**Assessment of Noise Pollution and Development of Criteria for its Prevention and Control**

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**Background**

Modern technology has created many environmental pollutants of which noise is an immediate and identifiable example. During the last few years, a wave of the environmental consciousness and concern is being developed in Nepal. Therefore a field level monitoring of sound pressure level was conducted by Nepal Health Research Council in five major urban cities of Nepal.

**Methods**

This study was carried out in Kathmandu, Bhaktapur, Lalitpur, Kirtipur and Janakpur-five major urban cities of Nepal. These cities were categorized into five major areas based on international criteria; a. high traffic area, b. commercial cum residential area, c. commercial cum tourist area, d. new residential area and e. old residential area. Two or more than two sample sites were chosen for each setting. Similarly an ambient noise level was monitored in the industrial area like Balaju industrial State and Patan Industrial State. There were altogether 169 samples monitored in 38 sample sites. Data supporting Leq, Lmax, Ldn was used to evaluate sound pressure level in different settings. A survey was administered through questionnaire in order to obtain public opinion regarding environmental noise and its effects on human health. The audiometric test was also carried out in certain survey area to determine the audiometry sensitivity of the individual.

**Results**

Among the high traffic areas, the highest Leq was observed in Suryabinayak of Bhaktapur (81 dBA) during night hours and Kupondole of Lalitpur (79dBA) during office hours. The highest Ldn value of 74.36 dBA was observed in high traffic area and the lowest was observed at new residential area of 62 dBA. Monitoring results from the industrial area shoed that all values obtained in sites was above US standards. 285 of the sampling sites have exceeded the Indian standards. Results have shown that 14.75% from the category of non-exposed group and 39.34% from exposed group had noise induced hearing loss (minimum to severe). Health examination of samples showed that among the non-exposed group only 2% out of total sample had cardiovascular and genitourinary tract disease. in exposed group 5% of the entire sample had cardiovascular disease, 3% respiratory disease, 25 genitourinary disease and 7% intestinal tract disease. It was found that the risk of getting noise induced haring loss of exposed category is 4.250 times higher than that of the non-exposed group. The traffic noise (above 70 dBA) is found mainly the dominant factor for higher noise level.

**Conclusions**

Noise pollution is emerging as an environmental problem in majority of areas selected for monitoring. The noise pollution has also caused medical problems. The people staying in noisy areas especially above 70 dBA must take precautionary measures in order to avoid noise induced hearing loss.

**Keywords:** human health; monitoring; noise induced hearing loss; noise pollution; urban cities.