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# Analysis Of Actions Taken By India To Tackle Climate Change And Pollution

## Introduction

Climate change refers to the disruption of weather patterns due to the change in chemical balance of the ecosystem. It is mainly caused by greenhouse gases and other land and air pollutants that are present predominantly due to the industrialisation of mankind. These substances cause an imbalance in the environmental equilibrium and cause extreme weather, which is nature's way of correcting the in disequilibrium.

Ranked 6th in the world for contributing to the emission of greenhouse gases (GHGs), India released 1843 million tonnes of carbon dioxide (CO<sub>2</sub>) into the atmosphere in the year 2000, about 4.5% of global GHG emissions. Various studies also suggest that these numbers will rise in the near future if India does not divert itself away from its current path. 18% of the nation's GDP comes from the agricultural sector that employs more than 50% of the population in 2018, making India one of the most vulnerable to climate change as the agricultural sector would be significantly affected by climate change and pollution.

4.5 % of global emissions does not look like much and is in fact dwarfed by emissions from countries like the US and China. However, according to numerous studies, Indian cities are the most polluted in the world and the urban population is the most at risk due to their close proximity to industries and larger vehicle density. Thus, the question we ask ourselves is, to what extent have the actions taken by India been successful in tackling climate change and pollution? The essay will analyse and evaluate the actions taken by the Indian government and officials, the Indian people and the Industrial/private sector in the 21st century, and establish that India has actually been rather unsuccessful and that more cooperation and cohesion is required for India to succeed in its pursuit.

## Indian Government and Officials

Climate change, catalysed by pollution, is a grave problem for developing countries such as India that encounter volatile weathers. It is especially jeopardising in the Indian context as majority the population rely on the environmentally-sensitive agrarian economy for their income. Having become one of the major concerns for the Indian government, it has been striving with its best foot forward to draw an end to this problem.

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## Manmohan Singh's Term (2004 - 2014)

Manmohan Singh kickstarted the nation's quest for a clean and green India when he joined 16 other countries around the globe to pledge India's involvement in working towards a cleaner environment at the Major Economies Forum on Energy and Climate (MEF) on July 2009. However, there was no emphasis on working towards a cleaner environment. Soon after raising the problem of water pollution in the Ganges River, the river is regarded by the Hindus to be the most sacred river in the world. The river, which was once crystal clear, had become one the most polluted rivers in India. Manmohan Singh saw the need to clean up the Ganges River (aka Ganga). He introduced the National Mission for Clean Ganga (NMCG) campaign on August 2011 to reestablish the Ganga Action Plan (GAP) which was launched much earlier in April 1986. The NMCG's aims were to abate the pollution in Ganga and to ensure the continuous flow of water to rejuvenate Ganga. The campaign which initially seemed active did not change how polluted Ganga was because of the large influx of pilgrims. On 17 April 2012, seeing as no improvement was made in the Ganga, Manmohan Singh requested the state governments to take actions against the industries polluting Ganga.

## Narendra Modi's Term (2014 - present)

Just about two year later, Narendra Modi, who succeeded Manmohan Singh approached the issue of pollution with a new vigour. Observing that energy was a key resource for production and growth, he focused on delivering clean energy. Today, one of the world's biggest renewable capacity expansion programs is being run in India.

## Sources

Lesser diesel, which is very polluting, was also used in 2016. The portion of renewable grid capacity has grown from 2% in 2002 to 13% in 2015. Furthermore, energy contributions of solar power which was only 3.9MW in 2005 increased to 4060MW in 2015. Biomass energy which only contributes to about 18% of the total energy output contributes to over 70% of the pollution. The Environmental Defence Fund (EDF), together with the Indian government, has been helping rural communities in five states namely, Karnataka, Tamil Nadu, Andhra Pradesh, Telangana and Odisha transition to biomass that have lower carbon emissions. In rural communities, most of the households burn firewood for domestic activities such as cooking. During the monsoon seasons, the mud stoves become unreliable and wet firewood used release toxic amounts of smoke into the atmosphere. Modi is also trying to shut down the Badarpur power plant, which is producing more than 80% of Delhi's particulate matter pollution while only providing 8% of Delhi's electric power. The plant was initially set to close on October 2017, but was delayed because it was supplying electricity to a nearby stadium hosting the Fifa under-17 World Cup matches.

