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To Measure The Highway (Nh228) Noise Pollution To The Nearby Residential Area in the Bharuch City (From ABC circle to Jambusar Chaukadi)

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Abstract* : *Noise pollution is underrated mostly due to the fact that it can neither be seen, smelled nor touched. But the effects of Noise pollution on human health has been profound and WHO (World Health Organisation) has recognized it has the third hazardous threat to earth after air and water pollution. Noise pollution of urban area is increasing day by day due to increase in vehicular traffic and industrialization. To study the effect of noise pollution or for that matter any pollution the first step is to quantify the pollutant. So an attempt has been made through this paper to publish the results of a survey that will be conduct to measure the noise level on Highway NH228 in Bharuch city of Gujarat state in India.

Keywords: *Bharuchcity Highway(NH228), Noise Pollution, Traffic Noise*

I. Introduction

General overview:-This Project is deal with the Case Study of the Effect of the Traffic Noise pollution on the Residential area which are located near by the Highway.

Noise Pollution:- It is an unwanted or Excessive amount of sound that can have deleterious effects on human health and environmental quality. Noise pollution is commonly generated inside many industrial facilities and some other workplaces, but it also comes from highway, railway, and airplane traffic and from outdoor construction activities. **Traffic Noise** is unwanted sound that comes from vehicles operating on roadways. Engine noise can also contribute, especially from large vehicles like buses and transport trucks. People experience noise differently based on their personal sensitivity to sound.Now this Noise Pollution Leads to the various health effects like **Hypertension, Hearing loss,** Sleep disturbances, Psychologically functions, Cardiovascular dysfunctions etc. Sound levels less than 70 dB are not damaging to living organisms, regardless of how long or consistent the exposure is. Exposure for more than 8 hours to constant noise beyond 85 dB may be hazardous. If you work for 8 hours daily in close proximity to a busy road or highway, you are very likely exposed to traffic noise pollution around 85dB.

The permissible limit of the Noise Pollution given by the CPCB is as below,

Area Code	Category of Area/zone	Limit in db(A)	
		Day time	Night time
A	Industrial Area	75db(A)	70db(A)
B	Commercial Area	65db(A)	55db(A)
C	Residential Area	55db(A)	45db(A)
D	Silent Zone	50db(A)	40db(A)

II. Objective

- **The main objective of this Research study is to measure the level of Highway (NH 228) Noise Pollution to the nearby Residential area of Bharuch City.**

Need of Study

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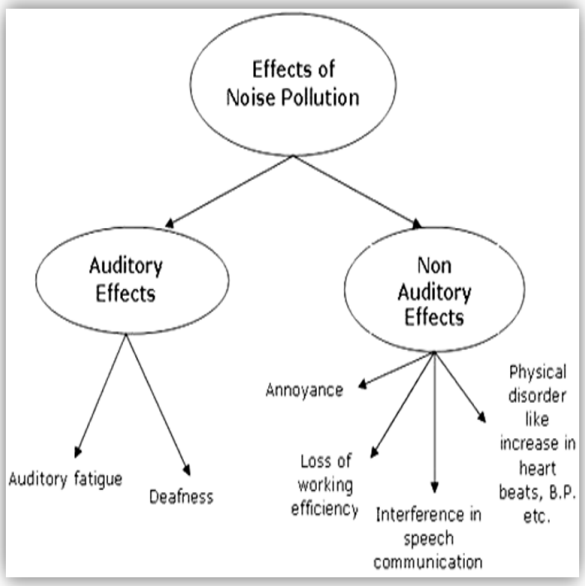
The Noise Pollution is the Third Most hazardous after the Water pollution and Air Pollution.

According to "World Health organization", In the Western Europe, over 1 Million Healthy Life Years are Loose every year from the Traffic Related Noise.

Now a days this Traffic Noise Pollution is become a serious threat which deals Several Health related problems to the nearby Environment.

In the Bharuch city, there are very few studies are carried but similar kind of study is still not taken away.



https://www.slideshare.net/gyaneshwarjha1/pollution-and-human-health

III. Scope of Study

Doing an Assessment of Highway NH 228 Noise Pollution to nearby locations and there will be a conduct a small survey among the people who are living nearby this Highway.

