

FOR SUSTAINABLE WASTE MANAGEMENT FACILITY AT GAT # 443 P.O. AMBI, NEAR TALEGAON DABHADE MIDC, MAVAL TALUKA, PUNE DISTRICT, MAHARASHTRA

By

NOBLE EXCHANGE ENVIRONMENT SOLUTIONS LLP PUNE



1. INTRODUCTION

M/s. Noble Exchange Environment Solutions Pune has proposed to develop Sustainable Waste Management Complex. The proposed project will be partly executed at Block no. 48, Baner, Pune, Maharashtra where crushing & slurry preparation of pre segregated organic waste received from Pune Municipal Corporation will be carried out & partly at Gat # 443, at P.O. Ambi, Ambi – Nigade Road, Near Talegaon Dabhade MIDC, Taluka Maval, District Pune, Maharashtra where the transported slurry from Baner will be converted to final product Compressed Biogas. The proposed plant will convert 300 tons of bio-degradable waste per day into CBG. It requires Environmental Clearance from State Environment Impact Assessment Authority (SEIAA)/Ministry of Environment and Forest (MoEF) under Category 'B' in the Schedule 7 (i) of EIA Notification 2006 to commence the activity.

Proposed activity requires Environmental Clearance from State Environment Impact Assessment Authority (SEIAA) Maharashtra under Category 'B' in the Schedule 7 (i) of EIA Notification 2006.

2. PROJECT DESCRIPTION

The location of project site is given in the **Figure 1**.





Figure 1: Location Map of the project site





Figure 2: Satellite Image of the Talegaon site





Figure 3: Satellite image of the crushing facility at Baner



2.1 ENVIRONMENTAL SETTINGS OF TALEGAON SITE

Table 1 : Environmental Settings of the Project Site (Talegaon)

SI. No.	Particulars	Details	
1	Latitude	18°46'38.17″ N	
2	Longitude	73°39′50.93″ E	
3	Site Elevation above MSL	654 m amsl	
4	Topography	Undulating terrain	
5	Present land use at the site	Non agricultural use	
6	Extent of Plot	19000 m ²	
7	Nearest highway	NH – 4 connecting Pune & Mumbai – 7.2 km (SW)	
8	Nearest railway station	Talegaon – 5.0 km (SE)	
9	Nearest airport	Pune 32.5 km (NE)	
10	Nearest town / city	Talegaon – 6.3 Km (NW)	
11	Water body	 Indrayani River - 1.5 km (SW) 	
		✤ Andra Dam – 1.7 km (NW)	
		 Jadhavwadi Dam – 5.7 km (E) 	
		 Bhama Askhed Dam – 7.6 km (NE) 	
		 Talegaon Lake -7.2 km (SE) 	
		 Swaraj Nagar Lake- 5.2 (SE) 	
12	Hills / valleys	Nil in 5 km radius	
13	Archaeologically important places	Nil in 10 Km radius	
14	National parks / Wildlife Sanctuaries	Nil in 10 Km radius	
15	Reserved / Protected Forests	Nil in 10 Km radius	
16	Seismicity	Seismic zone-III	
17	Defense Installations	Nil in 10 Km radius	



2.2 ENVIRONMENTAL SETTINGS OF THE CRUSHING FACILITY AT BANER

SI. No.	Particulars	Details
1	Latitude	18°32'51.25"N
2	Longitude	73°46'11.20"E
3	Site Elevation above MSL	611 m amsl
4	Topography	Plain Terrain
5	Present land use at the site	Non agricultural use
6	Extent of Plot	1400 sqm
7	Nearest highway	NH 4 -Mumbai – Pune bypass road –0.33 km (E)
8	Nearest railway station	Pune rail way station - 11.23 km (NE)
9	Nearest airport	Pune airport- 16.33 km (ENE)
10	Nearest town / city	Pune city- 9.70 Km (ESE)
11	Water body	Pashan lake-1.90 (ESE)
		Mula River- 2.68 (NE)
		Manas lake -6.54 (SW)
12	Hills / valleys	Baner hill -2.29 (NE)
13	Archaeologically important places	Nil in 10 Km radius
14	National parks / Wildlife Sanctuaries	Nil in 10 Km radius
15	Reserved / Protected Forests	Nil in 10 Km radius
16	Seismicity	Seismic zone-III
17	Defense Installations	Nil in 10 Km radius

