

# PLANET EARTH, PLANTS, PEOPLE & POLLUTION: A REVIEW

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## **Abstract**

*Purity of nature and all-natural resources for living creature is an utmost necessity for future existence and livingness of flora and fauna. Balance development with sustainability is also an urgent need for better future on the planet earth. It is impossible to imagine a safe and clean environment for people on this beautiful, natural world where all-natural resources surrounding us are being polluted each and every moment. No place on this planet has remained left to live a healthy and happy life.*

## **Key words**

*Environment; flora & fauna; natural resources; planet; sustainability*

## **Introduction**

The earth, a member of solar system is a safe shelter and habitat for all living beings along with natural environment. It is a mysterious and quite interesting that planet earth came into existence about 4.5 billion years ago with a single huge land called “Pangea” which later broke into mainly two parts and finally the earth is now with 7 continents surrounded by 2/3 part of water on which all creatures are doing their activities.

Another mysterious fact is that how life evolved on this earth. Probably the

life firstly appeared in water by many chemical events and reactions occurred in prebiotic atmosphere probably between 3500 to 4000 million years ago into a simpler organic compound like amino acids under the influence of ultra violet radiation and electric discharge as a source of energy. In the early period of earth there were production of complex, organic compounds without life; it was called phase of abiogenesis. Nature has made several trials to make the first biological entity. Presently the geological & biological evidences suggest that the first living forms on earth were probably

some heterotrophic, anaerobic bacteria (the simplest form of life). From these simpler a cellular microbes, a complex higher creature is originated. (Prasad, 2011)

The animal worlds along with human beings are totally dependent on green plants for all their requirements. The plants came into existence before this animal world as the simplest form, bacteria.

### **Pollution in natural environment**

Non-creative and unsustainable development without eco-friendly activities is going on continuously to undesired changes in the composition of natural resources, unfortunate for the natural balance in the environment and leading to end of the life. Contamination of several unwanted substances in the natural environment which have adverse effects on the overall balance of nature is known as pollution. It is divided into mainly following categories:

#### **Water pollution**

Water is the first and vital resource for aquatic as well as human life. Without water, life can't be imagined and the first life appearance was also seen in water.

For its multiple purposes, primitive human civilization situated at bank of river. But unfortunately, modern (advanced) civilization does not take care of the water & its resources are now facing many problems. Water is polluted day by day from urban & rural areas

wastes. All the industrial , agricultural and domestic wastes are disposed in fresh water bodies without treatment. This untreated waste contains nutrients like nitrogen and phosphorous which leads to excessive growth of algae known as algal bloom. Algal bloom has adverse effect on the aquatic system as it takes excess of oxygen from the water making the oxygen level low for all other aquatic lives and it also block the sunlight from reaching to the aquatic organism.



**Fig. 1: Pollution board identifies industries causing harm to environment**

(Source: [www.thestatesman.com](http://www.thestatesman.com))



**Fig. 2: Dead Fish due to algal bloom**

(Source: <https://3c1703fe8d.site.internapcdn.net/newman/gfx/news/2015/1-projectored.jpg>)

**Table 1: Water pollutants; organic and inorganic chemicals, sediments**

| PARAMETER | USPH (in ppm) except pH |
|-----------|-------------------------|
| pH        | 6.0-8.5                 |
| D.O.      | 4.0-6.0                 |
| T. D. S   | 0-170                   |
| C.O.D.    | 4.0                     |
| B.O.D.    | 45.0                    |

1ppm = 1 in  $10^6$

### Air pollution

Air is the second important natural resource with composition of mainly three gases 78%  $N_2$ , 21%  $O_2$  and 0.03%  $CO_2$ .  $N_2$  is utilized for its fixation to plants and protein synthesis symbiotically with the microbes in the soil.

