



Industry and the environment

Major industrial impacts on the environment include:

- air and water emissions and their effects on nearby land and soil;
- waste generation and disposal;
- the consumption of vast quantities of water; and
- the occupation of large areas of land.



Oil industry

The oil and gas industry does enormous damage to landscapes, soil, air, water and biodiversity. As a result of oil and gas production, underground layers of the Earth are damaged because large areas of land are dug up and forests are cleared. The surface layer of the soil and surface water are exposed to pollution from accidental oil leakages, not only at the production sites but also at breaks in transport pipelines. Air pollution occurs when oil and gas are burned, as in the processing of natural gas. The re-use of water in production processes reduces the danger of polluting agents getting into water basins.



Metallurgy

The main problem in the ferrous metallurgy sector is atmospheric pollution, since metallurgical plants release great quantities of gaseous waste. In production involving blast furnaces or electric smelting furnaces, and in steel mills, tube-rolling mills and coke production plants, most of the pollution (up to 70 percent) is in the form of carbon oxides, although nitric oxides and hydrogen sulphides are also produced. During agglomeration processes, dust, sulphur dioxide, lead and manganous oxides, hydrochloric and sulphuric acids as well as benzopyrene are discharged into the air. These pollutants can travel enormous distances – up to 60 kilometres from their source. They cause soil and water pollution and the degradation of forest ecosystems.

Non-ferrous metallurgy is one of the main polluters of the environment. The waste released by plants in this industry is very harmful to living things because it contains lead, mercury and manganese. The high levels of extremely hazardous pollution have a negative effect on the health of the population.



Coal industry

Coal industrial enterprises (mines, open-pit mines, coal preparation plants and coal production companies) release pollution that affects the atmosphere, surface waters and groundwater. One particular problem is the irreversible change made to the landscape and the spoiling of agricultural land by excavation and dumping.



Chemical industry

The chemical industry is characterised by the enormous quantity and high toxicity of pollutants released into the atmosphere. The pollution list is long and contains extremely dangerous and highly toxic substances – ammonia, hydrogen sulphide, toluene, acetone, mercury, benzene, phenol, as well as dust. The situation with respect to sewage waste is more favourable. The amount of water used in the technological processes is enormous, but about 90 percent of these needs are covered by recycled water. Nevertheless, highly toxic sewage is extremely dangerous and must be buried in the ground in specially built pits.



Machine-building industry

Machine-building plants produce gaseous waste, which is only partially purified. These factories are especially dangerous to water basins, because of their highly toxic waste. Solid waste such as slag, dross and ashes must be buried in special waste dumps.



Pulp and paper production and woodworking

Pulp and paper mills and woodworking shops are among the biggest commercial consumers of water, being responsible for a high percentage of all water used by industry. Water flow from such plants is heavily polluted with woodchips and pieces of bark, and 50 percent of the raw material in this industry ends up as waste. The slag from water-purifying plants contains toxic lignin and liquid sulphite alkaline solutions.



Production of building materials

The building materials industry produces significant amounts of pollutants. Most of the industry's hazardous waste is released into the air. Gaseous emissions contain high concentrations of dust from asbestos. Dangerous substances such as benzopyrene, sulphur dioxide, hydrogen sulphide and solvents are discharged from such plants. Air pollution from cement plants causes serious harm to soil and plants within a range of 1,000 metres. The waste accumulates and can form a lifeless, non-organic layer that seals the surface of the soil. Waste from building material factories contains oil products and suspended particles.



Transportation

The transport industry, including road, water, air and railway transport as well as transportation management, has a significant impact on the environment, especially on the air and soil. The most polluting mode is motor transport. The main polluting agents in transport emissions are carbon oxides, nitrogen oxides, sulphur dioxide, carbon and soot.

Significant areas of land are taken up by infrastructure such as railroads, roads and airports. Natural ecosystems suffer damage from pipelines carrying natural gas and petrol, which are critical components of the transport industry.



Agro-industrial sector

All types of agro-industrial production have a close connection to the environment and cause serious, sometimes irreversible damage to it. Agriculture harms soil and water resources, as well as biodiversity. Increasing numbers of world experts consider the excessive use of chemicals to be harmful, pointing out that one-third of environmental pollution is due to the agro-industrial sector. Dangerous pollutants seep into groundwater and surface waters due to storage leaks and the use of chemical pesticides and fertilisers, or when animal waste from livestock and poultry farms leaks from sewage systems. Both surface waters and groundwater are affected, including sources of drinking water, and the pollution caused by chemical pesticides and nitrogen compounds can far exceed the maximum permissible concentrations. Waste from the sector's processing plants damages water resources, causing large-scale damage to soil. The fertile layer of the soil becomes barren, soils in irrigation areas become salinised, and in general the soil deteriorates as a result of pollution with chemical herbicides and pesticides.



Housing and communal sector

The housing and communal sector is a permanent source of water pollution. This branch of the economy dumps a high percentage of its sewage water into surface water basins without sufficient pre-treatment, due mostly to a lack of necessary purifying equipment. The difficulty in treating public sewage lies in the fact that, in many towns, the public sewerage system handles both residential and industrial sewage. As a result, the utilisation of the sediment that forms after purification becomes a serious problem, as it contains large amounts of hazardous pollutants (heavy metals in particular).

Air pollution in the housing and communal sector is not as significant. In this area, the main polluters are public boiler houses, which are not equipped with adequate chimney gas purifying systems.