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Environmental Pollution and its Impact on Public Health: A Critical Review

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***Abstract* - Environmental pollution poses the major threat to global health in the world. However, in developing countries, the problem of pollution (air, water, soil, waste and noise) is increasing day by day due to rapid increase in industrialization and motor vehicle. The pollution produces harmful effects not only on human health (respiratory disease, cardiovascular disease and asthma, etc.) but also influence the plants and animals. Thus, to prevent from all health related issues there is a need to aware the different types of pollution, their cause, effect and remedial action. Hence, the aim of this review paper is to provide an overview of different types of pollution in detail, so that their effect could be minimized.**
***Keywords*: Environment Pollution; Types of Pollution; Causes; Effect; Remedies.**

I. INTRODUCTION

Increasing environment pollution has become a worldwide problem. Urbanization has increased the use of energy and also increased the discharging of waste. The global environment is considered as international public health problems, which should be investigated from multiple perspectives, including social, economics, legislation and environment engineering ecosystems [1-3].Environmental pollutants have various effects on human being such as prenatal impact mortality, respiratory disorders, cardiovascular disorder, increase in stress, oxidative, allergy, mental disorders, and various other harmful effects [4, 5].Pollution is a worldwide problem and has high potential to influence the human physiology in modern time. Some major reasons responsible for environmental pollution are deforestations, urbanization and industrial development. People need to be alert to save our environment for future generations as its affect human health very badly. Therefore, it is time to take action and control the pollution. Otherwise, the waste products from consumption, heating, agriculture, mining, manufacturing, transportation, and other human activities will degrade the environment. The current status of environmental pollution in India as depicted in Fig.1.

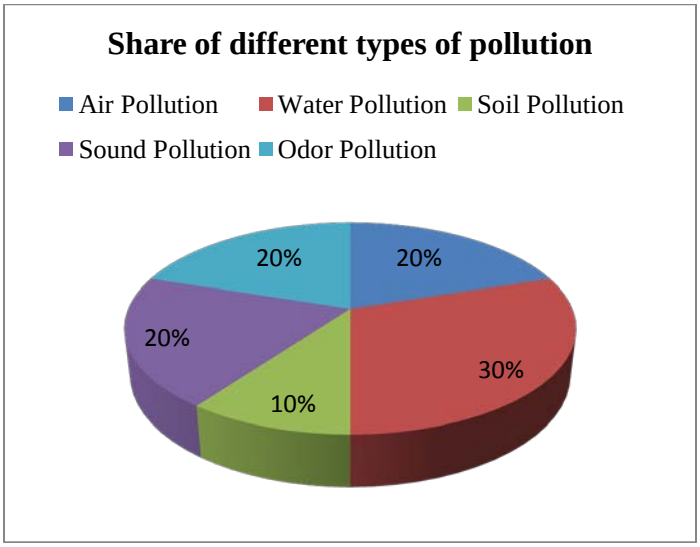

Fig.1 Current status of different types of pollution in India

The main types of pollution are air pollution, noise pollution, land pollution and water pollution. Pollution of all types can have adverse effects on the wildlife, environment and main effect on human health and well-being.

II. TYPES OF POLLUTION

The different types of pollution are explained below:

III. AIR POLLUTION

Air pollution is one of the biggest problems of India. It develops when the air consist of fumes, gases, odors and dust, in large amounts.

Air pollution is basically that type of pollution, which affects those parts of the body which are run up by using air (such as our respiratory system).

The atmospheric air is a mixture of many types of gases, dust particle and water molecules, etc.

When the human being inhales this air in our body by breathing, it affects the human body very badly and may damage our breathing pipe of the body. It is responsible for respiratory infections, heart diseases, stroke and lung cancer etc. [6].

There is lot of thing which caused air quality is to be poor, that quality of air are very harmful for our human body because they develop many disease in human being as its defect respiratory system or vascular system etc.[7].

The record of blacksmith institute world's worst toxic pollution our indoor air pollution as well as poor urban air quality are listed as two world's toxic pollution in 2008 [8]. Outdoor air pollution alone causes 2.1 to 4.21 million deaths annually [9, 10]. Overall, there are millions of people in the whole world that dies by the air pollution [11, 12].

