# CONTROL OF WATER POLLUTION

The following points may help in reducing water pollution from non-point sources.

(i) Judicious use of agrochemicals like pesticides and fertilizers which will reduce their surface run-off and leaching. Use of these on sloped lands should be avoided.

(ii) Use of nitrogen fixing plants to supplement the use of fertilizers.

(iii) Adopting integrated pest management to reduce greater reliance on pesticides.

(iv) Prevent run-off of manure. Divert such run-off to basin for settlement. The nutrient rich water can be used as fertilizer in the fields.

(v) Separate drainage of sewage and rain water should be provided to prevent overflow of sewage with rain water.

(vi) Planting trees would reduce pollution by sediments and will also prevent soil erosion.

For controlling water pollution from point sources, treatment of waste waters is essential before being discharged. Parameters which are considered for reduction in such water are: Total solids, biological oxygen demand (BOD), chemical oxygen demand (COD), nitrates and phosphates, oil and grease, toxic metals etc. Waste waters should be properly treated by primary and secondary treatments to reduce the BOD, COD levels up to the permissible levels for discharge.

Sewage treatment, or domestic wastewater treatment, is the process of removing contaminants from wastewater and household sewage, both runoff (effluents) and

domestic. It includes physical, chemical, and biological processes to remove physical, chemical and biological contaminants. Its objective is to produce an environmentally-safe fluid waste stream (or treated effluent) and a solid waste (or treated sludge) suitable for disposal or reuse (usually as farm fertilizer).

Sewage is created by residential, institutional, and commercial and industrial establishments and includes household waste liquid from toilets, baths, showers, kitchens, sinks and so forth that is disposed of via sewers. In many areas, sewage also includes liquid waste from industry.

Sewage can be treated close to where it is created (in septic tanks, bio-fitter's or aerobic treatment systems), or collected and transported via a network of pipes and pump stations to a municipal treatment plant.

## VARIOUS APPROACHES TO PREVENT AND CONTROL WATER POLLUTION

**1. Sewage treatments:** The household water should be treated properly so that they become environmentally safe. Adequate care should be taken to ensure that effective sewage treatment process is in place and that contaminated water does not get mixed with the environment. in order to prevent water pollution, human and animal excreta should be prevented from mixing with its sources. Construction of pit toilet and proper sewage treatments can offer some solution to this problem.

**2. Prevent river water to get polluted:** The flowing water of the river cannot be cleaned easily by natural process. Since, a large number of external substances are discharged into the water, the river water becomes polluted. This may cause diseases to the people using river water. Thus, every effort should be made to prevent the river water to get contaminated. People should not be allowed to throw wastes into the river water.

**3. Treatment of wastes before discharge:** Factories are expected to treat its effluent wastes prior to discharge. Toxic material must be treated chemically and converted into harmless materials. If possible, factories should try to recycle the treated water.

**4. Strict adherence to water laws:** Laws and legislation relating to pollution should be strictly followed by all. People should be made aware that adherence to water laws are in their own interest.

**5. Treatment of drainage water:** It cities, a huge amount of water is put into drains every day. The water that flows through the city drainage system should be properly treated. Harmful pollutants be removed, before they are introduced into reservoirs. If this water allowed going into water reservoirs without treatment, it will pollute them.

**6. Treatment plants:** Big cities and towns usually have effluent treatment plants. These plants filter out undissolved materials. Chemical treatment is also given to separate out unwanted dissolved chemicals. The treated water is either allowed to go into the water reservoirs or refused in houses. Occasionally, the treated water is used for farming if the fields to be irrigated lie in the vicinity of the water treatment plants.

**7. Keep the pond water clean and safe:** Washing, bathing of cattle in the pond that is used by human should not be done. Washing of dirty clothes and bathing of cattle make the pond water dirty and unsuitable for human use. If these ponds are continually misuses, then it may lead of severe consequences.

**8. Routine cleaning:** Ponds, lakes and wells meant for human use should be routinely cleaned and treated, so that it remains fit for human use. It is an essential step that should not be avoided. A system of regular testing of pond and lake water can be introduced to ensure the safety of the water.

