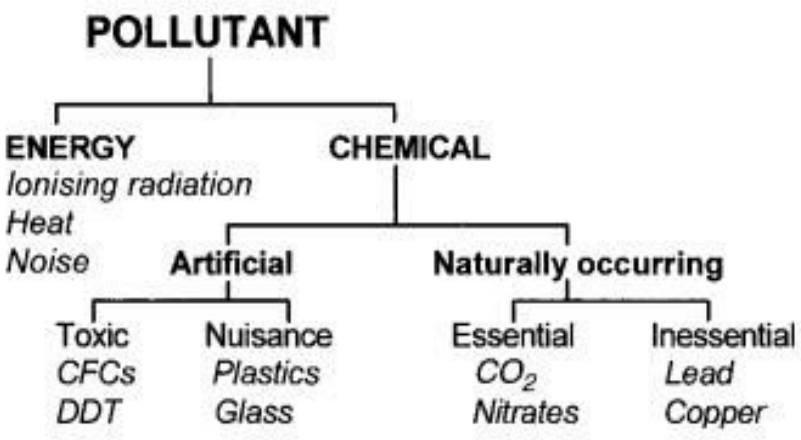
FACULTY OF ENGINEERING AND TECHNOLOGY

Types of Pollution

potential pollutants makes their systematization difficult in absolute terms, it is possible to produce functional classifications on the basis of various characteristics. However, it must be clearly borne in mind that all such classification is essentially artificial and subjective, and that the system to be adopted will typically depend on the purpose for which it is ultimately intended. Despite these limitations, there is considerable value in having some method, if only as a predictive environmental management tool, for considerations of likely pollutant effect.

Pollution Classification



Environmental persistence is a particularly important factor in pollution and is often linked to mobility and bioaccumulation. Highly toxic chemicals which are environmentally unstable and break down rapidly are less harmful than persistent substances, even though these may be intrinsically less toxic.

some pollutants, even when present in very small amounts within the environment, can be taken up by living organisms and become concentrated in their tissues over time. This tendency of some chemicals to be taken up and then concentrated by living organisms is a major consideration, since even relatively low background levels of contamination may accumulate up the food chain.

Pollution effects are not always entirely defined by the initial nature of the contamination, since the reaction or breakdown products of a given pollutant can sometimes be more dangerous than the original substance. This is of particular relevance to the present discussion, since the principle underlying much of practical bioremediation in general involves the breakdown of pollutants to form less harmful products.

control at source is the most effective method, since it removes the problem at its origin. However, this is not always possible and in such cases, containment may be the solution, though this can itself lead to the formation of highly concentrated hot-spots. For some substances, the dilute and disperse approach, which is discussed more fully later, may be more appropriate, though the persistence of the polluting substances must obviously be taken into account when making this decision.

Measure, Monitor, and Evaluate Water Quality

Healthy water bodies significantly affect the underwater flora and fauna and the overall health of the environment. Numerous physical, chemical, and biological factors affect the quality of water in the ponds, the lakes, the streams, the rivers, the oceans, and the groundwater.

Effective and pre-emptive water-quality monitoring strategies can help environmentalists determine the natural and human factors that affect the water bodies. The results can be used to plan restoration projects to ensure that the water bodies meet the environmental standards.

seven ways to measure and monitor the water quality, encouraging a clean and healthy aquatic ecosystem.

Coloured or chromophoric dissolved organic matter (CDOM) occurs naturally in water bodies. This organic matter absorbs the ultraviolet light and decomposes to release tannin, an organic pollutant that causes the water to turn murky. Moreover, tannin contributes to reducing the pH (acidic) of the water and depleting the oxygen levels.

A portion of the CDOM fluoresces and is referred to as fluorescent dissolved organic matter (FDOM) further making the water look cloudy.

TDS Monitoring

The conductivity of a water body is an early indicator of the water quality. Conductivity affects the salinity and total dissolved solids (TDS) content, which in turn affects the concentration of oxygen in the water.

Certain ecological (temperature, excessive rainfall, and increased organic matter content) and man-made (pollution) factors can increase or decrease the water bodies' conductivity, severely impacting the water quality.

For instance, an oil spill or increased levels of organic substances in an ocean can decrease its conductivity, indicating water pollution.

Conductivity, salinity, and TDS meters analyze the water quality by measuring the specific electrical conductance of electrolytes dissolved in the water. Though each of these instruments measures a separate parameter, the results are correlated and indicative of pollution.