



EQUICLIMATE Vulnerabilities of the Vulnerables

VASUNDHARA ISSUE 14 | FEBRUARY 2024 Eco Club, TERI SAS brings to you "EquiClimate: Vulnerabilities of the Vulnerable", the fourteenth edition of Vasundhara magazine, curated to shed light on the disproportionate impact of climaterelated challenges on marginalized communities, who are often the least responsible for environmental degradation. The information in the magazine is for general use only and has been compiled from various research papers, articles, and government databases. Some personal experiences and anecdotes have also been shared for which we extend our sincere gratitude to the contributors. The content is accurate to the best of our knowledge as of February 2024. We apologize for any inadvertent errors that may exist.

Email: vasundhara.ecoclub@terisas.ac.in
 Instagram: @ecoclubtsas
 Twitter: @ecoclubtsas

X Twitter: @ecoclubtsas f Facebook: @ecoclubtsas

THE TEAM

>>>> EDITORIAL

EDITOR: Sunaina Saxena, (M.Sc. Economics) SUB-EDITOR: Anshika Sah, (M.Sc. ESRM), MANAGING EDITOR: Soumit Pandey,(M.Sc. Economics) LEAD: Pratha Mishra, (M.Sc. WSG) Aakash Ghosh, (M.Sc. Economics) Anukriti Sharma, (M.Sc. ESRM) Deepali Singh, M.B.A (SM) Gautam Matta, (M.Sc. Economics) Raghunandan Nair, (M.Sc. ESRM) Rishu Gupta, (M.A. SDP) Vaishnavi Pandey, (M.Sc. Economics)

>> CONTENT

LEAD: Aakriti Arora, (M.Sc. Economics) Abhiniti Gupta, (M.Sc. Economics) Anuja Ramugade, (M.A. SDP) Meghma Mitra, (M.Sc. WSG) Pratha Mishra, (M.Sc. WSG) Pritish Kumar Acharya, (M.Sc. Economics) Purvi Gupta, (M.Sc. ESRM) Rajlakshmi Choudhary, (M.Sc ESRM) Sana Grover, (M.Sc. Economics) Yamine Gupta, (M.Sc. Economics)

>>> DESIGN

LEAD: Rayena Sarkar, (M.Sc. WSG) Arundhati Powdel, (M.A. SDP) Kanishka Pathak, (M.A. SDP) Mansi Vatwani, (M.Sc ESRM) Prachi Mahale, M.B.A (SM) Sakshi Saini, (M.Sc ESRM) Vaishnavi,(M.Sc. Economics) Vikas Meena, (M.Sc. WSG)



Jasundhara

e Chancellor's Note	1
tor's Note	2
ilimpse Through the Eyes of the nerable (Unveiling the Delhi ods in 2023)	3
e Disparate Impact of Climate ange on Women: Examining nerability Through a Gender Lens	5
eathing Against the Odds- The pact of climate on health parities in urban marginalized mmunities	7
m Warriors to Victims: The going Plight of Displaced Tribals	9
rturing Resilience: Impact of mate Change on Farmers	11
mate Change-Is there time to are?	13
e Global Landscape of Atrocities Climate Injustice	15
ste, Climate and Conscious nversations with Ajmal Khan	17
ocities of Climate Change and its sed impact - A Visual oresentation	19
mate News	21
torial Board	23
ferences	25
	X



FROM THE VICE CHANCELLOR'S DESK

I am pleased to present another edition of our magazine. This issue has focused on the vulnerable populations disproportionately affected by the changing climate. Our editorial team and contributors have embarked on a journey to inequity and injustice in climate actions- the marginalised, the impoverished, and the often overlooked. We must shed light on their stories. struggles, and resilience.

For example, the issue of injustice is evident from differential water supply norms that apply to municipal areas & slums, which are 135 and 40 lpcd, respectively, in many cities. So, how can we imagine 'total sanitation' in areas where water supply norms are differential, biased and very low? The challenges are further aggravated by the fact that the people in municipal areas are considered consumers, and urban local bodies are the service providers who do implementation, operation, and maintenance. In contrast, schemes for slums are often designed where the people are considered beneficiaries and are expected to share the scheme's operation and maintenance burden.

Through feature articles, insightful interviews, and visuals, the magazine aims to amplify the voices of those on the front line of climate vulnerability. The goal here is not just to raise awareness but to inspire action. From individual choices to community initiatives and global policies, every action matters. There are also inspiring stories of community-driven adaptation and collective action. Let these serve as a source of inspiration and motivation for all of us.

It is a time to stand together, united in our commitment to creating a sustainable and just world for all, especially those most vulnerable. Thank you for joining us in this advocacy.

PROF. ARUN KANSAL, VICE CHANCELLOR (OFFICIATING)

Editor's Note

99

Over the years, the global community has grappled with the consequences of climate change, stemming from increasing anthropogenic activities. To illuminate similar narratives, the fourteenth edition of Vasundhara, titled "EquiClimate," aims to explore the theme of "Climate Injustice: Vulnerability of the Vulnerable."

In this edition, we delve into intricate stories based on marginalized communities, often burdened with disproportionate impacts of climate-related challenges despite being perhaps the least responsible. This issue weaves together insightful articles, a thought-provoking interview, and captivating visuals.

We explore climate vulnerabilities, weaving together stories of the multifaceted impacts of climate change. Our articles provide a compelling narrative about the harrowing Delhi floods of 2023, the plight of displaced tribal communities, and health disparities in urban marginalized settings. Another article discusses agricultural struggles under climate change, focusing on innovative approaches and community-driven initiatives that promote resilience and sustainable farming.

Through a gender-focused lens, the article on "Disparate Impact of Climate Change on Women" uncovers the disproportionate effects of climate change on women. From heightened risks during natural disasters to the unique challenges faced in the aftermath, we aim to amplify the voices of women who bear the brunt of climate injustices. In the article 'The Global Landscape of Atrocities of Climate Injustice, our exploration culminates in a comprehensive look at the global landscape of climate injustices. From environmental refugees to geopolitical ramifications, this article connects the dots, offering a holistic view of the atrocities unfolding worldwide. Also, the urgency of working towards climate change has been highlighted, questioning the ticking clock of climate change and the pace of efforts towards that. "EquiClimate" is more than a collection of articles; it's a call to action, urging readers to confront the realities of climate vulnerabilities and join the collective effort towards a sustainable and resilient future.

