

**IMPACT OF CLIMATE CHANGE ON MARGINALIZED
POPULATIONS: LEGAL RESPONSES AND POLICY
IMPLICATIONS IN INDIA**

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Introduction

A large majority of Indians have continued to ignore the potential effects of environmental exploitation and continue to follow an unsustainable lifestyle. After a prolonged period of preying on environment and its elements, the hazardous effects have started to show up in the recent decades. One of the major effects of the environmental exploitation has been climate change which has evolved as a slow poison over the decades.

Climate change is a growing global concern and affects all parts of the world, however, it affects all nations differently since various factors such as the amount of sunlight it receives, its height above sea level, the shape of the land, how close it is to oceans and the emissions it creates.² Developing countries like India remain to more vulnerable to climate change. India with its unique geographical location and dense population is vulnerable to all types of climate driven natural disasters triggered by human-driven and development and a failure of adhering to existing laws, highlighting a need for a need for improved policy implementation and ensuring climate justice.

"Climate change" means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.³

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²Adger, W. N. (2006). "Vulnerability." 16(3) *Global Environmental Change*, 268-281 (2006)

³United Nations Framework Convention on Climate Change, Article 1 ¶ 2, 1992

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In recent times, India has experienced a significant increase in the number and frequencies of extreme weather events such as heatwaves across the country, flash floods in the North-eastern region including North Bengal, Assam, and Sikkim in 2024, monsoon floods in Mumbai, droughts in various parts of the country, landslides, and wildfires, resulting in water, electricity, and food shortages due to disrupted infrastructure, loss of agricultural productivity, and strained resources.⁴⁵⁶⁷

In India, access to clean air is a significant concern, as reflected by the 2023 Air Quality Index (AQI), which categorizes the air quality as "Unhealthy for Sensitive Groups" with an average AQI of 147. Additionally, the PM_{2.5} concentration in India is 10.9 times the World Health Organization's (WHO) annual air quality guideline value, highlighting the severe air pollution levels. Many Indian cities lack adequate services, including inconsistent and inadequate accessibility to basic necessities such as water, sanitation, and drainage. A considerable amount of metropolitan people live in substandard living circumstances, commonly referred to as "slums". The local environment's health, air, water quality, and solid waste management are seriously damaged and rank amongst the worst on a global scale.

Access to clean drinking water and the right to food are some of the issues that are critically related to climate change. The right to food, recognized as a constitutionally protected right in India, was affirmed by the hon'ble Supreme Court of India in *PUCL v. Union of India* (2001), which declared that the right to food is an integral part of the fundamental right to life under Article 21 of the Indian Constitution.

The daily struggles faced by individuals underscore the importance of ensuring access to a healthy environment, a right guaranteed by the Constitution of India under Article 21, which safeguards the right to life and personal liberty, and Article 14, which guarantees equality before the law. Furthermore, Article 48A directs the State to protect and improve the

⁴S. Chakraborty and A. Dasgupta, "Climate Change and Social Vulnerability in India: A Review of the Evidence and Implications for Adaptation Policies" 12 *Environmental Research Letters* (2017).

⁵ Mishra, A. K. & Singh, V. P. A review of drought concepts. *J Hydrol (Amst)* **391**, 202–216 (2010).

⁶Udmale, P. et al. Rural drinking water issues in India's drought-prone area: a case of Maharashtra state. *Environmental Research Letters* 11, 074013 (2016).

⁷ Dar, M. H. et al. Drought Tolerant Rice for Ensuring Food Security in Eastern India. *Sustainability* 2020, Vol. 12, Page 2214 12, 2214 (2020).

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environment as well as the forests and wildlife of the country, while Article 51A(g) imposes a fundamental duty on every citizen to protect and improve the natural environment, including forests, lakes, rivers, and wildlife, and to have compassion for living creatures.

Climate justice becomes imperative in such a situation and neglecting it would only have far-reaching consequences on the environment and worsen the impact of climate change by increasing structural and socio-economic inequalities and intergenerational inequity. Climate justice entails placing equity and human rights at the core of decision-making.

Ensuring basic human rights act as a bottom-up approach which may possibly reduce concerns related to the increasing climate crisis.

This slow evolution was not recognised by human beings until the change in climate was evidently visible and affecting people. Climate change poses a great challenge to marginalized communities as it amplifies the already existing inequalities in their lives by worsening their situation in social, economic, and environmental disparities.

This pattern occurs because these communities are completely dependent upon nature for their livelihood. These communities generate their daily source of income from their ancestral lands by following traditional practices and are closely linked to their native places where their ancestral lands are located⁸. These people strive to protect their lands and the ecosystems. Due to entry of machinery and destruction equipment, the villages and the other regions which are abundant in minerals, healthy lands etc. are contaminated and wrecked of their original qualities and in a lot of cases, environmentally protected areas are used for industrialisation leading to disastrous consequences. Because of this irreparable destruction, the communities in those areas are affected due to the changes that occur due to disturbances in nature apart from the issues which arise due to dislocation of people.

This directly impacts their capability to protect their native lands and forests which form part of their rich culture, heritage, and traditional knowledge. Therefore, a lot of consequences occur as a direct impact of the modern-day activities.

⁸M. D'Souza, "Climate Change Adaptation and Vulnerability Assessment in India: Legal and Institutional Framework." 31 *Journal of Environmental Law* 393-416 (2019).

