

Office of the Chief Engineer LSGD

Construction of a Fixed Dome Bio Gas Plant 500 kg / Day MODEL ESTIMATE

Detailed Estimate

(Cost Index Applied for this estimate is 35.59%)

SI No	Description	No	L	B	D	CF	Quantity	Remark
1 Bio gas plant								
1	2.31 Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared							
	Site clearance	1	10.000	8.000			80.000	
	Total Quantity						80.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						80.000 sqm	
	Say 80.000 sqm @ Rs 14.78 / sqm						Rs 1182.40	
2	2.7.1 Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed. Ordinary rock							
	Digester - Above Dome (3.14/4 x dx dxh)	0.785	7.340	7.340	3.120		131.953	0.50 m each sides
	- do - Below Dome 3.14xhxh(3R - h = 3.14 x 1.27 x 1.27 (3 x 3.17 - 1.27)	3.14	1.270	1.270	8.240		41.732	
	Displacement tank	1	5.400	3.000	1.800		29.160	
	Pocket portion	1	1.400	1.400	1.700		3.332	
	Total Quantity						206.177 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						206.177 cum	
	Say 206.177 cum @ Rs 414.84 / cum						Rs 85530.47	
3	2.26.2 Extra for every additional lift 1.5 m or part there of in excavation / banking excavated or stacked materials. Ordinary or hard rock							

	II nd Lift Digester - Above Dome (3.14/4 x dx dxh)	0.785	7.340	7.340	1.620		68.514	0.50 m each sides
	- do - Below Dome 3.14xhxh(3R - h = 3.14 x 1.27 x 1.27 (3 x 3.17 - 1.27)	3.14	1.270	1.270	8.240		41.732	
	Displacement tank	1	5.400	3.000	1.800		29.160	
	III rd Lift Digester Above dome	0.785	7.370	7.340	0.120		5.096	
	- do - Below dome	3.14	1.270	1.270	8.240		41.732	
						Total Quantity	186.234 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	186.234 cum	
						Say 186.234 cum @ Rs 190.78 / cum	Rs 35529.72	
4	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
	Digester bottom (outer volume - inner volume) - 3.14x1.27x1.27(3x3.17-1.27)	3.14	1.270	1.270	8.240		41.732	
	Ring portion	3.14	6.540	0.450	0.150		1.387	
	Displacement tank	1	4.700	2.300	0.100		1.081	
	Inlet chamber	3.14	0.400	0.400	0.100		0.051	
	Slurry tank	1	5.700	3.700	0.150		3.164	
	mixing tank	1	1.700	1.700	0.150		0.434	
						Deduction		
	Below dome inner volume -3.14xhxh(3R - h) = 3.14x1.12x1.12(3x3.02-1.12)	3.14	1.120	1.120	7.940		-31.274	
						Total Quantity	47.849 cum	
						Total Deducted Quantity	-31.274 cum	
						Net Total Quantity	16.575 cum	

		Say 16.575 cum @ Rs 6814.89 / cum				Rs 112956.80	
5	5.2.2 Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. up to floor five level excluding cost of centering, shuttering, finishing and reinforcement :1:1.5:3(1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)						
	Digester bottom (outer volume - inner volume) - 3.14x1.12x1.12(3x3.02-1.12)7)	3.14	1.120	1.120	7.940		31.275
	Ring portion	3.14	6.540	0.450	0.120		1.109
	Displacement tank	1	4.700	2.300	0.100		1.081
	Inlet chamber bottom	3.14	0.400	0.400	0.075		0.038
	Cover Slab of Displacement tank	1	4.400	2.000	0.100		0.880
	Cover Slab inlet tank	3.14	0.325	0.325	0.075		0.025
	Inlet tank wall	3.14	0.325	0.325	0.600		0.199
	mixing tank bottom	1	1.700	1.700	0.100		0.289
	bottom of Inspection chamber	3	0.400	0.700	0.100		0.084
	Condensate water removal pit (inspection chamber)	3	2.400	0.100	1.000		0.720
	Cover slab of inspection chamber	3	0.700	0.700	0.100		0.147
	bottom	1	5.700	3.700	0.100		2.109
		Deduction					
	Below dome inner volume -3.14xhxh(3Rh) = 3.14x1.12x1.12(3x3.02-1.12)	3.14	1.120	1.120	7.940		-31.274
	In let wall	3.14	0.250	0.250	0.600		-0.117
		Total Quantity					37.956 cum
		Total Deducted Quantity					-31.391 cum
		Net Total Quantity					6.565 cum
		Say 6.565 cum @ Rs 10954.04 / cum					Rs 71913.27

