 x 5.9 x 6	m			31.67	
	100 x 3.2 x 6	m				Exported
	110 x 3.2 x 6	m			25.00	
	110 x 6.3 x 6	m			35.00	
	110 x 6.3 x 6	m			39.17	
	125 x 3.2 x 6	m			27.50	
	125 x 6.3 x 6	m			42.50	
	140 x 7.1 x 6	m			50.00	
	160 x 3.4 x 6	m			38.33	
	160 x 8.0 x 6	m			62.50	
	200 x 3.8 x 6	m			46.67	
	200 x 10.5 x 6	m			93.33	
Fuel oil						
Premium motor gasorine 95R		Gal	9.45	9.45	15.00	
Diesel oil (Gas oil)		Gal	4.83	5.20	7.25	
Regular motor gasorine 83R		Gal		8.65	14.25	
Lighting oil		Gal		4.25	6.70	
Lubricant		Gal	43.60		69.70	

Item	Description	Unit	Market price (Rs)			Remarks
			1977	1978	1979	
Bitumen						
Cutback		t			1,730	
Straight run		t			1,440	
Timber						
Untrated local						
Pine	2" x 1", 3" x 1", 4" x 1"	M3	1,170		1,420	
	3" x 1 1/2", 3" x 2", 4" x 1 1/2", 4" x 2", 5" x 1", 6" x 1"	M3	1,322		1,600	
	Over 6"	M3	1,424		1,720	
Araucaria		M3	1,424		1,720	
Untreated imported						
Teak		M3	6,714		10,750	
Red cedar		M3	2,085		3,350	
Treated local						
Pine		M3	1,577		1,900	
Cedar		M3	2,848		3,450	
Treated imported						
Gurjun		M3	3,357		3,900	
Podo		M3	2,442		2,850	
Bruptry		M3	1,984		2,300	
Structural steel		t	6,702		7,850	
Road marking paint		Gal	320		375	
Cat's eye		Nos	31.62		37.00	
Nail	1"	Kg		1.85	2.16	
	1 1/2"	Kg		1.72	2.00	
	2 - 6	Kg		1.60	1.87	

Table 3.4-2 Classification of Imported Material by Import Duties

Category	Import Duties (%)	Material
1	0	. Steel Wire, Sheet Bar
2	5	. Cement . Bituminous & Paraffin Products . Oxigen Gas . Timbers . Drilling Steel . Aluminium Products
3	12.5	. Copper Products . Hand Tools . Nails
4	20	. Fuel Oils and Greases
5	40	. Plastic Products . Plywood . Concrete Secondary Products . Structural Shaped Steel . High-pressure Conduit . Other Steel Products . Laboratory Instrument . Rubber Products
6	65	. Form Oils
7	90	. Bridge Structural Steel Products
8	115	. Explosives . Light Oil . Furniture

Table 3.4-3 Tariff Schedule of Fares for Goods Vehicles

Tonnage	Trips within 1 mile radius	Trips over 1 mile up to 6 miles	Trips over 6 miles up to 10 miles	Trips over 10 miles up to 20 miles	Trips over 20 miles	Waiting time
1/2 ton and under 1 ton	Rs10	Rs2 per ton mile for each additional mile	Rs1.20 per ton mile for each additional mile	R1 per ton mile for each additional mile	80 cents per ton mile for each additional mile	After every half hour waiting Rs3 per hour or fraction thereof
1 ton and under 3 tons	Rs11	Rs1 per ton mile for each additional mile	75 cents per ton mile for each additional mile	60 cents per ton mile for each additional mile	50 cents per ton mile for each additional mile	After every half hour waiting Rs3.50 per half hour or fraction thereof
2 tons and under 3 tons	Rs13	60 cents per ton mile for each additional mile	35 cents per ton mile for each additional mile	30 cents per ton mile for each additional mile	25 cents per ton mile for each additional mile	After every half hour waiting Rs4 per half hour or fraction thereof
				Above 10 miles		
3 tons and under 5 tons	Rs15 for a 3-tonner and Rs2 for each additional ton	40 cents per ton mile for each additional mile	30 cents per ton mile for each additional mile	20 cents per ton mile for each additional mile		After every half hour waiting Rs4.50 per half hour or fraction thereof.
5 tons and under 7 tons	Rs19 for a 5-tonner and Rs2 for each additional ton	35 cents per ton mile for each additional mile	25 cents per ton mile for each additional mile	20 cents per ton mile for each additional mile		After every half hour waiting Rs5 per half hour or fraction thereof
				Above 6 miles		
7 tons and above	Rs22 for a 7-tonner and Rs3 for each additional ton	30 cents per ton mile for each additional mile		20 cents per ton mile for each additional mile		After every half hour waiting Rs6.50 per half hour or fraction thereof

Note 1: Government Notices 1977, SCHEDULE: TARIFF OF FARES FOR GOODS VEHICLE

Table 3.4-4 Analysis of Cost Component for Construction Material in Category 2, Bitumen

Item : Bitumen (Cut Back)

Market price : Rs/730/t

Description			Total (Rs)	Component (Rs)		
				Local	Foreign	Tax
CIF Value		(1)	1,350		1,350	
Import Duties	5% of (1)	(2)	68			68
Fiscal Duty	5%					
Custom Duty: General	0%					
Preferential	0%					
Storage Charge	Rs 10/t	(3)	10	10		
Port Charge	Rs 7.5/t	(4)	7.5	7.5		
Agent Fee	0.1% of (1)	(5)	4.5	4.5		
Unloading Charge	Rs 112/t	(6)	112	112		
Inland Transport Fares	Rs 18/t	(7)	18	18		
Total (1) to (7)		(8)	1,570	220	1,350	68
Indirect Cost 10% of (8)		(9)	160	160		
Profit 50% of (9)		(10)	(80)			
Corporate Tax 50% of (10)		(11)				40
Administrative Cost (50)% of (9)		(12)	(80)			
Personnel Cost 40% of (12)		(13)	(32)			
Personal Income Tax 20% of (13)						7
Total (8) + (9)		(14)	1,730	380	1,350	115
Delivery Cost to Site	Rs 18/t	(15)	18 100%	7 40%	11 60%	6 30%
Delivered Cost (14) + (15)		(16)	1,748	387	1,361	121
Ratio of Component			100%	22%	78%	
Ratio of Tax for Total Cost						7%
Ratio of Tax for Local Cost						31%

Table 3.4-5 Analysis of Cost Component for Construction Material in Category 4, Diesel Oil

Item : Diesel Oil (Gas Oil)

Market price : Rs 7.25/Gal (Per 0.04 t)

Description			Total (Rs)	Component (Rs)		
				Local	Foreign	Tax
CIF Value		(1)	5.05		5.05	
Import Duties	20% of (1)	(2)	1.01	1.01		1.01
Fiscal Duty	20%					
Custom Duty: General	0%					
Preferential	0%					
Storage Charge	Rs 10/t	(3)	0.04	0.04		
Port Charge	Rs 7.5/t	(4)	0.03	0.03		
Agent Fee	0.1% of (1)	(5)	0.01	0.01		
Unloading Charge	Rs 112/t	(6)	0.40	0.40		
Inland Transport Fares	Rs 18/t	(7)	0.60	0.60		
Total (1) to (7)		(8)	6.60	1.55	5.05	1.01
Indirect Cost	10% of (8)	(9)	0.65	0.65		
Profit	50% of (9)	(10)	(0.33)			
Corporate Tax	50% of (10)	(11)				0.16
Administrative Cost	(50)% of (9)	(12)	(0.33)			
Personnel Cost	40% of (12)	(13)	(0.13)			
Personal Income Tax	20% of (13)					0.03
Total (8) + (9)		(14)	7.25	2.20	5.05	1.20
Delivery Cost to Site	Rs 18/t	(15)	0.06 100%	0.02 40%	0.04 60%	0.02 30%
Delivered Cost (14) + (15)		(16)	7.31	2.22	5.09	1.22
Ratio of Component			100%	31%	69%	
Ratio of Tax for Total Cost						17%
Ratio of Tax for Local Cost						55%

Table 3.4-6 Analysis of Cost Component for Construction Material in Category 5, Structural Shaped Steel

