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A review on influence of injudicious use of vehicles on climatic pattern

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Abstract

In spite of the various measures taken by the government at meticulous level, the quality of our atmosphere is nose diving at an alarming pace. Atmospheric temperature is roaring up year by year and the rain is non-seasonal or erratic. These are attributed to huge amount of green house gases released to the atmosphere leading to global warming as well as varying precipitation patterns. Across the globe, the personal automobile is the single greatest polluter of atmosphere as seen from the data obtained from Vyttila. The paradox is that the rich and the educated are causing more harm to the atmosphere. The atmosphere is now a cocktail of chemicals, and not much late, we will have to buy breathing air in bottles and our very existence will become a costly affair. Urgent campaigns must be carried out to sensitize the public about the graveness of the situation

Keywords: automobile, air pollution, greenhouse gas Introduction

Introduction

Under the Paris Agreement, India has committed that the greenhouse gas emission intensity of its GDP will be reduced by 33-35% below 2005 levels by 2030. Also, 40% of India's power capacity would be based on non-fossil fuel sources and that India will create an additional 'carbon sink' of 2.5 to 3 billion tonnes of CO₂ equivalent through creating additional forest and tree cover by 2030.

The report indicates that India is well on way to achieve the target for emission intensity of the economy and share of non-fossil fuel-based power capacity. In fact, at current rates of improvement on both fronts, India could achieve these targets ahead of the 2030 deadline. The emission intensity of India's GDP came down by 21% below 2005 levels by 2014 recording slightly more than 2% annual average improvement in emission intensity. The rate of improvement recorded between 2010-2014 was higher than that recorded between 2005-2010. Even at this rate, India could reach its Paris Agreement commitment ahead of the 2030 deadline.

No doubt, in the past few years India has seen a tremendous spurt in concerns over environmental degradation. Numerous public interest litigations in the courts in support of having cleaner air, especially in heavily polluted cities like Delhi, saw some defining steps taken to curb the issue of pollution.

The government took some key initiatives including promotion of emission-free electric vehicles as an alternative to the traditional fossil fuels. Promotion of public transport, car-free Sunday, network of metro, buses, e-rickshaws and promotion of car pooling, lane discipline, vehicle maintenance, Odd-Even Policy On Vehicles in 2016 and 17 etc. are some other steps taken by the Government.

Following public interest litigation the Supreme Court imposed a ban on sale of all diesel personal vehicles having engines more than 2000cc. Though the ban was imposed in Delhi-NCR, governments of other states explored the idea of imposing a similar ban. The ban was later lifted only after slapping of a 1 percent cess on such vehicles, the amount to be deposited with the Central Pollution Control Board. During the 2016

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budget, Finance Ministry proposed a 'green tax' of 2.5 percent on small cars and 4 percent on bigger cars and SUVs.

In a welcome move, the Union Ministry of Petroleum and Natural Gas has announced a 2-year advancement of the introduction of Bharat Stage (BS)-VI fuel norms from April 1, 2018 in Delhi, currently suffering from its worst smog crisis in years. BS-VI norms are scheduled to be implemented across India in April 2020. BS-VI fuel will bring down sulphur by 5 times from the current BS-IV levels—a whopping 80 per cent reduction and would make fuel extremely clean.

Post the successful implementation of BS-VI norms across the country in 2020, India will remain the only country to have completely skipped an emission norm (BS-V) to jump directly to the next one. While India was originally supposed to adopt BS-V norm in 2019 and BS-VI in 2024 not only did the government decide to skip a norm but it decided to advance the date of BS-VI roll-out, too. Emissions from BS-VI vehicles will be even lesser than the present generation BS-IV vehicles.

Faster Adoption and Manufacturing of Hybrid and Electric vehicles (FAME) formed under the National Electric Mobility Mission Plan was constituted by the Government little less than a year after coming to power. This scheme subsidized purchase of hybrid and electric vehicles by giving direct cash benefits to buyers. Till date, 1.46 lakh vehicles have benefited from the scheme through disbursement of Rs 182 crore worth of incentives resulting in a direct saving of 12 million litres of fuel and a reduction of 31 million kilograms of CO₂, as claimed by the government.