Our mission is not only to inform but also to leave readers with food for thought towards understanding the injustices faced by those who are least responsible for the climate crisis. Team Vasundhara invites you to join us in this journey of critically examining the vulnerabilities faced by marginalized communities in the face of a changing climate.

Thank you for embarking on this enlightening journey with us.

SUNAINA SAXENA EDITOR-IN-CHIEF, VASUNDHARA 14TH EDITION





A GLIMPSE THROUGH THE EYES OF THE VULNERABLE

(Unveiling the Delhi Floods in 2023)

India has been experiencing very erratic weather conditions during the past few years, with a shift in the intensity of summers and winters, while the monsoon season has become increasingly unstable and variable. Climate change can act as a catalyst for the movement of migrants in search of better living conditions and alternative livelihoods, whether it be short-term, seasonal, cyclical, or permanent. Migration can occur by force due to increased adverse conditions or as a proactive strategy in the face of climate impacts on livelihoods. Planned relocation involves the movement of entire communities by the relevant government, in cooperation with the affected communities.

TELEVILLE TELEVILLE

In recent years, India has witnessed migration from agriculturally intensive regions to urban settlements, which are increasingly threatened by climate-related disasters. The summer of 2023 marked the highest precipitation in a single day in July in over 40 years in Delhi. While the impact of such calamities is felt across all strata of society, this article sheds light on the unique perspective of vulnerable populations who bore the brunt of this environmental catastrophe.

Due to flooding, families and vulnerable individuals were forced to flee their homes and seek refuge in overcrowded relief camps. Poor sanitary facilities, a lack of privacy, and limited resources posed challenges, and waterborne illnesses became a serious concern. Access to healthcare was essential, but difficult due to limited medical facilities and resources. The education of children from disadvantaged backgrounds was disrupted due to flooded or improvised shelters. While making adaptation and mitigation policies, more attention should be paid to vulnerable groups lacking adequate resources. Slum dwellers. living in makeshift houses near the banks of Yamuna, suffered the most due to the lack of proper drainage systems, their meager possessions were swept away by the rising waters. Daily wage workers also experienced the heavy brunt of this calamity. The inability to commute due to waterlogged roads and streets left them stranded, with no income to support their families. This group faced the dual challenge of surviving the immediate crisis and the long-term economic repercussions. There were added health risks to the children and elderly living near these waterlogged roads. These people endured numerous challenges to survive, including shelter and displacement, healthcare struggles, and disruptions in education.

In the aftermath of the Delhi floods in 2023. Aruna Devi's story echoes the broader narrative of vulnerability among those affected. Residing in the Yamuna Khadar area, Aruna, much like many others, faced the devastating force of the swollen river that swept away her home and her children's educational materials. Evacuated to a relief camp, Aruna and her family confront both immediate and long-term challenges. The pressing concern revolves around a family member falling sick, adding another layer of complexity to their situation. Yet, as the water recedes, their thoughts turn to returning to their once-flooded home, bracing for the hurdles of rebuilding. Her anxiety about her children's education resonates deeply. The floodwaters not only washed away their books and essentials but also created obstacles when she tried to recover them. The clash with authorities, vividly portrayed in her struggle with the police, symbolizes the larger challenges faced by vulnerable populations seeking to reclaim a sense of normalcy after such a catastrophic event. In her poignant words, "I do not know what I shall do," she encapsulates the uncertainty that lingers in the aftermath of the floods. Her story, a microcosm of the larger impact on vulnerable communities, emphasizes the urgent need for comprehensive support, addressing both immediate relief and long-term recovery efforts.



Binita Devi recounted the harrowing experience of having to "ascend a nearby sturdy structure as the water surged." Reflecting on the swift onset of the calamity, she lamented, "In a matter of minutes, everything succumbed to the delugedamaged, lost, Savings and livelihoods evaporated into oblivion." Recalling the memories, she remarked, "While fragments of that time resurfaced in 2010, the impact was nothing compared to this year's ordeal. The blaring sirens, the unpredictability, the overwhelming fear-every element mirrors the haunting echoes of September 1978." Binita currently finds refuge in a makeshift relief camp near Mayur Vihar Phase 1, alongside hundreds grappling with similar fates.

While the government launched relief efforts, reaching every affected individual proved to be an arduous task. The scale of the disaster existing overwhelmed resources. and bureaucratic delays hindered the swift distribution of aid. Vulnerable populations faced the additional challenge of being overlooked in the relief process, as their informal settlements often fell off the official radar. The Delhi floods of 2023 underscored the urgent need for comprehensive urban planning, especially in vulnerable areas prone to flooding. Infrastructure development, early warning systems, and inclusive policies are essential to safeguarding the most vulnerable populations. The floods were more than a natural disaster: they were a stark reminder of the vulnerability that exists within the urban fabric. Therefore, as the city rebuilds, the voices of the vulnerable mustn't be just heard but actively included in the planning and execution of strategies to mitigate the impact of future disasters. Only through collective efforts can the state hope to emerge stronger and more resilient in the face of unforeseen challenges.

THE DISPARATE IMPACT OF CLIMATE CHANGE ON WOMEN: EXAMINING THROUGH A GENDER LENS

The existence of anthropogenic climate change is no longer a matter of discussion and debate. There is a wealth of evidence, both empirical and circumstantial, enough to support that the reality and seriousness of climate change are not subjects that can either be brushed aside or disregarded any longer. The impact of climate change is far-reaching and planetary. However, its threats and challenges are not distributed impartially. The ramifications are more complex for the vulnerable and marginalized groups. The magnitude and extent of the impact mimic the already pervasive socio-political-economic inequalities, resulting in a rather vicious loop wherein the existing vulnerabilities define the climate change vulnerabilities, which again reinforce the divisions including gender inequality.

Women experience the ripples of climate change disproportionately compared to men. The gender biased crisis can be understood through the lens of two broader themes- vulnerability of socially discriminated groups as a result of convergence of social factors and their consequent marginalization and exclusion from decision making hence, limiting their access to resources.

The access to socio-economic and financial resources that influence the vulnerability, are in turn impacted by social factors such as ethnicity, gender, sexual identity and disability. Extreme weather events such as crop failures increase male migration to urban areas with favourable employment opportunities. The women left behind are forced to take up extra workload of both household and other roles traditionally performed by the men. However, this necessarily might not mean increased income for women as the employment and wage opportunities are also restricted by the gender norms. Gender-based violence often aggravated after climateinduced disasters, negatively affects the resilience and adaptive capacity of women. Coping mechanisms adopted by communities after a disaster event, such as forcing girls to drop out of schools and even the act of child marriages to secure funds, regress the societies further.