Item : Structural Shaped Steel

Market price : Rs 7,850/t

Description			Total (Rs)	Component (Rs)		
				Local	Foreign	Tax
CIF Value		(1)	5,000		5,000	
Import Duties	40% of (1)	(2)	2,000	2,000		2,000
Fiscal Duty	30%					
Custom Duty:	General 20%					
	Preferential 0%					
Storage Charge	Rs 10/t	(3)	10	10		
Port Charge	Rs 7.5/t	(4)	7.5	7.5		
Agent Fee	0.1% of (1)	(5)	5.5	5.5		
Unloading Charge	Rs 112/t	(6)	112	112		
Inland Transport Fares	Rs 18/t	(7)	18	18		
Total (1) to (7)		(8)	7,153	2,153	5,000	2,000
Indirect Cost	10% of (8)	(9)	697	697		
Profit	50% of (9)	(10)	(350)			
Corporate Tax	50% of (10)	(11)				175
Administrative Cost	(50)% of (9)	(12)	(350)			
Personnel Cost	40% of (12)	(13)	(140)			
Personal Income Tax	20% of (13)					30
Total (8) + (9)		(14)	7,850	2,850	5,000	2,205
Delivery Cost to Site	Rs 18/t	(15)	18 100%	7 40%	11 60%	6 30%
Delivered Cost (14) + (15)		(16)	7,868	2,857	5,011	2,211
Ratio of Component			100%	36%	64%	
Ratio of Tax for Total Cost						28%
Ratio of T ⅛ for Local Cost						77%

Table 3.4-7 Delivered Price of Main Imported Materials for Construction Cost Estimate

Item	Description	Unit	Market Price (Rs)	Delivery Cost (Rs)	Rounded Delivered Price(Rs)	Component (Rs)		Tax Compo. (Rs)	Import Duties (Rs)	Corporate Tax (Rs)	Personal Income Tax (Rs)
						Local	Foreign				
Cement	Portland	t	650	18	670 100%	290 43%	380 57%	40 6%	24 60%	14 36%	2 4%
Structural Steel		t	7,850	18	7,900 100%	2,840 36%	5,060 64%	2,200 28%	2,000 91%	177 8%	23 1%
Fuel Oil & Lubricant	Motor gasoline, Premium	gal	15.00	0.06	15.0 100%	4.5 31%	10.5 69%	3 17%	2.5 84%	0.4 13%	0.1 3%
	Regular	gal	14.25	0.06	14.5 100%	4.5	10.0	2.5	2.1	0.3	0.1
	Diesel Oil	gal	7.25	0.06	7.5 100%	2.5	5.5	1.3	1.1	0.2	0
	Lighting Oil	gal	6.70	0.06	7.0 100%	2.0	5.0	1.0	0.8	0.2	0
	Lubricant	gal	69.70	0.10	70.0 100%	22.0	48.0	12.0	10.0	1.6	0.4
Bitumen	Cut Back	t	1,730	18	1,750 100%	390 22%	1,360 78%	120 7%	73 61%	40 33%	7 6%
	Straight Run	t	1,440	18	1,460 100%	320	1,140	100	61	33	6
	$D \leq 19$ mm	M	4.60	0.2	5.0 100%	1.0 24%	40 76%	0.6 12%	0.5 78%	0.1 19%	0 3%
Galvanized Pipe	$19 < D \leq 31$	M	8.80	0.4	9.5 100%	2.5	7.0	1.1	0.9	0.2	0
	$D > 31$.	M	13.80	0.7	14.5 100%	3.5	11.0	1.7	1.3	0.4	0

Table 3.4-8 Cost Component of Imported Material

Item	Values (Rs/t)	Local Component (Rs/t)	Foreign Component (Rs/t)	Taxes (Rs/t)		
				Import Duties	Corporate Tax	Income Tax
CIF Value	Pc					
Import Duties	i·Pc	i·Pc		i·Pc		
Other Charges	150	150				
Sub-Total (1)	(1+i)Pc+150	i·Pc+150	Pc	i·Pc		
Indirect Cost of Suppliers	0.1(1+i)Pc+15	0.1(1+i)Pc+15			0.025(1+i)Pc+3.75	0.02(1+i)Pc+0.3
Market Price (2)	1.1(1+i)Pc+165	(1.1i+0.1)Pc+165	Pc	i·Pc	0.025(1+i)Pc+3.75	0.02(1+i)Pc+0.3
Delivery Cost to Site	18	7	11	5.5	0.4	0.1
Delievered Price (3)	1.1(1+i)Pc+183	(1.1i+0.1)Pc+172	Pc+11	i·Pc+5.5	0.025(1+i)Pc+4.15	0.02(1+i)Pc+0.4
					Total Taxes = (1.045i+0.045)Pc+10.05	

Fig. 3.4-1 CIF Value and Foreign Cost Component of Delivered Price for Imported Materials and Equipment

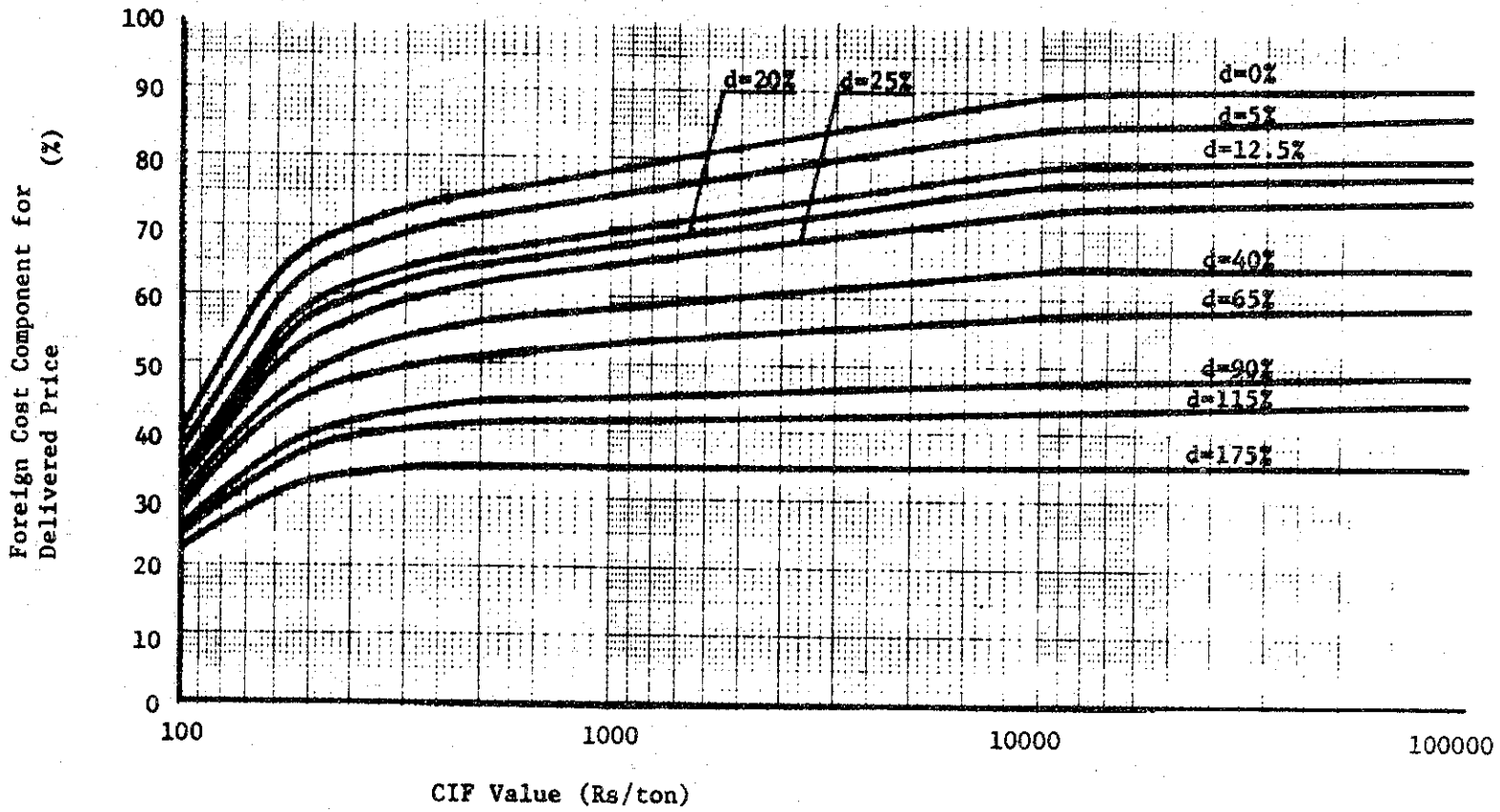

Fig. 3.4-2 CIF Value and Tax Cost Component of Delivered Price for Imported Materials and Equipment