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In the context of climate change, climate justice refers to the practice of placing fairness and human rights at the centre of decision-making and behaviour. Within the context of the climate crisis, the idea has been frequently used to allude to the uneven historical responsibility that governments and communities carry in regard to the catastrophe. It suggests that nations, industries, businesses, and individuals who have become wealthy as a result of emitting large amounts of greenhouse gases have a responsibility to assist those who are impacted by climate change. This responsibility can be especially directed towards the most vulnerable nations and communities, as they are frequently the ones who have contributed the least to the crisis.⁹

In addition, climate justice is an essential component of a fair transition towards a future that involves sustainability. The local communities, particularly the informal labourers and other vulnerable and marginalized population of India, have the potential to suffer damage throughout this transition if they are not safeguarded and consulted properly. For instance, there is a growing concern over allegations of abuses of human rights that are associated with the mining of minerals that are required to produce batteries for electric cars. Those individuals who have made the least amount of contribution to the climate catastrophe are now experiencing a disproportionate amount of its effects. The concept of climate justice proposes that the responsibility for tackling climate change should be shared according to who is contributing the most to the issue, while also addressing disparities that are structural, socioeconomic, and intergenerational in nature.¹⁰

There have been various obstacles that have prevented the achievement of climate justice.

Impact On Vulnerable Population

Effects of climate change have a more severe impact on children, elderly population, women and rural and urban poor. Additionally, group of tribals would also be included under this ambit. Not more than often, these groups are placed on the frontlines of the climate change impact due to their extreme dependency on the nature for basic resources such as food, shelter, and livelihood. In addition, they also directly base the traditions and cultures of their community on the nature surrounding them. For example – the Chipko movement is the best

⁹S. Mukherjee and D. Chakraborty, “Is There Any Relationship Between Environment, Human Development, Political and Governance Regimes? Evidence from a Cross-Country Analysis.” 20 *International Journal of Sustainable Development & World Ecology* 385-397 (2013).

¹⁰Zalak Desai and Ying Zhang, “Climate Change and Women’s Health: A Scoping Review”, 9 *Geohealth* (2021).

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example to show how such a group of people are deeply associated with the forest trees and have their faith deeply rooted in them. Due to their belief and faith, the people of that forest followed the idea of hugging the trees of that forest to prevent them from being cut down. There have been similar incidents in all parts of India and around the globe where the local and Indigenous populations of an area which was full of natural resources have tried to protect its sanctity by not allowing capitalists to conquer over something as sacred as forests.

However, even after trying to protect nature for years through rigorous efforts, it has been impossible to do so. On the contrary, the industrialists and capitalists have resorted to relocating people either by offering huge amounts of money or through force. While the bait for money is displayed, they are often betrayed and are left on their own to live a life of poor standards. With the increasing amount of usage of machinery for extraction, the climate has been affected drastically.¹¹ This has been evidently visible lately. As mentioned above, even though these marginalized populations were the only ones trying to protect the nature through rigorous efforts, it cannot be neglected as a fact that because of their direct dependency on nature, they are the first group of people to get affected when the change in climate occurs.

How every vulnerable group is affected in a different manner because of climate change has been mentioned below:

a. Elderly People

Elderly or old-aged people are another category of people who fall prey to the impacts of the climate change. This group of people are totally opposite to the aforementioned group as their development in physical and mental aspects are fully developed. However, these people are aged and therefore, their physical capabilities start dropping. Because of this, they are easily affected by any changes that occur around them in their environment. Therefore, climate change including sea level rise, unexpected rainfall, rise and decrease in temperature highly influence the health and well-being of the elderly people.

Regrettably, a significant number of elderly individuals in the Global South face challenges in terms of physical, mental, social, and financial resources when it comes to mitigating the

¹¹ Thomalla, F., Downing, T., Spanger-Siegfried, et al. "Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation." 30 (1) *Disasters*, 39-48 (2006).

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impact of extreme weather¹². Heatwaves can have fatal consequences for the elderly, as their ability to regulate body temperature diminishes with age. Chronic health conditions like cardiovascular and respiratory disease, diabetes, and susceptibility to dehydration exacerbate the situation.

Over the past two decades, there has been a significant increase in heat-related deaths among individuals aged 65 and above worldwide. Among individuals aged 65-79 years, there were 9,226 heat-related deaths. The situation was even more dire for those aged 80 and over, with a significant increase to 36,848 deaths. These numbers highlight the devastating impact of the heatwave on vulnerable populations.

Heatwaves are not the only concern. Older adults can be seriously injured or even killed because of flooding.

Elderly individuals often face challenges in receiving timely warnings about wildfires due to limited access to phones and other digital communication technologies. Consequently, individuals may be uninformed and unprepared to face imminent threats, which can complicate the process of evacuation. Furthermore, individuals in this situation may face considerable financial setbacks, as they are at risk of losing their own residences and may encounter difficulties in rebuilding their lives with limited financial resources. Research has shown a clear connection between tropical cyclones, like hurricanes, and a rise in hospitalisations among older adults.