Besides incentivising buyers, the government itself is pulling out all stops for promoting clean technology mobility solutions. Electrification of transport remains one of the main agenda of the government for which it has already started using electric vehicles. While some of its ministries are set to use electric vehicles for transport, it is also asking state governments to replace their ageing diesel/CNG-powered buses

with next generation all-electric buses. An all-electric bus could cost around Rs. 2 crore and the government has promised to pitch in Rs 65 lakh. The Center's blue print states that it wants to be able to allow only electric vehicles in India by 2032.

The government has plans to incentivise and encourage existing owners of old trucks and buses which are more than 11 years old to trade in for new replacements. Plans could involve exemptions on payments of duties or discounts on taxes. Such exemptions would help reduce the acquisition cost of new trucks, boost production and sales of new trucks, reduce emissions, boost fuel-efficiency, minimise fuel consumption and also cut down instances of vehicle breakdowns. The Ministry of Road Transport and Highways had proposed a total monetary benefit of nearly Rs 5 lakh per truck, of which half would come from state and central governments.

Use of liquefied natural gas is a relatively a new concept in India and is aggressively pushed forward by Ministry of Road Transport and Highways. While LNG is already used in the industrial sector, it is not commercially available for the automotive industry. However, the government is setting up LNG storage depots at ports to help make the fuel use as a conventional alternative to CNG. LNG is much cleaner than CNG even as CNG itself is a bigger polluter than petrol.

In spite of all these measures taken by the government, the reality is heart-breaking. One out of eight premature deaths in India is due to breathing polluted air, as reported by The Lancet Planetary Health, the journal by ICMR in its December issue¹. Fifteen of the twenty most polluted cities in the world are in India—as per Global Air Pollution 2018 Report by the environmentalist group, Green Peace in The Hindu 6th March 2019².

Case study conducted at Vyttila

What are the causes of these frightening situations and who are responsible for it. This article presents a review of the case study conducted at Vyttila – the biggest

traffic junction of Kerala. No doubt, vehicles are now a multifaceted sword, which geometrically magnifies the menace of environmental pollution. Increase in population of vehicles, exhaustion of fossil fuels and change in climate are seen to be linked as shown by the cross sectional study at Vyttila. The study could bring to lime light astonishing facts about the extent of greenery sacrificed for setting up fossil fuel outlets and that the sale of fossil fuel is going up steeply as population of vehicles is increasing at an alarming rate. Study confirms that Kochi is contributing a significant share in making the global environment malicious.

Kerala has been bestowed with a pleasant and equable climate throughout the year. The climate of Kochi—the queen of Arabian Sea also has been nothing different and has an invigorating climate. But unfortunately, the climate of Kochi is changing over the past few years along with the global climatic deterioration. During April 2014, Kochi has experienced the highest maximum temperature in the last 10 years^{3,4}. Vyttila, in Kochi is the busiest and the biggest junction of the state and on an average 150000 vehicles ply through the junction everyday, according to the study conducted by the National Transportation Planning and Research Centre (NATPAC). The unprecedented growth of vehicular traffic causes the drastic deterioration of the quality of the environment. The right for pure air to breathe and water to drink is becoming a dream. What is called development is now leading to the tragedy of common man.

In cities across the globe, the personal automobile is the single greatest polluter, as emissions from a billion vehicles on the road add up to a planet-wide problem. Driving a private car is a typical citizen's most air polluting activity. The negative effects of automotive emissions are maximum, when one sit in traffic surrounded by cars, their engines idling. The Green House Gases emitted by the vehicles include carbon dioxide, methane, nitrous oxide and chlorofluorocarbons⁵.

Data from RTOs of Kochi, reveal an astonishing, unprecedented increase in the number of private vehicles –both two and four wheelers –getting registered every year. In order to maintain these lakhs of vehicles plying on the road, numbers of fuel filling stations are also increasing in parallel and new ones emerges at a rate of one per year within a 5 km radius of Vyttila. Inception of one fuel filling station is by sacrificing about 50 cents of greenery and each station is selling on an average 7000 L petrol and 12000 L diesel per day. The newly started filling stations together with the already existing ones, are acting as outlets for crores of litres of petrol and diesel every day. The result is not only fossil fuels will get exhausted in near future but also its combustion is flushing huge amount of toxic gases and particulate matters into the atmosphere. It is idiotic to see that the permissible standards are set according to Rule 115 of CMV Rules 1989 and the permissible standards seems to be very high i.e., 3.5% CO for two wheelers and 0.5% for four wheelers. Moreover, the pollution testing centres are testing only CO₂, CO, Hydrocarbon and O₂. But, in addition to these, vehicles are also emitting SO₂, Nitrous oxide, particulate matter etc. The condition is more aggravated by the fact that most of the vehicles are not even turning up at the pollution testing centres for monitoring their emissions. No doubt “many a mickle makes a muckle”. Even if the emissions of individual vehicles are under permissible limits, lakhs of vehicles plying through a point makes the toxic gases above permissible levels. The present irresponsible situation will definitely make the atmosphere a cocktail of toxic emissions. Fortunately, the levels of sulphur dioxide and oxides of nitrogen are still below the maximum permitted levels, as per the data given by the Kerala State Pollution Control Board⁶. Thanks to the copious rain for the lion share of the year and also the wind pattern. But, the level of suspended particulate matter is increasing year by year and also it has surpassed the maximum permissible limit. In spite of any agricultural activity or sewage outlets, water samples from a domestic well at