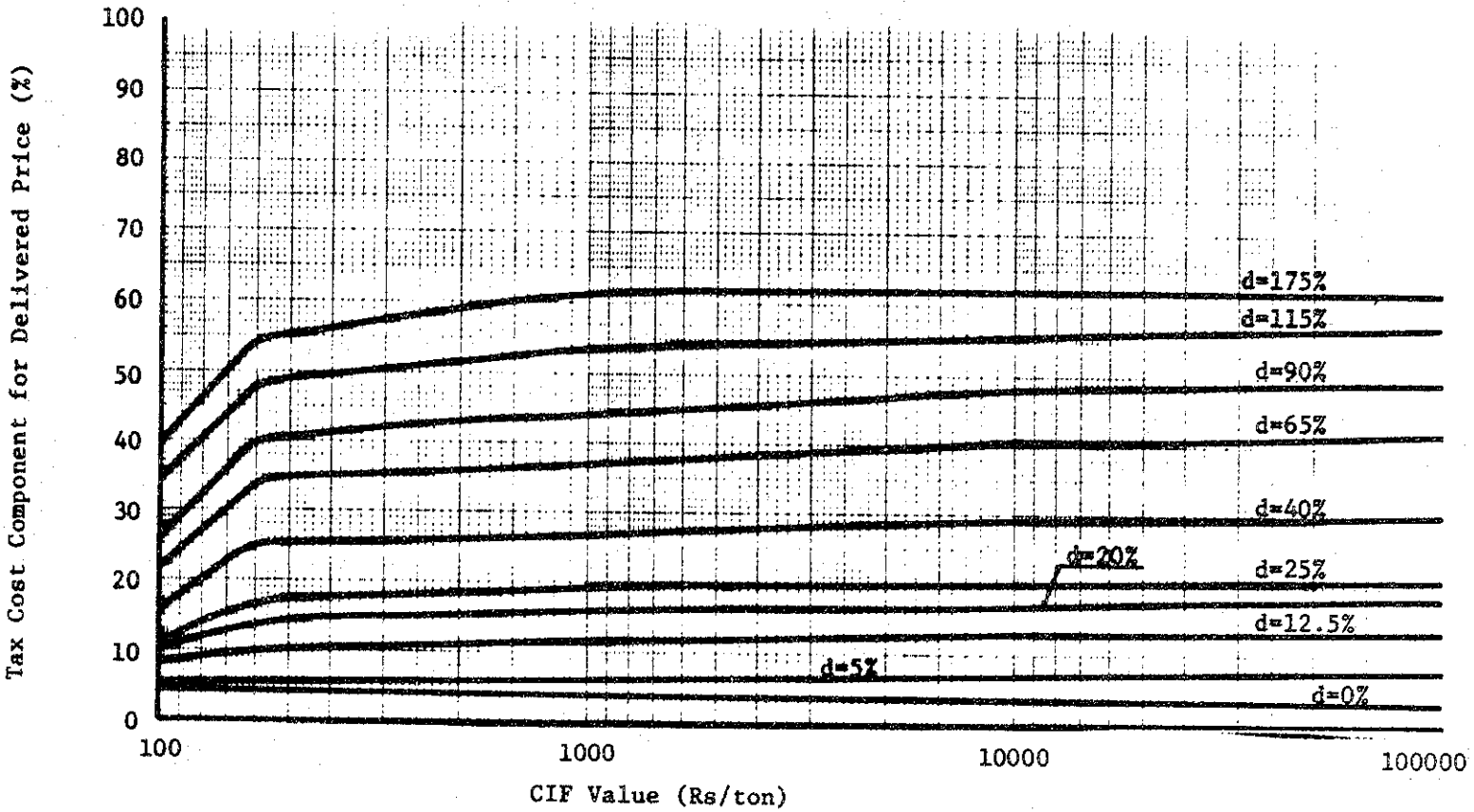

Fig. 3.4-3 CIF Value and Ratio of Import Duties / Corporate Tax

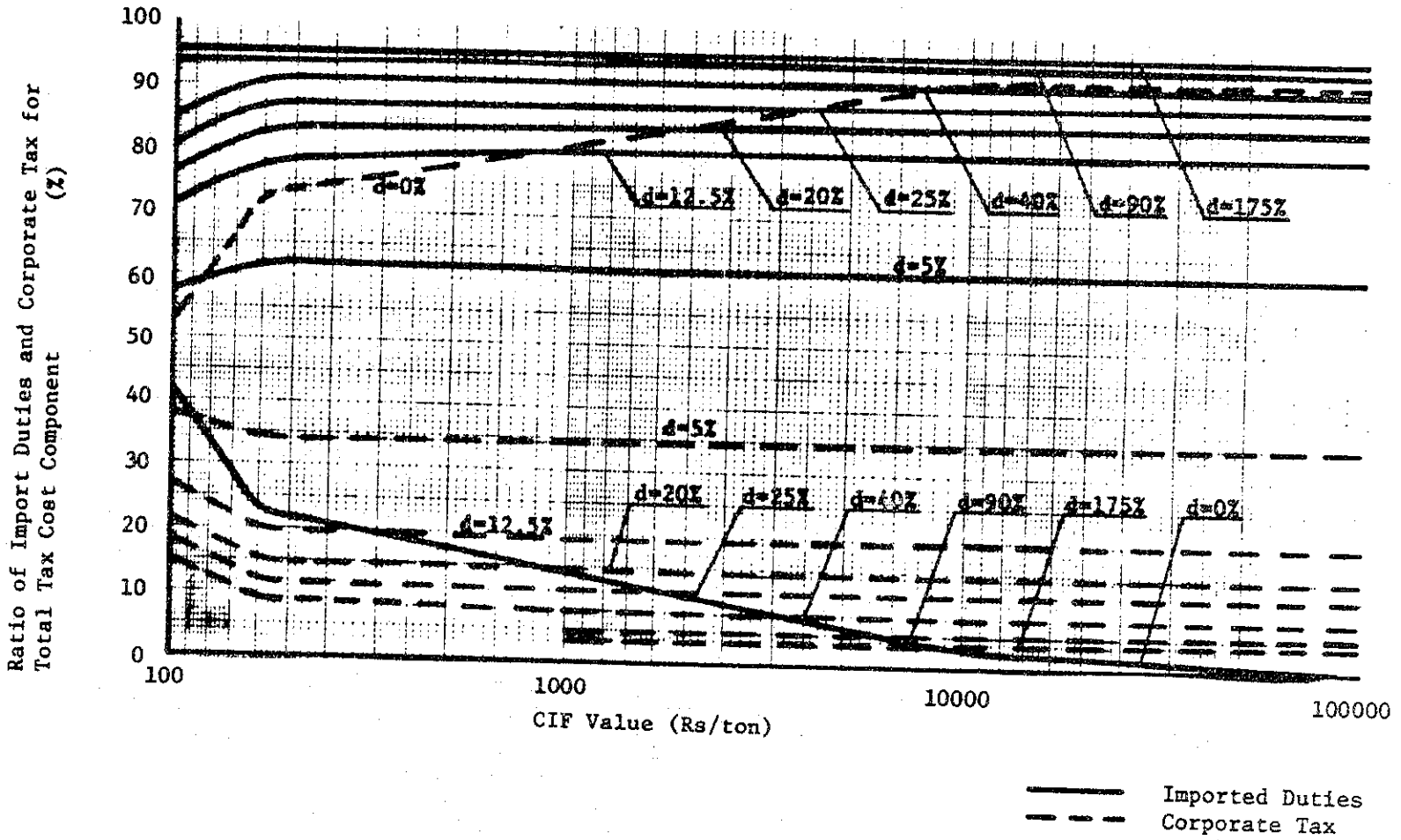

Table 3.4-9 Ratio of Foreign and Tax Cost Component for Delivered Price (%)

Upper: Foreign
Lower: Tax

CIF Value (Rs/ton)	Import Duties (%)									
	0	5	12.5	20	25	40	65	90	115	175
Under 100	40 4	32 5	35 8	34 10	32 12	30 16	29 23	27 26	25 34	24 40
100 - 1000	59 4	57 6	53 10	51 13	49 16	44 22	42 29	36 35	34 45	30 52
1000 - 5000	80 4	76 6	71 12	68 15	66 19	59 26	55 37	45 45	43 53	35 61
5000 - 10000	85 4	82 7	75 12	73 16	69 20	63 27	56 38	46 46	44 54	35 61
Over 10000	91 4	85 7	80 13	77 17	75 20	65 28	58 41	48 46	45 55	35 61