It is essential to challenge and debunk ageist stereotypes that portray older individuals as incapable, passive, or disinterested. This is vital to engage and empower the older generation to act on climate change. The impact of climate change will be more severe on older generations compared to younger individuals¹³. As a result, it is crucial for the environmental movement to be inclusive of older people and for policymaking to take into account their specific needs in order to establish a future that is resilient to climate change. List of ways in which climate change impacts elderly populations is discussed below:

- ***Case Studies and statistics – Consequences for Elderly People***

¹² Matthew Prina, Nusrat Khan, Samia Akhter Khan, et al. "Climate Change and healthy ageing: An Assessment of the impact of climate hazards on older people" 14 (04101), *Journal of Global Health*, 5 – 8, (2024).

¹³C. Singh and R. Basu, "How Do Urban Poor Perceive Climate Change and its Risks? Perceptions and Strategies for Addressing Climate Change Impacts in Indian Cities" 18 *Regional Environmental Change* 1025-1039 (2018).

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- Higher temperatures caused by climate change can lead to a rise in mosquito population and their biting activity. Additionally, the increase in rainfall can provide more breeding grounds for mosquitoes. Older adults with weakened immune systems face heightened risks from viruses, which is transmitted by mosquitoes.¹⁴ Certain individuals may experience severe, and in some cases, life-threatening illnesses. Extreme weather events can coincide with other hazards related to climate change. In 2021, the energy infrastructure in Louisiana was severely impacted by Hurricane Ida, resulting in tragic consequences as at least 10 individuals lost their lives due to heat exposure. All participants were of an advanced age. Research indicates that climate change has already led to an increased geographical distribution for ticks. This could potentially increase the vulnerability of a wider range of individuals, including older adults, to the transmission of Lyme disease. If left untreated, Lyme disease can lead to long-lasting pain and complications affecting the nervous system.¹⁵
- In 2003, Paris, France experienced a severe heat wave; satellite images have shown a noticeable temperature difference of 1° to 2° during day and night, both between urban Paris and a nearby rural suburb. Although the temperature difference may appear insignificant, older individuals living in the city faced a mortality risk that was twice as high as their suburban peers of the same age and gender. The difference in mortality rates was linked to the properties of concrete and cement, which retained heat for longer periods during the nights in Paris compared to the cooler, greener suburbs. The consequences of these heat waves are significant.

b. Children

Due to the nature of their helplessness and being extremely susceptible to even minor changes, children fall amongst the most vulnerable population. The high susceptibility is because of their physical and developmental stages of body and health. Further, this is also because children are not fully mentally developed until they reach the age of adulthood i.e. 18 years of age in India.

Extreme weather occurrences such as floods, extreme and sudden temperature rises and falls, and other storms can not only cause physical suffering but also psychological trauma if they

¹⁴S. M. Krishna and R. Singh, "Legal and Policy Responses to Climate Change in India: An Overview" 19 *Climate Policy* 216-230 (2019).

¹⁵A.K. Gupta and P.K. Singh, "Climate Change and its Impact on Water Resources of India: Challenges and Opportunities" 6 *Journal of Environmental Research and Development* 354-365 (2012).

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are confronted with natural disasters on a big scale. These harms will impede their complete growth and potential by causing starvation, infections, and even disrupting their education, which is critical for them to maintain the possibility of civilisation. As droughts and flooding continue to worsen, the impact on food production is becoming increasingly concerning. Unfortunately, it is the children who will suffer the most from hunger and malnutrition¹⁶. With rising temperatures, coupled with limited water availability and worsening air quality, children will bear the brunt of water-borne illnesses and respiratory ailments, which can be life-threatening. As the frequency of severe weather events continues to rise, the impact on emergencies and humanitarian crises is becoming more widespread. Unfortunately, it is the children who bear the brunt of these consequences. With the ongoing increase in climate-induced migration, it is the lives and futures of children that will be most profoundly affected. Climate change impacts children in the following ways:

- ***Case Studies and Statistics – Climate Change Consequences on Children***

With the information presented above, it is evident that people are facing various impacts because of the occurrence of the climate change. It has caused various conditions such as drought, flood, air pollution and water scarcity which is directly proportional to the harm caused to the children as they are the one of the most vulnerable groups to diseases, malnutrition and other infections. This section analyses the international perspective of how the children have been affected worldwide.

- A report released by UNICEF ahead of the 21st United Nations climate change conference, known as COP21, highlights the concerning situation of over half a billion children residing in regions with frequent and severe floods, as well as 160 million children living in areas prone to intense droughts. These children are particularly vulnerable to the adverse effects of climate change. Out of the 530 million children residing in flood-prone areas, a staggering 300 million are in countries where over half of the population lives in poverty, surviving on less than \$3.10 a day¹⁷. Among the residents of regions with severe drought conditions, a staggering 50 million individuals reside in countries where over half of the population struggles with poverty.

¹⁶J. Roy and D. Hulme, "Poverty Alleviation and Climate Change in Indian Urban Centres: A Case Study of Bhopal" 18 *Environment and Urbanization* 197-209 (2006).

¹⁷ COUNCIL ON ENVIRONMENTAL HEALTH. "Global Climate Change and Children's Health." 136(5) *Pediatrics*, 992-7 (2015)

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- According to a study, there is a higher likelihood of stunting among children under the age of three who were born in Niger during drought years compared to those born in non-drought years. In rural pre-school children in India, severe droughts were found to be linked to vitamin A deficiencies.

c. Women

The susceptibility of women to climate change arises from various factors, including social, economic, and cultural aspects. Women make up 70% of the 1.3 billion individuals living in poverty. Women are the heads of 40% of the poorest households in urban areas. Women are the primary force behind global food production, accounting for 50-80% of the work. However, their ownership of land remains shockingly low, at less than 10%.

