

# Six-Months Compliance Status Report of Talcher Fertilizers Limited, Talcher, Odisha

April -September 2018  
Report



**CSIR-National Environmental Engineering Research Institute**  
**Nehru Marg, Nagpur**

## 1.0 About the Industry

In 1971, The Fertilizer Corporation of India Ltd. (FCIL), set up Talcher Unit over an area of 902 acre in the district of Angul, Odisha which is located about 126 km away from Bhubaneswar to produce urea using coal as feed stock. Licensor for the Coal gasification was M/s Krupp Koppers, Germany and for Ammonia and Urea units Ammonia synthesis, M/s Tecnimont, Italy.

Commercial Production of Ammonia and Urea commenced on 01.11.1980 with Ammonia and Urea production capacity of 900 and 1500 Tons per day respectively. However due to frequent power restriction, obsolete and mismatch of technology and precarious steam balance the plant could not be sustained. The Board for Industrial and Financial Reconstruction (BIFR) declared the FCIL sick in 1992 and in 2002 Government of India initiated actions to close the company.

Due to shortage of domestic Urea and availability of large land banks, infrastructure and tied-up rail, water & electricity in the units of FCIL, GoI in the year 2007 decided to revive all units of FCIL. Government of India approved Policy for new Investments in the Urea Sector in September 2008 and constituted Empowered Committee of Secretaries (ECOS) in October 2008 with the mandate to evaluate all options of revival of closed units of FCIL/HFCL and to make suitable recommendations for consideration of the Government. In August, 2011, the Cabinet Committee on Economic Affairs (CCEA) had approved the Draft Rehabilitation Scheme (DRS) for revival of all the Units of FCIL and HFCL. DRS envisaged revival of Talcher Unit by the consortium of M/s.Rashtriya Chemical & Fertilizers Limited (RCF), M/s Coal India Limited (CIL) and M/s GAIL (India) Ltd. (GAIL).

## 2.0 About the Report

TFL received environmental clearance from MoEF&CC (F. No. J-11011/231/2013-1A-II(I) dated 9<sup>th</sup> February, 2018) for Setting up Ammonia & Urea Fertilizer Unit at Village Vikrampur, Tehsil Talcher, District Angul (Odisha); under the provisions of EIA Notification, 2006 and the amendments made therein, subject to the compliance of terms and conditions (**Annexure 1**):

According to the suggestion given by MoEF&CC, six-month environmental status report should be furnished to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. In this regard, the environmental monitoring was carried out by Projects & Development India Limited (PDIL), Sindri for the period of April to June 2018 and CSIR-National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur for the period of August to September 2018. The report is formulated after combing the results provided by CSIR-NEERI and PDIL.

### 3.0 EC Compliance Form

#### Compliance status of EC terms and conditions

Sr. No.	EC Terms and Conditions	Compliance Status
(i)	In view of the base line air quality data for PM <sub>10</sub> already exceeding the prescribed standards, one more season data to be collected to confirm the consistency of readings/values, and for suggesting mitigating measures accordingly.	<ul style="list-style-type: none"> <li>Monitoring of PM<sub>10</sub> has been completed for the period April to September-2018.</li> <li>Copy of the same is enclosed in this report.</li> </ul>
(ii)	The project proponent shall, take stringent mitigating measures to minimize the incremental concentration of air pollutants (mainly PM <sub>10</sub> & PM <sub>2.5</sub> ) to the extent possible due to the proposed industrial operations.	<ul style="list-style-type: none"> <li>As the monitored results are well within the specified limits no additional measures are proposed to be installed.</li> </ul>
(iii)	The project proponent shall develop local air quality management plan in consultation with SPCB and implemented to achieve desired standards.	<ul style="list-style-type: none"> <li>Compliance Assured</li> </ul>
(iv)	The incremental ground level concentrations (GLCs) for PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> & NO <sub>2</sub> due to the increased vehicular and other allied / developmental activities, shall be analysed and reported for actual impact of the project, besides remedial measures.	<ul style="list-style-type: none"> <li>Compliance Assured</li> <li>To check the incremental increase in air pollutants during construction phase, two monitoring stations were selected in the project site. The data is included in this report.</li> <li>As indicated in EIA the major transport of raw material will be by conveyor and hence no impact on GLC due to transport is expected.</li> </ul>
(v)	Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air	<ul style="list-style-type: none"> <li>Procedure for getting Consent to Establish is initiated.</li> </ul>

	(Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.	
(vi)	As already committed by the project proponent, Zero Liquid Discharge shall be ensured and no waste/treated water shall be discharged outside the premises.	<ul style="list-style-type: none"> <li>• Feasibility study for ZLD will be undertaken and appropriate treatment/recycling method will be selected to achieve ZLD.</li> </ul>
(vii)	Necessary authorization required under the Hazardous and other Wastes (Management and Trans-Boundary Movement) Rules, 2016, Solid Waste Management Rules, 2016 shall be obtained and the provisions contained in the Rules shall be strictly adhered to.	<ul style="list-style-type: none"> <li>• Compliance Assured. It will be obtained in consent to operate.</li> </ul>
(viii)	National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G.S.R, 608(E) dated 21st July, 2010 and amended from time to time shall be followed.	<ul style="list-style-type: none"> <li>• Compliance Assured</li> </ul>
(ix)	To control source and the fugitive emissions, suitable pollution control devices shall be installed to meet the prescribed norms and/or the NMQS. The gaseous emissions shall be dispersed through stack of adequate height as per CPCB/SPCB guidelines.	<ul style="list-style-type: none"> <li>• Plants will be designed with state of Art technologies with inbuilt pollution control systems so that the prescribe norms and fugitive emissions will be under control.</li> </ul>
(x)	Total fresh water requirement shall not exceed 49200 cum/day to be met from surface water from Brahmini River. Prior permission in this regard shall be obtained from the concerned regulatory authority.	<ul style="list-style-type: none"> <li>• Fresh Water source will be received from the stipulated source.</li> <li>• And all necessary permissions will be ensured prior to installation of the project.</li> </ul>
(xi)	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	<ul style="list-style-type: none"> <li>• Compliance Assured.</li> </ul>
(xii)	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc, Flame arresters shall be provided on tank farm, and solvent transfer through pumps.	<ul style="list-style-type: none"> <li>• Compliance Assured.</li> </ul>
(xiii)	ETP sludge, process inorganic & evaporation salt, if any, shall be disposed off to the TSDF.	<ul style="list-style-type: none"> <li>• Compliance Assured</li> </ul>
(xiv)	The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals	<ul style="list-style-type: none"> <li>• Compliance Assured.</li> </ul>

	(MSIHC) Rules, 1989 as amended time to time. All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.	
(xv)	The company shall undertake waste minimization measures as below: -	<ul style="list-style-type: none"> <li>• Compliance Assured.</li> </ul>
(a)	Metering and control of quantities of active ingredients to minimize waste.	
(b)	Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.	
(c)	Use of automated filling to minimize spillage,	
(d)	Use of Close Feed system into batch reactors.	
(e)	Venting equipment through vapour recovery system.	
(f)	Use of high pressure hoses for equipment clearing to reduce wastewater generation.	
(xvi)	The green belt of 5-10 m width shall be developed in more than 33% of the total project area, mainly along the plant periphery, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.	<ul style="list-style-type: none"> <li>• The project activities will be implemented in existing site of TFL with lot of greenery and the guide line of 33% area under greenbelt out of total project area will be achieved.</li> </ul>
(xvii)	All the commitment made regarding issues raised during the Public Hearing/consultation meeting held on 30h August ,2017 shall be satisfactorily implemented.	<ul style="list-style-type: none"> <li>• CSR dept. will keep aside a sum for CSR activities for project to meet public hearing requirement to the practical extent possible for an industrial unit.</li> </ul>
(xviii)	At least 2.5% of the total project cost shall be allocated for Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.	<ul style="list-style-type: none"> <li>• Compliance Assured.</li> </ul>
(xix)	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines, Acoustic enclosure shall be provided to DG set for controlling the noise pollution,	<ul style="list-style-type: none"> <li>• Compliance Assured.</li> </ul>
(xx)	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the norms.	<ul style="list-style-type: none"> <li>• Compliance Assured.</li> </ul>

(xxi)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	<ul style="list-style-type: none"> <li>HR and OHC Dept. will conduct regular health checkups and records for the same will be maintained as per the Factories Act.</li> </ul>
(xxii)	Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises.	<ul style="list-style-type: none"> <li>Compliance Assured.</li> </ul>

### Compliance of other generic conditions

Sr. No.	EC proposal	Compliance Status
(i)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board, Central Pollution Control Board, State Government and any other statutory authority.	<ul style="list-style-type: none"> <li>Compliance assured.</li> </ul>
(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	<ul style="list-style-type: none"> <li>Compliance Assured.</li> </ul>
(iii)	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one station each is Installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	<ul style="list-style-type: none"> <li>Compliance assured.</li> </ul>
(iv)	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed,	<ul style="list-style-type: none"> <li>Compliance assured.</li> </ul>
(v)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all	<ul style="list-style-type: none"> <li>Compliance assured.</li> </ul>

	sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	
(vi)	The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.	<ul style="list-style-type: none"> <li>• Compliance assured.</li> </ul>
(vii)	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.	<ul style="list-style-type: none"> <li>• Training on safety and health aspects of handling of chemicals used and MSDS will be imparted regularly.</li> </ul>
(viii)	The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.	<ul style="list-style-type: none"> <li>• Compliance assured</li> </ul>
(ix)	The company shall undertake all relevant measures for improving the socioeconomic conditions of the surrounding area. ESC activities shall be undertaken by involving local villages and administration.	<ul style="list-style-type: none"> <li>• CSR activities shall be undertaken by involving local and other stake holders.</li> </ul>
(x)	The company shall undertake eco developmental measures including community welfare measures in the project area for the overall improvement of the environment.	<ul style="list-style-type: none"> <li>• Greenery development in the area will be undertaken. Activities shall be undertaken for Developmental measures for welfare of overall environment.</li> </ul>
(xi)	The. company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management pollution control measures shall not be diverted for any other purpose,	<ul style="list-style-type: none"> <li>• Compliance assured</li> </ul>

(xii)	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad /Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.	<ul style="list-style-type: none"> <li>Complied.</li> </ul>
(xiii)	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of .Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.	<ul style="list-style-type: none"> <li>Compliance assured. We are submitting first six monthly compliance report for the TFL joint venture project.</li> </ul>
(xiv)	The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail,	This will be complied after commencement of commercial production.
(xv)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at <a href="http://moef.nic.in">http://moef.nic.in</a> . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local, newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	<p>Compliance done.</p> <p>Communicated on In local odiya newspaper Samaj and New Indian express English news paper.</p> <p>i) Oriya on dt. 16.02.2018 in Samaj ii) English on dt.16.02.2018 in The new Indian Express</p> <p>Copy of the same is enclosed in <b>Annexure 3</b>.</p>
(xvi)	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	This will be complied with. Presently, the site preparation work is under progress.

**4.0 Compliance report for EC condition 9(i): In view of the base line air quality data for PM<sub>10</sub> already exceeding the prescribed standards, one more season data to be collected to confirm the consistency of readings/values, and for suggesting mitigating measures accordingly.**

The baseline status with respect to ambient air quality has been established through a scientifically designed ambient air quality monitoring network based on the following considerations:

- Meteorological conditions prevailing within study area;
- Topography of the study area;
- Representatives of background air quality; and
- Representatives of likely impact areas.

Air Quality monitoring has been conducted at eight sampling locations during the pre- monsoon season (April-June 2018). The location of ambient air sampling stations has been presented below in **Table 1**.