The smoke that release from the industries such as thermal power plant, nuclear power plant and paper industries consist of many harmful gases as sulphur dioxide and carbon dioxide [13-19]. When this smoke goes into the air it destroys the purity of air.

When the human being inhales this air by breathing process it affect the human very badly. There are many countries (Russia, japan, India, Australia, etc.) which are mostly affected by this pollution. There are distinct types of air pollution, which are illustrated in Fig. 2

A. Causes of Air Pollution

Humans are the major reason of air pollution. Thermal power plants, the enormous amount of low grade fuel (especially coal) is burnt to produce electricity that release Sox, NOx and other harmful gases into the air.

In addition, automobiles such as cars, bus, truck etc., burns petroleum, and releasing CO_2 and CO as shown in Fig.3

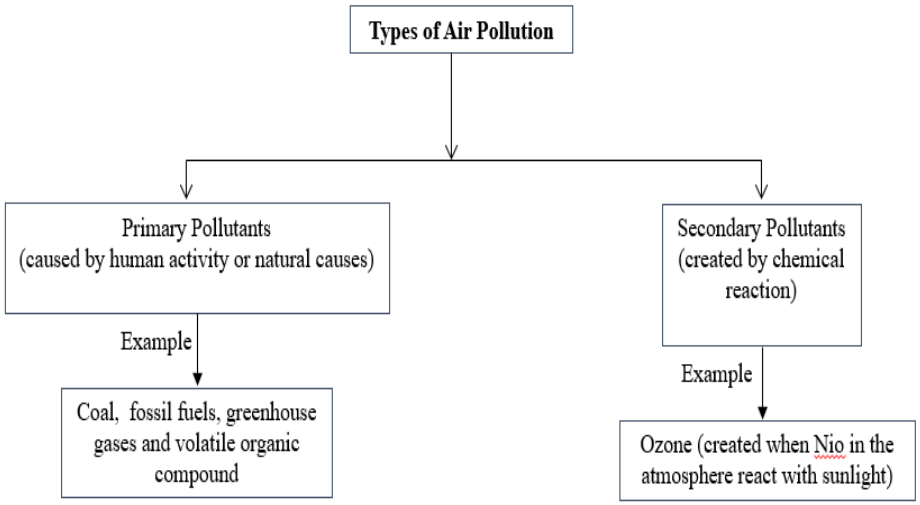

Fig.2 Distinct types of air pollution

B. Effects of Air Pollution

Low level exposure irritates eyes causes inflammation of the respiratory tract can develop into chronic respiratory diseases. Some main effects of air pollution are: diseases (respiratory diseases), acid rain, greenhouse effect, depletion of the ozone layer and effects on wildlife.

