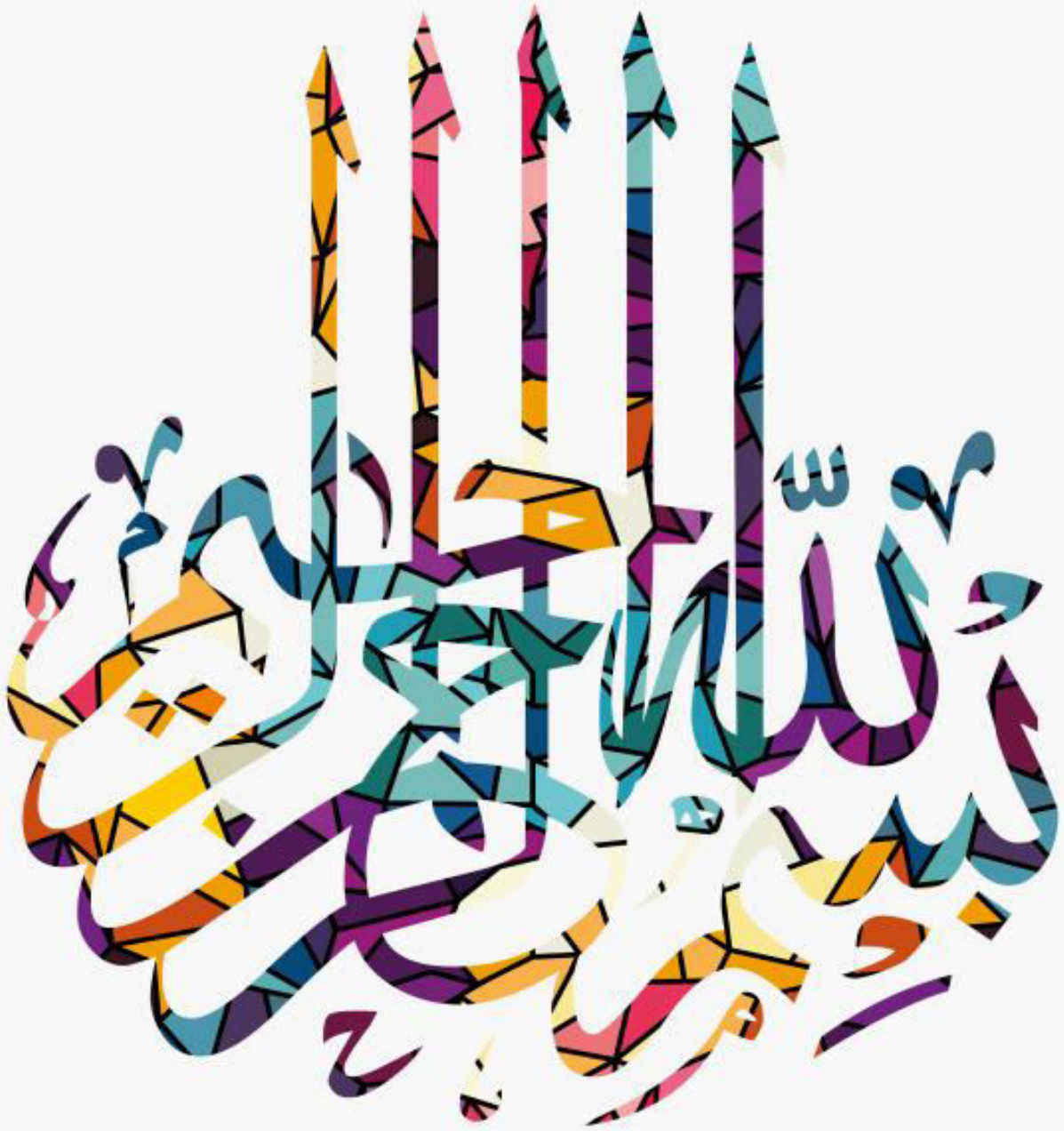

بسم الله الرحمن الرحيم

Noise Pollution

POLLUTION

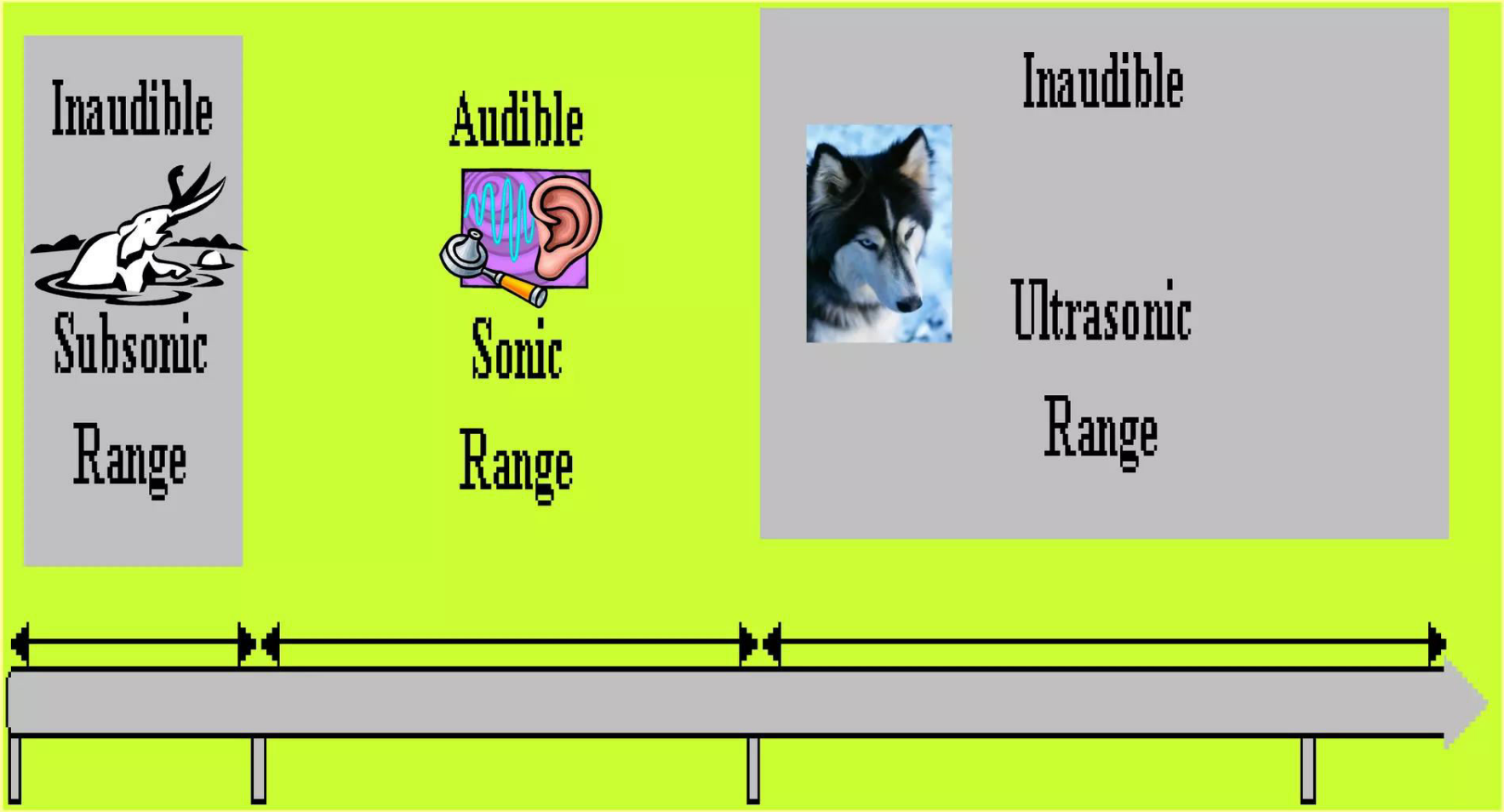
"Pollution means any contamination of air, soil, water and environment. , Even loud noise and sound is also a part of pollution."