Air for respiration has become highly polluted due to dangerous and poisonous gases such as  $SO_2$ ,  $SO_3$ ,  $O_3$ ,  $CO$ ,  $NO_2$  etc. released from vehicles, chimneys, industries, refrigerators and many other artificial sources. These gases cause many respiratory and inflammatory problems. The release of CFCs from the refrigerator is the cause of  $O_3$  layer depletion (Ozone hole)



**Fig. 3: Air Pollution**

(Source: Pollution Patrol - TryEngineering.org Powered by IEEE; tryengineering.org)

$O_3$  layer in above atmosphere protect us from UV rays .Excess amount of  $CO$  in the environment is fatal for human beings. Due to excess amount of  $CO_2$  in the environment, the temperature of earth's atmosphere increases and it changes the overall climatic pattern of the places (De & De, 2001). Air Pollutants  $Co$ , Nitrogen oxides, Sulphur oxides & Particulates.

### Land pollution

The third important resource is the land/soil. The use of chemical fertilizer in place of organic manure create both air and soil pollution at top soil is directly in contact with the flow of water & fertilizers which ultimately erode and sterile high yield from the crops in the certain time without recycling or rotation of crops.

In addition to this, agricultural land with fertilizers and pesticides residues are also the main cause of water pollution as well as air pollution. Air and water is used up by green plants for photosynthesis and respiration; and for  $N_2$ -fixation. But nowadays in new Nepal the on-going modern agriculture practices replacing

the old trend and application of chemical fertilizer is used which reduces the fertility of soil and pollute the soil more and more.



**Fig. 4: land pollution**

(Source: <https://tse3.mm.bing.net/th?id=OIP.kvUf2qy4ZK-UPiENfx2oAHaF&pid=Api&P=0&w=291&h=208>)

The green vegetation with afforestation through social forestry are sources of fruit, timbers and O<sub>2</sub> yield also helps to reduce the pollution (De & De, 2001) The evaluation of a tree (50 years old) during its lifetime to know the following facts and importance of a plant: -

- O<sub>2</sub> production- 7 lacs
- Transformation into proteins-80 thousand
- Control on soil erosion and soil fertility- 7 lacs
- Recycling of H<sub>2</sub>O, humidity control and atmosphere temperature – 7 lacs
- Habitat for birds, insect and animals etc. -7 lacs
- Control of air & maintain it's purity- 9 lacs

Which the total of 37 lakhs 80 thousand; this estimation excludes the value timber, wood and fuels etc. In this way we can easily estimate that how plants are so valuable in our life. Unfortunately wide spread deforestation and desertation reduces local, regional and global carbon sequestration and potentials for carbon sinks. Deforestation of organic soils leads directly to increase carbon emissions. Global climate change particularly enhanced greenhouse effect, will result in changes in land use systems as well as directly affect (Vashney, 2006). Many aspects of these challenging problems can be taken care of by individual initiative and collective actions.

Land Pollutants Pesticides & Insecticides etc.

impacts on the activity of human or animal life, most of them harmful to high degree. The source of outdoor noise worldwide is mainly caused by machines, transport, and propagation systems. High intensity of noise for continuous periods is the major cause of noise pollution. This can cause psychological disorder, ultrasonic sound above the audible range can affect the semi-circular canals of the inner ear and make one suffer from nausea and finally affecting the brain & the nervous system permissible noise levels.

### **Sound pollution**

Noise pollution, also known as environmental noise or sound pollution, is the propagation of noise with ranging



**Table 2: The permissible noise levels are summarized as following;**

| situation                          | Permissible noise (in dB) |
|------------------------------------|---------------------------|
| Road traffic near residential area | 70                        |
| Ear protection required            | 85                        |
| Factory work(48 hr/week)           | 105                       |
| Prolonged noise cause              | 108                       |
| Ear drum rupture                   | 180                       |

Modern civilised and advanced world is facing many problems than ever before. Depending upon the sound level and duration of exposure, an individual's hearing can either be impaired or lost completely and permanently leading to deafness. The damage occurred in the inner ear and is neither reversible nor amendable to medical treatment. A study indicates that those people who are exposed to lifetime of excessive noise, hearing damage appears to be maximum after 10-15 years of exposure (De & De, 2001). At a more serious level, noise has negative mental consequences such as suicidal and homicidal tendencies, and even psychotic behaviour.