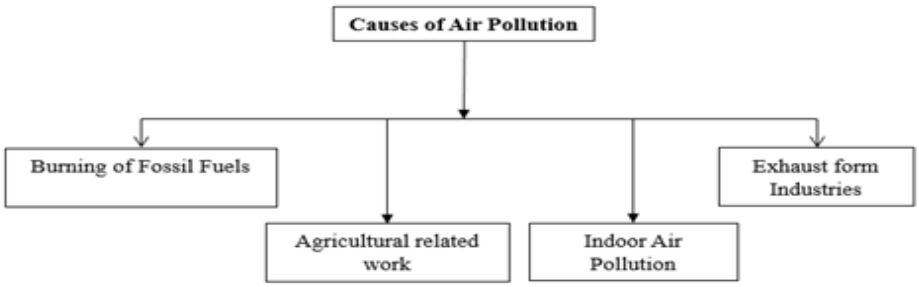

Fig.3 Distinct causes of air pollution

C. Preventive Measure of Air Pollution

The controlling measure of air pollution is depicted in Fig.4

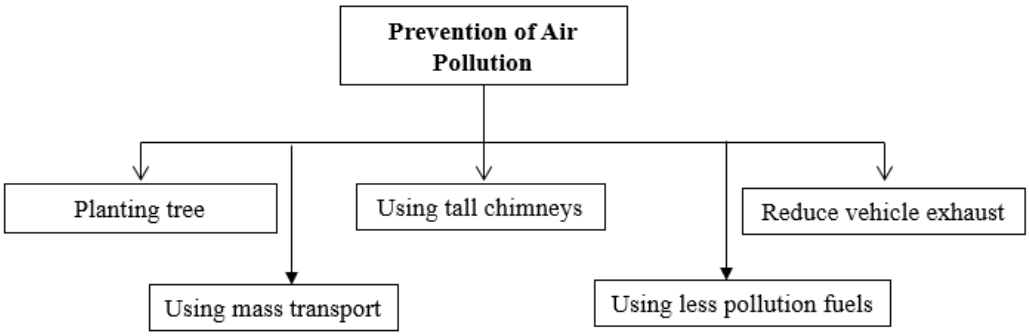

Fig.4 Prevention measure of air pollution

Yang, T.*et al.* (2018) [20] studied the relationship b/w pollution and health by considering on the impact of certain socioeconomic factors from an equality perspective. In addition, hierarchical linear regression models are utilized to examine the impact of air pollution on the health of residents. The results indicate that the increased pollution has significant adverse effects on health, and that air pollution contributes to increased health inequality. Air pollution is found to cause a larger decline in self-rated health status than other pollutants. The findings also suggest that the health effects of pollution are inseparable from socioeconomic factors.

Bert B. *et al.* (2002) [21] discuss the evidence for adverse impact on health of selected air pollutants. The high cost of further measures to decrease environmental pollution, and the several new findings, which suggest that health impact can be seen at very less concentration, the health impact of air pollution will need to receive much scientific & regulatory interest for years to come.

Vargas, M.P.S. *et al.*(2012) [22] reported that air pollution is becoming a main health problem that impact the millions of people worldwide. WHO estimates that every year, 2.4 million people die due to air pollution?

IV. WATER POLLUTION

Water pollution is basically the pollution which is generated by impure water/water bodies' contamination such as ocean, river, etc. As we can see at the present time there are a lot of industries and nuclear plants that are setup in the countries. Thus, the polluted water that is released by these industries goes into the rivers, ponds and further into the human bodies. When these type of harmful water mix with the urban countries water then develop the many diseases in human bodies, because human being use these water in daily life as bathing, cloth washing, drinking and for many more purposes. By water pollution many harmful death, disease develop in human bodies as water borne disease [23]. Nuclear wastes and oil pollution is the main cause of water pollution, mostly these pollutants generate in water bodies and lead to water pollution , they can make the water undrinkable and reduce the amount of oxygen in water which caused our aquatic life weak and result in death.

A. Types of Water Pollution

The distinct types of water pollution, causes, effect and remedial action are illustrated in Fig. 5 (a, b).

