

# STUDY ON SOME POLLUTIONS

## Soil contamination

Land pollution occurs by rupture of chemical containment devices, improper disposal of chemical wastes, from surface runoff transporting man-made pollutants such as heavy metals from roadways or pesticides from agricultural uses and deposition of air pollutants settling out onto land. In some cases the residence time for such pollutants is very long, especially when chemical molecules are not readily broken down in the environment and when these pollutants are not sufficiently soluble to enable further transport.

## Noise pollution



Elevated freeways are major urban noise sources.

Panama City. Source: C.Michael Hogan

*See main article: Noise pollution*

Noise pollution is unwanted or harmful sound that intrudes upon human or other faunal activity. Noise pollution is almost entirely human generated, whether by machine sources or amplified sound of human creation. Approximately ninety percent of all such intrusive sound arises from such transport devices as motor vehicles, aircraft and rail activities. Noise pollution gives rise to an assortment of adverse human health effects as well as disruption of faunal activity. Regulation of noise pollution began in a systematic way in the United States with enactment of the Noise Control Act of 1972. Within the next 22 years a number of other national governments had emulated the U.S. initiative.

Meteorological influences play an important role in sound propagation, particularly due to vertical stratification effects in temperature and wind velocity. These microclimate atmospheric layering effects induce refraction in the sound rays, such that sound intensities at the receptor may be greatly amplified or reduced, depending upon whether the sound rays are refracted upward or downward. For example a thermal profile in which warmer air is near the Earth's surface will create less dense air at the surface level and will cause sound to refract upwards, resulting in reduced sound intensity at a receptor.

## Light pollution

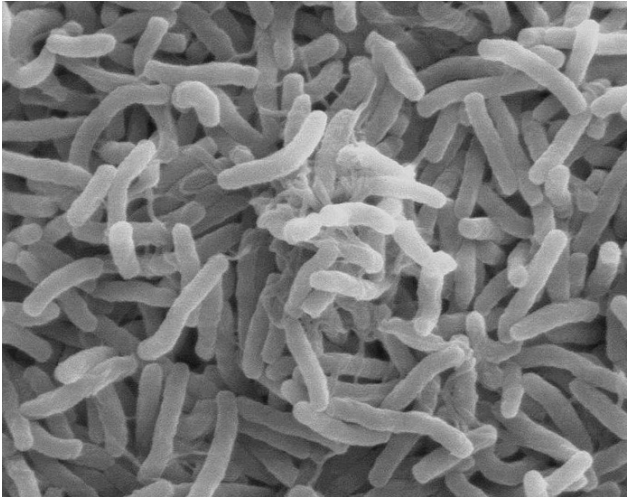


Auckland, New Zealand by night. Source: C.Michael Hogan *See main article: Light pollution*

Light pollution is the intrusion of unwanted or unneeded artificial light into a man-made or natural environment. A variety of somewhat separate phenomena comprise the overall issue of pollution due to excess artificial light: over-illumination, glare, light trespass and skyglow. Adverse impacts of light pollution include human annoyance, interference with ecosystems, human health effects, interference with astronomical observation and wasteful consumption of energy. Sources of interior light pollution consist chiefly of unnecessarily intense lighting; principal sources of outdoor light pollution include street lighting, poorly designed stadium and recreational lighting, gratuitous building uplighting and unnecessary use of office interior lighting intruding into the night sky.

Local governments have begun to regulate certain aspects of light pollution; in particular, numerous municipalities have established standards that control the amount of light traversing property boundaries. Regarding exterior lighting fixtures and skyglow issues, some governmental agencies and lighting manufacturers have established standards that limit the quantity of light that is wasted by emanating skyward and not illuminating the ground target.

## Health effects

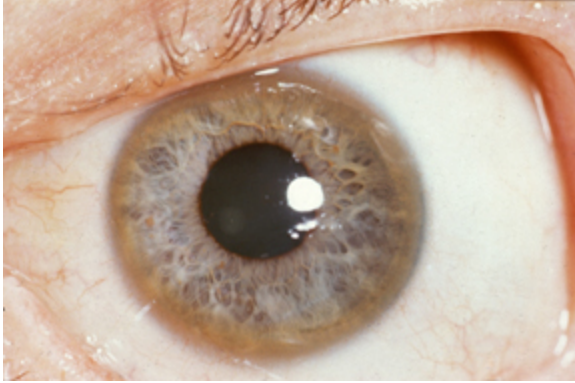


Cholera bacteria, pandemic disease water pollutant in Africa.

Source: Dartmouth College Pollutants in the environment produce a broad array of health impacts on humans as well as other species. These adverse impacts may range from annoyance and metabolic disturbance to mortality. Air pollution causes deaths numbering in the millions of people per annum worldwide. Chief causes of mortality are respiratory and circulatory disease, including significant incidence of lung cancer. It is difficult to separate out the contributions of smoking and second hand smoke versus general ambient air quality, since all of these impacts are cumulative over the human lifespan. Heart disease is particularly strongly correlated with tobacco smoking and second hand derivatives. Respiratory diseases attributed to adverse air quality are chiefly lung cancer, emphysema and other obstructive lung disease.

The pathways of disease are not fully understood from a variety of carcinogenic air pollutants, since there are a vast array of airborne pesticides and other complex organic chemicals that produce mutagenic as well as carcinogenic effects. In addition, the variety of impacts from contaminants like heavy metals present in air pollution is not fully understood, due to the long time exposure required for many of the diseases to progress.

Furthermore, identifying the impacts of heavy metal and other pollutants is complex, since often there are dual pathways of pollutant exposure to the human body, most commonly being via water and via air pathways, as well as combined exposures to multiple contaminants.



Keyser-fleischer ring, result of high copper intake.

Source: H.Dijk & H.Fred Total deaths from water pollution worldwide conservatively number over fifty million people, with young children bearing a disproportionate amount of this mortality; the greatest incidence of these impacts are in Asia and Africa, regions which have the greatest lack of sewage treatment systems, and, in the case of Asia, which have massive uncontrolled industrial sources of water pollution. With regard to inadequately treated sewage and livestock runoff sources, common pathogenic microbes are to *Giardia lamblia* and species of the genus *Salmonella* (which variously cause typhoid fever and food-borne illnesses); species in the genus *Cryptosporidium*, which are fecal-oral route parasites often transmitted as water pollutants and are associated with inadequate sanitation; parasitic worms that live inside faunal digestive systems for part of their life cycle (This widespread syndrome is spread partially as water pollutants, with an estimated three billion people currently affected). Hepatitis A is a viral disease, one of whose pathways of transmission is water-borne.

Noise affects health through elevated sound levels, and may manifest as physiological as well as psychological impairments. Some of the chief health effects include hypertension, ischemic heart disease. Some studies have suggested changes in the immune system, and limited data attributing birth defects to noise exposure have come forward. Although some presbycusis, or loss of hearing, may occur naturally with age, in many developed nations the cumulative impact of noise is sufficient to impair the hearing of a large fraction of the population over the course of a lifetime. Also, noise exposure has been known to induce tinnitus, hypertension, vasoconstriction and other cardiovascular impacts. Beyond these effects, elevated noise levels can create stress, increase workplace accident rates. The most significant causes of exposure to sound levels causing adverse health effects are vehicle and aircraft noise, industrial noise and prolonged exposure to amplified music.

Source : <http://www.eoearth.org/view/article/51cbeea57896bb431f699572/?topic=51cbfc78f702fc2ba8129e73>