Women play a crucial role in impoverished communities, especially in rural areas, where they bear the primary responsibility for household water supply, cooking, and heating, and ensuring food security. These communities heavily rely on local natural resources for their livelihood.

Pregnant women are particularly susceptible to the health risks associated with air pollution, as their respiratory and cardiovascular systems are more fragile and prone to damage.

Women primarily participate in subsistence farming, with a focus on horticulture, poultry, and raising small livestock for household consumption. There is a significant disparity in women's access to and control over environmental goods and services. Their participation in decision-making is minimal, and they are excluded from the distribution of benefits related to environmental management. As a result, women have a reduced capacity to address the challenges posed by climate change.¹⁸

During periods of severe weather conditions like droughts and floods, women often find themselves working harder to ensure the well-being of their households. Women will have limited opportunities to access training and education, develop skills, or earn income.

When a disaster strikes, women often face barriers that prevent them from migrating, seeking refuge, or working in other areas due to socio-cultural norms and childcare responsibilities. Women are disproportionately affected by this situation, as they are forced to travel longer

¹⁸R.K. Chaturvedi and P.R. Shukla, "Role of Energy in Sustainable Development" 14 *Climate Policy* 451-468 (2014).

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distances in order to obtain drinking water and wood for fuel¹⁹. Gender inequalities are prevalent in many developing countries, where women face challenges in terms of human rights, political and economic status, land ownership, housing conditions, exposure to violence, education, and health. Climate change will further compound the vulnerability of women, adding to their existing stressors. It is well-established that in times of conflict, women are subjected to increased levels of domestic violence, sexual harassment, human trafficking, and sexual assault.

The vulnerability of women results from various barriers where efforts have been put to improve the situation. However, it could not be done because of the lasting effects of patriarchy and misogyny which constantly undermines their importance and efforts.

Case Studies and Statistics – Climate Change Consequences on Women

- The impact of climate change is increasingly challenging the management of household responsibilities such as cooking, cleaning, resource gathering, and childcare. This is particularly evident in isolated rural areas. Water quality can be negatively impacted by natural disasters and the intrusion of saltwater due to the rising sea levels. In certain regions of India and Bangladesh, women have been confronted with health issues and experienced a decline in their economic opportunities due to the increasing salinity of rivers.
- An investigation into the tea plantations in Darjeeling, West Bengal, reveals that in recent years, the increased reliance on fertilizers in tea production (a response to climate and ecological degradation) has had a significant impact on female tea workers, who are often hired at lower wages in tea gardens. They have experienced a range of health issues, including vision loss, skin infections, decreased appetite, and respiratory problems. The agricultural workforce in rural India is predominantly made up of women, making this sector particularly susceptible to the impacts of climate change. Despite of their extensive expertise and deep understanding, they still face significant limitations in terms of land

¹⁹S. Bhadwal and R. Singh, "Rural Urban Disparity: An Assessment of Climate Change Impacts on the Urban Poor in India" 6 *Indian Journal of Human Development* 75-96 (2002).

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ownership and financial resources. This places them at a disadvantage when it comes to addressing any climate-related crisis.²⁰

- Another report from Bihar sheds light on the consequences faced by women in the wake of floods. It reveals a disturbing rise in domestic violence, a surge in trafficking under the guise of marriage, a growing bias towards male offspring, and cases of mistreatment within the flood relief camps.
- The situation of water wives in rural Maharashtra highlights yet another connection between climate change and the growing exploitation of women. In response to the issue of water scarcity caused by droughts and inadequate water infrastructure, the men in the village have adopted the practice of marrying multiple wives. The purpose of these marriages is solely to ensure a sufficient water supply in each household. Women in the most impoverished rural areas dedicate nearly two and a half months each year solely to the task of fetching water. Moreover, there has been a noticeable rise in both, the distance women have to travel and the number of households that must undertake this arduous journey for water. Once more, it becomes evident that women are disproportionately affected by the climate crisis due to their assigned gender roles and the prevailing gender inequality.

d. People with disabilities

Disability is an inherent aspect of the human experience. Disability is a common experience that can affect individuals for a short period or even for the long term. Approximately 1.3 billion individuals, which accounts for roughly 16% of the world's population, currently face substantial disability. The rise in this figure can be attributed to the ageing population and the growing occurrence of noncommunicable diseases.

Disability arises from the interplay between individuals who have health conditions like cerebral palsy, Down syndrome, and depression, and various personal and environmental factors. These factors encompass unfavourable attitudes, inaccessible transportation and public buildings, and a lack of social support.

The experience and extent of disability can be greatly influenced by a person's environment. Barriers arise from environments that are not easily accessible, impeding the full and

²⁰N.K. Dubash and N.B. Joseph, "India and Climate Change: Evolving Ideas and Increasing Policy Engagement" 9 *WIREs Climate Change* 512-522 (2018).

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meaningful inclusion of individuals with disabilities in society, preventing them from participating on an equal footing with others.²¹

The occurrence and severity of extreme weather and climate events are being amplified by climate change. Climate change is significantly affecting the daily lives of individuals with disabilities, whether through sudden and intense disasters like cyclones and floods, or through gradual changes such as temperature increases and droughts. Their chances of survival in disasters are significantly lower, with a fourfold increase in mortality rates. It is crucial to promptly address their susceptibility to disasters.