**Table 1: Details of sampling locations**

Sl. No	Location Name	With respect to Project Site	
		Dir.	Distance
01.	Main Gate of FCI	-	-
02.	Tech. Building of FCI	-	-
03.	Balanda village	NW	2.5 Km
04.	Karnpur village	W	4.5 Km
05.	Tentulei village	E	1.5 Km
06.	Bikrampur village	SE	1.0 km
07.	Kukudanga village	SW	2.5 km
08.	Housing Board Colony	ENE	1.2 km

Salient features of the observations made with respect to PM<sub>10</sub> during the study period are summarized below in **Table 2** as under:

**Table 2: Summary of PM<sub>10</sub> concentrations (µg/m<sup>3</sup>) (April-June 2018)**

Sampling Location	Min.	Max.	24-hr Average	NAAQS for PM <sub>10</sub> µg/m <sup>3</sup>
Main Gate of FCI	72	92	81.3	100
Technical Building of FCI	<b>70</b>	88	<b>79.7</b>	
Balanda village	76	112	92.5	
Karnpur village	72	102	85.6	
Tentulei village	78	<b>118</b>	<b>97.3</b>	
Bikrampur village	72	90	80.8	
Kukudang village	<b>70</b>	88	80.3	
Housing Board Colony	72	97	83.2	

The concentrations of PM<sub>10</sub> at all the eight sampling locations were observed in the range of 70 to 118 µg/m<sup>3</sup> while the average values ranged between 79.7 to 97.3 µg/m<sup>3</sup>. It has been observed that the minimum value of 70 µg/m<sup>3</sup> have been observed at two locations namely Technical Building of FCI and Kukudang village, whereas the maximum value of 118 µg/m<sup>3</sup> was observed at Tentulei Village. It would not be out of place to mention here that although there are few observations which are above prescribed limited, yet the average concentration of PM<sub>10</sub> was observed well below 100 µg/m<sup>3</sup>, which is the ambient air quality standard for industrial, residential and rural area.

Tentulei village is a progressive village located at a distance of about 500 metres from MCL's Coal Handling Plant.

Reasons for observing higher concentration of PM<sub>10</sub> intermittently is due to the fact that the Tentulei village is located in southern direction of MCL's Coal handling plant & Aryan Global Open Cast mining area which are at a distance of merely 470m. In the open cast coal mine, the over burdens are randomly dumped. During the month of April and upto the first week of May 2018, no precipitation has been recorded within the study area. The ambient temperature recorded during the above period was also high in comparison to other months. Wind flow pattern was also observed from north to south. As a result of these facts, the concentration of PM<sub>10</sub>/PM<sub>2.5</sub> at Tentulei village was observed comparatively higher than other stations.

Some developmental works such as construction of private houses and random dumping of building materials, stock piling of building materials in and around Tentulei village were also witnessed during study period. All these facts have been identified as an important source of air pollution with respect to PM<sub>10</sub>/PM<sub>2.5</sub>.

Like that Bharat Coal Washery and open cast mine of MCL is also located in north-western direction at a distance of about 2km from Karnpur sampling location. This plant is also a major contributor in generation of PM<sub>2.5</sub> & PM<sub>10</sub> at this location.

**4.0 Compliance report for EC condition 9(iv): The incremental ground level concentrations (GLCs) for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> & NO<sub>2</sub> due to the increased vehicular and other allied / developmental activities, shall be analysed and reported for actual impact of the project, besides remedial measures.**

Construction activities were started in the beginning of August 2018. Reconnaissance was undertaken to establish the existing status of air environment in the study region. Ambient Air Quality Monitoring (AAQM) locations were selected based on guidelines of network siting criteria based on meteorological data of post-Monsoon season (August and September, 2018). The ambient air quality monitoring was carried out in the study area of 10 km radial distance around the proposed site, details of these locations are presented in **Table 3**. Administrative building, Bikrampur housing board colony and guest houses are near to the proposed project site. The average values of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub> are given in **Table 4 and 5**.

**Table 3 : Details of Air Quality Monitoring Locations  
(Monsoon Season –August and September 2018)**

Sr. No.	Sample Code	Sampling Locations	Geographical Position
1.	TFL/A1	Administrative Building TFL	20°54'42.8" N 85°09'38.4" E
2.	TFL/A2	Housing Board Colony, Bikrampur	20°54'19.3" N 85°10'20.2" E
3.	TFL/A3	Village Karnapur	20°54'26.4" N 85°07'06.1" E
4.	TFL/A4	TFL-Guest House	20°54'14.8" N 85°09'56.9" E
5.	TFL/A5	Village Balanda	20°55'31.0" N 85°09'26.8" E
6.	TFL/A6	Village Kukudanga	20°53'23.3" N 85°08'50.8" E

**Table 4 Air Quality Status (PM<sub>10</sub> and PM<sub>2.5</sub>) within the Study Area**

Units:  $\mu\text{g}/\text{m}^3$

Average: 24 hrs.

Sr. No.	Sampling Location	PM <sub>10</sub>			PM <sub>2.5</sub>		
		Aug.	Sept.	EIA Report	Aug.	Sept.	EIA Report
1	Administrative Building TFL	64	52.5	83.4	33	21.5	40.9
2	Housing Board Colony, Bikrampur	43	41	79.6	22	19.5	39.0
3	Village Karnapur	37	35	78.0	16	12.5	37.8
4	TFL-Guest House	52	42	-	34	26.5	-
5	Village Balanda	45	61	98.0	22	31.5	47.5
6	Village Kukudanga	32	36.5	79.5	16	19.5	38.2
<b>Permissible limits</b>		<b>100</b>			<b>60</b>		

**Table 5 Air Quality Status (SO<sub>2</sub> and NO<sub>2</sub>) within the Study Area**

Units:  $\mu\text{g}/\text{m}^3$

Average: 24 hrs.

Sr. No.	Sampling Location	SO <sub>2</sub>			NO <sub>2</sub>		
		Aug.	Sept.	EIA Report	Aug.	Sept.	EIA Report
1	Administrative Building TFL	23	23	8.8	27	12.5	16.0
2	Housing Board Colony, Bikrampur	20	21.5	10.8	24	10	18.9
3	Village Karnapur	13	18.5	10.4	34	14	17.1
4	TFL-Guest House	5	12.5	-	24	9	-
5	Village Balanda	11	41	10.7	21	13.5	20.8
6	Village Kukudanga	17	16	8.8	36	7	17.0
<b>Permissible limits</b>		<b>80</b>			<b>80</b>		

Baseline data provided in the EIA report clearly states that  $PM_{10}$  and  $PM_{2.5}$  concentrations in the buffer area of proposed project site is quite high. Baseline data was generated during December 2013 to February 2014. The concentrations of  $PM_{10}$  and  $PM_{2.5}$  were drastically reduced during August and September. This is due to the raining during these months.  $PM_{10}$  and  $PM_{2.5}$  concentrations near the project sites (Administrative building, Bikrampur housing board colony and guest houses) in August and September are slightly higher than that of other locations. This is mainly due to the construction activities occurring at the proposed project site. However, all the values are within the permissible limits.

Slight variations in  $SO_2$  and  $NO_2$  concentrations with respect to the baseline data were observed during August and September. However, all the values are within the permissible limits.

The detailed air monitoring report is enclosed as **Annexure 2(a) and 2(b)**.

**Annexure 1**  
**Environmental Clearance Letter**

F. No. J-11011/231/2013-IA-II(I)  
Government of India  
Ministry of Environment, Forest and Climate Change  
(IA- II Section)

Indira Paryavaran Bhawan  
Jorbagh Road, New Delhi -3

Dated: 9<sup>th</sup> February, 2018

To

M/s Talcher Fertilizers Ltd  
Village Vikrampur, Tehsil Talcher  
District Angul (Odisha)

**Sub: Setting up Ammonia & Urea Fertilizer Unit at Village Vikrampur, Tehsil Talcher, District Angul (Odisha) by M/s Talcher Fertilizers Ltd - Environmental Clearance -reg.**

Sir,

This has reference to your proposal No. IA/OR/IND2/58560/2013 dated 11<sup>th</sup> October, 2017, submitting the EIA/EMP report with public consultation details on the above subject matter.

2. The Ministry of Environment, Forest and Climate Change has examined the proposal for environmental clearance to the project for setting up ammonia & urea fertilizer unit based on coal gasification for production of 1.27 MMTPA of neem coated urea (end product) by M/s Talcher Fertilizers Ltd at Village Vikrampur, Tehsil Talcher, District Angul (Odisha).

3. The total land area of the project is 570 acre, out of which green belt will be developed in 180 acre. The cost of the project is Rs.10741.05 Crores. The project will provide employment to 1500 people during construction phase.

4. The proposed product/unit and capacity are as under:

S.No	Product/Unit	Capacity
1	Ammonia	2200 MTPD
2	Urea (Neem coated)	3850 MTPD
3	Coal Gasification Plant	Synthesis Gas: 242978 Nm <sup>3</sup> /hr

5. Total water requirement for the project is 49,200 m<sup>3</sup>/day. The permission for drawal of surface water from Brahmini River has been obtained from the State Government of Odisha vide letter No. 1513/SF/59 dated 3<sup>rd</sup> November, 2009.

The power requirement of 72 MW will be met from the Captive Power Plant. The raw Material required for the project are Coal, Pet Coke and lime stone. During initial stages of operation of the plant, coal shall be supplied through Bhubaneswari Coal Mine of M/s Mahanadi Coalfields Ltd. Later, the project proponent shall develop the dedicated coal mine for the procurement of coal in the desired quantity.

6. The project/activity is covered under category A of item 5(a) 'Chemical fertilizers' of the Schedule to the Environment Impact Assessment Notification, 2006, and requires appraisal at central level by the sectoral Expert Appraisal Committee in the Ministry.

7. The terms of reference (ToR) for the project was initially granted on 26<sup>th</sup> November, 2013, and then extended up to 25<sup>th</sup> November, 2017. The ToR was transferred in the name of M/s Talcher Fertilizers Ltd from M/s Rashtriya Chemicals & Fertilizers Ltd, vide Ministry's letter dated 27<sup>th</sup> September, 2017. Public hearing was conducted by the State Pollution Control Board on 30<sup>th</sup> August, 2017.

*(Signature)*

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8. The proposal for environmental clearance was considered by the EAC (Industry-2) in its meeting held on 12-13 October, 2017. The project proponent and the accredited consultant M/s Projects & Development India Ltd presented the EIA/EMP report. The committee found the EIA/EMP report satisfactory and recommended the proposal for environmental clearance with certain conditions.

9. Based on the proposal submitted by the project proponent and recommendations of the EAC (Industry-2), the Ministry of Environment, Forest and Climate Change hereby accords environmental clearance to the project 'Setting up Ammonia & Urea Fertilizer Unit for production of 1.27 MMTPA of Neem Coated Urea (end product)' by M/s Talcher Fertilizers Ltd at Village Vikrampur, Tehsil Talcher, District Angul (Odisha), under the provisions of EIA Notification, 2006 and the amendments made therein, subject to the compliance of terms and conditions, as under:-

- (i) In view of the base line air quality data for PM<sub>10</sub> already exceeding the prescribed standards, one more season data to be collected to confirm the consistency of readings/values, and for suggesting mitigating measures accordingly.
- (ii) The project proponent shall take stringent mitigating measures to minimize the incremental concentration of air pollutants (mainly PM<sub>10</sub> & PM<sub>2.5</sub>) to the extent possible due to the proposed industrial operations.
- (iii) The project proponent shall develop local air quality management plan in consultation with SPCB and implemented to achieve desired standards.
- (iv) The incremental ground level concentrations (GLCs) for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> & NO<sub>2</sub> due to the increased vehicular and other allied/developmental activities, shall be analysed and reported for actual impact of the project, besides remedial measures.
- (v) Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.
- (vi) As already committed by the project proponent, Zero Liquid Discharge shall be ensured and no waste/treated water shall be discharged outside the premises.
- (vii) Necessary authorization required under the Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016, Solid Waste Management Rules, 2016 shall be obtained and the provisions contained in the Rules shall be strictly adhered to.
- (viii) National Emission Standards for Organic Chemicals Manufacturing Industry Issued by the Ministry vide G.S.R. 608(E) dated 21<sup>st</sup> July, 2010 and amended from time to time shall be followed.
- (ix) To control source and the fugitive emissions, suitable pollution control devices shall be installed to meet the prescribed norms and/or the NAAQS. The gaseous emissions shall be dispersed through stack of adequate height as per CPCB/SPCB guidelines.
- (x) Total fresh water requirement shall not exceed 49200 cum/day to be met from surface water from Brahmini River. Prior permission in this regard shall be obtained from the concerned regulatory authority.
- (xi) Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.
- (xii) Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer through pumps.
- (xiii) ETP sludge, process Inorganic & evaporation salt, if any, shall be disposed off to the TSDF.