Table 2 : Environmental Settings of the Project Site (Baner)



3. NEED FOR THE PROJECT

The increasing demand on energy necessitated a global search for alternative energy resources. The Government of India recognized this potential and formulated a separate ministry, Ministry of Non-Conventional Energy Sources (MNES) in the year 1992. The National Bio-energy Board (NBB), Ministry of Non-Conventional Energy Sources (MNES), is developing a National Master Plan (NMP) for waste-to-energy as one of the activities under UNDP/GEF assisted project on development of high rage bio-methanation processes as a means of reducing Green House Gases Emission. This utilization concept of biogas is wide spread in rural areas, replacing for example kerosene or fire wood as the main source of energy. Depending on the biogas industry development biogas may play an important role in contributing an indigenous source of energy to the overall demand and reduces the dependency on imported fossil energy.

3.1 Project Description

The proposed project is sustainable waste management complex. Noble Exchange has proposed to set up plant having capacity to process organic waste to the extent of 300 TPD.

The pre segregated organic waste received from Pune Municipal Corporation will be processed and following products will be produced.

Input	Output		
	30,254 Nm3/day of raw biogas		
300 TPD pre-segregated organic waste	19,108 Nm3/day Compressed Biogas		
	52 Ton of Bio-fertilizer		

Table 3: Size and Output of the project



Table 4:	Salient	Features	of the	Project
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Item Description	Details					
Project Proposal	The proposed project is sustainable waste management complex. Noble Exchange has proposed to set up plant having capacity to process organic waste to the extent of 300 TPD					
Location	Noble Exchange Environment Solutions Pune LLP (NEX), Block No. 4 Baner, Pune, Maharashtra & Gat # 443, at P.O. Ambi, Ambi – Nigade Road, Near Talegaon Dabhade MIDC, Taluka Maval, District Pune, Maharashtra					
	Sr. No	Land use Break	up of the Talegaon Proposed area (in Sam)	site Prop	oosed Area in	
	1 2 3	Process area Ancillary/ supporting Storage area	5818.16 1450.82 60		30.62 7.63 0.30	
	4 5	Road area Parking area	1758.53 280.35		9.25 1.47	
	6	Green belt area	7010.81		9.26 36.90	
	7	Remaining open area	rea 861.33		4.5	
Land	and Total		19000		100	
Requirement &	Land use Breakup of the Baner site					
its break up for land use	Sr. No	Land details	Proposed ar (in Sq.m)	ea	Proposed Area in Percentage (%)	
	1	Process area	589.18	589.18		
	2	Supporting buildings	124.38	124.38		
	3	Storage area	NA	NA		
	4	Road area	545.52	545.52		
	5	Parking area	140.73	140.73		
	6	Green belt area(if any)	Nil	Nil		
	7 Remaining open area		Nil	Nil		
		Total			100	



Man power	Construction phase – 25 Nos. per day				
requirement	Operation phase – 12-15 per day at Talegaon & 10 – 12per day at Baner				
Power		700	KW & 149 K	W from	
requirement &	Maharashtra State	Elec	tricity Distri	bution Corporation Li	mited
Source	(MSEDCL)	for	Talegaon & I	Baner respectively	
Backup power	DG set (Capacity – 2	2 x 32	20 kVA) at Ta	llegaon & 150 KVA at	Baner
supply			Fuel- HSI)	
Water					
roquiromont &	Operation phas	se – 3	3 KLD at Tale	egaon & 1 KLD at Ban	er
i equit ement &	Source- Private wat	er si	upplier & Pu	ne Corporation respe	ctively
Source of supply				x x	5
	The quantity of wastewater generated from domestic activities during				
	operation phase will b	e arc	ound 0.9 KLI). Additionally 1.6 KLI) effluent
Wastewater	will be generate from v	wash	ing/cleaning	g activities. As sewage	quantity
generation	will be minimal treated in ETP.				
generation,	The slurry generated	l wil	l be treated i	n Effluent treatment	olant of
treatment &	capacity 600 KLD. Fi	rom	treated efflu	ent 168 KLD will be u	sed for
disposal	crushing facility at Baner. 41.5 KLD will be for gardening purpose & rest				
	of the 168 KLD will be given for irrigation purpose.				
	At Baner there will not be any waste water generation.				
Air Pollution	Source		Air Pollu	ition Control Measu	res
Sources and	DG set – 2 x 320 kVA	A	dequate heig	ght of stack – 3 m as p	er CPCB
Control	& 1 x 150 kVA			norms	
Measures	(Fuel : HSD)				
	Description of wast	e	Quantity	Management	<u>.</u>
	Municipal Solid waste	e	5 kg/Dav	Waste will be	
Solid waste			0 118/ 2 019		
generation &	ration &				
Management			nouse.		
	Non-hazardous solid	l	52 TPD	Sold as a bio	
	waste (Bio manure)			manure	
Project Cost	Rs. 4486 Lakhs				