People with disabilities are frequently neglected during cyclones or floods, particularly in communities where there is still a strong stigma surrounding disability. Based on the findings of the United Nations Office for Disaster Risk Reduction (UNDRR), it is concerning to note that a mere 25% of individuals with disabilities possess the ability to effortlessly comprehend and adhere to evacuation instructions during a disaster. Additionally, a mere 11% of these individuals report being knowledgeable about the presence of a disaster management plan within their community. People with disabilities who successfully evacuate also encounter specific risks to their safety and well-being. Individuals in emergency shelters or situations of forced displacement are at a higher risk of experiencing violence, exploitation, and abuse. Young women with disabilities, for instance, face a heightened vulnerability to gender-based violence.

These individuals are frequently overlooked and face significant social stigma, resulting in challenges when it comes to accessing essential services such as healthcare and employment opportunities.

Certain individuals may face challenges in accessing their glasses or wheelchairs, further complicating their search for shelter. Additionally, there are those who may be unable to obtain their necessary medications, thereby increasing the potential risks to their lives. Moreover, there are challenges in obtaining essential necessities such as water and food.

Climate change also affects people's ways of making a living. All communities experience similar economic losses as a result of climatic hazards. However, individuals with disabilities, who often face greater economic vulnerability, encounter even greater challenges in safeguarding their livelihoods or bouncing back from setbacks.

²¹Thomalla, F., Downing, T., Spanger-Siegfried, et al. "Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation." 30 (1) *Disasters*, 39-48 (2006).

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Legislative Framework – Key Enactments

India has a comprehensive set of legislations related to the environment. These enactments primarily focus on the improvement, protection, and prevention of the damage to the environment by the modernized revolutions. The revolutions such as the Green Revolution, White Revolution and the Technological Revolution have led to the massive exploitation of the natural resources thereby destroying the mother nature. When these revolutions began to come into existence, the government realized the need for environmental legislation and therefore, as a result, adopted many legislations which would prevent and protect the natural habitat while not inhibiting the growth of the industries and infrastructure of the country. Some major environmental laws have been discussed below to give an understanding of how these legislations are relevant in the context of protection of environment and climate change.

○ **Environment Protection Act, 1986²²**

Following the Stockholm Conference in 1972²³, which emphasised the importance of international environmental protection, the Bhopal Gas Tragedy of 1984 and served as a stark reminder of the pressing need for a comprehensive domestic law on environmental protection. As a result, the Environment (Protection) Act of 1986 was deemed necessary. The Act's Preamble outlines its purpose as the safeguarding and enhancement of the environment. Its purpose is to safeguard the well-being of humans, animals, plants, and property by mitigating environmental risks. The initiative covers the entire nation of India and has the objective of preventing, controlling, and reducing environmental pollution. India actively took part in the conference and strongly voiced its concerns regarding the environment. The Environment (Protection) Act, 1986 was enacted by the Indian Parliament to effectively implement the decisions made at this conference. This exercise of power under Article 253 demonstrates the commitment to address environmental concerns.

Here are the primary reasons for enacting this legislation:

- a) To effectively carry out the important resolutions made at the United Nations Conference on the Human Environment in Stockholm in June 1972, regarding the preservation and safeguarding of the environment.

²²The Environment (Protection) Act, 1986 (Act No.29 of 1986)

²³General Assembly, *United Nation Conference on the Human Environment*, UN GAOR, UN Doc A/Conf.48/14/Rev.1 (June 05, 1972).

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- b) India has had pre-existing legislation pertaining to various aspects of the environment. However, there was a need for a comprehensive set of laws to address the gaps in the existing ones. Therefore, it was implemented to establish comprehensive legislation for environmental protection and address previously unaddressed areas of environmental hazards.
- c) The objective is to establish new authorities that will safeguard and enhance the environment, while also effectively coordinating with existing authorities established by previous legislation²⁴.
- d) To ensure that those who pose a threat to the natural environment face severe consequences for their actions, to deter others from engaging in similar behaviour and to safeguard the well-being of our planet.
- e) To promote the expansion of subordinate and delegated legislation pertaining to ecologically sensitive subjects and the protection of the environment. To foster sustainable development, it is crucial to strike a harmonious balance between overall progress and the preservation of our environment.

• **Water (Prevention and Control of Pollution) Act, 1974²⁵**

It has been an acknowledged fact that water is one of the most essential elements for the survival of the living beings on the earth. Therefore, in view of the same, it is extremely important for us to protect it from being polluted and thus, to preserve freshwater is our duty. The Water (Prevention and Control of Pollution) Act of 1974 prescribes the standards and other procedures that the industries must follow in order to ensure that the pollution of water is prevented and controlled to a major extent without compromising the development of the nation. Further, the Act also prescribes certain different rules for the industries or plants being set up around the coastal areas. These rules and procedure vary according to the zone where the industry is being planned to establish, fall into. We shall discuss the important provisions of the act.

The Act has several key objectives which are given as below:

- These include preventing and controlling water pollution, as well as maintaining or restoring the quality of water.

