

Free forewords literature review sample

[Environment](#), [Pollution](#)



The excellence of the air around us is referred as 'air quality'. In the case when the area is given good air quality credit, then it means that the air around the area is clean and most of all, unpolluted. Clean air is the most important aspects required for all living creatures on this planet. There are variant factors that causing poor air quality or pollute the air. The emissions from factories and vehicles used to play a major role in air pollution toxins. When the concentration of the pollutants reaches beyond the mark and can affect the health of the human being and life alike, the area is certified to have poor air quality.

As per the Clean Air Act, the air, climate and energy research done by the EPA is used as a scientific help to implement National Ambient Air Quality Standards (NAAQS). Air Quality Planning and Standards (OAQPS) which falls under the EPA office sets the standards and decide and publish the pollutants that are responsible for the pollution of air (Bethel, n. d.). Morello-Frosch et al., (2000) emphasized that complete risk assessment is required to overcome the threat of carcinogenic pollutants by gathering relevant data. California Environmental Protection Agency and EPA has collected data to develop a better management plan for air quality in the context of cancer.

Sources of Air Pollution

In general, the air pollution sources are categorized into mobile sources and stationary sources. Stationary sources are mostly industrial complexes as factories, electric generating plants, incinerators, chemical plants, oil refineries and other manufacturing units. Vehicles, on- road, off-road and non-road fall under the mobile sources category and they include trucks, cars, ships, snowmobiles, buses, trains, airplanes.

The quality of the indoor air also plays a significant role as far as health is concerned. However, the awareness among the public in this aspect is increasing, and they have started realizing the issues that arise with poor indoor quality (IAQ). This is applicable both to workplace and homes.

AIR Toxins and Health Effects

All the heating appliances and gas fuelled appliances release NO₂. However, the results for the studies conducted with people with adverse respiratory issues and inhalation of NO₂ are inconclusive. The effects of NO₂ exposure have on adult women, children with respiratory problems, asthma or atopic issues are high. Further, results showed that NO₂ inhaled by people with asthmatic issues show enhanced reactions to the inhaled allergens. The NO₂ levels are reported to be high in the lower income households as the size of the apartments are small, ventilation is poor, and people also use gas stoves to provide heating to the house. As the nitrous oxide is acidic in nature, it easily causes respiratory damages in people who have asthmatic issues at a concentration level of 650 ppb for over 3 hours easily (Weisel, 2002).

Sulphur dioxide is associated with the high amount of adverse health issues which include short-term respiratory morbidity and even fatality. As it is a combustion product, which is a product of fossil fuels, it can be combined along with aerosols, and other particles in the air to form a very complex group, which could be very complicated pollutants and allergen. Further, sulphur dioxide is also said to have caused Pro-inflammation in many adults with asthmatic issues and even healthy adults. Recent studies revealed that sulphur dioxide, with a concentration of over 200 ppb and its reaction products does not develop any symptoms or issues in both healthy as well as

asthmatic subjects. In case of bushfires, the firefighters could also at significant risk of exposure to air toxins and suffer with health issues. There is a need of better management and mitigation strategies to overcome the problem (Jia & Foranmost, 2013; Reisen & Meyer, 2011).

The most significant cause of poisoning in the US is associated with carbon monoxide, which is a non-irritating gas. The gas appliances used for day-to-day activities, unvented kerosene heaters, as well as environmental tobacco smoke (ETS), is the main source of carbon dioxide in the indoors. It can create problems with the oxygen binding capacity of the hemoglobin present in the blood. Further, it supports various symptoms like fatigue, dizziness, nausea, severe headache, breathlessness and sometimes high amount of exposures and even leads to coma and fatality. However, the poisoning in the system will depend upon the concentration of the carbon monoxide, underlying health issues, the period of exposure and other physical issues of the individual who is exposed (Morello-Frosch, 2000; Jia & Foranmost, 2013).