6	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	Quantity of concrete = Item Nos.5 and 9	1	13.623			80.0	1089.840	
		Total Quantity					1089.840 kilogram	
		Total Deducted Quantity					0.000 kilogram	
		Net Total Quantity					1089.840 kilogram	
		Say 1089.840 kilogram @ Rs 98.30 / kilogram					Rs 107131.27	
7	5.9.3 Centering and shuttering including strutting, etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform							
	Displacement slab bottom	1	12.800	0.100			1.280	
	Displacement cover slab	1	12.200	0.100			1.220	
	digester	3.14	6.500	0.200			4.082	
		Total Quantity					6.582 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					6.582 sqm	
		Say 6.582 sqm @ Rs 815.78 / sqm					Rs 5369.46	
8	5.9.9 Centering and shuttering including strutting, etc. and removal of form for: Arches, domes, vaults up to 6m span							
		2	3.140	2.800	2.800		49.236	
		Total Quantity					49.236 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					49.236 sqm	
		Say 49.236 sqm @ Rs 2016.56 / sqm					Rs 99287.35	
9	5.5 Reinforced cement concrete work in arches, arch ribs, domes, vaults, shells, folded plate and roofs having slope more than 15 up to floor five level excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand (Zone III) : 3 graded stone aggregate 20 mm nominal size)							
	Dome	2/3	3.140	3.120	3.120	3.12	63.578	2/3x3.14xr xr
		Deduction						

	Dome	2/3	3.140	3.000	3.000	3.0	-56.520	
	Total Quantity						63.578 cum	
	Total Deducted Quantity						-56.520 cum	
	Net Total Quantity						7.058 cum	
	Say 7.058 cum @ Rs 12111.10 / cum						Rs 85480.14	
10	6.9 Brick work in plain arches in superstructure above plinth level and upto floor five level including centering and shuttering complete for span up to 6 metres with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in cement mortar 1:3 (1 cement: 3 coarse sand).							
	Dome	2/3	3.140	3.000	3.000	3.0	56.520	2/3x3.14xr xr
		3.14	6.340	0.100	1.400		2.788	3.14xdiaxl kx1.40 height
	Deduction							
	Dome	2/3	3.140	2.900	2.900	2.9	-51.054	
	Total Quantity						59.308 cum	
	Total Deducted Quantity						-51.054 cum	
	Net Total Quantity						8.254 cum	
	Say 8.254 cum @ Rs 14540.54 / cum						Rs 120017.62	
11	6.1.1 Brick work with common burnt clay F.P.S (non modular) bricks of class designation 7.5 in foundation and plinth in: Cement mortar 1:4 (1 cement : 4 coarse sand)							
	Pocket portion	1	4.200	0.200	1.700		1.428	
	Total Quantity						1.428 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						1.428 cum	
	Say 1.428 cum @ Rs 7505.45 / cum						Rs 10717.78	
12	50.6.2.1 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x15 cm or nearest available size confirming to IS 2185 part I of 1979 for foundation and plinth with thickness 15cm in: CM 1:6 (1 cement :6 coarse sand) etc complete							
	Displacement tank	1	12.000	0.200	1.800		4.320	
	Slurry tank	1	15.800	0.200	1.800		5.688	
	mixing tank	1	5.600	0.200	0.800		0.896	
	Total Quantity						10.904 cum	

		Total Deducted Quantity				0.000 cum	
		Net Total Quantity				10.904 cum	
		Say 10.904 cum @ Rs 6237.61 / cum				Rs 68014.90	
13	13.9.1 Cement plaster 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.12 mm cement plaster						
	Digester bottom	3.14	9.410			29.548	
	Dome inner	2	3.140	2.900	2.900	52.815	
	Dome Outer	2	3.140	3.200	3.200	64.308	
	Pocket portion inner	1	4.200		1.700	7.140	
	Pocket portion outer	1	4.800		1.700	8.160	
	Displacement tank floor	1	4.000	1.600		6.400	
	Displacement inner	1	11.200		1.800	20.160	
	Displacement outer	1	12.800		1.800	23.040	
	Displacement tank top	1	12.000		0.200	2.400	
	Inlet tank inner	3.14	0.500		0.600	0.942	
	Inlet tank outer	3.14	0.650		0.600	1.225	
	Inlet tank bottom	3.14	0.250	0.250	0.600	0.118	
	Inlet tank wall	3.14	0.325	0.325	0.600	0.199	
	mixing tank bottom	1	1.700	1.700	0.100	0.289	
	bottom of Inspection chamber	3	0.400	0.700	0.100	0.084	
	Condensate water removal pit (inspection chamber)	3	2.400	0.100	1.000	0.720	
	Cover slab of inspection chamber	3	0.700	0.700	0.100	0.147	
	bottom	1	5.700	3.700	0.100	2.109	
	bottom of inspection chamber	3	0.500	0.500		0.750	
	Condensate water removal pit (inspection chamber) inner	3	3.140	2.000	1.000	18.840	
	- do - outer	3	3.140	2.400	1.000	22.608	

