

2. Air Pollution in Guwahati City- An Analytical Study

Dr. Utpal Goswami

Lecturer,
Govt. Banikanta College of Teacher Education,
Lachit Nagar, Guwahati (Assam).

Abstract:

Environmental Pollution is a curse towards the existence and survival of human beings. The present century has seen the emergence of various types of environmental pollution. Out of which Air Pollution is regarded as one of the major pollutions. It is necessary to invoke into the sources, effects and remedial measures to curb the air pollutions in cities and towns. The present topic delves into the searching of the root causes, effects of air pollution in Guwahati city. The applicable initiatives to minimize the air pollution in the city of Guwahati has been also suggested. From an environmentalist point of view, study on the air pollution is significant for the people of twenty first century.

Keywords: Pollution, Man-made source, radioactive substance, Global warming, Sustainable environment.

2.1 Introduction:

Rapid population growth, advancement in Science and Technology giving birth to various commodities, growing industrialization have created an unhygienic and unscientific situations all over the world.

Environmental Pollution is the term arising out along with the advancement and progress of human society in the pathway of civilization. Out of the various types of pollution, Air Pollution has identified itself as a remarkable havoc in cities, towns and also in some rural areas. The air we breathe is not pure at present.

This has augmented towards the human diseases and also affected the flora and fauna surrounding us. The 21st century has seen the massive aggravation of the quality of atmosphere because of the degrading nature of emitted pollutants in air.

Air pollution, by nature is an atmospheric condition in which certain substances, elements, components cause undesirable effects on man and environment. Such substances include toxic gases, particulate matter, heavy metals, radioactive substances etc. The city of Guwahati is also suffering from air pollution problem along with the progress and way of growth and development. This Book Chapter focuses and reflects the sources, effects of air pollution and the recommendable mitigation measures of air pollution in Guwahati city.

2.1.1 Study Area:

Guwahati city is the capital city of the state of Assam, India. Guwahati is the Gateway of North-Eastern India and also the commercial, business hub of this territory. Various environmental pollutions have crippled the life-style of the citizens of the city many a times. Out of that, air pollution is also one of the notable type of pollutions affecting the city. The emitted gases, particulate matters etc. are elevating the nuisance of air pollution in many parts of this metropolitan region of India.

2.2 Sources of Air Pollution:

The sources of air pollution in Guwahati city are both natural and man-made (anthropogenic). Man-made air pollution is found to be severe in comparison to the natural sources in this region. The natural sources of air pollution in Guwahati city are- Sand, Dust, biological decay, forest fire, pollen grains of flowers, spores, radio-active materials etc. The Man-made air pollution sources count within it the industrial units, vehicular or automobile exhausts, fossil fuel burning, construction activities, power plants, indoor activities including household emissions etc.

The metallurgical plants, fertilizer plants, textile mills, oil refinery, chemical industries in this sector are found to be emitting polluted gases in the environment. Vehicular emissions is another major source of air pollution in Guwahati. Automobiles release gases such as carbon monoxide, carbon dioxide, lead, oxides of nitrogen, hydrocarbon, Sulphur dioxide, suspended particulate matter (SPM). Burning of fossil fuels emits smokes, carbon particles, aerosol, dust, sulphate, nitrogenous oxides, halogens, radioactive materials etc. Construction activities using the bricks, sand, and cement emit polluted radon gas. The disposed solid wastes and effluents in the drains of the city are arising the hydrogen sulphide (H₂S) gas during the decomposition process. On mixing with water vapour and atmospheric oxygen, this has also forwarded an alarming invitation to the probable acid rain. The emission of radioactive materials from industries, laboratories, medical diagnostic centers have created a threat to the public. The agricultural activities in some parts/land area (basically hilly region) of the city are emitting organic phosphate, chlorinated hydrocarbon, arsenic, lead in the atmosphere. Burning of coal, extensive use of gas cylinders, kerosene etc. are identified as indoor air pollutants in Guwahati city. On occasional case, during the time of Diwali and other festivals, the air pollution is found to be more due to the bursting of crackers. Smoking Cigarettes, Bidis etc. on the public places by the people are also causing air pollution trespassing into the city life.