I will take random samples at particular points and at a particular distance for a same period time.

Obtain information on noise sources and work practices that will help to decide what measures are to be taken to reduce noise levels in that area.

Outcomes may vary on public holidays, operating days and non-working days i.e. Saturday and Sundays.

Make a survey among the peoples who is living near that Highway (228).

IV. Literature Review

Highway Traffic Noise in the City of Nagpur, India, SATISH K LOKHANDE, SAMIR S PATHAK, August 2016

Their study revealed that the noise level reached at an alarming level in Nagpur city, and it is resolved that the heavy traffic having greater velocity vehicles on these highways and majority of the transportation sector is responsible for the noise level exceeding the national standards.

From their research they conclude that the noise levels at most of the places in the city reached to critical levels and require efficient noise control measures to avoid negative effects of noise pollution. The results estimated from the FHWA model are very close to the observed values, hence it can be concluded that this model is applicable for predicting the noise levels in Indian cities with an acceptable limit of accuracy.

Measurement of Noise level of Bharuch city, Jini Sunil,February 2017

By their Study they have concluded In the Main Bharuch city area, the silence zone and Residential areas are being subjected to noise which is more than permissible limits. So the people living in the nearby areas will have health problems arising due to long term exposure to noise.

Mitigative measures must be taken to counter this effect which can be in the form of noise reduction at source or interruption of transmission path of noise or by using personal ear protection.

So this survey helped to identify the areas not confirming to permissible noise levels but more research and survey needs to be conducted to

identify the source of noise and to suggest required mitigative measures.

Assessment of Highway Traffic Noise Pollution and its Impact in and around Agartala, India, Deb Dulal Tripura, 19 May 2014.

By their study they have conclude that the Highway Traffic Noise in various locations is much higher than the standard limit prescribed in the Indian Standard (BIS). It has also been observed that Heavy road traffic (highway) of standard limit 80 – 90dB is being exceeded at various locations in the city.

In this Paper they have mentioned some locations of that City and conclude that all those roads are two lane road only and do not satisfy the IRC Specification. As a result traffic congestion occurs thereby producing more noise.

From Their survey It has been noticed that out of total population of 360, 225 people i.e., 62.5% is affected by the Highways noise both physiologically and psychologically.

A Case Study of Balasore Town, Orissa,India, Goswami, Accepted 25 Dec. 2008

In this paper from their study and Surveys and by seeing the situation of the city, they have comes on some conclusion that The Integrated Road Traffic Noise Strategy (IRTNS) must be developed at government level to minimize noise pollution.

CPCB, India should lay down legal standards for noise levels from roads and Ministry of Environment and Forest should launch programs to reduce noise from the motor vehicle. The following essentials should be focused on IRTNS.

A Study of Noise Pollution in Some Highway Corridor Near Gorakhpur City, Praveen Kumar, Dr. Arun Kumar Mishra, December-2014

The analysis of this study's data has revealed that the observed noise levels along all the highway corridors of namely NH-28, NH-29, SH-01, and SH-81 Gorakhpur city are alarmingly high. Hence the steps need to be taken for the control of noise by the prescribed authority.

The analysis of data has revealed that the observed noise levels along all the highway corridors of namely NH-28, NH- 29, SH-01, and SH-81 Gorakhpur city are alarmingly high. Hence the steps need to be taken for the control of noise by the prescribed authority.

So the outcome of the study may be of immense help in traffic planning and environmental assessment of the highway projects especially with respect to traffic noise.

A Case Study- Traffic Noise Pollution in One of the Metro Cities in India, Delhi, Jyoti, Ajay Dahiya, December 2014

From their study they have conclude that majority of respondents i.e. 35% who belonged to the 40-60% age group believed that effect of hearing is the worse effect of traffic noise pollution.

All, awareness of the public and stakeholders is the key component in the prevention and control of community noise pollution. Basic and essential information should be extensively disseminated, such as noise levels created by common sources of noise pollution.

Adverse health effects on both the person creating noise, and the public preventive measures and conditions punishable under law.

