



ENVIS CENTRE, CHANDIGARH

NewsLetter

P a r y a v a r a n P a t r a

Chandigarh
State of Environment
Noise Pollution



EDITORIAL

Mankind is blessed with five sensory organs. One of these organs is ears. We daily come across many sounds including peaceful music and loud unpleasant noise. Sometimes it is hard to differentiate what is music and what is noise as music of one can be noise to others. To understand 'Noise' better we may look at the origin of the word i.e. the Latin word noxia meaning "injury" or "hurt". This implies that any sound that hurts or cause injury is noise. Noise pollution may be referred to displeasing sound that may disturb the activities or balance of living beings and cause injury or hurts. There are many sources of noise like industries, construction work, and transportation systems etc. In Chandigarh motorized vehicles are the major source of noise pollution. Highest per capita in the country and with highest density, these vehicles pollute the ambient air in every possible way. To estimate the noise levels in Chandigarh a study is conducted by Chandigarh Pollution Control Committee. The strategy of the study is measuring noise level at the various places in the peak hours of the day. The study has given a clear indication that the time has come to kill noise by silence. It is time to take action against the misuse of vehicles. Don't use motorized vehicles wherever walk or cycle is viable. Remember always that your contribution to clean environment is significant.



Home is another source of noise where number of mass media tools like TV, Computers, and Radio etc. are used. Kitchen has certain electronic gadgets which produce significant sound which is added to noise level in the house. Houses which are not ventilated properly and has design issues Washing machines and construction work also contributes to noise levels in and around the houses. Loud speakers at social gathering like marriage or rally also cause rise in noise levels. Adding some words to educate students about the Canyon Effect where noise gets trapped between the tall buildings in a narrow street, this effect may cause inconvenient sleep due to even trivial noises in the street. You may have experienced the effect in the form of voices coming from the street to the top floor of your house like those are made just a few feet away. To the smiling luck of the residents of Chandigarh, most of the area of the Chandigarh is free of this due to planned and wider road structure. I appeal all who read this newsletter to spread a word of caution to all who make noise. Let us live in peace yet alive.

PJS Dadhwal, Additional Director, Environment

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ENVIS CENTRE
Deptt. of Environment
Chandigarh

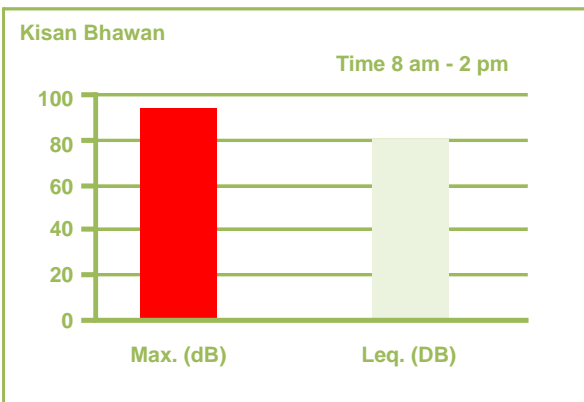
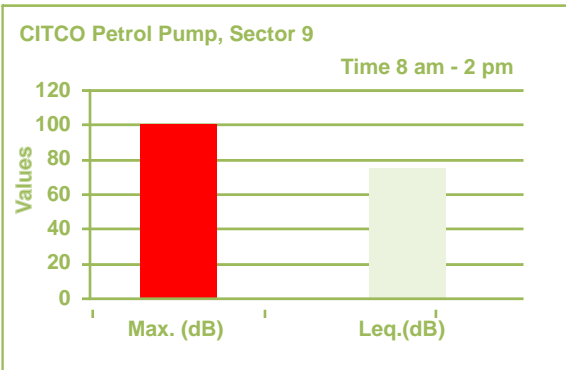
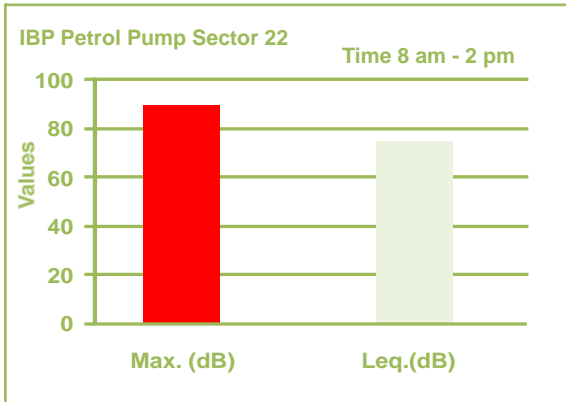
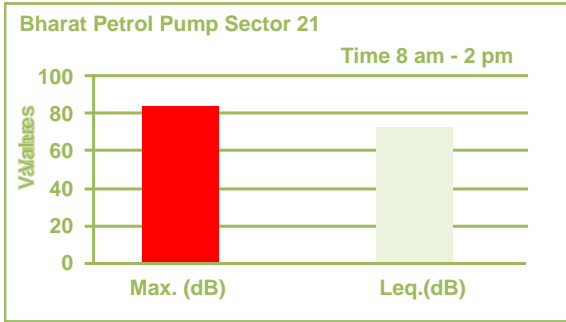
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Graphs depicting Noise Level at various Traffic Junctions in Chandigarh