Vyttila and another sample from Oil Tanker Jetty, Vembanadu lake, showed increasing levels of nitrate and nitrite for the last five years. Atmospheric nitrogen fixation and consequent leaching out may be contributing to the condition.

The average rain fall during the last years varied considerably. This may be attributed to the change in the amount of the erratic or intermittent rains usually received during the summer season, which in turn may be due to the local influences. The variation from the good old annual average value of 3000 mm may be not due to change in either the south- west or north- east monsoons which are more or less global phenomena. No wonder, the climate of Kochi also is changing over the past few years along with the global climatic deterioration. SkyMet Meteorology Division in India has reported that during April 2014, Kochi has experienced the highest maximum temperature in the last 10 years and the average temperature of every month in 2014 is higher than its preceding year⁷. This may be due to the Green House Gases acting like blankets wherever their concentration increases. Local concentrations increase local heat and increased differences between hotter and colder regions drive weather events into more extreme ranges. The heat retention by the Green House gases is having a serious impact on local climates right now.

It is really pathetic to see that the more educated people are causing more pollution to the air by regular injudicious use of private vehicles. It is ironical that, from among the educated employees of Ernakulam, staff of educational institutions, are far ahead in using private vehicles regularly. Surveys have also revealed a double fold increase in the percentage of private vehicle users in nongovernmental-i.e.,private and management sectors.

According to Ravikant Mahajan (*Your Quest for Being Better*), one day a human being breathes oxygen equivalent to 3 cylinders which on an average costs 3x700=Rs.2100. Yearly cost comes to about Rs. 7,66,500 and for a man of average life span

70 years it becomes Rs.53.66 million. All this oxygen we get free from trees, which we mercilessly cut down and establish fuel filling stations. Since the trees are cut down, the sink of atmospheric carbon dioxide is no more!!!

Until a few years ago, fresh air was the only thing that was available for free to us. But now even that seems to be a luxury.. In 2016, the Gas Authority of India Limited (GAIL) sponsored a campaign which was motivated by a famous YouTube video on a social experiment which introduced the idea of selling freshly packaged air in Delhi. At a time when Delhi was choked and fresh air was a need, this video did wonders. But back then it was only a warning and now it has become a sad reality.

Many companies like Auzair, Vitality Air and Indian brand Pure Himalayan Air have actually come up with bottled fresh air. Pure Himalayan Air is selling a can of 10 Litres fresh air for Rs 550. The idea originally came from Vitality Air, a Canadian company that started selling bottled air. Then came Australia-based brand Auzair who are also selling their products in India. Their bottle of 7.5 litres of fresh air costs Rs 1500⁸.

Breathing fresh, clean air out of a bottle is a rather expensive affair which is impossible to achieve for most of us. We don't understand where our future is headed if this is where we have already reached.

Conclusion

Foregoing discussions reveal how the injudicious use of vehicles makes our breathing air filthy. This, along with other luxuries such as use of air conditioners round the clock, compel us to conclude that the rich and the educated-i.e., the privileged section of the society is responsible for the crime of polluting air, which is a global resource, thus sweeping away the right for pure air for themselves and also for the innocent underprivileged of the society.

Let us join hands to sensitize the residents about the benefits of public transport and to sweep away the misconception that

vehicles are status symbols. Let us form a low carbon foot print society and thus live in harmony with nature. Beware, the present local warming up as well as conversion of water and air to a chemical cocktail can

be the initial step towards the anthropocene defaunation or more technically called a sixth mass extinction. And.... it is not far away.....

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