



Noise Pollution in Hubballi-Dharwad Twin Cities a Case Study

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ABSTRACT

Noise pollution has been recognized worldwide as an environmental problem that has wide spread consequences on health and well being of human beings. The present study documents the noise pollution levels in twin cities of Hubballi- Dharwad. 13 stations were selected to record the noise levels. The noise level ranged between 70 dB and 130 dB. Toll naka station of Dharwad is the noisiest area in Dharwad and Rani channama circle shows maximum noise level in Hubballi. The noise levels in silence zone is nearly double than that of the admissible levels as fixed by the pollution control board regulations,

Key words: Noise, Urban Environment, Silence zones, Hubballi –Dharwad

INTRODUCTION

Urbanization and expansive growth of cities have given rise to many environmental problems. Noise pollution is one of them which has garnered much attention and is a now source of concern among citizens. Noise pollution has been recognized worldwide as an environmental problem that has wide spread consequences on health and well being of human beings. Unfortunately, we are not doing enough to curb this menace. Noise not only impairs sensibility to auditory stimuli by masking effects, it has other consequence too. Studies have proved that a loud noise during peak hours creates tiredness, irritation and impairs brain activities, so as to reduce thinking and working abilities. Its general effects on human being are that, it covers disturbance in sleep which lead to other side

effects. Traffic noise is probably the most rigorous and pervasive type of noise pollution, it has become a serious problem because of inadequate urban planning. Homes, schools, offices, hospitals, commercial business centres, and other community buildings were routinely built close to the main roads without buffer zones or adequate sound proofing. The problem has been compounded by increases in vehicular density (two wheelers, heavy motor vehicles, and other vehicles) far beyond the expectations of our early urban planners¹. The escalating problems of air and noise pollutions caused by traffic are receiving top priority attention and resources from governments, the private sector and the public all over the world as they struggle to control these negative environmental concomitants of transport systems.

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The latest studies have shown that more than 20% of the world population lives under unacceptable noise levels and near 60% of the European population is exposed to worrying noise levels during the day². In India, studies on traffic noise level have been carried out at different cities like Bombay³, Kolkata⁴, Visakhapatnam⁵, Anantpur⁶, Delhi⁷, Asansol⁸, Nagpur⁹, Kolhapur¹⁰ Hubballi –Dharwad are the fastest growing twin cities of Karnataka. The population of the twin cities, as per provisional census 2011 figures, is 1,349,563. The corporation covers 202 km². It is the second largest and second most populated city in the state of Karnataka. It has a large floating population of over 2 lakh which stands second after Bangalore in Karnataka. Due to rapid urbanization the density of vehicles is also increasing which are the main sources of noise in urban environment. For the developmental work for BRTS many trees were removed which were the sources of noise absorption. The present work is undertaken to record the noise levels in different parts of Hubli-Dharwad.

MATERIALS AND METHODS

In the present work, the noise pollution studies were conducted in Hubballi-Dharwad twin cities situated in North Karnataka. Dharwad is located between 75° 15' to 75° 36' East longitude and 15° 19' to 15° 41' North Latitude. Hubli lies between 75° 01' to 75° 28' East longitude and 15° 11' to 15° 31' North Latitude. Dharwad altitude is 696.97 above Mean Sea Level and that of Hubli is 627.97 above MSL. For recording the noise levels 13 stations were marked of which 8 are located in Dharwad and 5 in Hubli city (Plate I). The stations included silence zones near Hospitals and educational institution, busy traffic zones, a Rail traffic zone, and a zone having a vegetation canopy cover. Periodic noise levels were recorded in these stations. In the initial stage preliminary observations were carried out to note the peak time slots during day time when noise levels are high. The Sound pressure levels (SPL) were recorded using TES1350A sound level

meter (SLM). The recording were made by holding the SLM at a distance of 20 mts from the centre of the road. Recording were made for a minimum of 30 minutes to maximum of 90 minute duration at a slot of five to ten minutes interval.

