

Ecological impact of Covid-19 in India: A case study of Madhya Pradesh

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India's extensive geography is marred with different issues, the major reason for non-conducive environment is anthropogenic activities. The unruly nature of environmental crisis has given way to series of concerns like rising pollution, increasing deforestation, and deteriorating water and air quality. This has led central as well as state governments to implement various laws for its safeguard.

The recent measures to save the environment include Compensatory Afforestation Fund Act (CAMPA), 2016, declaration of India's INDCs in the run to COP-21, renewable energy target of 175 GW by 2022, notification of Waste management rules, 2018 and formulation of National Clean Air Program (NCAP) to tackle air pollution, amongst many others. (OneIndia, 2018) Apart from making strong domestic laws, India has been active internationally towards these concerns. For example, for global climate change commitments, India has been an active signatory to Kyoto protocol commitments in the past and now it is an active member of Paris Agreement.

The efforts of all nations to tackle environment crisis have taken a backseat as Covid-19 became an immediate global threat. The responses to and impact of pandemic has brought these global efforts in light, be it good or bad.

Positive impacts of pandemic on environment-

The rising threat of pandemic has increased awareness to protect the environment, as the cases of positive impact on the quality of air and water has been recorded across the world. The air quality improved due to various reasons, such as lesser travel, via road, air or water transport; closing of industries resulting in declined emissions, etc. The road traffic has reduced immensely, which has literally calmed the planet as there is a reduction in “cultural noise” than it was before the pandemic. (Watts, 2020)

The reduced discharge of effluents from industries, and a tab on boats has improved quality of water. As a result, the marine life thrived, and an increased flow was observed in the rivers. The decline in the human interference with nature has given visibility to wildlife which went unacknowledged. The Ridley turtles were spotted in areas earlier abandoned by them to lay eggs.

There is an evident change in lifestyle where people have recognised the value of limited resources. Hence, importance is being given to the concept of 3R's (reduce, recycle and reuse). The spiritual experiences and observations of what surround us is welcoming in the time spent in closed spaces with self. However, there were also reports for increased domestic violence cases across the world in this duration, which has to be responded strictly.

The lockdown and scarce availability of resources (including food) may reflect in future behaviour in contributions to the society. This may reduce the wastage of resources, which eventually helps with environmental conservation. The community strength in tackling the public health crisis also makes humanity more hopeful of the future of climate crisis and ecological problems. Some studies have found a correlation between increase in temperature and decrease in the number of people affected with Covid-19. The study by the National Environmental Engineering Research (NEERI) in Nagpur has given 85% chances for relation between temperature and number of pandemic cases in Maharashtra. (Madaan, 2020) The research is still undergoing to strengthen such linkages, so as to find relations to solve the crisis.

Even with the positive news of reduction in global emissions in lockdown period, there are chances of an increase as soon as the crisis is over. There are speculations of immediate vehicle movement to compensate the business loss during crisis.

Negative impact of pandemic on environment-

Due to the pandemic, crude prices plunged to an all-time low of -40\$/barrel leading to countries and companies filling their own reservoirs. India increased its stockpile of crude. The hoarding of crude in this time for later use is not an environment friendly step. In this gap period of reduced use of oil, the state shall promote the use of renewable and other environment friendly energy sources. The shift away from the crude can be used to better fulfil energy needs and eventually reduce carbon emissions. The future is highly unpredictable, with governments not actively looking at the links between environment and pandemic. The changes are as minute as people may reduce the use of public transport to keep social distancing, adding to negative repercussions on environment.

Flora and fauna dependent on humans have been severely affected, street dogs, cats, cows and other stray animals have not been able to fetch sufficient food and water for survival. The pandemic gave us a time to rethink our lifestyle and food habits. The food chain is altered as many are moving towards becoming vegan or vegetarian. These dietary changes will put pressure on agriculture. This leads to excess methane emissions from cattle and livestock. The recycling of industrial, medical, domestic waste can bring a positive change during the pandemic. Since most of us are moving towards a green lifestyle, mitigation of catastrophic scenarios in the future looks favourable.

Environmental clearances were made for the projects which were in limbo for a long time. While the world is focusing on the Covid-19 issue, politicians found it easy to sanction projects which require rigorous environment assessment. The Maharashtra government requested to exclude 15% of Western Ghats eco-sensitive area (ESA) for mining and industrial activities. The declaration of ESA put

sanctions on projects of mining, quarrying, thermal power plants, industrial units and construction in the area. (Ravi, 2020).

The pandemic situation has reduced the involvement of pressure groups and environment activists. There cannot be active protests on roads due to pandemic restrictions, neither can there be mobilisation of masses for issues of environmental importance. There are other noticeable cases which couldn't make a big impact due to the crisis, like the Uranium Survey in Telangana's Amrabad Tiger Reserve, Coal Mining project in Dehing Patkai Elephant Reserve, Assam and drilling of boreholes in Sharavathi Sanctuary in Karnataka. (Ravi, 2020) Social media erupted with protests but couldn't bring about a ground level movement due to the lockdown.