Table 3.4-10 Ratio of Import Duties and Corporate Tax for Total Tax Component

Upper: Import
Lower: Corporate

CIF Value (Rs/ton)	Import Duties (%)									
	0	5	12.5	20	25	40	65	90	115	175
Under 100	43 53	58 38	71 28	77 21	81 18	85 15	89 11	95 5	95 5	96 4
100 - 1000	28 69	60 36	78 21	82 18	87 12	88 12	92 8	95 5	95 5	96 4
1000 - 5000	14 83	62 35	80 19	85 15	88 12	91 9	93 7	96 4	96 4	96 4
5000 - 10000	8 89	62 35	80 19	85 15	88 12	92 8	94 6	96 4	96 4	96 4
Over 10000	4 94	62 35	81 19	85 15	89 11	92 8	95 5	96 4	96 4	96 4

Table 3.4-11 Delivered Price of Imported Materials for Construction Cost Estimate

Category of Material	Import Duties (%)	Unit	CIF value (Rs)	Deliv. Price (Rs)	Component						Taxes					
					Local		Foreign		Tax		Import Duties		Corpo. Tax		Income Tax	
					(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%
CATEGORY 1	0															
Common iron wire D < 0.9 mm		t	3,700	4,600	900	20	3,700	80	180	4	25	14	150	83	5	3
ditto D > 3.2 mm		"	3,100	3,900	800	"	3,100	"	160	"	22	"	133	"	5	"
Annealed iron wire D=2.6mm		"	3,400	4,300	900	"	3,400	"	170	"	24	"	141	"	5	"
Galvanized iron wire "		"	4,000	5,000	1,000	"	4,000	"	200	"	28	"	166	"	6	"
Barbed iron wire D=2.0 mm		"	4,800	6,000	1,200	"	4,800	"	240	"	34	"	199	"	7	"
Steel wire rope, 6x19 D < 14 mm		"	10,400	11,400	1,000	9	10,400	91	460	"	18	4	432	94	10	2
ditto D < 20 mm		"	11,800	13,000	1,200	"	11,800	"	520	"	21	"	489	"	10	"
ditto 6x24, D < 14 mm		"	11,500	12,600	1,100	"	11,500	"	500	"	20	"	470	"	10	"
ditto 6x24, D < 20 mm		"	10,100	11,100	1,000	"	10,100	"	440	"	18	"	414	"	8	"
Nylon sheet, 3.6Mx5.4Mx0.4mm		sheet	260	290	30	"	260	"	12	"	0	"	12	"	0	"
Nylon rope, D > 10 mm		t	36,600	39,900	3,300	"	36,600	"	1,600	"	64	"	1,504	"	32	"
Vinylon rope, D > 10 mm		"	40,000	44,000	400	"	40,000	"	1,760	"	70	"	1,654	"	36	"
Manila rope, standard quality, D > 10 mm		"	21,500	23,600	2,100	"	21,500	"	940	"	38	"	884	"	18	"
CATEGORY 2	5															
Portland cement, normal setting quality to B.S.12		t	380	670	290	43	380	57	40	6	24	60	14	36	2	4
ditto in bag 40 Kg		"	380	670	290	"	380	"	40	"	24	"	14	"	2	"
Portland cement, rapid-hardening quality to B.S.12		"	400	700	300	"	400	"	42	"	25	"	15	"	2	"
ditto in bag 40 Kg		"	450	790	340	"	450	"	47	"	28	"	17	"	2	"
Admixture, flyash		"	290	510	220	"	290	"	30	"	18	"	11	"	1	"
ditto, air-entraining agent		"	5,800	7,070	1,270	18	5,800	82	495	7	307	62	173	35	15	3
ditto, water reducing agent, standard		"	7,400	9,020	1,620	"	7,400	"	630	"	390	"	220	"	20	"
ditto, normal-setting		"	7,100	8,660	1,560	"	7,100	"	610	"	378	"	214	"	18	"
Admixture, water-resisting agent		"	11,300	13,300	2,000	15	11,300	85	930	"	577	"	326	"	27	"
ditto, accelerating agent		"	4,500	5,920	1,420	24	4,500	76	355	6	220	"	124	"	11	"
ditto, setting retarder		"	13,800	16,240	2,440	15	13,800	85	1,140	7	707	"	399	"	34	"
ditto, shrinkage preventing agent		"	3,700	4,870	1,170	24	3,700	76	290	6	180	"	102	"	8	"
ditto, rust preventing agent		"	10,100	11,880	1,780	15	10,100	85	830	7	515	"	290	"	25	"
Bentomite		"	1,000	1,320	320	24	1,000	76	80	6	50	"	28	"	2	"
Water-proof bond		"	18,400	21,650	3,250	15	18,400	85	1,520	7	942	"	532	"	46	"
Oxygen gas		100M3	700	820	120	"	700	"	57	"	35	"	20	"	2	"
Acetylene		t	25,500	30,000	4,500	"	25,500	"	2,100	"	1,300	"	735	"	65	"
Ladder (aluminum)		"	61,000	74,390	13,390	18	61,000	82	5,210	"	3,230	"	1,824	"	156	"

Category of Material	Import Duties (%)	Unit	CIF value (Rs)	Deliv. Price (Rs)	Component						Taxes					
					Local		Foreign		Tax		Import Duties		Corpo. Tax		Income Tax	
					(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%
CATEGORY 3	12.5															
Structural steel pipe square 16x50x50(mm)		t	2,900	4,080	1,180	29	2,900	71	490	12	392	80	93	19	5	1
Steel seat pile, 400x100x10.5		"	2,900	4,080	1,180	29	2,900	"	490	"	392	"	93	"	5	"
Nail, ℓ<50 mm		"	4,100	5,770	1,670	"	4,100	"	690	"	552	"	131	"	7	"
ditto, ℓ>100 mm		"	4,900	6,900	2,000	"	4,900	"	830	"	664	"	158	"	8	"
Copper cable, D=2 mm		"	17,400	21,750	4,350	20	17,400	80	2,830	13	2,292	81	538	"	0	0
ditto D=30 mm		"	18,800	23,500	4,700	"	18,800	"	3,055	"	2,475	"	580	"	0	"
Capture cable a<1.25 mm2		"	15,300	19,130	3,830	"	15,300	"	2,490	"	2,017	"	473	"	0	"
ditto a>3.5 mm2		"	17,600	22,000	4,400	"	17,600	"	2,860	"	2,317	"	543	"	0	"
Electric cord a=0.75mm2		"	20,900	26,130	5,230	"	20,900	"	3,400	"	2,754	"	646	"	0	"
Drilling bit, flat D<32mm		nr	120	160	40	25	120	75	20	12	16	80	4	"	0	1
ditto D<44mm		"	170	230	60	"	170	"	28	"	23	"	5	"	0	"
Drilling bit, crossed D<36mm		"	170	230	60	"	170	"	28	"	23	"	5	"	0	"
ditto D<60mm		"	300	400	100	"	300	"	52	"	42	"	10	"	0	"
Portfirer, 30 pc. momentous		"	1,200	1,500	300	20	1,200	80	195	13	158	81	37	"	0	0
Circuit tester for blasting use		"	800	1,000	200	20	800	80	130	13	105	81	25	"	0	0
Monkey wrench, 250mm		"	42	60	18	29	42	71	7	12	6	80	1	"	0	1
Pipe wrench		"	120	170	50	"	120	"	20	"	16	"	4	"	0	"
Plier		"	20	28	8	"	20	"	3	"	2	"	1	"	0	"
Pench		"	50	70	20	"	50	"	8	"	6	"	2	"	0	"
Nipper		"	40	56	16	"	40	"	7	"	6	"	1	"	0	"
Hole wrench		"	15	21	6	"	15	"	3	"	2	"	1	"	0	"
Spanner, 12x14		"	10	14	4	"	10	"	2	"	2	"	0	"	0	"
Spanner, D < 41		"	35	49	14	"	35	"	6	"	5	"	1	"	0	"
Driver		"	6	8	2	"	6	"	1	"	1	"	0	"	0	"
Vice		"	460	610	150	25	460	75	73	"	58	"	14	"	1	"
Ratchet spanner		"	100	130	30	"	100	"	16	"	13	"	3	"	0	"
Hand shovel		"	40	56	16	29	40	71	7	12	6	80	1	"	0	"
Pick		"	35	49	14	"	35	"	6	"	5	"	1	"	0	"
One-wheel cart		"	220	310	90	"	220	"	37	"	30	"	7	"	0	"
Electric hand drill		"	660	825	165	20	660	80	107	13	87	81	20	"	0	0
Electric hand grinder		"	770	960	190	"	770	"	125	"	100	"	25	"	0	"
Chain block 2t		t	54,000	67,500	13,500	"	54,000	"	8,775	"	7,108	"	1,667	"	0	"
ditto 5t		"	41,900	52,400	10,500	"	41,900	"	6,810	"	5,516	"	1,294	"	0	"
CATEGORY 4	20															
Anti-corrosive paint		t	8,000	11,600	3,600	31	8,000	69	2,320	20	2,042	88	278	12	0	0
Road marking paint		"	11,500	15,330	3,830	25	11,500	75	3,070	"	2,732	89	338	11	0	"
Bonding agent, for wood		"	12,300	16,400	4,100	"	12,300	"	3,280	"	2,920	"	360	"	0	"
ditto , for concrete		"	46,100	61,470	15,370	"	46,100	"	12,300	"	10,947	"	1,353	"	0	"