Volatile organic compounds are usually found to be emitted from carpet tile, office furniture, adhesives, paintings, benign wall coverings and cabinetry. This indoor chemical is also emitted from building occupants and other activities. The occupants can be easily exposed to these volatile organic compounds as they are emitted with a range between 50 and 300 different VOCs. Most of the respiratory symptoms have been associated with indoor particulate matter (PM). In fact, studies revealed that the suspended indoor PM emits very high amounts of allergen carriers in homes in Oslo. Organic pollutants along with endotoxin or allergen carriers might produce pro-

inflammatory reactions that will result in allergic diseases like asthma (Abas & Mohamad, 2013; Woodall, 2008).

The study conducted by Corburn (2007) revealed that people suffering from asthma in the urban areas show high amounts of exposure to VOCs toxins. The analysis showed that benzene, aldehydes, diesel particulate matter, volatile organic compounds and few more toxic compounds cause respiratory diseases among the low income people. However, as there is no systematic monitoring to detect the level of hazardous air pollutant (HAP) and it could not be proved concentrations across the neighborhoods. He pointed out that the public health analysts and other environmental planners are implementing costly monitoring programs to check the state level of the air in such neighborhoods (Corburn, 2007; Weisel 2002).

Research conducted a in different cities of US showed that different sites, specifically industrial cities including Pittsburgh, NJ, MI, MD, Dearborn, Baltimore, Camden, PA, showed 90th or 95th percentile concentration. Moreover, the heavily polluted areas in the United States, specifically heavily populated cities or industrial cities are prone to high air pollution, and these are termed as hotspots. In the south-west Memphis, the BTEX concentration is said to be higher than 95% in comparison to multiple sites. This is specifically high in the areas where the traffic rates as high (60, 000 vehicles per day). Moreover, the study concluded that south-west Memphis is one of the most polluted cities but carbon monoxide level very is high in comparison to even many of the other industrialized urban regions in America. `This area is under high risk of air toxins. Further, as most of the people residing in this area belonged to the low income level in comparison

to the others that located in the metropolitan area of Memphis, the economic composition is also said to have caused air toxins (Bernstein et al., 2008; USEPA , 2011; Wu et al., 2012).

According to Jia & Foranmost (2013) most of the American spent approximately 22 hours indoors and consequently they are susceptible to health risks. People who have less immunity and susceptible to problems in the respiratory system were affected, and the problem increased to higher levels due to the indoor air pollutants. The most common and pollutants that are encountered in indoor air pollution are nitrogen dioxide (NO₂), carbon monoxide (CO), ozone (O₃), particulate matter, sulphur dioxide (SO₂), microbes and volatile organic compounds (VOCs). They revealed that the amount of adverse health effects of these air pollutants depends on the level of concentrations of the pollutants in the air and its exposure. Moreover, these pollutants are subtle, and it is difficult to recognize them during the early days. Only in extreme cases, multiple chemical sensitivity, toxic mould syndrome, and sick building syndrome are used to describe the symptoms that are seen in the people. This is applicable to home as well as any other non-industrial occupational settings (Reisen & Meyer, 2011; Walsh, 2011). As per research conducted Abas and Muhammad (2013), many air pollutants are found in the organic compounds, and most of them are toxic. They not only because of health issues but also reduce the visibility and help radiative transfer through the process of absorption and scattering. Even photochemical smog is formed due to a few organic pollutants present in the environment. Volatile organic compounds (VOCs) like polycyclic aromatic hydrocarbons (PAHs) and dibenzo-p-dioxins are the most important toxic air

pollutants. Combination of anthropogenic sources and natural sources results in the formation of the two compounds . They are persistent, and resist transformation that results in an accumulation of these, in the adipose tissues of both animals and human beings. The studies also revealed that acrylonitrile is a cancer causing toxin or risk driver (Abbas and Muhammad, 2013; Bernstein et al., 2008).

Conclusion

The both outdoor and indoor air quality play a significant role as far as health is concerned. NO_x, SO₂, VOCs and some organic compounds are real threat for human health. Asthma and different cancers are spreading out in urban areas. The awareness among the public in this aspect is increasing, and they have started realizing the issues of air toxin. EPA and other relevant authorities need to enhance their monitoring mechanism in polluted areas.

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