BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
WESTERN ZONE BENCH, PUNE

ORIGINAL APPLICATION NO. 77 OF 2016 (WZ)
IN
ORIGINAL APPLICATION NO. 33 OF 2013 (THC)

IN THE MATTER OF: -

JANARDAN CHANDAR PATIL & ANR. **APPLICANT(S)**

VERSUS

UNION OF INDIA & ORS. **RESPONDENT(S)**

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NOTARY
MANISHA
SAMEER CHITNIS
PUNE (MAHARASHTRA)
REGD. NO. 20258
EXP. DATE
07/03/2025
GOVERNMENT OF INDIA

(Pratik D. Bharne)
Regional Director

क्षेत्रीय निदेशक / Regional Director
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
क्षेत्रीय निदेशालय, पुणे / Regional Directorate, Pune
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
M/o Envt. Forest & Climate Change, Govt. of India
सर्वे नं. ११०, हीराबाई धनकुडे हॉल, बाणेर रोड, बाणेर, पुणे – 411045
Sr. No. 110, Hirabai Dhankude Hall, Baner Road, Baner, Pune-411045

Place: Pune
Date: 14/08/2024

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

WESTERN ZONE BENCH, PUNE

ORIGINAL APPLICATION NO. 77 OF 2016 (WZ)

IN

ORIGINAL APPLICATION NO. 33 OF 2013 (THC)

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STATUS REPORT ON BEHALF OF CENTRAL POLLUTION CONTROL BOARD (CPCB) INCOMPLIANCE TO THE HON'BLE NGT ORDER DATED 12/02/2024

1. That Central Pollution Control Board (hereinafter referred as CPCB) is a Statutory Board constituted under Section-3 of the Water (Prevention and Control of Pollution) Act, 1974. It performs the function under The Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, and The Environment (Protection) Act, 1986.

2. That Hon'ble NGT in the instant O.A. has passed an order dated 12/02/2024. Relevant para of the Order for compliance is as enumerated below:

> *"…Therefore, we direct that specific steps which have been taken and are in progress in respect of Navi Mumbai in this regard be submitted before us in the form of an affidavit by the CPCB and MPCB, by the next date".*

That in compliance of the above, the following is submitted:

3. That it is humbly submitted that, the CPCB has directed to all SPCBs/PCC to prepare and implement action plans for Critically Polluted Area (CPA) and Severely Polluted Area (SPA). CPCB has also developed online Comprehensive Environmental Pollution Index (CEPI) portal to facilitate SPCBs/PCC to upload the progress of action plan and for ease to review the progress of action plan by CPCB/SPCBs/PCC. Maharashtra Pollution Control Board (MPCB) has submitted the Action Points implemented in Navi Mumbai (Trans Thane Creek Industrial Area) with the percentage progress on the portal as detailed in the table below:

Sr. No.	Industrial Area	Category	Action Point	Responsible Agency	Present Status
1.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Reuse of Treated Sewage.	NMMC & MPCB	80%
2.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Taking possession ofdrainage pipeline carrying effluent to CETP.	CETP MIDC MPCB as Nodal Agency	100%
3.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Performance Evaluation of ETPs	Industry	80%
4.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Uncovered area will be connected to CETP	MIDC/CETP/ MPCB	100%
5.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Recovery of Solvent by solvent usingunits.	Industries	80%
6.	TTC Industrial	Water Environment	Improvementsin CETP.	CETP	100%

	Area, MIDC, Navi Mumbai				
7.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Upgradation of Individual ETPs	Industries	90%
8.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Improvementin ECS	Industries	80%
9.	Industrial Area, MIDC, Navi Mumbai	Water Environment	To provide proper sewerage system for slum pockets & connects the sewage toSTPs & use oftreated sewage for gardening & industrial purpose	MIDC/ NMMC	10%
10.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Installation of Supervisory control and data acquisition (SCADA)	Industry, MPCBand CETP	80%
11.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Monitoring of ground waterat MSW/TSDF site.	MPCB	70%
12.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Monitoring of the Industriesfor compliance ofCEPI norms	MPCB	70%
13.	TTC Industrial Area, MIDC, Navi Mumbai	Water Environment	Performance Evaluation ofCETP	CETP & MPCB	100%
14.	TTC	Water	Installation of	Industry/MPC	100%

	Industrial Area, MIDC, Navi Mumbai	Environment	Online monitoring system to 13 nos. of highly polluting (17thCategory) industries.	B	
15.	TTC Industrial Area, MIDC, Navi Mumbai	Air Environment	Noise mapping of Navi Mumbai, Mumbai City	NMMC / MPCB	100%
16.	TTC Industrial Area, MIDC, Navi Mumbai	Air Environment	Installation of CAAQM Stations with digital displayon screen.	TBIA	100%
17.	Industrial Area, MIDC, Navi Mumbai	Air Environment	Air Quality Monitoring and Emission Source Apportionment study of Navi Mumbai City	NMMC / MPCB	30%
18.	TTC Industrial Area, MIDC, Navi Mumbai	Air Environment	Inventory of Hazardous Air Pollutant emitting units and installation of Leak detection & repair (LDAR)in Case pesticide & bulk drug manufacturing units	MPCB/Individualindustry	70%
19.	TTC Industrial Area, MIDC, Navi Mumbai	Air Environment	Set up newAAQM Station, Navi Mumbai.	MPCB	100%
20.	TTC Industrial Area, MIDC, Navi Mumbai	Air Environment	Performance Evaluation ofECS	Industries	80%
21.	TTC Industrial	Air Environment	Online displayof AAQM data	MPCB	80%

	Area, MIDC, Navi Mumbai				
22.	TTC Industrial Area, MIDC, Navi Mumbai	Air Environment	Installation of VOC analyzer	Industry	90%
23.	TTC Industrial Area, MIDC, Navi Mumbai	Air Environment	Air pollution control measures forstone crusherunits.	MPCB	60%
24.	TTC Industrial Area, MIDC, Navi Mumbai	Air Environment	Change inFuel.	MNGL	70%
25.	TTC Industrial Area, MIDC, Navi Mumbai	Land Environment	Scientific Disposal ofMSW.	NMMC	100%
26.	TTC Industrial Area, MIDC, Navi Mumbai	Land Environment	Developmentof green belt & garden.	MIDC & TBIA	80%
27.	TTC Industrial Area, MIDC, Navi Mumbai	Infrastructure/ renewal measures	Replacementof Damaged pipeline. Thereplacement of old/damaged pipelines by the new one has not been completed.	MIDC	90%
28.	TTC Industrial Area, MIDC, Navi Mumbai	Infrastructure/ renewal measures	Repairs of Internal Roads in MIDC area.	NMMC	60%
29.	TTC Industrial	Other	Awareness program	MPCB	80%

	Area, MIDC, Navi Mumbai				
30.	TTC Industrial Area, MIDC, Navi Mumbai	Other	Health Impact Assessment Study.	DISH District Health Officer MPCB	80%
31.	TTC Industrial Area, MIDC, Navi Mumbai	Other	Vehicle pollution andtraffic managementplan	NMMC/RTO/ MIDC	80%

4. It is humbly submitted that, the progress in respect of above mentioned action points are under varied stages of completion respectively. CPCB has visited the area to physically verify the action points for which 100% completion has been reported, on the portal, by MPCB and the same has been found to be true. Accordingly, the Status Report is attached as **Annexure I**.

5. In view of the above facts and circumstances, it is humbly prayed that the Hon'ble Tribunal may pass appropriate order in the interest of justice and this answering Respondent undertakes to abide by the orders/directions passed by this Hon'ble Tribunal in the present Original Application.

Pratik D. Bharne

(Scientist 'E' & Regional Director)

क्षेत्रीय निदेशक / Regional Director
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
क्षेत्रीय निदेशालय, पुणे / Regional Directorate, Pune
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
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Sr. No. 110, Hirabai Dhankude Hall, Baner Road, Baner, Pune-411045

Noted & Registered
At.Sr.No. 748/2024

BEFORE ME

MANISHA SAMEER CHITNIS
NOTARY
GOVERNMENT OF INDIA
14 AUG 2024

NOTARY MANISHA SAMEER CHITNIS PUNE (MAHARASHTRA) REGD. NO. 20258 EXP. DATE 07/03/2025 GOVERNMENT OF INDIA

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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

WESTERN ZONE BENCH, PUNE

ORIGINAL APPLICATION NO. 77 OF 2016 (WZ)

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ORIGINAL APPLICATION NO. 33 OF 2013 (THC)

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VERSUS

UNION OF INDIA & ORS. **RESPONDENT(S)**

NOTARY GOVERNMENT OF INDIA MANISHA SAMEER CHITNIS PUNE (MAHARASHTRA) REGD. NO. 20258 EXP. DATE 07/03/2025

AFFIDAVIT

I, Pratik D. Bharne, working as Scientist 'E' & Regional Director in Central Pollution Control Board, Regional Directorate, Survey No. 110, Hirabai Dhankude Multipurpose Hall, Baner Road, Baner, Pune – 411045, do hereby solemnly affirm anddeclare as under:

1. That the deponent is authorized representative to represent the Respondent CPCB in the present case, and as such, I am well conversant with the facts and circumstances of the present case on the basis of the information derived from the official records, and hence, I am competent and authorized to verify, sign and swear this affidavit on behalf of the Respondent CPCB.

2. That the accompanying reply may be read part and parcel of the present affidavit as I am competent to swear this affidavit.

3. That the contents there of are true and correct on the basis of the record maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over and explained to me and are not repeated herein for the sake of brevity.

NOTARY
MANISHA SAMEER CHITNIS
PUNE (MAHARASHTRA)
REGD. NO. 20258
EXP. DATE 07/03/2025
GOVERNMENT OF INDIA

DEPONENT
क्षेत्रीय निदेशक / Regional Director
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
क्षेत्रीय निदेशालय, पुणे/Regional Directorate, Pune
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
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Sr. No. 110, Hirabai Dhankude Hall, Baner Road, Baner, Pune-411045

VERIFICATION

Verified at Pune on this day. 14th of August 2024 that the contents of the above reply are correct and true on the basis of the record of the cases as mentioned in the day to day affairs of the CPCB. Nothing has been concealed therefrom or mis-stated.

Verified at Pune on this the Day 14th of August 2024.

Noted & Registered
At.Sr.No. 7491 2024

DEPONENT
(CENTRAL POLLUTION CONTROL BOARD)

क्षेत्रीय निदेशक / Regional Director
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
क्षेत्रीय निदेशालय, पुणे/Regional Directorate, Pune
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
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Sr. No. 110, Hirabai Dhankude Hall, Baner Road, Baner, Pune-411045

COUNSEL FOR
(CENTRAL POLLUTION CONTROL BOARD)

NOTARY MANISHA SAMEER CHITNIS PUNE (MAHARASHTRA) REGD. NO. 20258 EXP. DATE 07/03/2025 GOVERNMENT OF INDIA
FIVE RUPEES NOTARIAL

BEFORE ME

MANISHA SAMEER CHITNIS
NOTARY
GOVERNMENT OF INDIA
14 AUG 2024

Annexure-I

COMPLIANCE VERIFICATION OF SPECIFIC STEPS TAKEN TO REDUCE CEPI SCORE OF NAVI MUMBAI W.R.T THE HON'BLE NGT MATTER IN OA NO. 77 OF 2016 (WZ), JANARDAN CHANDAR PATIL & ANR. VS UNION OF INDIA & ORS.

STATUS OF ACTION POINTS IMPLEMENTED AND COMPLETED IN NAVI MUMBAI, MAHARASHTRA

S. no.	Action Points Completed	Present status as reported by MPCB	Compliance verification by CPCB as on 08/04/2024
1.	Uncovered area will be connected to CETP, TTC	TTC industrial area is divided into K, R, A, EL, C, D & W blocks and all blocks are connected with HDPE effluent carrying pipeline. Work is completed.	• **Compliance status – Complied**. • Based on the information provided by MIDC officials during the site visit, it is observed that the entire TTC MIDC area is divided into K, R, A, EL, C, D & W blocks. Further, based on the aforesaid information it is understood that the entire TTC MIDC area is covered with drainage pipeline network, which is connected to the CETP. • As per the records of MIDC, during 1983 to 2015, the aforesaid blocks have already been commissioned with drainage network pipeline in a phased manner of about 107 Km total length, which is made of stoneware pipeline of reported diameter of 150 mm. • The effluent collection and conveyance from the various blocks of MIDC are through 04 no. of effluent collection sumps located at Airoli, Rabale, Sanpada and Pawane, the sump located at Pawane being the final effluent collection sump located within the CETP premises. ▪ Effluent generating from the member industries in

			K block is collected at Airoli collection sump. ▪ Effluent generating from the member industries in R, W (part) blocks is collected at Rabale collection sump. ▪ Effluent generating from member industries in D block is collected at Sanpada collection sump. ▪ Effluent from Airoli collection sump is conveyed to Rabale collection sump and finally conveyed to Pawane collection sump, being the final effluent collection sump located within the CETP premises. Similarly, effluent from Sanpada collection sump is conveyed to Pawane collection sump, being the final effluent collection sump located within the CETP premises. ▪ Effluent generating from member industries in A, C, W (part) and EL blocks are directly conveyed to Pawane collection sump, being the final effluent collection sump located within the CETP premises. • As informed by MIDC, due to deterioration of the existing stoneware pipeline network, and due to increase in the drainage pipeline network capacity, works with respect to replacement of existing stoneware pipeline network with higher diameter HDPE pipeline was undertaken since 2017. Wherein, the exiting stoneware pipeline (of about 150 mm diameter) was replaced and, in some case, aided/ backed up with parallel HDPE pipeline (ranging from 200 mm to 900 mm diameter).

			• Further, based on the information submitted by MIDC during review meeting on 18/04/2024, it is observed that a total of 88.247 Km of the existing stoneware pipeline network has been already replaced/remodelled with HDPE pipelines till date, and replacement/remodelling & also commissioning of another 55.970 Km of HDPE pipeline network is under progress, which on completion will further increase the total drainage pipeline network length to 144.22 Km. Details of various work orders and completion certificates and BOQ in respect of remodelling of existing stoneware pipeline to HDPE pipeline including details of work orders of on-going remodelling of existing stoneware pipeline to HDPE pipeline is given at **Annexure-A**.
2.	Performance Evaluation of CETP, TTC	CETP has already submitted the performance evaluation report to MPCB done by Emergy Enviro Pvt. Ltd. by SINE IIT Bombay Company at 2020.	• **Compliance status – Complied.** • CETP (Thane-Belapur) Association was established in the year 1994. Total installed capacity of CETP is 27 MLD (Phase-I: 12 MLD & Phase-II: 15 MLD). Phase-I (12 MLD) of the CETP is commissioned in 1997 and Phase-II (15 MLD) of the CETP is commissioned in 2006. Presently, CETP receives average effluent of about 24 MLD from member industries. • The treatment units of CETP are situated at two plots i.e. P-18 and P-60. Unit operations involved in preliminary stage of treatment are installed at P-18, while the unit operations & processes involved in

			primary and secondary stages of treatment are installed at P-60. • After homogenizing of raw effluent at P-18 plot, it is pumped to P-60 plot for further treatment. Presently, the CETP receives preliminary treated effluent from small scale industries and also receives treated effluent from medium & large scale industries. Additionally, the CETP also receives primary treated domestic wastewater from the member industries (i.e. septic tank & soak pit). • Various unit operations & processes of the CETP are: Effluent from TTC industrial area → Bar screen (common for Phase-I & II, at plot-18) → Raw effluent distributed to treatment units of Phase-I & II. • For Phase-I (12 MLD at plot-60): Collection tank → Grit chamber → Equalization cum neutralization tank → Flash mixer → Clariflocculator → Aeration tank (biological process) → Secondary clarifier → Common V-notch chamber → Disposal into Trans Thane creek as per CTO conditions. • For Phase-II (15 MLD at plot-60): Collection tank → Grit chamber → Equalization cum neutralization tank → Flash mixer → Clariflocculator → Aeration tank (biological process) → Secondary clarifier → Common V-notch chamber → Disposal into Trans Thane creek as per CTO conditions.

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Sludge management for Phase-I (12 MLD at plot-60): Primary sludge → Common sludge thickener → Mono-belt filter press, 02 nos. Secondary sludge → Common sludge thickener → Single screw volute type sludge dewatering system, 02 nos. → Common sludge drying beds → Disposal into CHWTSDF.
Sludge management for Phase-II (15 MLD at plot-60): Primary sludge → Common sludge thickener → Decanter centrifuge, 01 no. or Mono-belt filter press, 01 nos. or Single screw volute type sludge dewatering system, 02 nos. → Secondary sludge → Common sludge thickener → Double screw volute type sludge dewatering system, 02 nos. → Common sludge drying beds → Disposal into CHWTSDF.
CETP has carried-out performance evaluation studies through M/s SINE IIT Bombay Company, EMERGY Enviro Pvt. Ltd., in 2020 and submitted the said report to MPCB on 24/11/2020. In order to ensure efficient treatment of effluent along with long-term reliability, various recommendations have been suggested by M/s SINE IIT Bombay Company, EMERGY Enviro Pvt. Ltd., for both the phases of CETP. Various recommendations suggested and the status of implementation of the same is given below.

<table>
<tr><th>Recommendations</th><th>Status of implementation & its compliance</th></tr>
<tr><td>Optimization of horizontal velocity of effluent flow (0.03 m/s) as per guidelines</td><td>As informed, the CETP has optimized the horizontal flow velocity</td></tr>
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			in order to prevent formation of obnoxious odor. Also, to increase the cleaning frequency of grit chamber.	at the inlet of grit chamber. Also, increased the frequency of cleaning & scrapping of the grit chamber. Further, it is observed that three layer of bar screens are provided to entrap extraneous materials entering into grit chamber.
			Neutralization/pH correction operation in equalization cum neutralization tank.	In-line alkali addition is done prior to subsequent treatment. CETP has installed new alkali storage tanks with proper dosing system at plot-18 i.e. near collection sump of CETP.
			To optimize the HRT of equalization cum neutralization tank (10.11 h) of the system as per recommended guidelines (≥24 h) for proper homogenization. Also, to optimize the installed aeration system	As informed, the CETP has optimized the HRT of equalization cum neutralization tanks. Also, carried-out maintenance of diffuser system to ensure uniform air supply rate to prevent formation of dead/septic zone. During inspection, no dead zones are observed in

				the equalization tanks.
			Installation of impeller with rotational speed corresponding to outcomes of the treatability study to optimize overall physicochemical treatment and to install flow control valves at the outlet of equalization tanks.	As inform & observed that the CETP has installed slow mixing impellers in the flocculation zone for efficient agglomeration of flocs in the clariflocculator. Also, installed flow control valves at the outlet of equalization tank pumping system i.e. both at the suction & discharge to control flow and thereby preventing the flooding of clariflocculator.
			Addition of supernatant of sludge thickener into equalization tanks for TSS management	It is observed that CETP is adding supernatant of sludge thickener into inlet chamber of CETP.
			To optimize the volumetric loading rate, F/M ratio and installed aeration system at bio-reactor. To install DO sensors to monitor DO at bio-reactors and to dose PAC at the outlet of aeration tank.	As informed, the CETP has optimized the volumetric loading rate as per the guidelines (0.1 – 0.3 Kg BOD/m3/day and F/M ratio of 0.04 – 0.1 Kg BOD/KG MLVSS/day). Also, the CETP has installed new up-draft type surface aerators to

				improve oxygen transfer rate and to cover full floor area of the aeration tanks. DO sensors are installed at bio-reactors and also manually samples are collected for DO determination. Instead of dosing of PAC, CETP is dosing cationic polyelectrolyte for better settling of suspended solids.
3.	Taking possession of drainage pipeline carrying effluent to CETP, TTC	TTC industrial area is divided into K, R, A, EL, C & D blocks. Previously, effluent pipelines of K, R, A & EL bocks was having with MIDC and at C & D block, it was with CETP (Thane-Belapur) Association. On dt. 27/11/2018, effluent pipeline network was taken over by MIDC from CETP. As on today effluent network for whole TTC Indl area is with MIDC	• **Compliance status – Complied**. • Erstwhile, operation & maintenance of effluent pipeline network/collection system of C & D blocks was in the possession of CETP since 1998. Further, based on the decisions taken in the meeting on "Improvement of CEPI for industrial cluster Navi Mumbai" by the then Member Secretary of MPCB on 09/02/2016, CETP was directed to hand over the effluent pipeline network/collection system of C & D blocks to the MIDC. • As per the records, the effluent pipeline network/collection system of C & D blocks is handed over by CETP to the MIDC during 2018. Subsequently, joint inspection of C & D effluent collection network was carried-out by team of officials	

			from MIDC & CETP on 27/11/2018. Copy of the joint inspection report of CETP & MIDC w.r.t. handover of C & D effluent collection network, dated 27/11/2018 is given at **Annexure-B**. • Further, the CETP also hand over the Sanpada Pumping station (D-Block) including its operation & maintenance to the MIDC on 16/09/2022. Copy of the hand over document, dated 16/09/2022 is given at **Annexure-C.**
4.	Improvements in CETP, In TTC	1. Installation & Commissioning of Additional Clarifier cum Clariflocculator at P–60 completed in Dec.-2019 for a standby operation during any emergency maintenance work required by the existing Clarifier, Clarifoculator, Thickner or any of the tank and also for better treatment of effluent during shock load. 2. Installation and Commissioning 2 nos. each of new technology single screw & double screw Volute at P–60 done in the year 2023 for efficient sludge handling and is in operation giving maximum sludge rejection. 3. Constructed an additional inlet effluent collection tank of 500 m3 in the year 2023 to handle the inlet shock load mostly during monsoon season. 4. Reinforcement civil work done of Platform, Pathways, of Aeration Tank at 12 MLD	• **Compliance status – Complied.** Various improvements done by the CETP, which are as reported by MPCB are summarized as below and the same are also verified by CPCB during the compliance verification inspection. • CETP has commissioned 01 no. of additional clariflocculator tank of reported design capacity of 2,400 m^3 each at Phase-I & Phase-II. As informed, the said additional clariflocculator at Phase-I & Phase-II is commissioned to act as a standby unit operation during emergency maintenance works of the existing, clarifoculator, clarifier and sludge thickener or any of the unit operations/processes of CETP. • CETP has commissioned 02 nos. of each of single screw & double screw volute type sludge dewatering system for processing of primary & secondary sludge. The same was observed to be in working condition.

		and 15 MLD plant in the year 2023 to enhance the structural life of an aeration tank 5. Compound wall constructed in the year – 2022 & 23 from slum area side to avoid further encroachment at P–60 (15 MLD) side. 6. Installation and commissioning of the 67 kw Solar panel project on the roof of Admin Building done in the year 2023. 7. Installation of 10 KL capacity pilot plant completed in Dec. 2023 to study the process need to support the small scale Industries being operated by CETP. 8. Double stage Scrubber system at plot P-18 has been ordered and will be installed by the end of the month of March. – 2024. Work on going.	• CETP has commissioned additional raw effluent collection tank of reported design capacity of 500 m3. As informed, the said additional tank is commissioned to handle shock loads. • CETP has carried-out reinforcement of civil structure i.e. platforms, pathways of secondary treatment process of both the Phase-I & Phase-II i.e. at aeration tanks. • CETP has constructed compound wall on the eastern boundary i.e. at Phase-II (15 MLD) in order to avoid encroachment of slum dwellers. • CETP has commissioned solar panels on the roof top of administration building. As informed, the solar pales can generate about 67 KW of power and the same is used for captive purpose i.e. connected to the panel. • CETP has commissioned a pilot plant of reported design capacity of 10 KL for reagualr study & optimization of the existing process and also to support the SSI units in terms of treatment of effluent. The unit operations & processes of the pilot plant are of similar to that of the existing treatment units of CETP, with only the addition of anoxic tank prior to aeration tank. • CETP has capped the collection tanks provided at inlet and connected the vents of collection tanks into

			the two stage scrubbing system to contain VOCs. Scrubbing system was found operational.
5.	Set up of New AAQM Station, Navi Mumbai	As per Board policy regarding new CAAQM Station based on population criteria has been fulfilled by Regional Office (Navi Mumbai), MPCB. Therefore, no requirement of additional CAAQMS.	• **Compliance status – Complied.**
6.	Scientific Disposal of MSW	750 TPD MSW is scientifically treated @ Turbhe. 60000 liter per day capacity LTP treats Leachate.	• **Compliance status – Complied.** • The MSW site is located at S. No. 367-379, Behind Lubrizol Company, Turbhe, Navi Mumbai. The MMSW site broadly consists of solid waste processing plant of capacity 750 TPD, leachate treatment and sanitary landfill facility. The MSW site has a total area of 99 acres, which includes 9 sheds with an area of 20,530 sq.mt. • The plant is commissioned in 2012 and in operation since then. The NMMC (Navi Mumbai Municipal Corporation) has obtained Authorisation from MPCB vide no. BO/Consent-committee-under-Chairmanship-of-MS/ MSW_AUTH/ 240100005 dated 16.01.2024 which is valid up to 31.10.2028 and CTO is yet to be obtained from MPCB. • The total collection of solid waste is 750 TPD through two zones consisting of 4 wards each. Wet & dry waste is being segregated at the source and the segregated waste is being transported through GPS enabled SWM vehicles.