Access to resources and decision making

Women will have it worse when climate change intensifies because they have lesser access to basic human rights and are more likely to be the victims of violence. This systemic discrimination has resulted in underrepresentation of women in all levels of governance and overrepresentation in the informal sector with lower wages and lack of job security and social protection. The underrepresentation of women in the formal economy restricts their voices from being heard.

The abovementioned male migration, leaving women in charge of land and the household, doesn't necessarily mean imparting land ownership and legal rights to women. More often than not, this lack of legal rights coupled with lack of education, limits the say women have, in the process of decision making. The repercussions caused by traditional gender norms such as lack of formal education for girls are often aggravated by climate induced disaster changes. The society is further crippled with customary and discriminatory laws that make it more difficult for women to own land. As per Commission on the Status of Women report 2012, women make up less than 20 percent of world's landholders, but make up an estimated 43% of the agricultural labour force. The gender equity gap is also widened by lack of access to climate finance.

Climate Change: A Threat Multiplier

Climate change has been time and again called a 'threat multiplier' by global leaders, and thinktanks, because of its potential to exacerbate the preexisting socio-political-economic tensions and instabilities. Climate change threatens to widen the existing gender-based disparities of human rights, especially in India that ranks quite low at 122 out of 191 countries in UNDP's Gender Inequality Index.

The health impact of climate change events such as extreme heat events, rise in the average temperatures, increased extreme disaster events, erratic rainfall patterns resulting in crop failures and deteriorating quality of ecosystem services, pose a bigger risk to women. In the wake of a disaster, women grapple with higher mortalities, deleterious impact on reproductive and maternal outcomes including maternal and infant mortality and decreased nutritional security. Often, women bear the inordinate duty to secure food and water for the family. As climate change worsens with irregular rainfalls and droughts, food and clean water will become scanty and hence, overloading women. Centuries of discrimination have engendered differences in access to resources and rights, information, decision-making, mobility and relief and assistance post a disaster and hence, leaving women vulnerable.



Gender-Biased to Gender-Based Climate Justice From the Beijing Declaration and Platform for Action, 1995 to the recent Paris Climate Agreement, 2015, there have been multiple references to the interplay between climate change and gender inequality. There has been a growing awareness among both international and national stakeholders that gender justice is a prerequisite for ensuring climate justice. The Sustainable Development Goal (SDG 13) of combating climate change through strengthening resilience and adaptive capacity is hence, intertwined with SDG 5 of achieving gender equality and empowerment through ensuring participative decision-making and ending all forms of discrimination.

OWEN

Prior to integrating gender-responsive plans into national and international policy frameworks, the vulnerabilities of the focus group must be assessed comprehensively. The shift from gender-biased to gender-based approach would involve the evolution in role of women from being a vulnerable, passive observer to an agent of change. The need of the hour is a two-pronged strategy including a multisectoral collaborative approach to ensure that women have an equal access to resources and decision-making and an enhanced, strengthened disaster risk reduction preparedness. Government initiatives in the field of education such as 'Beti Bachao, Beti Padhao', vocational training such as Scheme for Adolescent Girls, maternity benefit programme such as 'Pradhan Mantri Matru Vandana Yojana', financial inclusion such as 'Sukanya Samriddhi Scheme', entrepreneurship such as 'Stand up India Scheme' and equal representation through reservation of seats vide constitutional Articles 243D and 243T, are a step forward in the direction of gender justice. In the words of Vanessa Nakate, a Ugandan climate change activist, "You can't have climate justice without gender equality", gender justice is the stepping stone to climate justice.

Vasundhara | Issue 14 | Page 6

BREATHING AGAINST THE ODDS- THE IMPACT OF CLIMATE ON HEALTH DISPARITIES IN URBAN MARGINALIZED COMMUNITIES.

Commencing the elaborate constructive collaboration of climate change and urbanization, individuals tethered to financial constraints navigate formidable barriers to adaptive strategies. unveiling the vulnerability of economically marginalized populations. As the renowned environmentalist Rachel Carson wisely remarked, "The more clearly we can focus our attention on the wonders and realities of the universe about us, the less taste we shall have for destruction." In the labyrinth of challenges, Hong Kong becomes a poignant canvas where 'cage homes,' starkly reminiscent of confined living spaces, amplify health hazards, especially during warmer seasons. The global specter of air pollution, contributing to a staggering 9 million premature deaths annually, disproportionately haunts the footsteps of communities of color and those perched on the fringes of society. Lingering disparities in the United States reveal regions housing low-income and minority communities persistently grappling with elevated pollution levels, painting a vivid mural of environmental, economic, health, and social inequities.

In the eloquent narrative titled "Socioeconomic Disparities and Air Pollution Exposure: A Global Review," masterfully crafted by Anjum Hajat, Charlene Hsia, and Marie S. O'Neill, a global expedition unfurls, unraveling the delicate relationship between socioeconomic status (SES) and the inhospitable grasp of air pollution exposure. Across North America, New Zealand, Asia, Africa, and Europe, lower SES individuals consistently grapple with higher concentrations of criteria air pollutants. However, exceptions in New York and Montreal suggest the influence of unique urban development nuances on pollutant concentrations.

As the paper echoes the words of Marie Curie, "Nothing in life is to be feared, it is only to be understood. Now is the time to understand more so that we may fear less." Zooming out to a panoramic view, the study casts its gaze over New Zealand, Asia, Africa, and Europe, illuminating varied associations between community SES and the dance of particulate matter (PM) concentrations. Methodologically, the paper deftly addresses the modifiable areal unit problem (MAUP), weaving spatial regression approaches and exposure assessment techniques into the narrative. This narrative is a tapestry of science, emphasizing the interdisciplinarity of environmental inequality studies and urging ongoing exploration of temporal changes and policy impacts.



Photo Credits: Before Colmer, Hardman, Shimshack and Voorheis After Colmer, Hardman,

Within the microcosm of urban environmental injustice, the South Bronx emerges as a poignant chapter. Here, 21% grapple with the shadows of poverty, and alarming asthma rates among children echo through the alleyways.