RESULTS AND DISCUSSION

The Road traffic noise recorded at various places varied between 94.80 dB to 106.66 dB (Table 1). In Dharwad. at SDM Hospital it ranged between 78 dB to 130 db with an average of 102.8±3.4 dB. At Vidyagiri the noise levels varied from 85dB to 109dB with an average of 103.15±4.10 dB. At Toll naka the traffic noise ranged between 91.03db and 119.8dB with an average of 106.55±6.31dB. The noise levels at Court circle ranged between 98 to 116.5dB with an average of 105.04±3.83 dB. The Jubilee circle which is the junction where 5 roads meet considered to be the most traffic density zone of Dharwad, the noise levels ranged between 93.2dB and 116dB with an average of 103.35±dB. At City Bus terminals station the noise levels varied from 94 dB to 113.6 dB with an average of 103.35dB±7.38 dB. The noise levels near Sarvamangala Hospital in Dharwad varied from 88 dB to 102dB with an average of 97.3±4.01 dB. At Srinagar Railway Gate the traffic noise ranged between 98dB and 118.4dB with an average of 102.84±54dB. In Hubballi, at Rani Channamma Circle (popularly known as the traffic island) the noise levels ranged from 98dB to 124.1 dB with an average of 105.04±5.1 dB. At Lamington road the noise level varied between 90.04 dB and 98.2 dB the average was 94.8±2.55dB. At Vidyanagar, where all the educational institutions are located the noise level ranged from 94.1 to 108.4dB with an average of 99.363±3.8dB. At Keshvapur Circle the noise level varied from 92.8 dB to 101.8 dB with an average of 97.258±2.44 dB. Airport road of Hubballi, which is also one of the high vehicular density area had the noise level between 90.8 dB and 102.6 dB with an average of 97.41 ±3.13 dB. The overall study indicates that the highest noise levels in the

twin city were recorded at Toll naka Dharwad with an average reading of 105.4 dB±3.83. In Hubballi, Rani Channamma circle was the noisiest zone with an average noise level of 105.4dB. (Figure -2). In Hubballi - Dharwad the density of motor vehicles is in increasing trend (Table-2, Fig-3). In addition, for the developmental activities like BRTS road widening many trees that were acting as important sources of noise reduction were removed leading to increase in the urban noise levels. The noise level in the twin cities is

much higher when compared with Central Pollution Control Board (CPCB) levels (Table - 3). Chauhan *et al.*¹¹ reported the industrial, commercial, residential and silent zones noise level in Moradabad city was higher than the prescribed limits of CPCB. Chauhan and Pande¹² found that, the noise level in residential, commercial and silent zones of Dehradun city are much higher than the CPCB standards. Mangalekar *et al.*,⁹ found similar observations in Kolhapur city of Maharashtra state

Table 1: Noise levels at different stations in Dharwad- Hubballi

Station. No	Name of the station	Noise level Range (dB)	Average (dB) ±SE
1	SDM Hospital (Dharwad)	78-130	102±3.4
2	Vidyagiri	85-109	103.15± 4.10
3	Tollnaka	91.03-119.8	106.55±6.31
4	Court circle	98-116.5	105.04±3.83
5	Jubli circle	93.2-116	103.35±5.4
6	City Bus Terminals(CBT)	94-113.6	103.35 ± 7.38
7	Savrvamangala Hospital	88-122	97.3±4.01
8	Srinagar Rly gate	98-118.4	102.84±5.4
9	Ranichannamma circle (Hubballi)	98-124.1	105.04±8.1
10	Lamington road	90.04-98.2	94.80±2.5
11	Vidyanagar	94.1-108	99.363±3.8
12	Keshwapur	92.8-101.8	97.258±2.44
13	Airport road	90.08-102.6	97.41±3.13

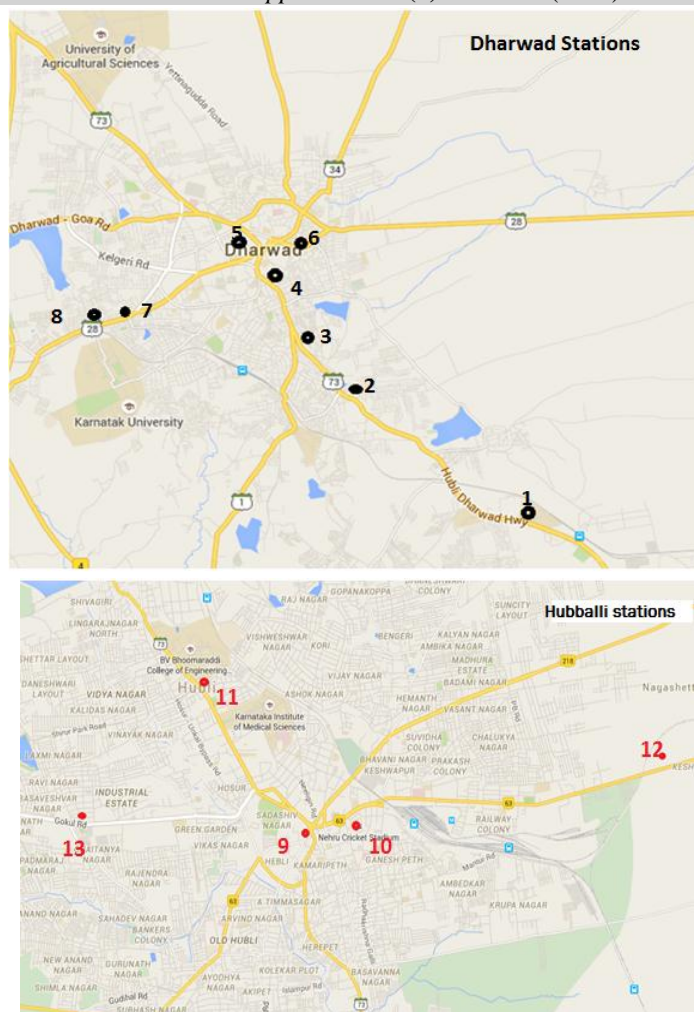
Table 2: Number of Vehicles registered during last four years