Noise

All of us experience noise in the various forms. Interestingly the term noise is relevant to real life situations also. The sound of music, on any ordinary day which may cause waves of dance in the body, turns into noise during exam periods. The level of volume and contents remain same but perception and resistance become entirely different. Unwanted or irritating sound, that may cause damage to any of living or nonliving being, may be termed as 'Noise'. Sufferer may become irritated or depressed on prolonged exposure. His social behaviour also may get affected. Being a social creature every human being should respect others' 'right of peace'.

Adverse effects of Noise on health

Noise may affect health as well as behaviour of the individual or group. The unwanted or unpleasant sound may cause psychological and physiological change on chronic exposure to Noise. It may cause hypertension, high stress levels, hearing loss, loss of sleep, and aggression in behaviour. It is getting common these days that people complain about the ringing sound within the ears. This perception is called Tinnitus. The ringing sound may cause serious stress if it continues for longer times. The change in behaviour may further trigger other problems like depression and forgetfulness. This also may cause social damage to sufferer as the one may become irritated. Chronic exposure may damage the hearing organs leading to semi permanent noise induced hearing loss.

In noted researches it is found that increase in blood pressure may affect cardiovascular system as well as vasoconstriction (narrowing of blood vessels) and coronary artery disease.

Impact of Noise on Environment

Several species on earth including aquatic species use sound as the communication medium. External noise may change delicate balance in predator/prey detection and avoidance. One of the examples of impact of Noise on animal life is a case of death of certain species of beached whales may be studied which involved the loud sound of military sonar. In many more studied, species have shown considerable change in behaviour when exposed to noise. It is noted that species of entire zone, exposed to noise, started using loud sounds to communicate due to disturbed normal balance.

Mitigation and control of noise

Noise on the road way can be reduced by the use of Noise Barrier, putting limit on vehicular speed, roadway surface texture and tyre design alteration, limiting heavy vehicles, and control of traffic to ensuring smooth vehicle flow. Noise by aircrafts can be reduced by adopting quieter jet engines. Industrial noise may be reduced by alternating the designs for better working conditions. Though rules and laws are well defined to control the Noise levels in ambient air, yet personal discipline is significant in making serene environment.

