

Environmental pollution and public health

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The impact of environmental pollution is intricate and dangerous. Pollution could deteriorate human health and degrade the environment and the lives it support. The major forms of environmental pollution include air, water, land, noise, and radioactive pollution. In all forms of pollution, their ultimate now be globally felt in the form of Global warming, greenhouse effect, acid rain, massive heavy metal poisoning, climate change, etc. But laws are enacted to continuously protect the environment from exploitation.

However, it seemed that humanity is not learning from historical events that cost the lives of millions of people-- events such as the Chernobyl accident and the Hiroshima bombing. The population has been repeatedly reminded of the adverse effects of pollution but yet in their homes and personal life they are not guarding enough against exploitative acts to the environment. The author wrote this paper to re-educate the reader of how urgent is it to say no to pollution.

The paper covered the discussion on the major form of pollution, health and environmental impacts of pollution, and laws and treaties pertaining to environmental protection and regulation. Pollution has varying impacts on the human health and the environment that humans live in. People could die or get sick if exposed to these pollutants such as heavy metals including lead or mercury; and radioactive compounds including alpha, beta, and gamma radiation. The environment could further impose life-threatening conditions because of disrupted natural environmental processes.

Nowadays, the world can now feel the adverse effects of environmental pollution. Because of the massive release of carbon dioxide in the air and the denudation of our forests the greenhouse effect and the global warming

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threatens the world of severe climate change. Has the world forgotten the fate of the Britannia Mine, a copper mine near Vancouver, British Columbia? The copper that washed out from this mine virtually killed life forms existing in the body of water called the Howe Sound.

The Chernobyl accident in 1986 left huge radioactive fallout which drifted to many parts of the Soviet Union, Europe, and North America. This radioactive fallout took away many lives both young and old. History has shown the world, time and again, that nature has its own way of retaliating destructive human activities. In the pursuit of further improving the technology that the world already has, people should not forget to strike a balance between development and environment.

Indeed, the author would like to believe that no one would want to compromise public health and environment in the world's pursuit to industrialize and globalize through technological advancements. The researcher has chosen this topic to remind everyone of his or her responsibility to the environment and the future generation and to get across the message that while meeting our own needs, this generation should not strip away from the future generation inherent their right to enjoy the resources this world has in as much as the current generation did.

Specifically, this paper aims (1) to discuss the major forms of pollution and their sources; and (2) to identify the problems posed by these pollutants to human health and the environment. The significance of this paper would be its timely discussion of the environmental issue, particularly pollution, which has been long present and gotten worldwide attention, but yet unresolved and continuously done even in homes and in many personal activities. A lot

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of people clamor about pollution yet many still do not guard against similar practices in their own homes, offices, and personal lives.

The author still noticed many people who do not practice waste segregation; many children still throw plastic just virtually anywhere. Smoke belching in many parts of the world, especially in third-world countries, is still rampant. Knowledge is power. Education is vital. This is what exactly the paper will do, aim readers with a comprehensive knowledge on pollution and its public health impacts. Generally, environmental pollution can be broadly classified as air, water, land, noise, or radioactive pollution.

Simply put, air pollution is the disruption of the natural composition of the atmosphere. Pollution of the air occurs when there is an excessive emission of, but not limited, to gases, vapors, or chemical particulates in the atmosphere. This phenomenon could lead to the saturation of these compounds in the atmosphere thereby causing disequilibrium in natural environmental processes such as the nitrogen or the carbon cycles. The consequences of air pollution—global warming, acid rain, smog, and the depletion of the ozone layer-- can now be globally felt.

Sources of air pollution include exhaust from automobiles, industries, factories, and households; emission of chlorofluorocarbons (CFCs) in refrigerants and coolants; volcanic eruption; agricultural activities; and the list goes on and on. When foreign materials deposit in bodies of water and degrade water quality and safety, water pollution is said to happen. The deposition of these harmful foreign materials interferes with the equilibrium of aquatic ecosystems and destroys the aquatic habitat.

The release of heavy metals and hazardous wastes to the aquatic environment or the use of synthetic agricultural chemicals (fertilizers, herbicides, insecticides, etc), or the simple throwing of non-biodegradable wastes to the bodies of water all lead to water pollution. Land pollution or sometimes known as soil pollution is the deposition and accumulation of solid wastes, chemical toxins, and non-biodegradable materials in the soil. Mining, quarrying, and agricultural activities contribute to land pollution.