4. BASELINE ENVIRONMENTAL STATUS

The study area is of 10 km radial distance from the project site. All the monitoring has been completed in various locations within the study area during the period of March 2015 to May 2015. The findings of the baseline environmental status of the land, Meteorology, Air, Noise level, Ecological Environment, Socio-economic conditions are presented in the report and interpreted with reference to environmental standards.

4.1. Temperature

April and May are the hottest months in the district. Maximum temperature during these months often rises to 40°C. December and January are the coolest months, when average monthly temperature falls as low as 7°C. The daily temperature comes down and night temperature become steady, as terrestrial heat is unable to escape due to the water vapor present in the atmosphere.

4.2 Rainfall

Most of this rain is brought by the South West monsoon winds during the summer and about 87% of rain falls during the monsoon months. The monsoon arrives in the month of June, with the maximum intensity of rainfall during month of July followed by August. The average rainfall in Pune district is 700 millimeters.

4.3 Ambient Air Quality

Air monitoring was carried out for PM_{10} , $PM_{2.5}$, SO_2 , NO_x & CO at four various locations and it was observed that the maximum and minimum recorded values of air pollutants are PM_{10} - 52.3µg/m³ & 30.8µg/m³, $PM_{2.5}$ - 21.4 µg / m³ & 9.5 µg / m³, SO_2 - 29.5 & 21.3, NO_x - 39.8 & 30.5 and CO- 0.39 & 0.1respectively. However, all the ambient air quality levels are found to be within the CPCB Standards.



4.4 Ambient Noise Level

Ambient noise levels monitored at four different locations it was observed that the maximum and minimum recorded values at Day and Night time were 61.6 dB (A) & 43.31 dB (A) and 45.3 dB (A) and 42.03 dB (A) respectively which indicate that they are within the prescribed limits.

4.5 Water Quality

The pH of ground water in the study area is 7.38 and TDS values were found to be 69 mg/L and Total hardness was found to be 13.61 mg/L. The chloride content in the studied area is 17.28 mg/L. The sulphate, nitrate and fluoride content in the ground water are found to be within the IS standards in all the samples.

The analysis indicates that the water is not severely affected by pollution as all the other parameters were under the limit as per IS (10500).

4.6 Soil Quality

Soil samples were collected from four locations. It has been observed that the pH of the soil was ranging from 3.75 - 4.98 indicating the soils are slightly acidic in nature. Conductivity of the soil ranges from 725 to 745 µS/cm. Since the EC value is less than 2 mS/cm, the soil is said to be non saline in nature. The analysis results indicate that the soil is not contaminated.

4.7 Ecology

There are no ecologically sensitive receptors or endangered species within the 10 kms of the study area. No rare or endangered species of flora and fauna are present in the immediate vicinity as well as the study area. Thus there will not be any adverse negative impact on flora and fauna.

4.8 Socio- Economic

The project will provide positive impact on the economic development of the region in terms of employment opportunities.



5. PREDICTION OF IMPACTS AND ITS MITIGATION MEASURES:

5.1 Impacts on Air

The principal potential source of air pollution during construction phase is fugitive dust generation and during the operation phase are movement of vehicles and the exhaust stacks of diesel generators. The impact is generally confined to the project area and is expected to be negligible outside the plant boundaries. Regular maintenance of equipments will be carried out to reduce emissions.