- (xiv) The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.
  - (xv) The company shall undertake waste minimization measures as below:-
    - (a) Metering and control of quantities of active ingredients to minimize waste.
    - (b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.
    - (c) Use of automated filling to minimize spillage.
    - (d) Use of Close Feed system into batch reactors.
    - (e) Venting equipment through vapour recovery system.
    - (f) Use of high pressure hoses for equipment clearing to reduce wastewater generation.
  - (xvi) The green belt of 5-10 m width shall be developed in more than 33% of the total project area, mainly along the plant periphery, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.
  - (xvii) All the commitment made regarding issues raised during the Public Hearing/consultation meeting held on 30<sup>th</sup> August, 2017 shall be satisfactorily implemented
  - (xviii) At least 2.5% of the total project cost shall be allocated for Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.
  - (xix) For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.
  - (xx) The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms.
  - (xxi) Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
  - (xxii) Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises.
- 9.1.** The grant of environmental clearance is subject to compliance of other general conditions, as under:-
- (i) The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board, Central Pollution Control Board, State Government and any other statutory authority.
  - (ii) No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
  - (iii) The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one station each is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.



- (iv) The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed.
- (v) The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- (vi) The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.
- (vii) Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
- (viii) The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.
- (ix) The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. ESC activities shall be undertaken by involving local villages and administration.
- (x) The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- (xi) The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.
- (xii) A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.
- (xiii) The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.
- (xiv) The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.
- (xv) The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at <http://moef.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular

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language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.

- (xvi) The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
10. The Ministry may revoke or suspend the clearance, at subsequent stages, if implementation of any of the above conditions is not satisfactory.
11. The Ministry reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.
12. The above conditions will be enforced, inter alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

  
9/2/2018  
(S. K. Srivastava)  
Scientist E

**Copy to:-**

1. The Additional PCCF (C), MoEF&CC Regional Office (EZ), A/3, Chandersekharpur, Bhubaneswar - 23 (Odisha)
2. The Secretary, Department of Forest and Environment, Government of Odisha, Bhubaneswar (Odisha)
3. The Member Secretary, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 32
4. The Member Secretary, Odisha State Pollution Control Board, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit - VIII, Bhubaneswar -12 (Odisha)
5. Guard File/Monitoring File/Website/Record File

  
9/2/2018  
(S. K. Srivastava)  
Scientist E

**Annexure 2 (a)**  
**Air Quality Monitoring Report (April-June 2018)**

## 1.0 Methodology adopted for Air Quality monitoring

The baseline status with respect to ambient air quality has been established through a scientifically designed ambient air quality monitoring network based on the following considerations:

- Meteorological conditions prevailing within study area;
- Topography of the study area;
- Representatives of background air quality; and
- Representatives of likely impact areas.

Air Quality monitoring has been conducted at eight sampling locations during the pre- monsoon season (April-June 2018).

## 2.0 Sampling Period, Frequency & Parameters

The following air pollutants were monitored on 24-hourly basis for consecutive two days in a week for a period of three months from April to June 2018:

- Particulate matter(PM<sub>10</sub>)
- Particulate matter(PM<sub>2.5</sub>)

## 2.1 Sampling & Analytical Procedure

A brief description of the sampling and analytical procedures followed during the ambient air quality monitoring is as follows:

### **Particulate Matter (PM<sub>10</sub>):**

The sampling of ambient air for evaluating PM<sub>10</sub> levels were performed with a RDS/FDS Sampler fitted with a cyclone separator for separation of particles larger than 10 microns diameter. Air exiting the separator is drawn at a

measured rate through pre-weighed glass fiber filter sheets of 20 cm x 25 cm sizes. The PM<sub>10</sub> concentrations were computed from the average air flow rate, sampling period and the mass of particulate matter collected over the filter surface.

### Particulate Matter (PM<sub>2.5</sub>)

PM<sub>2.5</sub> is determined as per USEPA (United State Environment Protection Agency) guidelines with the help of Fine Dust Sampler. Ambient air is allowed to pass through Louvered inlet and impactor as well as particulate matter of size <2.5 microns is deposited on 46.2 mm dia PTFE filter paper. The difference of final weight of filter and initial weight gives the weight of particulate matter of size <2.5 microns. The concentration of PM<sub>2.5</sub> is computed with the help of dust deposited on the filter, volume of air sampled monitoring temperature and barometric pressure.

### 2.2 Details of sampling locations

The location of ambient air sampling stations has been presented below in **Table-1**.

**TABLE – 1 Details of Sampling Locations**

Sl. No	Location Code	Location Name	With respect to Project Site	
			Dir.	Distance
01.	SA <sub>1</sub>	Main Gate of FCI	-	-
02.	SA <sub>2</sub>	Tech. Building of FCI	-	-
03.	SA <sub>3</sub>	Balanda village	NW	2.5 Km
04.	SA <sub>4</sub>	Karnpur village	W	4.5 Km
05.	SA <sub>5</sub>	Tentulei village	E	1.5 Km
06.	SA <sub>6</sub>	Bikrampur village	SE	1.0 km
07.	SA <sub>7</sub>	Kukudanga village	SW	2.5 km
08.	SA <sub>8</sub>	Housing Board Colony	ENE	1.2 km

## 2.3 Techniques for Measurement

The techniques used for measurement of pollutants may be summarized as under:

**TABLE – 2 MEASUREMENT TECHNIQUES**

Sl. No.	Para-meters	Code of Practice	Sampler	Instruments used for Analysis
1.	PM <sub>10</sub>	IS: 5182 (Part-IV)	RDS Sampler with Cyclone Separator	Balance, Desiccator
2.	PM <sub>2.5</sub>	USEPA	Fine Dust Sampler	Balance, Desiccator

## 3.0 Discussion on Air Quality Monitoring

The observations made at all the eight sampling stations during the study period are presented through Tables 3 to 12. In each of these tables, minimum, maximum, average, 98th percentile values have been computed and presented.

### PM<sub>10</sub>

Salient features of the observations made with respect to PM<sub>10</sub> during the study period are summarized below in Table – 3 as under:

**TABLE – 3 SUMMARY OF PM<sub>10</sub> CONCENTRATIONS (µg/m<sup>3</sup>)**

Sampling Location	Min.	Max.	24-hr Average	Air Quality Index (AQI)	NAAQS for PM <sub>10</sub> µg/m <sup>3</sup>
Main Gate of FCI	72	92	81.3	Satisfactory	100
Technical Building of FCI	<b>70</b>	88	<b>79.7</b>	Satisfactory	100
Balanda village	76	112	92.5	Satisfactory	100
Karnpur village	72	102	85.6	Satisfactory	100
Tentulei village	78	<b>118</b>	<b>97.3</b>	Satisfactory	100
Bikrampur village	72	90	80.8	Satisfactory	100
Kukudang village	<b>70</b>	88	80.3	Satisfactory	100
Housing Board Colony	72	97	83.2	Satisfactory	100

The concentrations of PM<sub>10</sub> at all the eight sampling locations were observed in the range of 70 to 118 µg/m<sup>3</sup> while the average values ranged between 79.7 to 97.3 µg/m<sup>3</sup>. It has been observed that the minimum value of 70 µg/m<sup>3</sup> have been observed at two locations namely Technical Building of FCI and Kukudang village, whereas the maximum value of 118 µg/m<sup>3</sup> was observed at Tentulei Village. It would not be out of place to mention here that although there are few observations which are above prescribed limited, yet the average concentration of PM<sub>10</sub> was observed well below 100 µg/m<sup>3</sup>, which is the ambient air quality standard for industrial, residential and rural area.

Tentulei village is a progressive village located at a distance of about 500 metres from MCL's Coal Handling Plant.

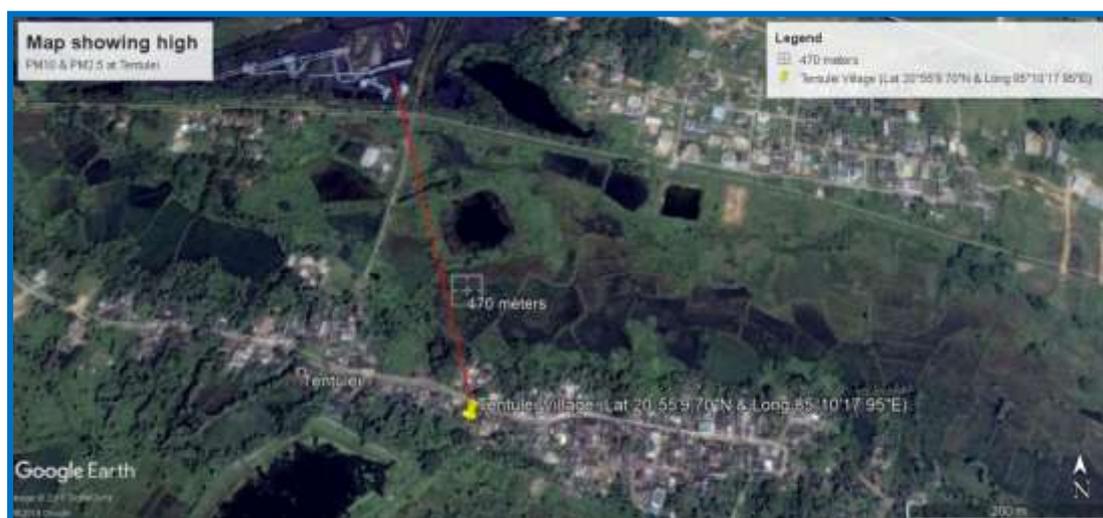
Reasons for observing higher concentration of PM<sub>10</sub> intermittently is due to the fact that the Tentulei village is located in southern direction of MCL's Coal handling plant & Aryan Global Open Cast mining area which are at a distance of merely 470m. In the open cast coal mine, the over burdens are randomly dumped. During the month of April and upto the first week of May

2018, no precipitation has been recorded within the study area. The ambient temperature recorded during the above period was also high in comparison to other months. Wind flow pattern was also observed from north to south. As a result of these facts, the concentration of PM<sub>10</sub>/PM<sub>2.5</sub> at Tentulei village was observed comparatively higher than other stations.

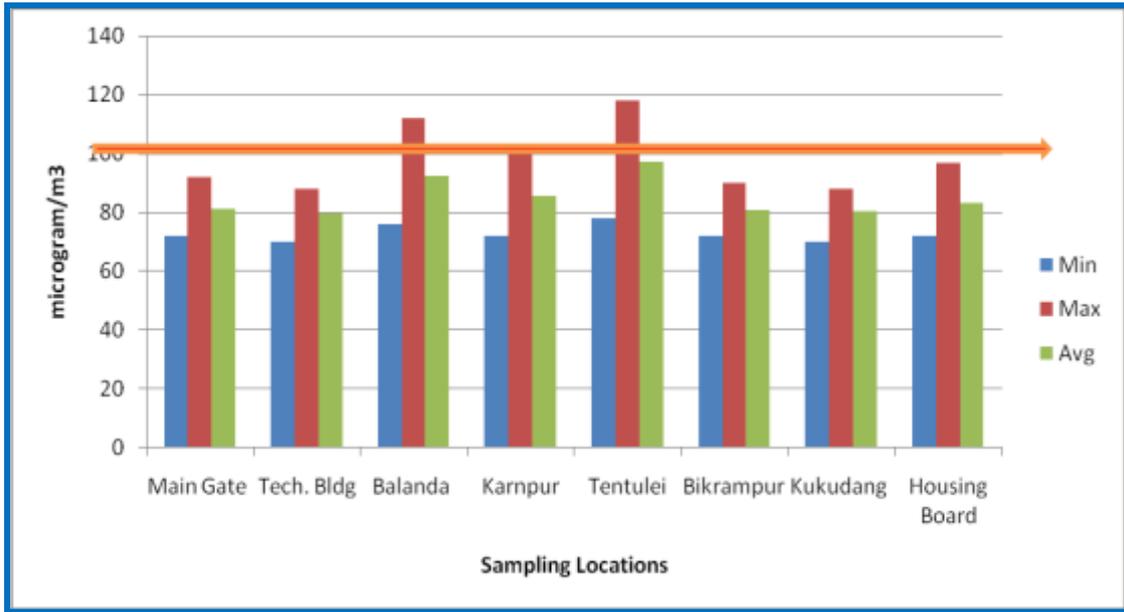
Some developmental works such as construction of private houses and random dumping of building materials, stock piling of building materials in and around Tentulei village were also witnessed during study period. All these facts have been identified as an important source of air pollution with respect to PM<sub>10</sub>/PM<sub>2.5</sub>.