			• NMMC has appointed M/s. Amrut Enterprises for operation and maintenance of the plant from 1st Feb, 2024. • Dry waste (400 TPD) → Trommel (2 Nos. /100 mm). Trommel (-100 mm) → Material Recovery Facility → Sorted into Glass Bottles, Plastic Bottles, Metals, Clothes, Shoes, Coconut Shells, etc. → Recyclers. • Trommel (+100 mm) → Shredders (150 mm, 75 mm and 50 mm) → Refuse Derived Fuel (RDF) → Trommel → Cement Plants. • Wet Waste (350 TPD) →Windrow Turning with 3-4 days of spray of culture for 28 days. After 28 days → Auto Feeder → Trommel (50 mm)[1] → Reject (+50 mm) →RDF. • Trommel (-50 mm)[1] → Trommel (25 mm)[2] → Reject (+25 mm) → RDF. • Trommel (-25 mm)[2] → Trommel (4 mm)[3] → Reject (+4 mm) → RDF. • Trommel (-4 mm)[3] → Compost in sealed bags → Sold as fertiliser. Inert Waste → Sanitary Landfill facility (SLF). • Total Generation from MRF is 240 TPD; RDF-25 TPD; Compost-40 TPD and Inert Waste-60TPD.

			• Total 8 landfill cells. Out of which 1 to 6 have been closed, 7th currently is in use and 8th is proposed. • Leachate generated is treated at leachate treatment facility of 60 CMD treatment plant. Various unit operations & process are: Leachate → Leachate collection tank → Equalization Tank → Flash Mixer → Flocculator → Tube Settler → Sequential Batch Reactor (SBR) → Treated Effluent Tank → Used for compost process. Sludge from SBR and Tube Settler → Sludge Holding Tank → Centrifuge → Sludge used as manure. • NMMC has proposed compressed biogas plant based for which DPR has been prepared and is under approval stage from commissioner.
7.	Installation of Online monitoring system to 13 nos. of highly polluting (17 Category) industries	There are 4 number of industries and 1 CETP under 17 categories are operational and units have provided OCEMS.	• **Compliance status – Complied.** • As per MPCB records, in TTC industrial area there are 05 no. of industries and 01 no. of common facility i.e. CETP is operational out of total 08 nos. of highly polluting industries i.e. 17-category industries. • Remaining 03 nos. of industries is permanently closed. All the operational industries and common facility has been found installed OCEMS. Also, status of installation of OCEMS is verified in CPCB RTDMS portal and observed that data is being transmitted to CPCB portal. List of such operational industries and common facility, along with status of installation of

			OCEMS is given at **Annexure-D.** Some of the photographs taken during the compliance verification are given at **Annexure-E**.
8.	Noise mapping of Navi Mumbai City	Noise monitoring during Diwali and Ganesh festival is carried out by MPCB through MoEF approved agency.	• **Compliance status – Complied.** • MPCB has carried-out noise mapping in 27 municipal corporations in the state of Maharashtra including Navi Mumbai through CSIR-NEERI during July, 2018. Copy of noise mapping report of July, 2018 is given at **Annexure-F**. Beside, MPCB is also carrying out noise monitoring through MoEF&CC approved laboratory during the Ganesh Chaturti and Diwali festival.
9.	Installation of CAAQM stations with digital display on screen	In RO Navi Mumbai jurisdiction there are 7 stations are operational for strengthening of Air monitoring in Navi Mumbai area and display board are installed along road side. The data transfer to CPCB/MPCB server. 1. Fire Station, CBD Belapur. 2. Sewage Treatment Plant, Nerul. 3. Tortoise Amusement Park, Kopari Gaon. 4. Sensory Garden, Sanpada. 5. Nirmal Bhavan, Mahape. 6. Opposite to Hindalco, MIDC Taloja 7. CIDCO garden, Kalamboli Along with these, Regional Office MPCB (Navi Mumbai) is having 2 nos. of Mobile Ambient air quality monitoring vans in respective areas.	• **Compliance status – Complied.** • During inspection it is observed that there is total 05 nos. of CAAQM stations are installed within the jurisdiction of TTC MIDC area. The said CAAQM stations are found operational and the data is being connected to the CPCB & MPCB servers. The monitored CAAQM data is being displayed on the digital screens of the receptive CAAQMS. • Whereas, the other 02 nos. of CAAQM stations i.e. CAAQM at Opp. to Hindalco and CIDCO garden are installed outside the jurisdiction of TTC MIDC area i.e. in MIDC Taloja area.

ANNEXURE-A

Compilation of works completed w.r.t. construction/ replacement/ remodelling of existing drainage pipeline Network in TTC as per the information submitted by MIDC

Sl. No.	Work order/ Agreement no.	Name of work	Concerned MIDC Area in which work executed	Length of Pipeline network constructed/ replaced/ remodelled (in RMT) based on completion certificate
1.	B-1/8 & D-2 for 2017-2018	DD-TTC & Kalwa.. TTC Indl. Area.. Construction of CC roads with storm water gutters, streetlights, effluent collection pipeline & allied works (awarded to – M/s BITCON-VUBEPL-GCC-VALECHA (JV))	D, A, R Blocks	22,880 RMT = 22.88 Kms
2.	C-2 for 2019-2020	TTC Industrial area-underground drainage disposal scheme. Remodelling of effluent collection system with HDPE pipeline in C & D blocks (awarded to – M/s R.K Madani & Co.)	C & D blocks	56,966.62 RMT = 56.966 Kms
3.	B-1/14 & D-1 for 2016-17	TTC Industrial area. UDDS. Replacement of pumping main from collection sump at Sanpada to BPT at Turbhe naka with HDPE Pipeline (awarded to – M/s VUB Engineering Pvt. Ltd.)	-	1,280 RMT = 1.28 Kms
4.	B-1/15 & D-2 for 2016-2017	TTC Industrial area. UDDS. Replacement of pumping main deom collection sump at Rabale to BPT and Gravity mains from BPT to sump at Pawane (awarded to- M/s KDC-BHAGWATI(JV))	-	5,900 RMT = 5.9 Kms
5.	B-1/7 for 2018-2019	TTC Industrial area. M & R to UDDS. Providing collection system pipeline to Plot no. A-	A block	315 RMT = 0.315 Kms

		606 & A-607 in A block with HDPE pipeline (awarded to- M/s Orion Group)		
6.	B-1/15 for 2018-19	(Awarded to- M/s B. J. Samrut)	EL blocks	903.8 RMT = 0.903.8 Kms
Total				**88.2448 Kms**

Compilation of on-going works w.r.t. construction/ replacement/ remodelling of existing drainage pipeline Network in TTC as per the information submitted by MIDC

Sl. No.	Work order/ Agreement no.	Name of work	Concerned MIDC Area in which work executed	Length of Pipeline network constructed/ replaced/ remodelled (in RMT) based on completion certificate
1.	B-2/2 for 2020-2021	TTC Industrial. Area. UDDS. Replacement of gravity disposal main from common effluent treatment plant at Pawane to Khairne Lake point with 1000 mm dia HDPE pipeline (awarded to M/s Zad Enterprises)	-	2,030 RMT = 2.03 Kms
2.	C-1 for 2021-22	DD-TTC & Kalwa. TTC Indl. Area. Construction of concrete roads with RCC built up gutters, streetlights & allied work at A block & EL block (awarded to – M/s Ajwani Infrastructure Pvt. Ltd)	A block & EL blocks	37,000 RMT = 37 Kms
3.	B-2/68 for 2023-24	TTC Industrial area. Roads. Improvement to infrastructure facilities. Construction of balance road with RCC built-up gutters, streetlights & allied work in A, EL, R, C & K blocks (awarded to – M/s Ajwani Infrastructure Pvt. Ltd)	A, EL, R, C & K blocks	5,500 RMT = 5.5 Kms
4.	B-2/14 for 2023-2024	TTC Industrial area. UDDS. Remodelling of effluent collection pipeline network in A and R blocks in TTC industrial area (awarded to M/s Bhagwati-Padmavati(JV))	-	11,440 RMT = 11.44 Kms
Total				**55.970 Kms**

JOINT INSPECTION REPORT

Subject : Joint Inspection of "C & D" effluent collection network carried out by Officials from MIDC Drainage Section, Mahape & CETP Thane Belapur Assn.

Ref : Executive Engineer, MIDC letter No. EE / MHP / IFMS / D42319 / of 18 dated 12/10/2018.

Date & Time of Inspection: Tuesday, 27th November, 2018 at 15.30 pm to 17.30 pm.

Purpose of Joint Inspection : Handing over of effluent collection network in "C & D " Blocks of TTC Industrial Area, to MIDC.

Regarding handing over of effluent collection network in "C & D "Blocks, It is to put forth that,

1) TTC Industrial area is divided into K, R, A, C, D and EL blocks. MIDC has provided underground effluent collection and disposal system for A, C, D, EL and R blocks phase wise in the period 1983 to 2015. The drainage collection system in C & D block was commissioned in 1987, R block in 1996, A block in 1997, EL block in 1998 and K block recently in 2015. The scheme consists of around 113 Km length of pipeline network, 4 nos of collection sumps with pump houses in K block, R block, C block and D block respectively. The treated effluent is disposed through about 7 Km length of pipeline into creek at Vashi at a point approved by CWPRS.
2) M/s. CETP (Thane Belapur) Association was formed in 1994. As per the Bi-Partite agreement between MIDC and CETP Association executed in 25.01.1995, all facilities provided by MIDC under effluent collection system were to be handed over to CETP for further operation and maintenance to ensure that the total management of collection, treatment and disposal are in hands of one agency.
3) The Association commissioned 12 MLD CETP in November 1997. At the time of commissioning of CETP, the collection system in 'C' & 'D' block and part 'A' block were connected to CETP. In accordance with the agreement, collection system of length about 32 Km along with sump & pump house at 'C' & 'D block were handed over to CETP Association in January 1998. Subsequently the balance collection system in 'R', 'EL' and part of 'A' block was commissioned and connected to CETP, however the possession of the system was not handed over to CETP and operation & maintenance of about 74 Km length of pipeline in 'R' 'A' & 'EL' blocks along with sump & pump house at ' R ' block has continued with MIDC.
4) The Member Secretary, MPCB during meeting on "Improvement Of Comprehensive Environment Pollution Index For Industrial Cluster Of Navi Mumbai" at MPCB, HQ, Sion, Mumbai on 09/02/2016 had noted that CETP should handover the O & M of drainage collection system in "c" & "D" block back to MIDC and CETP should involve themselves in matter of effluent treatment only. In view of that MIDC resume possession of the effluent collection system in "C" and "D" & part of "A" blocks and "D" sump along with pump house from CETP Association.
5) MIDC has also started collecting drainage cess from Aug 2016.

6) Competent Authority also approved the request of CETP for reimbursement of expenditure incurred for Repairs & Maintenance of drainage collection system in C & D Blocks over the period from January 1998 to March 2016 subject to condition MIDC resume possession of the collection system handed over to CETP. MIDC has also agreed to reimburse to CETP, the actual expenditure incurred for Repairs & Maintenance of drainage system in C & D Blocks and part W for the period from April- 2016 till the date of collection network is taken over from CETP.

Accordingly, As per the above letter received from Executive Engineer, MIDC, Joint inspection was carried out on Tuesday, 27th November, 2018 at around 15.30 pm to 17 30 pm by officials from MIDC Drainage Section, Mahape and CETP (Thane - Belapur) Association.

During the inspection, the officials assessed network condition, network direction / route, and the gravity flow was checked. The RCC chambers constructed by CETP at the trouble shooting prime areas all along Alok nallah for the textiles flow and below the Alok flyover to control over flow was seen and appreciated. Total area from Khairane MIDC, Pawane MIDC "C" block, through Indira Nagar to "D" block Turbhe to Sanpada, Shirvane & Nerul area was visited and ascertained the working of the network. It was observed that CETP has carried out repair / replacement of damaged pipelines & Chambers and maintained the network in a good condition without disturbing the gravity flow. During the Inspection, all the nallhas falling in the C & D Block area were also checked for leakages and no damage caused to the network or leakages from the pipeline network was observed.

However, the following network points were highlighted for periodical choke ups and occasional over flows :

1. Area Near M/s. Mazda Colours Pvt. Ltd. – Plot No. D-51
2. Area Near M/s. Punyanagari – Vartahar Press – Plot No. D-222/1A

Observation & Conclusion : On completing the network Inspection in detail, It is established that the overall effluent collection network spread over in the " C & D " block is in good condition to take over.

Regards,

S. R. Sawale
(Dy. Engineer–Drainage Section, MIDC, Mahape.)

R. S. Diwadkar (General Manager)
CETP (Thane Belapur) Association

Bharat Chaskar (Executive- Operations)
CETP (Thane Belapur) Association

Date : 27/11/2018

ANNEXURE-C

Handover of Sanpada Pumping Station (D- Block)
Operation & Maintenance Activity/ Electrical Machineries

Date of Handover:- 16th September, 2022.

Background :

This is with reference to your office letter No. DE&PA-IV/MHP/IFMS/A-26391/ of 19 dated 18/01/2019, written to us informing about MIDC taking over of C & D Block underground effluent pipeline network Including Sanpada pumping station with effect from 1st January, 2019. At that time MIDC took over the C & D Block underground effluent pipeline & chambers network.

Operation & Maintenance Activities, Electrical Machineries:

As per the Bi-partite Agreement dated 25th January, 1995 with CETP & MIDC. We are handovering the O & M Activities with the upgraded Electrical Machineries to MIDC as details given below w.e.f from 16th September of 2022.

Electrical Machineries:-

Sr. No.	Description	Make	Quantity
1.	40 HP Submersible Pump with Derrick & Platform	Sehra	1 No.
2.	50 HP Vertical Centrifugal Pump (Not Working)	Local	1 No.
3.	2 HP Dewatering Submersible Pump	Sehra	1 No.
4.	3 Tons Chain Pully Block with the Trolly	Prabhat	1 No.
5.	160 KVA Transformer (1 Standby Not Working) & 1 in Operation.	Kanchan	1 + 1 No.
6.	Metering Kiosk	MSEDCL	1 No.
7.	RMU System	Kedarling	1 No.
8.	L. T. Electrical Control Panel	Actuate Controls	1 No.

We, therefore request your good office to kindly check the above mentioned details and confirm the same by signing this letter at receiver's signature head.

For CETP (Thane - Belapur) Association

15/9/22

Mr. Jeetendra R. Adhav
Dy. General Manager

CETP Navi Mumbai (Thane-Belapur) Association

Acceptance by MIDC

15th Sep 2022

Mr. S. C. Gour
Dy. Engineer Electrical / Mechanical
MIDC, Mahape, Navi Mumbai.

Deputy Engineer
MIDC E & M Sub-Division
MAHAPE

Handover of Sanpada Pumping Station (D- Block)
LAND & BUILDING STRUCTURES

Date of Handover:- 16th September, 2022.

Background :

This is with reference to your office letter No. DE&PA-IV/MHP/IFMS/A-26391/ of 19 dated 18/01/2019, written to us informing about MIDC taking over of C & D Block underground effluent pipeline network Including Sanpada pumping station with effect from 1st January, 2019. At that time MIDC took over the C & D Block underground effluent pipeline & chambers network.

Land and Building:

As per the Bi-partite Agreement dated 25th January, 1995 with CETP & MIDC. We are hand overing the Land & Building Structures.

Sump and Pump House at "D" Block.

Open Plot with existing Sump and Pump House	-	5114 m2
R.C.C Pump House with MS shed having Built up Area	-	108 m2
Sump Capacity	-	1720 m3
Prefabricated Shed with frame & Rooftop of Pump House		

We, therefore request your good office to kindly check the above-mentioned details and confirm the same by signing this letter at receiver's signature head.

For CETP (Thane - Belapur) Association

15/9/22

Mr. Jeetendra R. Adhav
Dy. General Manager

CETP Navi Mumbai (Thane-Belapur) Association

Acceptance by MIDC

16/09/2022

Mr. Sanjiv Sawale
Dy. Engineer Drainage Sub Division
MIDC, Mahape, Navi Mumbai.

Deputy Engineer & PA - IV
MIDC, Drainage Sub - Dvn.
Mahape, Navi Mumbai

ANNEXURE-D

S. No.	Industry Name and Address	Category	OCEMS data transmitted to CPCB server	Parameters
1.	M/s. Sandoz Private Ltd., Plot Nos. D-31 & D-32 MIDC TTC Industrial Area Turbhe Turbhe, Navi Mumbai.	Pharmaceuticals	Closed, as per MPCB records	
2.	M/s. Hemmo Pharmaceuticals Private Limited (Now known as M/s. Piramal Pharma Limited.), C-43, M I D C , T T C Industrial Area, Turbhe, Off Thane - Belapur Road, Dist Thane	Pharmaceuticals	Yes	pH, TSS, BOD, COD and Flow
3.	M/s. Modepro India Pvt. Ltd., Plot No. D-16/2, TTC MIDC, Navi Mumbai	Pharmaceuticals	Closed, as per MPCB records	
4.	M/s. RPG Life Sciences Ltd., Plot No. 25/25A, Thane Belapur Road, Pawne TTC Industrial Area, Navi Mumbai, Maharashtra.	Pharmaceuticals	Yes	pH, TSS, BOD, COD and Flow
5.	M/s. Zydus Takeda Health Care Ltd., Plot No. C-4, TTC, MIDC, Thane-Belapur Road,, Navi Mumbai Maharashtra	Pharmaceuticals	Yes	pH, TSS, BOD, COD and Flow
6.	M/s. SI Group India Ltd. (Now known as Gramercy Trade Industries Private Limited.), Plot No D-2/1, TTC Industrial Area, Thane Belapur Road, Navi Mumbai, Thane	Petrochemical	Yes	PM, CO, NO_x, SO_2 pH, TSS, BOD and COD
7.	M/s. Pfizer Ltd., Plot No. 16, TTC MIDC, Turbhe, Navi Mumbai	Pharmaceuticals	Closed, as per MPCB records	
8.	M/s. Reliance Life Sciences, Plot No.-282, TTC Industrial Estate, MIDC Rabale, Navi Mumbai	Pharmaceuticals	No	pH, TSS, BOD, COD and Flow
9.	M/s. Common Effluent Treatment Plant (Thane- Belapur) Association, Plot No.P-60, Khairane MIDC, Thane Belapur Road, Navi Mumbai	CETP	Yes	pH, Temp, TSS, BOD, COD, NH_3-N and Flow

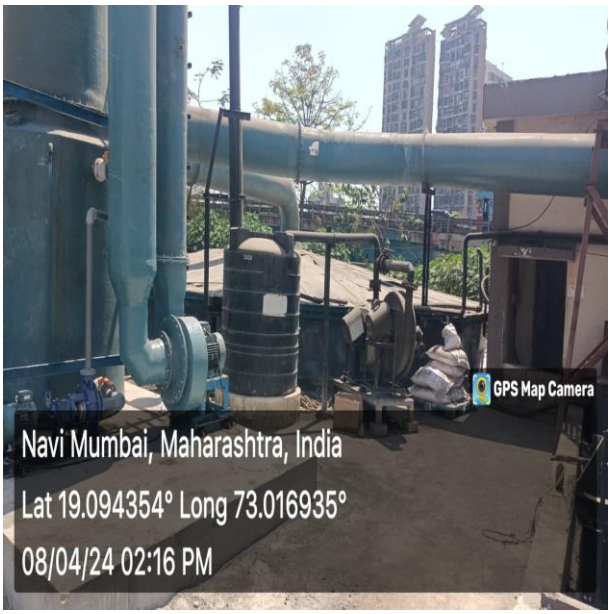
ANNEXURE-E

Photograph: Remodeling of existing stoneware pipeline to HDPE pipeline.

Photograph: Remodeling of existing stoneware pipeline to HDPE pipeline.

Photograph: Commissioning of new in-line alkali dosing system to the equalization tank.

Photograph: Capping of collection tank of CETP.



Photograph: Collection tank vents connected to two stage scrubber.

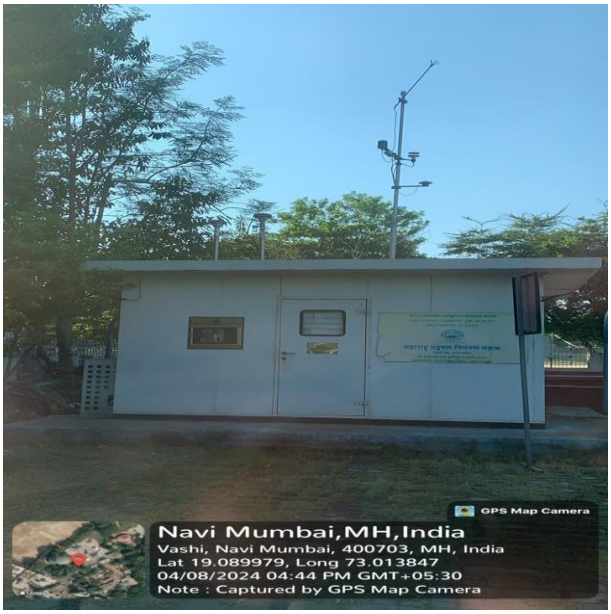
Photograph: Commissioning of slow mixing impeller at the clariflocculator.

Photograph: Commissioning of new buffer clariflocculator tank of 2,400 m3 capacity.

