Toxics Link
for a toxics-free world

Public Lecture

On

The Smog in Delhi: Causes and Concerns

29, November 2012

With the onset of winter, each year, like this one, the city was once again enveloped in smog. This dense air is loaded with toxic particulate matter, chemicals and heavy metals. As the colder air is unable to circulate and stays close to the ground, the pollutants become trapped. On days when there is an absence of wind, the smog gathers and stays.

This year, as per recent data, the levels of particulate matter have scaled new heights, Crossing 1,000 microgram/m3 (µg/m3) at some locations against the standard 100 microgram/m3. Experts attribute the rise in smog to the massive increase in the number of vehicles as well as other sources. It is in this light that Toxics Link and India International Centre organized a public lecture on November 29, 2012 at IIC.

The lecture seeked to discuss the increasing smog, its causes and repercussion on health and environment. It also attempted to reflect if the city will ever have breathable air, and what is needed for that to happen?

The panelist included eminent speakers like Dr. M. P. George (Scientist-D, Delhi Pollution Control Committee), Ms. Anumita Roy Choudhary (Executive Director-Research & Advocacy, Centre for Science & Environment) and Dr. S. K. Chhabra (Head of Department of Cardio respiratory Physiology Patel Chest Institute).The session was moderated by Mr. Satish Sinha (Associate Director, Toxics Link).

Dr Mohan P George (Scientist –D, Delhi Pollution Control Committee) presented on "The Smog in Delhi: Causes and Concerns" and pointed the reasons for the increasing air pollution where he said that Vehicles; Road Re-suspension dust;

Construction Activities; Trans-state movement of pollutants ;Industrial sources ;Thermal power stations both Coal based and Gas Based were the primary reasons. Also smog in Delhi has intensified since 28 Oct 2012. Though the conditions improved slightly on 3 Nov 2012 due to winds and vertical mixing, it re-intensified on 4th Nov. Such re-intensification was mainly due to stagnation of dust/smog/pollutants over Delhi and adjoining areas.

He said that the reasons for the increasing smog pose many question as the city has not seen any increase in pollution load and Delhi has one of the most stringent emission norms for thermal power stations. The situation demanded the need to find the reason and it was discovered that Biomass burning and dust storm were the prime reasons besides the atmospheric conditions like slow wind sped, low temperature and high Humidity. These atmospheric conditions led to high concentration of particulate, as the pollutant are unable to disperse under such circumstances.

He enumerated some of the steps taken to Control Air Pollution in the city , Air ambience fund is used to provide subsidy on VAT and Road Tax refund for battery operated vehicles; availability of Low Sulfur Diesel; Mandatory emission Control System on Industries; Promotion of Gas based Power plant and closer of coal based power Plant; Curb on leaf and biomass burning are among the few.

Dr. SK Chabbra (Vallabhbhai Patel Chest Institute) elaborated on the adverse cumulative effects of air pollution and said that it has resulted in excessive cardio respiratory mortality; increased respiratory illness; impaired lung function and lung inflammation and asthma exacerbations. Nearly 25% of residents of Delhi have chronic respiratory symptoms and that the death risk increases with an increase in the PM2.5 level. Even if one does not suffer any obvious affects the lung function when one is exposed to bad air quality, there are more subtle effects.

He further briefed on the health impact of new generation pollutants i.e Ozone which is a byproduct of the action of sunlight on oxides of nitrogen and VOC that are emitted in vehicular exhaust. With the ever-increasing number of vehicles, ozone air pollution already constitutes a major problem in India and is likely to increase future. Further he threw light on the Harmful effects of exposure to Ozone and said that it causes coughing, throat irritation, aggravates asthma; inflames and damages the epithelial lining of the Lung and damages the cells that line the air spaces in the lung.

Long exposure to ozone and may even become painful. Repeated ozone impacts on the developing lungs of children may lead to reduced lung function as adults.

Anumita Roychowdhury (Centre for Science and Environment) presented on the causes and concerns of the smog in Delhi.Smog during winter is a prominent problem and winter in any year is bad time of the year, suddenly the pollution level increases in the city. There are several pollutants today and we are breathing a toxic cocktail of pollution on a daily basis. Also over a decade the PM level has increased by 47%. In an attempt to monitor air pollution during the CWG games, Delhi build up systems for athletes for branding air quality as good, bad, healthy, unhealthy and emergency. Systems were instituted to inform public on a daily basis however as the games are over the system has collapsed.

