The great Delhi smog

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Keywords: Air Quality; Smog; Delhi; PM 10 and PM 2.5.

The capital of India i.e. New Delhi has been in the limelight since past many years due to the worsening air quality [1]. The winters of 2016 has been no different with the same problem of hazardous pollutants in the air [2]. The pollutants, especially the particulate matters have reached the levels where the whole city was covered in a thick layer of smog thereby reducing the visibility and posing a serious threat to the health of the general public [2]. The air quality in New Delhi and adjoining areas in the National Capital Territory of India, between 1st to 9th November 2016 was so poor due to a rise in both PM 2.5 and PM 10 levels that it was reported as one of the worst levels of Air Quality in Delhi since 1999 [3-5]. The situation worsened to such critical levels that Delhi was declared as the most polluted city in the world and an emergency was declared in state [2,5]. The Delhi smog as per the policy makers was due to colder weather, stagnant winds trapping the various sources of smoke with the majority of such sources being those from the burning of crop stubbles, lit garbage and road dust [5]. This was in addition to the everlasting automobile exhaust, industrial pollution and indoor pollutants [5,6].

The air quality can be measured by the amount of PM 2.5 and PM 10 particulates suspended in air [6]. During the reported Smog in Delhi on November 7th, 2016 the PM 2.5 levels shot up to 999, while recommended is 60 micrograms and anything above 500 is considered 'hazardous' [7]. The PM 2.5 pollutants, are the most harmful as they can reach deep into the lungs and breach the blood-brain barrier which are produced by combustion, including motor vehicles, power plants, forest fires, and some industrial processes [6,7]. Some experts claimed that breathing such polluted air was as dangerous as smoking 40 cigarettes per day [7]. At the same time PM 10, the result of crushing or grinding operations, and dust stirred up by vehicles shot to 999, instead of the recommended limit of 100 [7,8]. Visibility had reduced to about 200 meters around November 7th, 2016 [8]. The situation was comparable to the 1952 Great Smog of London, which is believed to have resulted in as many as 12,000 untimely deaths [9].

The Delhi smog is not new and the reports of the same are available in scientific literature since ages [1]. However, no concrete efforts to control the same has been done till date. Every year the winter comes with the same old problem of reducing visibility resulting in road traffic accidents, an increment in the number of patients with respiratory problems like breathlessness, chest constriction, allergy, asthma, and other critical conditions like irritation in eyes in the hospitals due to poor air quality and a surge in the sales of the masks and air purifiers with people queuing up outside the shops selling these items [2].

The year 2016 was really remarkable as the smog covered the city for a very long duration and there was a huge rise in the total number of OPD and IPD patients due to respiratory problems [5]. The situation was really grave and authorities attributed the cause for the same to the field fires in the adjoining states, stagnant winds and the use of firecrackers on the occasion of Diwali [5]. However, it is evident that every year the farmers in the adjoining states burn their crop stubble despite the prohibition from the lawmakers and also annually the pollution levels cross the set standards post Diwali. Yet the authorities have been slow to react. The pollution levels due to dust on the roads, exhaust from motor vehicles, and the garbage dumping grounds/landfills where the garbage is set on fire despite a ban by the court of law are also the major contributors [10]. The state governments promised that they will get the roads cleaned with vacuum cleaners, but it looks like a distant dream. The failure of policy makers, state governments and the civic bodies has really put the life of a common man in jeopardy. The situation demands a proactive response from the state and the central governments which was lacking. The slow wind speeds of 5 km/hour and 10 km/hour, which needs to increase up to 15-25 km/hour for the clearance of the smog were also a major contributor, but it was beyond human control [11].

The air pollution problem is not new and will continue to rock the national capital, but it's the active participation from both the policy makers and the general public that will help curb the life threatening effects of the smog. The ban on old diesel vehicles and generators, shutting down of polluting power plants, odd-even formula for the use of vehicles on the roads, water sprinkling and vacuum cleaning of roads, a ban on burning of garbage in open and ban on the sales of firecrackers are some of the important steps [10]. The ruling by the law courts to stop the field fires to burn the crop remnants in the adjoining states is also very important [10]. Furthermore the role of the general

public is pivotal and thus the significance of health education to the masses is very important, thereby making the role of the NGO's and other such bodies extremely crucial, especially in resource poor countries [11-16]. One more thing that requires attention is that the air quality of Delhi is not only poor in winter months, in fact the air quality is relatively better, yet still well beyond the set standards even in the summer months [5]. Thus a detailed analysis of the contributing factors and efforts to control the same is the need of the hour. The country where only a small amount of the national annual budget goes to health, it is very important for both the citizen and the government agencies to work in unison to prevent any further repeat of the great Delhi smog of 2016 [12-15,17].

Conflicts of interest: None declared
Acknowledgements: None

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