

Medical pollutant , Noise pollution, and pesticides pollution

Reference:

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3)(http://discovery.bitspilani.ac.in/dlpd/courses/coursecontent/coursematerial%5Cetzc362%5Cnoise_pollution_notes.pdf

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Medical pollutants

Types of medical waste:

1-Normal waste

2-Toxic and Dangerous waste

A- Pathological waste

B- Polluted waste

C-Radioactive waste

D- Chemical waste

E- Pharmaceutical waste

F- Instrument and Equipment waste

Medical waste treatment

- 1- landfill
- 2-Incineration
- 3-Thermal Treatment

Noise pollution

In simple terms, noise is unwanted sound. Sound is a form of energy which is emitted by a vibrating body and on reaching the ear causes the sensation of hearing through nerves.

Sounds produced by all vibrating bodies are not audible. The frequency limits of audibility are from 20 HZ to 20,000 HZ.

The intensity of sound is measured in sound pressure levels (SPL) and common unit of measurement is decibel

140 dB	threshold of pain
110 dB	truck born
100 dB	jet aircraft at 300 m
80 dB	door slamming
60 dB	loud conversation
30 dB	rustle of paper
0 dB	threshold of hearing

- **The sources of noise pollution:**

1-Household sources

2-Social events:

3-Commercial and industrial activities

4-Transportation

The techniques employed for noise control can be broadly classified as :

- **1- Control at source**

- Reducing the noise levels from domestic sectors
- Maintenance of automobiles and machine
- Low voice speaking

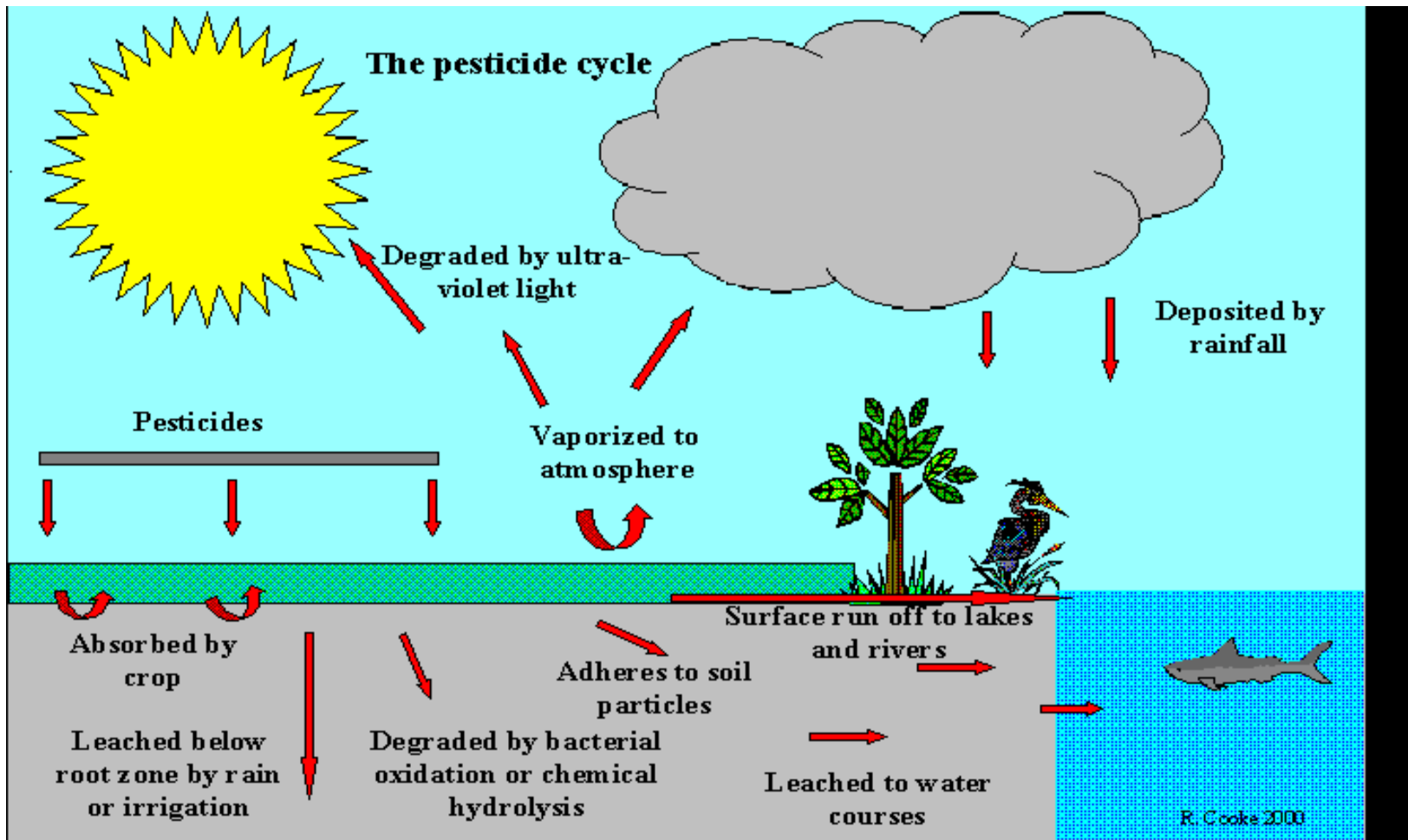
- **2-Control in the transmission path**