S.No.	Year	No of Vehicles registered
1	2012	28229
2	2013	32223
3	2014	34779
4	2015	54988

Source: RTO office, Hubli

Table 3: Ambient Quality Standards in respect of Noise (Pollution Control Board regulation)

Area Code	Category of Area/ zone	Limits in dB	
		Day Time	Night time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Zone	55	45
D	Silence Zone	50	40



1.SDM Hospital, 2 Vidyagiri, 3-Toll naka,4-Court circle ,5- Jubli circle, 6- CBT, 7- Sarvamagala Hospital, 8. Shrinagar Rly Gate 9- Rani Channama circle,10-Lamington Road, 11-Vidyanagar, 12- Keshavapur, 13 Airport road

Fig. 1: Map showing locations of stations where noise levels are recorded

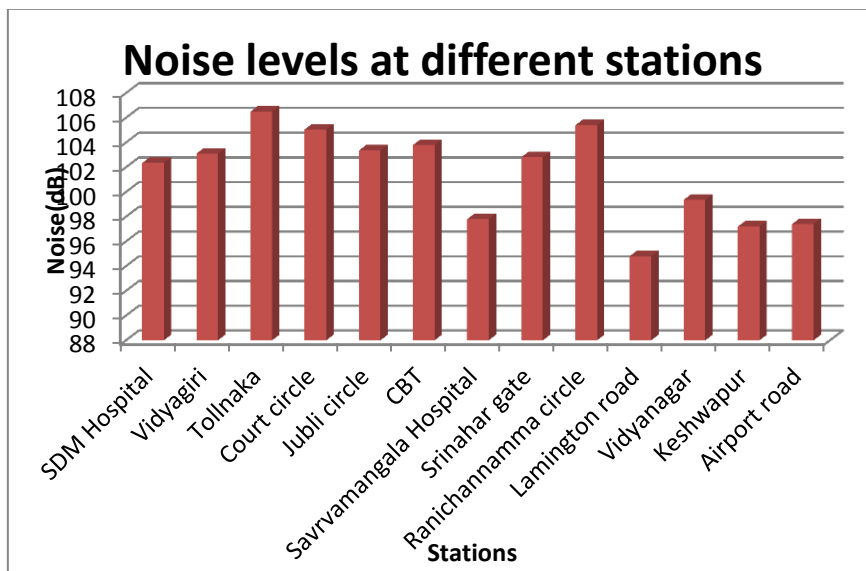


Fig. 2:

CONCLUSION

The study reveals that, the noise levels in the twin cities are ranging between 70dB to 130dB. The levels in silence zone are nearly double than that of the admissible levels as fixed by the pollution control Board regulations. The increasing trends in vehicles is the major source of traffic noise. There is a need for strict implementation of regulations to minimise the unauthorised air horns that are being used by the automobile industry. The study indicates that, the Lamington road which is covered with thick canopy vegetation has lowest values of noise levels, suggesting the importance of vegetation in controlling the noise levels. There is a need to create awareness in the community about ill effects of noise, use of blow horns instead of air horns and educating the mass about the importance of vegetation. The town planners and the administrators must plan green corridors along the major roads that have high density of vehicular movements. Such green corridors not only help in reducing the noise and other pollution but also increase the aesthetic look of a given area.

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