	Slurry tank bottom	1	5.000	3.000			15.000	
	- do - inner	1	16.000		1.800		28.800	
	- do - outer	1	17.000		1.800		30.600	
	- top -	1	16.800		0.200		3.360	
	Total Quantity						339.762 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						339.762 sqm	
	Say339.762 sqm @ Rs 412.13 / sqm						Rs 140026.11	
14	13.25.1 Extra for plastering :Spherical ceiling							
	Digester bottom	3.14	9.410				29.548	
	Dome inner	2	3.140	2.900	2.900		52.815	
	Dome outer	2	3.140	3.200	3.200		64.308	
	Total Quantity						146.671 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						146.671 sqm	
	Say146.671 sqm @ Rs 157.22 / sqm						Rs 23059.61	
15	13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work							
	Digester bottom	3.14	9.410				29.548	
	Dome inner	2	3.140	2.900	2.900		52.815	
	Pocket portion inner	1	4.200		1.400		5.880	
	Displacement tank floor	1	4.000	1.600			6.400	
	Displacement inner	1	11.200		2.000		22.400	
	Total Quantity						117.043 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						117.043 sqm	
	Say117.043 sqm @ Rs 222.91 / sqm						Rs 26090.06	
16	60.2.1 EARTH WORK FILLING- Supplying contractors own earth including cost of conveyance and royalty and filling (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.							

	Total earth (206.177+186.234.00 + 27.00)	419.411					419.411		
	Deduction								
	Volume of Digester	2/3	3.140	3.250	3.250	3.25	-71.860		
		3.14	7.090				-22.262	3.14x1.27(6.44x6.44/ 8+1.27x1. 27/6)	
	pocket portion	1	1.400	1.400	1.700		-3.332		
	Displacement tank	1	4.500	2.000	1.800		-16.200		
	Slurry tank	1	5.400	3.400	1.800		-33.048		
	Total Quantity						419.411 cum		
	Total Deducted Quantity						-146.702 cum		
	Net Total Quantity						272.709 cum		
	Say 272.709 cum @ Rs 525.82 / cum						Rs 143395.85		
17	15.60 Disposal of building rubbish/ malba/ similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved								
	Balance earth (average- 50.00)	1	50.00				50.000		
	Total Quantity						50.000 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						50.000 cum		
	Say 50.000 cum @ Rs 163.45 / cum						Rs 8172.50		
18	50.18.9.10.1 Providing and fixing PVC pipes including jointing of pipes with one step pvc solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer in Charge. 150 mm dia 6 Kgf/cm2								
		1	10.000				10.000		
	Total Quantity						10.000 metre		
	Total Deducted Quantity						0.000 metre		
	Net Total Quantity						10.000 metre		
	Say 10.000 metre @ Rs 903.01 / metre						Rs 9030.10		
19	50.18.9.3.2 Providing and fixing PVC pipes includes jointing of pipes with one step PVC solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge. 25 mm dia 10KGF/cm2								

	Gas pipe line	1	100.000				100.000	
	Total Quantity						100.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						100.000 metre	
	Say 100.000 metre @ Rs 216.02 / metre						Rs 21602.00	
20	50.18.9.4.2 Providing and fixing PVC pipes including joints of pipes with one step PVC solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge. 32 mm dia 6 Kgf/cm ²							
		200					200.000	
	Total Quantity						200.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						200.000 metre	
	Say 200.000 metre @ Rs 221.38 / metre						Rs 44276.00	
21	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil							
	Pipe line	1	100.000	0.450	0.600		27.000	
	Total Quantity						27.000 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						27.000 cum	
	Say 27.000 cum @ Rs 296.94 / cum						Rs 8017.38	
SI No	Description	No	L	B	D	CF	Quantity	Remark
2 P.v.c. S//F 100.00 m. length pipes 200 mm dia 4kg/sq.m(100x1865.00)								
Lump-Sum Total							Rs 186500.00	
SI No	Description	No	L	B	D	CF	Quantity	
Remark	3 Levelling bricks (700.00x10.50)							
Lump-Sum Total							Rs 7350.00	
SI No	Description	No	L	B	D	CF	Quantity	
Remark	4 Supplying and filling Cow dung in to the plant - (68.00 cumx1300.00)							
Lump-Sum Total							Rs 88400.00	
SI No	Description	No	L	B	D	CF	Quantity	
Remark	5 Bio gas stove -(2 Nos x5500.00)							
Lump-Sum Total							Rs 11000.00	
SI No	Description	No	L	B	D	CF	Quantity	