Like that Bharat Coal Washery and open cast mine of MCL is also located in north-western direction at a distance of about 2km from Karnpur sampling location. This plant is also a major contributor in generation of PM<sub>2.5</sub> & PM<sub>10</sub> at this location.

The scenario has been well presented through a self-explanatory Google map shown hereunder:



**Figure-2 Google Map showing Proximity of Tentulei Village with Coal Handling Plant & Open Cast Mines**



The 24-hr average value of PM<sub>10</sub> is below the limit prescribed under NAAQ Standard.

**Figure-3** Graph showing Variation of PM<sub>10</sub> during study period from April to June 2018

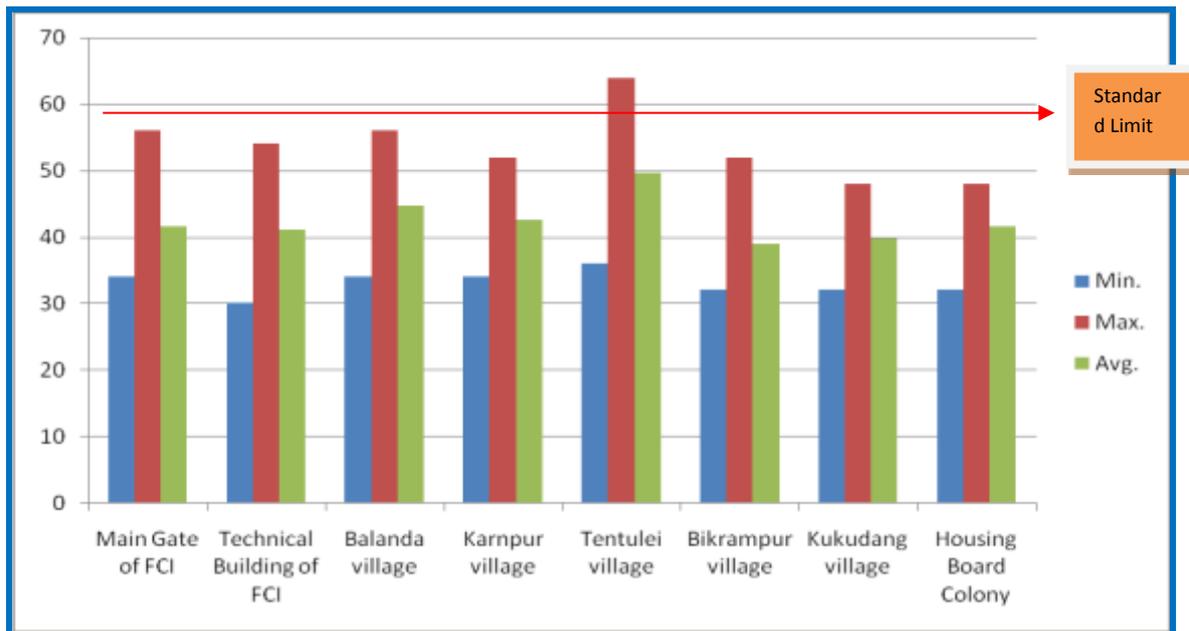
**PM<sub>2.5</sub>**

Salient features of the observations made with respect to PM<sub>2.5</sub> during the study period are summarized below in Table - 4 as under:

**TABLE – 4 SUMMARY OF PM<sub>2.5</sub> CONCENTRATIONS (µg/m<sup>3</sup>)**

Sampling Location	Min.	Max.	Avg.	Air Quality Index (AQI)	NAAQS for PM <sub>2.5</sub> µg/m <sup>3</sup>
Main Gate of FCI	34	56	41.5	Satisfactory	60
Technical Building of FCI	<b>30</b>	54	41.0	Satisfactory	60
Balanda village	34	56	44.7	Satisfactory	60
Karnpur village	34	52	42.6	Satisfactory	60
Tentulei village	36	<b>64</b>	<b>49.7</b>	Satisfactory	60
Bikrampur village	32	52	<b>39.0</b>	Satisfactory	60
Kukudang village	32	48	39.7	Satisfactory	60
Housing Board Colony	32	48	41.5	Satisfactory	60

The concentrations of PM<sub>2.5</sub> at all the eight sampling locations were observed in the range of 30 to 64 µg/m<sup>3</sup>, while the average values ranged between 39.7 to 49.7 µg/m<sup>3</sup>. It has been observed that the minimum value of 30 µg/m<sup>3</sup> have been observed at Technical Building located within FCIL campus, whereas the maximum value of 64 µg/m<sup>3</sup> was observed at Tentulei village. The average concentration of PM<sub>2.5</sub> was observed well below 60µg/m<sup>3</sup>, which is the ambient air quality standard for industrial, residential and rural area.



The 24-hr average value of PM2.5 is below the limit prescribed under NAAQ Standard.

Figure-4 Graph showing Variation of PM2.5 during study period from April to June 2018

**Table – 5 AIR QUALITY DATA**

Period: April - June, 2018

Location: Main Gate of FCIL (SA1)

WEEK	DATE	CONCENTRATION OF AIR POLLUTANTS	
		PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
I	02.04.18	78	42
	03.04.18	82	42
II	09.04.18	80	44
	10.04.18	86	46
III	16.04.18	88	50
	17.04.18	82	52
IV	23.04.18	84	56
	24.04.18	81	54
V	01.05.18	92	38
	02.05.18	90	46
VI	08.05.18	72	36
	09.05.18	80	42
VII	15.05.18	74	36
	16.05.18	78	36
VII	22.05.18	86	44
	23.05.18	90	40
IX	29.05.18	76	34
	30.05.18	78	35
X	01.06.18	74	36
	02.06.18	76	39
XI	08.06.18	73	35
	09.06.18	77	36
XII	15.06.18	80	37
	16.06.18	84	40
XIII	22.06.18	87	42
	23.06.18	86	40

**STATISTICAL ANALYSIS**

Evaluation	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
No. of observation	26	26
Minimum Conc.	72	34
Maximum Conc.	92	56
98 <sup>th</sup> percentile	91.0	55.0
Std. Deviation	5.7	1.4
Average	81.3	41.5

**Table – 6 AIR QUALITY DATA****Period: April-June, 2018****Location: Technical Building of TFL (SA2)**

WEEK	DATE	CONCENTRATION OF AIR POLLUTANTS	
		PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )
I	02.04.18	74	38
	03.04.18	76	40
II	09.04.18	80	44
	10.04.18	86	46
III	16.04.18	88	48
	17.04.18	82	52
IV	23.04.18	84	54
	24.04.18	81	50
V	01.05.18	80	42
	02.05.18	84	44
VI	08.05.18	76	36
	09.05.18	74	34
VII	15.05.18	72	34
	16.05.18	70	30
VII	22.05.18	86	40
	23.05.18	84	42
IX	29.05.18	74	34
	30.05.18	75	36
X	01.06.18	74	37
	02.06.18	81	43
XI	08.06.18	75	36
	09.06.18	80	38
XII	15.06.18	83	42
	16.06.18	86	43
XIII	22.06.18	84	40
	23.06.18	82	44

**STATISTICAL ANALYSIS**

Evaluation	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )
No. of observation	26	26
Minimum Conc.	70	30
Maximum Conc.	88	54
98 <sup>th</sup> percentile	87.0	53.0
Std. Deviation	5.1	5.9
Average	79.7	41.0

**Table – 7 AIR QUALITY DATA****Period: April - June, 2018****Location: Balanda village (SA3)**

WEEK	DATE	CONCENTRATION OF AIR POLLUTANTS	
		PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )
I	02.04.18	112	46
	03.04.18	110	48
II	09.04.18	98	56
	10.04.18	96	52
III	16.04.18	92	54
	17.04.18	94	50
IV	23.04.18	102	48
	24.04.18	96	46
V	01.05.18	104	45
	02.05.18	106	44
VI	08.05.18	78	36
	09.05.18	80	40
VII	15.05.18	86	42
	16.05.18	78	40
VII	22.05.18	100	48
	23.05.18	98	40
IX	29.05.18	76	34
	30.05.18	82	38
X	01.06.18	86	42
	02.06.18	91	44
XI	08.06.18	82	40
	09.06.18	86	45
XII	15.06.18	93	46
	16.06.18	96	53
XIII	22.06.18	92	44
	23.06.18	91	42

**STATISTICAL ANALYSIS**

Evaluation	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )
No. of observation	26	26
Minimum Conc.	76	34
Maximum Conc.	112	56
98 <sup>th</sup> percentile	111.0	55.0
Std. Deviation	9.9	5.5
Average	92.5	44.7

**Table – 8 AIR QUALITY DATA****Period: April - June, 2018****Location: Karnpur Village (SA4)**

WEEK	DATE	CONCENTRATION OF AIR POLLUTANTS	
		PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
I	02.04.18	102	36
	03.04.18	92	38
II	09.04.18	80	40
	10.04.18	82	44
III	16.04.18	84	48
	17.04.18	80	44
IV	23.04.18	90	46
	24.04.18	94	42
V	01.05.18	99	52
	02.05.18	98	50
VI	08.05.18	78	38
	09.05.18	72	34
VII	15.05.18	74	40
	16.05.18	78	42
VII	22.05.18	94	50
	23.05.18	96	48
IX	29.05.18	74	34
	30.05.18	72	36
X	01.06.18	75	36
	02.06.18	84	42
XI	08.06.18	79	40
	09.06.18	86	44
XII	15.06.18	93	51
	16.06.18	89	44
XIII	22.06.18	88	43
	23.06.18	92	46

**STATISTICAL ANALYSIS**

Evaluation	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
No. of observation	26	26
Minimum Conc.	72	34
Maximum Conc.	102	52
98 <sup>th</sup> percentile	100.5	51.5
Std. Deviation	9.0	5.3
Average	85.6	42.6

**Table – 9 AIR QUALITY DATA****Period: April - June, 2018****Location: Tentulei Village (SA5)**

WEEK	DATE	CONCENTRATION OF AIR POLLUTANTS	
		PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
I	02.04.18	110	58
	03.04.18	118	52
II	09.04.18	94	48
	10.04.18	96	44
III	16.04.18	116	56
	17.04.18	114	58
IV	23.04.18	98	62
	24.04.18	96	64
V	01.05.18	114	54
	02.05.18	117	56
VI	08.05.18	88	42
	09.05.18	82	40
VII	15.05.18	80	38
	16.05.18	78	36
VII	22.05.18	99	50
	23.05.18	98	54
IX	29.05.18	80	36
	30.05.18	86	40
X	01.06.18	86	48
	02.06.18	94	49
XI	08.06.18	88	44
	09.06.18	97	51
XII	15.06.18	103	55
	16.06.18	101	52
XIII	22.06.18	98	50
	23.06.18	99	54

**STATISTICAL ANALYSIS**

Evaluation	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
No. of observation	26	26
Minimum Conc.	78	36
Maximum Conc.	118	64
98 <sup>th</sup> percentile	117.5	63.0
Std. Deviation	12.0	7.7
Average	97.3	49.7