²⁴Supra Note 22

²⁵The Water (Prevention and Control of Pollution) Act, 1974 (Act No. 6 of 1974)

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- It also aims to establish both Central and State Boards that will be responsible for the prevention and control of water pollution. These Boards will be given the necessary powers and functions to carry out their duties effectively. The Act covers various matters connected to water pollution and its control.
- To effectively assess pollution levels, set standards, and identify any wrongdoing, it is crucial to establish water testing laboratories at both the Central and State levels. Additionally, penalties should be imposed for any violations of the Act.

- **Air (Prevention and Control of Pollution) Act, 1981²⁶**

Just like water, air is another element that is important for the survival of the living beings on the earth. Oxygen is one of the most important gases in the atmosphere on which we are primarily dependent as no other gas substitutes for oxygen. However, it is a known fact that oxygen is produced by the process of photosynthesis which is a process performed by the plants. It is a beneficial process not only for the generation of oxygen but also because it takes up the carbon dioxide presents in the atmosphere. But due to the excessive deforestation of the forests and other areas abundant in trees, this process would be performed by lesser trees which in turn will be harmful to the human beings and animals.

Sweden initially proposed to the United Nations the idea of a worldwide conference aimed at addressing and mitigating the issues of pollution and the deterioration of natural resources. As a result of General Assembly Resolution 2398, the United Nations Conference on the Human Environment took place in Stockholm in June 1972²⁷. During the conference, it was agreed upon that the participating countries would take measures to protect the environment, including air quality. As per the Indian government's initiative, specific laws were enacted under Article 253 of the Indian Constitution to ensure the preservation of natural resources. One such law, the Air (Prevention and Control of Air Pollution) Act, 1981, was introduced to address the issue of air preservation.

The Act has been implemented to address the issue of air pollution. The Act has established rules for the creation of the Air Quality Control Board, as outlined in Section 3 and Section 4 of the Act. The primary role of the Board is to effectively manage and regulate the level of air pollution in India, in accordance with the provisions outlined in Section 16 and Section 17 of

²⁶The Air (Prevention and Control of Pollution) Act, 1981 (Act No. 14 of 1981)

²⁷See Supra Note 22

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the Act. The primary objective of the Act is to enhance air quality through the establishment of regulations that govern industrial pollution, manage emissions from industries to safeguard the environment, and implement measures to safeguard human health. The government has the authority to establish regulations when deemed necessary, in accordance with Section 53 and Section 54 of the Act²⁸.

Constitutional Provisions

The Constitution of India is the law of the land. This means that our constitution is the highest law of our country, and everyone has to mandatorily abide by it. There are various articles in our constitution which talk about the rights and duties of the citizens of the country to have a healthy environment around them.

One of the most important articles of the Constitution of India is Article 21 which is a fundamental right. According to the Article 21, no person should be deprived of his life or personal liberty except according to the procedure established by law. On a plain reading, the article implies to have a narrow scope and extent. However, when we dive deep into this article, it can be discovered that the scope of it is quite wide and touches almost all the topics related to a person's healthy life.

While the above article implies a right of the citizen of the country, Article 51-A (g) casts a duty upon the citizens of the country. Article 51-A (g) states that it is the fundamental duty of the citizens to protect and improve the natural environment and to have compassion towards the living creatures. Further, Article 48 – A also casts a fundamental upon its citizens by stating that it is the duty of the citizens of the nation to contribute in protection and improvement of the environment and safeguarding the forest and wildlife as well.

THE ROLE OF THE JUDICIARY AND CASE LAWS

- **The Role of Judiciary**

The judiciary in India has been playing a crucial role in addressing complicated and multifaceted issues. One of those issues is the climate change and the threat it is posing on the people of the country. The Indian Courts have been entrusted with the work to interpret the provisions in such a manner that the justice is provided, and the common interest of the

²⁸The Air (Prevention and Control of Pollution) Act, 1981 (Act No. 14 of 1981)

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public is preserved when it is in good faith. Therefore, the role of judiciary plays an important role even though it is not directly involved in the implementation of the rules which is the work of the executive wing. The proactive approach of the Judiciary helps in dealing with the threats efficiently by preventing and taking precautionary measures for the upcoming dangers that are caused by the decade-long exploitation of mother nature²⁹. It not only is entrusted with the responsibility of interpreting laws but also has the duty to shape a better future by introducing policies and other protection measures for the environment. The Indian judiciary plays the following role -

➤ ***Ensuring Enforcement***

One of the key roles of the judiciary includes the duty to ensure the enforcement of the environmental laws that already exist in India. India has a comprehensive and diverse range of legislation for the purpose of protecting the environment. Various laws have been there like Forest Act, Environment Protection Act, Air Act, Water Act, etc. All these acts together ensure that the health of the environment is not compromised while trying to develop the infrastructure of the nation. However, the problem lies in the practice. These environmental legislations are not taken seriously which results in poor implementation of the policies laid therein. Further, the task of demanding accountability and conviction becomes much more difficult as people do not consider these cases material.

Therefore, it is the duty of the court to make sure that all those approvals are obtained by the concerned authorities and locals in whose vicinity such manufacturing units are being set up. This will ensure that the enforcement of the checks and balances included in the legislation is being followed properly.