Category of Material	Import Duties (%)	Unit	CIF value (Rs)	Deliv. Price (Rs)	Component						Taxes					
					Local		Foreign		Tax		Import Duties		Corpo. Tax		Income Tax	
					(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%
CATEGORY 5	40															
Steel corrugated pipe		t	8,200	13,020	4,820	37	8,200	63	3,515	27	3,234	92	281	8	0	0
Steel liner plate, t=3.2mm		"	3,600	6,100	2,500	"	3,600	"	1,586	"	1,443	"	153	"	0	"
Steel scaffolding set Jack base		"	8,300	13,170	4,870	"	8,300	"	3,560	"	3,275	"	285	"	0	"
ditto, base plate		"	11,200	18,060	6,860	38	11,200	62	5,060	28	4,655	"	405	"	0	"
ditto, connection pin		"	8,600	13,650	5,050	37	8,600	63	3,690	27	3,395	"	295	"	0	"
ditto, hand rail		"	9,200	14,600	5,400	"	9,200	"	3,940	"	3,625	"	315	"	0	"
ditto, hand rail post		"	12,800	20,650	7,850	38	12,800	62	5,780	28	5,317	"	463	"	0	"
ditto, stiffener		"	11,800	19,030	7,230	"	11,800	"	5,330	"	4,900	"	430	"	0	"
ditto, diagonal member		"	7,400	11,750	4,350	37	7,400	63	3,170	27	2,916	"	254	"	0	"
ditto, horizontal member		"	8,300	13,170	4,870	"	8,300	"	3,560	"	3,275	"	285	"	0	"
ditto, vertical member		"	8,400	13,330	4,930	"	8,400	"	3,600	"	3,311	"	289	"	0	"
ditto, steel scaffolding plate		"	7,400	11,750	4,350	"	7,400	"	3,170	"	2,916	"	254	"	0	"
ditto, arm lock		"	11,900	19,200	7,300	38	11,900	62	5,380	28	4,950	"	430	"	0	"
ditto, one set		*M3	130	210	80	37	130	63	60	27	55	"	5	"	0	"
Steel pipe support		t	6,500	10,320	3,820	"	6,500	"	2,790	"	2,567	"	223	"	0	"
Steel scaffolding beam		"	12,300	19,840	7,540	38	12,300	62	5,560	28	5,115	"	445	"	0	"
Steel metal form 300x1800 @=17.3Kg		"	4,600	7,800	3,200	41	4,600	59	2,030	26	1,847	91	183	9	0	"
Plywood, 1.2x90x180(cm)		M2	35	55	20	38	35	62	15	28	14	92	1	8	0	"
" 1.2x60x180(cm)		"	30	50	20	"	30	"	15	"	14	"	1	"	0	"
" 1.2x100x200(cm)		"	35	55	20	"	35	"	15	"	14	"	1	"	0	"
Form separator 200x9(mm) (steel)		t	5,800	9,210	3,410	37	5,800	63	2,490	27	2,290	"	200	"	0	"
Form tie bolt (steel)		100nr	200	340	140	41	200	59	90	26	82	91	8	9	0	"
Water stop PVC, 200x6(mm)		M	30	50	20	38	30	62	15	28	14	92	1	8	0	"
Traffic sign board		M2	2,300	3,710	1,410	"	2,300	"	1,040	"	957	"	83	"	0	"
ditto, pole (steel) galvanized		t	9,000	14,290	5,290	37	9,000	63	3,860	27	3,550	"	310	"	0	"
ditto, overhanged		"	15,900	25,650	9,750	38	15,900	62	7,180	28	6,605	"	575	"	0	"
ditto, anchor bolt		"	7,400	11,750	4,350	37	7,400	63	3,170	27	2,916	"	254	"	0	"
Guard rail		"	8,000	12,700	4,700	"	8,000	"	3,430	"	3,155	"	275	"	0	"
Shoe, rubber		M2	3,700	5,970	2,270	38	3,700	62	1,670	28	1,536	"	134	"	0	"
Steel P.C. rod, D=17mm		t	8,900	14,130	5,230	37	8,900	63	3,815	27	3,510	"	305	"	0	"
ditto, D=26mm		"	8,700	13,800	5,100	"	8,700	"	3,730	"	3,430	"	300	"	0	"
Steel P.C. wire		"	8,300	13,170	4,870	"	8,300	"	3,560	"	3,275	"	285	"	0	"
Sheath for P.C. wire		"	13,200	21,290	8,090	38	13,200	62	5,960	28	5,483	"	477	"	0	"
Freyssinet cone		"	24,300	39,200	14,900	"	24,300	"	10,980	"	10,100	"	880	"	0	"
Steel bolt		"	5,400	8,570	3,170	37	5,400	63	2,310	27	2,125	92	185	"	0	"
Steel anchor bolt		"	4,000	6,780	2,780	41	4,000	59	1,760	26	1,600	91	160	9	0	"

Category and Material	Import Duties (%)	Unit	CIF value (Rs)	Deliv. Price (Rs)	Component						Taxes					
					Local		Foreign		Tax		Import Duties		Corpo. Tax		Income Tax	
					(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%	(Rs)	%		
Steel nut		t	5,000	7,940	2,940	37	5,000	63	2,140	27	1,970	92	170	8	0	"
Steel gabion, (H)(W) 15x50x120cm		M	35	55	20	"	35	"	15	"	14	"	1	"	0	"
Steel grating metal 1000x550x65		t	9,400	14,920	5,520	"	9,400	"	4,030	"	3,710	"	320	"	0	"
Expand metal		"	3,700	6,270	2,570	41	3,700	59	1,630	26	1,485	91	145	9	0	"
Welding rod		"	6,900	10,950	4,050	37	6,900	63	2,960	27	2,725	92	235	8	0	"
Surveying instrument transit (theodolite)		nr	9,800	15,560	5,760	"	9,800	"	4,200	"	3,865	"	210	"	0	"
ditto, automatic level		"	3,900	6,610	2,710	41	3,900	59	1,720	26	1,565	91	155	9	0	"
CATEGORY 6	65															
Form oil		t	8,600	15,360	6,760	44	8,600	56	5,840	38	5,490	94	350	6	0	0
CATEGORY 8	115															
Dinamite		t	22,700	50,440	27,740	55	22,700	45	27,740	55	26,630	96	1,110	4	0	"
A.N.F.O		"	10,100	22,440	12,340	"	10,100	"	12,340	"	11,845	"	495	"	0	"
Blasting fuse		10^3M	3,600	8,000	4,400	"	3,600	"	4,400	"	4,225	"	175	"	0	"
Electric detonator		10^3nr	4,300	9,560	5,260	"	4,300	"	5,260	"	5,050	"	210	"	0	"
Temporary office house 50 m^2		nr	23,800	52,890	29,090	"	23,800	"	29,090	"	27,930	"	1,160	"	0	"

Table 3.4-12 Unit Price Analysis of Material, Coarse Aggregate

Item No.	Aggregate, coarse 2" - 1/4" (Market Price: Rs 36.0/t)	Total Cost	Rs 9.5 per 1.0t
		Local Component	37 %
		Foreign Component	63 %
		Taxes Component	18 %

Particular	Description	Unit	Q'ty	Unit cost (Rs)	Total cost (Rs)	Local Comp.		Foreign Comp.		Taxes Comp.		Taxes		
						Unit cost (Rs)	(Rs)	Unit cost (Rs)	(Rs)	Unit cost	(Rs)	Imp. (Rs)	Cor. (Rs)	Inc. (Rs)
1 Prime Material Cost per 1,000 t (500 M3)														
a. Equipment Cost														
	B. dozer, 24t	h	14	235	3,290	60	840	175	2,450	35	490	28.7 402	5.7 80	0.6 8
	D. shovel, 1.8M3	"	8	170	1,360	40	320	130	1,040	25	200	20.5 164	4 32	0.5 4
	D. truck, 20t	"	17	165	2,805	65	1,105	100	1,700	46	782	32.2 547	12.9 219	0.9 16
	Miscellaneous	sum	10%		745	25%	190	75%	555	15%	112	82% 92	16% 18	2% 2
	Sub-total				8,200		2,455		5,745		1,584	1,205	349	30
b. Labour Cost														
	Operator, class 3	h	39	5.5	215	5.5	215			0.1	4			0.1 4
	Chief foreman, class 1	"	4	10.5	42	10.5	42			0.7	3			0.7 3
	Foreman, class 2	"	14	7	98	7	98			0.2	3			0.2 3
	Unskilled laborer class 7	"	210	3	630	3	630							
	Sub-total				985		985				10			10
c. Material Cost														
	Miscellaneous	sum			300	35%	105	65%	195	28%	84	92% 77	8% 7	
	Total			(100%)	9,485	(37%)	3,545	(63%)	5,940	(18%)	1,678	(76%) 1,282	(22%) 356	(2%) 40
	Per 1.0 t			(100%)	9.5	(37%)	3.5	(63%)	6.0	(18%)	1.7	1.3	0.4	0

Remarks: From the above analysis, the rate of Prime Material Cost for Market Price is approximately, 9.5/36 = 26%.