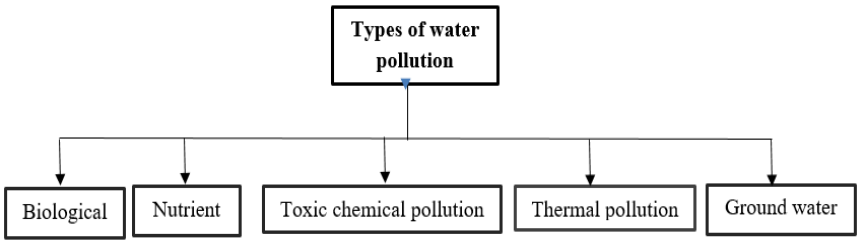

Fig. 5 (a) Types of water pollution

B. Cause, effect and preventive measure

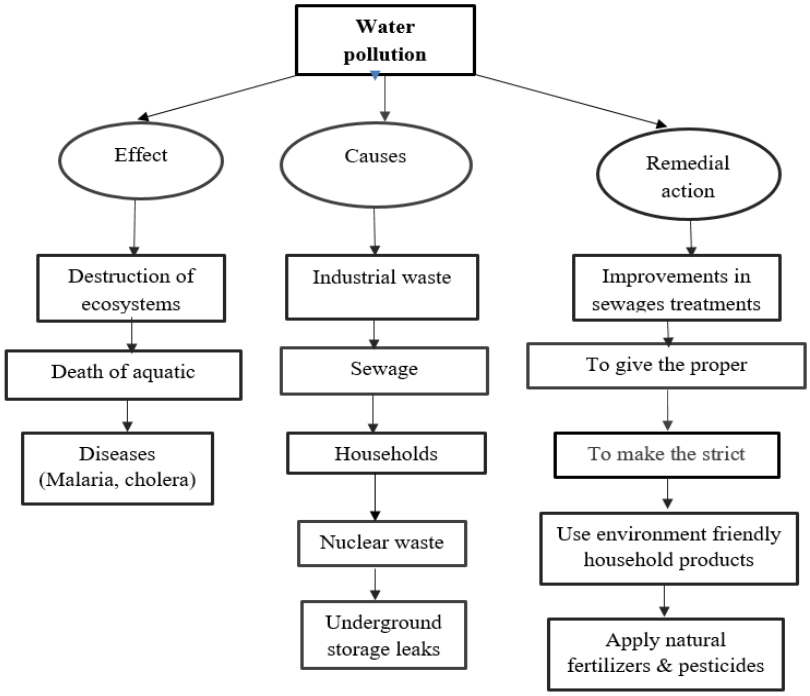

Fig. 5 (b) Causes, effects and preventive measure of water pollution

V. NOISE POLLUTION

Noise pollution is not only results in irritation and anger; it can also cause hearing impairment, increased heart rate and blood pressure among other physiological effects.

Unwanted sound is an irritant and a source of stress. Industrial and construction activities, machinery, factory equipment, generators, saws and pneumatic and electric drills also make a lot of noise. Noise is measured in Decibel (dB).

Noise pollution associated with household electricity generators is an emerging environmental degradation in many developing nations. The average noise level of 97.60 dB obtained exceeded the WHO value of 50 dB allowed in residential areas [24].

Research suggests that noise pollution is the highest in low-income and racial minority neighborhoods [25].The distinct types of noise pollution, causes, effect and remedial action as shown in Fig. 6 (a, b, c)