**Table – 10 AIR QUALITY DATA****Period: April - June, 2018****Location: Bikrampur village (SA6)**

WEEK	DATE	CONCENTRATION OF AIR POLLUTANTS	
		PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
I	02.04.18	86	38
	03.04.18	88	40
II	09.04.18	82	42
	10.04.18	80	36
III	16.04.18	88	44
	17.04.18	86	48
IV	23.04.18	90	52
	24.04.18	86	50
V	01.05.18	82	34
	02.05.18	86	38
VI	08.05.18	80	40
	09.05.18	78	34
VII	15.05.18	76	38
	16.05.18	78	36
VII	22.05.18	84	42
	23.05.18	86	40
IX	29.05.18	76	34
	30.05.18	74	32
X	01.06.18	72	34
	02.06.18	75	35
XI	08.06.18	74	35
	09.06.18	76	39
XII	15.06.18	80	38
	16.06.18	83	41
XIII	22.06.18	76	34
	23.06.18	78	40

**STATISTICAL ANALYSIS**

Evaluation	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
No. of observation	26	26
Minimum Conc.	72	32
Maximum Conc.	90	52
98 <sup>th</sup> percentile	89.0	51.0
Std. Deviation	5.1	5.1
Average	80.8	39.0

**Table – 11 AIR QUALITY DATA****Period: April - June, 2018****Location: Kukudang Village (SA7)**

WEEK	DATE	CONCENTRATION OF AIR POLLUTANTS	
		PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )
I	02.04.18	84	44
	03.04.18	80	42
II	09.04.18	86	40
	10.04.18	82	38
III	16.04.18	86	44
	17.04.18	78	46
IV	23.04.18	88	48
	24.04.18	76	40
V	01.05.18	82	38
	02.05.18	84	40
VI	08.05.18	74	32
	09.05.18	72	34
VII	15.05.18	78	36
	16.05.18	75	38
VII	22.05.18	84	40
	23.05.18	88	42
IX	29.05.18	78	36
	30.05.18	70	40
X	01.06.18	74	36
	02.06.18	79	43
XI	08.06.18	76	39
	09.06.18	84	36
XII	15.06.18	85	41
	16.06.18	82	38
XIII	22.06.18	84	42
	23.06.18	80	38

**STATISTICAL ANALYSIS**

Evaluation	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )
No. of observation	26	26
Minimum Conc.	70	32
Maximum Conc.	88	48
98 <sup>th</sup> percentile	88.0	47.0
Std. Deviation	5.0	3.7
Average	80.3	39.7

**Table – 12\_AIR QUALITY DATA****Period: April - June, 2018****Location: Housing Board Colony (SA8)**

WEEK	DATE	CONCENTRATION OF AIR POLLUTANTS	
		PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )
I	02.04.18	88	46
	03.04.18	80	44
II	09.04.18	84	48
	10.04.18	78	42
III	16.04.18	92	40
	17.04.18	86	48
IV	23.04.18	78	42
	24.04.18	90	46
V	01.05.18	94	46
	02.05.18	97	45
VI	08.05.18	74	36
	09.05.18	76	34
VII	15.05.18	75	34
	16.05.18	72	34
VII	22.05.18	90	44
	23.05.18	88	42
IX	29.05.18	74	32
	30.05.18	76	34
X	01.06.18	77	38
	02.06.18	80	42
XI	08.06.18	78	40
	09.06.18	86	45
XII	15.06.18	89	46
	16.06.18	92	48
XIII	22.06.18	84	40
	23.06.18	86	42

**STATISTICAL ANALYSIS**

Evaluation	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )
No. of observation	26	26
Minimum Conc.	72	32
Maximum Conc.	97	48
98 <sup>th</sup> percentile	95.5	48.0
Std. Deviation	7.1	4.9
Average	83.2	41.5

**Annexure 2 (b)**  
**Air Quality Monitoring Report (August and September 2018)**

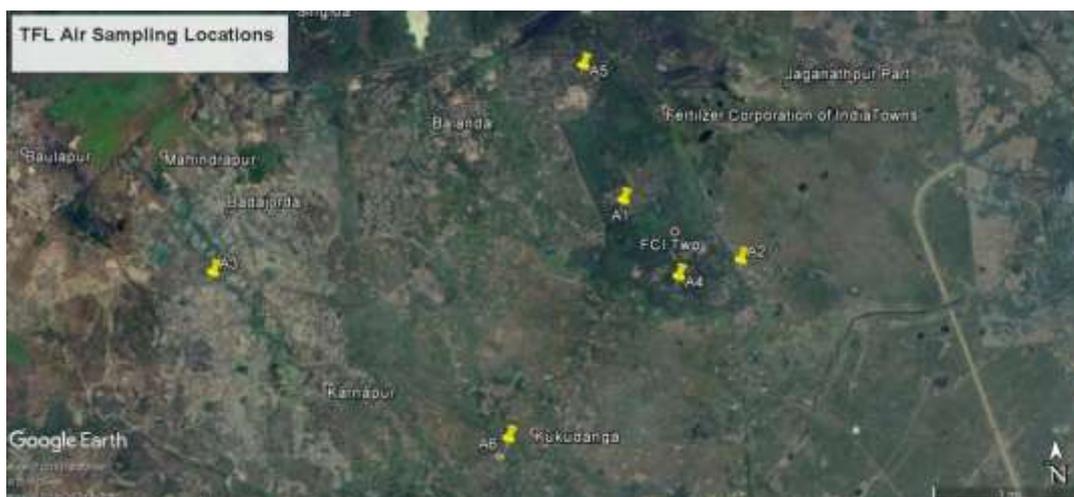
## 1.0 Reconnaissance

Reconnaissance was undertaken to establish the existing status of air environment in the study region. Ambient Air Quality Monitoring (AAQM) locations were selected based on guidelines of network siting criteria based on meteorological data of Monsoon season (August, 2018). The ambient air quality monitoring was carried out in the study area of 10 km radial distance around the proposed site, details of these locations are presented in **Figure 1 & Table 1**.

## 2.0 Ambient Air Quality Monitoring Network and Analytical Methods

The ambient air quality status in the study zone is assessed through a network of ambient air quality monitoring locations. The studies on air environment include identification of criteria air pollutants for assessing the impacts of existing port operations. The existing status of air environment is assessed through a systematic air quality surveillance program, which is planned based on the following criteria:

- Topography/terrain of the study area
- Regional synoptic scale climatological normal
- Densely populated areas within the region
- Location of surrounding industries
- Representation of valid cross-sectional distribution in downwind direction of the industry



**Figure 1: Ambient Air Quality Monitoring Locations around the Project Site**

**Table 1 : Details of Air Quality Monitoring Locations (Monsoon Season -August, 2018)**

Sr. No.	Sample Code	Sampling Locations	Geographical Position
7.	TFL/A1	Administrative Building TFL	20°54'42.8" N 85°09'38.4" E
8.	TFL/A2	Housing Board Colony, Bikrampur	20°54'19.3" N 85°10'20.2" E
9.	TFL/A3	Village Karnapur	20°54'26.4" N 85°07'06.1" E
10.	TFL/A4	TFL-Guest House	20°54'14.8" N 85°09'56.9" E
11.	TFL/A5	Village Balanda	20°55'31.0" N 85°09'26.8" E
12.	TFL/A6	Village Kukudanga	20°53'23.3" N 85°08'50.8" E

As per NAAQS (2009) the pollutants viz., particulate matters (PM<sub>10</sub> and PM<sub>2.5</sub>), sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), ammonia (NH<sub>3</sub>), Methane Hydrocarbons (MH), Non-methane Hydrocarbons (NMHC) and Volatile Organic Carbon (VOCs) were stipulated parameters for air quality monitoring. The particulate parameters along with SO<sub>2</sub>, NO<sub>2</sub> and NH<sub>3</sub> were monitored on 24 hourly basis and representative samples were collected for the rest. Standard analytical procedures were used for analysis and quantification of air quality

parameters and the details are given in **Table 2**. The photographs showing sampling stations/locations are given in the **Plate 1**.

**Table 2: Analytical Methods used for Quantification of Air Quality Parameters in the Ambient Air**

Sr. No.	Air Quality Parameter	Unit	Analytical Method used for Testing/Analysis	Analytical Measurement Range	Standard value as per NAAQs, 2009 and Monitoring duration
1.	Particulate Matter size < 10 microns or PM <sub>10</sub>	µg/m <sup>3</sup>	Gravimetric IS-5182: Part-23, 2006	5-5000	100 (24 h)
2.	Particulate Matter size < 2.5 microns or PM <sub>2.5</sub>	µg/m <sup>3</sup>	Gravimetric U.S.EPA EQM-0308-170	5-500	60 (24 h)
3.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	EPA Improved West and Gaeke Method IS-5182: Part-2, 2001	5-1000	80 (24 h)
4.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	Modified Jacobs-Hachheiser Method IS-5182: Part-6, 2006	7-750	80 (24 h)
5.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	Indophenol Blue method Method 401: Methods of Air Sampling and analysis, James P. Lodge	5-1000	400 (24 h)
6.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	GC based continuous analyzer IS-5182: Part-11, 2006	0.01-10	5.0 (Annual)
7.	VOCs	µg/m <sup>3</sup>	U.S. EPA Method TO17: 1999	0.01-10	0.01-500 (Annual)
8.	Hydrocarbons	µg/m <sup>3</sup>	HC Analyzer for Spot Concentration	0.01 – 10	-

Six AAQM locations were selected based on guidelines of network siting criteria. The six identified sampling locations for AAQM are depicted in **Figure 1** and details of which is given in **Table 1**.

In all sampling locations Fine Particulate Samplers (FPS) designed by Envirotech Pvt. Ltd. were installed for continuous sampling of PM<sub>10</sub>, PM<sub>2.5</sub> and gaseous pollutants. All the samples collected at the site were brought to the laboratory for further assessment for some concrete results.

### 3.0 Air Quality Status

Particulate matter is ubiquitous component of the atmosphere and has become a persistent and pervasive environmental problem that imposes significant health risk. The sources, characteristics and potential health effects

of the larger or coarse particle ( $>2.5 \mu\text{m}$  in diameter) and smaller or fine particles ( $<2.5 \mu\text{m}$  in diameter) are very different. The fine airborne particles have a high probability of deposition deeper into the respiratory tract and likely to trigger or exacerbate respiratory diseases. These particles also have higher burdens of toxins, which when absorbed in the body can result in health consequences other than respiratory health effects. Therefore, the US environmental Protection Agency promulgated a new  $\text{PM}_{2.5}$  National Air Quality Standards to effectively control the aerosol problem. Sources vary for gaseous pollutants viz. major source of  $\text{SO}_2$  and  $\text{NO}_2$  include burning of fossil fuels like coal and other petroleum products. For  $\text{NH}_3$ , sources include industrial processes, vehicular emissions. The anthropogenic sources of VOCs consist of vehicular emissions, petroleum products, chemicals, manufacturing industries, painting operations, varnishes, coating operations, consumer products, petroleum handling, auto refinishing, cold clean degreasing, printing inks, dry-cleaning etc.

#### **Particulate Matter:**

- The concentration of  $\text{PM}_{10}$  in the month of August varied from 32 to  $64\mu\text{g}/\text{m}^3$  (**Table 3**). The lowest concentration of  $\text{PM}_{10}$  was found at Kukudanga while the maximum concentration was found at TFL Admin building sampling site (**Figure 2**).
- The concentration of  $\text{PM}_{10}$  in the month of September varied from 31 to  $69\mu\text{g}/\text{m}^3$  (**Table 4**). The lowest concentration of  $\text{PM}_{10}$  was found at Karnapur while the highest concentration was found at Balanda sampling site (**Figure 3 and Table 4**).
- $\text{PM}_{2.5}$  concentrations in the month of August varied from 16 to  $34\mu\text{g}/\text{m}^3$  (**Table 3**). The lowest concentration of  $\text{PM}_{2.5}$  was found at Karnapur and Kukudanga while the maximum concentration was found in TFL Guest House sampling site (**Figure 4 & Table 3**).
- $\text{PM}_{2.5}$  concentrations in the month of September varied from 10 to  $34\mu\text{g}/\text{m}^3$ . The lowest concentration of  $\text{PM}_{2.5}$  was found at Karnapur while the highest concentration was found in Balanda sampling site (**Figure 5 and Table 4**).

