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Research Paper

Study and Assessment of noise level in New Digha, West Bengal

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ABSTRACT:*The world's cities and towns are currently dealing with a significant increase in noise pollution issues due to rapid population growth, traffic jams, commercial and industrial operations. Digha, situated in Purba Medinipur district of West Bengal, about 200 kilometres from Kolkata, is facing tremendous rise of noise pollution.*
Noise data were gathered from several locations in Digha, to determine the level of noise. Several locations were chosen across the town and noise level were recorded using a sound level metre for 30 minutes per location at predetermined times, such as 6am, 10am,1pm, 4 pm, and 6pm. The tabulated data revealed that, at various times and locations, the sound intensity is between 55 and 90 dB or higher. According to statistics, the peak noise levels in each of these zones differ greatly. Both people and the ecosystem are harmed by noise pollution. In humans, sound can lead to psychological illnesses. In order to reduce noise pollution in Digha, it is crucial to follow the laws and regulations outlined in the Environment Protection Act of 1986.
KEYWORDS: *Noise level, Decibel, Digha, West Bengal, Sound level meter.*

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I. INTRODUCTION

An unseen threat is noise pollution. Even though it cannot be seen, it exists both on land and in the ocean. Any undesired or irritating sound that has an impact on the health and wellbeing of people and other living things is referred to as noise pollution.

Decibels are used to measure sound. There are various sounds in the surroundings, such as the siren sound and the rustle of leaves. A person's ears can become damaged by noises that are 85 dB or louder. Sound sources that exceed this level include commonplace objects like loud rock concerts, subway trains, and power lawn mowers.

Every day, millions of individuals are impacted by noise pollution. It most frequently results in noise-induced hearing loss (NIHL). Stress, high blood pressure, heart disease, and sleep difficulties can all be brought on by exposure to loud noise. Children, in particular, but all age groups, can experience these health issues. Numerous studies have shown that kids who live close to busy roads or airports have stress as well as other issues like memory, concentration, and reading difficulties.

Animal health and welfare are also impacted by noise pollution. According to studies, loud noises can make bluebirds produce fewer young and cause the dorsal vessels of caterpillars, an insect's version of a heart, to beat more quickly.

Animals use sound for a number of purposes, such as navigating, locating food, luring mates, and fending off predators. They struggle to do these duties due to noise pollution, which has an impact on their capacity to survive.

Animals that live in the ocean are also increasingly affected by the increase in noise, in addition to those that dwell on land. The once peaceful sea environment has become noisy and chaotic due to ships, oil drilling platforms, sonar equipment, and seismic tests. Noise pollution has an especially negative effect on whales and dolphins. These marine animals rely on echolocation for communication, navigation, feeding, and mate-finding, and too much noise hinders this ability. Sonar systems used by the navy are some of the loudest underwater noise sources. Similar to echolocation, sonar locates objects by sending sound pulses into the ocean's depths, where they bounce off objects and return an echo to the ship. Whales' ability to use echolocation

is hampered by sonar noises, which may be as high as 235 decibels and penetrate hundreds of miles beneath the surface of the ocean. It has been studied that use of Sonar changes the eating habits of endangered blue whales and often causes huge whale stranding on beaches.

Digha, one of the most popular tourist spots in West Bengal, is situated in the East Midnapore district. Many people are unaware of that fact Warren Hastings had Digha as one of his favourite spots. He did his best to turn this location to a tourist spot. Digha was once more the centre of attention in 1923 when John Frank Smith, a well known English traveller, moved there. He made the decision to settle down permanently in this town due to his fascination with its understated beauty.

With a shallow sand beach that stretches up to 7 kilometres in length and gently rolling waves, Digha beach has a unique low gradient. This location has beautiful and captivating natural beauty. The beach's beauty is enhanced by the casuarinas plantations that line the coast. These trees not only add beauty, but they also lessen dune erosion.

This seaside tourism destination attracts numerous visitors from all across India, not just West Bengal. Most of the tourists come generally from Kolkata. It is often referred to as the "Brighton of the East,"

Digha is particularly a village with a vibrant tourist atmosphere. It is not an industrial town, so noises originate generally from tourist vehicles. National Highway 116B passes through Digha, and it acts as a link between Odisha and West Bengal. Interstate vehicles pass through this road and acts as a major noise contributor. The noise increases substantially on Weekends and holidays, as lots of tourists arrive Digha. Many of them use their own vehicles.