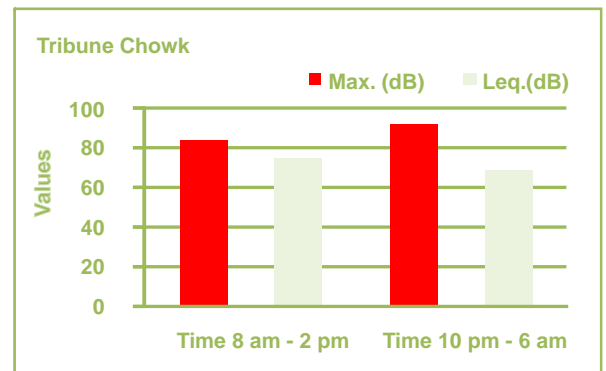
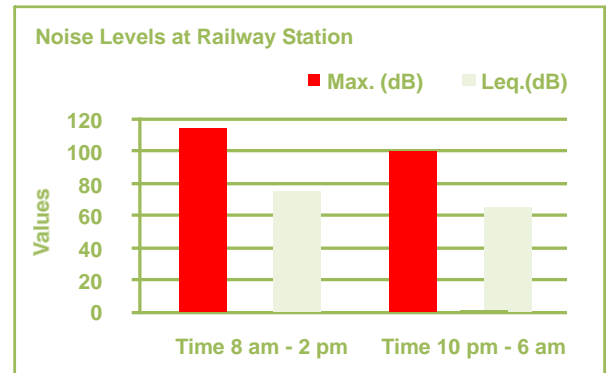
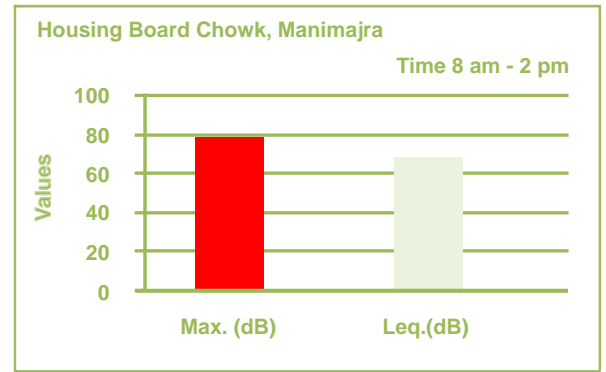
Noise Barrier

The acoustical science of noise barrier design is based upon treating a roadway or railway as a line source. The theory is based upon blockage of sound ray traveling toward a particular receptor; however, diffraction of sound must be addressed. Sound waves bend (downward) when they pass an edge, such as the apex of a noise barrier. Further complicating matters is the phenomenon of refraction, the bending of sound rays in the presence of an inhomogeneous atmosphere. Wind shear and thermocline produce such inhomogeneities. The sound sources model must include engine noise, tire noise, and aerodynamic noise, all of which vary by vehicle type and speed. The resulting computer model is based upon dozens of physics equations translated into thousands of lines of computer code.

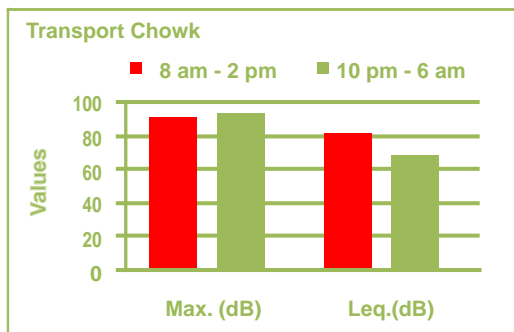
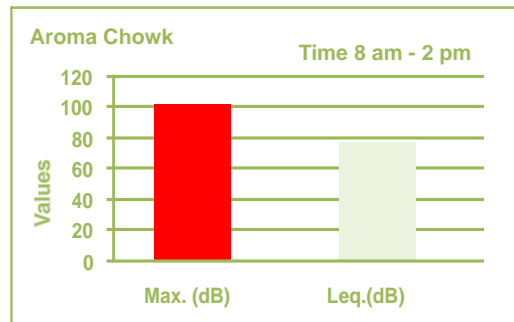
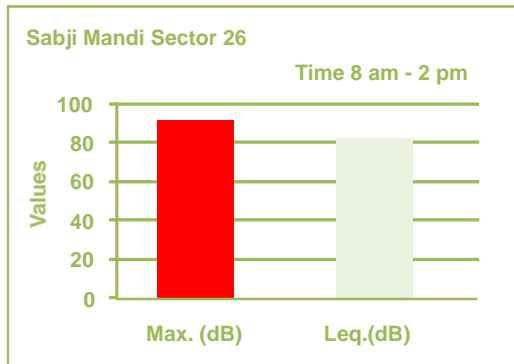
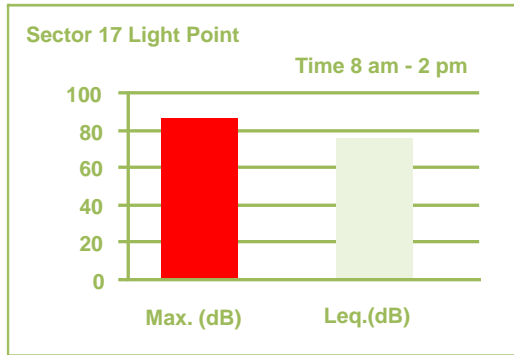
http://en.wikipedia.org/wiki/Noise_barrier