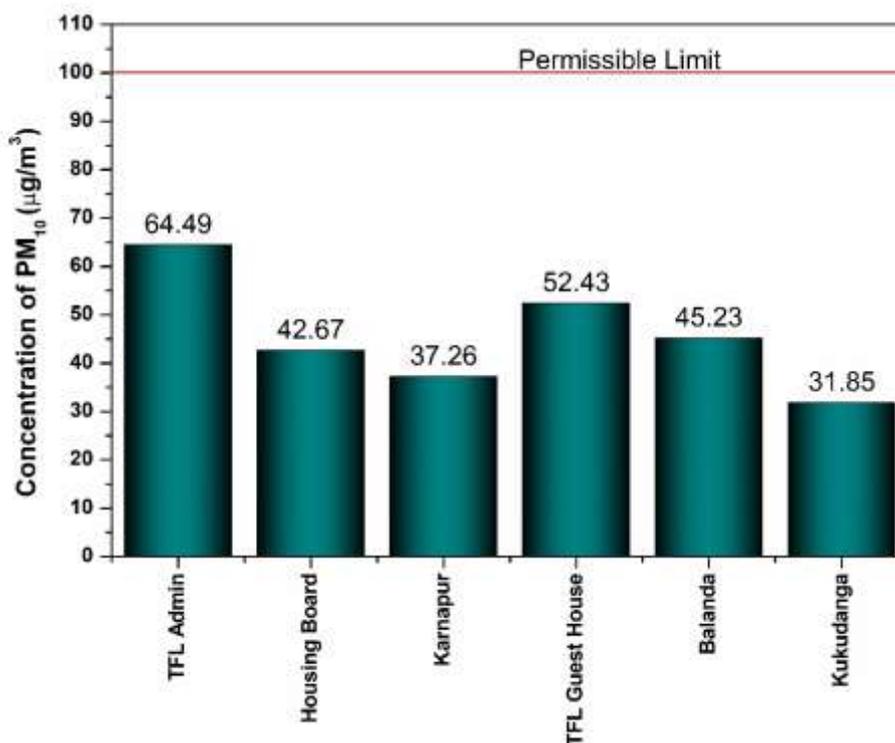
- The highest concentration of PM<sub>10</sub> was observed at TFL Admin building and PM<sub>2.5</sub> was observed at TFL Guest House. The levels of PM values were found to be well within permissible limits.

**Table 3: Air Quality Status within the Study Area (Monsoon Season-August, 2018)**

Units:  $\mu\text{g}/\text{m}^3$

Average: 24 hrs.

Sr. No.	Sampling Location	PM <sub>10</sub>	PM <sub>2.5</sub>
		Avg.	Avg.
1	Administrative Building TFL	64	33
2	Housing Board Colony, Bikrampur	43	22
3	Village Karnapur	37	16
4	TFL-Guest House	52	34
5	Village Balanda	45	22
6	Village Kukudanga	32	16
	<b>Permissible limits</b>	<b>100</b>	<b>60</b>



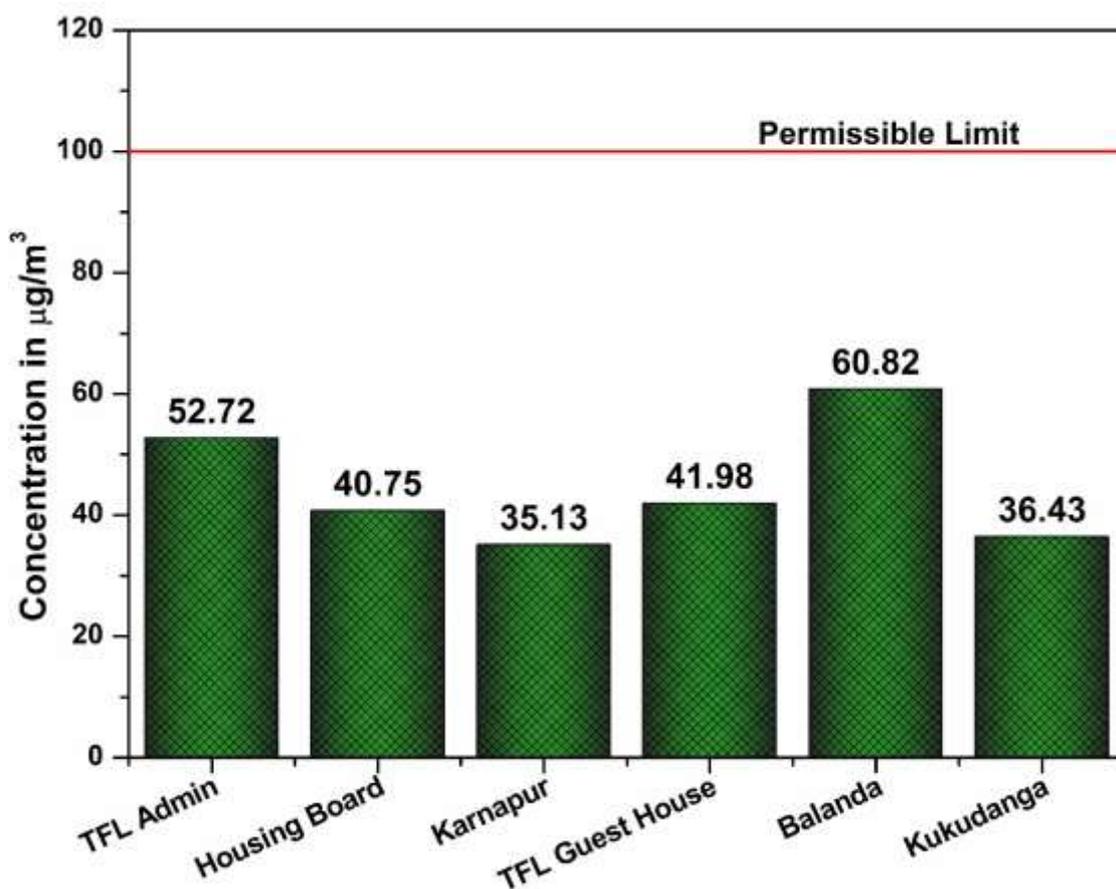
**Figure 2: Concentration of PM<sub>10</sub> at Sampling sites (Monsoon Season - August, 2018)**

**Table 4 Air Quality Status within the Study Area  
(Monsoon Season- September, 2018)**

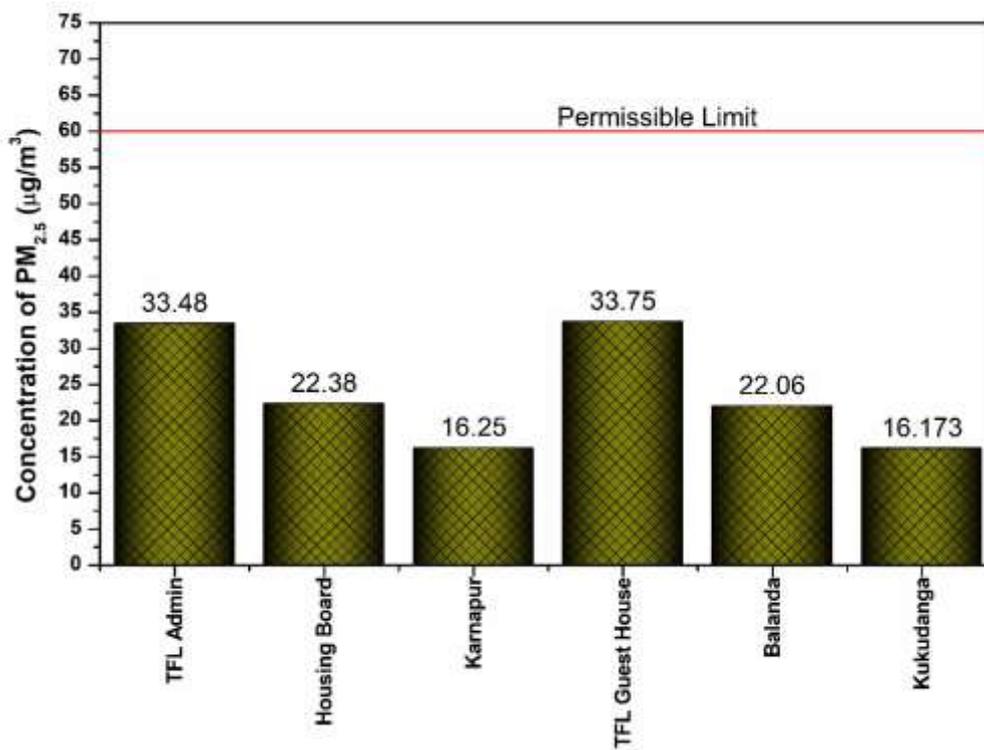
Units:  $\mu\text{g}/\text{m}^3$ 

Average: 24 hrs.

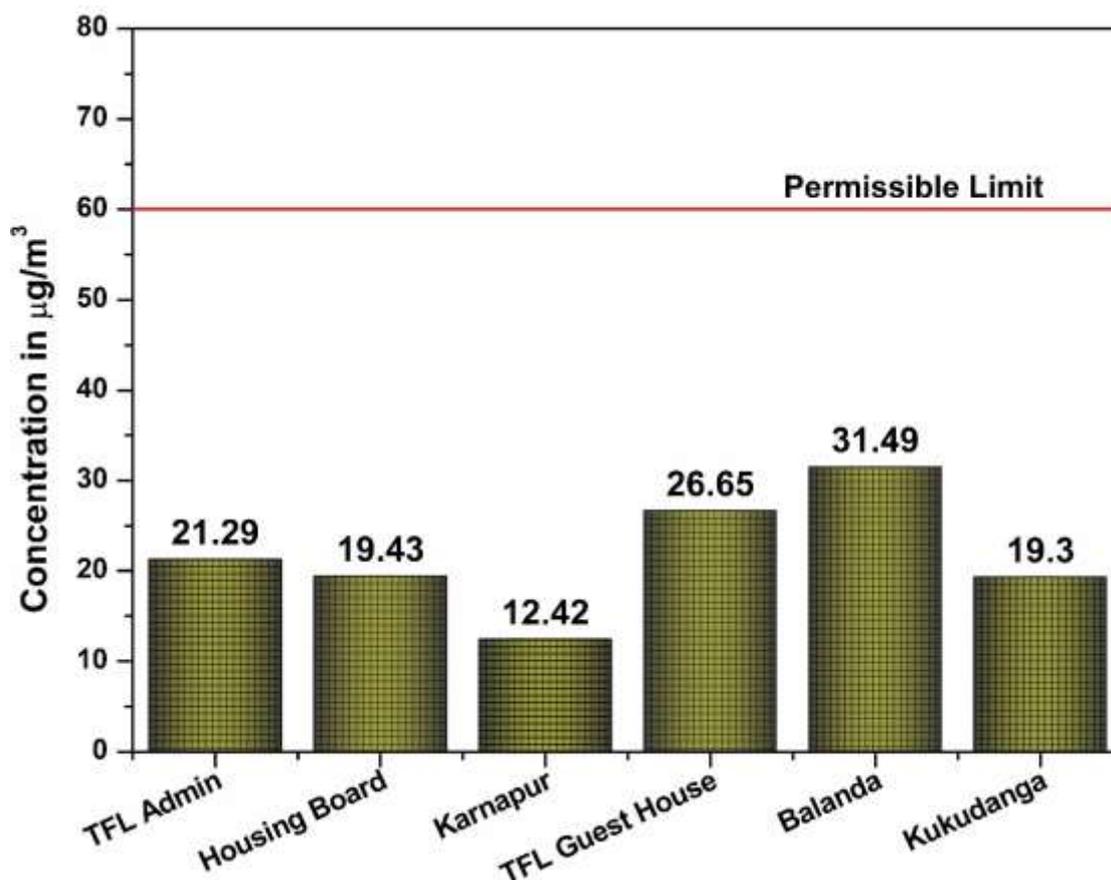
Sr. No.	Sampling Location	PM <sub>10</sub>			PM <sub>2.5</sub>		
		Min	Avg	Max	Min	Avg	Max
1	Administrative Building TFL	52	52.5	53	21	21.5	22
2	Housing Board Colony, Bikrampur	40	41	42	18	19.5	21
3	Village Karnapur	31	35	39	10	12.5	15
4	TFL-Guest House	40	42	44	25	26.5	28
5	Village Balanda	53	61	69	29	31.5	34
6	Village Kukudanga	35	36.5	38	19	19.5	20
<b>Permissible limits</b>		<b>100</b>			<b>60</b>		



**Figure 3 Concentration of PM<sub>10</sub> at Sampling sites  
(Monsoon Season - September, 2018)**



**Figure 4: Concentration of PM<sub>2.5</sub> at Sampling sites (Monsoon Season - August, 2018)**



**Figure 5 Concentration of PM<sub>2.5</sub> at Sampling sites  
(Monsoon Season - September, 2018)**

#### **Gaseous Pollutants:**

- The concentration of Sulphur dioxide (SO<sub>2</sub>) in the month of August varied from 5 to 23µg/m<sup>3</sup>. The concentration of Sulphur dioxide (SO<sub>2</sub>) was observed maximum at TFL Admin and minimum at TFL Guest House. **(Figure 6 & Table 5).**
- The concentration of Sulphur dioxide (SO<sub>2</sub>) in the month of September varied from 11 to 43µg/m<sup>3</sup>. The concentration of Sulphur dioxide (SO<sub>2</sub>) was observed minimum at TFL Guest House and maximum at Balanda village. **(Figure 7 and Table 6).**
- The Concentration of Nitrogen dioxide (NO<sub>2</sub>) in the month of August was observed in the range of 21 to 36µg/m<sup>3</sup>, the maximum

concentration was found at Kukudanga while lowest concentration was accounted at Balanda (**Figure 8 & Table 5**).