II. MATERIALS AND METHODS

On the basis of zone specific, five(5) different significant places in Digha were chosen for noise level monitoring. Data were collected from different places like Digha Science Centre, Digha Shankarpur Development authority, Old Digha, Digha Sea Beach and Digha Gate. The timing for data collection was adjusted to different point of time of a day like 6am, 10am, 1pm, 4pm and 6pm. The device used here is Hti HT-80A Sound Level Meter and it contains microphone, Display, Max, Min and Hold Button.

III. NOISE LEVEL VARIATIONS AT DIFFERENT LOCATION OF DIGHA, WEST BENGAL (1ST DATA SET)

Sl No	Location(s)	Time																	
			6am			10am			1am				4pm				6pm		
		Min	Max	Mean		Min	Max	Mean		Min	Max	Mean		Min	Max	Mean		Min	Max	Mean
1.	Digha Science Centre	59.5	68.0	63.75		65.1	82.8	73.95		60.1	78.2	69.15		57.3	75.0	66.15		65.3	91.5	78.4
2.	DSDA	62.3	78.6	70.45		66.2	91.8	79		65.2	81.9	73.55		60.0	76.9	68.45		69.3	88.5	78.9
3.	Old Digha	64.0	79.6	71.80		65.3	86.3	75.8		64.3	78.3	71.3		64.2	78.3	71.25		68.0	95.5	81.75
4.	Digha Sea Beach	57.3	66.2	61.75		60.3	78.0	69.15		58.2	75.2	66.7		59.9	74.3	67.1		66.1	84.9	75.5
5.	Digha Gate	62.2	77.5	69.85		64.2	79.6	71.9		63.5	78.3	70.9		64.6	81.3	72.95		62.3	78.2	70.25

IV. NOISE LEVEL VARIATIONS AT DIFFERENT LOCATION OF DIGHA, WEST BENGAL (2ND DATA SET)

Sl No	Location(s)	Time																		
			6am			10am			1am				4pm				6pm			
		Min	Max	Mean		Min	Max	Mean		Min	Max	Mean		Min	Max	Mean		Min	Max	Mean
1.	Digha Science Centre	60.2	71.2			68.2	81.3			63.2	79.2			55.5	72.3			64.3	88.3	
2.	DSDA	61.0	79.2			59.9	88.3			68.1	85.2			62.5	79.2			69.4	88.9	
3.	Old Digha	66.2	78.5			68.3	87.2			62.3	75.5			68.5	75.5			62.3	89.3	
4.	Digha Sea Beach	60.9	65.1			57.4	76.2			55.3	76.3			64.9	78.4			65.2	83.2	
5.	Digha Gate	62.1	75.4			60.9	75.5			63.2	76.2			65.6	83.0			65.9	77.3	

V. RESULTS AND DISCUSSION

Noise level measurement conducted near to Digha Science centre shows that level is high mainly at opening hours. Noise level is also high at evening hours. Vehicles parked by visitors near Digha Science Centre causesome obstruction to free movement of other vehicles. High intensity horn used by Buses and Trucks causes maximum noises.

Noises levels were also recorded near Digha Shankarpur Development Authority. Digha By-pass originates near to it. Heavy vehicles like Lorries and Buses take this route to avoid the traffic of New and Old Digha. Noises were recorded higher at the juncture of Foreshore Road and Digha By-pass.

Old Digha is relatively congested than other places in Digha. This is largely due to the narrow road, huge crowds and large number of vehicles. After the construction of Digha By-pass, old Digha road is seldom used by the vehicles bound for Kanthi, Tamluk, Haldia, Kolkata. This has contributed in the reduction of congestion at old Digha. But high noise level recorded here, were caused due to small vehicles like auto, two-wheelers. Narrow road causes public crowd and thus contributes to increased noise.

Digha sea Beach is one of most favoured spot of tourists visiting Digha. Noises level recorded here shows great variation at different times. Variations were also recorded at high and low tides. Most tourists visit the sea beach at morning to catch the amazing glimpse of the sunrise. Noise becomes higher during summer afternoon, due to activities like bathing, sea surfing. At evening, crowds surge to its maximum limit as most of the tourists sits at the stone benches to enjoy sea view. It was also observed in this study that noises become higher during high tide. This was due to reduced space caused by high tide at sea beach. During low tide, wide sea beach space becomes available for tourist, which helps in scattering the crowd and reduction in noise.

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