LAST MINUTE PRELIMS RECKONER 2025

ENVIRONMENT

MAJOR POLLUTANTS

iLearn IAS @10 YEARS
INTEGRATED LEARNING FOR CIVIL SERVICES EXAMINATION

MAJOR POLLUTANTS

POLLUTANT	SOURCE	IMPACT ON ENVIRONMENT	HEALTH EFFECTS	REGULATORY PROVISIONS
LEAD	Petrol, diesel, lead batteries, paints, hair dye products, industries	Decreased growth and reproductive rates in plants and animals, and neurological effects in vertebrates	Damages nervous system & cause digestive problems and in some cases, causes cancer	Use of lead or lead compounds in Household and Decorative Paints in excess of **90 parts per million** is prohibited.
ARSENIC	Seepage of industrial and mine discharges, fly ash ponds of thermal power plants	Death, inhibition of growth, photosynthesis and reproduction and behavioural effect. Environments contaminated with arsenic contain only a few species and fewer numbers within species.	Chronic exposure to arsenic causes **black foot disease**.	Maximum contaminant level (MCL) for arsenic in drinking water is **10 ppb (according to WHO)** followed by most of the developed countries. In developing countries, including India and Bangladesh, **50 ppb is considered as the accepted level** for arsenic in drinking water.
MERCURY	Volcanoes, forest fires, fossil fuels such as coal and petroleum, discharge from hydroelectric, mining, pulp and paper industries.	When released into the environment, it accumulates in water laid sediments where it converts into toxic **methylmercury** and enters the food chain.	Mercury contamination is a significant public health and environmental problem because methylmercury easily enters the bloodstream and **affects the brain**.	According to **Minamata Convention**, the maximum acceptable quantity of mercury in fish and other food items is **0.5 ppm (by weight) and 1.0 ppm (by weight),** respectively, whereas the acceptable quantity of **methylmercury** in all food items is **0.25 ppm (by weight)**.

POLLUTANT	SOURCE	IMPACT ON ENVIRONMENT	HEALTH EFFECTS	REGULATORY PROVISIONS
URANIUM	It is contained in an aquifer's rocks. The interaction of Uranium with other chemicals in the groundwater, such as bicarbonate, can enhance its solubility	Groundwater Contamination (There is prevalence of Uranium concentration above 30 micro-gram/litre in some of the localized pockets of few States/UTs in the country.)	Kidney toxicity	As per Bureau of Indian Standard (BIS), maximum permissible limit of Uranium is **0.03 mg/l** (as per WHO provisional guidelines) in all drinking water standards after following due process.
PLUTONIUM	Released into the environment in aqueous solution from nuclear reprocessing & uranium enrichment plants.	Soil can be contaminated with plutonium through fallout during nuclear weapons testing. Plutonium moves slowly downwards in the soil, into the groundwater.	Plutonium ingested from contaminated food or water does not pose a serious threat to humans because the stomach does not absorb plutonium easily and so it passes out of the body in the feces.	
FLUORIDES	Phosphate fertilisers, Coal used for combustion in various industries and in brick kilns The improper disposal of fly ash on ground surface The aerial emission of fluoride in gaseous forms	Water and soil contamination	**Dental fluorosis**, stiffness of joints (particularly spinal cord) causing humped back Neuromuscular disorders, gastro-intestinal problems	Permissible range of 0.6 to 1.5 mg/l

POLLUTANT	SOURCE	IMPACT ON ENVIRONMENT	HEALTH EFFECTS	REGULATORY PROVISIONS
OZONE	Formed when NOx particle from vehicle exhaust & volatile Hydrocarbons interacts with each other in the presence of sunlight	Plants experiencing a reduction in photosynthesis and slower growth rate	Chest pain, coughing, throat irritation and airway inflammation, Bronchitis, emphysema etc.	The permissible limit for ozone levels according to CPCB standards is 100 micrograms per metre cube ($\mu g/m^3$) over eight hours.
CARBON MONOXIDE	Incomplete combustion of carbon-based fuels, Automobile exhaust, Cigarette smoke etc.	Effects the amount of greenhouse gases, which are linked to climate change and global warming.	Combines with haemoglobin to form **Carboxyhemoglobin** which is highly stable & reduces oxygen carrying capacity of blood	
METHANE	Fossil fuels, paddy fields, cattle ranches, rotting of vegetation	Loss of species diversity (less variety of plants, animals, insects, and fish) Changes to the specific assortment of plants present in a forest Changes to habitat quality Changes to water and nutrient cycles.	Reduce the amount of oxygen breathed from the air. This can result in mood changes, slurred speech, vision problems, memory loss, nausea, vomiting, facial flushing and headache. Unconsciousness	