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Modi also took advantage of the digital era and launched the Digital India campaign to make government services available to citizens online. It saves on manpower as well as energy needed to operate various government offices. Modi also launched the Swachh Bharat Mission which aims to provide proper sanitation to residents of India. To date, over 78 million toilets have been built in the rural parts of India. This mission, while providing proper sanitation, reduces water pollution by eradicating the need for open defecation due to the lack of toilets. This mission also encourages the conversion of waste to energy, in the form of compost fertilisers, which are more eco-friendly than the fertilisers that are produced by chemical industries.

Government actions would prove to be futile if the public does not comply to the policies and laws put forth by the governing body. Besides, governments cannot put forth laws that would affect a group of people in particular as it would result in backlash and chaos. In a country where Hindus form 80.9% of the population, Diwali, the festival of light that is celebrated by the Hindus involves the burning of fire crackers which releases massive amounts of GHGs. 18 March 2018 saw the commencement of a nine-day Mahayagna (a Hindu ritual) in Meerut, India that burned 50,000 kilograms of mango wood to curb air pollution. Burning 50,000 kilograms of Mango wood is said to release 20,150 kilograms of CO<sub>2</sub> and over 1,900 kilograms of other GHGs and particulate matter. In this case, actions taken by the government would be deemed to be anti-Hindu and would upset 80.9% of the Indian population.

## People and Vehicular Pollution

A mere government is powerless without its people. Thus it's crucial to take a look at what the Indian population has done to contribute to the pollution and climate change efforts. One of the root causes of pollution is the rapid urbanisation of India, which was followed by the massive expansion of private transport.

### Increase In Vehicles

The number of vehicles has almost doubled from 73 million vehicles in 2004 to 142 million vehicles in 2011. This has noticeably increased the number of cars on the road in India, causing increasing traffic congestion and deaths caused by vehicular accidents. Before the discussion on how much pollution driving creates, let's look at how much CO<sub>2</sub> is released from just manufacturing a car. An average sized family car in India has a carbon footprint of about 24 tonnes of CO<sub>2</sub> gas in its lifetime, and about 25 % of this emission arises from just producing it. That's 6,000 kg CO<sub>2</sub> released into the air to produce just one car. That multiplied by the number of vehicles produced in India for local use and foreign export (3.95 million cars) gives us an astonishing 24 million tonnes of CO<sub>2</sub> emitted just from car manufacturing. The root cause of this can easily be attributed to the Indians' need for a personal vehicle, as can be seen from the

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drastic increase in the number of vehicles registered by the people.

## Vehicle Quality

Apart from the huge numbers of vehicles being a factor, other factors of vehicular pollution are old automotive technologies such as 2-stroke engines, poor fuel quality, inadequate maintenance, old vehicles and poor transport sector development such as congested traffic, poor road condition and overall poor traffic management system that drivers flaunt easily and ignorantly. The former issue, however, has been addressed in the figure below.

The table above shows the restriction that the several Bharat Stage (BS) actions has set, which decides the limit of Respirable Suspended Particulate Matter (RSPM) levels in the air. Though the restrictions have become tighter and tighter every year, the increase in the amount of pollution in the air does not seem to subside. According to a study, the number of old cars with poor fuel efficiency is expected to be around 15 million and rising. These cars contribute greatly to the release of particulate matter, CO<sub>2</sub> and hydrocarbons due to their inability to completely utilise diesel fuel.

The two examples above show us that the Indian people just cant be bothered to help fight against pollution. They turn a deaf-ear to the plea of the government to reduce their carbon footprint. The people often complain about how pollution is affecting them heavily but do not give up their need for a vehicle as a social status. Their show-off mentality is not the only reason they buy cars. There are other reasons such as apathy to their external environment, poor public transport services and poor connectivity in public transport.