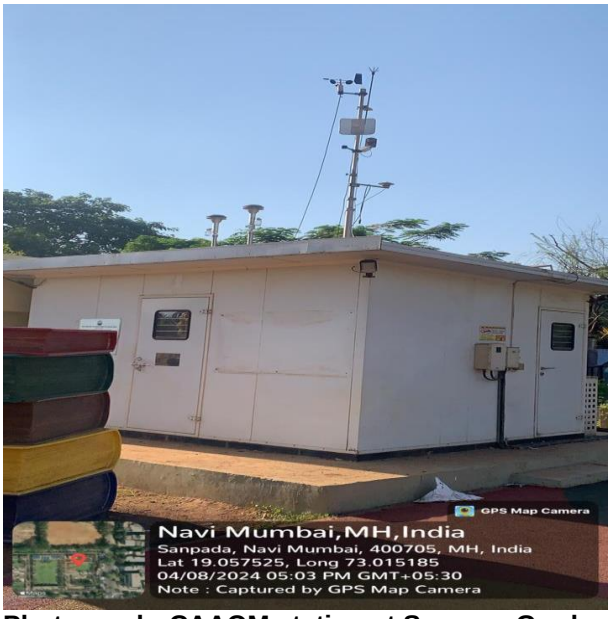
Photograph: Commissioning of new 10 KL pilot plant.

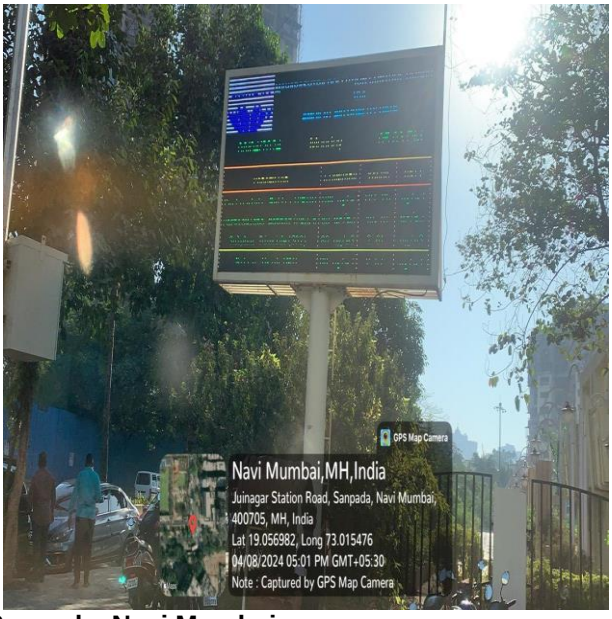
Photograph: Commissioning of new updraft type surface aerators at bio-reactor.

Photograph: CAAQM station at Nirmal Bhavan, Mahape, Navi Mumbai



Photograph: CAAQM station at Tortoise Amusement Park, Kopari Gaon, Navi Mumbai





Photograph: CAAQM station at Sensory Garden, Sanpada, Navi Mumbai

Photograph: CAAQM station at Fire Station, CBD Belapur, Navi Mumbai

Photograph: CAAQM station at Sewage Treatment Plant, Nerul, Navi Mumbai

Photograph: Weighing bridge at entrance of MSW facility.

Photograph: Pre-sorting area for dry waste.

Photograph: Trommel screen for dry waste processing.

Photograph: Recovered material bins from processing of dry waste.

Photograph: Compost processing.

Photograph: Compost prepared from wet waste.

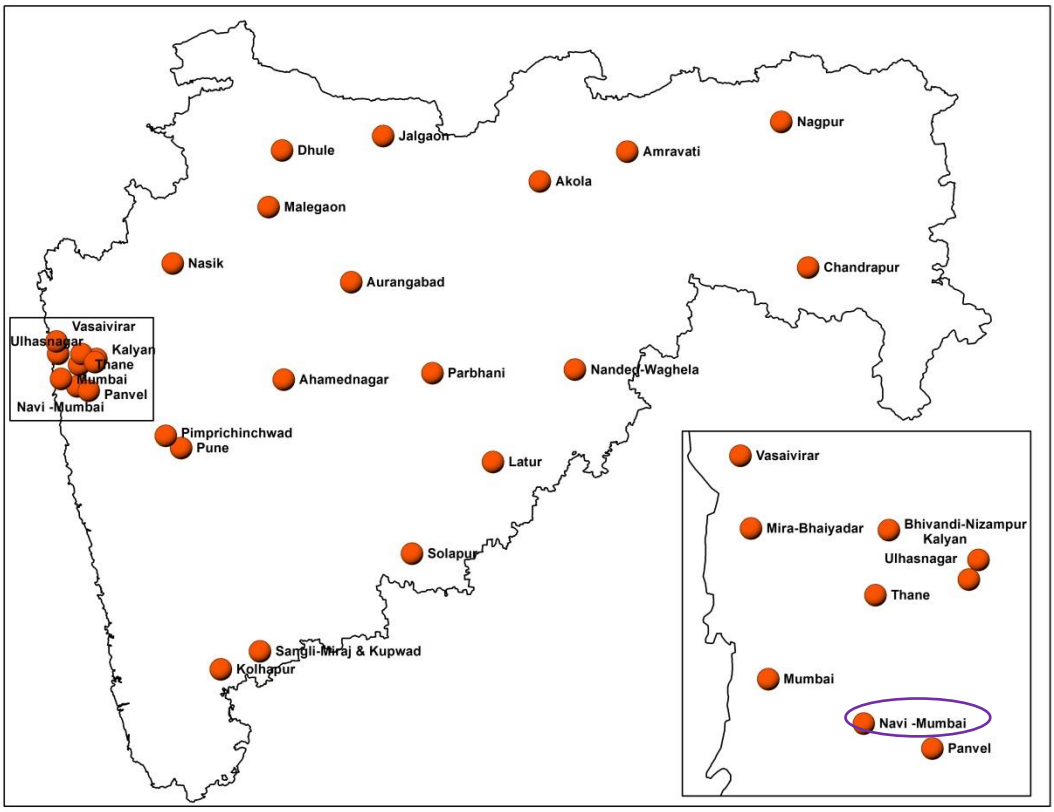
Photograph: Leachate treatment facility.

Photograph: Leachate treatment facility.

ANNEXURE-F

Noise Mapping in 27 Municipal Corporations in the State of Maharashtra

Navi-Mumbai City



Sponsor

Maharashtra Pollution Control Board, Mumbai

CSIR- National Environmental Engineering Research Institute
Nagpur – 440 020

July 2018

Foreword

Hon'ble High Court, Bombay has directed Government of Maharashtra to undertake exercise of noise mapping which will help all the concerned authorities to discharge their duties under Sub-Rule (4) of Rule (3) of Noise Pollution, Regulation and control, Rules 2000, amended in 2010. Maharashtra Pollution Control Board (MPCB) has undertaken the task to carry out noise mapping of 27 municipal corporations in the state of Maharashtra viz. ***Ahmednagar, Akola, Amravati, Aurangabad, Bhiwandi-Nizampur, Chandrapur, Dhule, Jalgaon, Kalyan-Dombivli, Kolhapur, Latur, Malegaon, Mira-Bhayandar, Mumbai, Nagpur, Nanded-Waghala, Nashik, Navi–Mumbai, Panvel, Parbhani, Pimpri-Chinchwad, Pune, Sangli Miraj & Kupwad, Solapur, Thane, Ulhasnagar, Vasai-Virar***. CSIR-National Environmental Engineering Research Institute (NEERI), Nagpur has undertaken this exercise with MPCB and their team across 27 cities.

This report presents the details of the noise pollution monitoring and mapping. The location and number of monitoring points was decided based on the land use pattern, noise generating sources and geographical area of the municipal corporation. The monitoring was carried out continuously for 48 hours during working (Day and Night) and non-working (Day and Night) days at each monitoring location. An innovative approach was also used wherein a cycle based noise monitoring was also carried out in 10 major cities of Maharashtra (***Aurangabad, Kalyan-Dombivli, Kolhapur, Mumbai, Nagpur, Navi-Mumbai, Pune, Solapur and Thane***) to cover more number of monitoring locations and better representation of noise pollution in the city. Strategic noise maps have been generated using Geographical Information System for identification of hot spots in the city. It is observed that noise pollution has now become a problem in almost all the cities and proper attention towards mitigation of noise pollution is required. Looking to this perspective and on the basis of ground observations, the report also presents recommendations and suggestive measures to reduce noise pollution in the cities.

The institute wishes to place on record the cooperation and very useful scientific inputs by the Member Secretary Dr. P. Anbalagan, Joint Director (Air) Dr. V. M. Motghare and all Regional Officers (ROs), Sub-Regional Officers (SROs), Field Officers (FOs) of MPCB, Municipal Commissioners of Municipal Corporations and Councils, City Police and Traffic Police for successfully carrying out the monitoring activity in the 27 cities of Maharashtra and completing this study.

(Rakesh Kumar)

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6.13	(b) Spatial and Strategic Noise Map of Navi-Mumbai City (Non-working Day)	**31**

ABBREVIATIONS

CNPCC	City Noise Pollution Control Committee
CPCB	Central Pollution Control Board
CSIR	Council of Scientific and Industrial Research
dB(A)	Measurement of sound in Decibel using 'A' weighting
GIS	Geographic Information System
Hz	Hertz
L_{eq}	Equivalent Continuous Sound Pressure Level
L_p	Sound Pressure Level
LULC	Land use Land Cover
MH	Maharashtra
MIDC	Maharashtra Industrial Development Corporation
MPCB	Maharashtra Pollution Control Board
MRSAC	Maharashtra Remote Sensing Application Centre
NEERI	National Environmental Engineering Research Institute
NGO	Non-governmental organizations
NH	National Highway
NM	Navi-Mumbai
SH	State Highway
TOR	Terms of Reference

1. Introduction

The pressure variation in a medium; such as air, originates sound. The fluctuations of pressure above and below the atmospheric pressure are sensed by human ear and thus we hear the sound. Though sound is an integral part of our life, the undesirable and unwanted sound is termed as noise because it negatively affects the quality of life. Human sensitivity to noise is variable and the characterization of sound as noise is often subjective and depends on the individual being exposed. Noise can cause different emotions among the receiver but the physiological impacts are broadly similar. Adverse effects associated with the exposure to noise can range from sleep disturbance, restlessness and annoyance to hearing impairment and even cardiovascular diseases. Rapid urbanization and increased human settlement in a restricted space causes a much noisier environment. People residing in cities as well as changing rural landscapes are now experiencing the detrimental effects of noise pollution.

1.1 Project Description

Noise pollution in metropolitan cities of the Maharashtra state has increased due to varied sources such as road traffic, air craft, rail networking, construction noise etc. Hon'ble High Court, Bombay has directed State Government to undertake exercise of Noise Mapping which will help all the concerned authorities to discharge their duties under Sub-Rule (4) of Rule 3 of Noise Pollution (Regulation and Control) Rules, 2000 amended in 2010. Sub-rule (4) of Rule 3 states: "Development authorities, local bodies and other concerned authorities while planning developmental activity or carrying out functions relating to town and country planning shall take into consideration all aspects of noise pollution as a parameter of quality of life to avoid noise menace and to achieve the objective of maintaining the ambient air quality standards in respect of noise." In this regard, Maharashtra Pollution Control Board (MPCB) has directed Municipal Commissioners of the cities (**Ahmednagar, Akola, Amravati, Aurangabad, Bhiwandi-Nizampur, Chandrapur, Dhule, Jalgaon, Kalyan-Dombivli, Kolhapur, Latur, Malegaon, Mira-Bhayandar, Mumbai, Nagpur, Nanded-Waghala, Nashik, Navi–Mumbai, Panvel, Parbhani, Pimpri-Chinchwad, Pune, Sangli Miraj & Kupwad, Solapur, Thane, Ulhasnagar, Vasai-Virar**) and approached CSIR-NEERI to submit the detailed Terms of Reference (TOR) for completion of Noise Mapping of 27 city municipal corporations.The selected 27 cities are depicted in **Figure 1.1**.

1.2 Relevant Project Information

As per suggestion from **Hon'ble Additional Chief Secretary** (Environment), CSIR-NEERI organized zone wise workshops on **Noise Pollution and its adverse effects on Human Health and Environment** to sensitize the issue amongst officials of local bodies and MPCB.

The workshops have been conducted in four zones, i.e. in Mumbai, Nagpur, Pune and Aurangabad. The details of the zone wise workshop are given in **Table 1.1**. After discussing with the officials of Municipal Corporations and MPCB the number of locations for noise monitoring was finalized. In the workshops, the Municipal officials were requested to provide with the data required to develop database for individual cities. Based on the data and information received from the Municipal Corporations, database was developed for individual cities. For each city Base Map, Ward Map, Land Use Land Cover (LULC) and LULC Statistics were created. The Base map depicts the Railway Network, National Highway, State Highway, Major & Minor Roads spread through the entire city. Also, the tentative noise monitoring locations were identified.

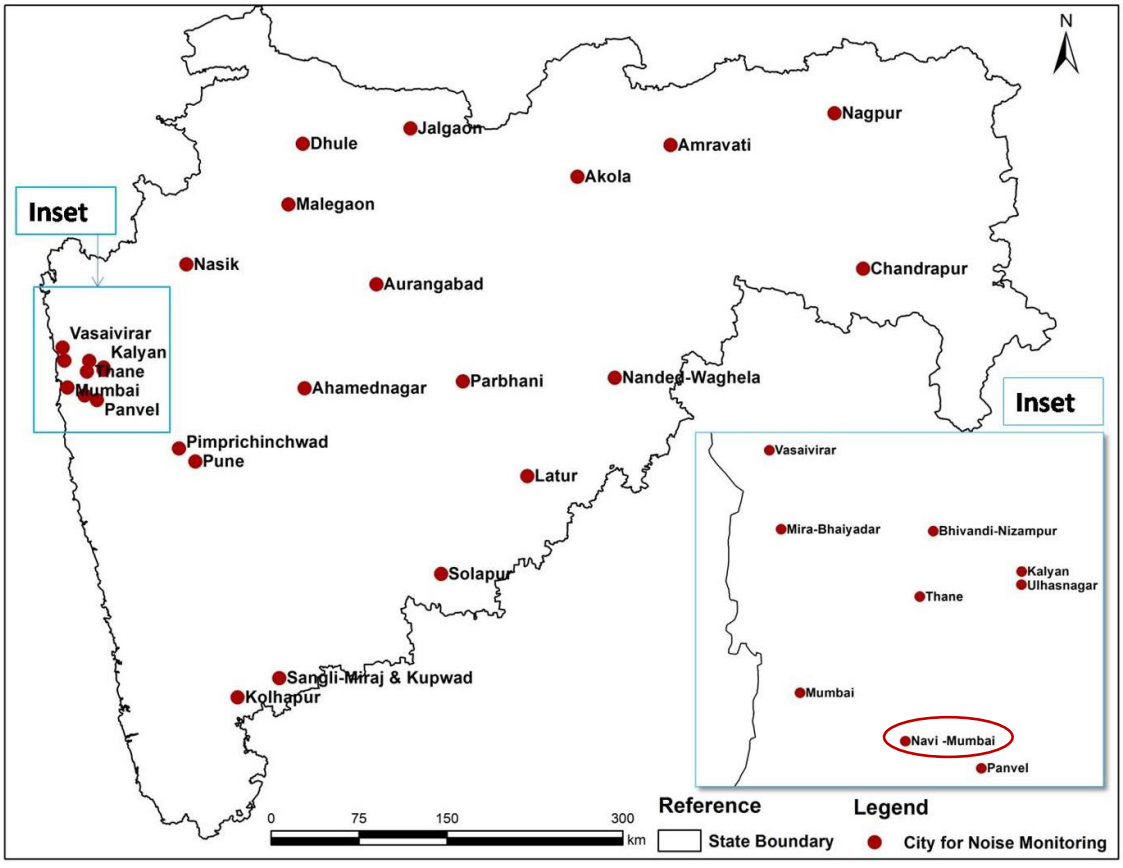


Figure 1.1 Noise Monitoring in 27 Municipal Corporations of Maharashtra

Table 1.1 Noise pollution Workshop at Navi-mumbai

Workshop	Zone I	Cities
Details	Location: Mumbai Date: 10/03/2017 Number of Participants: 33	1. Mumbai 2. **Navi-Mumbai** 3. Kalyan-Dombivli 4. Panvel 5. Vasai-Virar 6. Mira Bhayandar 7. Thane 8. Bhiwandi-Nizampur 9. Ulhasnagar

2. Sound

Sound is a result of pressure variations in a medium - typically air. Pressure fluctuations above and below the atmospheric pressure are detected by human ear and this results in the sensation of hearing. All sound wave have three fundamental characteristics; frequency, amplitude and wavelength.

Frequency of a wave, 'f', is the number of oscillations per second or cycles per second and commonly measured by an unit called **Hertz**, abbreviated as **Hz**. The time taken to complete one oscillation is called the **Period** '**T**' and $f = 1/T$ Hz.

The **Wavelength**, '**λ**' is the distance travelled by a wave during one oscillation. **Amplitude** is the fluctuation or displacement of sound wave from its mean value and this amplitude of sound or sound amplitude is experienced as the loudness of sound.

Average healthy human ear can detect sound from about 20 Hz – 20 kHz. Certain situations require an analysis of the frequency content of a noise instead of overall noise level. Frequency information is displayed in a graph called frequency spectrum. It shows amplitude of different frequencies content in a sound source.

Sound is commonly measured in **decibel** [**dB**] scale. The decibel scale is logarithmic thus reduces a large range of information down to manageable data. The sound pressure range varies from 20μPa- 100 Pa and it can be expressed on a scale based on the log of the ratio of measured sound pressure and a reference standard pressure. The sound pressure level (L_p) is expressed as,

$$L_P = 10\, log_{10} \left(\frac{P}{P_0}\right)^2 [\text{dB}]$$

P is the measure quantity of sound pressure,

P_0 is the reference standard quantity of sound pressure (20×10^{-6} Pa)

The reference sound pressure corresponds to the lowest sound pressure a healthy human ear can detect at 1000 Hz.

The human ear response to noise depends upon the frequency of the sound. A sound level meter theoretically has a flat response, in other words it responds exactly the same at different frequencies. Unlike a sound level meter, the human ear responds differently at different frequencies, so a weighting, or filter, can be used so that the meter responds more like the human ear. A weighted sound level provides an acceptable correlation with human response to different sound source.

The most commonly used weighting is referred to as the '**A**' weighting which tries to replicate the performance of human ear. '**C**' weighting is used while measuring noise peaks and '**B**' filter is between **A** and **C**. **B** and **C** weightings are seldom used. '**Z**' filter indicates no weighting was applied. Noise level is measured in fast response.

It means that fast time constant has been used which is 0.125 sec (125 milliseconds). Whereas, slow response 1 sec time constant is used.

3. Noise Pollution

Noise is a subset of sound. Environmental noise is an unwanted sound created by human activities that is considered harmful or detrimental to human health and quality of life. Characterization of sound as noise is often subjective and varies across individuals. Most common sources of noise pollution are railway and road traffic, construction activities, airplanes and helicopters and industrial machinery. Additional noise pollution is contributed by office machines, sirens, power tools, and other equipment. Intermittent noise, that stops and starts, is considered to be more annoying than continuous noise. Significant increase in the number of vehicles, expansion of road network, industrialization and urbanization has caused serious noise pollution problems in last few decades in major Indian cities.

Adverse effects associated with exposure to environmental noise includes, annoyance and aggression, hypertension, high stress levels, tinnitus, hearing impairment, sleep disturbances and even cardiovascular disorders. Exposure to moderately high noise levels during a single 8 hour period causes a rise in blood pressure by 5-10 points. Subsequently increase in stress

leads to increased incidence of coronary artery diseases. Also physiological features like breathing amplitude, heart-beat rate, pulse rate, blood cholesterol are affected.

Noise has the potential to affect wildlife in a variety of ways, varying between different types of animals. Migration of birds from a noisy habitat is a common phenomenon. Other effects of noise pollution include change in food habits and mating behaviour in animals.

4. Noise Pollution (Regulation and Control) Rules, 2000, Amendment 2010

Noise has been recognized as ambient air pollutant. Increasing ambient noise level in public places from various sources, industry activity, construction activity, generators sets, public address systems, vehicular horns and aircraft noise have detrimental effects on human health and also the animal welfare. Therefore, it is considered necessary to regulate and control of noise generating sources with the objective of maintaining the ambient air quality standards in respect of noise. Standards in this regard are laid down under The Environment (Protection) Act, 1986 (and rules made there under) and under the Model Rules of the Factories Act, 1948 for occupational health and safety purposes. The Central Pollution Control Board constituted a National Committee of Experts on Noise Pollution Control. The Committee recommended noise standards for ambient air and for automobiles, domestic appliances and constructions equipment, which were later notified under The Environment (Protection) Act, 1986. The limits of ambient noise levels under different category are given in **Table 4.1** as per Noise Pollution (Regulation and Control) Rules, 2000, Amended in 2010 **(Annexure II).**

Table 4.1 Ambient noise level as per Noise Pollution (Regulation and Control) Rules, 2000, Amendment 2010

Area Code	Category of Area / Zone	Limit in dB(A) L_{eq}	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Note:

1. Day time is reckoned from **6 A.M.** to **10 P.M.**
2. Night time is reckoned in from **10 P.M.** to **6 A.M.**
3. Silence zone is referred as areas within 100 meters around premises such as hospitals, educational institutions and courts. The Silence zones are to be declared by the Competent Authority.
4. Use of vehicular horns, loudspeakers and bursting of crackers shall be banned in these zones.
5. Mixed categories of areas should be declared as one of the four above mentioned categories by the Competent Authority and the corresponding standards shall apply.

Noise Pollution (Regulation and Control) Rules, 2000, Amendment 2017

As per the amendment made in August 2017, these rules may be called the Noise Pollution (Regulation and Control) Amendment Rules, 2017 **(Annexure III).** "The State Government may subject to such terms and conditions as are necessary to reduce noise pollution, permit use of loud speakers or public address systems and the like during night hours (between 10.00 p.m. to 12.00 mid night) on or during any cultural, religious or festive occasion of a limited duration not exceeding fifteen days in all during a calendar year and the concerned State Government or District Authority in respect of its jurisdiction as authorised by the concerned State Government shall generally specify in advance, the number and particulars of the days on which such exemption should be operative. For the purposes of this sub-rule, the expressions-

(i) "festive occasion'' shall include any National function or State function as notified by the Central Government or State Government; and

(ii) "National function or State function shall include: (A) Republic Day; (B) Independence Day; (C) State Day; or (D) such other day as notified by the 'Central Government' or the 'State Government.'

5. Methodology

The methodology adopted for ambient noise monitoring is divided in the four sections as discussed below.

5.1 Study Area and Noise Monitoring Locations

The study area is selected according to the municipal boundary provided by the corresponding Municipal Corporations. The number of monitoring locations in Navi-mumbai city is decided according to the area of city. Total area of the Navi- mumbai city is 107.6 km^2 and the number of noise monitoring locations is 36. The locations for noise monitoring is strategically identified with the help of base map (which includes the railway network, national and state highways, also the major and minor roads) and land use pattern of the city. The locations are identified according to noise sources (aircraft, traffic, railway, industrial, commercial, construction activity) and the receivers (residential and silence zones) in the city. The locations are spatially distributed within the area of the city to ensure proper representation of noise levels throughout the city. The locations are identified and finalized in consultation with officials of Navi-Mumbai Municipal Corporation and MPCB.

