

## Introduction to Environmental Pollution

Although pollution had been known to exist for a very long time (at least since people started using fire thousands of years ago), it had seen the **growth** of truly **global proportions** only since the onset of the *industrial revolution* during the 19th century.

The industrial revolution brought with it technological progress such as discovery of **oil** and its virtually universal use throughout different industries.

Technological progress facilitated by super efficiency of capitalist business practices (division of labour – cheaper production costs – overproduction – overconsumption – overpollution) had probably become one of the main causes of serious deterioration of natural resources.

At the same time, of course, development of natural sciences led to the better understanding of negative effects produced by pollution on the environment.

Environmental pollution is a problem both in **developed** and **developing countries**. Factors such as *population growth* and *urbanization* invariably place greater demands on the planet and stretch the use of natural resources to the maximum.

It has been argued that the **carrying capacity** of Earth is significantly smaller than the demands placed on it by large numbers of human populations. And overuse of natural resources often results in nature's degradation.

## Types of Environmental Pollution

Generally speaking, there are many **types of environmental pollution** but the most important ones are:

- **Air** pollution
- **Water** pollution
- **Soil** pollution (contamination)

Some of the most notable **air pollutants** are sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, volatile organic compounds (VOCs) and airborne particles, with radioactive pollutants probably among the most destructive ones (specifically when produced by nuclear explosions).

Our Air Pollutants article provides a clear overview of sources and effects of these air pollutants.

**Water pollutants** include insecticides and herbicides, food processing waste, pollutants from livestock operations, volatile organic compounds (VOCs), heavy metals, chemical waste and others.

Some **soil pollutants** are: hydrocarbons, solvents and heavy metals.

So where does environmental pollution come from?

## Sources of Environmental Pollution

### Fossil Fuel Sources of Environmental Pollution

#### Oil Pollution

In modern industrialized societies, **fossil fuels** (oil, gas, coal) transcended virtually all imaginable barriers and firmly established themselves in our everyday lives.

Not only do we use fossil fuels for our obvious everyday needs (such as filling a car), as well as in the power-generating industry, they (specifically oil) are also present in such products as all sorts of plastics, solvents, detergents, asphalt, lubricating oils, a wide range of chemicals for industrial use, etc. (Ref. 14)

**Combustion** of fossil fuels produces extremely high levels of *air pollution* and is widely recognized as one of the most important “target” areas for reduction and control of environmental pollution.

Fossil fuels also contribute to *soil contamination* and *water pollution*. For example, when oil is transported from the point of its production to further destinations by pipelines, an oil leak from the pipeline may occur and pollute soil and subsequently groundwater. When oil is transported by tankers by ocean, an oil spill may occur and pollute ocean water.

Of course, there are **other natural resources** whose exploitation is a cause of serious pollution; for example, the use of *uranium* for *nuclear power generation* produces extremely dangerous waste that would take thousands of years to neutralize.

But there is no reasonable doubt that **fossil fuels** are among the **most** serious sources of environmental pollution.

Power-generating plants and transport are probably the biggest sources of fossil fuel pollution.

Common **sources** of fossil fuel pollution are:

#### *Industry:*

- Power-generating plants
- Petroleum refineries
- Petrochemical plants
- Production and distribution of fossil fuels
- Other manufacturing facilities

#### *Transport:*

- Road transport (motor vehicles)
- Shipping industry
- Aircraft

Fossil fuel combustion is also a major source of **carbon dioxide** (CO<sub>2</sub>) emissions and perhaps the most important cause of global warming. Learn more about the causes and effects of global warming here.

### **Other (Non-Fossil Fuel) Sources of Environmental Pollution**

Among other pollution sources, **agriculture** (livestock farming) is worth mentioning as the largest generator of ammonia emissions resulting in *air pollution*.

Chemicals such as pesticides and fertilizers are also widely used in agriculture, which may lead *water pollution* and *soil contamination* as well.

**Trading activities** may be another source of environmental pollution.

For example, it's been recently noted that packaging of products sold in supermarkets and other retail outlets is far too excessive and generates large quantities of solid waste that ends up either in landfills or municipal incinerators leading to *soil contamination* and *air pollution*.

**Residential sector** is another significant source of pollution generating solid municipal waste that may end up in landfills or incinerators leading to *soil contamination* and *air pollution*.

Our **unique analysis** of Causes of Pollution will give you an excellent perspective on the **fundamental pollution drivers** such as *globalization*, *industrialization* and *population growth*.

You will also learn about why we refer to *production* and *consumption* as **primary & secondary causes of environmental pollution**; plus get a schematic presentation of **pollution sources** - i.e., actual economic sectors such as manufacturing, power generation, residential sector and so on.

Since **air** pollution is one of the largest areas of environmental pollution studies, our discussion on Air Pollution Causes explains how each major pollutant contributes specifically to air pollution.

## **Environmental Pollution Effects**

**Environmental pollution effects** can be truly damaging.

Please read our detailed analysis of all types of Pollution Effects here, where we discuss the effects of air pollution, water pollution and soil pollution.

Some of the effects of air pollution include asthma, reduced energy levels, irritation of eyes, disruption of the immune system, malfunction of the central nervous system, cancer.

For a further in-depth analysis of Air Pollution Effects, please see here.

**Water pollution** can cause skin rashes & allergies, all sorts of water-borne infections, vomiting & stomach aches, malfunction of the central nervous system and so on.

**Soil pollution** is, in a way, connected to water pollution and may cause cancer, headaches, fatigue, skin rashes and so on.

## Conclusion

Environmental pollution is causing a lot of **distress** not only to humans but also animals, driving many animal species to endangerment and even extinction.

The **transboundary nature** of environmental pollution makes it even more difficult to manage it – you cannot build brick walls along the borders of your country or put customs cabins at every point of entry to regulate its flows into your country.

Everything on our planet is **interconnected**, and while the nature supplies us with valuable environmental services without which we cannot exist, we all **depend on each other's actions** and the way we treat natural resources.

It's widely recognised that we are hugely **overspending** our current budget of natural resources – at the existing rates of its exploitation, there is no way for the environment to recover in good time and continue “performing” well in the future.

Perhaps we should adopt a **holistic view** of nature – it is *not* an entity that exists separately from us; the nature *is* us, we are an **inalienable** part of it, and we should care for it in the most appropriate manner. Only then can we possibly solve the problem of *environmental pollution*.

## References

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