Item No.																

Total Cost	Rs per 1.0 t
Local Component	%
Foreign Component	%
Taxes Component	%

Particular		Description	Unit	Q'ty	Unit cost (Rs)	Total cost (Rs)	Local Comp.		Foreign Comp.		Taxes Comp.		Taxes		
							Unit cost (Rs)	(Rs)	Unit cost (Rs)	(Rs)	Unit cost	(Rs)	Imp. (Rs)	Cor. (Rs)	Inc. (Rs)
2	Processing Cost														
		Assumed 64% of Market Price,				23	25%	5.8	75%	17.2	15%	3.5	82% 2.9	16% 0.6	2% 0
		Machine: Category 1													
3	Administrative Cost														
		Assumed 5% of Market Price				1.8	60%	1.1	40%	0.7	20%	0.4	70% 0.3		30% 0.1
4	Profit														
		Assumed 5% of Market Price				1.7	100%	1.7			50%	0.9		100% 0.9	
		Total of Market Price			(100%)	36	(34%)	12.1	(66%)	23.9	(18%)	6.5	(69%) 4.5	(29%) 1.9	(1%) 0.1
5	Delivery Cost to Site (or Plant)														
		Assumed Rs 18/t in D. truck			100%	18	40%	7	60%	11	30%	5.5	92% 5	6% 0.3	2% 0.1
		category					(adjusted)					(adjusted)			
		Grand-total			(100%)	54	(35%)	19	(65%)	35	(22%)	12	(79%) 9.5	(19%) 2.3	(2%) 0.2

Remarks:	

Table 3.4-13 Delivered Price of Aggregate and Local Timber

Item	Description	Unit	Market Price (Rs)	Delivery Cost (Rs)	Rounded Delivered Price(Rs)	Component (Rs)		Tax Compo. (Rs)	Import Duties (Rs)	Corporate Tax (Rs)	Personal Income Tax (Rs)
						Local	Foreign				
Aggregate	Coarse 2" - 1/4"	t	36.0	18.0	54.0	19	35	12	9.5	2.3	0.2
					100%	35%	65%	22%	79%	19%	2%
	Fine	t	60.0	18.0	78.0	27	51	17	13.4	3.2	0.4
					100%	35%	65%	22%	79%	1.9%	2%
	Spall 6"-0	t	30.0	18.0	48.0	17	31	11	8.7	2.1	0.2
					100%	35%	65%	22%	79%	19%	2%
	Crusher run	t	36.0	18.0	54.0	19	35	12	9.5	2.3	0.2
					100%	35%	65%	22%	79%	19%	2%
Timber	Untreated local	M3	1,720	36.0	1,760	616	1,144	387	306	74	7
					100%	35%	65%	22%	79%	19%	2%
	Treated local	M3	2,600	36.0	2,650	928	1,722	583	461	111	11
					100%	35%	65%	22%	79%	19%	2%

Table 3.4-14 Unit Price Analysis of Material, Reinforcement Bar

Item No.	Reinforcement bar, Mild round steel, D < 16 mm (Market Price: Rs 3200/t)	Total Cost	Rs 3218 per 1.0t
		Local Component	31 %
		Foreign Component	69 %
		Taxes Component	11 %

Particular		Description	Unit	Q'ty	Unit cost (Rs)	Total cost (Rs)	Local Comp.		Foreign Comp.		Taxes Comp.		Taxes		
							Unit cost (Rs)	(Rs)	Unit cost (Rs)	(Rs)	Unit cost	(Rs)	Imp. (Rs)	Cor. (Rs)	Inc. (Rs)
1	Prime Material Cost														
		Steel sheet bar	t	1.03	1,610	1,660	300	310	1,310	1,350	48	50	6 6	36 38	6 6
		Miscellaneous	sum	5%		80	25%	20	75%	60	15%	12	82% 10	16% 2	2% 0
		Sub-total				1,740		330		1,410		62	16	40	6
2	Processing Cost														
		Assumed 30% of Market Price	sum			960	30%	290	70%	670	15%	146	60% 88	36% 52	4% 6
3	Administrative Cost														
		Assumed 10% of Market Price	sum			320	60%	190	40%	130	20%	65	70% 45		30% 20
4	Profit														
		Assumed 5% of Market Price	sum			180	100%	180			50%	90		100% 90	
		Total of Market Price			(100%)	3,200	(31%)	990	(69%)	2,210	(11%)	363	(41%) 149	(50%) 182	(9%) 32
5	Delivery to Site		t	1	18	18	40%	7	60%	11	30%	6	92% 5	6% 1	2% 0
		Grand-total			(100%)	3,218	(31%)	997	(69%)	2,221	(11%)	369	(42%) 154	(50%) 183	(8%) 32

Remarks:

Table 3.4-15 Analysis of Cost Component for Construction Material in Category 1, Steel Sheet Bar

Item : Steel Sheet Bar for Secondary Production

Market price : Rs 1,594/t

Description		Total (Rs)	Component (Rs)		
			Local	Foreign	Tax
CIF Value	(1)	1,300		1,300	
Import Duties 0% of (1)	(2)				
Fiscal Duty 0%					
Custom Duty: General 0%					
Preferential 0%					
Storage Charge Rs 10/t	(3)	10	10		
Port Charge Rs 7.5/t	(4)	7.5	7.5		
Agent Fee 0.1% of (1)	(5)	1.3	1.3		
Unloading Charge Rs 112/t	(6)	112	112		
Inland Transport Fares Rs 18/t	(7)	18	18		
Total (1) to (7)	(8)	1,449	149	1,300	
Indirect Cost 10% of (8)	(9)	145	145		
Profit 50% of (9)	(1)	(72)			
Corporate Tax 50% of (10)	(11)	(36)			36
Administrative Cost (50)% of (9),	(12)	(72)			
Personnel Cost 40% of (12)	(13)	(29)			
Personal Income Tax 20% of (13)		(6)			
Total (8) + (9)	(14)	1,594	294	1,300	42
Delivery Cost to Site Rs 18/t	(15)	18 100%	7 40%	11 60%	5.5 30%
Delivered Cost (14) + (15)	(16)	1,612	301	1,311	48
Ratio of Component		100%	20%	80%	
Ratio of Tax for Total Cost					3%
Ratio of Tax for Local Cost					16%

Table 3.4-16 Analysis of Cost Component for Construction Material (Prime Material is Imported)

Item : PVC Pipe, 110 m/m x 5.6 m/m x 6 m

Market price : Rs 35.0/m, analized as for 100 m (0.3 t)

Description		Total (Rs)	Component (Rs)		
			Local	Foreign	Tax
Material cost per 0.3 ton, suppose 50% of Market Price	(1)				
CIF Value per ton	(2)	1,470		1,470	
Imported Duties 5% of (2)	(3)	75	75		75
Storage, Port, Unloading, Inland Transport Charges & Agent Fee, Rs 150/t	(4)	45	45		
Total, (2) + (3) + (4),	(5)	1,590	120	1,470	75
Indirect Cost, 10% of (5)	(6)	160	160		
Total, (5) + (6)	(7)	1,750	280	1,470	75
Corporate Tax, 25% of (6)	(8)				40
Income Tax, 2% of (6)	(9)				3
Material Cost Component	(10)	1,750 100%	280 16%	1,470 84%	118 7%
Processing Cost per ton, suppose 35% of Market Price	(11)				
Machine Owing Cost including Import Duties, 40% of (11)		490 100%	44 9%	446 91%	20 4%
Labour Cost including Income Tax, 20% of (11)		245 100%	245 100%	0 0%	5 2%
Consumptions incluidng Import Duties, 40% of (11)		490 100%	190 38%	300 62%	137 28%
Processing Cost Component	(12)	1,225 100%	479 39%	746 61%	162 13%
Administrative Cost Component including Income Tax, 10% of Market Price	(13)	350 100%	350 100%	0 0%	14 4%
Profic Cost Component including corporate Tax, 5% of Market Price	(14)	175 100%	175 100%	0 0%	88 50%
Delivery to Site	(15)	18 100%	7 40%	11 60%	6 30%
Delivered Price, (10)+(12)+(13)+(14)+(15)		3,518	1,291	2,227	388
Rate of Component		100%	37%	63%	11%
Ratio of Tax Component for Local Component					30%

