

IMPROVE AIR QUALITY USING INNER PATTERN DATA PLANT METHOD FOR DEPLOYING TAXONOMY MODEL

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Abstract: Pure air is a mixture of various gases such as nitrogen, oxygen, argon, carbon dioxide, and small amount of other gases in a fixed proportion. Air pollution has now become a serious issue of concern and many of the countries in the world are formulating strategies to deal with it. There are quantities of factors dependable for the altered masterwork of the ambient air which can be largely categorized as natural causes and anthropogenic (man-made) causes. Finally, we introduce control measures and actions affected areas. The paper aims to help environmental scientists and policy makers around the world understand the past and current air pollution and how to prevent the air pollution using Indoor Pattern Data Plant (IPDP) actions strategies and actions taken by the individual as well as the respective of various Departments in India.

Keywords: Pattern Mining, Pollution Control Department, Indoor Pattern Data Plant (IPDP), Central Pollution Control Board.

I. INTRODUCTION

The undesirable change in physical, chemical and biological characteristics of our air, land and water is known as pollution. Pollution may be man made or natural. Natural pollution is due to natural causes like dust, storms, forest fires volcanic eruption, landslides, water erosion, dust particles, ultraviolet radiation etc. Man-made pollution is caused by human activities like industries, radiation ns etc. Pollution is one of the major issues causing concern not only in India but across the world. The technological advancement and speedy development since India's Independence has come at a great environmental cost. According to the global Environment Performance Index (EPI) 2018, India is ranked at 177 with an EPI of 30.57, and it is disheartening to hear that is being tagged as one of the most heavily polluted capital cities in the world. It is the world's worst city in terms of air pollution, with an unhealthy air quality index for the majority of the year. The pressure and haphazard growth of the population is deteriorating the environment. There has been highly haphazard and unplanned development of industries and factories. Studies have revealed that only about 20% of the industrial units are set up in the approved industrial areas whereas the rest of them are in residential and commercial areas. There have also been an ever-increasing number of diesel vehicles plying on the roads, which are largely responsible for the air pollution. It has been reported by the National Environmental Engineering Research Institute (NEERI) that everyday almost 8,000 million tonnes of solid waste is being generated. Plus we also have the industrial hazardous and non-hazardous waste. On an average, everyday, the MCDs and the NDMC manage to clear about 5,000-5,500 m tonnes of garbage[1]. This results in the accumulation of more and more garbage in the city. There has been no proper technology or methods to treat solid, liquid, waste water, industrial and hospital wastes in the city.

II. LITERATURE REVIEW

Ashutosh Dikshit, CEO of URJA [10] (United Residents Joint Action), the apex body of Delhi's residential welfare associations (RWAs), said, This exhaustive survey reaffirms the fact that people are aware of air Pollution. However, looking at the violations on pollution. However, looking at the violations on Diwali night in most parts of north India, I feel that people do not fully believe in the stated causes of air pollution and its proportionate impact. They also do not correlate air pollution as a significant contributor to their existing or future health condition. "There is a desperate need for a national-level campaign, aimed at addressing belief systems and changing behaviour," he said. Brikesh Singh[3], Chief Operations Officer of ASAR Social Impact Advisors that commissioned the study, said, Awareness about the adverse effects of air pollution is very high, but this is not enough as most people seem to think that they need to do nothing at the individual level. Even after Supreme Court's clear orders on firecrackers, a huge amount of crackers were burnt everywhere. Children and their parents as well burnt crackers this Diwali while wearing masks. This perception of the people, Aksi, it is important to remember air pollution is neither Delhi specific, nor limited to winter alone.

The winters are extremely important as it is dominated by cold, dry air, and ground based inversion with low wind conditions, which are responsible for increasing concentration of pollutants. High concentration of pollutants is trapped close to earth's surface because a layer of warm air acts as a lid on top of this layer. Moreover, dense smog formation during winter months has also been witnessed, the reason of which is vehicular pollution as well as the prevailing meteorological conditions in the months of December and January. Similarly, wind pattern also affects the weather conditions. According to a study, during the autumn and winter months, approximately[4] 500 million tons of crop residues are burnt in Indo Gangetic plains. This ultimately results in combination of pollution and fog, leading to heavy smog formation esp. during winters. In summers, although there is no inversion phenomenon, still the air quality gets deteriorated because of the increased concentration of PM10, which is due to dust. However, it becomes

toxic due to the coating of polluted emissions from various sources. Nevertheless, during rainy season pollution level goes down due to dust suspension [2]. Thus, air pollution is a trans-boundary and climate induced phenomenon.

