



# Impacts of oil production on the environment

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## DESCRIPTION

Due to heavy usage of oil, the environmental impact of the petroleum industry is widespread. Oil and natural gas are major energy sources and raw materials that enable many aspects of modern life and the world economy. Their products have grown rapidly over the last 150 years to meet the demands of a fast-growing population, creativity and consumerism. Significant amounts of toxic and non-toxic waste are generated during the extraction, refining and transportation of oil and gas. Some industrial by-products, such as volatile organic compounds, nitrogen and sulfur compounds, and spills can contaminate air, water and soil in deadly amounts if not properly treated. Global warming, ocean acidification, and rising sea levels are global changes amplified by industrial emissions of greenhouse gases such as carbon dioxide (CO<sub>2</sub>) and methane, and particulate aerosols such as black carbon.

Crude oil is used to produce the petroleum products we use to fuel airplanes, cars, and trucks. We also used to make products such as petroleum products, medicines and plastics. Although petroleum products make life easier, finding, producing, and moving petroleum may have negative effects on the environment. Technological advances in exploration, production and transportation of oil and enforcement of safety and environmental laws and regulations help to avoid and reduce these effects.

Most oil spills are the results of accidents at oil wells or on the pipelines, ships, trains, and trucks that move oil from wells to refineries. Oil spills contaminate soil and water it may cause devastating explosions and fires. The federal government and industry are developing standards, regulations, and procedures to reduce the potential for accidents and spills and to clean up spills once they occur.

## Environmental Impact of Oil

Over the past five years oil has consistently been among the UKs top three pollutants. Many drains lead directly to rivers, streams or lakes, and if you permit oil to enter a drain it can have an equivalent effect as you pouring it directly into a watercourse. Just 1 litre of oil can contaminate 1 million litres of water. Oil pollution can have a devastating effect on the water environment; it spreads over the surface during a thin layer that stops oxygen getting to the plants and animals that live in the water.

### Oil Pollution

- Harm to animals and insects
- Prevents plant photosynthesis
- Disrupts the food chain
- Recovery takes a long time

Wildfowl are particularly vulnerable, both through damage to the waterproofing of their plumage and through eating the oil as they preen. Mammals like water voles can also be affected too. In the ground and soil oils coat or kill the organisms which are necessary to maintain the environmental balance.

### Micro Plastics

Petroleum has enabled plastics to be used to create a wide range and large quantity of consumer items at extremely low production costs. Annual growth rates in production have been near 10%, and are driven largely by single-use plastics for which improper disposal are common.

The majority of plastic isn't recycled, and it fragments into smaller and smaller pieces over time. Micro plastics are particles that are smaller than 5 mm in size. Micro plastics are observable in air, water, and soil samples gathered from nearly every location on earth's surface, and also increasingly within biological samplings. Long-term effects from the environmental build-up of plastic waste are under scientific evaluation but so far mostly unknown. Micro plastics are concern because they have a large tendency to adsorb pollutants on their surface, as well as ability to bioaccumulation.

### **Greenhouse Gases**

Petroleum extraction damages the sustainability of earth's carbon cycle by transporting sequestered geologic CO<sub>2</sub> into the biosphere. The carbon is used by consumers in various forms and a large fraction is combusted into the atmosphere; thus creating huge amounts of the greenhouse gas, carbon dioxide, as a waste product. Natural gas (mostly CH<sub>4</sub>) is an even more potent greenhouse house when it escapes into the atmosphere prior to being burned.