## Fighting Vehicle Problems

But it can't be said that not a single soul in India cares for the environment. Two visionaries in particular, Bhavish Aggarwal and Ankit Bhati, made a huge impact on the transport sector in India. They're the founders India's online transportation network company OLA Cabs. Although the concept might have been similar to that of Uber, these men made the service more adapted to the Indian environment and provide a wider range of transport vehicles to choose from. This concept is really commendable and finds a use for already available cars that are not used and put them to use for the benefit of the common people. The Indians also seem to like the concept and have utilised this service for their own benefit and also contribute less to pollution. About 0.9 million vehicles have have been kept off the roads of Delhi according to studies conducted by Ola. Consequently, this has helped in decreasing CO<sub>2</sub> emission by 1291 tons and saved about 0.5 million litres of fuel.

## Industries/ Private sector

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Private sector refers to the portion of the national economy that is not directly under state-control. Industries in the private sector were contributing to about 27% of India's Gross Domestic Product (GDP) as of 2011. However, these aforementioned industries contribute significantly to pollution. As such, it has become a game of balancing between revenue and pollution for the government. Besides, certain laws and policies passes by the government involves monetary fine, which the industries pay with no second thoughts as paying the fine and continuing their pollution activities brings in more avenues to them. Industries in the private sector hence remain as a very large polluter after vehicles. On 17 August, eleven blue dogs were seen roaming around the streets of Navi Mumbai. Officials were initially puzzled by the blue dogs, but later found that the cause of the colourful canines was the release of dye and waste products into the nearby Kasardi River by a factory producing detergent. The factory was later shut down for violating certain acts involving water pollution.

March 2018 saw a series of protests from the locals of Thoothukudi, a city that is located in the south-east region of Tamil Nadu, India. They were protesting against a copper smelting factory that was realising carcinogenic particulate matter into the atmosphere. It is said 3% of the population residing near the factory had cancer. Besides causing a lethal disease, the factory also polluted the air and water surrounding it. Waters surroundings the factory contained up to 55 times the safe limit of neurotoxins. Despite actions taken by the government and the police, the factory carried out its smelting activities until May, when it was shut down by the government officials. However, industries concerned about pollution and climate change do exist. An entrepreneur in the name of Narayana Peesapaty, who established Bakeys Foods, saw the need to find an alternative to disposable plastic spoons. Plastic spoons are widely used out of convenience, but plastic takes over four-hundred years to decompose, polluting the environment. Bakeys Foods, hence invented edible spoons made of millets. These spoons can either be thrown or eaten after use. If discarded, the spoon would decompose within a week and serve as compost fertiliser. Such is an example of industries in the private sector helping to combat pollution and climate change.

## Conclusion

The Government has introduced various measures to reduce overall pollution of water bodies and the atmosphere. The government has done its best in creating policies to reduce the country's pollutant levels. However, it is essential to understand that no policy or law passed by the governing body of a nation would be effective unless the public abide by the laws and regulations posed upon them. In the Indian context, it is also difficult for the government to draft laws against a certain groups of people, especially a certain religion, even if they are the major sources of pollution as it will result in severe backlash.

The government has tried to harness various methods to keep pollution and climate change in

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control. Although campaigns launched to clean up Ganga seemed active, the end results spoke the truth on how ineffective the campaign was, with Ganga even more polluted than before. Vehicles which remain as the top source of pollution in India are seen as essential by the people because of the poor transport infrastructure the government offers. Furthermore, industries in the private sector, which are revenue-driven, do not spare a second thought for the environment before choosing to carry out polluting activities.

However, there have been successful measures taken against pollution and climate change. Modi's Swachh Bharat is an excellent example for the government's success in combatting climate change. The campaign concurrently tackled poor sanitation and water pollution. Despite being revenue driven, Narayana Peesapaty launched Bakeys Foods to help mitigate pollution by plastic disposables.

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