

Report of assessment of Noise and Air Pollution survey in Kolkata during Kali puja Festival- 2004

Introduction:

The use of loudspeakers is regulated in terms of the Rules under the Environment Protection Act (1986) as well as the orders of the Supreme Court and the Calcutta High Court. The Police is empowered to enforce these rules and the orders. While the legal restrictions are mostly known by and large, special vigilance becomes necessary during festivals such as the Durga Puja, Kali Puja & Diwali. To have a clear idea about the increase of ambient noise level in residential areas in the city of Calcutta and other district town during the festivals, the West Bengal Pollution Control Board (WBPCB) undertook a noise monitoring survey during those days in the year 2004 as in previous years.

Noise Pollution Survey procedure:

Fire crackers generate instantaneous impulsive noise, which when measured in free field condition in impulsive mode, gives peak sound pressure level. It is quite obvious that a number of crackers when bursting serially can easily form a band of continuous noise in the presence of reflecting surfaces. The reverberation of sound wave due to repeated reflection in the surfaces prolongs the time interval of prevailing sound intensity. The continuous band of noise, thus formed, definitely affects the ambient level in close proximity.

The monitoring was conducted at the eleven select locations such as Salt Lake, Lake Town, Kankurgachi, Beliaghta, Behala, Minto Park, Burrabazar, jadavpur, rabindra Sarani, talapark and Howrah Maidan, on a normal working day, between 6.00 p.m. and 10.00 p.m. The microphone of the Sound Level Meter fitted with wind screen was placed 1.5m above the ground, and at least 1m from the façade of the building at each location. Data recorded at each location were used to compute the one hour equivalent continuous noise level L_{eq} . On the same locations, the above procedure was repeated on the Kali puja day (11.11.04).

Results of noise pollution survey:

The noise survey results in 2004 (Table-I) reveal moderate increase in the ambient noise level in various residential areas in the city of Kolkata and Howrah on the Kali puja/ Deepavali day in comparison to any normal day. The main cause of increase in ambient noise level on festival days is bursting of crackers, whereas in normal days, the main contributions to the ambient noise level of any residential area are from trade activities, the transport system and various domestic activities.

The main observations are summarised below:

- i. The increase of the noise level at the select locations on the Kali puja day compared to a normal day in 2004 varies from 4% to 14%. This is higher compared to the figure during 2003, but much lower in some locations compared to 2002(Table-I).
- ii. Compared to last year (2003), there is an increase in the noise level in 50% of the sample locations, which varied from 5% to 10% (at the locations in northern parts of

Kolkata), where as in the remaining sample locations, there was reduction of noise level varying from 2% to 11% (in the southern part of the city). The increase of noise level in Howrah city during 2004 as compared to 2003, is observed at 3% only (Table-II).

- iii. A more or less similar trend as indicated at (ii) is observed during 2004 when compared to the 2002 data (Table-III).

Air Quality survey:

The ambient air quality monitoring for measurements of NO_x, SO₂, SPM and RPM were conducted in specific locations in Kolkata city during the festive days for 24 hrs. The measurements were made following standard methodology to determine the concentration of pollutant in the ambient air.

Results of air pollution survey:

- i. In a survey of ambient air quality during Kali Puja and Diwali days in 2004, the levels of nitrogen and sulphur dioxides, though much higher than any normal day, were found to be within the permissible limits (Table-IV).
- ii. The total suspended particulate matter (SPM) and respirable particulate matter (RPM) exceeded the permissible limit on Kali puja in 2004 and 2003. However, these levels sharply increased in the Diwali 2004 as compared to 2003 (Table-V).

Analysis of Complaints :

A central Control Room was set up at the Head Office of WBPCB at Paribesh Bhawan, Salt Lake, Kolkata on both the days from evening to late night to receive complaints. In addition, control rooms were set up in the Regional Offices of the Board at Haldia, Hooghly, Barrackpore, Durgapur, Asansol and Siliguri.

The details of complaints received in the years 2003 and 2004 in the WBPCB Control Room at Paribesh Bhawan are furnished below:

Year	Kali Puja Day	Following day/Diwali Day	Total no. of complaints received in two days
2003	40	20 (till 9.45 p.m.)	60
2004	71	78 (till 12.45 a.m.)	149

The nature of complaints received in 2004 are detailed below:

Festival Days in 2004	Kolkata Police area	West Bengal Police area	Complaints against bursting of crackers	Complaints against playing of loudspeakers
Kali Puja Day (11.11.04)	21 (Cossipur, Kalighat, Bhawanipur, Gariahat, Manicktola, Beliaghata, Burtolla etc.)	50 (Thakurpukur, Purba Jadavpur, Baguihati/Rajarhat, Sibpur, Kasba, Dum Dum, Barasat, Khardha, Baranagar, Bidhannagar, Uttarpura, Uluberia, Lake Town, Chandannagar, Sonarpur etc.)	62 (33)*	09 (07)*
Diwali Day (12.11.04)	40 (New Market, Alipore, Bhawanipur, Gariahat, Burtolla, Ballygunge, Kalighat, Chitpur, Shyampukur, Watgunge, Narkeldanga, manicktala, Cossipur, New Alipore, Kareya, Beniapukur, Beliaghata, Burrabazar, Phulbagan, Entally etc.)	38 (Shibpur, Jadavpur, Titagarh, Batra, Dasnagar, Belghoria, Golabari, Bidhannagar, Regeant park, Jagatdal, Bally, Dum Dum, Bizpur, Lake Town etc.)	68 (14)*	10 (06)*