- The Concentration of Nitrogen dioxide ( $\text{NO}_2$ ) in the month of September was observed in the range of 5 to 15  $\mu\text{g}/\text{m}^3$ , the minimum concentration was found at Kukudanga while maximum concentration was accounted at Karnapur (**Figure 9 and Table 6**).
- The concentration of  $\text{NH}_3$  in the month of August varied from 12 to 288 $\mu\text{g}/\text{m}^3$ , Maximum concentration of Ammonia ( $\text{NH}_3$ ) found at TFL Admin building and lowest was found at Balanda sampling site (**Figure 10 Table 5**).
- The concentration of  $\text{NH}_3$  in the month of September varied from 17 to 274 $\mu\text{g}/\text{m}^3$ , minimum concentration of Ammonia ( $\text{NH}_3$ ) found at Karnapur and maximum was found at TFL Admin building sampling site (**Figure 11 and Table 6**).
- VOCs, NMHC and MHC were undetectable on any of the sampling sites. (**Table 7 and 8**)

**Table 5: Air Quality Status within the Study Area (Monsoon Season- August, 2018)**

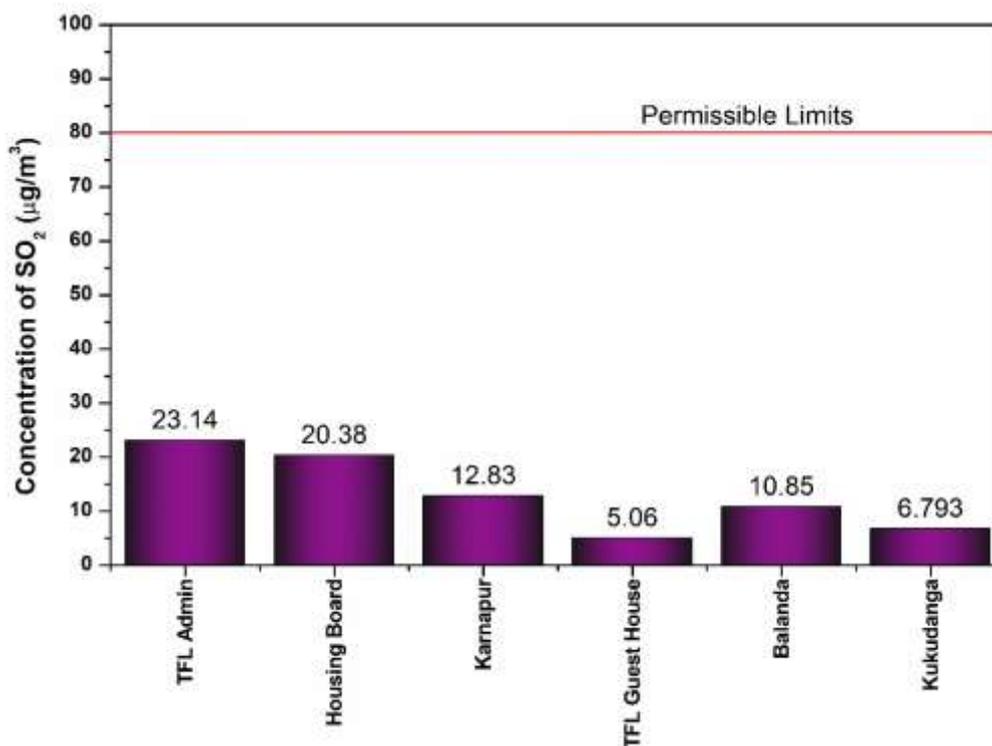
Units:  $\mu\text{g}/\text{m}^3$

Average: 24 hrs.

Sr. No.	Sampling Location	$\text{SO}_2$	$\text{NO}_2$	$\text{NH}_3$
		Avg.	Avg.	Avg.
1	Administrative Building TFL	23	27	288
2	Housing Board Colony, Bikrampur	20	24	271
3	Village Karnapur	13	34	47
4	TFL-Guest House	5	24	14
5	Village Balanda	11	21	12
6	Village Kukudanga	17	36	78
	Permissible limits	<b>80</b>	<b>80</b>	<b>400</b>

The concentration of gaseous pollutants i.e. SO<sub>2</sub> and NO<sub>2</sub> were also found to be within the permissible limits at all sampling locations. Ammonia was well within the permissible limits at all the monitored sites.

The sampling was carried out during the Monsoon season. Overall, all Air Quality Parameters studied in the study area were found to be well within the permissible limits.



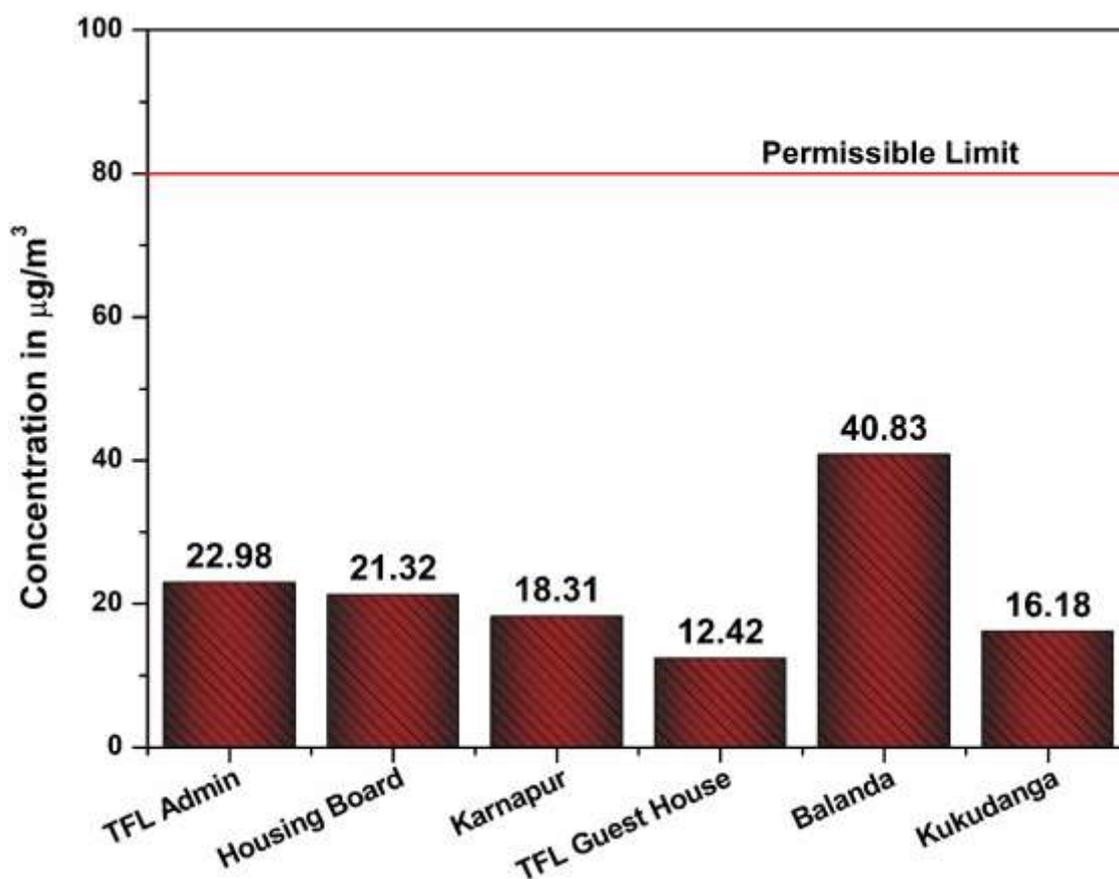
**Figure 6: Concentration of SO<sub>2</sub> at Sampling sites (Monsoon Season- August, 2018)**

**Table 6 Air Quality Status within the Study Area  
(Monsoon Season- September, 2018)**

Units:  $\mu\text{g}/\text{m}^3$

Average: 24 hrs.

Sr. No.	Sampling Location	SO <sub>2</sub>			NO <sub>2</sub>			NH <sub>3</sub>		
		Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
1	Administrative Building TFL	21	23	25	12	12.5	13	252	263	274
2	Housing Board Colony, Birkampur	20	21.5	23	8	10	12	169	171	173
3	Village Karnapur	17	18.5	20	13	14	15	17	19	21
4	TFL-Guest House	11	12.5	14	8	9	10	19	21.5	24
5	Village Balanda	39	41	43	12	13.5	15	38	41.5	45
6	Village Kukudanga	15	16	17	5	7	9	47	49	51
<b>Permissible limits</b>		<b>80</b>			<b>80</b>			<b>400</b>		



**Figure 7 Concentration of SO<sub>2</sub> at Sampling sites  
(Monsoon Season- September, 2018)**

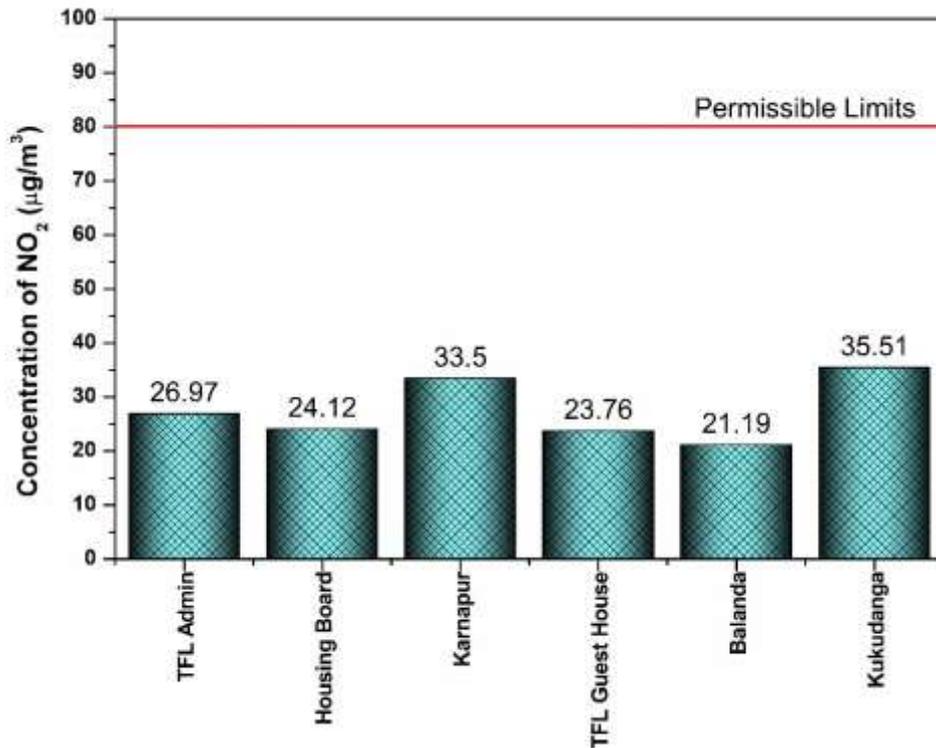


Figure 8: Concentration of NO<sub>2</sub> at Sampling sites (Monsoon Season-August, 2018)