2.3 Effects of Air Pollution:

The various dimensions that come into account with respect to exerted and possible air pollution in Guwahati city are as follows:

(A) Effects on human health:

- Years of exposure to air pollutants affect natural defenses and can result in lung cancer, asthma, chronic bronchitis, emphysema.

- Sulphur dioxide causes constriction of respiratory passage and can arise bronchitis like conditions.
- Suspended particulate matters and fly ash present in the Guwahati city can lead to the damage of the lung tissues and cancer causing toxic pollutant can enter into the human body.
- Carbon monoxide can result in fatigue, reduction in oxygen transportation in blood. Carbon dioxide and hydrocarbons can inhibit heart functioning.
- Exposure to lead can hamper the formation of hemoglobin, brain functioning whereas aldehydes emitted from various air pollution sources can affect the intestine and respiratory tract.
- Radioactive substances can create body deformation in the newly born child and can infuse carcinogenic materials in adults.

(B) Effects on other animals: The polluted gases on mixing with the water sources of the city can enhance the acidity of water. As a result, the aquatic flora and fauna are being affected. Fluorosis can result on inhalation of fluorine gas emitted from factories, industries.

(C) Plant life is also being adversely affected due to exposure of various air pollutants.

(D) Industrial activities emitting carbon monoxide, carbon dioxide, ozone, hydrocarbon, nitrous oxide etc. acting as greenhouse gases have erected the effect of climate change and global warming influence. The city of Guwahati is also suffering from unusual warm like atmospheric trend from the last 10 years.

(E) The walls, metallic surfaces, statues, monuments of Guwahati city are also found to be dusty because of the exposure to air pollutants like fly ash, dust, particulate matter which is declining the aesthetic beauty and hidden values.

2.4 Control of Air Pollution:

The remedial measures that can be adopted for mitigating the air pollution problem in Guwahati city are suggested below:

- a. The lead free petrol and use of catalytic converter in vehicles can reduce the accumulation of pollutant gases.
- b. Suspended particulate matter acting as air pollutant can be removed by electrostatic precipitator, cyclone separators, bag-house filters, scrubbers etc.
- c. Encouragement for adoption of non-conventional and renewable energy sources for human activities.
- d. Using low Sulphur coal in industries.
- e. Smoke emitting chimneys in brick manufacturing industries must be taller so that smokes can't enter easily to human body.
- f. Technology promoting less emission of air pollutants must be promoted.
- g. Plantation of trees must be intensified.
- h. Proper Environmental Impact Assessment studies for the industries of the city by Pollution Control Board and environmental agencies must be highly executed.
- i. Smoking in public places in Guwahati must be banned effectively.

- j. Public awareness regarding air pollution through mass communication media must be conducted regularly.

Although the air pollution has emerged out as a havoc even in New Delhi, the capital city of India, the problem can be diminished up to appreciable extent through suitable steps. In Guwahati city, air pollution causing disruptive effect has also become a matter of significance for survival and sustainable development of the city life. Appropriate planning and implementation of Air Pollution Control rules and regulations can play the role of catalyst for tackling the air pollution menace in the city of Guwahati.

2.5 Conclusion:

Air pollution is one of the major environmental pollutions in the present period of time especially in cities and towns. In order to maintain a sustainable environment with an objective of protecting our mother earth, air pollution must be prevented. Otherwise, human ailments, global warming, climate change, destruction of sculptures, buildings, monuments will always remain accompanied along with the pace of human civilization. Air pollution and Prevention must be checked, monitored, diagnosed and must be a matter of constant discussion amongst academicians, environmentalists, nature conservation agencies and the Government authorities.

2.6 References:

1. Borah K. (2016) Air pollution in India, Published in 'The Assam Tribune' P-4.
2. Das Dipali (2012) Parivesh Adhyayan, K.M. Publishing, Guwahati, P. 110-116.
3. Kaushik C.P. and Kaushik Anubha (2010) Perspectives in Environmental Studies, New Age International Publishers, P. 123-127.
4. Mohanti P. (2011) Air Quality Monitoring in Orissa, Indian J. Environmental Protection, 35(4): 128-132.
5. Sharma R.A. (2012) A textbook of Environmental Education, Sterling Publication, P. 35-42.