

Impact of Industrial Pollution on Environment, Its Cause, Effects and Controlling Measures

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Abstract

This paper interrelates the association of industrial pollution with environment. Factories established in the country have great varieties of improvements in addition to acknowledge themselves in enhancing the pollution due to loosely bound frame work of administration. Industrial pollution has associated negatively with health of human beings and nature. The destructions caused by industrial pollution are innumerable and beyond the limits. Many studies and experiments have done to reduce industrial pollution. But, still not succeeded.

Key words:- Industrial pollution, particulate, pollutants, effluents

Introduction:-

Industrial pollution is one of the most crucial crises which is considered as most relevant subject. As we know, the main basic amenities required for living organisms are water, land and air. Industrial pollution and its relation with environment is like two faces of a coin. Industrial pollution is having various impacts on quality of water, land and air causing widespread environmental problems. During olden days, these amenities were uncontaminated and pure. But today's situation is different. Many water reservoirs are contaminated by the pollutants released from various industries intentionally or through spills which makes the lifesaving waterbodies contaminated. WHO data shows that 9 out of 10 people breathe air that exceeds WHO guideline limits containing high levels of pollutants, with low- and middle-income countries suffering from the highest exposures.

Causes:- The whole world is emphasizing the on the term Pollution which becomes a major agenda of all conferences and round table meetings. It is a term which is so common that every citizen acknowledges that pollution is increasing continuously. Due to industrialization, the air quality is constantly and continuously degrading year by year. As a result, the ample of natural

resources are polluted by various pollutants. The major effluents of industries are soot, dust, fly ash, gases such as carbon dioxide, carbon monoxide, oxides of nitrogen, sulphur, hydrocarbons etc. These pollutants may be a solid, liquid or gaseous substance present in such concentration as it may tend to be injurious to the environment or interfere directly or indirectly with man's comfort, safety and health. The particulates and gaseous pollutants of organic and inorganic matter which originate from industrial sources are like several metals, metal salts, mineral particles, gases like methyl isocyanides, hydrogen sulphide, solvents like sulphuric acid, hydrochloric acid, acetone etc. These particulates and gaseous matter are entering into the atmosphere by manmade activities in the form of dust from many industries, fly ash from sugar industry, power plants, mining process and smoke from incomplete combustion processes. The many inorganic particulates originate from metallic oxides, sulphides, carbonates etc. during the burning of fuels and industrial effluents. The combustion of hydrocarbon fuels like coal, petroleum is common in industries. Hydrocarbons fuels on burning produce carbon di oxide and incomplete combustion of hydrocarbon fuels produce carbon monoxide and carbon. Some of these dissolve in rain water to produce hazardous acid rain which destroys vegetation, monuments, fertile soil, waterbodies,

etc. When these pollutants mixed with river, completely destroys fisheries. Agriculture using river water involves utilization of these effluents for cultivation directly. Hence food grains obtained from is of poor quality, unhygienic and causes various health issues. Rapid growth of industrialization is essential for creating jobs or opportunities which in turn creates numerous options for solving unemployment and also supports economic growth of our country. But at the same time, many industries such as fertilizer factory, tyre factory, cement, aluminum, paints industry releases various gases such as ammonia, urea, carbon dioxide, metal fumes into the atmosphere causing more destruction to human being.

Effects:-

Health and global issues: -

There is a quantitative relationship between exposure to particulates and death mortality. The various pollutants released from the industry affects the health of human beings adversely. It causes a numerous health issues like heart diseases, lung cancer, and bronchitis, both chronic and acute respiratory diseases like asthma, high blood pressure, nervous debility, throat and eye irritation, head ache and cause even death also. These industrial effluents also affect the weather adversely. It results in rise of temperature, reduces the humidity, reduces rainfall and also reduces visibility and causes global warming. Sometimes it may results acid rain also. The release of industrial effluents ie also responsible for ozone depletion.

In paints industry, the solvents like acetone, turpentine, and naphtha. Toluene, methyl ethyl ketone (MEK), dimethylformamide (DMF) and 2-butoxyethanol etc are used. Thus use of organic solvents in paints industry causes eye, nose and throat irritation, headache, light-headedness and unconsciousness. It totally affects central nervous system. Carbon monoxide is a poisonous gas. Carbon monoxide is absorbed by the lungs and binds with hemoglobin present in red blood cells to produce carboxy haemoglobin which reduces the capacity of the blood to carry oxygen and causes fatal death. So, because of this, complete combustion is preferred over incomplete combustion. Long-time exposure to carbon dioxide

causes a variety of health related effects. It may cause giddiness, head ache, difficulty in breathing, sweating, increase in blood pressure, tiredness in human beings because carbon dioxide is an asphyxiant; it mostly affects activity of brain. Release of excess carbon dioxide to atmosphere causes enormous increase in greenhouse effect. Thermal energy of the atmosphere increases causing the planet to become warmer.

