ABSTRACT

Noise is a prominent feature of the environment including that from sources such as transport, industry and neighborhood. Noise pollution is becoming more and more acute, and hence many researchers are studying the effect of noise pollution on people and its attenuation. In this thesis an attempt has been made to find the measures for the reduction in noise levels. Different sources have been identified that have potential for generation of noise pollution. Sources which are identified for the study are: noise level generated from vehicular traffic, noise from flour mill operation, construction machinery, and so on so forth.

Therefore, the primary objective of this research is to quantify the exceedance of noise level above permissible level at selected types of sources, identify appropriate and innovative noise barrier designed to attenuate noise level that has potential for implementation at the sources of selected types in which the noise levels are high when compared to the standards. Based on the study and evaluation conducted for this research it is recommended here to implement three categories of innovative barriers and their designs, namely, (i) thatched shed; (ii) cubicles made of concrete, viz., normal concrete and concrete with coral shell powder (CSP); and (iii) fly ash brick; as they are cost effective, easy to install with locally available materials as well as beneficial to human beings in the long run.
Research involved in field measurement of the noise levels generated by a traffic flow in an open stream as well as on a road provided with noise barrier. The noise that is generated from the existing system of operation is about 6% to 58% higher than the standards prescribed by the authorities. Such a severe noise pollution has to be reduced. Hence effective noise barrier was devised to attenuate the noise and the outputs are presented in the form of numerical results.

From the numerical results and graphical representations, it is concluded that the reduction of noise level is about 5 to 8% in noise decibels through noise barriers. This will be significant when noise barriers are used especially in residential zones where a huge noise pollution is experienced due to vehicular traffic and construction machinery.

In conclusion it can be stated that the noise barriers suggested are simple and they can be erected easily with locally available materials.