Cities like Mexico and Paris have smog alert system where they inform the citizens about the quality of air that they breathe so that the vulnerable could take some precautionary measures, children in schools are advised not to play outside and the government takes up pollution emergency measures which means shutting the industries if required during that duration so that the pollution levels can be brought down immediately. However in India when it comes to public health air pollution in the city is of huge magnitude while our policy response is inadequate.

Further she threw light on the sources of pollution where she pointed that pollution comes from all kind of sources and not just vehicles but also industries, powerplant, burning. However there is a special concern over vehicular pollution to which we are being constantly being exposed. Influence of Vehicular pollution is maximum up to 500 mts from the roadside and large numbers of people live and breathe in that zone. In densely-populated cities more than 50 – 60% of the population lives or works near roadside where levels are much higher.

Mrs. Choudhary said that Delhi has tried to deal with the problem through the first generation action plan which happened during 1998-2003 and when the Supreme Court had intervened. Delhi took stringent measures and implemented one of the largest National gas vehicle program i.e CNG programme and public transport buses and three-wheeler were ordered to fleet on natural gas; capped the number of three-wheelers; phased out 15 year old commercial vehicles; strengthened vehicle inspection programme(PUC)';relocated polluting industry and stricter action on power plants were taken. The government Enforced Euro II emissions standards in 2000, five years

ahead of schedule, Euro III in 2005, Euro IV in 2010 in its attempt to reduce the increasing pollution. By taking these measures Delhi succeeded in avoiding a lot of pollution. Other major Indian cities have also begun to implement clean air action plans nearly patterned along the same line.

Immediately after this in 2004 World Bank did a study on five cities including Delhi according to which the city saw a dip in **PM10** was able to avoid **13,000** premature deaths and saw a reduction in respiratory illness. However, soon Delhi lost its gains. After a short respite pollution started increasing particulate levels and NO2 levels started increasing. While the state governments has not taken any punitive action for not meeting the ambient air quality norms .The abatement plans are not designed to meet local air quality demands and the emission regulations is fragile for most of India. Although the country has air quality standards there is no system to make these standards legally binding. Increasing dieselization has become yet another challenge. In 2000 diesel cars comprised 4% of the car sales while today it has boomed to 60%. Also Cheap diesel is pushing the market towards bigger cars that guzzle more diesels, Despite the fact that One diesel car emits as much NOx as 3 to 5 petrol cars. The problem with Diesel is the toxicity of the particle air is highly dangerous even at trace level.

She further shared that the International Agency for Research on Cancer of the World Health organisation (WHO) has reclassified diesel exhaust as Group 1 list of carcinogen that has definite links to cancer. Diesel exhaust is now in the same class of deadly carcinogens as asbestos, arsenic or tobacco among others. Ironically govt of India is banning tobacco by stringent measures while supporting diesel another carcinogens by subsidizing the fuel. Also the govt will incur Enormous revenue losses if it decides to Clean up diesel or restrain diesel cars.With each litre of petrol replaced by diesel to run a car the excise earning of the government from a car drops seven times.Use of diesel in cars has increased so much that the excise earnings from petrol and diesel has equaled.

Globally there has been a move towards clean diesel. Also in Brazil: Diesel cars are banned because of the policy to keep taxes lower on diesel while diesel cars in Denmark are taxed higher to offset the lower prices of diesel fuel. It is possible to reduce harmful diesel emissions drastically. But in India there is no target for clean diesel. She further pointed out the need to clean diesel (10 ppm sulphur) along with advanced after treatment system.

Further she suggested that the diesel cars should be taxed high public transport needs to be improved in order to reduce dependence on personal transport. Delhi government should crack down on visibly polluting vehicle. Also the government should Introduce 10 ppm sulphur diesel nationwide and advanced particulate traps nation-wide.

The lecture saw an overwhelming response and some pertinent questions were raised on the health impacts under present conditions. Concerns were raised on not using of particulate traps in India. There were suggestions to ban the number of cars annually and the ban could be released only when similar number of old vehicles is removed from the road. Also through heavy taxation and road pricing the usage of cars can be controlled.