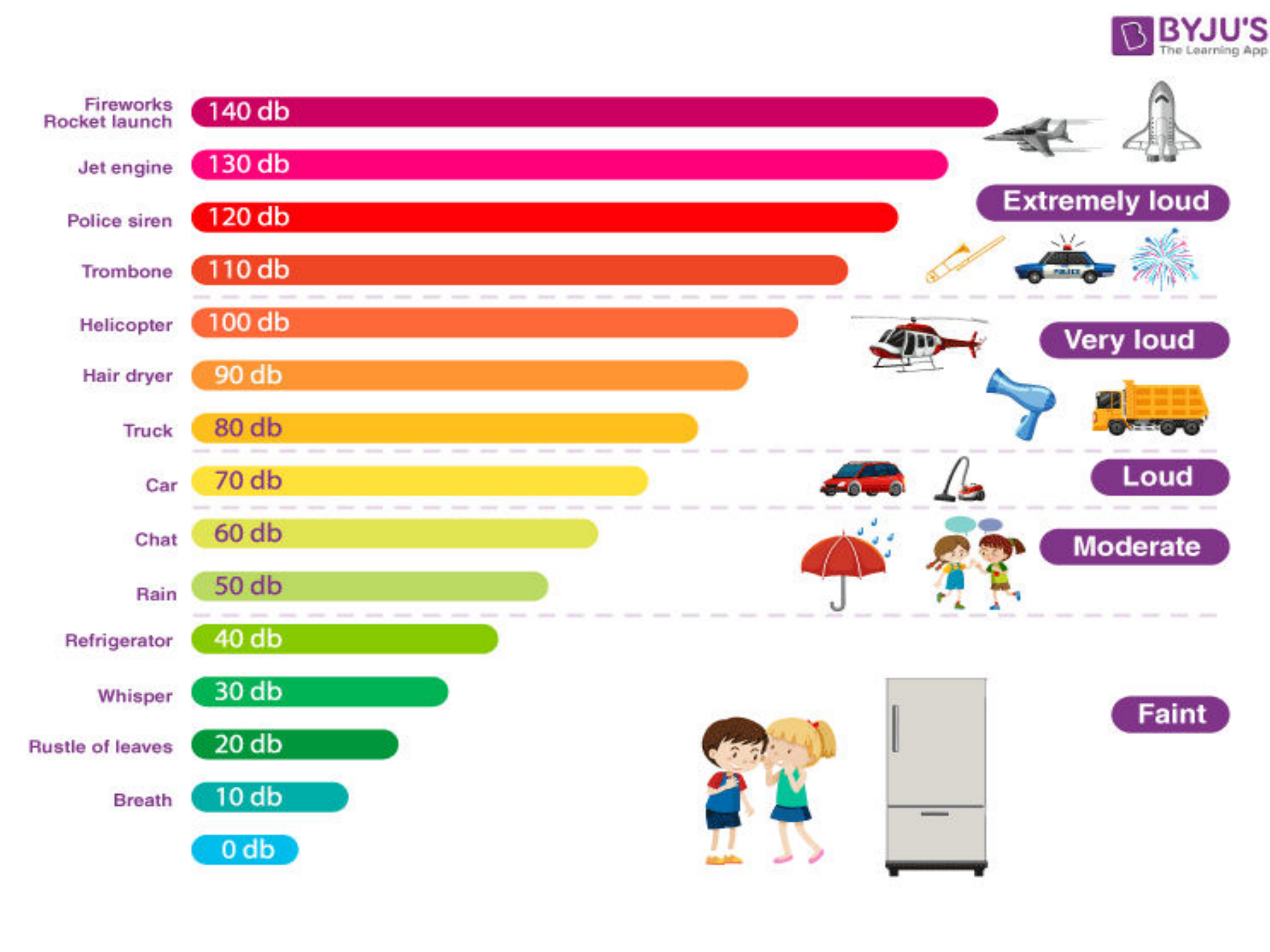
NOISE

“The word noise comes from the Latin word noxia meaning "injury" or "hurt" .” Noise is an unwanted, unpleasant and annoying sound caused by vibration of the matter.

Vibrations impinge on the ear drum of a human or animal and setup a nervous disturbance, which we call sound. When the effects of sound are undesirable that it may be termed as “Noise”.

Human hearing and Frequency




Fireworks Rocket launch
140 db
Jet engine
130 db
Police siren
120 db
Trombone
110 db
Helicopter
100 db
Hair dryer
90 db
Truck
80 db
Car
70 db
Chat
60 db
Rain
50 db
Refrigerator
40 db
Whisper
30 db
Rustle of leaves
20 db
Breath
10 db
0 db
Extremely loud
Very loud
Loud
Moderate
Faint

Physically there is no distinction between sound and noise. Sound is a sensory perception and the complex pattern of sound waves is labeled as noise, music, speech etc. Noise has become a very important "stress factor" in the environment of man.