A study in Nature Sustainability thrusts India's air pollution crisis into the spotlight, challenging prevailing notions by identifying high-income urban households as primary contributors. Prolonged exposure becomes a poignant melody, rendering individuals from low-income households nine times more susceptible to premature mortality than their affluent counterparts. The study conducts a harmonic exploration, highlighting that low-income households bear a disproportionate burden of both indoor and outdoor pollution, with the mournful notes of biomass-burning cookstoves contributing significantly to premature deaths in rural India. The socioeconomic dynamics in India become a canvas painted with hues of disparity. Food production, preparation, and waste emerge as strokes contributing to over 70% of PM2.5 emissions across income groups. In a surprising twist, high-income and urban households emerge as the maestros, conducting a symphony of nearly double the ambient PM2.5 concentrations through consumption-related emissions. Contrary to the crescendo of urban traffic often perceived as a major contributor, vehicle emissions have become a mere whisper, underscoring the need for a multifaceted approach to the environmental symphony.

Delhi, India, becomes a tragic opera, epitomizing the global ramifications of urbanization and vehicular emissions. The annual toll of 2.5 million premature deaths becomes a haunting refrain. Inadequate infrastructure and limited access to green spaces create a dirge, leading to a 30% reduction in lung function among children in marginalized urban settlements. Turning attention to Flint, Michigan, the interconnectedness of environmental and economic inequities becomes a somber sonnet, as an African American community grapples with lead contamination and elevated blood lead levels. A recent scientific journal analysis becomes a lyrical exploration, peeling back the layers of the relationship between PM2.5 pollution and environmental injustices in India.

Districts with higher outdoor PM2.5 concentrations, housing over 85% of India's population, become the backdrop for stark social disparities. Urbanized districts with higher percentages of Scheduled Castes (SCs), young children, and households in poor condition residences become the characters, experiencing elevated PM2.5 concentrations. Paradoxically, less urbanized districts with a greater percentage of SCs, females, children, and people with disabilities become the unsung verses, witnessing higher PM2.5 concentrations, unveiling systemic vulnerability. The study becomes a poetic revelation, shedding light on gendered aspects of pollution exposure, revealing those districts experiencing higher PM2.5 increases highlight a contrasting trend.

The findings extend beyond demographics, exposing housing-related injustices. Districts with higher percentages of households without toilets or residing in poor condition residences become the silent verses, facing significantly greater PM2.5 exposure. As India confronts escalating air pollution, the study becomes a clarion call, demanding decisive actions, from stringent regulations to investments in green technologies. It warns of potential 'pollution havens' and conducts a melodic exploration into the complex interplay between economic growth, environmental laws, and social costs.

The study becomes a poignant overture, serving as a crucial starting point, urging a deeper dive into the social consequences of deteriorating environmental quality.

As a decisive point, the scientific scrutiny of health disparities within urban marginalized communities becomes a grand symphony. The integration of environmental justice, public health, and social equity becomes a harmonious crescendo. Collaborative efforts between scientists, policymakers, and community stakeholders become the orchestral arrangement, indispensable for cultivating urban environments free from the shackles of environmental injustice. The path forward becomes a melodic journey, demanding an interdisciplinary approach, bridging the gap between scientific inquiry and societal well-being.

As we reflect on this symphony of environmental challenges, one must ponder: Are we, as stewards of this planet, conducting a harmonious melody for all, or is the dissonance of injustice drowning out the potential for a cleaner, fairer future?

FROM WARRIORS TO VICTIMS:

Guardians of the Forests

B

When the term "tribal" is mentioned, it often evokes thoughts of a community that lives in isolation from the broader civilization. Though there is no universally accepted definition, tribal communities in India are also known as aboriginal/ indigenous communities, Adivasis, Janjatis, and Scheduled Tribes. These communities vary in terms of their habitats, language, culture and even in the degree of their integration with mainstream society. Yet, they all share an intimate connection with nature and live a lifestyle that allows them to coexist harmoniously. Going beyond coexistence, they follow unique spiritual and cultural practices that protect natural resources and biodiversity against degradation. Due to their belief in natural resources being sacred, it is observed that environmental degradation is slower in territories inhabited by tribals.

Their commitment to conservation extends beyond their lifestyle. They have collectively raised their voices against development projects that posed a threat to their local environment (like in the case of Niyamgiri Movement and at the same time, they have quietly contributed to the restoration of damaged forests. They have often led protests and environmental movements, working to safeguard the plants and animals in their area including the Jungle Bachao Aandolan which started a rebellion against the government's plan to replace the natural Sal forests with teak plantations in the 1980s. Since tribals are traditionally reliant on forest resources for their subsistence; environmental damage occurring due to governmental and non-governmental development projects directly affects them forcefully displacing them from their original habitat. Apart from the development projects, conservation-centric policies and an exclusionary protected area approach are also adding to the plight of tribals.

Paradox of Conservation Policies

Protected areas, despite their significant roles in combating global warming through carbon sequestration, as well as fostering ecotourism and biodiversity conservation, come with drawbacks. When considering the socio-economic and cultural impacts on local communities, the establishment of protected areas may not be entirely positive.

The proliferation of protected areas throughout India has given rise to conservation refugees, individuals displaced due to the establishment of these protected areas, effectively making them victims of ecological expropriation. Conservation efforts have a historical tendency to marginalize indigenous populations residing in areas earmarked for conservation.

With a heightened awareness of environmental degradation and an urgent call for protective measures, the number of protected areas in the country also increased. However, this expansion witnessed instances where development projects and townships were established on one hand, while on the other, certain areas were declared as protected in an attempt to compensate for the environmental harm caused by them.

These preservation activities often lead to tribals losing their land, deprivation of access and control over forests, displacement without proper rehabilitation, threats to cultural practices, and an overall sense of insecurity due to an uncertain future. Additionally, these communities endure both physical and psychological trauma as they grapple with the challenges of adapting to new locations. Yet, when they protest against such marginalisation, they are deemed as "enemies of conservation".

1.000

Many such instances were observed during the implementation of Project Tiger. 245 Baiga families in Chhattisgarh were evicted from the Achanakmar Tiger Reserve, losing their traditional livelihood without proper compensation.

Further, complete disregard is shown for the fact that the natural resources including tribal lands are already being affected by climate change and other environmental factors such as deforestation, degradation of land and water quality, forest fires and unpredicted rainfalls.

400 Kawar Adivasi families from Chhattisgarh were forced out due to water contamination from the Chhal coal mine, causing irreversible environmental degradation and displacement. The establishment of a tiger reserve led to the gradual removal of Chenchu people from the forest to town fringes. They continue to face slow migration to towns due to deforestation and depleting forest resources.