5.2 Noise Monitoring

In order to assess the ambient noise level in the environment, noise monitoring has been carried out in selected locations for 48 hours, during working and non-working days. As noise standards for ambient noise level during day and night are different; hence noise levels are measured during day time (06:00 hrs. to 22:00 hrs.) and night time (22:00 hrs. to 06:00 hrs.) as specified in Noise Pollution Rules.

The noise measurements are carried out using calibrated Sound Level Meters with fast response mode keeping in view the quickly changing nature of noise levels. 'A' weighting is applied for measuring the sound level as it replicates the response of human ear to noise and the measuring unit is denoted as dB (A). Data is logged at an interval of 1 second.

The sound level meter was mounted on tripod stand and wind-ball was used to minimize the effect of wind. The instrument was mounted at a height of 1.5 meters from the ground. The microphone on the sound level meter should generally be positioned at least 3 meters away from the hard surface or walls to minimize the effect of reflections.

5.3 Analysis of Noise levels

The monitored noise levels at the identified locations are analysed and the corresponding L_{eq}, L_{max}, L_{min}, L_{10}, L_{50}, L_{90} in dB (A) during day and night time are calculated.

The equivalent continuous sound level (**L_{eq}**) is the sound pressure level of a steady sound that has, over a given period, the same energy as a fluctuating sound. It is calculated using following equation:

$$L_{eq,T} = 10log\left(\frac{1}{n}\sum_{i=1}^{n} 10^{\left(\frac{L_i}{10}\right)}\right)$$

Where, L_i = levels observed at n equally spaced times during interval T.

L_{max}: The maximum Sound Pressure Level (SPL) value measured during the duration of monitoring.

L_{min}: The minimum Sound Pressure Level (SPL) value measured during the duration of monitoring.

L_{10}: The sound level that exceeded during 10% of the measuring time in dB (A).

L_{50}: The sound level that exceeded during 50% of the measuring time in dB (A)

L_{90}: The sound level that exceeded during 90% of the measuring time in dB (A).

The sound level data is compared with Ambient Noise Standards. The extent of violation with respect to prescribed standards is also assessed.

5.4 Noise Mapping

In order to develop a noise map of the city, digital information of the city, mapping of GPS locations along with monitored noise levels are required. This will help in prediction of noise level in the city through spatial modelling based on limited number of sample points. Based on the spatial modelling, maps of noise level and noise risk zones in the city will also be generated. Noise maps showing noise levels at different locations of the city was generated for each individual city with the help of latest state-of-the-art GIS software. These maps are helpful to identify noise pollution affected areas and this would be instrumental for the decision makers to formulate legislative measures for noise abatement.

6. Noise Monitoring and Mapping

Background: Navi Mumbai is a planned townshipand across the Thane Creek that separates it from Mumbai City. It lies in Konkan Division of Maharashtra state. Considered as an entry point for Mumbai, Navi Mumbai is spread over two districts of Thane and Raigad. Part of the Mumbai Metropolitan Region, this city has developed exponentially in terms of transportation, business and infrastructure. Established in 1971, City and Industrial Development Corporation (CIDCO) undertakes the administration of urban and rural township of Navi Mumbai City. Navi Mumbai Special Economic Zone (SEZ) provides commercial growth of city and potential employment along with the plans of upcoming Navi Mumbai International Airport in Kopar – Panvel area. The city is dynamic and eccentric like Mumbai and has far more potential in terms of infrastructure than the satiated compact status of Mumbai.

Geography: Navi-Mumbai city is located in Konkan division of Maharashtra at 19° 01’ N latitude and 73° 01’ E longitude. The city is spread over a geographical area of 344 sq. km and is elevated at 8 meters from mean sea level. Western Ghats run parallel along the eastern side which leads to heavier monsoon. Navi Mumbai is located along Thane Creek near Arabian Sea.

Demography: As per census report of 2011, the population of Navi Mumbai was 1,120,547 with a female and male population of 510,487 and 610,060 respectively. The average literacy rate of Navi Mumbai is 89.62 %.

Climate and Rainfall: The climate of Navi Mumbai is tropical. Summers season begins from March and ends around May with average maximum temperature being 33 °C. Winter season is pleasant and is observed from November to January with average minimum temperature being 20 °C. Located on the banks of Thane Creek that further join Arabian Sea, the humidity is as high as 75% and the average annual rainfall is 3044 mm which is higher than that of Mumbai.

Transportation: Navi Mumbai has an excellent transport facilities that connects it to other major cities across state and country effectively via road, rail and in future, via air. Roadways consist of major road of Sion – Panvel Highway which connects Mumbai to Navi Mumbai through eastern suburban area. This route further extends and turns into Mumbai Pune Expressway from Panvel. Navi Mumbai is connected to Thane district via the route of Airoli

and Dighe. Through this route, Thane city and western suburbs of Mumbai can be accessed. Navi Mumbai is well connected to Mumbai and Thane city via Harbor and Central-Trans Harbor railway routes. Navi Mumbai International Airport is under construction while nearest airport is that of Chhatrapati Shivaji International Airport, Mumbai (30 km). Navi Mumbai also has Jawaharlal Nehru Port in Uran which is the largest container terminal in India.

6.1 Noise Monitoring

Noise monitoring has been carried out in 36 spatially distributed locations in Navi-Mumbai. Each location is assigned with a unique ID starting from NM1 to NM36. A GIS based map showing the noise monitoring locations is developed considering noise generating sources and receivers. Each category is assigned a particular colour and displayed in the map which differentiates one category from the other. The base map of the study area and location of monitoring points are shown in **Figure 6.1 and 6.2** respectively.

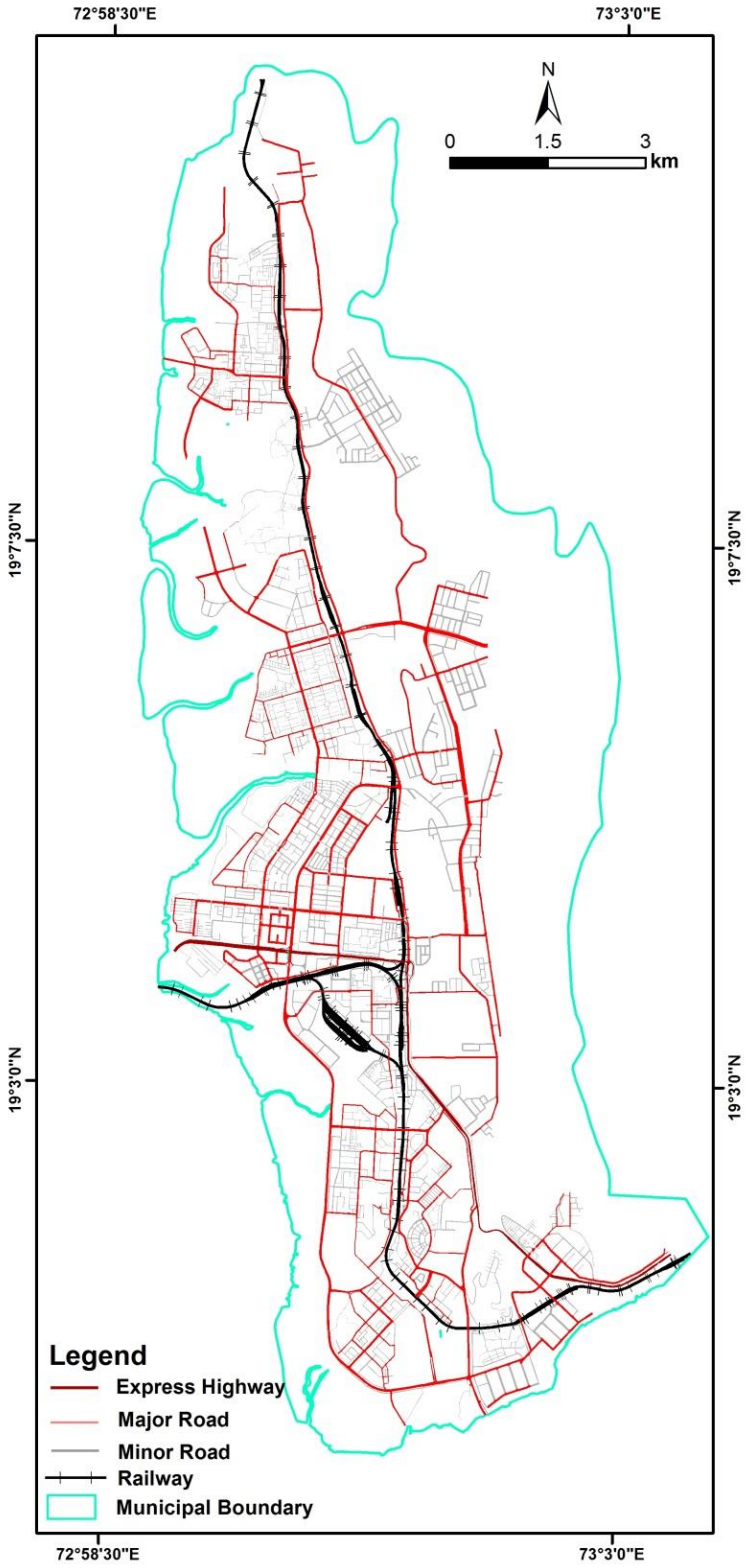


Figure 6.1 Base map of the study area (Navi-Mumbai City)

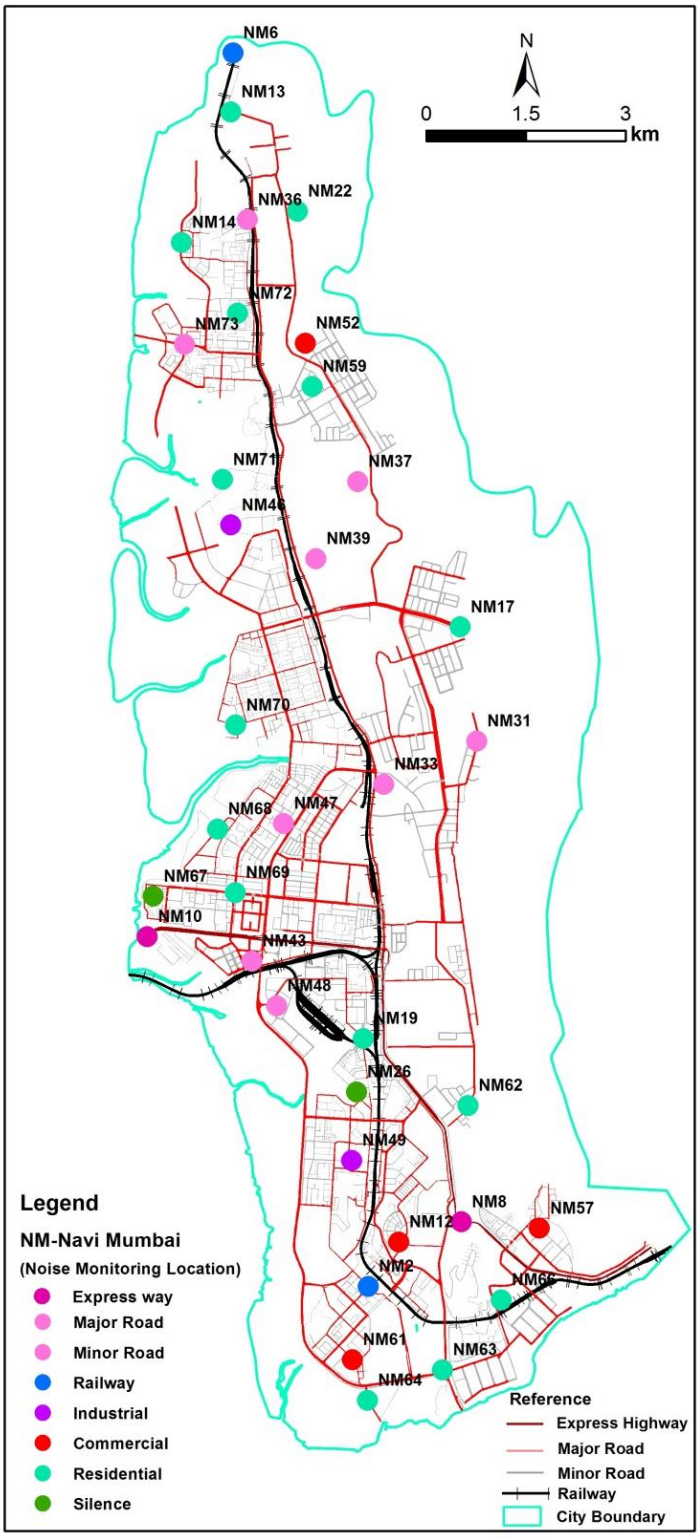


Figure 6.2 Noise Monitoring Locations in Navi-Mumbai City

The point ID, latitude, longitude, ward, description and other details of the monitoring locations are listed in **Table 6.1.**

Table 6.1 Noise Monitoring Locations in Navi-Mumbai City

Sr. No	Point ID	Latitude (N)	Longitude (E)	Ward	Description	Remarks
1.	NM1	19° 1' 30"	73° 0' 59.5"	Nerul	Railway	Nerul Gymkhana Dharavephatak
2.	NM2	19° 11' 25"	72° 59' 44"	Digha	Railway	Anand Nagar Shankar Temple
3.	NM3	19° 1' 47.9"	73° 1' 51.3"	Belapur	Express way	Hindu Temple
4.	NM4	19° 4' 6.2"	72° 59' 7.8"	Vashi	Express way	VashiGaon entry highway
5.	NM5	19° 1' 37.7"	73° 1' 19.3"	Nerul	Ring Road	Shankaracharyaudhyan (Behind)
6.	NM6	19°10'51.6"	72° 59'45.9"	Digha	Major Road	Thane BelapurraodRamnagar junction
7.	NM7	19° 9' 47.3"	72° 59'21.1"	Airoli	Major Road	Sector 20 near Smashanbhumi
8.	NM8	19° 6' 40"	73° 1' 47.4"	Koperkhairane	Major Road	L & T company
9.	NM9	19° 3' 17.3"	73° 0' 59.7"	Turbhe	Major Road	Juinagar water tank
10.	NM21	19° 2' 17.7"	73° 0' 54.2"	Nerul	Major Road	Sector 12 Terana high school
11.	NM27	19°00'35.1"	73°01'42.4"	Belapur	Major Road	Palm beach and Uran Road Intersection
12.	NM36	19°08'57.3"	72°59'23.4"	Airoli	Major Road	Mulund - Airoli Road
13.	NM10	19° 10' 3.3"	73° 0' 20.9"	Airoli	Minor Road	2nd junction
14.	NM11	19° 2' 51.2"	73° 0' 56.5"	Nerul	Minor Road	Behind Dr.AmbedkarUdhyan
15.	NM32	19°04'28.3"	72°59'52.9"	Vashi	Minor Road	Mahavir Centre
16.	NM12	19° 5' 44.6"	73° 1' 55.8"	Koperkhairane	Industrial	Textile C-117
17.	NM13	19° 5' 22.6"	73° 1' 11.3"	Koperkhairane	Industrial	Pawane village Behind UHP
18.	NM14	19° 9' 58.7"	72° 59'55.2"	Airoli	Commercial	Airoli village
19.	NM15	19°7'51.3"	73° 0' 53.7"	Ghansoli	Commercial	MIDC Road Reliance gate near Gavalidev
20.	NM16	19° 7' 12.8"	73° 0' 32.5"	Ghansoli	Commercial	Standard Alkali

Sr. No	Point ID	Latitude (N)	Longitude (E)	Ward	Description	Remarks
21.	NM17	19° 3' 57.1"	73° 0' 4.1"	Vashi	Commercial	Inorbit Mall
22.	NM26	19° 4' 2"	73° 1' 48.5"	Nerul	Commercial	Igloo dairy
23.	NM18	19° 7' 27.3"	72° 59'48.5"	Ghansoli	Residential	Ghansoligaon School back
24.	NM19	19° 5' 2.5"	73° 0' 17.3"	Vashi	Residential	Sector 14
25.	NM20	19° 3' 33"	73° 0' 14.9"	Turbhe	Residential	Moraj Residency
26.	NM22	19° 8' 58.5"	73° 0' 25.8"	Rabale	Residential	East of MIDC Road
27.	NM25	19° 0' 39.8"	73° 0' 56.4"	Nerul	Residential	Back side Indiranagar
28.	NM28	19°00'19.8"	73°01'04"	Belapur	Residential	DPS Bypass Street
29.	NM29	19°01'09.8"	73°02'12.4"	Belapur	Residential	Agroli Village Road
30.	NM30	19°04'26.9"	72°59'10.5"	Vashi	Residential	Senior Citizen's Club
31.	NM31	19°04'59.4"	72°59'43.4"	Vashi	Residential	Common lane for both hospitals
32.	NM33	19°05'50.6"	72°59'52.1"	Koperkhairane	Residential	Shree Ganesh Panchami Society
33.	NM34	19°07'51.0"	72°59'43.8"	Ghansoli	Residential	305, TalavaliGaon
34.	NM35	19°09'12.8"	72°59'50.6"	Airoli	Residential	D-26, Anna SahebPatilMarg
35.	NM23	19° 1' 45.8"	73° 2' 33"	Belapur	Silence	Sector 3A
36.	NM24	19° 6' 21.2"	73° 0' 25.6"	Koperkhairane	Silence	LokmanyaTilak College

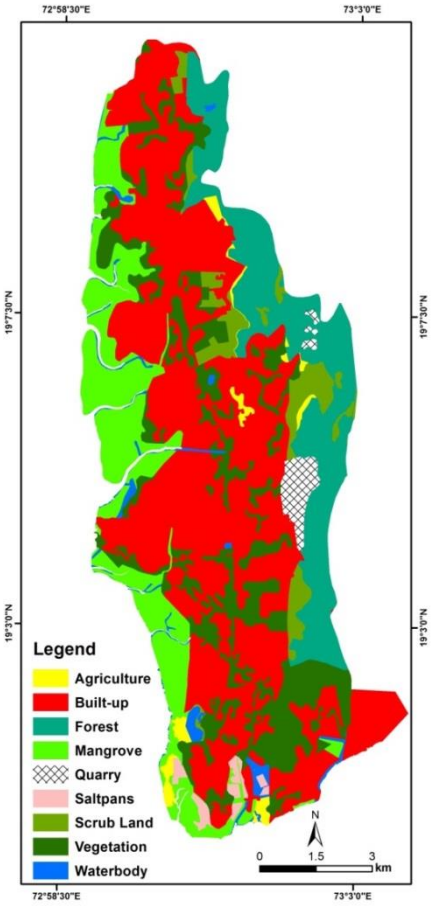
The category of above stated 36 locations is summarized in **Table 6.2**. The number of locations in each category is also given in the table.

Table 6.2 Summary of Noise Monitoring Locations in Navi-Mumbai City

Sr. No.	Descriptions	Number of Locations
1	**Roads**	**13**
	• Expressway	2
	• Ring Road	1
	• Major and Minor roads	10
2	**Railway**	**2**
3	**Land use pattern as per CPCB**	**21**
	• Industrial	2
	• Commercial	5
	• Residential	12
	• Silence	2
	Total	**36**

6.2 Land Use Land Cover Analysis

Land use refers to "man' activities and various uses which are carried on land. Land cover refers to "natural vegetation, water bodies, rock/soil, artificial cover and other resulting due to transformation" the term land use and land cover is closely related and interchangeable. Location of noise monitoring is also dependent on the existing land use of an area. The LULC map of Navi-Mumbai city was procured from Maharashtra Remote Sensing Application Centre (MRSAC), Nagpur. The LULC class considered in the present study is agriculture, vegetation, forest, Mangrove, quarry, saltpan, scrub land, vegetation and water body. The LULC map of Navi-Mumbai city is shown in **Figure 6.3** and its inventory is presented in **Figure 6.4**. The total area of Navi-Mumbai city is 107.6 km2. The highest percentage of LULC class is observed to be built-up (44.5%) followed by vegetation (16.7%), forest (14.8%), Mangrove (14.3%), scrub land (4.1 %), water body (1.7 %), quarry (1.6%), agriculture (1.4 %), saltpan (0.9%).



Source: MRSAC, Nagpur

Figure: 6.3 LULC map of Navi Mumbai city

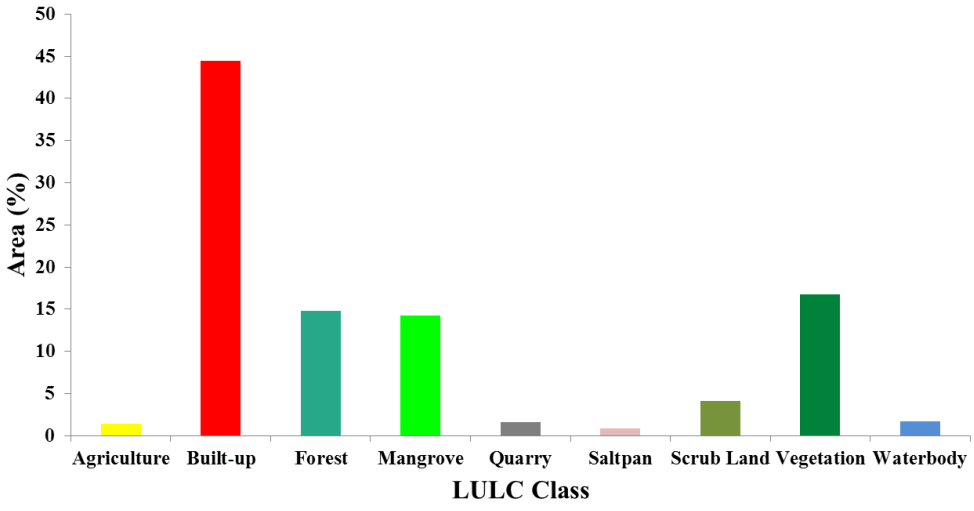


Figure 6.4 Inventory of LULC in Navi-Mumbai city

6.4 Noise levels

As stated above the noise monitoring in Navi-Mumbai has been carried out for 24 hours on a working day and a non-working day. The noise level data is analysed and the values of the relevant parameters are calculated for day (6:00 to 22:00) and night time (22:00 – 6:00). In total 36 noise monitoring locations are divided in 8 categories namely, railway, expressway, major road, minor roads, industrial area, commercial area, residential area and silence zone.

The noise levels are presented graphically in each category in **Figure 6.5 to Figure 6.12**. The other noise indicator metrics like L_{10}, L_{50}, $L_{90,}$ L_{max} and L_{min} are also presented. Furthermore, the noise level in the industrial, commercial, residential and silence zones are compared with the ambient noise standard. The extent of violation with respect to prescribed standard are also assessed and depicted in the graphs.

The noise levels along railway during day and night time of working and non-working days are shown in **Figure 6.5 (a)** and **(b)** respectively. In working day highest Leq observed at NM 1(Nerul Gymkhana Dharave phatak) during day time and in non-working day highest value observed at NM 2 (Anand Nagar Shankar Temple) during day time. Day time is noisier than night time in both cases working day and non-working day.