Table 3.4-17 Delivered Price of Reinforcement Bar and PVC Pipe

Item	Description	Unit	Market Price (Rs)	Delivery Cost (Rs)	Rounded Delivered Price (Rs)	Component (Rs)		Tax Compo. (Rs)	Import Duties (Rs)	Corporate Tax (Rs)	Personal Income Tax (Rs)
						Local	Foreign				
Reinforcement Bar	Mild round steel D≦16mm	t	3,200	18.0	3,218 100%	997 31%	2,221 69%	369 11%	154 42%	183 50%	32 8%
	D≧20mm	"	2,880	18.0	2,900 100%	899 31%	2,001 69%	319 11%	134 42%	160 50%	25 8%
	High tensile steel D≦16mm	"	3,440	18.0	3,460 100%	1,073 31%	2,387 69%	380 11%	160 42%	190 50%	30 8%
	D≧20mm	"	3,230	18.0	3,250 100%	1,008 31%	2,242 69%	358 11%	150 42%	179 50%	29 8%
PVC Pipe	110x3.2x6 mm	M	25.00	2.0	27.0 100%	9 35%	18 65%	2 9%	0.8 42%	1.0 48%	0.2 10%
	110x5.6x6	"	35.00	2.0	37.0 100%	13 35%	24 65%	3 9%	1.3 42%	1.4 48%	0.3 10%
	110x6.3x6	"	39.17	2.5	42.0 100%	15 35%	27 65%	4 9%	1.7 42%	1.9 48%	0.4 10%
	125x3.2x6	"	27.50	2.5	30.0 100%	11 35%	19 65%	3 9%	1.3 42%	1.4 48%	0.3 10%
	125x6.3x6	"	42.50	2.5	45.0 100%	16 35%	29 65%	4 9%	1.7 42%	1.9 48%	0.4 10%

Table 3.4-18 Unit Price Analysis of Material, Ready-mixed Concrete

Item No.	Ready mixed concrete, Grade 20 (Market Price in Plant: Rs 425/M3)	Total Cost	Rs 520 per 1.0M3
		Local Component	41 %
		Foreign Component	59 %
		Taxes Component	15 %

Particular		Description	Unit	Q'ty	Unit cost (Rs)	Total cost (Rs)	Local Comp.		Foreign Comp.		Taxes Comp.		Taxes		
							Unit cost (Rs)	(Rs)	Unit cost (Rs)	(Rs)	Unit cost	(Rs)	Imp. (Rs)	Cor. (Rs)	Inc. (Rs)
1	Prime Material Cost														
		Cement, Portland, normal, 670 Rs/t	Kg	310	0.67	208	43%	89	57%	119	6%	12	60% 7	36% 4	4% 1
		Aggregate, coarse 54 Rs/t	"	1,150	0.054	62	35%	22	65%	40	22%	14	79% 11	19% 3	2% 0
		ditto, fine 78 Rs/t	"	750	0.078	59	35%	21	65%	38	22%	13	79% 10	19% 2	2% 1
		Admixtures and others	sum	5%		11	43%	5	57%	6	6%	1	60% 0.6	35% 0.4	4% 0
		Sub-total				340	(40%)	137	(60%)	203	(12%)	40	(73%) 29	(25%) 10	(2%) 1
2	Processing Cost														
		Assumed 10% of Market Price	sum			45	30%	14	70%	31	15%	7	60% 4	36% 3	4% 0
3	Administrative Cost														
		Assumed 5% of Market Price	sum			20	60%	12	40%	8	20%	4	70% 3		30% 1
4	Profit														
		Assumed 5% of Market Price	sum			20	100%	20			50%	10		100% 10	
		Total of Market Price			(100%)	425	(43%)	183	(57%)	242	(14%)	61	(59%) 36	(37%) 23	(4%) 2
5	Delivery to Site														
		According to current rate, D=15 miles	sum			95	30%	29	70%	67	16%	15	82% 12	16% 2	2% 1
		Grand-total				520	(41%)	212	(59%)	309	(15%)	76	(63%) 48	(33%) 25	(4%) 3

Remarks:

Table 3.4-19 Delivered Price of Ready Mixed Concrete and Concrete Products

Item	Description	Unit	Market Price (Rs)	Delivery Cost (Rs)	Rounded Delivered Price (Rs)	Component (Rs)		Tax Compo. (Rs)	Import Duties (Rs)	Corporate Tax (Rs)	Personal Income Tax (Rs)
						Local	Foreign				
Ready Mixed Concrete	Grade 15	M3	390	95	480 100%	197 41%	283 59%	72 15%	45 63%	24 33%	3 4%
	Grade 20	"	425	95	520 100%	213	307	78	49	26	3
	Grade 25	"	451	95	550 100%	226	324	83	52	27	4
	Grade 30	"	477	97	575 100%	236	339	86	54	28	4
	Grade 40	"	525	97	620 100%	254	366	93	58	31	4
Non-reinforced Concrete Pipe	Spun 1066 mm	M	722	60	790 100%	324 41%	466 59%	119 15%	75 63%	39 33%	5 4%
	914 "	"	505	60	570 100%	234	336	86	54	28	4
	762 "	"	343	50	400 100%	164	236	60	38	20	2
	609 "	"	271	40	310 100%	127	183	47	30	16	1
	380 "	"	126	30	160 100%	66	94	24	15	8	1
	304 "	"	108	20	130 100%	53	77	20	13	7	0
U typed Concrete Ditch	mm mm 320 x 319	"			140 100%	57 41%	83 59%	21 15%	13 63%	7 33%	1 4%
	432 x 448	"			240 100%	98	142	36	23	12	1
	479 x 539	"			280 100%	115	165	42	26	14	2
	571 x 591	"			300 100%	123	177	45	28	15	2

3.5 Construction Cost

3.5.1 Construction cost on Base Date

The construction cost sum of Bill "B" to "H" estimated on Base Date, e.g. September of 1979 is summarized as follows. (Refer to the Summary of Construction Cost for in July of 1981, "Annex to Priced B.Q.")

The costs are derived from the Unit Price Analysis of each work item appended to the confidential volume. As viewed from the cost element, the materials cost accounts for a higher rate, and the local cost very low.

On the other hand, on the point of the cost component, the foreign, local and taxes take 55.7%, 44.3% and 20% respectively of the total sum. Therefore, the rate of foreign component comes to around 55.7/55.7 + (44.3-20) = 70(%), if all taxes may be subtracted from the project cost.

As seen in the Unit Price Analysis, the import duties occupy about 90% of the taxes, hence, if 80% of the total import duties of materials and equipment is exempted, the construction cost will be reduced by 14%. (20% x 0.9 x 0.8 = 14%)

Note: The construction cost discussed hereafter was prepared at the Draft Final Stage. Some revisions for the quantity, rate and amount have been made and the final Engineer's Estimate is shown in the Priced Bills of Quantities.

Table 3.5-1 Sum of Bill "B" to "H" on Base Date

Sum of Bill "B" to "H" on Base Date	160,421 (100 %)
Foreign Componet	89,358 (55.7 %)
Local Component	71,063 (44.3 %)
Taxes Component	31,435 (20 %)
Import Duties	28,292 (17.6 %)

Equip. Element	32,410 (20.2 %)
Labour Element	9,390 (5.9 %)
Material Element	86,537 (53.9 %)
Overhead and Profit	32,084 (20 %)
F.O.L.	5,461 (3.5 %)

3.5.2 Estimate of construction cost in July of 1981

The prospective award time will come around in July of 1981 considering the preparatory duration for the tender, so the estimated bills on the Base Date shall be adjusted subject to the price fluctuations occurring after the Base Date.

(1) Influence by participation of foreign contractors

The estimate is made on an assumption the contract be awarded only to local contractors. In the case that foreign contractors participate in the contract at a rate of 50% of the cost amount, half of the overhead and profit costs will be remitted overseas. The ratio of cost element changes as below, (Adjustment (1)) but the ratio of component will not change.