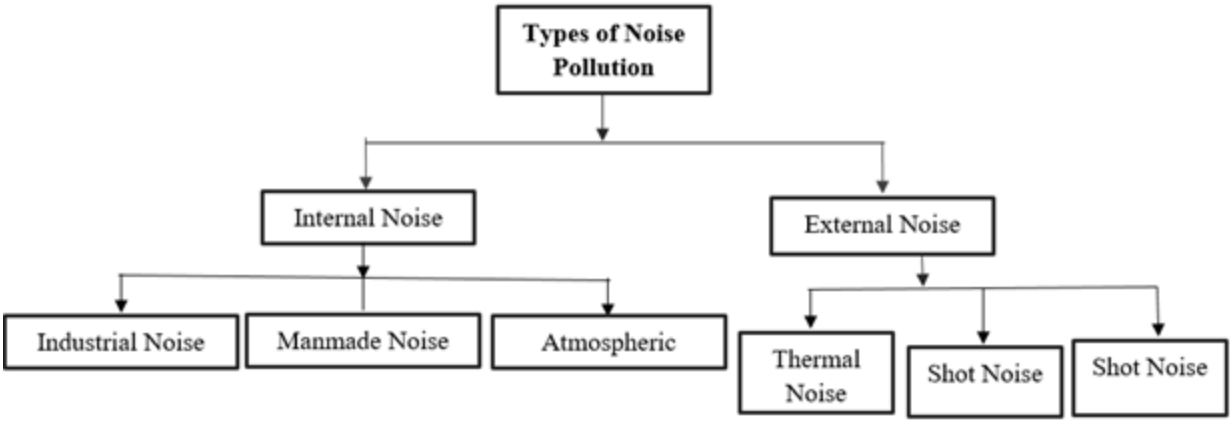

Fig. 6(a): Types of noise pollution

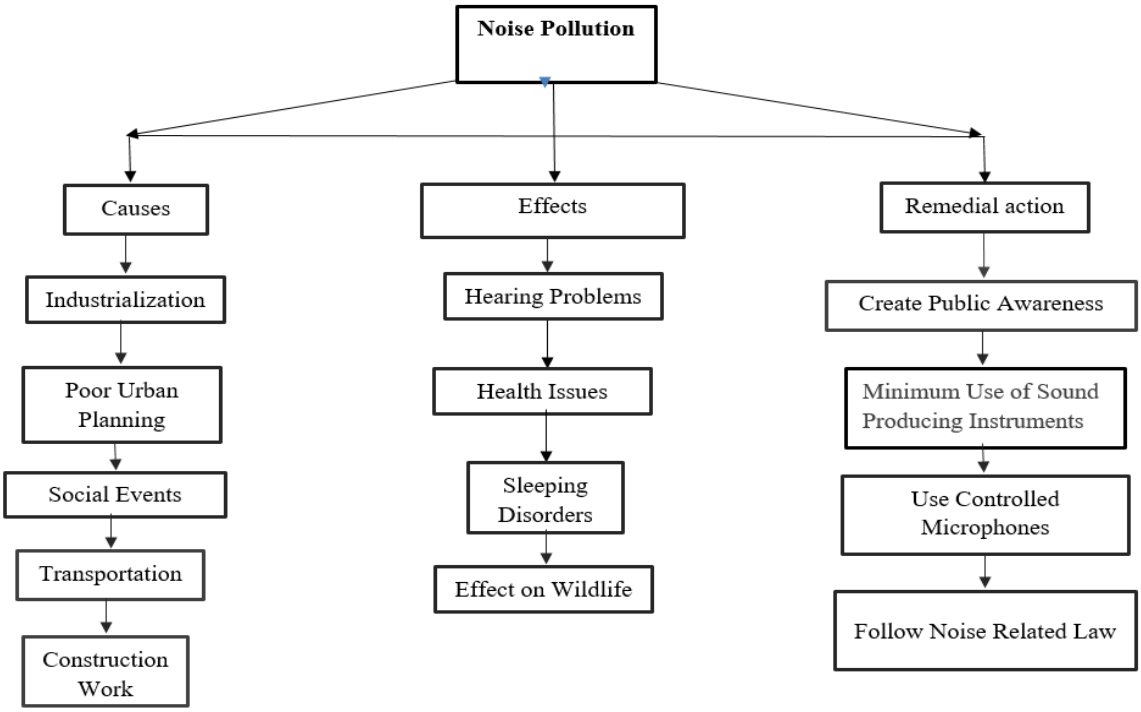

Fig.6 (b) Causes, effects and preventive measure of noise pollution

The share of different cause of noise pollution is shown in Fig. 6 (c).

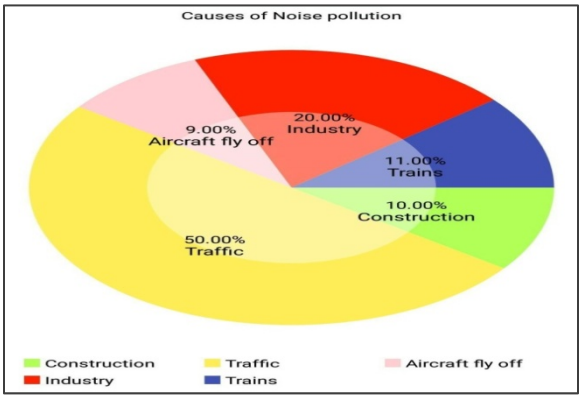

Fig.6 (c) Share of major cause of noise pollution

VI. LAND POLLUTION

There are many source of land pollution as agricultural, sewage, household, industrial etc. These sources are further classified into many categories as given in Table 1

TABLE I SOURCES OF LAND POLLUTION

Sources	Methods
Agriculture	soil erosion
	use of pesticides and phosphorus
	harmful chemicals products which are used in agriculture
Mining and Quarrying	use of machines in the field which cause it will be leak into the land cause land pollution.
Sewage sludge	improper sanitation system owing to sludge to leak at surrounding soil
Household	Dispose of improper waste which causes the waste accumulation system will be disturbed.
Industrial	Harmful gases which are releases without purify them into the environment.