These and many more instances of forced displacement thrust tribal communities into unfamiliar and hostile environments and render them vulnerable to exploitation. The lack of access to forests deprives tribals of food and livelihood security. This results in poverty, chronic malnourishment, starvation, and severe health issues, including psychological trauma. Conservation-induced displacement brings about social setbacks, including challenges in integrating with locals, complications in observing tribal rituals and festivals, and ethnic discrimination post-displacement. Climate change exacerbates social and economic inequalities, particularly affecting marginalized groups including indigenous people, low-income groups, and coastal residents face vulnerability due to historical discrimination, lack of resources, and inadequate political representation.

The Stakes of Neglect

To avoid further marginalisation, it is important to recognise that the exclusionary conservation model is outdated. There are numerous examples showcasing the success of community-based conservation models. Many of the tribal practices have helped formulate the conservation policies including agricultural practices in the Dindori district of Madhya Pradesh. Displacing these communities not only pushes them into deeper marginalisation but also threatens the erosion of their social capital i.e., traditional knowledge.

It's a tragic irony that tribal communities, inherently respectful of natural resources and their conservation, are becoming victims of poorly designed conservation initiatives. Conservation discussions should encompass the indigenous methods that emphasize harmonious humannature relationships and routine conservation activities embedded in environmental knowledge and sustainable resource management. Instead of an exclusionary approach that enhances tribal vulnerabilities, the focus needs to be shifted to adopting a coexistence model that highlights their strengths. When well-informed, tribal communities play a crucial role in reporting and preventing harm to wildlife, challenging the notion that their existence is detrimental to conservation. As we contemplate the future discourse on climate change and the need for sustainable practices, including protectionist approaches, it's crucial to differentiate between symbolic sustainability and what is genuinely sustainable.

Vasundhara | Issue 14 | Page 10

NURTURING RESILIENCE: IMPACT **OF CLIMATE CHANGE ON FARMERS**

Climate change, the modification of the Earth's climate patterns caused by both human activities and natural processes, presents a substantial risk to worldwide food security. The complex interplay between climate change and food security manifests in various ways, affecting crop yields, small-scale farmers, and access to food. This ultimately puts the livelihoods of millions at risk and worsens the existing challenges of food insecurity.

Climate Change and Agricultural Production: A Ripple Effect

Agriculture, the backbone of food production. bears the brunt of climate change's adverse effects. Rising global temperatures disrupt crop growth cycles, leading to reduced yields, diminished crop quality, and increased postharvest losses. These disruptions are particularly pronounced in developing countries, where agriculture is a mainstay of the economy and a key source of livelihood for most of the population. The Intergovernmental Panel on Climate Change (IPCC) projects a global agricultural production decline of around 15.9% by 2080, disproportionately impacting vulnerable populations reliant on agriculture for sustenance.

Smallholder Farmers: The Frontline of Climate Change's Impacts

According to the RBI guidelines, smallholder farmers, defined as those who manage less than 2 hectares of land, form the cornerstone of global agriculture, accounting for over 84% of farms and 12% of agricultural land. These farmers, often marginalized and living in poverty, are particularly vulnerable to the impact of climate change. Reduced crop yields, increased pest and disease, and unpredictable weather patterns jeopardize their livelihoods and threaten their ability to feed their families and communities.

Food Access and Availability: A Domino Effect

The ripple effects of climate change extend

Vasundhara | Issue 14 | Page 11

beyond just agricultural production to influencing food accessibility and availability. Disruptions in supply chains, price fluctuations, and post-harvest losses due to extreme weather events hinders food distribution. Moreover, climate changeinduced crop failures can lead to food shortages and price spikes, exacerbating existing food insecurity, particularly in regions with limited resources and infrastructure.

Case Study: Jammu Region, India, A Window into Climate Change's Impacts

A study in India's Jammu region examined the impact of climate change on smallholder farmers, surveying 600 households. Findings revealed 82% experienced hotter summers, 47% milder winters, and 74% more frequent heavy rainfall. These changes negatively affected crop yields, livestock production, and incomes, leading to increased expenses and heightened debt. Varied socio-economic impacts were noted among households, with some facing food shortages and indebtedness. Others, engaged in diverse livelihood strategies, reported no adverse effects on their well-being. The study suggests supporting small farmers in cultivating climate-resilient crop varieties to enhance resilience to changing conditions, encompassing drought, heat, pests, and diseases. Policymakers and governments are urged to consider these implications for the well-being of marginal and small farmers.

Addressing the Challenges: A **Multifaceted Approach**

Climate change poses a formidable challenge to global food security, threatening the livelihoods of millions and exacerbating existing food insecurity challenges. Addressing this multifaceted issue requires a comprehensive approach that enhances agricultural resilience, promotes sustainable



land and water management practices, and strengthens social protection systems. By investing in climate-resilient agriculture, empowering smallholder farmers, and improving food distribution systems, we can mitigate climate change's impacts on food security and ensure a sustainable food supply for future generations

Strategy

Investments in climate-smart agriculture, which integrates climatechange adaptation and mitigation measures into agricultural practices, holds an immense promise for enhancing food security and resilience. This includes adopting drought-resistant crops, improving water management techniques, and adopting conservation agriculture practices, that promotes minimum soil disturbance, maintenance of a permanent soil cover, and diversification of plant species along with enhancing the biodiversity and natural biological processes above and below the ground surface, contributing to increased water and nutrient use efficiency and improved sustained crop production, through practices such as crop rotation, leaving crop residue as soil cover, mulch cover and cover crops.

Empowering **Farmers**: Enabling Sustainable Livelihoods Smallholder farmers play a crucial role in ensuring global food security. Empowering them with access to climate-smart technologies, training, and financial assistance is essential to enhance their resilience and productivity. This includes providing access to climate-resilient seeds, improved irrigation systems, and market linkages.

Strengthening Social Protection Systems: A Safety **Net for Vulnerable Populations**

Social protection programs, such as cash transfers, food assistance, and micro-insurance schemes, provide a safety net for vulnerable populations, particularly smallholder farmers, who are disproportionately affected by climate shocks. These programs help to stabilize household incomes, cope with losses, and invest in longterm resilience measures.