The sound tube in Melbourne, Australia, designed to reduce roadway noise without detracting from the area's aesthetics.



Graphs depicting Noise Level at various Traffic Junctions in Chandigarh



Major Sources of Noise in Chandigarh

1. Road Traffic Noise
2. Air Craft Noise
3. Noise from Railways
4. Construction Noise
5. Industrial Noise
6. Noise from consumer products
7. Trapped noise in the buildings
8. Celebrations of festivals, marriage functions etc

Out of these, the major source of Noise in the ambient air of Chandigarh is Roadway Traffic.

Advantages of planned architecture

1. Industrial noise don't affect city/residential Areas
2. Railway is far from residential area
3. Due to defined area there is less scope of new construction
4. Wider roads and green belts help dispersing the noise

Initiative by Administration

1. Development of V8 Roads as Cycle Tracks
2. Promoting Cycle and Eco tourism
3. Subsidy to battery operated vehicles
4. Funding and organizing awareness campaigns. Solar power driven devices are promoted.
5. Declaration of Silence zones
6. Ban on Loud Speakers and Noise making activities after 10 pm and before 6 am
7. Chandigarh Pollution Control Committee measures the Noise levels in the city from time to time to make awareness of the situation and supports policy making decisions
8. Organization of awareness programs and funding environment related activities

Noise levels in Chandigarh are significantly due to motorized vehicles. Hence in addition to subsidy on Battery Operated Vehicles, solar rickshaws are to be introduced in the city. In other initiatives, kitchen cookers etc may be replaced with quiet solar based utensils. Number of Eco-clubs in Chandigarh are assisted and funded by Department of Environment, Chandigarh Administration to promote eco-friendly activities. During festivals like Diwali eco-clubs organize anti crackers and noise rallies to create awareness about ill effects of noise.



Noise Pollution (Regulation and Control) Rules, 2000

Following are some major provisions of the act:

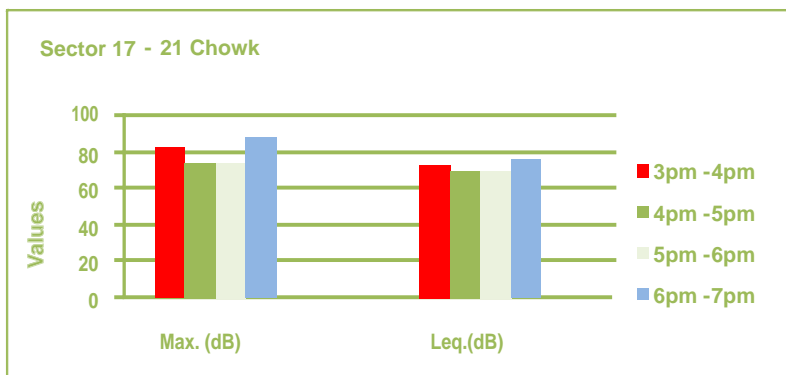
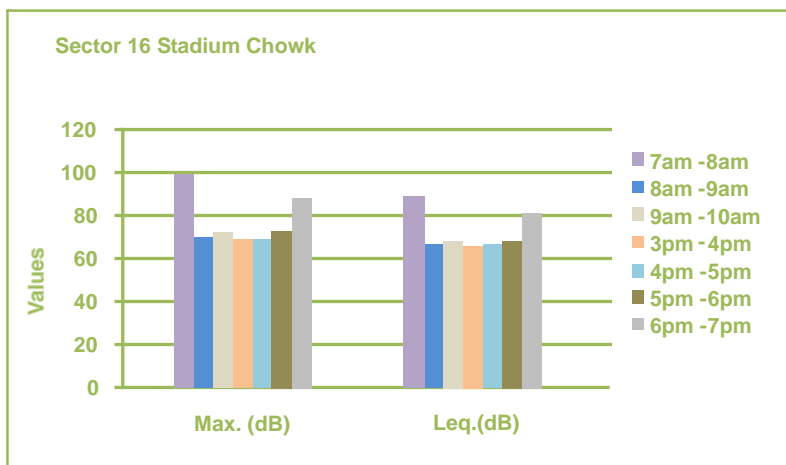
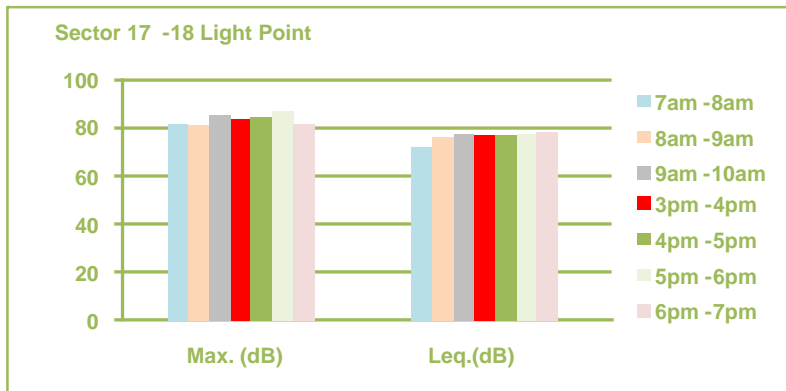
- (1) The ambient air quality standards in respect of noise for different areas/zones shall be such as specified in the Schedule annexed to these rules.
- (2) The State Government may categorize the areas into industrial, commercial, residential or silence areas/zones for the purpose of implementation of noise standards for different areas.
- (3) The State Government shall take measures for abatement of noise including noise emanating from vehicular movements and ensure that the existing noise levels do not exceed the ambient air quality standards specified under these rules.
- (4) All development authorities, local bodies and other concerned authorities while planning developmental activity or carrying out functions relating to town and country planning shall take into consideration all aspects of noise pollution as a parameter of quality of life to avoid noise menace and to achieve the objective of maintaining the ambient air quality standards in respect of noise.
- (5) An area comprising not less than 100 metres around hospitals, educational institutions and courts may be declared as silence area/zone for the purpose of these rules.

Any violation is liable to punishment.

Ambient Air Quality Standards in respect of Noise

Area	Day Time dB	NightTime dB
Industrial area	75	70
Commercial area	65	55
Residential area	55	45
Silence Zone	50	40