A. Preventive measure

The use of chemical in gardening should be avoided because it destroys the crops and develop the land pollution. We can do you the use of clothes bag that's are biodegradable and also we can reduce the use of plastic bags which are very harmful because of these are non-biodegradable things. We can use the organic products for gardening to reduce the use of pesticides and insecticides, because this plays an important role.

B. Summary

The summary of different types of pollution is summarized in Table II. And represented in Fig. 7.

TABLE II SUMMARY OF DISTINCT POLLUTION, EFFECTS, CAUSE AND THEIR REMEDIES.

TYPES OF POLLUTION	EFFECT	CAUSE	REMEDIES
AIR POLLUTION	Accelerated global warming, human respiratory and heart concerns, wildlife endangerment, acid rain etc.	Vehicle fumes, thermal power plants (coal based), agricultural activities& construction work etc.	Minimize the use of fossil fuel powered automobiles, be minded of energy consumption , become an advocate for clean energy, recycle etc.
NOISE POLLUTION	Hearing issues, sleeping disorders, cardiovascular issues, effect on wildlife etc.	Industrialization, poor urban planning, social events, transportation, construction activities, household chores etc.	Close the windows, puts on earplugs, improve your insulation, invest in noise cancelling headphones, invest in noise friendly flooring etc.
WATER POLLUTION	Death of aquatic animals, disruption of food chain, diseases, destruction of ecosystems etc.	Industrial waste, sewage and wastewater, mining activities, the burning of fossil fuels, accidental oil leakage etc.	Save water, better treatment of sewage, use environmentally friendly products, minimize storm water runoff, protect curb inlets and drains etc.
LAND POLLUTION	Change in climate patterns, environmental impact, effect on human health, effect on wildlife, distraction for tourists etc.	Deforestation of soil erosion, agricultural activities, mining activities, overcrowded landfills, construction activities, industrialization etc.	Reduce toxic materials, create dumping ground, buy biological products, reduce the use of pesticides etc.
LIGHT POLLUTION	Effect on human eyes, over illumination may cause increase headache etc.	Poor planning, irresponsible use, overpopulation etc.	Planning for setup the correct system of light, conserve the energy etc.

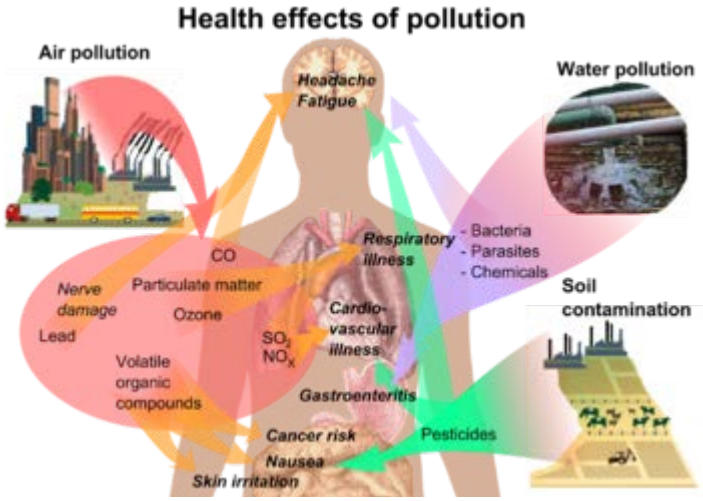

Fig.7 Schematic representation of effect of pollution on human health

VII. CONCLUSION

From the study, it is concluded that nubmers of peoples are suffering from many diseases due to different kind of pollution. It appears that polluted environment is a global issue. So, it is the responsibility of every human being for making our environment safe, otherwise it gives adverse effect on human health. Thus, for making the environment safe, there is a need to make plans, government policies and also the public or industrial participation. Government needs to take hard action against those industries that throw their industrial waste the open space or in rivers. In addition been to those harmful chemicals products which are used in agricultural then we can reduce the pollution to some extent and make our life as a living. Because, everyone needs clean air to breathe, water to drink, and public lands to enjoy.

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