Thus, increases in the earth's atmosphere results in "global warming". Sulphur di oxide is a heavy, colourless, toxic gas having intense pungent irritating odour. It is generally produced from the burning of fossil fuels like coal and in smelting process of extraction of pyrites of metals like copper, lead, zinc etc. Large quantities of sulphur dioxide are formed in the combustion of sulphur-containing fuels. Sulphur di oxide causes irritation on skin and mucous membranes of nose, eyes, throat and lungs. High concentrations of SO₂ can cause inflammation and irritation of the respiratory system. Sulphur dioxide affects the environment also. Acidify water streams destroys an aquatic life systems and cause corrosion of metals used in building constructions. Oxides of nitrogen are produced by the combustion of fossil fuels.

Exposure to high level of oxides of nitrogen is danger to lungs and human respiratory tracks and person loses his sensitivity. Oxides of nitrogen are harmful to vegetation, damaging foliage, decreasing growth or reducing crop yields. It fades the colour of the furnishings, fabrics and reduces visibility and reacts with surfaces.

Measure to prevent industrial pollution.

1. The following measures may be considered to prevent and control the industrial pollution.
2. The smoke and carcinogenic gases emitted by factories must be controlled by through strict and rigid factory law ie before releasing these poisonous gases into the atmosphere, it should be filtered or adsorbed through activated carbon or neutralize it or convert these hazardous gases by catalytic converters.
3. Separate board or committee or cell must be enforced to execute the above said process mandatorily. Industries should be held responsible and surrender under law and a

huge amount of compensation to government and if unusual things happened. Their employee Penalty or imprisonment or compulsory compensation rules must be adopted using a separate judiciary cell for environment protection.

4. Proper planning for separate industrial zone with compulsorily preventive measures with basic amenities like fire brigade, mini and equipped industrial hospital, police station etc.
5. Compatible design for development of green belt around every industrial area makes the environment less polluted and more productive of oxygen so that it is less harmful to human beings. These industrial areas should be located at a certain distance away from residential areas or schools or religious centres or rivers to avoid any accidental explosions or leakages of gases.
6. Particulate matter produced by industries can be controlled by precipitator, absorbers, scrubbers and filters. Constructing a long chimneys in industries so that the smoke and gas should be released high up in the sky and do not pollute the lower level of the air. All these must be done compulsorily in the factory premises itself industries should adopt conversion of hazardous particulates or gaseous products into non-hazardous materials or gases.
7. Periodic inspection and well maintenance of machinery parts for their maximum efficiency must be setup by administration and training of their staff about all these must be mandatory. The industries must educate their employees regarding proper maintenance of machinery parts, handling technique, periodic greasing, knowledge of first aid box, current developments in industries, modern methods etc. We need clean technologies that reduce industrial smokestack emissions.
8. Care should be taken to check gas fires and boilers and they must be serviced regularly to ensure they do not produce carbon monoxide. We can reduce air pollution by industries by conserving energy by turning off fans, computers, laptops, air conditioners and other appliances when not in use.

9. Employees can reduce air pollution by pooling services or by availing public transport facilities. Biofuels productions should be encouraged to decrease the extent of pollution which might reduce the use of petrol and diesel causing pollution of the environment.

Conclusions.

In this review paper, we have thrown a light on industrial pollution and its relationship with environment. Industrial pollution and environment are related with each other directly. Our country is having strong back bone of revenue from various industries. Economy of India depends on profit of multiple sources of industries. So, it is impossible to vanish all the industries causing pollution. It is inevitable that controlling of environmental pollution is a prime challenge for administrators of our government and human beings. As the population increases, the challenge of saving our planet from industrial pollution is also magnifying. In order to reduce the industrial population, ample of ideas, methods, suggestions are adopted, executed to control the pollution. In this regard, all the nations must be co-operative and join hands in making global laws with the association of judiciary department to control pollution caused by industries. Local government has to make mandatory to follow the rules and regulations to control the industrial pollution compulsorily. Proper implementations of conditions are periodically under inspection. Industries should be brought under legal platform if there is any violation of such regulations by them. There should be imprisonment or legal action on persons responsible for hazardous explosions. Compensations to those individual and the government for dangerous destructions occurred by industry. Many legal, financial and moral values must be enforced on factories during establishment. The factories must make their mind in produced best environmental performance. Finally we have summarised the cause, effects and preventive measures to reduce environmental pollution.

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