➤ ***Guardian of Public Interest***

One of the Judiciary's primary roles is to protect the interests of the citizens of a nation. All judgements, steps, policies, and other adjustments proposed or implemented by the Judiciary must be in the public's best interests. This is done to ensure that government agencies and authorities are adhering to the Constitution's Preamble, which declares "Of the People, By the

²⁹Kerrie Proulx, Bernadette Daelmans, Valentina Baltag, et al. "Climate Change Impacts On Child and Adolescent Health and Well-Being: A Narrative Review", 14 (04061) *Journal of Global Health*, (2024).

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People, and For the People". To ensure that the voices of the people in the country are heard and heeded, the court is tasked with investigating problems known as PILs. This way, the courts can navigate through the problems of the public and address them to pronounce meaningful landmark judgments.

➤ ***Promoting Wide Interpretation***

The courts have generally used the literal or strict rule of interpretation, which limits their interpretation scope to the ordinary meaning of the words specified in the statute. As a result, in cases when the law was worded in such a way that it might be stretched as needed, the courts confined themselves by using the literal rule of interpretation and did not find in favour of the environment. However, in recent years, courts' approaches to reading statutes have shifted dramatically. Therefore, a simple look at key rulings in recent years will indicate that the Courts have been actively recognising the robust legal framework that was built to address difficulties. As a result, by applying the broad interpretation rule, the courts have stated in their decisions that the procedures outlined in environmental legislation are prescribed for a reason and should be followed by manufacturers several times³⁰. Furthermore, through different rulings, the judiciary has broadened its scope and thrived in promoting sustainable development that benefits future generations. Sustainable development goals simply entail meeting current demands while saving for future generations. Furthermore, in its decisions, it has included principles such as the Precautionary notion, the Polluter-Pays Principle, and the notion of preventive action.

- **Case Laws**

Further, the primary role of the Judiciary is pronouncing judgements as we have discussed above. Below are some of the landmark judgements that paved the way for the judiciary to shift its focus from literal interpretation to wide interpretation to include environmental and climate change effects.

³⁰S. Mukherjee and D. Chakraborty, "Is There Any Relationship Between Environment, Human Development, Political and Governance Regimes? Evidence from a Cross-Country Analysis." *20 International Journal of Sustainable Development & World Ecology* 385-397 (2013).

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➤ *MK. Ranjitsinh & Ors. v/s Union of India*³¹

Background:

- The Supreme Court had previously ordered that a significant portion of the territory should not be used for overhead transmission lines and instructed that these lines be converted to underground power lines within a year.
- A committee was appointed to determine the feasibility of laying high voltage underground power lines.

Current Case:

- The Ministry of Environment, Forests, and Climate Change, the Ministry of Power, and the Ministry of New and Renewable Energy (MNRE) requested a modification of the April 19, 2021 judgement.
- The ministries argued that the judgement's implementation would adversely affect the power sector and India's international energy transition commitments.

Supreme Court's Considerations:

1. **Risks to Great Indian Bustards:** The Court studied the threats to GIBs and the government's conservation efforts, including the "Habitat Improvement and Conservation breeding of Great Indian Bustard" initiative started in 2016.
2. **Climate Change and Renewable Energy:** The Court examined the implications of climate change and India's efforts to control it. It emphasized the importance of promoting renewable energy for social equality and inclusive growth.
3. **Constitutional Responsibilities:** The Court highlighted the State's duty under Article 48A of the Indian Constitution to protect the environment and the fundamental duty of citizens under Article 51A. It linked these responsibilities to Articles 21 (right to life and personal liberty) and 14 (equality before the law).

Outcome:

- The Supreme Court balanced the need for wildlife conservation with the necessity of transitioning to renewable energy.
- The Court underscored the constitutional mandate to protect the environment while ensuring that energy transition efforts do not compromise the conservation of endangered species.

³¹*M.K. Ranjitsinh v. Union of India*, AIR ONLINE 2021 SC 209

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This case underscores the complex interplay between environmental conservation and sustainable development, highlighting the judiciary's role in navigating these challenges.

➤ **TN Godavarman v/s Union of India³²**

Background: In 1995, T.N. GodavarmanThirumulpad filed a writ petition in the Supreme Court of India to protect the forest areas of the Nilgiris, which were being destroyed by illegal logging operations. This case, known as "The Forest Case in India," marked a significant moment where the Supreme Court took on roles beyond its traditional judicial functions, acting as an administrator, legislator, and policymaker.

Key Issues:

Forest Conservation: The primary concern was the protection and sustainable management of India's forests.

Judicial Approach: The Supreme Court's involvement in administrative and legislative functions raised questions about judicial overstepping its constitutional authority.

National Forest Policy: The case involved extensive hearings on the National Forest Policy, leading to interim directives to ensure proper enforcement of forest laws across India.

Supreme Court's Actions:

Sustainable Use Orders: The Court issued orders for the sustainable use of forest resources and suggested a self-monitoring system.

Significant Rulings:

Forest Conservation Act: The Court ruled that the Forest Conservation Act aimed to preserve forests and protect wildlife. Any diversion of forest land for non-forest purposes required adherence to the law and careful consideration.

Directives: The Court issued specific directions to both the Federal and State governments to ensure the protection and preservation of forests.

³²*T.N. GodavarmanThirumulkpad v. Union of India*, AIR 1997 SUPREME COURT 1228

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POLICY GAPS, SUGGESTIONS AND CONCLUSION

• Policy Gaps in Environmental Legislations

In the opening line of the judgement of the Supreme Court on CRZ pertaining to the Indian Council of Enviro-Legal action vs. Union of India 1996, the Judiciary acknowledges that if laws alone could guarantee a clean environment, India would likely be free of pollution. However, it goes on to express the opinion that despite the enactment of numerous laws, the desired outcome has not been achieved due to their inadequate implementation.