III. PROPOSED WORK

Lack of active monitoring and reaction by authorities. Overpopulation. Lack of political priority. Motor vehicle emissions are one of the causes of poor air quality. Other causes include wood-burning fires, fires on agricultural land, exhaust from diesel generators, dust from construction sites, burning garbage. The highest-concentration of PM 2.5 form of air pollution is supposed to be a very serious matter and can lead to respiratory diseases and other health problems like lung cancer. According to the WHO, air pollution is the fifth largest killer in India. Carbon monoxide (CO), a dangerous gas emission, is around 6,000 microgram per cubic metre which is much above the safe level of 2,000 microgram per cubic metre[4]. The level of nitrogen dioxide (NO₂) has also been increasing. During summer months, soil and road dust, coal and flash, secondary particles, solid waste burning, and vehicular emissions are largely responsible for PM₁₀, along with minor contribution from construction activities. Role of industrial pollution in the overall concentration of PM₁₀ is < 1% at all the locations. PM_{2.5}: For the PM_{2.5}, secondary particles, vehicular emissions, biomass burning, soil and road dust, and solid waste burning are largely responsible in winter months. Moreover, coal and fly ash, soil and road dust, secondary particles are the major factors responsible for PM_{2.5} during summer months along with the other sources. Industrial pollution contributes to < 1 – 2% at all the locations. Large amount of flash and dust during summer months may be due to high wind speed and high temperature leading to extremely dry conditions which make dust airborne. Further, dust storms may also result in the re-suspension of flash and road/soil dust.

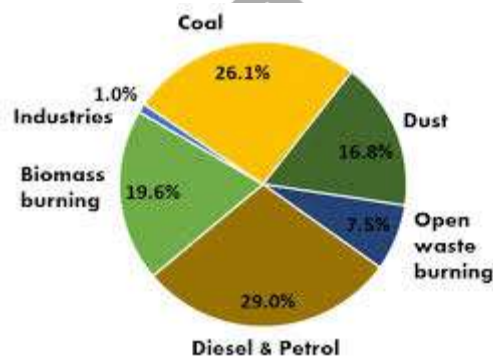


Fig.1. Air Pollution Sources

India's Ministry of Earth Sciences published a research paper in October 2018 attributing almost 41% to vehicular emissions, 21.5% to dust and 18% to industries.^[4] The director of Centre for Science and Environment (CSE) alleged that the Society of Indian Automobile Manufacturers (SIAM) is lobbying "against the report" because it is "inconvenient" to the automobile industry. Heavy industrialization leaves a long legacy of tainted water, soil and air. Diversifying one's domestic economy is a wise move at any state of development.



Fig.2 Industrial Pollution

Vehicle emission control is of key importance for clean air. Especially, old cars and trucks disproportionately contribute to urban air pollution. Private enterprises have little incentive to install emission controls until they are mandated to do so. Governments should consider other ways to induce companies to do the right thing. Information is power[15]. Data transparency enables all elements of society to participate in achieving environmental objectives. Air pollution crosses every jurisdictional boundary: international, national, regional and local. Cooperation across borders is critical to forging effective and lasting solutions. There are deep reserves of scientific knowledge and air quality management experience around the world, and they are available to anyone who wishes to draw upon them. Car pooling: Reduce traffic-based air pollution and congestion by starting car pool lanes for those cars and four wheelers that have three or more passengers to encourage people to go for car pooling. Meanwhile, citizens too should take initiative and car pool with friends, colleagues, family wherever possible. Encourage use of CNG in motor vehicles as it is a much cleaner fuel than petrol or diesel by considerably reducing the road tax and sales tax on CNG filled cars as compared to petrol and diesel four wheelers. Also, new registrations should be discouraged by enhancing registration charges. Pollution, in the capital and its surrounding areas, is the most severe during winter months. Starting end-October, beginning-November smog covers the entire region.

Assessing PM2.5 levels

Teri's [6] study shows that vehicle pollution is the cause of 28 per cent of PM2.5 emissions. Vehicular pollution can be broken up into: trucks and tractors generate 9 per cent, 7 per cent from two-wheelers, 5 per cent from three-wheelers, 3 per cent each from cars and buses, and 1 per cent from light commercial vehicles.