Conclusion: A Collective Responsibility to Secure the Future

Climate change and food security are inextricably linked. Addressing this multifaceted challenge requires a concerted global effort. Governments, international organizations, civil society, and the private sector must come together to invest in climate-resilient agriculture, empower smallholder farmers, and strengthen social protection systems. By working collaboratively, we can mitigate climate change's impacts on food security and ensure a sustainable food supply for future generations.

Authored by Purvi Gupta

Investing in Climate-Resilient Agriculture: A Key

Smallholder

CLIMATE CHANGE - IS THERE TIME TO SPARE!?



Many are of the view that coastal populations are used to climate-related disasters and extreme weather events, and possess enough knowledge to overcome the same. However, climate variability is one thing, climate change another. The latter is what coastal populations are dealing with now. Although they are hotspots of multi-lateral productivity, today, the coastal towns and cities have become the sentinels of climate change.

India's coastal population, about a170 million, mostly engaged in the informal service sector, is extremely vulnerable to a variety of socio-economic risks that are exacerbated by the additional socio-economic risks that are exacerbated by the additional stressors of climate change. In the past 50 years, the sea level has risen by 8.5 cm along the Indian coast with a loss of 235 sq km of land between 1990 and 2016. According to the Internal Displacement Monitoring Centre, flooding triggered by the monsoons has displaced around 3.6 million Indians between 2008 and 2018 (Panda, 2020). The flights to 'safer places' are mostly decided as a last resort, given the migrants leave for some nearby Class II or Class I city where the resources are already thin. Current policies in India do not address displacement due to slow-onset disasters such as coastal erosion or land subsidence slow-onset disasters such as coastal erosion or land subsidence. The Inter-State Migrant Workmen Act of 1979, as it stands today neither has a separate category, nor have there been any amendments to deal with climate migrants.

MANAGED RETREAT: SAVES LIVES. BUT LIVELIHOODS?

One of the biggest coastal evacuations in history, praised even One of the biggest coastal evacuations in history, praised even by the United Nations, was conducted in May 2019 when Cyclone Phani hit Odisha. 1.2 million people were evacuated in 24 hours using an early-warning system. Often described by some as India's first 'climate refugees', Odisha witnessed one of India's first cases of managed retreat/relocation after decades of shoreline changes around several villages in the Kendrapada district, mostly lying around the village of Satabhaya. The last of the Satabhaya villages went underwater in 2011, when the planned relocation began. The situation worsened in 2016 pushing the state government to establish a resettlement colony 12 km away. Although displaced people were colony 12 km away. Although displaced people were compensated with agricultural plots, housing, and other facilities, questions were raised on fair-compensation, and the number of houses resettled among the affected pool.

Sundarbans, shared between West Bengal and Bangladesh with about 40% in West Bengal, poses a much more complicated picture of climate change-driven displacement and migration. Being one of the most hazardous areas on the Indian subcontinent, with an average yearly sea-level rise of 8 mm as compared to the global annual average of 3 mm, it still supports the livelihood of more than one million people. The first case of planned relocation came in the 1970s when the West Bengal government decided to withdraw funding from the islands of Choramara and Lohachara because of high the islands of Choramara and Lohachara because of high erosion rates. Resettled residents were provided with land and housing: however, with Sagar Island shrinking due to land erosion, entitlements have been reduced. With Lohachara disappearing in 1991, and Choramara, being reduced from 26 sq.km to around 6.7 sq. km in the last few decades, research suggests that Sagar is on the verge of disappearing as well (Panda, 2020). This indicates that early managed relocation alone will not suffice, as 'new homes' would keep getting submerged.

Further north-east to these states lies Assam with the largest river island in the mighty Brahmaputra. Assam suffers from regular annual flooding displacing many millions temporarily,

sometimes affecting more than 12 percent of the state's geographical area. With a population of 81,000 and an area of 1250 sq. km in 1951, Majuli Island has now reduced by two-thirds in area, whereas the population has more than doubled to 167,000. Consequent to an increase in frequency of floods and snowmelt from the Himalayan glaciers, experts predict that Majuli will disappear by 2040, along with certain other river islands, as the water eats away more and more of the land (Panda, 2020). The Government's investment in technical solutions including riverbank stabilization, embankment creation, capturing sediment to slow down the river's flow, establishment of a flood warning system, and the like, has failed to stop the outmigration. Due consideration is not being given to an integrated blue-green and grey infrastructure policy.

BANGLADESH'S STORY

The World's most populous riverine delta, home to about 172 million people, is accepted by many to be the poster child of climate change vulnerabilities. Bound by the Bay of Bengal in the south, a quarter of Bangladesh's landmass is hardly above seven feet from sea level. With routine inundation, scientists expect rising sea-levels to submerge 17 percent of the country's landmass in the next four dependence and displace to accept millions (Lapris 2016) decades and displace tens of millions (Harris, 2014)

Bangladesh devotes a larger portion of its resources to address climate change issues than many other developing nations. For instance, since 2010, the Bangladesh Climate Change Trust Fund (BCCTF) has diverted domestic funds roughly \$450 million till 2021 to climate-related projects across the nation. Between 2021 and 2022, the country's Climate Budget Report indicates that more than 7 percent of the national budget was allocated to combat climate change (Salzenstein & Montu, 2021).

ENVIRONMENTAL INJUSTICE

In India's developmental sector a chaotic conflict interests are playing out. Stakeholders involved in coastal development are trying to meet irreconcilable demands facilitating economic development while simultaneously wanting to protect the vulnerable communities from climate-change impacts. The Environment Impact Assessment (EIA) 2020 amendment draft has proposed the exclusion of local decision-makers and communities in the decision-making process. To ignore, and/or marginalize the concerns of the indigenous population means to lose out on a wealth of knowledge concerning nature and its disasters. Also, the draft's proposal that violations are to be developers themselves is an irony in itself as if the violators are going to disclose on the come forward selves!

Land for development in the coastal regions is limited, and the possibility of encroachment for commercial purposes is high. Absurdly, this travesty is being facilitated by amendments to existing regulatory frameworks like such as in the Coastal Regulation Zone (CRZ) notification of 2018, in which what is most noteworthy is that the No Development Zone in CRZ III has been reduced from 200 meters to 50 meters! How India responds to the travails of marginalized communities dwelling in its fragile coastal ecosystems is on to its own hands! Time is not-just ticking: it is in fact running out!