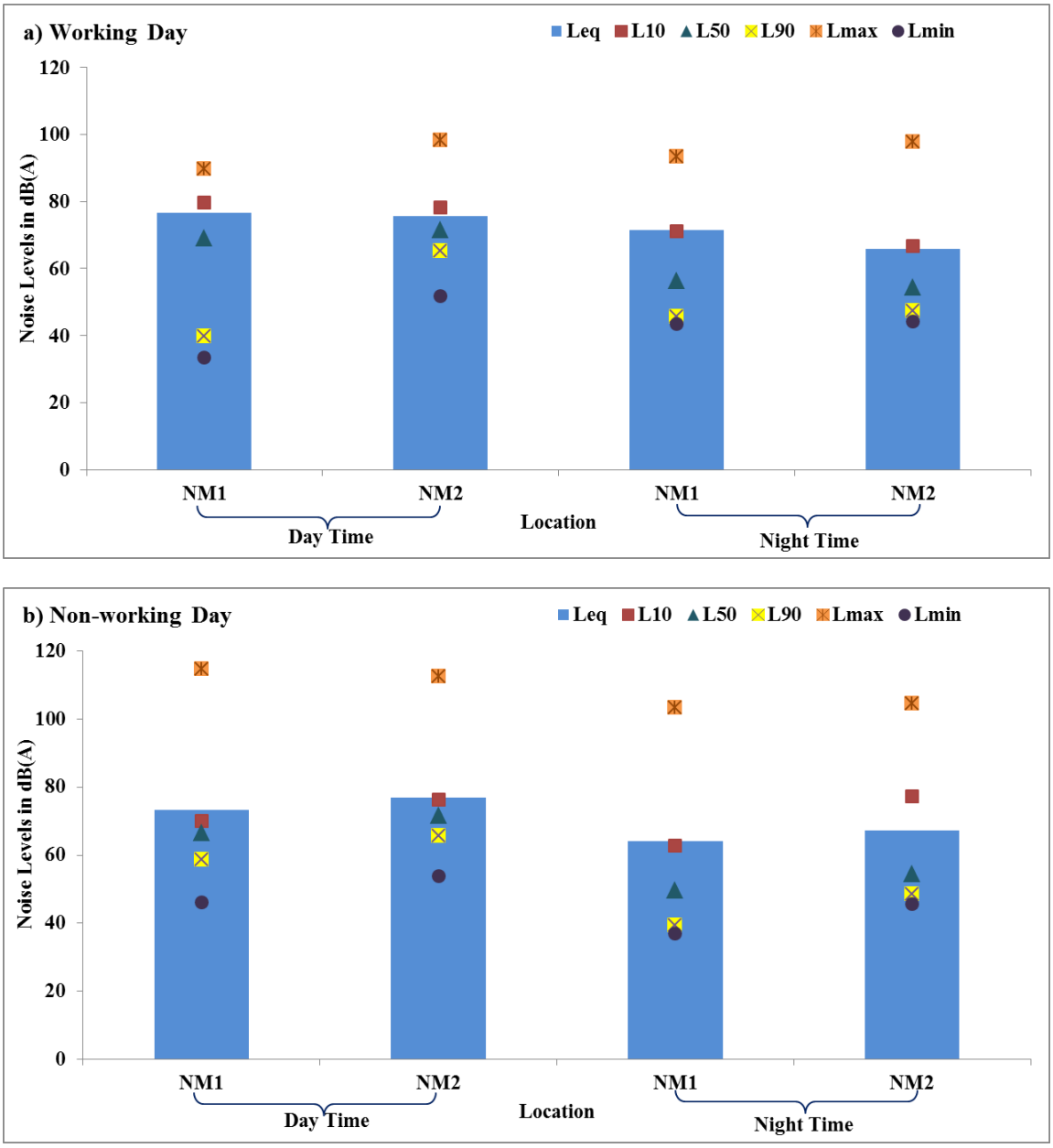


Figure 6.5 Noise level along Railway in Navi-Mumbai City on a) Working Day, b) Non-Working Day

The noise levels along expressway during day and night time of working and non-working days are shown in **Figures 6.6 (a)** and **(b)** respectively. Highest value observed at NM 4 (VashiGaon entry highway) during night time of non-working day. Based on the graphical representation, L_{eq} observed higher at all the sampling location of non- working day than working day.

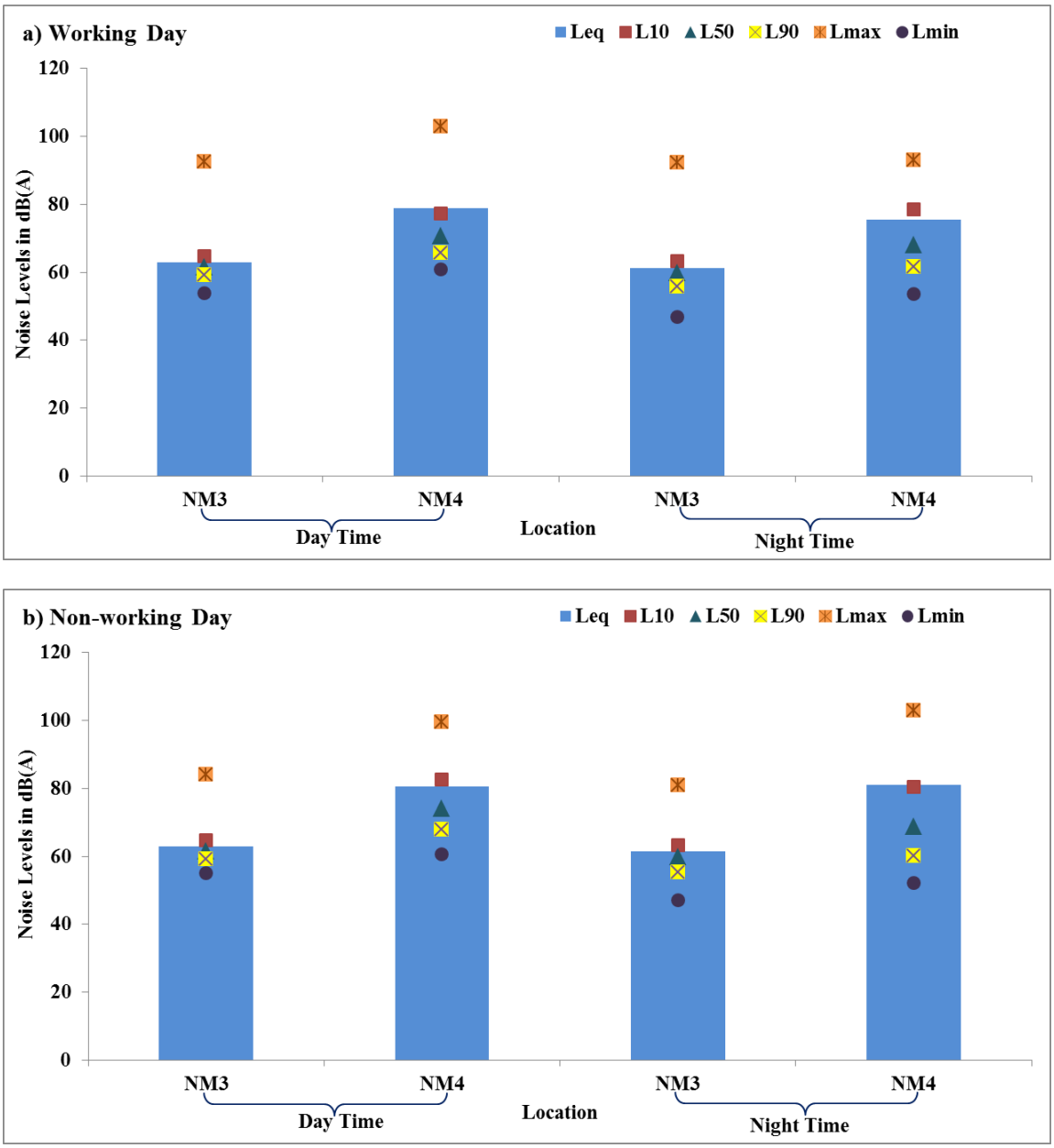
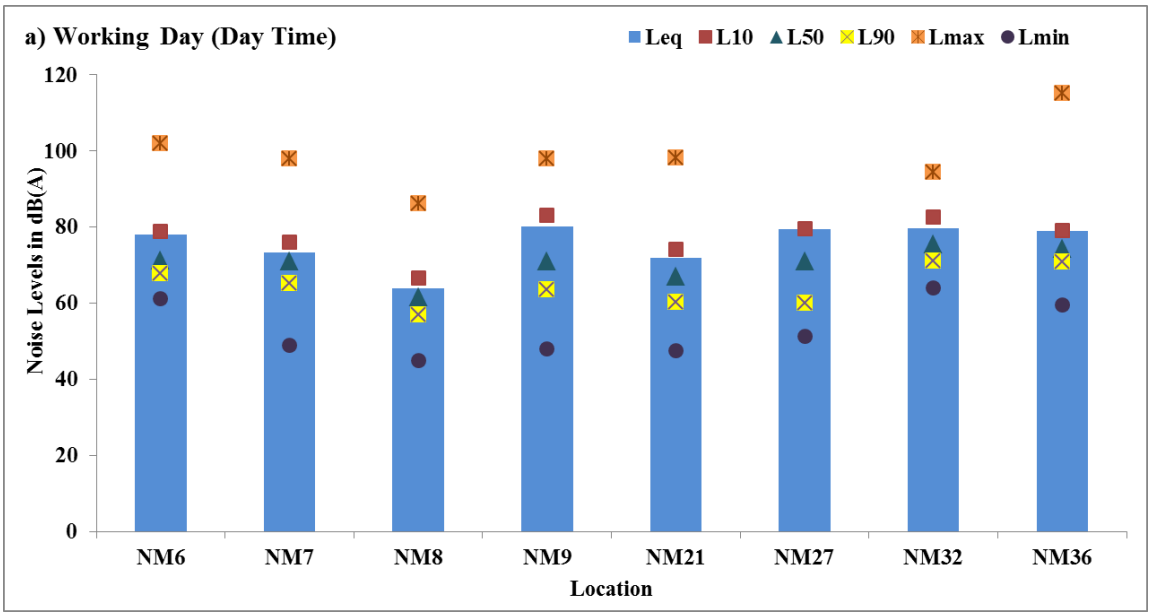
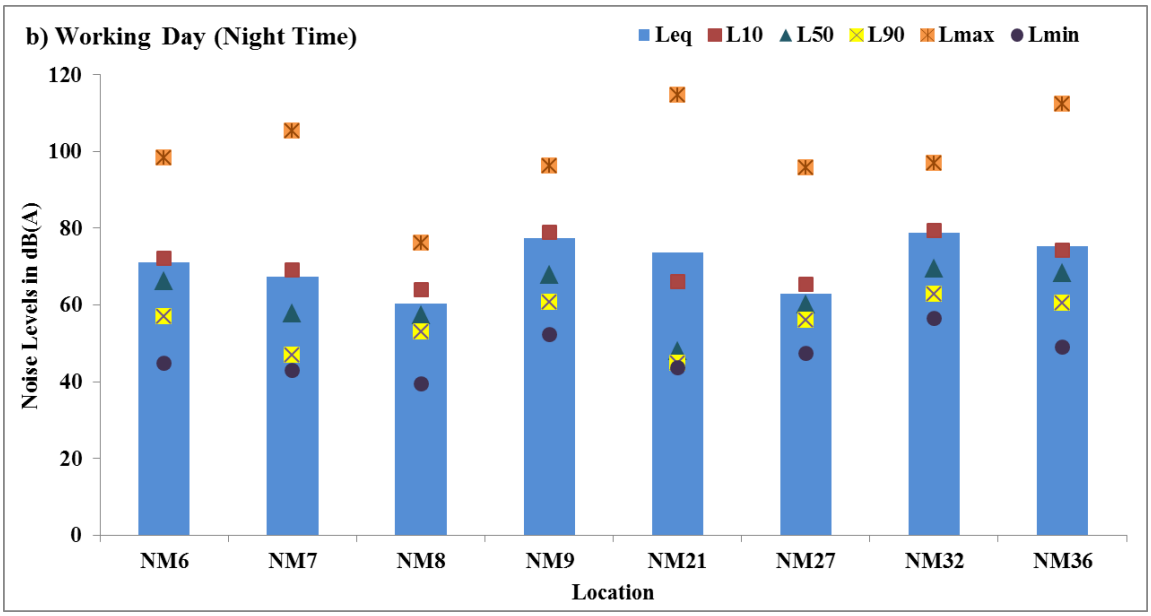
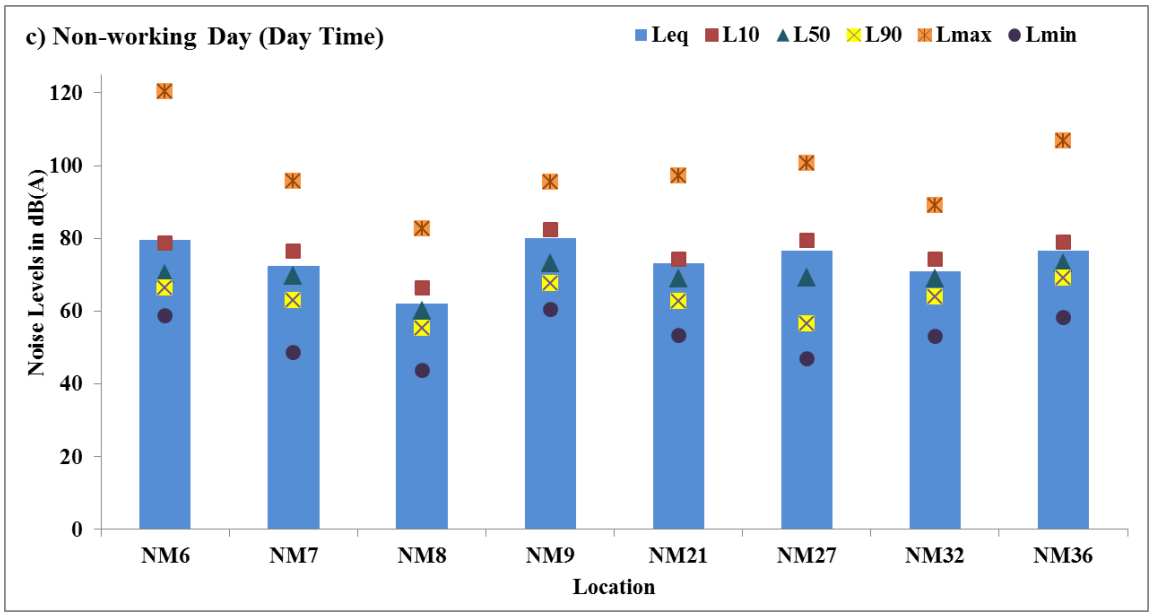


Figure 6.6 Noise level along Expressway in Navi-Mumbai City on a) Working Day, b) Non-Working Day

The noise levels along major road during day and night time of working and non-working days are shown in **Figures 6.7 (a) to (d)** respectively. Day time is noisier than night time in both cases working day and non-working day. This may be attributed to more traffic including city traffic in day time as compared to night time at the major road.


a) Working Day (Day Time)
Leq L10 L50 L90 Lmax Lmin
Noise Levels in dB(A)
120
100
80
60
40
20
0
NM6 NM7 NM8 NM9 NM21 NM27 NM32 NM36
Location


b) Working Day (Night Time)
Leq L10 L50 L90 Lmax Lmin
Noise Levels in dB(A)
120
100
80
60
40
20
0
NM6 NM7 NM8 NM9 NM21 NM27 NM32 NM36
Location



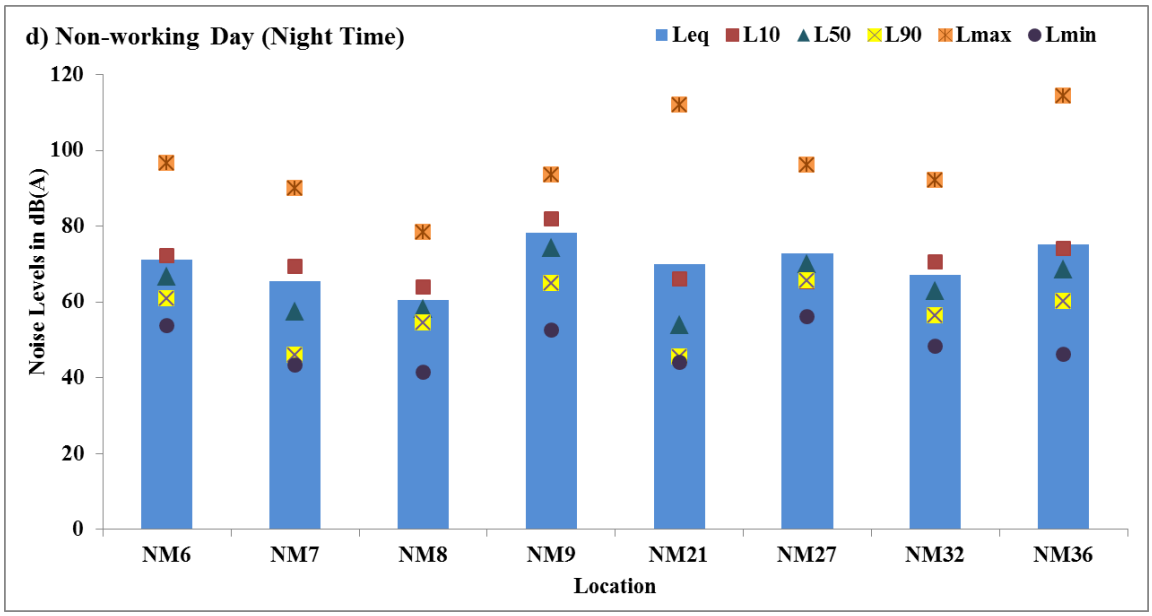


Figure 6.7 Noise level along Major Road in Navi-Mumbai City on a) Working Day (Day Time), b) Working Day (Night Time), c) Non-Working Day (Day Time) and d) Non-Working Day (Night Time)

The noise levels along minor road during day and night time of working and non-working days are shown in **Figure 6.8 (a)** and **(b)** respectively. Day time of working day is noisier than night time. However, highest noise level is observed at NM-33 (Shree Ganesh Panchami Society) at night time of non-working day as compared to day and night time of working day.

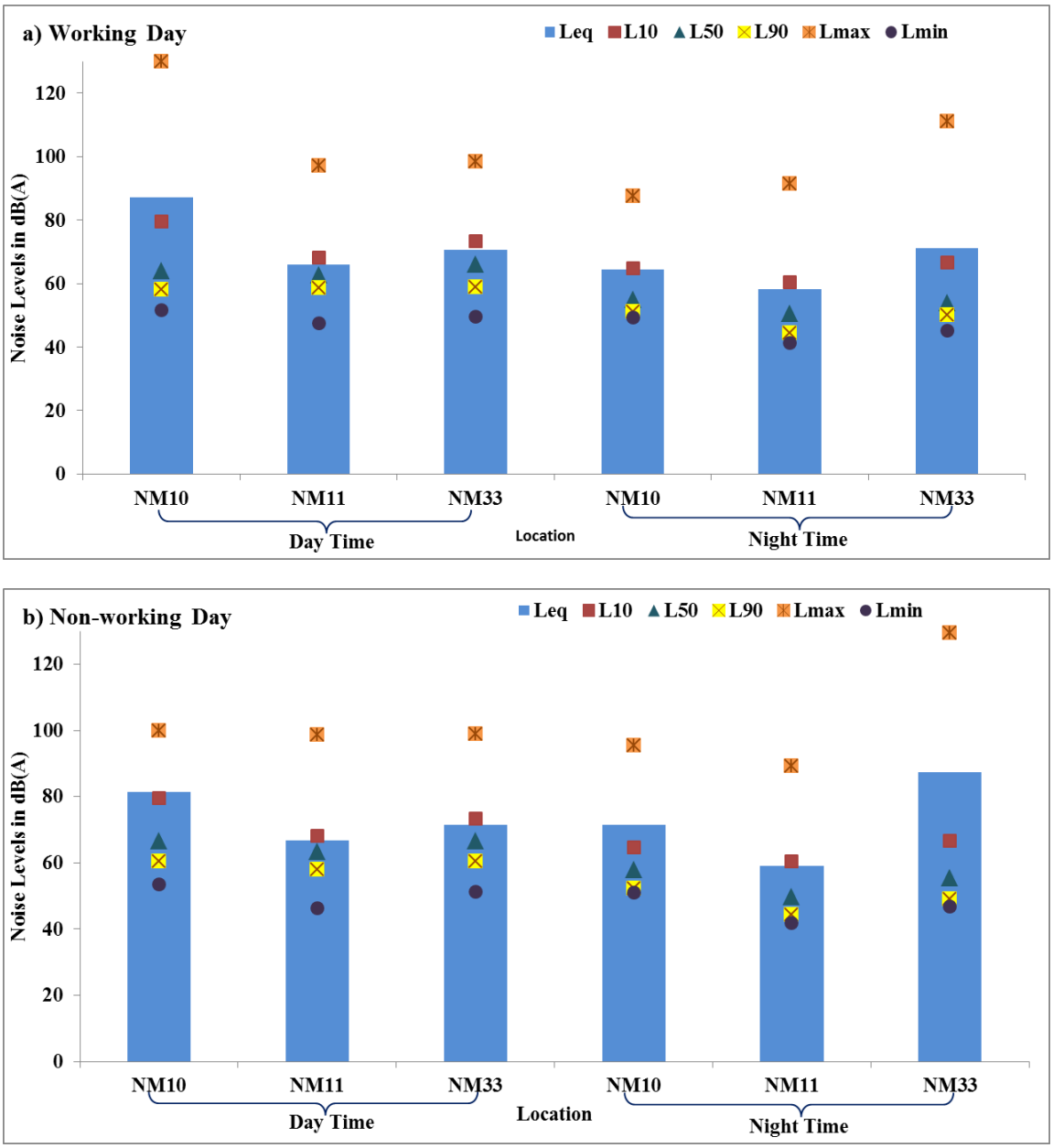
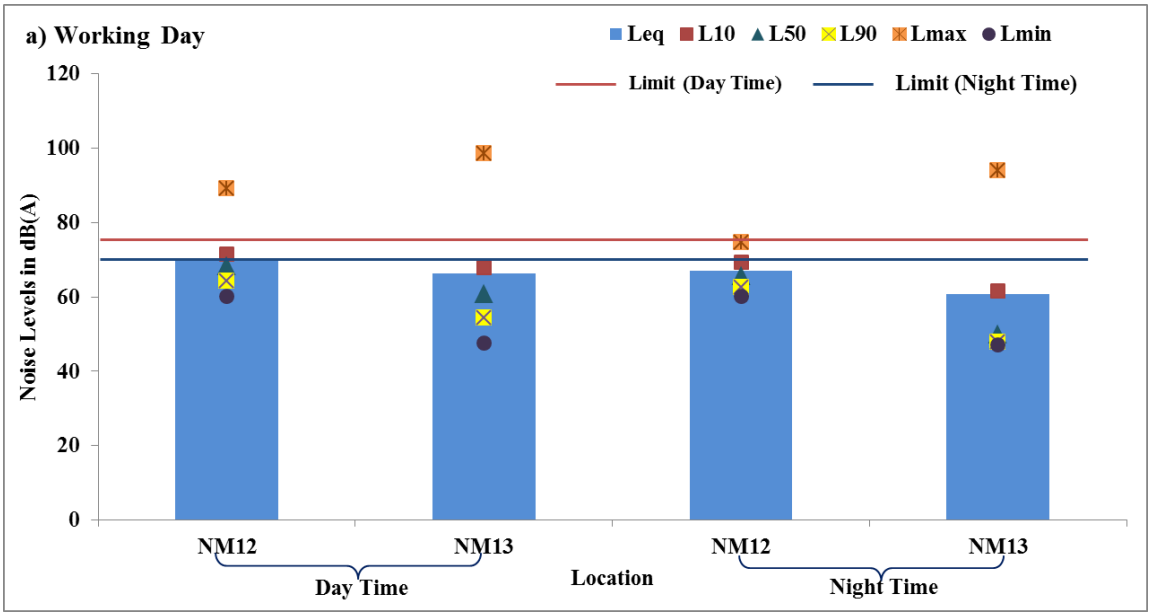


Figure 6.8 Noise level along Minor Road in Navi-Mumbai City on (a) Working Day, (b) Non-Working Day

The noise levels in industrial zone during day and night time of working and non-working days are shown in **Figures 6.9 (a)** and **(b)** respectively. In case of industrial zone also higher values of L_{eq} are observed at day time as compared to night time during working and non-working days. According to Noise Pollution (Regulation and Control) Amendment Rules, 2017, noise limits in industrial area are 75 dB (A) and 70 dB (A) at day time and night time

respectively. None of the sampling location crossed the specified standard limit at day and night times of working and non-working day.