IV. PROPOSED METHOD

Air Pollution may be described as contamination of the atmosphere by gaseous, liquid or solid wastes or byproducts that can endanger human health and welfare of plants and animals. Fuel combustion is the largest contributor to air pollutant emissions, caused by man, with stationary and mobile sources equally responsible. The air pollution problem is encountered outdoor as well as indoor.

4.1 HOW TO IMPROVE AIR QUALITY USING IPDP

In India every year we plant corers of trees- tree planting has become a routine and ever fashion in India. But maintaining them properly, watering them during summer. Growth monitoring, we do like. This kindly apathy, carelessness we have took into and correction required. Pollution is man made. The myth illusion that our environment and earth world take care of itself is to be expanded. We should come forward and do the needful to manage the present situation. Air Pollution is one of the Biggest threats for the enviroment and affects every one: humans, animals,crops, cities, aquatic ecosystems. Air Pollution can be defined as an alternation of Air Quality that can be characterized by measurements of chemical, biological or physical, pollutants in the air. Therefore, air pollution means the undesirable presence of impurities or the abnormal rise in the proportion of some constituents of the atmosphere. This can be classified into two sections: visible and invisible air pollution. Apart from the vehicular and industrial emissions, local climatic and seasonal factors also affect the air quality[13]. Land-locked territory, is unable to dilute its emission using the moderating effects of sea; the opportunity availed by other metropolitan cities, such as Mumbai, Kolkata, and Chennai. Surrounded by the regions of varied climate, and also represents a great variability in the seasonal patterns. At its west, there is Great Indian desert (Thar desert) of Rajasthan while in the north and east direction there are cool hilly regions. At its south, there are central hot plains. Thus, located in the subtropical belt with extremely scorching summers, moderate rainfall, and chilling winters. Indoor Pattern Data Plant (IPDP) improves the green building. From planning to demolition, green building aims to create enviromentally responsible and resource efficient structure to reduce their carbon foot print.

SOLUTION FOR AIR POLLUTION USING INDOOR PATTERN DATA PLANT METHOD

IPDP Indoor Pattern Data Plant Method helps to improve Potted trees bring height to a small area and tight space, especially on a balcony. They can also add privacy, color from flowers and fragrance. Combine small container patio trees with flower bed planters to create focal points. Since these are small potted trees, they provide little shade. Plants can add a lot of organic character to an otherwise drab office environment. Having a small indoor pattern Data Plant will improve air quality and remove impurities of air and a source of peaceful contemplation during your stressed day. Plants remove toxins from air upto 87% of Volatile Organic Compounds every 12 hours, according to NASA research. Volatile Organic Compounds include substances like Formaldehyde like present in rugs, vinyl, cigarette Smoke and grocery dust, benzene and trichloroethylene like man- made fibers, inks, solvents and paints. Several Plants together helps to increase the humidity of a room, which helps keeps respiratory distresses. Based on the research of agricultural University of Norway, using plants in interior spaces helps to decreases the incidence of dry skin, cold, cough, sore throats and dry coughs.



Fig.3 IPDP Pot Plant

We encourage to implements the Indoor Pattern Data Plant method to all type of Shops, Supermarkets, Malls, people who are all engage the places. Shop owners should not worry about this method, the recommendations based on your expectations. Small Oxygen developed plants are also available in the market. To purify air use 15-18 plants in 6-8 inch diameter pots for an 1800 square house, or shop. That's roughly one larger plant every 100 square foot, achieve similar results with two smaller plants 4-5 inch pots. To improve health and reduce stress, fatigue, place are large plant like 8 inch diameter pot or larger every 129 square foot. In Office or Shop settings, position plants helps to improve greenery in view.

Breathing easier the opposite pattern of gas use makes plants and people natural partners. Adding plants to interior spaces can increase oxygen levels. Banana Tree generate oxygen in a room, and make it seem more open. In Fig.1 IPDP pot plant Easy to grow, succulent Aloe Vera plant comes with a bag full of benefits. While with its presence, it helps in filtering benzene and formaldehyde that comes from carpets and particle boards, its extract aids in healing cuts, burns and skin problems. Spider plant, also known as air plant, grows and spreads quickly. The plant fights against carbon monoxide, formaldehyde, benzene which comes from detergents, paints, furniture wax, thinner and other things. Just like Aloe Vera, cut of one of the spiders leaves and place it in

a pot and watch it grow. Spider plants neither require direct sunlight nor do they need to be put under cold weather. Keeping it in a room or in an office corridor will serve the purpose.