With all the global hustles due to pandemic, Madhya Pradesh has been a crucial state for visible changes. The first day of national lockdown was welcomed in the state with a new government in power. The State has one of the highest green cover and deep scars of pandemic, which makes it an interesting case to find any kind of co-relation.

Physical attributes of Madhya Pradesh

The state of Madhya Pradesh was formed in 1956, and now has a total of 52 districts. Initially it was the largest state, but lost its status with creation of Chattisgarh in 2000. The landlocked state has an area of 308,252 km², beautiful waterfalls and rich biodiversity. The climate is sub-tropical and the major rivers are Tapi and Narmada. The largest reserves of diamond and copper in India are found in the state.

Political situations in Madhya Pradesh

The shift in politics due to change of the ruling party, one day before the extensive lockdown has reshaped the political spectrum of the state. The snatching of

power in the midst of corona crisis has been disadvantageous for the state as it got one of the highest number of cases and cities like Indore made headlines quoting the worst death rates and the number of infected people.

The gift of abundance natural wealth comes with drawbacks. Excessive mining leads to illegal encroachment which infuses more money in economy for political gains and change of power balance in the state. The unmindful mining in the time of pandemic has also manipulated power equations, as it has shifted focus towards pandemic vis a vis reducing weightage given to environmental laws.

Impact on Madhya Pradesh's environment

The varied geography of the state is also affected with particular environmental issues. For example, rampant mining in districts of Bhind, Morena, Panna have deteriorated the environmental conditions in the North of MP, where the scarcely found dolphins and alligators population have reduced. Deforestation in MP is excessive in tribal dominated areas and forested areas of Umaria and Jhabua. The Global Earth Society for Environment Energy and Development's (GSEED) report published in 2019 on Bhopal (2009 to 2019) revealed that the forest cover reduced by 26 %, number of trees cut in and around Bhopal are 5 lakhs; and there was a 45% rise in vehicular pollution. The development projects like BRTS corridor and Smart City project etc. are linked to increased cutting of trees in Bhopal. (Kakvi 2019) In a recent report on forests in India, it was noted that, "Of the 15,000 square kms of forest lost to encroachment, the greatest loss was reported in Madhya Pradesh." However, each country in the run for development has breached their limits for utilising the natural wealth for a healthy planet. Even the states of India, Kerala, Andhra Pradesh and Bihar in India, have breached their deforestation limits. (Ghosh 2016).

The urban cities are pollution centres in the state, like Gwalior is one of the most polluted cities in the world. These urban spaces are newly developed centres of urban migration and now are also gaining from reverse migration from metro cities. The area of western MP has rocky terrains, the tribal dominated districts

there, like Dhar and Jabua face issues of water scarcity, whereas the Eastern MP flourishes with rivers.

The Narmada river water is life line for south of Madhya Pradesh. A study conducted in 2016 analysed its water samples in two seasons (dry and wet) in 2014-15 and found water quality not conducive for the use of living beings (Vyawahare 2017). The minister of state for environment Anil Madhav Dave, mentioned in a seminar, "if Narmada river was not protected, its basin would turn into a cricket ground" (Vyawahare, 2017). Earlier, the minister also founded 'Narmada Samagra' to protect the river. Before leaving water bodies to their fate, we must realise the conservation efforts are costly, cumbersome and time taking. The Ganga river has been contaminated for long, and a \$3 billion plan to clean large stretches contaminated by toxic waste and sewage was launched.

The air pollution situation in MP has been adverse, as data from MPPCB mentioned that 247 industries are flouting environmental norms in the state (Sarkar, 2013). The lockdown due to Covid-19 has been very effective for environment across the world, for example a country like China recorded emissions drop of 25% at the start of the year and decline of coal use (Henriques, 2020). According to the Chinese Ministry of Ecology and Environment, there was an increase noticed in the number of "good quality air" days by 11.4%, compared to last year in 337 cities of China (Henriques, 2020). European countries like northern Italy, Spain and the UK noticed reduction of nitrogen dioxide (NO₂) emissions (Henriques 2020). The focus on COVID-19 has also slowed down the progress of other policy priorities including environment sector.

Steps to protect the environment in Madhya Pradesh (Government and Non-government agencies)

The central location of Madhya Pradesh in India gives it easy connectivity with other states. The state has a large area and 11 different agro-climatic zones, which have different concerns and environment wealth. The state boasts of origin of numerous rivers, with 9 national parks, 6 tiger reserves and 25 wildlife sanctuaries. Approximately, 36% of Indian bird species are recorded in the state of Madhya Pradesh.

The scheme for development of a stretch of Narmada catchment area is kept under Omkareshwar Fund. Narmada Seva Yatra campaign was initiated by the state government for river conservation. The state government has banned polythene and plastic bags to reduce pollution and death of cows. Citizens can participate in conserving the environment by reducing the use of plastic bottled water and straws, carrying their own bags, use of glass containers instead of plastic zippers for food storage, limit use of chemicals in gardens, and educate locals about biodiversity conservation. The increased use of public transport and sharing vehicles is an effective method to reduce congestion and pollution. India's first integrated and fully automated bicycle sharing system was initiated in Bhopal (MyGov.in., 2018). The massive plantation rally near the river banks of Narmada was organised by the Chief Minister Shivraj Singh Chauhan to create awareness and rejuvenate the river bank. The project targeted to find place in Guinness record in 2017 and planted 60 million saplings.