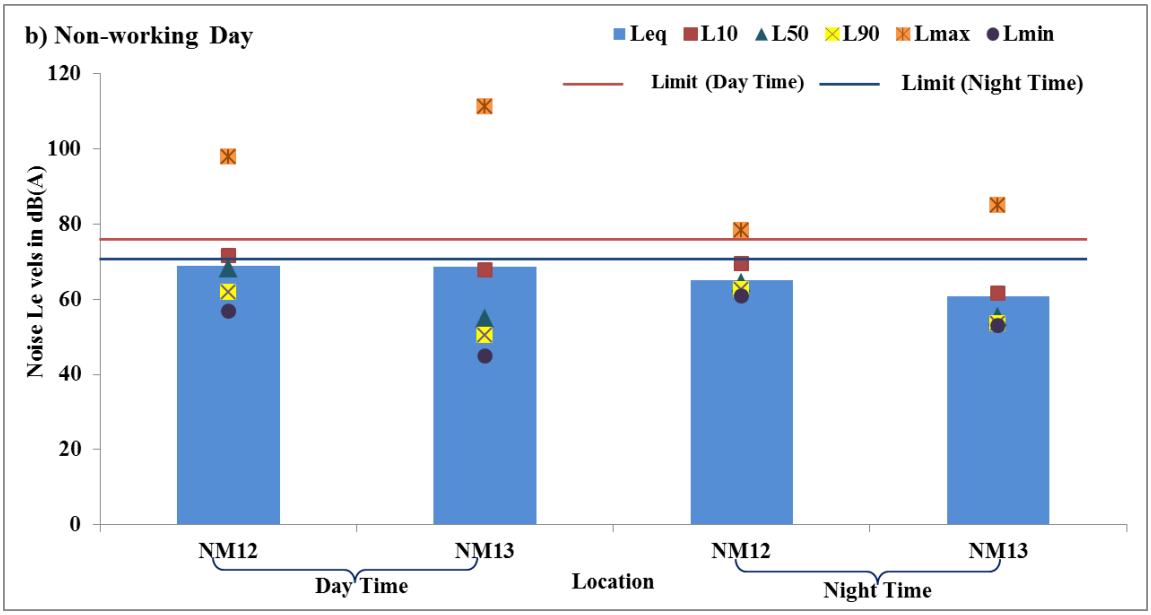
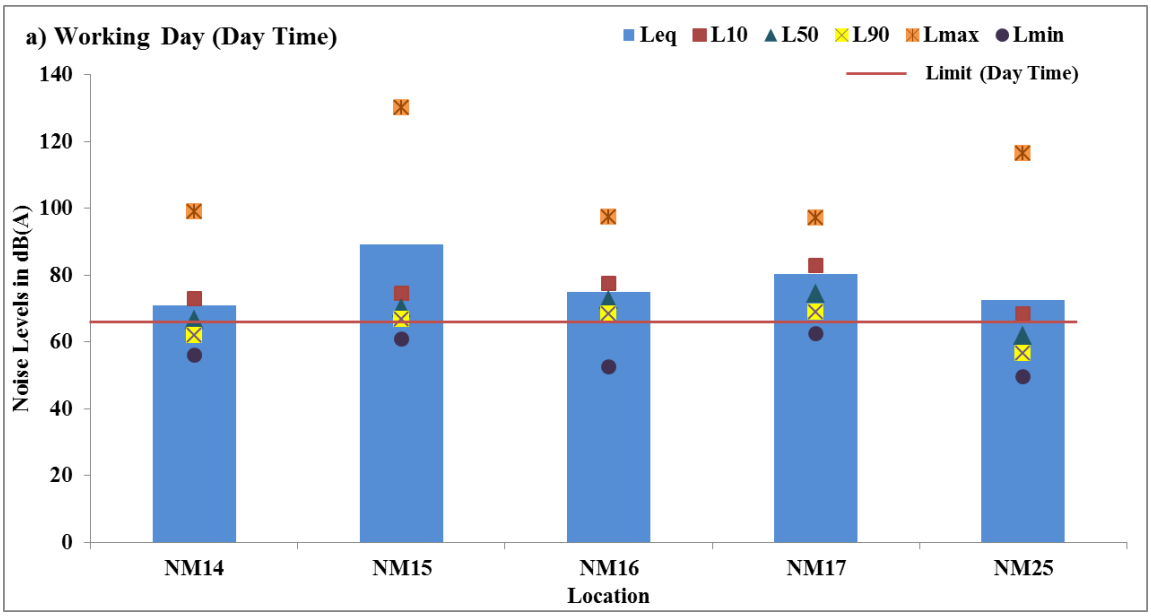
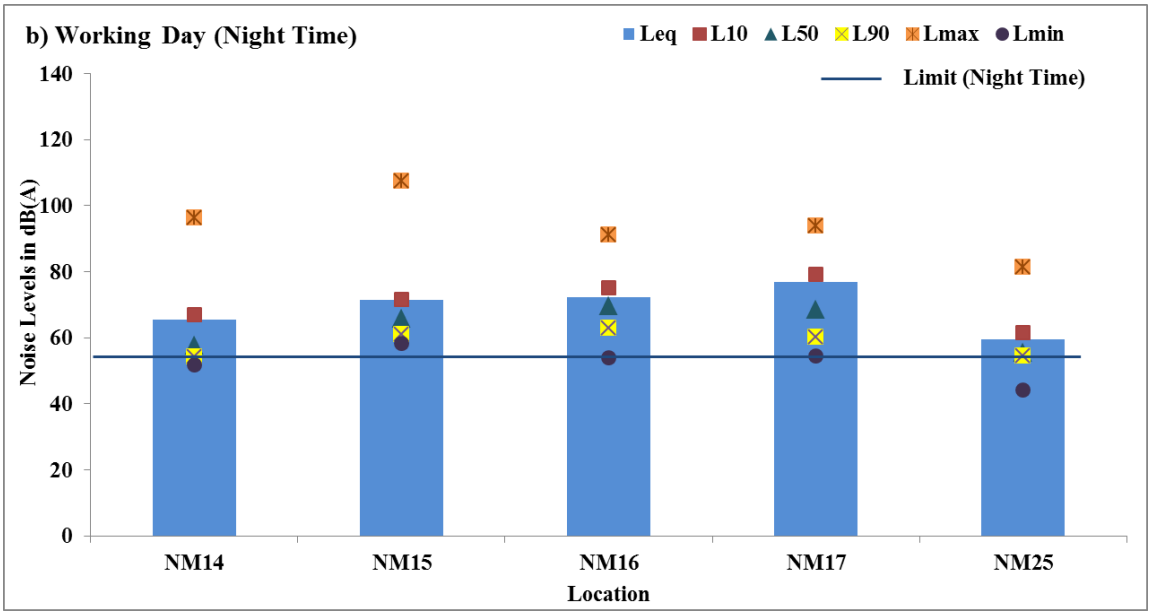


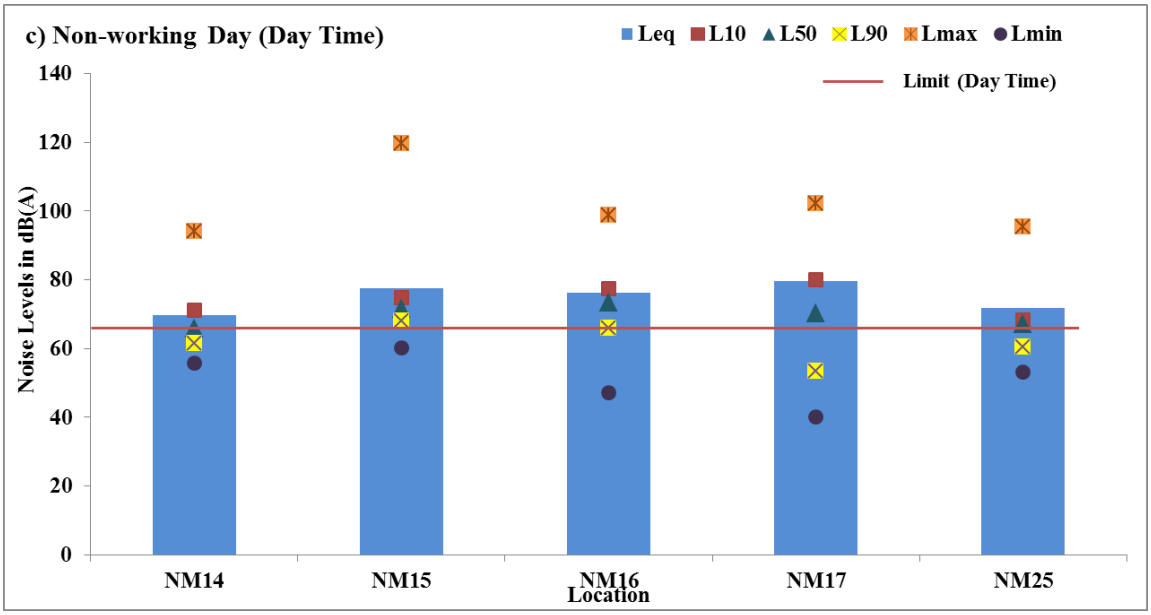
Figure 6.9 Noise level in Industrial area in Navi-Mumbai City on a) Working Day, b) Non-Working Day

The noise levels in commercial zone during day and night time of working and non-working days are shown in **Figure 6.10 (a)** to **(d)** respectively. According to Noise Pollution (Regulation and Control) Amendment Rules, 2017, noise standard limits in commercial area are 65 dB (A) and 55 dB (A) at day time and night time respectively. In case of commercial

zone, all the sampling locations crossed the specified standard limit at day time and night time of both working and non-working days.







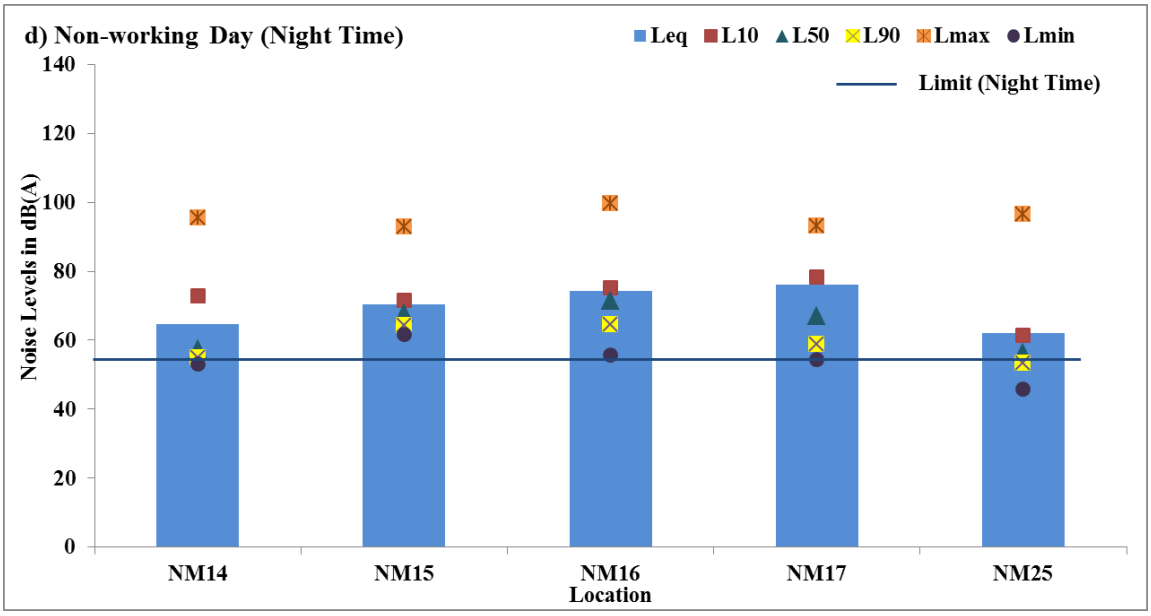
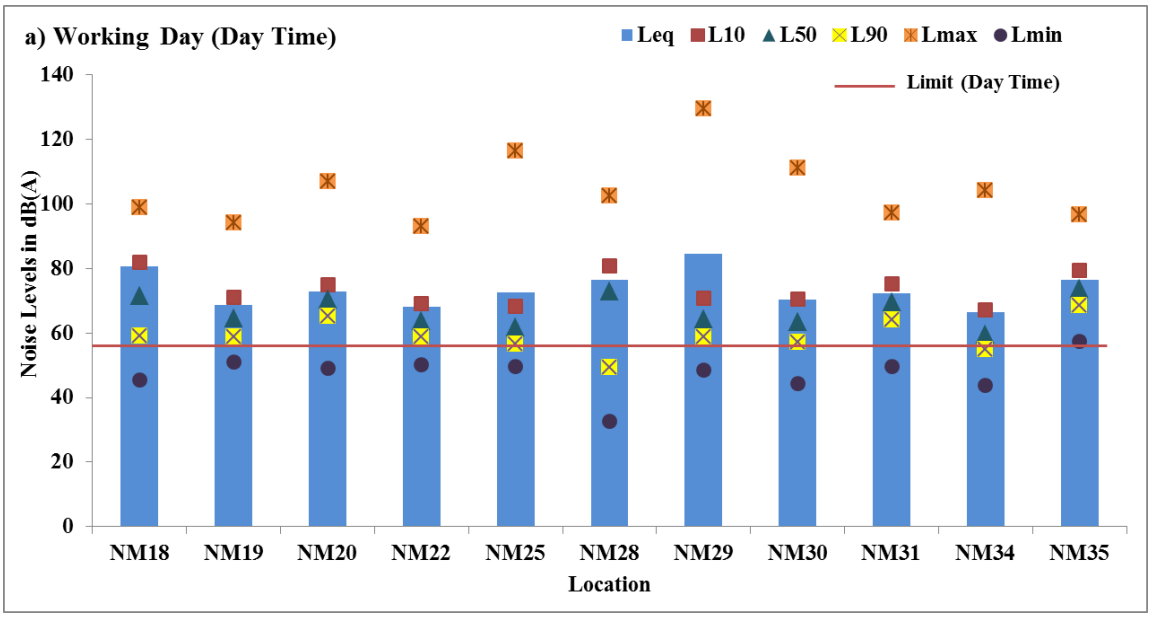
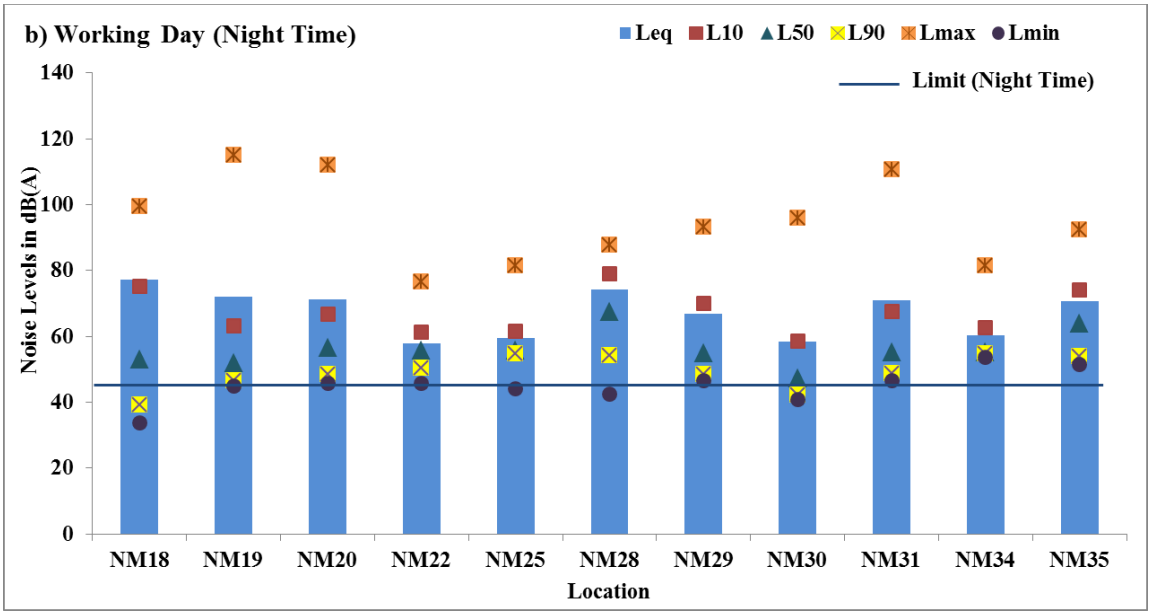


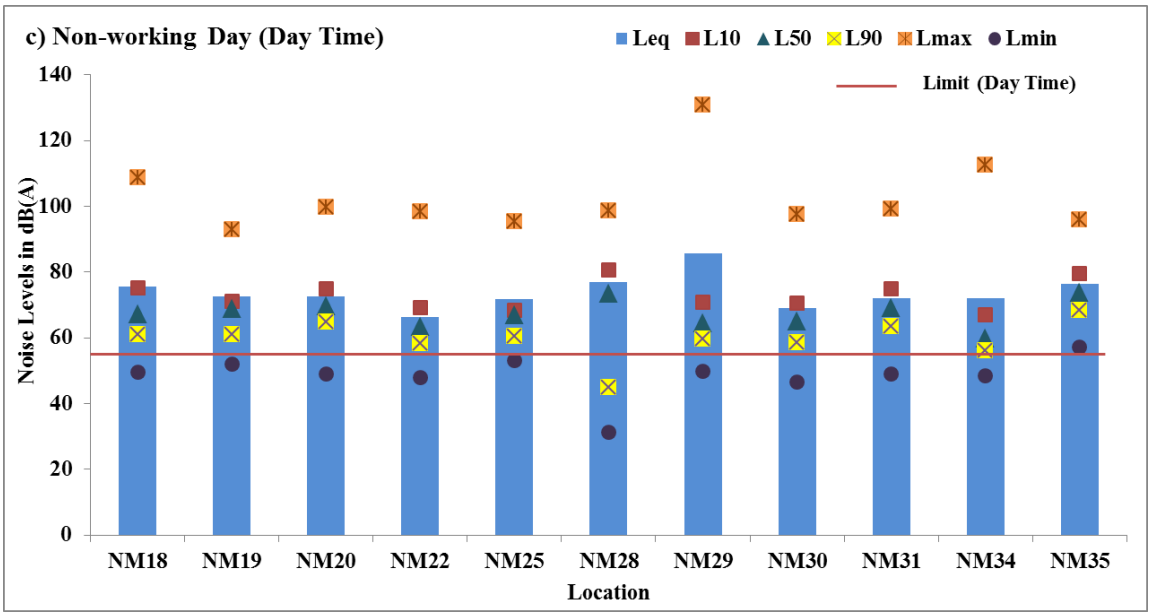
Figure 6.10 Noise level in Commercial area in Navi-Mumbai City ona) Working Day (Day Time), b) Working Day (Night Time), c) Non-Working Day (Day Time) and d) Non-Working Day (Night Time)

The noise levels in residential zone during day and night time of working and non-working daysare shown in **Figure 6.11 (a)** to **(d)** respectively. According to Noise Pollution (Regulation and Control) Amendment Rules, 2017, noise standard limits in residential area are 55 dB (A) and 45 dB (A) at day time and night time and respectively. Noise levels at all the sampling locations during day time and night time of working day and non-working day crossed the specified standard limit. Based on the graphical representation, day time is

noisier than night time. Even, day time of working day is noisier than non-working day. However in some places, noise level at night time of non-working day is noisier than night time of working day.







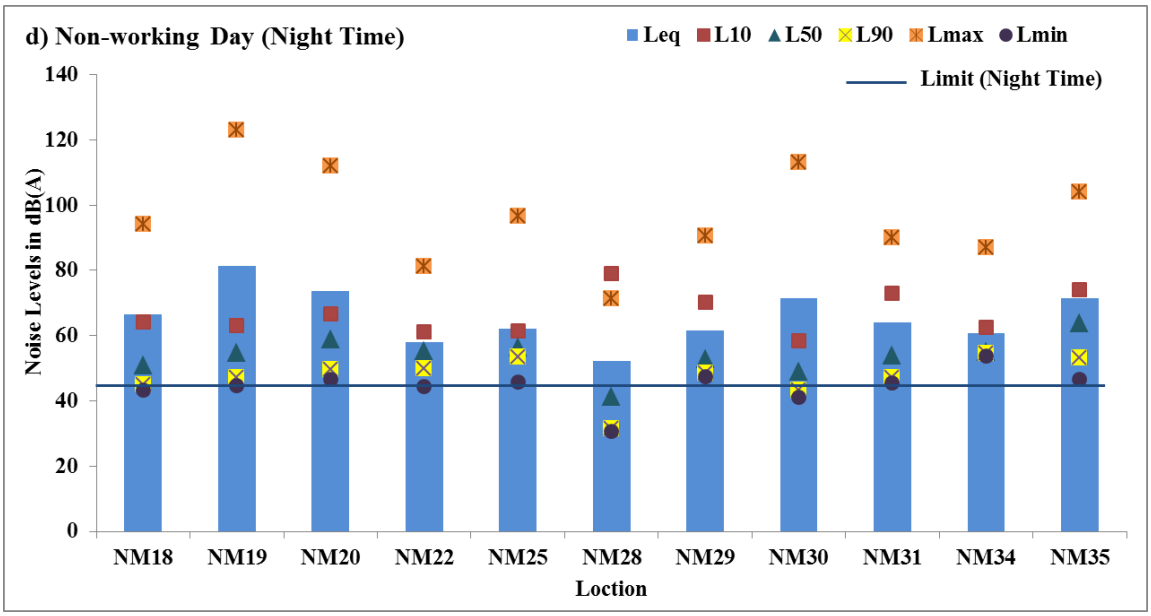


Figure 6.11 Noise level in Residential area in Navi-Mumbai City on a) Working Day (Day Time), b) Working Day (Night Time), c) Non-Working Day (Day Time) and d) Non-Working Day (Night Time)

The noise levels in silence zone during day and night time of working and non-working days are shown in **Figure 6.12 (a)** and **(b)** respectively. According to Noise Pollution (Regulation and Control) Amendment Rules, 2017, noise standard limits in silence zone are 50 dB (A) and 40 dB (A) at day time and night time respectively. In case of silence zones all the sampling locations at day time and night time during working and non-working day crossed

the specified standard limit. Based on the graphical representation, day time is noisier than night time in both cases working and non-working day.