THE GLOBAL LANDSCAPE OF ATROCITIES OF CLIMATE INJUSTICE

The vulnerability to climate shifts is a tapestry woven with diverse threads, affecting regions and people in unique ways. Across the world, there exists a spectrum of susceptibility, where those already marginalised shoulder the heaviest burden of its consequences. Among these are communities, indigenous low-income neighbourhoods, and specific ethnic groups, often deprived of resources and situated in areas or circumstances that heighten their exposure to environmental risks. The suffering population includes those affected by extreme weather events, rising sea levels, droughts, and food insecurity caused by changing climatic conditions. In many cases, these vulnerable populations contribute minimally to the factors causing climate change but suffer its most severe consequences.

Responsibility for this grand upheaval is a shared burden, a collective albatross carried by nations, industries, and individuals alike. When delving into the realm of climate change's repercussions, the line drawn between developing and developed nations emerges as a crucial focal point. Developed nations, the historical polluters of greenhouse gas emissions owing to their industrial strides and consumption patterns, find themselves vulnerable, yet equipped with more tools for adaptation and mitigation. These countries often possess robust technological prowess, financial fortitude, and governance frameworks sturdy enough to weather and rebound from nature's most extreme events. Conversely, developing nations bear the weight of amplified vulnerability, shackled by limited resources, feeble infrastructure, and gaping socioeconomic rifts. Their battle is waged against foes like famines, the relentless scarcity of water, and the looming spectre of displacement due to calamities born of a changing climate. The struggle here is multifaceted, interwoven with socio-economic complexities that make weathering the storm of extreme events, swelling sea levels, and the erratic dance of climatic patterns a monumental challenge.

Even amid its advanced stature, the United States finds itself ensnared in a tussle with climate change, grappling with distinctive vulnerabilities that set it apart, notably from countries such as Singapore. Across the vast expanse of America, the looming spectres of hurricanes, wildfires, and the relentless erosion of its coastlines cast shadows of peril. menacing lives, vital infrastructure, and delicate ecosystems alike. In stark contrast, nestled within its smaller dimensions and comparatively fewer resources, Singapore emerges as a beacon of strategic foresight. With a keen eve fixed on the encroaching spectre of rising sea levels, this nation has deftly woven investments into its infrastructure and technology, fashioning bulwarks against the relentless tide. They artfully manage their precious water resources, defying limitations imposed by size or abundance, crafting solutions that stand as a testament to their ingenuity in the face of environmental adversity.

1990 B

The gaping rift between the consumption habits of the world's wealthiest in developed nations and the rest of the globe is staggering. These elite few indulge in excessive use of resources, energy, and goods, significantly inflating global greenhouse gas emissions and hastening the destructive pace of climate change. For nations like Nigeria, this translates into heightened vulnerabilities by amplifying existing hardships, intensifying droughts, erratic rainfall, and environmental decay. This directly hits agriculture, water sources, and livelihoods, resulting in escalated food insecurity, environmental deterioration-induced displacement, and socioeconomic turbulence. This creates a stark asymmetry, burdening the most vulnerable in developing nations with the heavy toll of climate upheaval, all while they bear the least responsibility for its genesis. To bridge this chasm demands global cooperation, entwined with financial aid, technological knowhow, and the exchange of wisdom, with developed nations tuning their efforts to fortify the resilience of their developing counterparts.

As a matter of fact, the impact of climate injustice on the global economy is far stretched and this certainly goes much beyond the economic growth perspective. There exists a social and developmental side of the story which changes the entire narrative and highlights the alarming situation at hand. Climate changeinduced marginalized divide has pushed several vulnerable people into poverty conditions, affecting their livelihoods as well as making them susceptible to a range of health risks. Moreover, the poorest strata of society have a significantly lower ability to adapt to climate change considering their lack of accessibility to adequate resources, eventually creating an economic disparity. Furthermore, marginalized population also become victims of something known as environmental racism which essentially refers to the injustice pertaining to disproportionate allocation of environmental resources and threats, as well as discrimination with regards to environmental policymaking.



Climate injustice also raises concerns regarding the food security challenges and prevalence of conditions of malnutrition in least developed and developing economies. Considering its adverse effects including forced displacement, and health risks especially for children, this highlights the magnitude of such a catastrophe. In fact, although these conditions are prevalent in least developed and developing economies to a significantly larger extent, even the developed economies do face such challenges at a relatively lesser magnitude. All the aforementioned factors are contributing towards hampering the entire world, especially the emerging economies in their ambition of achieving economic development in its true sense.

It is imperative to understand that the impacts of climate change are highly disproportionate across the world and it is indeed a matter of immense concern. Despite accounting for just 16 % of the global population, the richest nations account for about 40 % of CO2 emissions. On the contrary, based on the World Bank's classification of two categories of the poorest nations, they constitute 60 % of the global population and yet contribute fewer than 15 % of emissions. In fact, in terms of per-capita emissions, the US emits over 20 metric tonnes which is almost twice as much as China or the European Union, and nearly ten times with respect to India.

The ideas of climate compensation and climate-induced losses and damages have been taking the center stage of several climate conventions in recent times including COP26 and COP27. Despite certain efforts including multiple billion dollar commitments by the rich nations, they are either yet to be fulfilled or not distributed equitably. Indeed, economic compensation by the rich nations who emit significantly higher emissions, for the poorer nations who emit relatively way lesser, will be a crucial step especially in humanitarian assistance and building climate-resilient infrastructure. However, political interests will always be a challenge to deal with, since this has also affected past compensation efforts. In fact determining the appropriate compensation framework and ensuring it reaches grassroot levels should be the highest priority.

Vulnerability to climate injustice has disproportionately affected the marginalized population to an alarming extent and it is undeniably the need of the hour for immediate actions from all responsible stakeholders. According to the World Resources Institute, prioritizing equity in combating climate change might help lower social inequality and benefit marginalized communities by increasing their access to multiple resources, including the most basic necessities. In fact, such communities often suffer the greatest social costs and gain the least from climate actions. Therefore, the inequitable distribution of costs and benefits among the entire population must be acknowledged by policymakers. The proactive prioritization of marginalized communities is essential for policymakers to ensure a just transition that keeps nobody behind.

Addressing climate concerns through the lens of marginalization is perhaps the most crucial aspect of responsible climate policymaking and hence, allowing marginalized groups a role in decision-making becomes indispensable. Furthermore, effective coordination across the multiple stages of governance is a must to avoid any sort of discrimination by keeping political interests aside and bringing in transformations in the systematic approaches. Q. How has your experience been in advocating for climate justice, particularly for oppressed castes and minorities? What challenges did you face, and how did you overcome them?