Fig.4 Spider Pot Plant

The oxygen growth trees always maintain the oxygen level in the respective places like office, shop, restaurants etc. Trees release **oxygen** when they use energy from sunlight to **make** glucose from carbon dioxide and water. Like all plants, **trees** also use **oxygen** when they split glucose back down to release energy to power their metabolisms.



Fig 5. IPDP Method in Office

Trees release oxygen when they use energy from sunlight to make glucose from carbon dioxide and water. Like all plants, trees also use oxygen when they split glucose back down to release energy to power their metabolisms. Aloe vera, spider plant, Bamboo plant, snake plant are helps to make room for sun loving plant to reduce indoor air pollution.



Fig.6 IPDP Method in Restaurants

Plants improve air quality through several mechanisms, they absorb carbon dioxide and release oxygen through photosynthesis, they increase humidity by transpiring water vapor through microscopic leaf pores, and they can passively absorb pollutants on the external surfaces of leaves and on the plant root soil system. Indoor plant Data Pattern method helps to spruce up a home or office space, but claims about their ability to improve the air quality are vastly overstated. This method of potted plant can improve the air in home, restaurants, shops, office reveals that natural ventilation far outpaces plants when it comes to cleaning the air.

IV. RESULTS AND DISCUSSION

Our Homes are supposed to be safe havens from the outside world. However, that household air is more polluted than either office or school air, exposing children, and home workers to higher levels of carcinogens than the general population. This IPDP method can efficiently remove at least two toxins from the air. The Boston Fern is a great option for reducing pollution in offices. In fact, it is often said to be the most effective at removing formaldehyde, though it also purifies the air of xylene and toluene. Something as natural as plants, nature's own air purifiers, can help you in keeping your house clear of air pollution by tackling the following pollutants

- Formaldehyde, which comes from carpets and particle boards
- Tetrachloroethylene[12] is a synthetic chemical that is widely used for dry cleaning of fabrics and for metal-degreasing operations

- Benzene which comes from detergents, paints, furniture wax, thinner and other things
- Xylene and Toluene which are used in some coloring pens, markers, spray paints, shoe polishes, adhesives
- Carbon monoxide and nitrogen dioxides
- Volatile Organic Compounds (VOCs) which comes solvents and chemicals in perfumes, hair sprays, air fresheners and furniture polish
- Biological pollutants which constitute of dust, fungi, allergens.

Planting indoor plants would definitely help in up gradation of indoor air quality. The trees in addition to plants not only provides oxygen, reduces CO₂ and other toxic gases, also helps in removing VOCs as well as particulate matter present in the outdoor as well as indoor atmosphere acting as a natural filter. India being a mega-diversity nation possesses huge diversity of plant species, thus offers a wide range of choice to restore our outdoor as well as indoor atmospheric condition. Plantation on a massive scale is recommended for controlling airborne gaseous as well as particulate pollution in urban climate. There is important requirement of brainstorming sessions among stakeholders like horticulturist, environmentalist and town planners to understand the ecological impact of selected plant species before plantation. The respiratory diseases people in particular are likely to become sick from air pollution. The main solution to reduce air pollution may be the use of leaded petrol. In a Pollutant environment, the maximum pollution will occur in tertiary consumers.

V. CONCLUSION

Pollution is the introduction of contaminants into an environment that causes instability, disorder, harm and discomfort to the ecosystem. Presence of offensive, but not necessarily infectious matter in the environment is pollution. Pollution change is calculated using Birth and Immigration minus deaths and emigration. Everyone is affected by the quality of our pollution air. Local bodies like panchayats, municipalities and corporation should be empowered to insist on IPDP method to develop the greenery inside as well as surroundings of every household, apartments and hospitals even when applying sanction for construction. Approved of blue print should be only after these conditions are fulfilled. Aesthetic living every one earn for, but not at the cost of spoiling ecosystem. These condition are made mandatory, the general public include course are accustomed to them and the pollution problem should be solved automatically and many of the respiratory diseases will not occur. These recommendations to the Pollution Control Board are immense use of the society followed up.

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