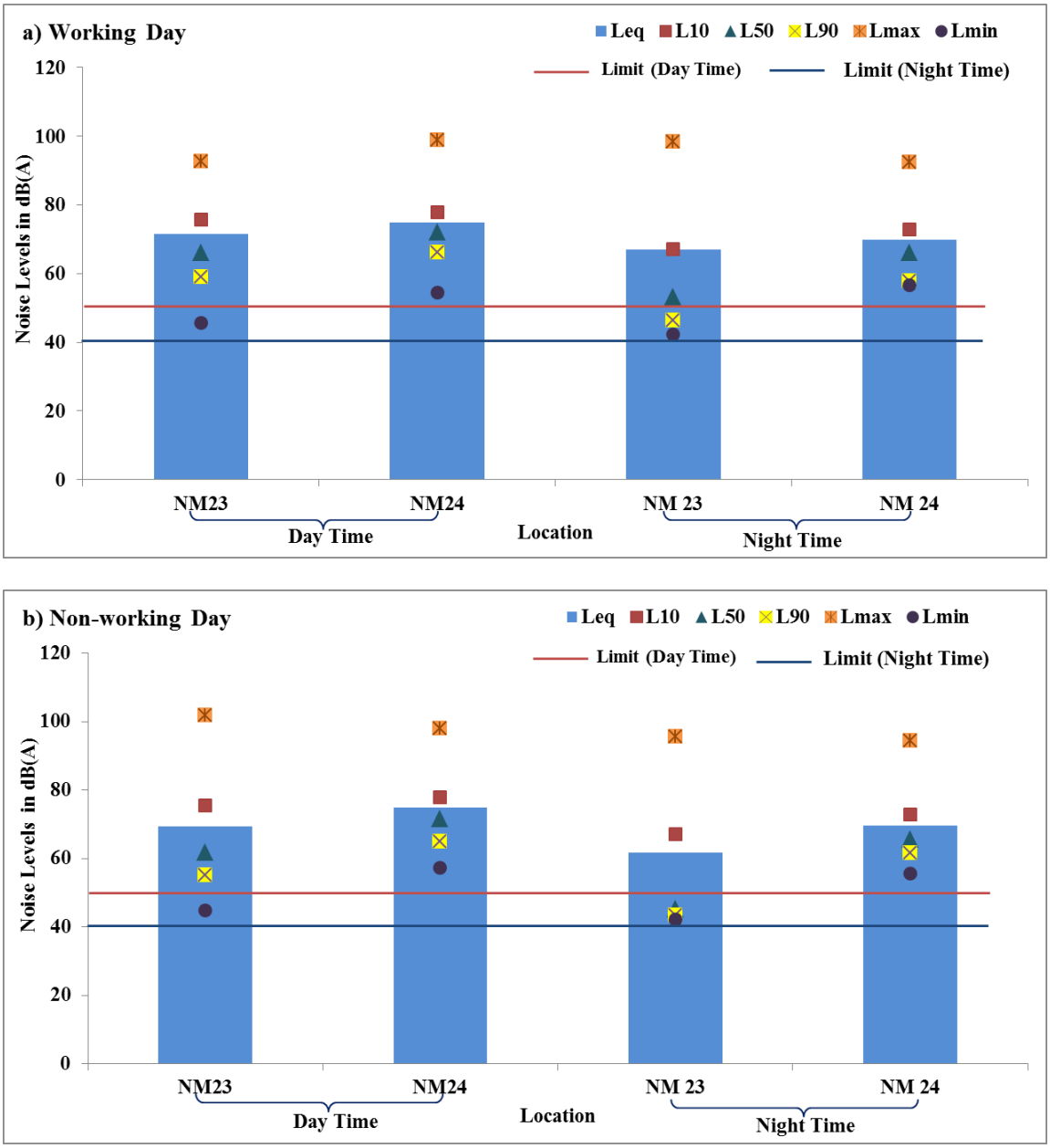


Figure 6.12 Noise level in Silence zone in Navi-Mumbai City on a) Working Day, b) Non-Working Day

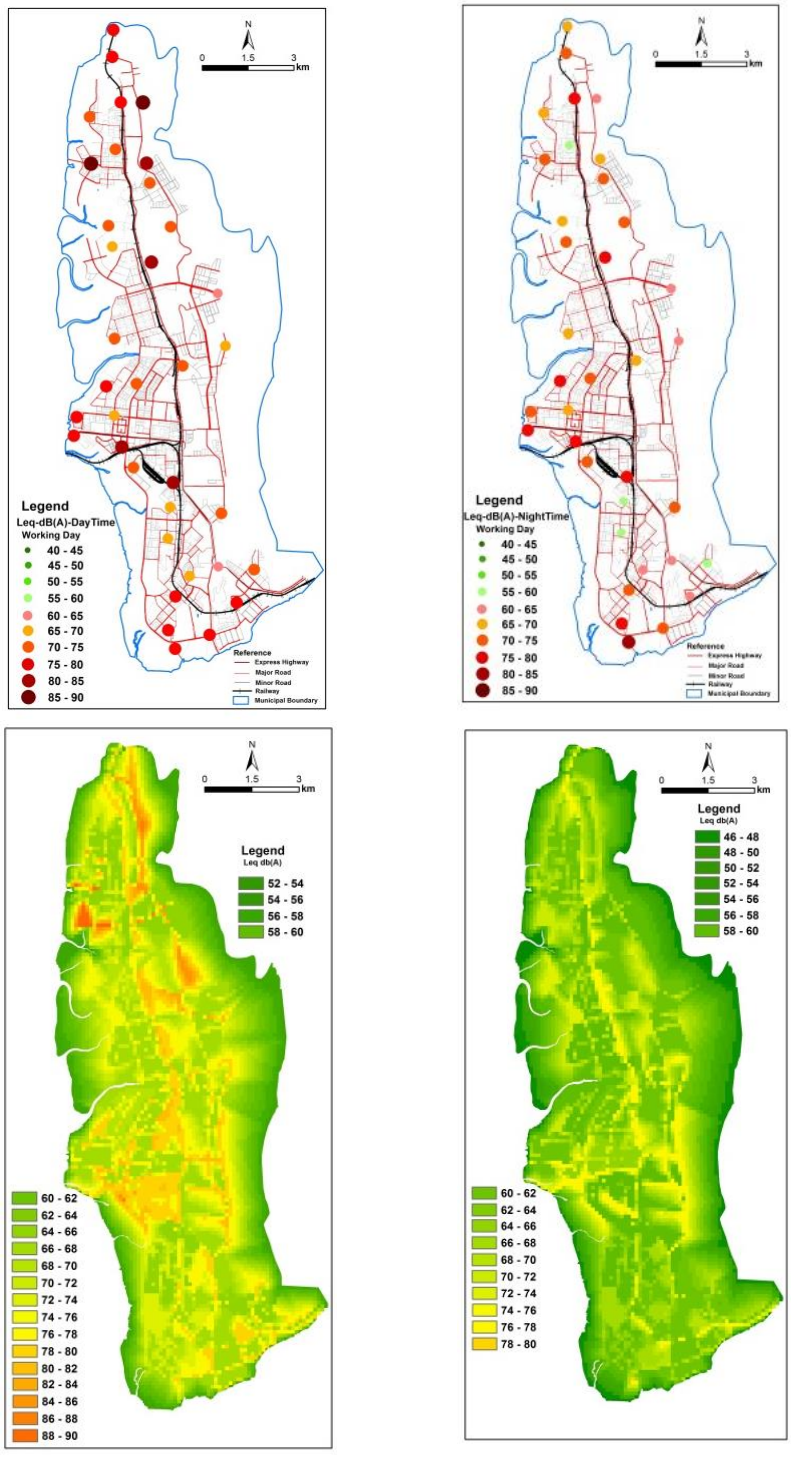
Noise levels of each category are given in the **Table 6.3**.

Table 6.3 Category wise summary of Noise levels

Categories	Working day		Non-Working day	
	Day	Night	Day	Night
	L_{eq} dB(A)	L_{eq} dB(A)	L_{eq} dB(A)	L_{eq} dB(A)
Railway	76.2	69.6	75.5	65.9
Expressway	75.8	61.3	62.8	61.5
Major Road	77.6	74.2	76.2	72.8
Minor Road	82.5	64.3	81.4	71.6
Industrial	68.5	64.9	68.8	63.3
Commercial	83.0	77.1	76.3	72.5
Residential	77.2	71.0	77.3	72.5
Silence	73.4	68.6	72.9	67.4

6.4 Noise Map

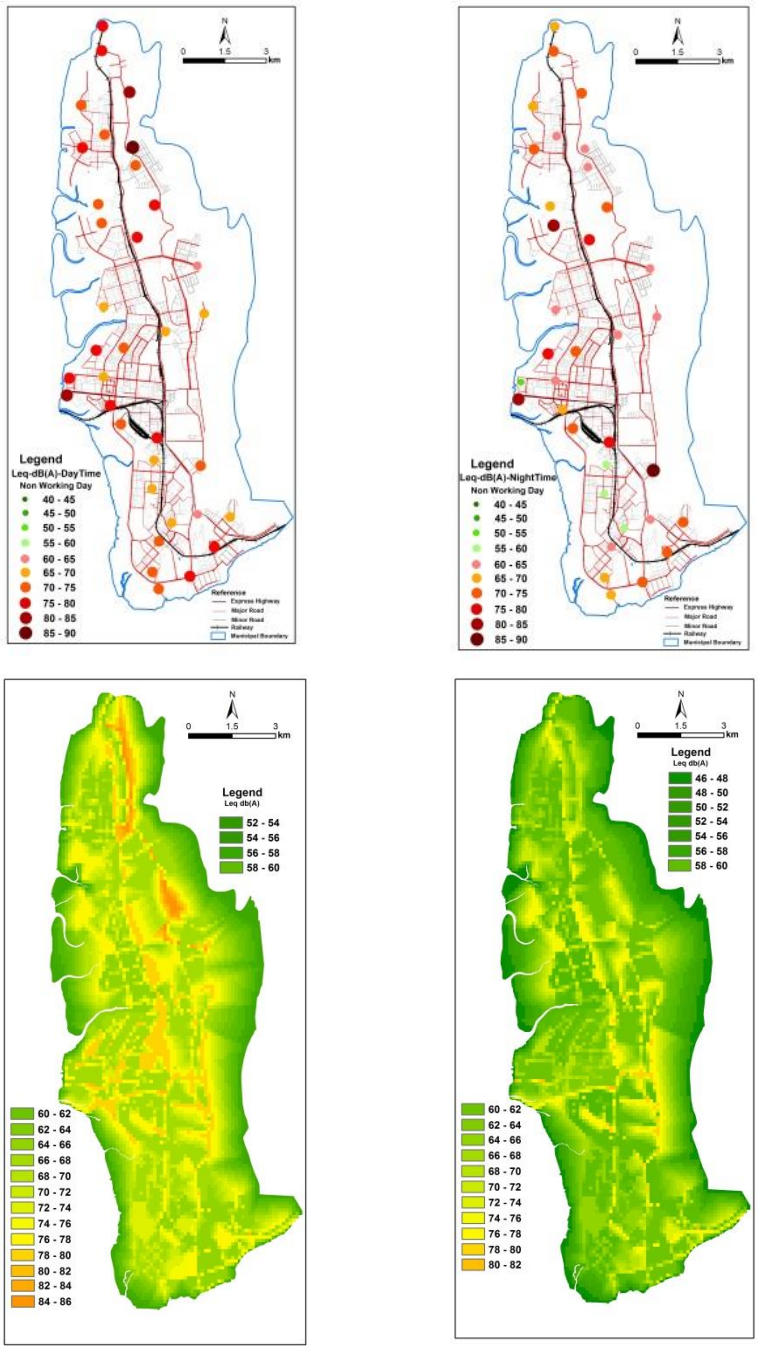
Noise maps are generated with the help of latest state-of-the-art GIS software. Spatial map of the noise level in the city is prepared based on the noise level at the noise monitoring location while strategic noise maps of the city is generated using geo-statistical analysis. These maps are generated for working and non-working days for both day and night time as shown in **Figures 6.13 (a)** and **(b)** respectively.



Working Day (Day Time) Working Day (Night Time)

Figure 6.13 (a) Spatial and Strategic Noise Map of Navi-Mumbai City (Working Day)

During day time, minimum and maximum values of noise are observed as 52.6 dB (A) at NM3 (Near Hindu Temple) and 89.1 dB (A) at NM15 (MIDC Road Reliance gate near Gavali dev) respectively. During night time, minimum and maximum values are observed as 47.8 dB (A) at NM22 (East of MIDC Road) and 78.6 dB (A) at NM26 (Igloo dairy) respectively.



Non-working Day (Day Time) Non-working Day (Night Time)

Figure 6.13 (b) Spatial and Strategic Noise Map of Navi-Mumbai City (Non-working Day)

During day time, minimum and maximum values of noise are observed as 52.4 dB (A) and 85.6 dB (A) at NM8 (L & T company) and NM29 (Agroli Village Road) respectively. During night time, minimum and maximum values are observed as 47.6 dB (A) and 81.1 dB (A) at NM28 (DPS Bypass Street) and NM33 (Shree Ganesh Panchami Society) respectively.

7. Recommendations & Suggestions

Awareness

- Noise pollution can be controlled when the sense of **understanding of the effects of noise.**

- Initiation of **public awareness** through campaigning, movie, hoarding, moving display digital and paper media, should be carried out on massive scale to educate public on **impacts of noise pollution.**

Source Control

Vehicle honking seems to be the major source of noise pervasive in cities. Though the rules restrict unwanted honking, it still persists. This source of noise reduction needs many technical, policy and regulatory innovation. Awareness creation works, however, in quick terms, a major improvement cannot be expected in short term. Some of these which can be undertaken

- **Vehicular**
  - **Develop a system/device** which can be installed in vehicles, which will reduce the noise level (honking intensity) with speed of vehicle (work is being carried out at IITB). This is required as mostly honking is highly prevalent at traffic junction.
  - Install device as a signal [**Noise ATM**]. Every vehicle can be provided with a sensor which will not allow a vehicle to exceed the number of times it can honk. Later, a signal will come up on dashboard or will go by network to traffic department as violation.
  - Unnecessary honking should be avoided and penalized, however this requires innovation in identifying and taking action
  - Provide sufficient opening at the entry and exist of **bridge/flyover to** avoid sharp influx of traffic into the path which reduce the chances of honking and collision.
  - Movement of **Vehicle without silencers** such as bikes /modified bikes/ cars should be regulated during day and night time.
  - Ambulances should use **sirens judiciously**. Instead of siren, red light beam or laser beam of a particular colour may be used for emergency.

- Create awareness to mass for **minimizing honking at traffic signals and roads** through hoardings/ signboards so that public would practice minimum honking at traffic junctions, signal and during movements and jam conditions.
- Based on the monitoring carried out in the premises of silence zones, it is observed that **honking must be restricted with proper implementation** in silence zones. For example, **Restriction of unnecessary vehicles and honking practices** in the premises of hospital, research and educational institutes, district courts and religious places.
- Pressure horns must be banned for use in any type of vehicle.
- The upper limit of noise range for **horn should be capped to 100 dB instead of current practices of 112dB**.

➢ **Road Surface**

- Resurfacing roads with low noise materials such as **stone mastic asphalt (SMA)** reduces noise levels. Even, construction of concrete road in Aurangabad city may also resurface with asphalt which reduced the frictional noise pollution.

➢ **Construction Site**

- There must be a strict compliance of environmental management plan (for noise) at the construction sites in the city, which envisages noise control of construction machineries.

➢ **Procession and Functions**

- Banning of noise producing sources like **crackers and band music** during procession after 10 pm as per rules

➢ **Railway**

- Innovative design of noise barrier like physical and tree cover along railway track in the city and along local train route in case of **Navi-Mumbai.**

Control at Receptors

➢ Residential colonies may be constructed with such an **architectural design** as to reduce the level of noise reverberation. Screens, insulation of dwellings and use of thicker glass in the adjacent buildings also helps in reducing the noise levels.

➢ Certain **architectural features such as fins and balcony** can help reduce impact of road traffic noise on residential buildings which are near to roads.

- Building should be oriented as far as possible in a way that less noise sensitive uses such as kitchen, bathroom and store rooms are **located to one side (Road side)** of the flat while noise sensitive uses such as living rooms and bed rooms are located on the other side.
- **Noise absorbing materials** such as acoustic tile, carpets and drapes placed on wall surfaces reduces the noise level. Further, vertical gardens and green wall near residential dwelling may also be used to reduce the noise pollution.
- **Soundproofing** the apartment along with use of screens and insulations can go a long way in reducing effects of noise levels.
- A set of research on technologies for noise reduction should be undertaken with a coordinated effort from **MPCB/CPCB and R&D institutions.**

Control at Transmission Path

- Further, any new city development plan, noise pollution should be considered as one of the major environmental factors. **Mixed categories of land use should be avoided** for example, residential near commercial zones, hospital in residential and industrial zones etc.
- **More vegetation buffer zone**, **street landscaping** and **road side plantation** should be developed in and around the buildings and near to road sides.

Driver Behaviour

- Based on the noise monitoring study, it is observed that **traffic sense and driver behavior** are very responsible for noise pollution**. It is recommended that while providing the driving license,** information of noise pollution and instruction for judicious use of horn must be imparted to the applicant. All who have a valid license must be given a pledge for no-honking.

Traffic Management

- **Modification of signal timings** based on optimum cycle time reduces unnecessary delays and idling time which reduces noise pollution levels.

- Emphasis and more use of **public transport** instead of **private vehicles**. This will reduce noise and air pollution significantly.

- **Traffic Management System** of the cities needs to be further improved for **reduction** in **noise emission level** and also **noise exposure level** at signal and junctions**.**

Proposed monitoring protocol

- There is a dire need of continuous **sensor based noise monitoring, display and communication in the city**.
- Sensor based noise monitoring is required for effective noise pollution monitoring, mapping and management. This could be series of noise sensors along roads and other areas to procure large set of data for micro-mapping so that very specific action plan can be planned and implemented.
- Crowd sourcing of noise data analysis based on **online and onsite noise measuring sensors**
- GIS based mapping and its link with **Bhuvan** for dynamic display of strategic noise map/noise profile of the city for effective noise pollution monitoring and management.

Legislation

- Legislation reflecting the possible consequences of the legal action which include **Prevention, Prohibition and Penalty** to the public should be displayed and disseminated.

City Municipal Corporations

- As per **Noise Pollution (Regulation and Control) (Amendment) Rules, 2017**, silence zone need to be notified by State Government / Municipal Corporation.
- It is recommended that proper display of Silence Zone with details of notification and strict compliance of noise limits.
- **Judicious use of public address system, loud music** on public occasions, and it should not increase the ambient noise level standards as prescribed by the authority.

- Identified "Noise Hot Spots" need to be targeted immediately for abatement measures.

- Formulation of **City Noise Pollution Control Committee** (CNPCC) which provide the guidelines of monitoring and control of noise pollution in the city.

- **CNPCC** may involve local authority, stakeholders (Like Transportation and Urban Planning Authority, Land Use Planning Authority, Waste Management Authority, Information Technology Department, NGO, Research and Educational institutes) and the public for noise abatement measure.

Field Photographs

Glimpses of noise monitoring in Navi Mumbai city


NM1(Railway)


NM3(expressway)


NM21 (Major Road)


NM10(Minor Road)


NM12(Industrial Area)


NM3(Commercial Area)


NM19(Residential Area)


NM24(Silence Zone)


NM25(Residential Area)

Annexure II

Noise Pollution (Regulation and Control) Rules, 2000, Amendment 2010

रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

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पर्यावरण एवं वन मंत्रालय

अधिसूचना

नई दिल्ली, 11 जनवरी, 2010

का.आ. 50(अ).— केन्द्रीय सरकार ने ध्वनि प्रदूषण (विनियमन और नियंत्रण) नियम, 2000 का.आ. 123 (अ) तारीख 14 फरवरी, 2000 के द्वारा अधिसूचित किया जिसे संख्यांक अधिसूचना का.आ. 1046 (अ) तारीख 22 नवम्बर, 2000; का.आ. 1088 (अ) तारीख 11अक्तूबर, 2002 और का.आ. 1569 (अ) तारीख 19 सितम्बर, 2006 के द्वारा संशोधित किया गया है;

और, केन्द्रीय सरकार को गैर-सरकारी संगठनों और व्यक्तियों से अभ्यावेदन - प्राप्त हुये जिसमें यह अनुरोध किया है कि ध्वनि प्रदूषण के कारण विभिन्न कठिनाइयों को देखते हुए आगे कुछ और संशोधन किए जाएं;

और, केन्द्रीय सरकार ने पर्यावरण (सुरक्षा) अधिनियम, 1986 (1986 का 29) की धारा 3 की उपधारा 2 और धारा 25 के साथ पठित पर्यावरण (सुरक्षा) नियम, 1986 के नियम 5 में प्रदत्त शक्तियों का उपयोग करते हुए, ध्वनि प्रदूषण (विनियमन और नियंत्रण) नियम, 2000 का और संशोधन करने के लिए नियम का प्रारुप भारत के राजपत्र, असाधारण में सा.का.नि.158 (अ), तारीख 9 मार्च, 2009 को इस नियम के द्वारा प्रभावित होने वाले सभी व्यक्तियों की सूचना के लिए नियमों को प्रकाशित किया और यह सूचित किया कि केन्द्रीय सरकार द्वारा उक्त प्रारुप नियम उस तारीख को जिसको इस अधिसूचना संबंधी राजपत्र की प्रतियां सर्वसाधारण को उपलब्ध कराई जाती हैं, से साठ दिनों की अवधि की समाप्ति पर विचार किया जाएगा;

और उक्त राजपत्र अधिसूचना की प्रतियां 27 मार्च, 2009 को सर्वसाधारण को उपलब्ध करा दी गई थी;

और, उपरोक्त प्रारूप नियमों के उत्तर में प्राप्त आक्षेपों और सुझावों पर केन्द्रीय सरकार द्वारा सम्यक रूप से विचार किया गया है;

अत: अब, केन्द्रीय सरकार, पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उपधारा (2) के खंड (ii) और धारा 6 की उपधारा (2) के खंड (ख) और धारा 25 के साथ पठित पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, ध्वनि प्रदूषण (विनियमन और नियंत्रण) नियम, 2000 का और संशोधन करने के लिये निम्नलिखित नियम बनाती है, अर्थात्:-

ध्वनि प्रदूषण (विनियमन और नियंत्रण) (संशोधन) नियम, 2010

1. (1) इन नियमों का संक्षिप्त नाम ध्वनि प्रदूषण (विनियमन और नियंत्रण) (संशोधन) नियम, 2010 है ।