5.2 Impacts on Water

Wastewater generated from eating areas, and sewage from temporary sanitary facilities will be sent to ETP. During site development necessary precautions will be taken, so that the runoff water from the site gets collected to working pit. At Talegaon during process 533 KLD digested slurry will be generated, out of which 158 KLD will be re - circulated back in process as it contains active microorganisms which are helpful for digestion. Remaining 375 KLD digested slurry will be treated in Effluent treatment plant of capacity 600 KLD. From treated effluent 168 KLD will be used for crushing facility at Baner, 41.5 KLD will be for gardening purpose & rest of the 168 KLD will be given for irrigation purpose. As far as the crushing facility at Baner is concerned it does not have any fresh water requirement except for domestic use, there will not be any waste water generation.

5.3 Impacts on Noise Environment

The noise generated due to various processes is controlled by the provision of personal protective equipments to workers & acoustic enclosures will be provided for DG sets.

5.4 Impacts on Land and Ecological Environment

The contamination of land will affect the soil quality, ground water and living organisms in the environment. Since there is no dumping of municipal solid waste on to the land, there is no severe impact on the land. There is no wildlife sanctuary located within 10km radius of the project site. There are no known rare, endangered or ecologically significant animals and plant species. Due to the development of green belt at the project vicinity the impact on the ecology will be minimal.



6. ENVIRONMENTAL MONITORING PLAN

Post project environmental monitoring is important in terms of evaluating the performance of pollution control equipment installed in the project. The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board.

Sl.No	Particulars	Monitoring Frequency	Duration of Sampling	Important Monitoring Parameters			
1	Ambient Air Quality Monitoring						
а	Project site	Once in a 3 months	24 hour continuously except CO	PM10, PM2.5, SO2, NOx and CO			
2		Stack Mo	onitoring				
а	DG set	Once in a 3 months	30 min	SO2, NOx, SPM, Co, CO2, Temperature, Flow rate and velocity of gas			
3		Ambient N	loise Level				
a	Near DG set	Once in 3 months	8hr continuously with 1hr interval	Noise level (dB)			
4	Ground / Drinking water Quality						
а	Ground water at project site	Once in 3 months	Grab Sampling	Parameters specified under ISO: 10500, 1993			
5	Sewage Quality Monitoring						
а	ETP Inlet			Physical, Chemical			
b	ETP Outlet	Once in a week	Grab Sampling	and Biological parameters specified under IS: 2490:1982			





6	Soil Quality					
а	At the green belt area	Once in a year	Samples collected from three different depths viz., 30cm, 60cm and 100cm below the surface.	Parameter for soil quality: pH, texture, electrical conductivity, organic matter, nitrogen, phosphate, calcium, potassium and magnesium.		
7	Flora and Fauna	Once in a year	-	Number of plants and animal species		
8	Health	Regular Check ups	-	All relevant parameters including HIV		

7. ADDITIONAL STUDIES

The preliminary risk assessment of the plant has identified no hazardous events. Events identified for offsite facilities are estimated to occur at extremely low incident frequencies and/or not to significant levels of consequence. Management of hazardous event scenarios and risks in general can be adequately managed to acceptable levels. An effective Disaster Management Plan (DMP) to mitigate the risks involved has been prepared. This plan defines the responsibilities and resources available to respond to the different types of emergencies envisaged.

8. PROJECT BENEFITS

1. The major benefit due to the proposed project will be in the sphere of generating temporary employment for substantial number of personnel. Hence, local people in the surrounding area will be employed.

2. Environmentally, the biogas process is important because the methane is effectively diverted, captured and used. Therefore, the biogas project reduces the amount of methane allowed to dissipate into the atmosphere, thereby reducing green house gas emissions.

3. By utilizing the biogas instead of flaring (burning off) the methane, the project contributes to a reduction in fossil fuel consumption, further reducing green house gas emissions.

9. ENVIRONMENT MANAGEMENT PLAN

Environment Management Plan ensures that the project implementation is carried out in accordance with the design and the Environment Impact Assessment study to reduce the adverse impacts during the project's life cycle.

10. CONCLUSION

The proposed facility of Sustainable Waste Management Complex of 300 TPD capacity will definitely meet the increasing demand for the alternative energy resources by the production of 19,108 Nm³/day compressed Biogas. In this regard all possible environment aspects have been adequately assessed and necessary control measures formulated to meet with statutory requirements.