5 Major Environmental Challenges in India
5 of the most pressing environmental issues in India

In its most recent climate assessment, the Intergovernmental Panel on Climate Change (IPCC) cautioned that it is "now or never" to limit global warming to 1.5 degrees Celsius.

Several variables, ranging from deforestation and droughts to air pollution and plastic waste worsen global warming, with consequences seen globally.

Nevertheless, some countries suffer more than others. Countries in the Global South have historically borne the brunt of climate change, despite their negligible or nonexistent contributions, because they frequently lack the financial resources to address the problem and reduce the effects of extreme weather events.

Here are some of India's most pressing environmental concerns and how the country is addressing them.

1. Air Pollution

Air pollution is undoubtedly one of the most significant environmental challenges in India. According to the 2021 World Air Quality Report, 63 of the 100 most polluted cities in the world are located in India, with New Delhi having the worst air quality in the world. In 48% of the country's cities, PM2.5 concentrations – airborne particles with a length of 2.5 micrometres or less – are more than 10 times higher than the WHO air quality guideline limit for 2021.

In India, some of the largest sources of air pollution are automobile emissions, industrial waste, kitchen smoke, the construction industry, crop burning, and electricity generating. Due to its reliance on coal, oil, and gas as a result of widespread electrification, China is the world's third-largest polluter, sending about 2.65 billion metric tonnes of carbon to the environment annually.

India was one of the world's most polluted nations in 2022, second only to Bangladesh. In 2022, the annual average PM2.5 concentration in India was approximately 58.1 g/m3, "breaking a three-year trend of improved air quality" and serving as a strong indication that the country has returned to pre-pandemic levels.

Scientists have connected continuous exposure to PM2.5 to numerous long-term health problems, such as heart and lung disease, as well as 7 million annual premature

deaths. In November 2021, the air pollution levels in Delhi were so high that several huge power plants had to be shut down.

The government of Delhi has implemented strict initiatives to combat air pollution. One of these is the Odd-Even Regulation, a traffic rationing policy that restricts the use of roadways to private automobiles with registration numbers ending in an odd digit on odd dates and even digits on even dates.

The National Capital Region will prohibit the use of coal as a fuel in industrial and residential units beginning in January 2023. (NRC). The restriction will not, however, apply to thermal power plants, the major consumers of coal.

As evidenced by the World Air Quality Report, India's air quality index (AQI) remains on a dangerous track despite the steps made to combat air pollution.

2. Water Pollution

Water contamination is one of the most important environmental challenges in India. In recent years, the Asian nation has undergone extensive urbanisation and economic progress.

However, this comes with massive environmental costs. In addition to its air, the country's waterways have become exceedingly polluted, with an estimated 70 percent of surface water being unfit for human consumption. Raw sewage, silt, and garbage dumped illegally into India's rivers and lakes have badly degraded the water supply. A near-total lack of pipe planning and an insufficient waste management system are worsening the situation.

Every day, 40 million litres of effluent are discharged into rivers and other water bodies. Due to a lack of suitable infrastructure, only a small portion of these waterbodies receives treatment

According to a World Bank analysis, water contamination might account for up to fifty percent of lost GDP growth in middle-income countries like India. Annually, water pollution costs the Indian government between USD$6.7 and USD$7.7 billion and is related with a 9% decline in agricultural earnings and a 16% decline in agricultural yields downstream.

In addition to affecting humans, with nearly 40 million Indians suffering from waterborne diseases such as typhoid, cholera, and hepatitis and nearly 400,000 deaths each year,

water pollution also wreaks havoc on crops, as infectious bacteria and diseases in the irrigation water prevent them from growing. Eventually, the biodiversity of freshwater is also seriously compromised.

Frequently, the nation's rivers and lakes serve as open sewers for municipal and industrial trash. Particularly the latter, which includes a wide variety of harmful compounds such as pesticides and herbicides, petroleum products, and heavy metals, can kill aquatic organisms by modifying their environment and making survival extremely difficult.

Fortunately, the country has begun addressing the issue by taking steps to improve the quality of its water sources, frequently with the assistance of local companies. The development of water treatment plants that use flocculation, skimming, and filtering to remove the most harmful substances from water is one option.

The renovation procedure at one of the country's largest facilities, located in Panjrapur, Maharashtra, will enable it to produce more than 19 million cubic metres of water per day, enough to supply about 96 million people with access to clean water.

The government is also exploring measures to promote water conservation and industrial water reuse by establishing multiple treatment plants nationwide. Between 2016 and 2019, water reclamation in the eastern Indian metropolis of Chennai increased from 36,000 to 80,000 cubic metres.

Gujarat, a state with more than 70 million residents, unveiled its Reuse of Treated Waste Water Policy in 2019, which intends to substantially reduce Narmada River use. The project calls for the installation of 161 sewage treatment plants around the state, which will provide cleaned water to the industrial and construction sectors.

3. Food and Water Shortages

According to the Intergovernmental Panel on Climate Change (IPCC), India would pay the biggest price for the climate crisis's effects. In addition to extreme weather occurrences such as flash floods and massive wildfires, the country frequently endures extended heatwaves and droughts that deplete its water sources and threaten its agriculture.