**9. Don't pour insecticides in sinks and toilets:** Never pour household insecticides, medicines, etc. down the sink, drain or toilet. At homes, people often throw wastes and old medicines into the bathroom toilet. This practice is discouraged for the reason that the chemical compounds of medicines, insecticides, etc., when mixed with other chemicals, may result in formation of harmful substances.

**10. Self hygiene:** Self hygiene must be maintained and drinking water must not be polluted. Drinking water should be kept undercover in a clean place. One should not put his hands into the drinking water containers. Also, the practice of cleaning the drinking water reservoirs on a regular basis need to be strictly followed. The water meant for drinking should be purified prior to use. In the absence of good water purifier, it is recommended to drink boiled water. This is also important to prevent water borne diseases.

**11. Sanitation:** Sanitation system must be improved. The benefits of cleanliness on human health need to be understood. Human contact with hazardous materials should be prevented. After using the toilet, one should always use the flush and wash their hands with soap and water.

**12. Public Awareness:** Common public should be aware about the effect of water pollution. Voluntary organization should go door-to-door to educate the people about environmental problems. They should perform street plays for creating awareness about the environment. They should run environmental education centers. Students can impart health education to enable people to prevent water pollution

## CONTROL OF NOISE POLLUTION

**Noise pollution can be effectively controlled by taking the following measures:**

### *(1) Control at Receiver's End*

For people working in noisy installations, ear-protection aids like ear-plugs, ear-muffs, noise helmets, headphones etc. must be provided to reduce occupational exposure.

### *(2) Suppression of Noise at Source*

**This is possible if working methods are improved by**

(a) Designing, fabricating and using quieter machines to replace the noisy ones.

(b) Proper lubrication and better maintenance of machines.

(c) Installing noisy machines in sound proof chambers.

(d) Covering noise-producing machine parts with sound-absorbing materials to check noise production.

(e) Reducing the noise produced from a vibrating machine by vibration damping i.e. making a layer of damping material (rubber, neoprene, cork or plastic) beneath the machine.

(f) Using silencers to control noise from automobiles, ducts, exhausts etc. and convey systems with ends opening into the atmosphere.

(g) Using glass wool or mineral wool covered with a sheet of perforated metal for the purpose of mechanical protection.

### *(3) Acoustic Zoning*

Increased distance between source and receiver by zoning of noisy industrial areas, bus terminals and railway stations, aerodromes etc. away from the residential areas

would go a long way in minimising noise pollution. There should be silence zones near the residential areas, educational institutions and above all, near hospitals.

***(4) Sound Insulation at Construction Stages***

(a) Sound travels through the cracks that get left between the door and the wall. For reducing noise, this space (jamb frame gap) should be packed with sound absorbing material.

(b) Sound insulation can be done by constructing windows with double or triple panes of glass and filling the gaps with sound absorbing materials.

(c) Acoustical tiles, hair felt, perforated plywood etc. can be fixed on walls, ceilings, floors etc. to reduce noise (especially for sound proof recording rooms etc.)

***(5) Planting of Trees***

Planting green trees and shrubs along roads, hospitals, educational institutions etc. help in noise reduction to a considerable extent.

***(6) Legislative Measures***

**Strict legislative measures need to be enforced to curb the menace of noise pollution. Some of these measures could be:**

(a) Minimum use of loudspeakers and amplifiers especially near silence zones.

(b) Banning pressure horns in automobiles.

(c) Framing a separate Noise Pollution Act.

Some effective measures should be taken too solve the problem. The following measures can be taken to prevent noise pollution:

- To prevent and control noise pollution it is necessary to create public awareness. Only law is not sufficient. People must be made aware of the harmful consequences of noise pollution.
- People should be made aware that excessive noise beyond certain limits may cause deafness.
- They should know that injuries caused by sound pollution are often irreversible.
- There should be minimum use of sound producing instruments. There should be proper regulations for the use of loudspeakers and other devices that produce noise beyond that are beyond the toleration limits of human-beings.
- The Pollution Control Board and the High Court have already taken effective measures to bring sound pollution under control. Adequate measures should be taken to ensure that noise related restrictions are not violated.
- Anti-pollution laws should be enacted and enforced.
- Ban of fire crackers should be imposed and electric horns should be replaced by bulb horns.
- The use of microphones should be controlled and regulated.