WHAT IS NOISE POLLUTION?

- Sound that is unwanted or disrupts one's quality of life is called as noise. When there is lot of noise in the environment, it is termed as noise pollution.

- Sound becomes undesirable when it disturbs the normal activities such as working, sleeping, and during conversations.

- It is an underrated environmental problem because of the fact that we can't see, smell, or taste it.

- World Health Organization stated that "Noise must be recognized as a major threat to human well-being"

Sources of noise pollution

- Street traffic
- Rail roads
- Airplanes
- Constructions
- Consumer products

NOISE
MEASUREMENT & ABATEMENT

MEASUREMENT OF NOISE

"A decibel is the standard for the measurement of noise"

- 20 db is whisper.
- 40 db the noise in a quiet office.
- 60 db is normal conversation.
- 80 db is the level at which sound

becomes physically painful. And can be termed as noise.

Sound level and human's perception

perception	sound level (dB)	example
	100	
	80	
	60	
	30	soft whisper (25 dB)
quiet		
very quiet sound	10	breathing sound (10 dB)
	0	the lowest sound level that can be heard

Sound level and human's perception

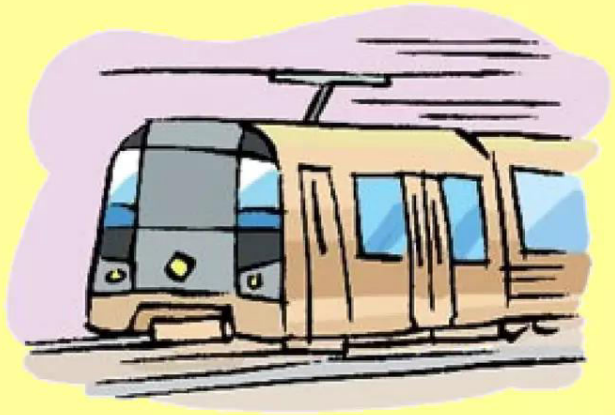
perception	sound level (dB)	example
	100	
	80	
	60	normal conversation (60 dB)
acceptable		soft conversation in
	30	libraries (30 dB)
quiet		
	10	
	0	

Sound level and human's perception

perception	sound level (dB)	example
annoying	100	
	80	alarm clock (80 dB)
noisy		busy traffic (70 dB)
	60	
acceptable		
	30	
quiet		
	10	
	0	

Sound level and human's perception

perception	sound level (dB)	example
very noisy damage our ears	100	crying baby (100 dB) passing train (90 dB)
annoying	80	
noisy	60	
acceptable	30	
quiet	10	
	0	



We can enjoy some sounds as music.
However, sound can also be
annoying noises.

- Hearing sound level at 80 dB for a long time,

  => *may cause temporary or permanent damage to our ears.*

- Hearing sound level at 130 dB makes our ears feel pain,

  => *because the eardrum vibrates too vigorously.*

- When sound level reaches 150 dB,

  => *causes damage to the eardrum or ear bones, make us go deaf.*

Air craft Noise Pollution

Noise from planes flying over residential areas impairs people's ability to work, learn in school and sleep, and consequently also results in lowered property values in affected areas.