Since March 2022, which was the warmest and driest month recorded in the preceding century and a half, the North West has been experiencing a lengthy and record-breaking heat wave. Several days in a row, inhabitants were subjected to

temperatures over 40 degrees Celsius, with some regions reaching 60 degrees Celsius. This record heatwave is a direct symptom of climate change, according to all scientists.

As a result of the inability of lakhs of Indians to work in the intense heat, the heatwave has also contributed to an economic slowdown. The agriculture industry, which employs more than 60 percent of the population, is frequently severely impacted by these sporadic droughts, which threaten food security and sustenance. Currently, farmers are battling to save what's left of the nation's wheat crops, compounding current fears of a global wheat shortage caused by the conflict in Ukraine.

Already among the most water-stressed nations in the world, the heatwave is worsening water shortages across the globe. Even while water tankers are keeping towns hydrated, the supply is insufficient to meet all inhabitants' needs.

However, heat is not the main contributor to water shortage. In an interview with the Times of India, Eshwer Kale, a senior researcher at the Watershed Organisation Trust in Pune, called the national water policy "irrigation-centric."

In fact, more than 85 percent of India's freshwater is used for agriculture. Several states, notably Punjab, Haryana, and western Uttar Pradesh, are now in crisis as a result. The uncontrolled use of water for irrigation, combined with the lack of conservation efforts and the enormous policy vacuum in managing water resources, has rendered almost 10 percent of the country's rural water bodies obsolete.

A 2019 analysis forecasts that 21 major cities, including New Delhi and Bengaluru, India's IT powerhouse, could run out of groundwater by 2030, affecting approximately 40% of the population.

4. Lack Of Waste Management

Lack of waste management is one of the most important environmental challenges in India. As the world's second-largest population, China produces 277 million tonnes of municipal solid waste (MSW) annually.

Experts predict that municipal solid waste would reach 387.8 million tonnes by 2030 and will more than double by 2050. Rapid urbanisation in India makes garbage management increasingly difficult. Presently, around 5% of all collected waste is recycled, 18% is composted, and the remainder is thrown in landfills.

India's plastic crisis is among the worst on the planet. According to the Central Pollution Control Board (CPCB), India produces an average of over 25,000 tonnes of plastic garbage every day, which accounts for over 6% of the country's total solid waste output.

India ranks second among the top 20 nations with the highest proportion of national and global riverine plastic emissions. The rivers Indus, Brahmaputra, and Ganges are regarded as "highways of plastic flows" because they carry and drain the majority of plastic garbage in the country. Together with the ten other most polluted rivers, they contribute roughly 90 percent of all plastics to the ocean.

To address this issue, the government declared in 2020 that it will prohibit the manufacture, sale, distribution, and use of single-use plastics beginning on July 1, 2022. Additionally, around 100 Indian cities will be created as smart cities.

Even though the project is still in its infancy, municipal entities are redrawing the long-term vision for solid waste management using smart technology and awareness campaigns to encourage community engagement in constructing the foundation for new collection and disposal systems.

5. Biodiversity Loss

Loss of biodiversity is last on the list of environmental challenges in India. The Himalayas, the Western Ghats, the Sundaland (including the Nicobar Islands), and the Indo-Burma region are the country's four largest biodiversity hotspots, or locations having significant quantities of animal and plant species that are threatened by human civilization.

According to a report produced by the Centre for Science and Environment (CSE) in 2021, India has already lost about 90 percent of the territory under the four hotspots, with the fourth region being by far the most affected.

Moreover, the International Union for the Conservation of Nature (IUCN) Red List now monitors 1,212 animal species in India, of which over 12 percent are designated as 'endangered' In recent years, 25 species have been extinct in these areas.

16% of India's freshwater fish, molluscs, dragonflies, damselflies, and aquatic plants are threatened with extinction due to water contamination, and the country's freshwater biodiversity has declined by 84%, according to the WWF and the Zoological Society of London (ZSL).

There is, however, more to it. Loss of forest cover is an additional key factor in the country's declining biodiversity. Since the beginning of this century, 19% of India's entire tree cover has disappeared.

While deforestation accounted for the loss of 2.8% of forests, wildfires were responsible for the destruction of more than 18,000 square kilometres of forest per year — more than double the yearly rate of deforestation.

Conclusion

Forest restoration may be key to India's ambitious climate goals, but some argue that the country is not doing enough to stop the destruction of this incredibly crucial resource.

Indeed, despite committing to create an additional carbon sink of 2.5-3 billion tonnes of CO_2 equivalent through additional forest and tree cover by 2030, the Indian government faced backlash after refusing to sign the COP26 pledge to stop deforestation and agreeing to cut methane gas emissions.

The decision was justified by citing concerns over the potential impact that the deal would have on local trade, the country's extensive farm sector, and the role of livestock in the rural economy.

However, given these activities' dramatic consequences on biodiversity, committing to end and reverse deforestation should be a priority for India.