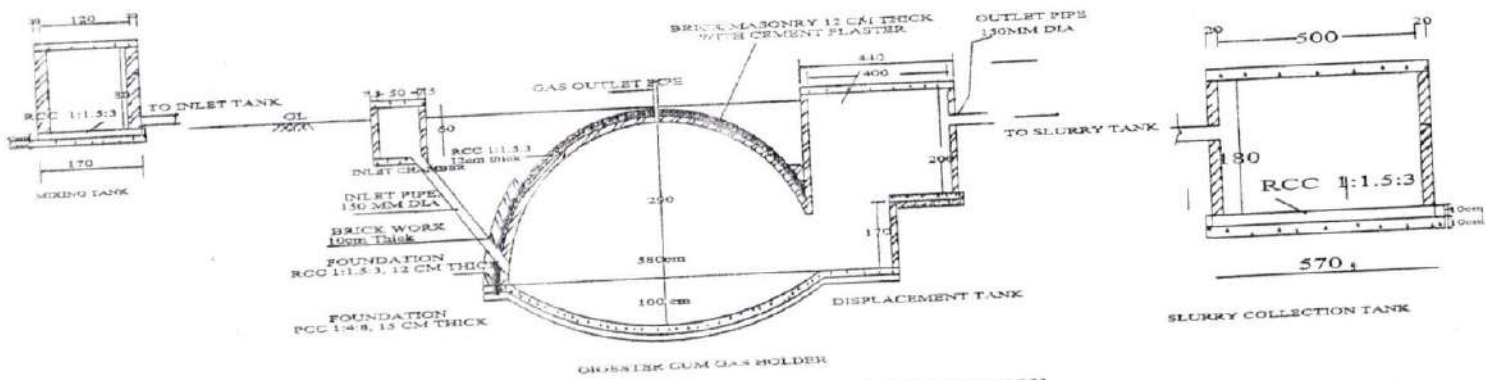
Remark	6 Providing Name Board	
	Lump-Sum Total	Rs 5000.00
	Amount reserved for GST payments Rs 274509.14	
	Total Rs 1799559.94	
	Lumpsum for round off	40.06
	TOTAL Rs 1799599.9961651997	
	Rounded Total Rs 1799600.00	
	Rupees Seventeen Lakh Ninety Nine Thousand Six Hundred Only	

(Cost Index Applied for this estimate is 35.59%)

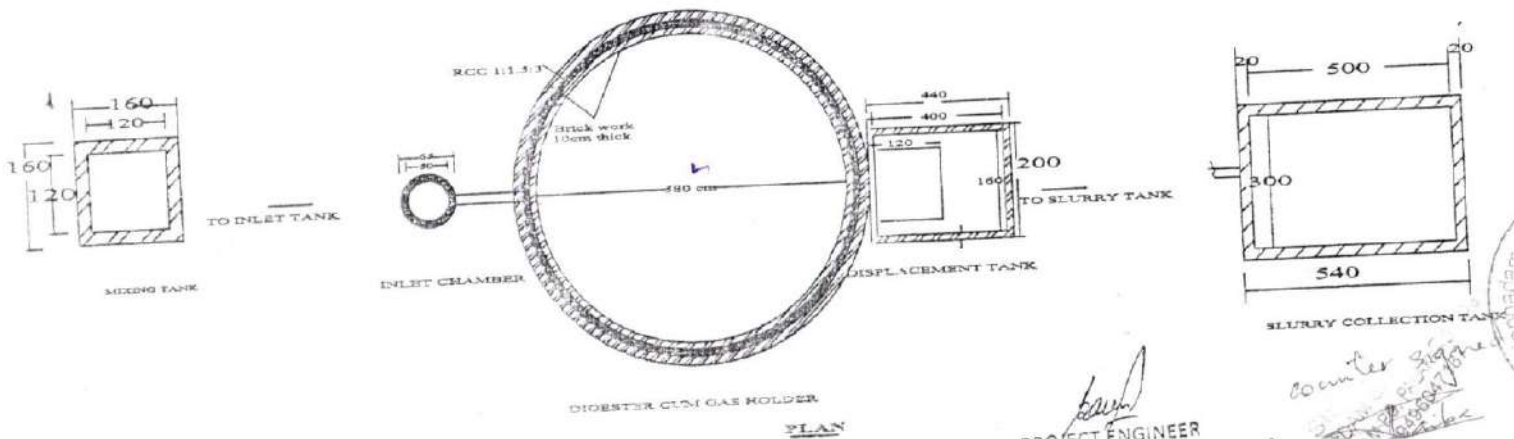
LSGD Engineering Wing

PRICE

FIXED DOME BIOGAS PLANT 2 NOS 500 KG PER DAY



CROSS SECTION



PLAN

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PROJECT ENGINEER

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