(2) ये राजपत्र में प्रकाशन की तारीख को प्रवृत्त होंगे ।

2. ध्वनि प्रदूषण (विनियमन और नियंत्रण) नियम, 2000 (जिन्हें इसमें इसके पश्चात् उक्त नियम कहा गया है), के आरम्भिक भाग में "संनिर्माण कार्यकलाप" शब्दों के पश्चात्, "पटाखे, ध्वनि उत्पन्न करने वाले उपकरण" शब्दों को अत: स्थापित किया जाएगा;

3. उक्त नियम के नियम 2 में, खंड (ज) के पश्चात् निम्नलिखित खंड अंत: स्थापित किए जाऐंगे; अर्थात् :-

"(झ) "सार्वजनिक स्थल" से ऐसे स्थान अभिप्रेत है जिसमे जनता की पहुंच है चाहे उसका अधिकार हो या न हो, और जिनके अन्तर्गत ऑडीटोरियम, होटल, जन प्रतीक्षालय, सभा केन्द्र, लोक कार्यालय, शॉपिंग मॉल, सिनेमा हाल, शिक्षण संस्थान, पुस्तकालय, खुले मैदान, और इसी प्रकार के स्थान जिनमे आम जनता जाती है; और

(ञ) "रात्रि समय" से 10.00 बजे रात्रि और 6.00 बजे प्रात: के बीच की अवधि अभिप्रेत है ।"

4. उक्त नियम के नियम 3 के उप नियम (3) में, "यानीय संचलन से प्रसर्जित ध्वनि", शब्दों के पश्चात् "हार्न बजाना, आवाज करने वाले पटाखें फोड़ना, लाउड स्पीकरों या लोक संबोधन प्रणाली और ध्वनि उत्पन्न करने वाले उपकरणों का उपयोग" शब्द अंत:स्थापित किए जाऐंगे ।

5. उक्त नियम के नियम 5 में, -

(क) शीर्षक में, "लोक संबोधन प्रणाली" शब्दों के पश्चात्, "और ध्वनि उत्पन्न करने वाले उपकरण" शब्द अंत:स्थापित किए जाएंगे ।

(ख) उप नियम (2) के स्थान पर, निम्नलिखित उपनियम रखा जाएगा, अर्थात् :-

(2) "लाउड स्पीकर या लोक संबोधन प्रणाली या कोई ध्वनि उत्पन्न करने वाला उपकरण या वाद्य उपकरण या ध्वनि प्रवर्धन का प्रयोग, हाल के भीतर सिवाय तब के जब वह संसूचना के लिए बंद परिसर जैसे, प्रेक्षागृह, सम्मेलन कक्ष, सामुदायिक हाल, प्रीतिभोज हाल हो या सार्वजनिक आपातस्थिति के दौरान, रात्रि में नहीं किया जाऐगा ।"

(ग) उपनियम (3) में,-

(क) " रात्रि के दौरान लोक संबोधन प्रणालियों" शब्दों के स्थान पर " रात्रि के दौरान लोक शब्द संबोधन प्रणाली और इसके समान" शब्द रखे जाऐंगे ।

(ख) " किसी कलैन्डर वर्ष के दौरान सीमित अवधि पंद्रह दिनों से अधिक नहीं", शब्दों के पश्चात् "संबंधित राज्य सरकार साधारणतया पहले से दिनों की संख्या और विवरणों का अग्रिम शब्द रुप से उल्लेख करेंगे जब ऐसी छूट प्रभावी होगी" शब्द अंत स्थापित किए जाऐंगे ।

घ) इस प्रकार यथा संशोधित उप नियम (3) के पश्चात, निम्नलिखित उप नियम अंत:स्थापित किए जाऐंगे, -

"(4) सार्वजनिक स्थान, जहाँ लाउड स्पीकर या लोक संबोधन प्रणाली या ध्वनि का कोई अन्य स्रोत उपयोग में लाया जा रहा है, की चारदीवारी में ध्वनि स्तर, क्षेत्र के लिए परिवेशी ध्वनि स्तर 10 dB(A) या 75 dB(A) जो भी कम हो, से अधिक नहीं होगा ।

(5) किसी निजी स्वामित्व की ध्वनि प्रणाली या ध्वनि उत्पन्न करने वाले उपकरण का परिधीय ध्वनि स्तर, निजी स्थान की चारदीवारी में, उस क्षेत्र जहां यह उपयोग में लाया जा रहा है, के लिए परिवेशी ध्वनि मानक के 5 dB(A) से अधिक न होगा ।"

6. उक्त नियमो के नियम 5 के पश्चात निम्नलिखित नियम अंत:स्थापित किए जाएंगे, अर्थात् :-

"5 क. भोंपू (हॉर्न) के उपयोग, ध्वनि उत्सर्जित करने वाली संनिमार्ण मशीनें और पटाखे फोड़ने पर प्रतिबंध. -

(1) भोंपू (हॉर्न) का उपयोग शांत परिक्षेत्रों या रात्रि समय में आवासीय क्षेत्रों में सार्वजनिक आपात के सिवाय नहीं किया जाएगा ।

(2) ध्वनि उत्सर्जित करने वाले पटाखे शांत परिक्षेत्र या रात्रि समय में नहीं फोड़े जाऐंगे ।

(3) रात्रि में ध्वनि उत्सर्जित करने वाली संनिमार्ण मशीनें शांत परिक्षेत्रों और आवासीय क्षेत्रों में उपयोग में नहीं लाई जायेंगी या चलाई नहीं जायेंगी ।"

7. उक्त नियमों के नियम 6 में, खंड (iii) के पश्चात् निम्नलिलिखत खंड अंत:स्थापित किये जाएंगे, अर्थात: -

"(iV) जो कोई, ध्वनि उत्सर्जित करने वाले पटाखे फोड़ता है, या

(V) जो कोई, लाउड स्पीकर या लोक संबोधन प्रणाली का उपयोग करता है ।"

8. उक्त नियम के नियम 7 के उप-नियम 7(1) में "संबंधित कॉलम के विरूद्ध किसी क्षेत्र/परिक्षेत्र" शब्दों के पश्चात "या, यदि रात्रि समय के दौरान लगाए गए प्रतिबंधों के बारे में इन नियमों के किसी उपबंध का अतिक्रमण है" शब्द अंत:स्थापित किए जाएंगे ।

9. उक्त नियमों के नियम 8 के उप नियम 1 के खंड (क) में,-

(i) उपखंड (ii) में "लोक संबोधन प्रणाली उपकरणों या उपस्कर" शब्दों के स्थान पर, "लोक संबोधन प्रणाली, हॉर्न, उपकरण या उपस्कर" शब्द अंत:स्थापित किए जाएं ।

(ii) उपखंड (ii) के पश्चात्, निम्नलिखित उपखंड अंत:स्थापित किया जाएगा, अर्थात् :-

"(iii) ध्वनि उत्सर्जित करने वाले पटाखे फोड़ने से कारित ध्वनि, या" ।

[फा. सं. क्यू-15022/02/08-सी पी ए]

रजनीश दुबे, संयुक्त सचिव

टिप्पणी : मूल नियम भारत के राजपत्र में अधिसूचना संख्याक का.आ. 123(अ), तारीख 14 फरवरी, 2000 द्वारा प्रकाशित किए गए थे और उनका पश्चातवर्ती संशोधन का.आ. 1046(3), तारीख 22 नवम्बर, 2000, का.आ. 1088(अ), तारीख 11 अक्तूबर, 2002 और का.आ. 1569(अ), तारीख 19 सितम्बर, 2006 द्वारा किए गए ।

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 11th January, 2010

S.O. 50(E).—Whereas, the Central Government has notified the Noise Pollution (Regulation and Control) Rules, 2000 vide notification number S.O. 123 (E), dated the 14th February, 2000, which has been amended vide S.O.1046(E), dated the 22nd November, 2000, S.O.1088 (E), dated the 11th October, 2002 and S.O.1569 (E), dated the 19th September, 2006;

And, whereas, the Central Government had received representations from Non-Government Organisations and individuals requesting for certain amendments in view of various difficulties being faced in the society due to noise pollution;

And , whereas, the Central Government in exercise of the powers conferred by sub-section (2) of section 3 and section 25 of the Environment (Protection) Act, 1986 (29 of 1986), read with rule 5 of the Environment (Protection) Rules, 1986, further to amend the Noise Pollution (Regulation and Control) Rules, 2000 published the draft rules in the Gazette of India, Extraordinary, vide G.S.R. 158(E), dated the 9th March, 2009 for the information of all persons likely to be affected thereby; and notice was given that the said draft rules would be taken into consideration by the Central Government on or after the expiry of a period of sixty days from the date on which copies of the Gazette containing this notification are made available to the public ;

And, whereas, the copies of the said Gazette notification were made available to the public on the 27th March, 2009;

And, whereas, objections and suggestions received in response to the above mentioned draft rules have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by clause (ii) of sub-section (2) of section 3, sub-section (1) and clause (b) of sub-section (2) of section 6 and section 25 of the Environment (Protection) Act, 1986 (29 of 1986) read with rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following rules further to amend the Noise Pollution (Regulation and Control) Rules, 2000, namely:-

The Noise Pollution (Regulation and Control) (Amendment) Rules, 2010

1. (1) These rules may be called the Noise Pollution (Regulation and Control) (Amendment) Rules, 2010.

   (2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Noise Pollution (Regulation and Control) Rules, 2000, (hereinafter referred to as the said rules), in the opening portion, after the words "construction activity", the words "fire crackers, sound producing instruments" shall be inserted;

3. In the said rules, in rule 2, after clause (h), the following clauses shall be inserted, namely:-

   "(i) "public place" means any place to which the public have access, whether as of right or not, and includes auditorium, hotels, public waiting rooms, convention centres, public offices, shopping malls, cinema halls, educational institutions, libraries, open grounds and the like which are visited by general public; and

   (j) "night time" means the period between 10.00 p.m. and 6.00 a.m.".

4. In the said rules, in rule 3, in sub- rule (3), after the words "noise emanating from vehicular movements", the words "blowing of horns, bursting of sound emitting fire crackers, use of loud speakers or public address system and sound producing instruments" shall be inserted.

5. In the said rules, in rule 5,-

   (i) in the heading, after the words "PUBLIC ADDRESS SYSTEM", the words "AND SOUND PRODUCING INSTRUMENTS" shall be inserted;

1160)10-2

(ii) for sub-rule (2), the following sub- rule shall be substituted, namely:-

"(2) A loud speaker or a public address system or any sound producing instrument or a musical instrument or a sound amplifier shall not be used at night time except in closed premises for communication within, like auditoria, conference rooms, community halls, banquet halls or during a public emergency.";

(iii) In sub-rule (3),-

(a) for the words "public address systems during night hours", the words "public address system and the like during nights hours" shall be substituted;

(b) after the words "a limited duration not exceeding fifteen days in all during a calendar year.", the words "The concerned State Government shall generally specify in advance, the number and particulars of the days on which such exemption would be operative." shall be inserted;

(iv) after sub-rule 3, as so amended, the following sub-rules shall be inserted, namely:-

"(4) The noise level at the boundary of the public place, where loudspeaker or public address system or any other noise source is being used shall not exceed 10 dB (A) above the ambient noise standards for the area or 75 dB (A) whichever is lower;

(5) The peripheral noise level of a privately owned sound system or a sound producing instrument shall not, at the boundary of the private place, exceed by more than 5 dB (A) the ambient noise standards specified for the area in which it is used.".

6. In the said rules, after rule 5, the following shall be inserted, namely:-

"5A. RESTRICTIONS ON THE USE OF HORNS, SOUND EMITTING CONSTRUCTION EQUIPMENTS AND BURSTING OF FIRE CRACKERS.-

(1) No horn shall be used in silence zones or during night time in residential areas except during a public emergency.

(2) Sound emitting fire crackers shall not be burst in silence zone or during night time.

(3) Sound emitting construction equipments shall not be used or operated during night time in residential areas and silence zones.".

7. In the said rules, in rule 6, after the clause (iii), the following clauses shall be inserted, namely -

"(iv) whoever, bursts sound emitting fire crackers; or

(v) whoever, uses a loud speaker or a public address system.".

8. In the said rules, in rule 7, in sub-rule (1), after the words "in the corresponding columns against any area/ zone" the words "or, if there is a violation of any provision of these rules regarding restrictions imposed during night time" shall be inserted.

9. In the said rules, in rule 8, in sub-rule (1), in clause (a),-

(i) in sub-clause (ii), for the words, "public address systems, appliance or apparatus" the words "public address systems, horn, construction equipment, appliance or apparatus" shall be substituted;

(ii) after sub-clause (ii), the following sub-clause shall be inserted, namely:-

"(iii) sound caused by bursting of sound emitting fire crackers, or,".

[F. No. Q-15022/02/08-CPA]

RAJNEESH DUBE, Jt. Secy.

Note: - The principal rules were published in the Gazette of India vide numb S.O. 123 (E), dated 14th February, 2000 and subsequently amended vide S.O. 1046 (E), dated the 22nd November, 2000, S.O. 1088 (E), dated the 11th October, 2002 and S.O. 1569 (E), dated the 19th September, 2006.

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Annexure III

Noise Pollution (Regulation and Control) Rules 2010, Amendment 2017

रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

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अधिसूचना

नई दिल्ली, 10 अगस्त, 2017

का.आ. 2555(अ).— पर्यावरण संरक्षण नियम, 1986 के नियम,5 के उपनियम (3) के खंड (क) के अनुसार जब केन्द्रीय सरकार को यह प्रतीत हो कि किसी उद्योग की अवस्थिति पर अथवा किसी क्षेत्र में प्रक्रियाओं और प्रचालनों को जारी रखने पर प्रतिषेध या प्रतिबंध लगाया जाना समीचीन है, तो वह राजपत्र में अधिसूचना के द्वारा और ऐसी अन्य रीति के द्वारा जो केन्द्रीय सरकार समय-समय पर आवश्यक समझे, ऐसा करने के अपने आशय की सूचना दे सकती है;

और जबकि उक्त उप-नियम के खंड (क) के अंतर्गत जारी प्रत्येक अधिसूचना में क्षेत्र और उस क्षेत्र में स्थित उद्योगों प्रचालनों, प्रक्रियाओं का वर्णन दिया जाएगा जिनसे ऐसी अधिसूचना संबंधित है तथा किसी उद्योग की अवस्थिति पर तथा उस क्षेत्र में प्रचालनों और प्रचालनों के जारी रखने का प्रतिषेध करने या उन पर प्रतिबंध लगाने के कारणों को भी विनिर्दिष्ट किया जाएगा;

और जबकि खंड (क) के अधीन अधिसूचित प्रक्रियाओं या प्रचालनों के जारी रखने पर लगाए गए प्रतिषेध या प्रतिबंध के विरूद्ध आक्षेप फाइल करने का हितबद्ध कोई व्यक्ति इस अधिसूचना के राजपत्र में प्रकाशन की तारीख से साठ दिन के भीतर केन्द्रीय सरकार के पास लिखित में अपना आक्षेप फाइल करवा सकता है;

और जबकि उक्त उपनियम के खंड (घ) में यह उपबंध है कि केन्द्रीय सरकार सरकारी राजपत्र में इस अधिसूचना में प्रकाशन की तारीख से एक सौ बीस दिन की अवधि के भीतर ऐसी अधिसूचना के विरूद्ध प्राप्त सभी आक्षेपों पर विचार करेगी तथा अधिसूचना के प्रकाशन की तारीख से पांच सौ पैंतालीस दिन के भीतर ऐसे उद्योगों की अवस्थिति या किसी क्षेत्र में किसी प्रक्रिया के प्रचालन के जारी रखने को प्रतिषेधित या प्रतिबंधित कर सकेगी;

और जबकि उक्त नियम-5 में उपनियम (4) में यह उपबंध है कि उपनियम (3) में किसी बात के होते हुए भी केन्द्रीय सरकार को जब भी ऐसा प्रतीत हो कि ऐसा करना लोकहित में है तो वह नियम-5 के उपनियम (3) के खंड (क) के तहत नोटिस जारी करने की अपेक्षा का त्याग कर सकती है।

अत: अब केन्द्रीय सरकार, पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के साथ पठित पर्यावरण (संरक्षण) अधिनिमय, 1986 (1986 का 29) की धारा 3, 6 और 25 के द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, ध्वनि प्रदूषण (विनियमन और नियंत्रण) नियम, 2000 में और संशोधन करने के लिए, एतद्वारा, निम्नलिखित नियम बनाती है, अर्थात्:-

1. (1) इन नियमों का संक्षिप्त नाम ध्वनि प्रदूषण (विनियमन और नियंत्रण) संशोधन नियम, 2017 कहलाएंगें।
(2) ये भारत के राजपत्र में प्रकाशन की तारीख को प्रवृत्त होंगे।

2. ध्वनि प्रदूषण (विनियमन एवं नियंत्रण) नियम, 2000 (जिसे इसके बाद मूल नियम कहा गया है) में, नियम-3 में, उपनियम (5) में,-

(क) "घोषित किया जाए" शब्दों के पश्चात "राज्य सरकार द्वारा" शब्द अंत:स्थापित किए जाएंगे;

(ख) निम्नलिखित परंतुक अंत:स्थापित किया जाएगा, अर्थात्:-

"परन्तु यह कि कोई क्षेत्र शांत क्षेत्र या जोन प्रवर्ग के अधीन तब तक नहीं लाया लाएगा जब तक उसे राज्य सरकार द्वारा उप-नियम (2) के अनुसार अधिसूचित न कर दिया जाए।"

3. मूल नियम में नियम 5 के, उपनियम (3) के स्थान पर निम्नलिखित रखा जाएगा, अर्थात:-

(3) उप-नियम (2) में किसी बात के होते हुए भी, राज्य सरकार, ऐसी निबंधन और शर्तों के अध्यधीन, जो ध्वनि प्रदूषण को कम करने के लिए आवश्यक हों, कैलेंडर वर्ष के दौरान कुल 15 दिन से अनधिक की सीमित अवधि के किसी सांस्कृतिक, धार्मिक या उत्सव के अवसर पर या इसके दौरान रात्रि समय में (10.00 बजे अपराह्न से 12.00 बजे मध्यरात्रि) के दौरान लाउडस्पीकर, जन-संबोधन प्रणाली और इस तरह की अन्य व्यवस्थाओं के उपयोग की अनुमति दे सकती है तथा संबंधित राज्य सरकार अथवा संबंधित राज्य सरकार द्वारा प्राधिकृत जिला प्राधिकारी अपने अधिकारिता में सामान्यत: ऐसी छूट के लागू होने के दिन की संख्या और विवरण को अग्रिम रूप से विनिर्दिष्ट करेंगे।

स्पष्टीकरण- इस उप-नियम के प्रयोजन के लिए,

(i) 'त्यौहार के अवसर" में केन्द्रीय सरकार या राज्य सरकार द्वारा यथा अधिसूचित राष्ट्रीय समारोह या राज्य समारोह सम्मिलित है; और

(ii) "राष्ट्रीय समारोह या राज्य समारोह" में,

(क) गणतंत्र दिवस;

(ख) स्वतंत्रता दिवस;

(ग) राज्य दिवस; और

(घ) केन्द्रीय सरकार या राज्य सरकार द्वारा अधिसूचित कोई अन्य दिवस सम्मिलित है।

4. मूल नियम में, अनुसूची में, टिप्पणी 3 के पैरा 3 का लोप किया जाएगा।

[फा.सं. क्यू-15022/01/2017-सीपीए]

अरूण कुमार मेहता, अपर सचिव

पाद टिप्पण: मूल नियम भारत के राजपत्र में अधिसूचना संख्या का.आ. 123 (अ), दिनांक 14 फरवरी, 2000 को प्रकाशित किए गए थे, और इन्हें पिछली बार अधिसूचना संख्या का.आ. 50(अ), तारीख 11 जनवरी, 2011 के द्वारा संशोधित किया गया था।

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 10th August, 2017

S.O. 2555(E).—Whereas, according to clause (a) of sub-rule (3) of rule 5 of the Environment Projection Rules, 1986, whenever it appears to the Central Government that it is expedient to impose prohibition or restrictions on the location of an industry or the carrying on the processes and operations in an area, it may, by notification in the Official Gazette and in such other manner as the Central Government may deem necessary from time to time, give notice of its intention to do so;

And whereas, every notification under clause (a) of said sub-rule shall give a brief description of the area, the industries, operations, processes in that area about which such notification pertains and also specify the reasons for the imposition of prohibition or restrictions on the locations of the industries and carrying on of process or operations in that area;

And whereas, any person interested in filing an objection against the imposition of prohibition or restrictions on carrying on of processes or operations as notified under clause (a) may do so in writing to the Central Government within sixty days from the date of publication of the notification in the Official Gazette;

And whereas, clause (d) of the said sub-rule provides that the Central Government shall, within a period of one hundred and twenty days from the date of publication of the notification in the Official Gazette, consider all the objections received against such notification and may within five hundred and forty five days from such date of publication impose prohibition or restrictions on location of such industries and the carrying on of any process or operation in an area;

And whereas, sub-rule (4) of rule 5 of the said rules provide that, notwithstanding anything contained in sub-rule (3), whenever it appears to the Central Government that it is in public interest to do so, it may dispense with the requirement of notice under clause (a) of sub-rule (3) of rule 5.

Now, therefore, in exercise of the powers conferred by sections 3, 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), read with rule 5 of the Environment (Protection) Rules 1986, the Central Government hereby make the following rules further to amend the Noise Pollution (Regulation and Control) Rules, 2000, namely: -

1. (1) These rules may be called the Noise Pollution (Regulation and Control) Amendment Rules, 2017.

   (2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Noise Pollution (Regulation and Control) Rules, 2000 (hereinafter referred to as the principal rules), in rule 3, in sub-rule (5), -

   (a) after the word "maybe declared", the words "by the State Government" shall be inserted;

   (b) the following proviso shall be inserted, namely: -

   "Provided that, an area shall not fall under silence area or zone category, unless notified by the State Government in accordance with sub-rule (2).".

3. In the principal rules, in rule 5, for sub-rule (3), the following shall be substituted, namely: -

   '(3) Notwithstanding anything contained in sub-rule (2), the State Government may subject to such terms and conditions as are necessary to reduce noise pollution, permit use of loud speakers or public address systems and the like during night hours (between 10.00 p.m. to 12.00 midnight) on or during any cultural, religious or festive occasion of a limited duration not exceeding fifteen days in all during a calendar year and the concerned State Government or District Authority in respect of its jurisdiction as authorised by the concerned State Government shall generally specify in advance, the number and particulars of the days on which such exemption should be operative.

Explanation. - For the purposes of this sub-rule, the expressions-

(i) "festive occasion'' shall include any National function or State function as notified by the Central Government or State Government; and

(ii) "National function or State function "shall include"-

(A) Republic Day;

(B) Independence Day;

(C) State Day; or

(D) such other day as notified by the Central Government or the State Government.'.

4. In the Schedule to the principal rules, in the Note, paragraph 3 shall be omitted.

[F. No. Q-15022/01/2017-CPA]
ARUN KUMAR MEHTA, Addl. Secy.

Footnote: The principal rules were published in the Gazette of India, *vide* No. S.O. 123 (E,) dated the 14th February, 2000 and were last amended vide S.O. 50 (E), dated the 11th January, 2011.