

## Global Warming: A Vicious Predator of Lung Health

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Recent scientific literature reflects the significance of climate change to global health, which occur due to destruction of the environment by irrational greed of development at the cost of human health, though it also occur due to continental drift, astronomical cycle, variations in solar energy output [1], However Growing industries as well as advancement in the technology, is evidently responsible for major climatic change globally in the form of dust storms, eruption of volcanoes, melting of glaciers, floods, hurricanes, forest fire, which has been promulgated as a significant threat for Lung health, and declared as a major public health emergency by world health organization [2,3].

One of the Report of European environment agency reveal that 96% of urban population of the Europe exposed to fine dust particle in excess of threshold value. Environmental Particulate matter is heterogeneous mixture of particle including fine particle (PM 2.5 micron) and ultrafine particle (PM 0.1 micron), However prevalence of ultrafine particle in the environment is very small around less than 1%, though most harmful to exposed population which may be responsible for various lungs as well as cardiovascular diseases [4]. Future report on greenhouse gas emissions indicate a worsening of the climate with the enhancement of mean temperature in between 1.1 and 6.4 degree Celsius by the end of the 21<sup>st</sup> century, associated with global surge of respiratory disease due to extreme heat events [5]. It is highlighted that global warming increase prevalence of respiratory allergic diseases like allergic bronchial asthma due to increase level of aeroallergen in the environment by the stimulation of growth of allergenic species of plant at higher temperature and CO<sub>2</sub> rich environment. Hot, humid environment trigger asthma symptoms and have been shown to increase airway resistance, most likely by stimulating airway C-nerve fiber [6]. Increased level of green house gases like methane, carbon dioxide and nitrous oxide along with product of industrial as well as automobile combustion, including sulfur dioxide may lead to airway inflammation and increase mucosal permeability for pathogens. Drought condition also associated with increase health hazard by increasing the concentration of pollen as well as particulate matter generated due to wildfire may lead to increase inflammation of respiratory epithelium. However size of the suspended particle determine the risk for lung health as fine particle size less than 2.5micron penetrate deep in the respiratory system and shows their worse impact in the form of direct cellular injury by inducing intracellular signaling pathways and transcription factors [7].

Growing incidence of forest fire due to the effect of global warming as well as Combustion of fossils fuel in developing world may lead to increase the number of COPD patients exponentially [8]. In addition black carbon particle, which released from the combustion of diesel, coal, biomass, burning of crop residue and forest, may worse the condition of COPD and increase the hospitalization rate as well as mortality [9]. Besides this ground level ozone also consider as significant factor to produce structural airway and lung tissue damage, decrement in lung function, increased airway hyper responsiveness, airway injury, inflammation, and systemic oxidative stress may lead to increase incidence of bronchial asthma however it need more extensive studies to document its long term effect on mortality [10].

Even in thunderstorm the asthma epidemic rises due to increase concentration of pollen by the effect of strong electric field may release positive ions from the ground and could attach to particle and enhance the rupture of pollen and increase bronchial hyper responsiveness. Although it is difficult to differentiate the overlap of COPD and bronchial asthma (ACOS: Asthma COPD overlap syndrome) due to climatic change in absence of specific diagnostic guideline [11].

Desertification due to global warming promote dust storms and hurricanes which are public health hazards, particularly for people with pulmonary disease. Desert dust particles contain quartz, which has been found to cause airway inflammation in animal studies and may lead to interstitial lung diseases [12]. Besides this the decreased sanitation and crowding after storms and flood due to extreme weather promote the spread of infectious respiratory disease [13]. Therefore impact of Global warming on lung health is quite grave, which drag the attention of medical fraternity to take preventive measure by imparting the knowledge with more comprehensive research to enhance the social awareness by apprising political as well as non political organizations to stop the menace of this major health predator.

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