Noise pollution could be usually felt in urban and highly industrialized places. Particularly, communities near the airport or manufacturing and construction industries suffer this kind of pollution on top of other types of pollution. Radioactive pollution is the release to the environment of radioactive wastes commonly from nuclear reactions or activities. Nuclear activities include the generation of energy through nuclear reactions and the use of nuclear weapons like nuclear bombs.

All forms of pollutions have different effects on the human body depending on one's tolerance and the route of exposure to these pollutants. Several researchers have dedicated their research on the effects of pollutants on human health. Epidemiologic studies published in the last 10–15 years have provided strong evidence that current levels of air pollution have a negative impact on public health (Wilson and Spengler, 1996). The common effect of air pollution on human health is the development of respiratory and cardiovascular diseases.

Epidemiological studies have demonstrated a consistent increased risk for cardiovascular events in relation to both short- and long-term exposure to present-day concentrations of ambient particulate matter (Brook et al. , <https://assignbuster.com/environmental-pollution-and-public-health/>

2004). Of the overall population sector, children are considered the age group most affected by air pollution because their lungs are still weak and they spend most of their time outside “ where the concentrations of pollution from traffic, powerplants, and other combustion sources are generally higher” (Schwartz, 2004).

Because of this, “ recent studies have suggested that air pollution, particularly traffic-related pollution, is associated with infant mortality and the development of asthma and atopy; other studies have associated particulate air pollution with acute bronchitis in children and demonstrated that rates of bronchitis and chronic cough declined in areas where particle concentrations have fallen” (Schwartz, 2004). Many harmful substances pollute the aquatic environment. Depending on the type of water pollutant, varying effects of these pollutants to the human have been recorded.

Heavy metals from various sources were among of many popular water pollutants. Examples of these heavy metals of health concern are, but not limited to, lead, mercury, copper or aluminum. Lead is a very potential neurotoxin and it nearly affects every organ system in the human body. “ Among children, lead is associated with decreased intelligence, growth and hearing impairment, anemia, and attention and behavioral problems. High levels of exposure can cause severe brain damage and death.

Young children, especially those who are aged younger than 2 years, are particularly susceptible to lead because their central nervous systems are still developing and because they absorb more lead from their environments than do adults” (ATSDR, 1999). Mercury is popularly used in mining. Miners are particularly exposed to this harmful heavy metal. The kidneys are one of

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the main target organs for elemental mercury which accumulates in the kidneys (Passow et al. , 1961). Experimental studies carried out on animals have shown immunologically mediated glomerulonephritis after the exposure to mercury (Bagenstose et al. 1999).

Also, Glomerulonephritis and nephrotic syndrome have been reported in subjects exposed to mercury (Bernard and Lauwerys, 1989). Pesticides which are used in agriculture and various other applications also pollute water especially groundwater. When pesticides reach the water source, the pollutant can be dangerous to humans whose source of drinking water is deep well. Surface run-off could also transport these pesticides to different bodies of water and could possibly kill life on that certain body of water. In many countries, dumpsites are sordid sights.

Not only are they sordid to look at, but also pollute the very foundation and mechanical support of every matter on earth—the land. The deposition of non-biodegradable compounds in soils poses threat to the immediate population. Surface runoff and leaching of heavy metals to the groundwater are some of the activities that couple the deposition of non-biodegradable wastes. When these toxins reach the bodies of water, many lives will be threatened. Excessive mining activities also disrupt the soil structure. In urban and highly urbanized regions, especially in industrial zones, noise pollution has caught the attention of environmentalists.

Excitingly, one study has investigated the effect of noise pollution , particularly noise coming from aircrafts, to one's reading comprehension. The study concluded that aircraft noise exposure is linearly associated with impaired reading comprehension (Clark et al. , 2006). Another independent

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study also postulated that noise restricts attention to central cues during complex language-related tasks (Cohen, et al., 1973). Another equally important form of environmental pollution is radiation pollution. The normal healthy organs' exposure to ionizing radiation and thus involves risks for radiation-induced cancer (Little, 2001).

Radiation-induced cancer is usually the most dreadful effect of exposure to ionizing radiation. The Chernobyl Accident and the Hiroshima Bombing in Japan were among the most traumatic human experiences related to radiation exposure. These two historical events have perfectly shown how radiation poses threat to public health and safety. Clearly, pollution disrupts natural environmental processes. Nature has its own way of "curing" itself. But continuous excessive pollution to the environment disables nature's way of self medication. Take for example carbon.