Traffic Noise Impact Assessment at URBAN ROAD JUNCTIONS, DR. NANDANWAR, DR. S K DESHMUKH

From this studies, they have observed that the noise level at various location due to transportation activities were more than the stipulated limits. Natural growth in number of vehicles in any city, occurred due to increasing industrialization and urbanization.

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As the city expands towards N-E and N-W side from the project area is a result of urbanization also there is a MIDC developing within 17 Km from the project area.

There will be definitely increase in vehicular traffic at the junction in future, which will result in increase of noise level mostly during peak hours.

Studies on assessment of traffic noise level in Aurangabad city, India, B. J. Bhosale, Amul Late, P. M. Nalawade, S. P. Chavan, M. B. Mule

The study reveals that, the vehicular traffic is the significant contributor of the noise pollution in urban areas. The total number of vehicles passing the on road in unit time and the time of the day during which they pass, (morning, afternoon and evening) may decide the session wise intensity of noise level.

The present investigation shows a higher noise level at dense traffic zones during morning and evening sessions in Aurangabad city.

The study recommends that regularity in the working status of traffic signals, research on alternative roads to avoid the heavy traffic in city area, and strict implementation of traffic rules by the public for which there is an urge to adopt awareness programs for minimizing the noise pollution.

Prevention of Noise Pollution caused by Highways in Settlement Areas via Noise Insulation System, Yıldız T. (2016)

A vehicle had been located and moved in the model road, and simultaneous noise measurements had been performed during the movement on both the road and outside of the double glass insulation system.

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Risk Assessment of In-Vehicle Noise Pollution from Highways, Qing Li, Fengxiang Qiao and Lei Yu

An on-road driving test with twelve subjects was conducted on the freeway SH 288 in Houston Texas, USA. During the driving test, invehicle noise levels and vehicle activities were collected.

Their Results show that the in-vehicle noise is mostly distributed at the range between 70 dB(A) and 80 dB(A).

Test drivers were more likely to be exposed to the noise level between 75 dB(A) and 85 dB(A). Driving at the lower speeds leads to the longer hazardous noise exposure time per unit travelled distance.

Road Traffic Noise Pollution Analysis for Cernavoda City, Romania, L. Manea, D. Florea and S. Tarulescu, 2017.

This study was made in function of three main routes: first route connects Cernavodă city entrance with main road that leads to Nuclear power plant, characterized by wide roads with 2 lanes and high traffic flows; the second route is characterized by narrow roads, with high declivity, with 1 lane and medium traffic flows; the third route is the Cernavodă bypass road characterized by high heavy vehicles traffic.

They observed that noise level is closely related with the number and composition of road traffic.

In this case, some measures should be taken to control the level of noise pollution in the city. To reduce noise pollution.

They have suggested several measures that can be implemented for that region.

A Review of Adverse Effects of Road Traffic Noise on Human Health, Devi Singh, NeerajKumari, and Pooja Sharma

This Review paper shows the adverse effect of Traffic on the peoples who is living nearby the Streets.

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They have Considered that it is a serious health hazard resulting in human suffering, issues of noise pollution cannot be ignored.

For the sake of human wellbeing and future of our children, it is high time we take suitable measures to control the noise pollution as per the noise level exposure limits for human population.

They have also said that some. Specific steps need to be taken to control noise pollution such as educating the people about adverse health hazards, implementing laws for regulation of the noise levels, planting trees to absorb the noise and involving individuals, NGOs, media and governments.

Effects of road traffic noise on health: from Burden of Disease to effectiveness of interventions, A. Lex Brown

This new evidence on the health effects of environmental noise moves the focus from consideration of transportation noise as a quality-of-life issue only, to one firmly on the environmental health agenda, providing quantitative evidence, even if only a first approximation at this stage, in terms of its Burden of Disease.

There is guidance available as to how this burden should be calculated based on knowledge of the distribution of the exposure to environmental noise in the population of interest, an exposure-response relationships for each health outcome, and an estimate of a disability weight (DW) for each health outcome.