Adjustment (1)

(in 1,000 Rs)

Sum of Bill "B" to "H" on Base Date	Foreign	Local	Taxes	Import duties
160,421 (100%)	89,358 (55.7%)	71,063 (44.3%)	31,435 (20%)	28,292 (17.6%)
no change	plus 32,084x50%	minus 32,084x50%	no change	no change
160,421 (100%)	105,400 (65.7%)	55,021 (34.3%)	31,435 (20%)	28,292 (17.6%)

(2) Influence by currency devaluation of Rupee

The exchange rate of the Rupee was altered from SDR1 = Rs 7.71375 to SDR1 = Rs 10 in effect as from the 23rd October of 1979. The foreign component and part of taxes which are expressed in Rupees shall be increased in figures by a rate of 30%.

Adjustment (2)

(in 1000 Rs)

Sum of Bill "B" to "H" on Base Date	Foreign	Local	Taxes	Import duties
160,421 (100%)	105,400 (65.7%)	55,021 (34.3%)	31,435 (20%)	28,292 (17.6%)
(25% up)	plus 105,400 x 30% (30% up)	plus 28,292 x 30% (15.4% up)	plus 28,292 x 30% (27% up)	plus 28,292 x 30% (30% up)
200,529 (100%)	137,020 (68.3%)	63,509 (31.7%)	39,923 (19.9%)	36,780 (18.3%)

Consequently, by the Adjustment (2) the sum of Bill "B" to "H" increases by 25%. Also the increase of figures affects the cost element rates as follows.

Adjustment (2)'

Sum of Bill "B" to "H" on Base Date	Equipment	Labour	Materials	Overhead & Profit	F.O.L
160,429 (100%)	32,410 (20.2%)	9,390 (5.9%)	86,537 (53.9%)	32,084 (20%)	5,461 (3.5%)
(25% up)	to be increased by 27%	no change	to be increased by 27%	not to be changed in percentage	to be increased by 27%
200,529 (100%)	41,153 (20.5%)	9,390 (4.7%)	109,880 (54.8%)	40,106 (20%)	6,935 (3.5%)

(3) Influence by inflation factor of cost element

After the Base Date, the annual inflation factor of each cost element is deemed as approximately 9%. The factor is exclusive of the indirect inflationary effect by the currency devaluation. For example, the market price of cement increased by even 38% after the devaluation compared with in the previous year, but of which factor almost 30% was attributable to the devaluation. Te following Adjustment (3) shows the sum of construction cost, Bill "B" to "H".

Adjustment (3)

(in 1000 Rs)

Sum of Bill "B" to "H" Adjustment (2)'	Equipment	Labour	Materials	Overhead & Profit	F.O.L
200,529 (100%)	41,153 (20.5%)	9,390 (4.7%)	109,880 (54.8%)	40,106 (20%)	6,935 (3.5%)
Inflation factor for 2 years is assumed as 19% (1.09^2 = 1.19)					
238,630 (100%)	48,972 (20.5%)	11,174 (4.7%)	130,757 (54.8%)	47,727 (20%)	8,253 (3.5%)
Sum of Bill "B" to "H" in July of 1981	Equipment	Labour	Materials	Overhead & Profit	F.O.L

(4) Appreciation of adjusted cost

By these adjustment procedures, the construction cost sum of Bill "B" to "H" increases as follows in comparison with the sum at Base Date.

Total	Equipment	Labour	Materials	Overhead & Profit	F.O.L
1.49 (times)	1.51	1.19	1.51	1.49	1.51

The cost component ratio is as shown in Adjustment (3), so each component will be divided into the following.

(in 1000 Rs)

Sum of Bill "B" to "H" in July of 1981	Foreign	Local	Taxes	Import duties
238,630 (100%)	162,984 (68.3%)	75,646 (31.7%)	47,487 (19.9%)	43,669 (18.3%)

Then, the rate compared with Base Date comes as below.

Total	Foreign	Local	Taxes	Import duties
1.49 (times)	1.83	1.06	1.51	1.54

(5) Priced bills of quantities

The Priced Bills of Quantities are appended to this confidential volume. From the results of cost adjustment, pricing policies are as follows.

Note: The quantity, rate and amount shown in the Priced Bills of Quantities are not necessarilly same with those discussed in this volume and "the annex to the priced Bills of Quantities". They will be adjusted or revised according to the final review.

(a) Unit price of Bill "B" to "H"

1.49 times the unit price analyzed in the Unit Price Analysis Sheet on Base Date.

(b) Unit price of Bill "I" (Daywork Schedules)

Equipment and labour : 1.51 times the hourly costs including overhead and profit (25%) on Base Date.

Materials: 1.19 times the delivered prices including overhead and profit (25%) on Base Date.

(c) Lump sum or unit prices of Bill "A" (General Items)

The prices are set forth in conjunction with cost amounts or elements of the sum of Bill "B" to "H".

The premium for the performance bond and insurances are as follows in comparison with that of other previous projects in Mauritius.

(Percentage for Contract Sum)

	This project	Northern Entrance Road	Relief to the North Road	Motorway through Port Louis
Performance Bond	0.215%	0.121%	0.194%	0.392%
Work Insurance	0.394%	0.309%	0.967%	0.299%
Third Party Insurance	0.215%		0.135%	0.200%
Accident Injury Insurance	0.061%	0.225%	0.077%	0.100%

(6) Phased expenditure for construction

In order to assist the forwarding budget needs, the anticipated & phased expenditures for construction are prepared as shown in Table 3.5-2.

Note: The figures shown in the table conform with those of adjusted Priced Bills of Quantities.

Table 3.5-2 Anticipated Phased Expenditiure for Construction

(in 1,000 Rs)

Phase / Item	Ist three months	IInd	IIIrd	IVth	V th	VIth	VIIth	VIIIth	IX th	X th	XIth	XIIth
Advance Payment	30,600											
Monthly Payment			20,400	21,500	21,500	21,300	21,300	36,600	36,600	36,600	36,600	54,035
Retainage			-2,040	-2,150	-2,150	-2,130	-2,130	-3,660	-1,061	0	+7,660	+7,661
Repayment of Advnace					-4,300	-4,300	-4,300	-7,300	-7,300	-3,100		
Expenditiure	30,600		18,360	19,350	15,050	14,870	14,870	25,640	28,239	33,500	44,260	61,696
Accumulated Expenditure	30,600		48,960	68,310	83,360	98,230	113,100	138,740	166,979	200,479	244,739	306,435

/1 : The figures correspond to those of Priced Bills of Quantities.

3.5.3 Land acquisition cost

The estimate for right-of-way acquisition is made on the basis of the unit prices to be furnished by the Government of Mauritius for each type of land utilization.

The type of land and area are classified as follow.

(a) Beau Bassin Access Road (from actual Round About near Sacre Coeur Church to junction with proposed Link Road) runs along former railway track - at some places narrow strip of adjoining private property will be required - about 0.5 acres no building involved Medine S.E. under canes - 1.1 acres.

(b) Beau Bassin - Port Louis Link Road (from St Martin Road near Stone Crusher Plant to junction with Trunk Road at pailles near St. Louis CEB Power Station)

. From St. Martin Road to junction with railway land (Barkly Junction)

(i) Excelsior United Development Co., Ltd. - stone crusher - 1.1 acres + buildings
(ii) Small owner - 0.07 acres
(iii) Mts. International Divine Life Soc. - 0.52 acres + concrete building
(iv) Medine S.E. under canes - approx. 11.25 acres
(v) Soc. des Heritiers Venkatasamy - 2.2 acres (under eucalyptus trees)

. From Barkly junction to Richelieu Rehabilitation Centre
Medine S.E. under canes approx. 27.0 acres

. From Richelieu Rehabilitation Centre to S. Hill

(i) Crown land leased to Patel includes buildings
(ii) Soc. les Mouettes under canes approx. 3.25 acres
(iii) Mrs. T. Tulsidas - 0.35 acres (waste)
(iv) S.H. Roojee - 0.80 acres (waste)
(v) Development Bank of Mauritius 1.65 acres (waste)
(vi) Hindu Cadets football ground + surrounding land of approx. extent 7.35 acres, some 16 buildings involved.

. From S Hill to Maurco Paints at Pailles
Bata & sone crusher - 2.50 acres
approx. extent 3.40 acres built up,
some 28 buildings involved

. Interchange at Pailles

(i) approx. extent 3.5 acres,
some 35 buildings involved includes Maurco Paints Factory

(ii) Crown land to be resumed 1.75 acres (industrial)