The state government has actively participated and identified the crucial areas in state from Narmada river conservation, tiger preservation, schemes in planned urban area and other environmental issues.

Steps to fight Covid-19 in Madhya Pradesh

The state government took a chance to withhold the rising cases by testing every possible household in the Corona hotspot, Indore. The entire city was tested on a door to door basis checkup. After initial effective efforts, the growth rate in corona active cases has reduced in Madhya Pradesh with recovery rate of 76.1% (Hindustan Times, 2020).

The Madhya Pradesh government has also announced to launch a 'Kill Corona campaign' from July 1 to screen entire population of the state in a fortnight (Hindustan Times, 2020). The campaign aims to generate health awareness and involve the public along with administrative authorities for effective implementation in every district. The government also plans to make a 'Covid mitra' who will work voluntarily for the campaign. The equal emphasis on rural

and urban areas help in identifying Covid-19 cases across the state as well as information about vector borne diseases, so that people are treated immediately.

Preservation of ecology during pandemic

The pandemic impacts each one of us equally, overlooking caste, race, region and national boundaries. Hence, the solution must also emanate with global collaboration by bringing all stakeholders together under agencies like UN, WHO, etc. If they do not join together, the economic, mental and physical impact of pandemic can be tremendous and can lead to social divide, poverty, and hunger. The solutions implemented globally for fighting the pandemic can be learnt to bring the best results for others. For example, countries like New Zealand made headlines as it became the only country in the world to report zero cases for a considerable time. The ideas that can be replicated aren't limited to only covid-19 eradicated countries but also countries with similar environmental concerns and those affected by severe disasters. The Water Museum in Bangladesh is created to display water issues in the deltaic region, ironically where the number of rivers is in abundance. The museum is community run and created for mass awareness as the water quality is deteriorating. Museums are spaces for raising attention of society towards issues of importance. Similarly, the creation of a pandemic museum in the future may also tell us the ways in which the society reacted to the crisis of the century.

The environmental concerns are international and the solution to the crisis has to be dealt with combined involvement of all the factors. In such conditions, the postponement of the UN climate summit, CoP26 scheduled in Glasgow to next year is a setback in global coordination. The private sector has to be an equal participant. Major business houses and corporates can work on a large scale for shifting to less carbon emitting technologies after the pandemic. They can also cooperate with each other to reduce plastic packaging in FMCG companies.

In the time when movement is restricted, many people migrated back to the small towns and villages leaving employment in big cities. Improved urban planning

would be useful for next wave making it a planned migration. The increased instances of covid-19 have been noticed in places of aggregated population. For example, slums like Dharavi were the main areas of Covid-19 spread in Mumbai. The government schemes for making urban and rural housing schemes for low lying areas, which can give better drainage and electricity to people would improve arrangements that are necessary in situations of pandemic. A well-defined urban system can help in maneuvering and preparing for unprecedented times like this pandemic. State government and local bodies should come up with their own policies for future mitigation and responses. Implementation of Atal Mission for Rejuvenation and Urban Transformation (AMRUT) Yojana in Madhya Pradesh can bring effective outcomes. The Madhya Pradesh government has taken up planning and development of urban areas and the measures have been effective in coping with pandemic. The cities like Indore, Gwalior were chosen for smart city projects for which planning lead to effective management during pandemic for pollution, solid waste management, BRTS, segregation of waste, green awareness, clean water supply.

Community groups for environment conservation have been one of the most effective ways for ecology preservation. Climate Smart Agriculture is also an effective alternative in transforming the agricultural development in the dual crisis of climate change and the pandemic. Inclusion of children at the school level to be more proactive in dealing with the environment and the surroundings with schemes like Mowgli Utsab in Madhya Pradesh are already in place.

Madhya Pradesh boasts of various tribal groups, which have different ways of worshipping. While religion is an important aspect of South Asian societies, worshipping the local saints has also been an effective way of achieving spiritual bliss in Madhya Pradesh. The animistic culture of tribal population has put the conservation and preservation practices of nature to the forefront. The massive community gathering in the religious congregations, prayers to nature during Kumbh festival on river Shipra attracts lakhs of people is known across the world.

In these times, the role of gathering population is diminished as physical distancing is important to save one from Covid-19 crisis. The South Asian society thrives on community strength. For bringing a bottom up change, a path to utilise the

community strength for mass awareness by keeping physically distanced needs to be identified. The maneuvering of community strength for regulatory use is one of the possible ways to delay the menace. The use of digital media for fostering a sense of community and spreading awareness is important. The assessment of local methods for environment conservation and implementing them, by involving people on a rotation basis (involving people for creating awareness on specific days, may be alternate days, fixed days), so as to reduce direct mingling can be helpful. The communities affected due to economic lockdown can be provided with alternative employment methods. These alternatives can be climate resilient for making the best use of opportunity to build eco-friendly surroundings.

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