- Installation of barriers
- Design of building

- **3- Using protective equipment.**

Pesticides pollution

Pesticides are natural or synthetic agents that are used to kill unwanted plant or animal pests. While the term *pesticide* is now often associated with synthetic chemical compounds, it was not until relatively recently that synthetic pesticides came into use. Naturally occurring compounds or natural extracts have been used as pesticides since ancient times. The earliest pesticides were most likely salt, sulfurous rock, and extracts of tobacco, red pepper, and the like. It is rumored that the Napoleonic army used crushed chrysanthemums to control lice, with limited effectiveness. Petroleum oils, heavy metals, and arsenic were used liberally to control unwanted pests and weeds until the 1940s, when they were largely replaced for many uses by organic synthetic pesticides, the most famous of which is DDT.



PESTICIDES – RISKS AND BENEFITS

RISKS

- Toxic to humans
- Impact on environment
- and ecosystems

BENEFITS

- Crop protection
- Food preservation
- Material preservation
- Disease control

Classification based on their origin-

There are two types – **chemical pesticides** and **bio pesticides**.

1-**Chemical pesticides** are further divided into four types based on their origin -

Organophosphate pesticides - These are the chemical substances which are produced due to reaction between phosphoric acid and alcohols. This affects the nervous system by inhibiting the action of enzyme acetyl cholinesterase (AChE). This causes irreversible blockage leading to accumulation of the enzyme which results in overstimulation of muscles. These mainly include **insecticides, nerve gases, herbicides**, etc.

Carbamate - These are esters of carbamic acids. The mode of action is inhibiting acetyl cholinesterase similar to that of the organophosphates but the bond formed for inhibition is less durable and thus reversible. These also include mainly of **insecticides**.

Organ chlorine pesticides- These are derived from chlorinated hydrocarbons. These are endocrine disrupting agents which effect on the hormonal systems of the body, act as duplicates of the normal hormones and thus causing adverse health problems. They remain in environment for a long time by breaking down slowly and accumulating in the fat tissues of animals. A well-known example is **DDT (dichloro diphenyl trichloroethane)**.

Pyrethroid pesticides- These are potent neuro poisons, endocrine disruptors and cause paralysis. Pyrethroids are synthetic version of pyrethrin a natural insecticide. They have similar chemical structure and similar mode of action as of pyrethrin which is obtained from chrysanthemum. These are derivatives of ketoalcoholic esters of chrysanthemic and pyrethroic acids and are more stable in sunlight than pyrethrins. These are most popular insecticides as they can easily pass through the exoskeleton of the insect. Few examples are- **deltamethrin, cypermethrin**, etc.

Biopesticides:

These are naturally occurring materials or derived naturally from living organisms or their metabolites, like bacteria, fungi, plants, etc. These are classified into three major groups-

Reducing pesticide pollution:

The most effective approach to reducing pesticide pollution **first**, to release a lesser quantity of and/or less toxic pesticides into the environment and, **second**, to use practices that minimize the movement of pesticides to ground and surface water

In addition, pesticides should be applied only when an economic benefit to the producer will be achieved.

Steps to Reduce Exposure

- Use strictly according to manufacturer's directions.
- Mix or dilute outdoors.
- Apply only in recommended quantities.
- Increase ventilation when using indoors. Take plants or pets outdoors when applying pesticides.
- Use non-chemical methods of pest control where possible.
- If you use a pest control company, select it carefully.
- Do not store unneeded pesticides inside home; dispose of unwanted containers safely.
- Keep indoor spaces clean, dry, and well ventilated to avoid pest and odor problems.