* Figure in the bracket for the year 2003

From the above, the following may be noted:-

1. Compared to 2003, the State Board received a higher number of complaints on both the Kali Puja and Diwali days. These may be due to increased awareness among the public about the Board's direction and existence of Board's **toll free no 1600 33 3390, or/and higher violation of noise pollution norms.**
2. During the Kali Puja day, the maximum numbers of complaints were received from the West Bengal Police areas, while on the Diwali day, the maximum number of complaints were received from the Kolkata Police area.

Awareness campaign and specific measures:

The WBPCB has given a wide publicity to the Supreme Court's direction on the use of fireworks only between 6.00 a.m. and 10.00 p.m. through Electronic and Print Media. In addition, request made to the Cellular operators for sending an awareness message '**Say NO to CRACKERS. Celebrate Deepavali with lamps, candles and fireworks.**' to their customers. The WBPCB has arranged to display 100 festoons in 100 places as well as distribute leaflets (related to various legal restrictions) at crowded spots in Kolkata city for public awareness.

In 2004, the WBPCB has conducted a large number of inspections during October and November at the various fireworks manufacturing units in association with the District Police Authority, and seized more than 500 Kgs and 5 lac pieces of prohibited fireworks. About 13 persons were arrested during the operation. Similarly, a large number of prohibited fire works were seized on Kali Puja and Diwali day.

Table- I
Comparison of Noise Level in a normal day with Kalipuja Day

Location	Noise Level in dBL _{Aeq}								
	In the year 2002			In the year 2003			In the year 2004		
	Normal Day (before kali puja)	Kalipuja Day	% increase	Normal Day (before kali puja)	Kalipuja Day	% increase	Normal Day (before kali puja)	Kalipuja Day	% increase
Salt Lake- Sector-III	65	70	7	65	67	3	67	74	10
Lake Town- B Block	67	75	11	69	72	4	69	79	14
Kankurgachi-Scheme VIIM	68	74	8	67	71	5	67	75	12
Beliaghata CIT Building	67	78	13	70	75	7	73	79	8
Behala- Biren Roy Road	68	80	17	73	78	6	70	74	6
Minto Park- Sarat Bose Road	74	85	14	77	82	6	70	73	4
Kalakar Street- Burrabazer	73	76	4	74	75	1	76	79	4
Jadavpur 8B Bus Terminus	71	79	11	72	74	2	67	70	4
Rabindra Sarani- Ganesh Takie	72	81	12	74	77	4	69	75	9
Talapark- Belgachia	67	76	13	68	72	5	65	70	8
Howrah Maidan	73	78	6	74	76	2	74	78	5

Table-II
Comparison of Noise Level in Kalipuja Day during 2003 & 2004

Location	Noise Level in $dB_{L_{Aeq}}$		
	2003	2004	% Increase
Salt Lake- Sector-III	67	74	10
Lake Town- B Block	72	79	10
Kankurgachi-Scheme VIIIIM	71	75	6
Beliaghata CIT Building	75	79	5
Behala- Biren Roy Road	78	74	-5
Minto Park- Sarat Bose Road	82	73	-11
Kalakar Street- Burrabazer	75	79	5
Jadavpur 8B Bus Terminus	74	70	-5
Rabindra Sarani- Ganesh Takie	77	75	-2
Talapark- Belgachia	72	70	-3
Howrah Maidan	76	78	3

Table-III
Comparison of Noise Level in Kalipuja Day during 2002 & 2004

Location	Noise Level in $dB_{L_{Aeq}}$		
	2002	2004	% Increase
Salt Lake- Sector-III	70	74	6
Lake Town- B Block	75	79	5
Kankurgachi-Scheme VIIIIM	74	75	1
Beliaghata CIT Building	78	79	1
Behala- Biren Roy Road	80	74	-7
Minto Park- Sarat Bose Road	85	73	-14
Kalakar Street- Burrabazer	76	79	4
Jadavpur 8B Bus Terminus	79	70	-11
Rabindra Sarani- Ganesh Takie	81	75	-7
Talapark- Belgachia	76	70	-8
Howrah Maidan	78	78	0

Table-IV

Comparison of Ambient Air Quality on Kali Puja day during 2003 & 2004

Parameter ($\mu\text{g}/\text{m}^3$)	Kolkata Average		Residential Standard
	Year 2003	Year 2004	
SPM	246	243	200
RPM	133	129	100
SO ₂	15	19	80
NO _x	50	77	80

Table-V

Comparison of Ambient Air Quality on Diwali day during 2003 & 2004

Parameter ($\mu\text{g}/\text{m}^3$)	Kolkata Average		Residential Standard
	Year 2003	Year 2004	
SPM	144	233	200
RPM	74	125	100
SO ₂	11	16	80
NO _x	46	74	80