Carbon released to the atmosphere enters the carbon cycle. Ideally, nature has its own way of balancing carbon uptake and return. But because of pollution by human activities, the carbon cycle is gradually disrupted. Human activities that could disrupt the carbon cycle include, but not limited to, cutting down of trees and excessive carbon discharge from industrial factories and automobiles. Trees absorb carbon dioxide. If there are few trees, a lot of released carbons in the atmosphere could not be absorbed. Gradually, Earth would experience an increased carbon in the atmosphere.

Carbon dioxide is transparent to light but rather opaque to heat rays. Therefore, CO₂ in the atmosphere retards the radiation of heat from the earth back into space — the "greenhouse effect". Global temperature has gradually risen. This calls the attention of everyone, young and old alike, to <https://assignbuster.com/environmental-pollution-and-public-health/>

solve an internationally perplexing problem called global warming and climate change. Improper waste disposal pollutes the environment. Non-biodegradable wastes deposit in the environment—in land and in bodies of water such as rivers and lakes. If there are lots of these wastes, life on these bodies of water will soon cease to exist.

Man could not live a healthy life if his environment is polluted. Another detrimental effect of environmental pollution could be felt through the acidic precipitation phenomenon or commonly referred to as the acid rain. When oxides of sulfur and/or nitrogen deposit in the atmosphere and undergo chemical change, they return to Earth in the form of rain, snow or dew with a relatively low (acidic) pH. Acid rain could destroy the natural pH balance of soil and water. An acidic lake could definitely not support life. Acid rain also hastens the deterioration of buildings.

Having realized the health and environmental impacts of pollution, laws have been enacted to control and regulate activities that could harm the environment. In the United States, there are several government and nongovernmental institutions and research institutes that monitor and regulate environmental pollution. But the agency directly in charge of the protection and preservation of the US environment is the U. S. Environmental Protection Agency (EPA). There are several laws implemented to take care of the environment. The essence of these rules is also similar to other countries.

The difference may only be in implementation—how serious is the government in truly protecting the environment against exploitation. National Environmental Policy Act of 1969 (NEPA). The purpose of this act is <https://assignbuster.com/environmental-pollution-and-public-health/>

“ to declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality” (NEPA, sec 2).

Pollution Prevention Act (PPA). As its name suggests, this act is aimed at reducing the amount of pollution through cost-effective changes in production, operation, and raw materials use of manufacturing industries. The pollution prevention regulation of this act also stipulates and suggests other environmentally-friendly practices that could increase the efficiency in the use of energy, water, or other natural resources, and protect the US resources through conservation. Practices include recycling, source reduction, and sustainable agriculture Clean Air Act and Clean Water Act.

These acts are federal laws that regulate emissions and discharge of pollutants to the atmosphere and bodies of water respectively. There are many other laws that are enacted to take care of the environment--- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund); Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); The Occupational Safety and Health Act (OSHA); The Oil Pollution Act of 1990 (OPA); The Resource Conservation and Recovery Act (RCRA); The Toxic Substances Control Act (TSCA); and the list continues.

As in any other government, the success of these laws depend on how seriously they are implemented and followed. Apart from these federal laws, the US is also a signatory to many international treaties concerning the <https://assignbuster.com/environmental-pollution-and-public-health/>

environment. Saudi Arabia is also a signatory to international environmental treaties including “ The Kuwait Regional Convention for the Protection of the Marine Environment from Pollution”, “ The 1992 Regional Convention for the Conservation of the Red Sea and the Gulf of Aden Environment”, and “ The 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. These treaties are diverse but they all work in synergy to help protect the environment.

The Kingdom of Saudi Arabia (KSA) founded in 1981 an institution that would manage her environmental protection and management activities. This institution is called the Meteorology and Environmental Protection Administration (MEPA). Through this institution, KSA creates programs to conserve, improve, and protect natural resources and the environment as well as to control environmental pollution.

KSA also implements diverse environmental laws but in essence these laws aim to protect the environment against exploitation and enhance the health, safety, and welfare of the people of KSA at the same time also promoting the country’s overall economic and social well-being. The major forms of environmental pollution- air, water, noise, land, and radiation—have been thoroughly discussed. Their impacts on public health, individual health, community health, and environmental health have been enumerated.

Laws have been enacted by counties to protect their certain environmental domains and international laws and treaties have been formulated and enforced to take care of the word environment. Realizing that pollution triggers a lot of problems including health, environment, and economic problems, government should maintain strict implementation of the law at

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full extent at that. Ultimately, continuous environmental protection will enable humanity to achieve sustainable development without compromising nature.