This is an important finding, as many of the projected mega-cities in the world will be located in non-temperate climatic zones in Asia and elsewhere and their urban forms can be expected to emulate that of Hong Kong. These results will facilitate health-risk assessment of from road transport noise using EBD estimates in Asia.

Disturbance of Traffic Noise: Evaluation on the Effects and Management on Road Corridors, Nordiana Mashros

They have identified Traffic noise impact (TNI) near to sensitive and there is a significance evidence of difference noise level produce in different peak and off peak hour. The noise level, noise pollution level (LNP) and TNI in residential area did not satisfy the road traffic noise limit recommended by WHO.

This particular scenario indicated that the increasing noise level can be respectively associated with some driver behaviour such as honk from the vehicles, speed of the vehicles and also their vehicles itself has a turbo engine that can contribute to high noise level.

Second objectives stated that to assess public annoyance among residents. The analysis shows that, the respondents are agreeing with the level annoyance and sensitivity. Based on the traffic noise impact at all sites is moderately concern of worry even all the measured values are exceeding the permissible limits.

From the third objectives, which is develop a proper mitigation that can reduce traffic noise annoyance from an expert interviewee has identified. They have same perspective that restoration of concrete barrier and trees are the best mitigation to reduce the traffic noise. They agreed that to install this barrier is very high in cost especially in installation of concrete barrier.

Conclusion

The total area that National Highway(228) covers in the Bharuch city is affected of Traffic Noise. So in this paper we are trying to measure the level of Noise on the route of NH228 and thereby analyzing the data which will be collected and then interpret the result. And in addition try to give some safety measures to resist the Noise of Traffic.

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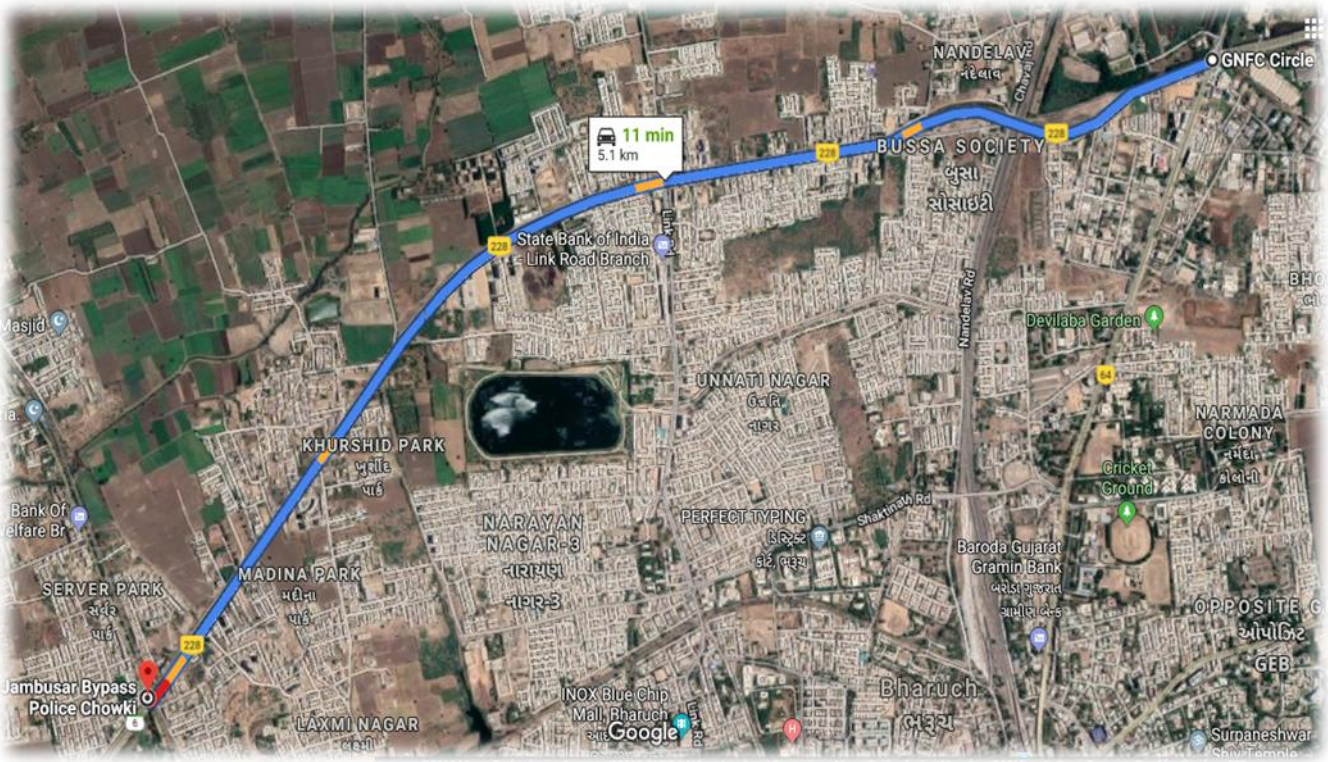