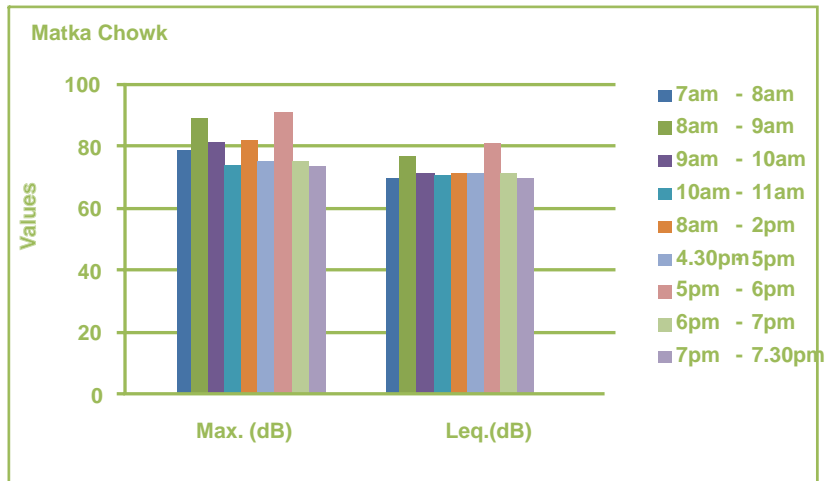
Area Code Category of Area/Zone Limits in dB(A) Leq *



*dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing. A "decibel" is a unit in which noise is measured. "A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear. Max (dB) is momentary value. Leq : It is an energy mean of the noise level, over a specified period.

Help Keeping Environment Clean

In general, when people speak of Environmental Pollution they do not consider noise as pollution. Some people contribute to noise pollution just by ignorant. Moreover, as physical ill effects of Noise are not immediately visible, it is least bothered kind of pollution. As we have studied, Noise levels are contributed by our routine activities like transportation, consumer



end products like TV and Radio etc, we should make sure that sound produced by our activities should not become pollution to others. You may contribute to the clean environment by the following simple steps:

1. Try to avoid unnecessary use of motorized vehicles and prefer walk or cycle
2. Don't support use of loud speakers
3. Noise during functions can be reduced to considerable extent
4. Teach and preach about ill effects of noise pollution
5. Blow horn only when required
6. Get the devices/vehicles serviced on time to reduce noise generation
7. Raise your voice by silence against noise pollution

Suggestive Research

Some researches suggest that dense vegetation wider by 61 meter and higher by 200 feet can reduce the noise level by 10 decibels. Density of vegetation should be enough to block the view on the other side. This may help controlling the roadside traffic to great extent. Further, roadside plantation can give psychological advantage over Noise pollution. Noise tends to change the behaviour of sufferer aggressively while greenery calms the mood of viewer. Hence, plantation along the roadside may help reducing the harmful impact of Noise.

The same is true when situation come to society or home. It is suggested to plant more trees and save what already exists. The topic needs further researches and findings. Any information on the topic is welcome and can be shared with ENVIS.

Sound Level Meter

In Chandigarh, most of the noise comes from the vehicular traffic. To understand and control it better, Chandigarh Pollution Control Committee use 'Sound Level Meter' to record and measure the Noise Levels in Ambient Air of Chandigarh. Pictures of the device are given for educational purpose. Students are educated from time to time by administration in various exhibitions and educational camps.



Vivek Pandey, Scientist B, CPCC Arun Bansal, SPO, ENVIS



Dear Information Seeker,

ENVIS CENTRE, Chandigarh furnishes you with the services to collect and disseminate information related to environment of Chandigarh. To share information with us you are requested to fill up the form given below.



Your feedback is valuable to us and will be highly appreciated

- Name _____
- Designation _____
- Department _____
- Address _____
_____ City _____
- State _____ Country _____ Pin | | | | |
- Phone _____ Fax _____
- Email _____

Your views on scope of improvement :

- Interest Area _____

I would like to have information on following :



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(Data Entry Operator)

One Liners

Chandigarh is the most ideal city to be a cycle city. Use cycle to reduce pollution and noise

- I shall not make noise
- Making noise is as bad as cutting a tree
- Noise is nuisance while silence is gold
- Only those make noise who doesn't have discipline
- Making noise is crime against environment
- Nature creates music and someone pollutes by adding noise
- Making noise doesn't make you wiser but silence may
- Cycle/walk is the new fitness mantra of life

Don't Pollute and Do not let pollute



Ask yourself and other to stop making noise



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