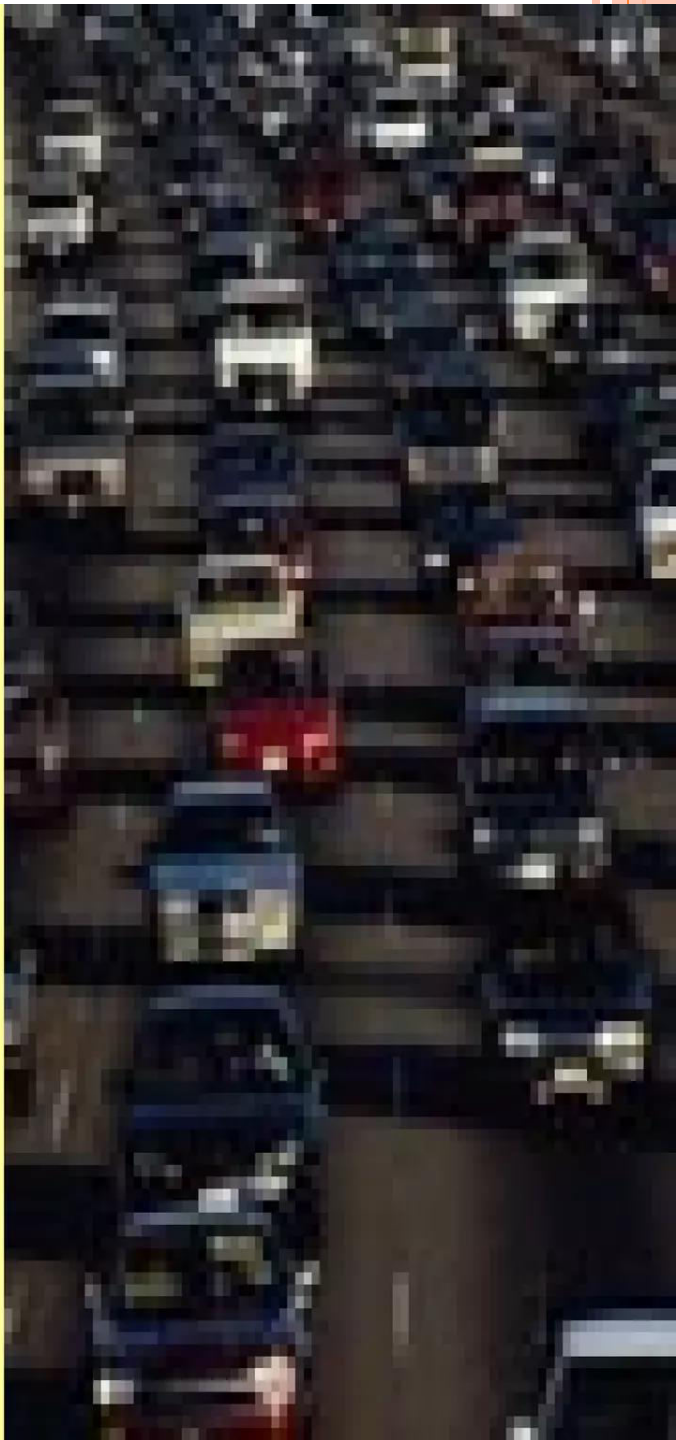
As passenger volume increases and new and larger airports are built, noise is becoming even more of a concern.

Roadway noise pollution

Roadway noise is the collective sound energy emanating from motor vehicles.

In the USA it contributes more to environmental noise exposure than any other noise source, and is constituted chiefly of engine, tire, aerodynamic and braking elements.

In other Western countries as well as Lesser developed countries, roadway noise is expected to contribute a proportionately large share of the total societal noise pollution.



Under water noise pollution

UNP is intense human-generated noise in the marine environment. It is caused by use of explosives, oceanographic experiments, geophysical research, underwater construction, ship traffic, intense active sonars and air guns used for seismic surveys for oil and related activities.

OCCUPATIONAL NOISE

The many and varied sources of noise is industrial machinery and processes include: rotors, gears, turbulent fluid flow, impact processes, electrical machines, internal combustion engines, pneumatic equipment, drilling, crushing, blasting, pumps and compressors. Furthermore, the emitted sounds are reflected from floors, ceiling and equipment.

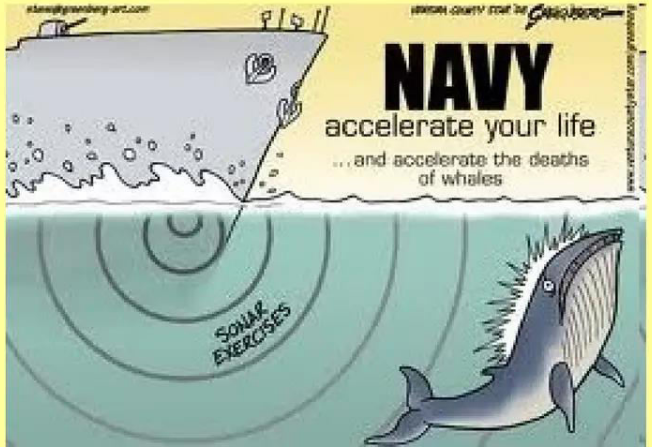
What are the effects of noise pollution?

In humans, noise pollution can cause:

- annoyance and aggression
- hypertension (high blood pressure)
- high stress levels
- tinnitus (ringing in the ears)
- long-term hearing loss
- sleep disturbances

What are the effects of noise pollution?