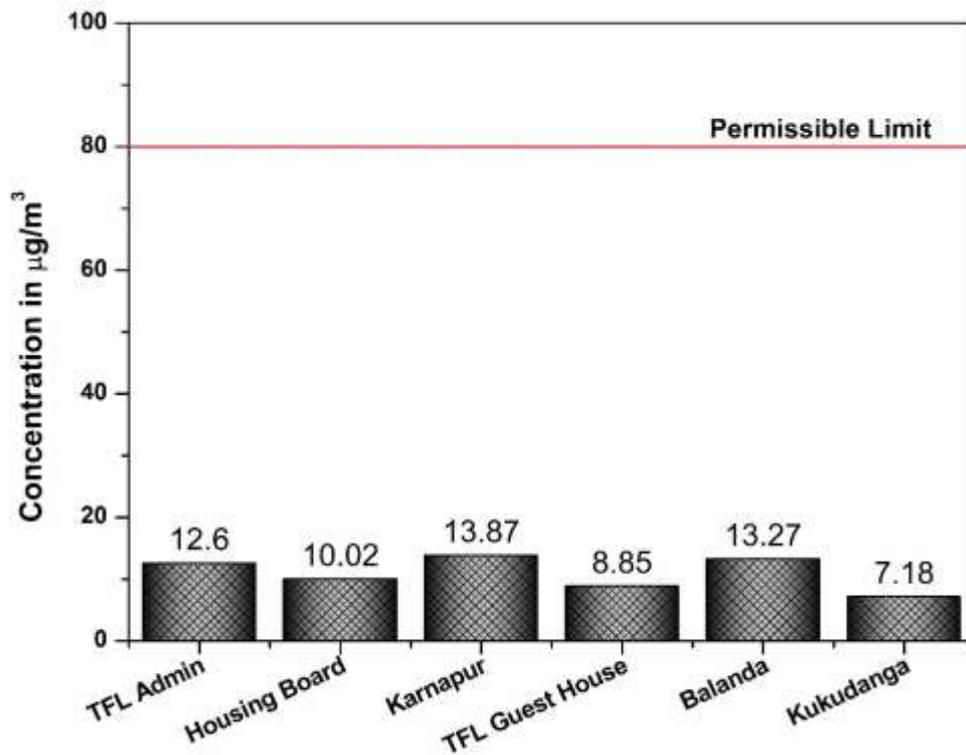


Figure 9 Concentration of NO<sub>2</sub> at Sampling sites (Monsoon Season- September, 2018)

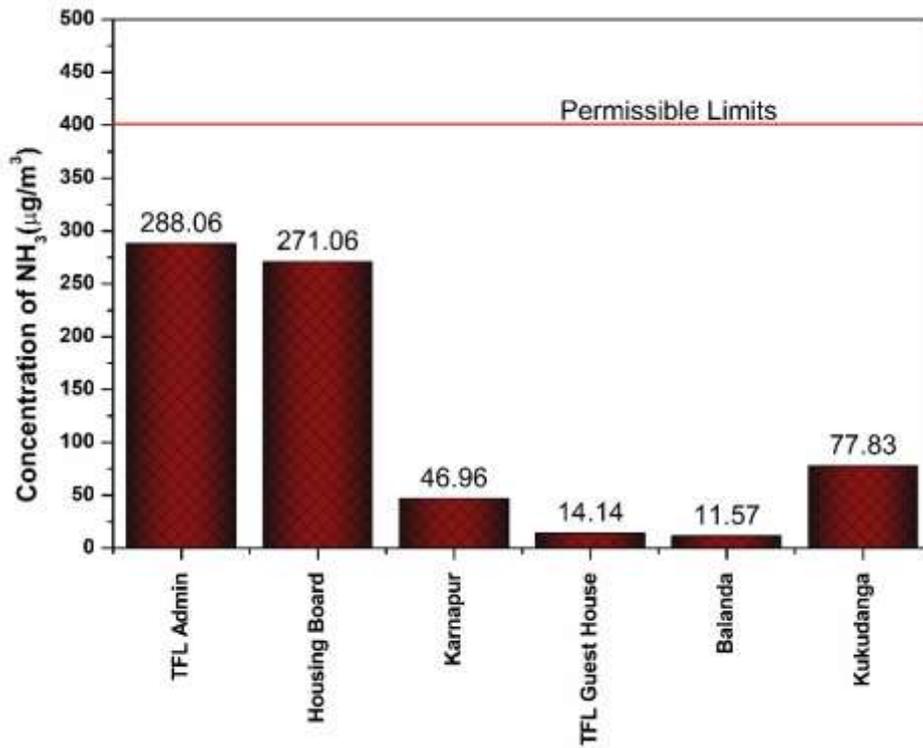


Figure 10: Concentration of NH<sub>3</sub> at Sampling sites (Monsoon Season- August, 2018)

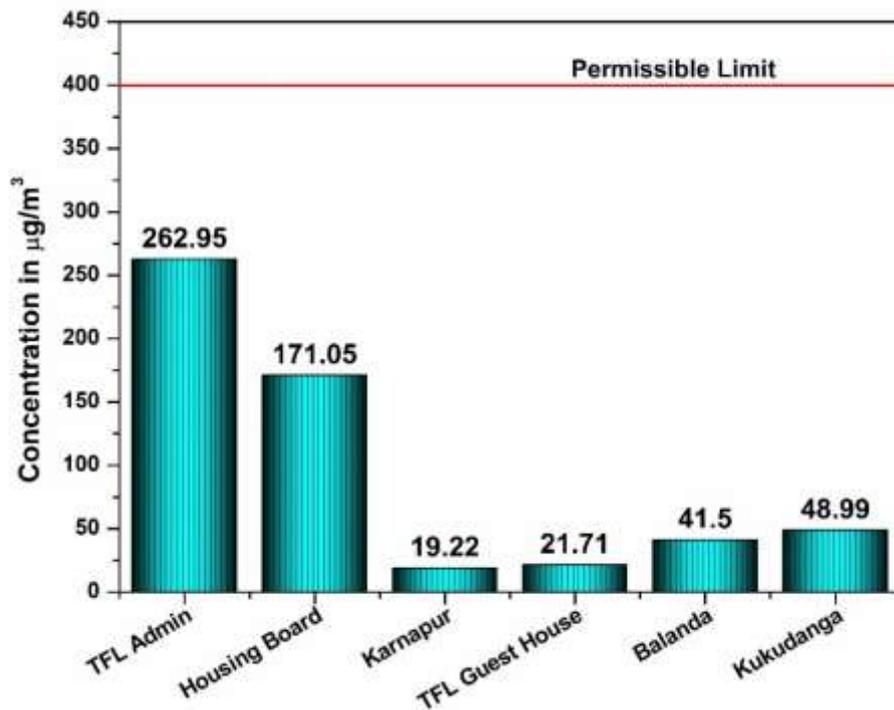


Figure 11 Concentration of NH<sub>3</sub> at Sampling sites (Monsoon Season- September, 2018)

**Table 7: Concentrations of VOCs and HC in the Ambient Air  
(Monsoon, August 2018)**

Sr. No.	Sampling Location	Benzene	Benzo( $\alpha$ )Pyrene	NmHC	MHC
		( $\mu\text{g}/\text{m}^3$ )	( $\mu\text{g}/\text{m}^3$ )	ppm	ppm
1.	Administrative Building TFL	<0.1	<0.0001	ND	ND
2.	Housing Board Colony, Bikrampur	<0.1	<0.0001	ND	ND
3.	Village Karnapur	<0.1	<0.0001	ND	ND
4.	TFL-Guest House	<0.1	<0.0001	ND	ND
5.	Village Balanda	<0.1	<0.0001	ND	ND
6.	Village Kukudanga	<0.1	<0.0001	ND	ND
	Permissible limits	<b>5 <math>\mu\text{g}/\text{m}^3</math></b>	<b>1ng/m<sup>3</sup></b>		

**Table: 8 Concentrations of VOCs and HC in the Ambient Air  
(Monsoon, September 2018)**

Sr. No.	Sampling Location	Benzene	Benzo( $\alpha$ )Pyrene	NmHC	MHC
		( $\mu\text{g}/\text{m}^3$ )	( $\mu\text{g}/\text{m}^3$ )	ppm	ppm
1.	Administrative Building TFL	<0.1	<0.0001	ND	ND
2.	Housing Board Colony, Bikrampur	<0.1	<0.0001	ND	ND
3.	Village Karnapur	<0.1	<0.0001	ND	ND
4.	TFL-Guest House	<0.1	<0.0001	ND	ND
5.	Village Balanda	<0.1	<0.0001	ND	ND
6.	Village Kukudanga	<0.1	<0.0001	ND	ND
	<b>Permissible limits</b>	<b>5 <math>\mu\text{g}/\text{m}^3</math></b>	<b>1ng/m<sup>3</sup></b>		

**Plate 1 Air Monitoring at Sampling Locations**



A1: Technical Building TFL



A2: Housing Board Colony, Bikrampur



A3: Village Karnapur



A4: TFL-Guest House



A5: Village Balanda



A6: Village Kukudanga

**ANNEXURE –III**

The project proponent shall inform the public that the project has been accorded Advertisement of environmental clearance by the Ministry has been advertised in two local newspapers in which one is the vernacular language of the locality concerned.



Published in  
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Bhubaneswar (English)  
on 15.02.2018

**ତାଳଚେର ଫର୍ଟିଲାଇଜର ଲିମିଟେଡ୍**  
 (କେନ୍ଦ୍ର, ଆରବି ଏପି, ସିଆଇଏଲ-୫ ଏମ୍ପିଆଇଏଲର ମିଳିତ ଉଦ୍ୟୋଗ)

**ନୋଟିସ**

କୋଇଲା ଖ୍ୟାତିପ୍ରକେତନ ପ୍ରକ୍ରିୟା ମାଧ୍ୟମରେ କାର୍ଷିକ ୧.୨୭ ମିଲିୟନ ମେଟ୍ରିକ ଟନ୍ ନିମ୍ନ ଆକ୍ସିଡେଣ୍ଟ ସୂକ୍ଷ୍ମ ସୁରିଆ ସାର ଉତ୍ପାଦନ ଚିମକେ ତାଳଚେର ଫର୍ଟିଲାଇଜର ଲିମିଟେଡ୍ ଏକ ଯୋଜନା ପ୍ରସ୍ତୁତ କରୁଛି । ଏଥି ନିମନ୍ତେ କେନ୍ଦ୍ର ପରିଚେଷ୍ଟ, ଜଙ୍ଗଲ ଓ ପାଣି ପାଗ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟ ତରଫରୁ ଏହି ପ୍ରକଳ୍ପ ପାଇଁ ପରିଚେଷ୍ଟ ନଂକୁରା (File No. -J-11011 / 231 / 2013 - 1A -II(-I) / dt.09.02.2018) ପ୍ରଦାନ କରାଯାଇଛି । ପରିଚେଷ୍ଟ ନଂକୁରା ବିଧି ନକଲ ରାଜ୍ୟ ପ୍ରଦୁଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ୍ / କମିଟି ନିକଟରେ ଉପଲବ୍ଧ । ଏହା ଛଡ଼ା ମହାକୟର ଷ୍ଟେଟ ସାଇଟ <http://moef.nic.in> ରେ ମଧ୍ୟ ଏହାକୁ ଦେଖାଯାଇ ପାରିବ ।  
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