There are certain key challenges and gaps in the policies, or the legislations enacted by the legislature which makes it difficult for the implementation of the Act enacted for a specific purpose. In other words, it can be said that the gaps also lead to difficulty in achieving the purpose for which the legislation has been enacted or introduced. Some of the challenges and gaps are as follows:

- One of the most significant legal gaps in the environmental legislation of India is the extreme or excessive reliance placed on the Judiciary to investigate and enforce the matters related to the environmental protection. It is an already acknowledged fact that India, even though having a comprehensive framework in environmental law, lacks in protecting the environment because of its poor implementation and enforcement of such laws by the regulatory bodies or authorities established to address such matters. However, with this failure of the bodies established under Acts to supervise the matters, the burden has disproportionately fallen on the Supreme Court and the National Green Tribunal established under the National Green Tribunal Act.
- The above said failure usually results from the inefficiency of the Control Boards established under the Acts which are – Central Pollution Control Board and the State Pollution Control Boards as under the Water (Prevention and Control of Pollution) Act and Air (Prevention and Control of Pollution) Act. Usually, this inefficiency might occur due to inadequate resources or lack of knowledge and expertise. The extreme reliance on the Apex Court and the NGT has made it difficult because there are many cases that are already lined up for hearing and are presently pending in the Court. The petitions filed in the concern of environmental degradations are usually the cases that require an immediate action to be taken. Therefore, this reliance creates a delay which in turn partially destroys the purpose for which the petition was filed in the Court.

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➤ **Institutional**

Not only the above-mentioned but also there can be certain institutional problems that can lead to the gaps in the proper implementation. Lack of technical expertise can be one such reason. With each passing day, there are various industries and new scientific techniques coming up. Due to this novelty striking every day, a lack of expertise in such fields can be experienced as not human beings cannot be acquainted with the new technology as fast as a machine. Therefore, the expertise building takes time as it is learning process. Further, lack of man power can be another reason³³. The ratio of vacancies to the ratio of job appliers is highly disproportional due to which the man power in the fields of expertise is less. Further, where there are high number of vacancies, the applicant fail to score the prescribed marks due to which the vacancies are not filled in. All of this ultimately leads to delay of cases thereby destroying the very purpose of filing it.

• **Suggestions**

After looking at the legal gaps and challenges that are preventing India's comprehensive legal framework for environmental law from achieving its purpose, there can be certain suggestions which can be made in order to meet the needs of the environment. Some of them are as follows:

- One of the prime suggestions is to utilize the loopholes highlighted in case from the defendant's side to fix the loopholes in the environmental legislations to amend it to such an extent that such gaps are filled. This will not only help the judiciary and legislature to know the loopholes, but it can effectively address the shortcomings in the existing provisions for the benefit of the public.
- A good practice is to regularly amend the provisions in the Acts to avoid the legal gaps. The frequent legal amendments will enable the legislation to be in up to date with the present scenario, which would further help in, better implementation and procedure prescription along with penalties.
- Another key suggestion would include that the legislature should focus on a balanced approach and allow the participation of public in the implementation of the act. For example – the environmental impact assessment, in which, the people residing are given

³³ Thomalla, F., Downing, T., Spanger-Siegfried, et al. "Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation." 30 (1) *Disasters*, 39-48 (2006).

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an opportunity to know the details of the industry being set up and to give consent regarding it. More such measures must be involved to make it balanced from both sides.

- Further, the lack of technical expertise, knowledge and man power must be addressed properly to strengthen these aspects. This is crucial because without these aspects, the re formulation or amendments of the legislations would generate no benefit.
- Voluntary population control by influencing minds of people through soft power tools such as mass media and by raising standards of education in starting with the most populated states of the country such as Uttar Pradesh, Maharashtra, Bihar, West Bengal, and Madhya Pradesh especially in rural areas.
- It should also be made compulsory for all government employees to send their children to government schools for raising standard of education across India as the standard of education can only be raised and paid attention to by policymakers and people in powerful positions such as ministers, civil servants or anyone who is on the payroll of the Government of India.
- Reverse migration as an effective way of reducing overpopulation to cities due to lack of jobs and financial security by ensuring fundamental rights.
- 80% of the increased human exposure to heat stress in India can be avoided by adhering to Paris Agreement's temperature goals of limiting global warming to 1.5 degrees Celsius, compared to 3 degrees Celsius warming.
- Greater emphasis needs to be placed on both climate change mitigation and climate change adaptation to avoid large increases in risk to both human and natural systems.

CONCLUSION

Following a thorough analysis of the complexities of climate change and its impact on vulnerable populations, it is possible to conclude that climate change has greater impact on all vulnerable groups. Various environmental legislations have been enacted to safeguard nature from being over-exploited. The judiciary has carefully considered environmental issues, including the harmful effects that climate change has had on living species on Earth. However, the comprehensive legal framework falls behind on certain critical gaps which hinder its effective implementation. These gaps need to be filled with urgency with stricter enforcement of law and legal policies across various sectors and industries. Additionally,

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there is a great need to improve the public awareness by conducting mandatory programs locally for better participation of people in environmental decision-making processes.



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