Noise can also harm animals, changing the delicate balance in predator or prey detection and avoidance, and interfering the use of the sounds in communication especially in relation to reproduction and in navigation.



Occupational exposure limits specify the maximum sound pressure levels and exposure times to which nearly all workers may be repeatedly exposed without adverse effect on their ability to hear and understand normal speech. An occupational exposure limit of 85 dB for 8 hours should protect most people against a permanent hearing impairment induced by noise after 40 years of occupational exposure.

Noise from Consumer products

Certain household equipment, such as vacuum cleane
mixers and some kitchen appliances are noisemakers of t
house. Though they do not cause too much of problem, the
effect cannot be neglected.

Loud Speakers

Use of loud speakers / public address systems
functions, meetings, religious places in open areas is a sour
of serious nuisance.

Fire crackers

Use of firecrackers with high noise level m
harm the human hearing system. Especially sensitive a
small children.

Problems of Noise Pollution

Noise pollution makes men more irritable. The effect of noise pollution is multifaceted & inter related. The effects of Noise Pollution on Human Being, Animal and property are as follows:

- Hearing Impairment
- It Decreases the Efficiency of A Man
- Lack of concentration
- Abortion is caused
- Pupil Dilation
- Mental Illness
- It Causes Heart Attack
- Digestive problems
- Temporary or permanent Deafness
- Aggressive Behavior
- Effect on Vegetation Poor Quality of Crops
- Effect on Animal
- Effect on Property
- Sleep interference
- Speech interference

HEARING IMPAIRMENT

Hearing is essential for well-being and safety. Hearing impairment is typically defined as an increase in the threshold of hearing as clinically assessed by audiometry. There is general agreement that exposure to sound levels less than 70 dB does not produce hearing damage, regardless of the duration of exposure. There is also general agreement that exposure for more than 8 hours to sound levels in excess of 85 dB is potentially hazardous; to place this in context, 85 dB is roughly equivalent to the noise of heavy truck traffic on a busy road

FATIGUE

Because of Noise Pollution, people cannot concentrate on their work. Thus they have to give their more time for completing the work and they feel tiring

ABORTION

There should be cool and calm atmosphere during the pregnancy. Unpleasant sounds make a lady of irriative nature. Sudden Noise causes abortion in females.

PUPIL DILATION

Noise Pollution causes dilation of the pupil of the eye

IT CAUSES MENTAL ILLNESS

- Noise Pollution causes certain diseases in human. It attacks on the person's peace of mind. The noises are recognized as major contributing factors in accelerating the already existing tensions of modern living. These tensions result in certain disease like blood pressure or mental illness etc..

- Noise pollution may cause or contribute to the following adverse effects: anxiety, stress, nervousness, nausea, headache, emotional instability, argumentativeness, sexual impotence, changes in mood, increase in social conflicts, neurosis, hysteria, and psychosis.

It Causes Heart Attack

Noise Pollution causes Increase in the rate of heart-beat, increased cholesterol level and Constriction of blood vessels which leads to blood pressure that resulted in heart attack.

Noise can trigger both endocrine and autonomic nervous system responses that affect the cardiovascular system and thus may be a risk factor for cardiovascular. high levels of stress hormones such as cortisol, adrenaline, and noradrenalin can lead to hypertension, stroke, heart failure, and immune problems.

Acute exposure to noise activates nervous and hormonal responses, leading to temporary increases in blood pressure, heart rate, and vasoconstriction.

EFFECT ON ANIMAL

Noise pollution damages the nervous system of animal. Animal looses the control of its mind. They become dangerous

Noise can have a detrimental effect on animals by causing stress, increasing risk of mortality by changing the delicate balance in predator/prey detection and avoidance, and by interfering with their use of sounds in communication especially in relation to reproduction and in navigation.

Noise also makes species communicate louder, which is called Lombard vocal response. Scientists and researchers have conducted experiments that show whales' song length is longer when submarine-detectors are on.

Level of tolerance

- Normal level of tolerance is 80dbA.
- Sound level below and above this is considered to be as noise pollution.

How can the effects of noise pollution be mitigated?

E.g. roadway noise can be mitigated by the:

- use of noise barriers
- limitation of vehicle speeds
- alteration of roadway surface texture
- limitation of heavy vehicles
- use of traffic controls to reduce braking and acceleration
- tire design

THANKYOU