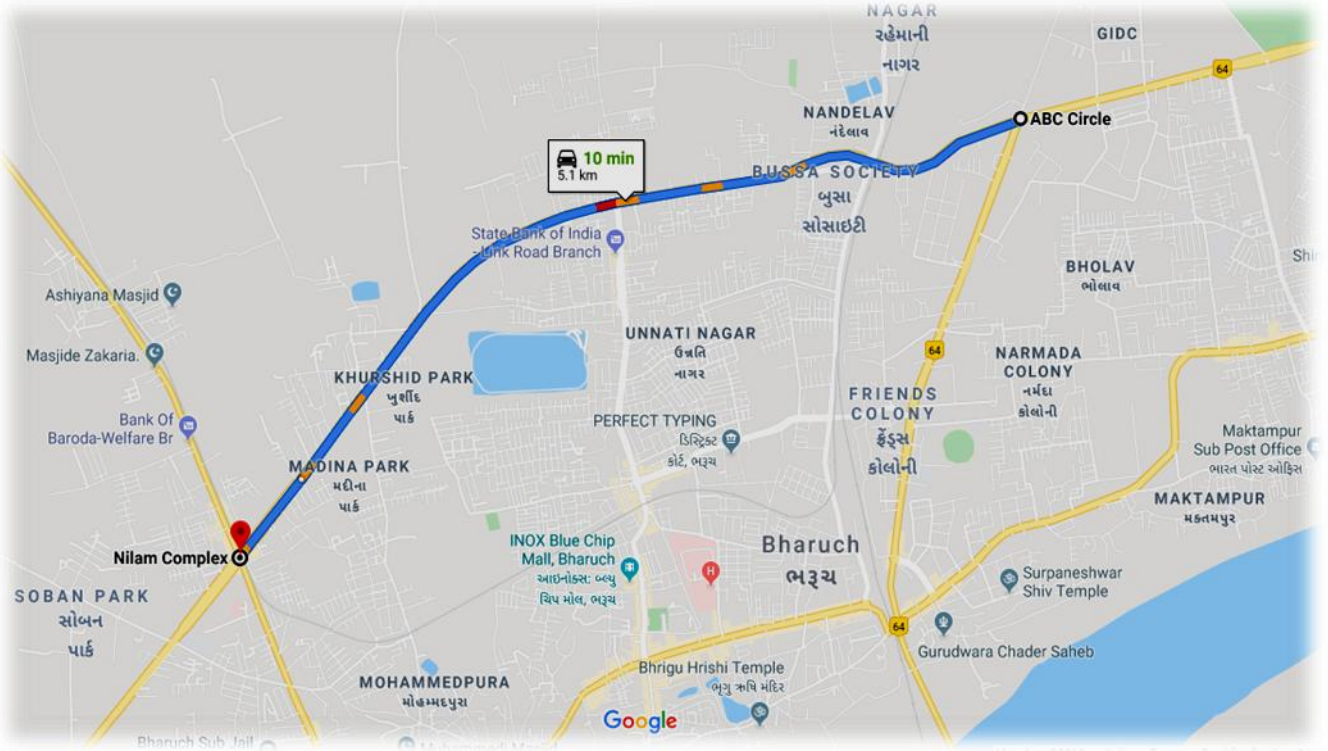

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