**Fig. 5: Traffic is the main source of noise pollution in cities**

(Source: [https://en.wikipedia.org/wiki/Noise\\_pollution](https://en.wikipedia.org/wiki/Noise_pollution))

**Fig. 6: A Qantas Boeing 747-400 passes close to houses shortly before landing at London Heathrow Airport.**

(Source: [https://en.wikipedia.org/wiki/Noise\\_pollution](https://en.wikipedia.org/wiki/Noise_pollution))

Sound Pollutants:-Loudness of vehicles horn, Loud Music Speakers, Supersonic Planes.

### Control Measures

Helping the biological control of ecosystem enrich biodiversity and control of pollutants of our environment is the need of time otherwise we will destroy the natural resources and finally the life on earth will not be seen/possible. Following are the measures for safe and healthy life from the pollution: -

- i. The government must formulate and impose laws regarding control of all types of pollution seriously.

- ii. The action plan, EIA before installation of the factory should be implemented seriously
- iii. People movement should be in favour of checking pollution to pressurize the government.
- iv. Proper disposal of chemicals, metals etc. toxic materials from the factory must be done
- v. Integrated pest management must be strictly followed to remove more contamination with edible items
- vi. Water harvesting and its management should also be made.
- vii. Solid waste management should be strictly followed.
- viii. Others eco-friendly gases should be used instead of CFCs as refrigerants
- ix. Supersonic sounds must be made away from residual areas.
- x. All Wastes should be treated before disposal.
- xi. More and more plants should be planted i.e., afforestation.
- xii. Alternative sources of energy should be used such as solar energy, wind energy, hydro energy etc.
- xiii. Used of plastic must be avoided and any alternative such as jute, paper, metals etc. should be used.
- xiv. 5 R's should be used- refuse, reduce, reuse, recycle, recover.
- xv. Seminars, conferences etc. must be organised to awaken the public
- xvi. Air pollution in urban areas increases incidence of fog formation. High

concentration of Sulphur dioxide in atmosphere can lead to the formation of sulphuric acid under the humid environment resulting in the formation of fog droplets. It also affects visibility and may cause traffic hazards (Faculty of Education, T.U. 1998).

- xvii. Company Annual Reports, Popular Science Periodicals, Journals, Newsletters and Web addresses are important for awareness to the environment through regular study (Varshney, 2006).
- xviii. Other more important global issues Ozone Layer Depletion, Global Warming and climate change and Hazardous Waste Disposal and Dumping etc. are the burning issues which must be minimised to save the planet earth.

## Result and Discussion

The activities good or bad give a result which depends on their natures. Unfortunately, some activities after many more years show the bad results. In these activities, pollution is one which not only affects individual's health but also socio-economic conditions. Its excessive prevalence is due to lack of awareness about it. It is causing many problems all over the world as burning health problems and Nepal is not an exception.

The never-ending list of problems have aroused such as ozone depletion, acid rain, smog, climate change, increase in sea levels, melting of glaciers, global

warming, endangering of species etc. are going on continuously. For prosperity, without pollution is only & only important for saving the earth. Many journals, seminars, workshops are not sufficient and effective until and unless we don't bring all the measures in action fastly.

So, control measures should be strictly self-obeyed in order to save life on earth. Formulating laws and regulations are not enough for such vital issues if these rules and regulations are not executed properly.

## Conclusion

People along with government are not serious about this fact. The government

policies to check regarding the control of pollution is not as effective as it would be. At the time of installation of any type of factory without a warning of its establishment on the bank of river or near urban areas must be seriously followed up the norms of EIA (environment impact aspect) along with rules & regulation concerning pollution control. The parameters are not followed properly and passed for the installation of a factory easily by officials. No any action plan is made for future that could save the heavy loss of natural environment. Thus, it needs to be done on the first priority basis.

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