A: India has been at the forefront of advocating for global climate justice, along with other developing countries, given the unequal nature of historic emissions. However, when it comes to climate justice within India, it gets complicated, and anyone raising this issue is often silenced, with the argument that it is a domestic concern and should not divert attention from international inequality. While international inequality is central to climate justice, equivalent issues exist within India. Increasingly, year by year, we witness the poor and marginalized, particularly lower castes in India, bearing the disproportionate impacts of climate change. Initially, these concerns were not acknowledged, but slowly, organized efforts are emerging to bring attention to climate justice within India. Without addressing the complex climate vulnerabilities of Dalit, Adivasi, and Bahujan communities, no climate policy or action will be effective in India. Alongside race, class, and gender, UNFCCC and India's climate policy documents should acknowledge caste as one of the central climate vulnerabilities in India. I am optimistic as young people have started to engage in these conversations.

Q. Given the overrepresentation of "lower" castes in the informal sector, how do you perceive climate-induced displacement affecting different castes differently?

A: In India, despite economic development and affirmative action policies, occupational categories still predominantly remain castebased. Upper-caste individuals are unlikely to be found cleaning toilets, working in agricultural labor, or construction labor. Thus, caste is a socioecological category, as highlighted by many scholars and activists. When climate change hits, it affects people differently. Even upper-caste landlords may face losses due to climate change, but they are likely to have alternative income sources. The impact on lower-caste agricultural laborers is disproportionate.

CASTE, CLIMATE AND CONSCIOUS CONVERSATIONS

with

AJMAL KHAN

Mr. Ajmal Khan is a multidisciplinary scholar with research located at the intersection of development, environmental and climate justice. He is currently a post-doctoral fellow at the South Asia Institute, Harvard University. He has previously worked at the Department of Environmental Studies, Ashoka University and Centre for Development Practice at Ambedkar University in New Delhi, India. He is currently working on his first full length book project which looks at climate justice in South Asia considering the complex socio-ecological and climatic hierarchies in the region.

They often lack land for compensation in case of government assistance based on crop loss. In urban India, construction and security labor, predominant in the past few years, are often Adivasi migrant laborers from distressed Adivasi regions and other lower castes. This vulnerable section, witnessed during the pandemic, is also exposed to heat waves and poor air quality in cities like Delhi. When cities face floods, Safai Karamcharis, at the bottom of the hierarchy, are left to the task of cleaning up. Climate change in India is, therefore, already affecting different castes differently. Q. The principle of common but differentiated responsibility has been recognized globally for addressing unequal burdens of climate change. Do you think a similar principle could be applied at the national level to ensure climate justice for marginalized communities?

A: Yes, it is crucial for countries to address internal inequalities. In the US, environmental justice is increasingly acknowledged in new legislations and policy interventions, thanks to environmental movements led by African American groups and environmental justice organizations. In India, climate policies often focus solely on poverty and fail to address caste-based inequalities. Emission data reveals that the wealthy class, a small percentage of the population, contributes significantly to carbon footprints, while those impacted by climate change are mostly from scheduled castes, tribes, and other backward classes. The common but differentiated responsibility, applied globally, should also be implemented within countries to address these internal disparities.

Q. Can the environmental movement in India be characterized as bourgeois environmentalism? If so, how can we transition towards a more inclusive environmental and developmental movement? Did you come across any innovative ways in which climate-related challenges have been dealt with inclusively challenges have been dealt with inclusively??

A: I consider the environmental movements in India to have roots in the organized resistance of Adivasis and peasants against the British. While a section of educated elites dominates the environmental movements, on the ground, it is Adivasis, Dalits, and other backward class groups, along with women, leading the movements. Categorizing the movement as either bourgeois environmentalism or the environmentalism of the poor is insufficient. Historical movements led by figures like Dr. Ambedkar. Birsa Munda, and Dalit environmental activist Kallen Pokkudan demonstrate the diverse nature of India's environmental activism. The leadership of environmental movements should be more reflective of the masses involved. Savarna groups need to understand the nuances of environmental and climate justice within India without claiming ownership of these movements and people.

Interview conducted by Anuja Ramugade and Sana Grover

Q. As we conclude, are there any specific thoughts or messages you would like to share with our readers?

A: Climate change is one of the most complex crises humanity faces, and justice is at its core. It has become more than just an energy transition or net-zero issue globally, with new justice concerns arising from resource extraction for green technologies. In India, lower castes and Adivasis are already paying the price of this crisis. If we have any ethical considerations, this should not be acceptable, and efforts should be made to protect these communities. Acknowledging and addressing internal inequalities is crucial for effective climate action within countries.



ATROCITIES OF CLIMATE CHANGE AND ITS BIASED IMPACT

This was awarded as the "Best Poster" presented at the Poster Presentation Competition, held by Vasundhara, Eco Club on 8th December, 2023 at the annual fest of TERI SAS, AAHWAAN 2023.

Kamakshi Gupta M.Sc. Economics TERI School of Advanced Studies

Introduction

Climate injustice implies inequitable and unfair distribution of the effects of climate change on the people. Certain communities face minimalistic to no negative effects of climate change while the others bear the major brunt. The groups that bear the major brunt are the vulnerable groupsOne of the major component that is affected among the vulnerable groups is health. Due to the adverse climatic conditions, the vulnerable groups are barely able to shield themselves and suffer the negative implications. Since, health is wealth, these people who lack health also lose out on wealth which makes them even more vulnerable. Presence of vulnerable groups the development of the nation by reducing the human-resource-as-asset component from the economy and increasing the liability component. Hence, it becomes important for the government and the citizens to take action against climate injustice.



OBJECTIVES-

The study has the following objectives-

- 1. Who are the vulnerable groups?
- 2. What are the health issues they are suffering with due to climate injustice?3. What all can be done to provide climate justice to all? (Policy

recommendations)







METHODOLOGY-

- The methodology used is articles, research papers, review papers and other literature available.
- Data is obtained from the secondary sources.

All the sources will be clearly cited and references would be mentioned in the
reference section.



RESULTS OR FINDINGS-

Climate injustice is the effect of climate injustice that is disproportionately borne by certain groups of people in the society called the vulnerable groups. Some groups that face climate injustice are-

- Low-income communities
- Old people
- Children
- People with diseases
- Immigrants
- 1. The low income communities-
- Poor lack resources to withstand the extreme climatic conditions and
- hence are most prone to injuries, displacement and even losing their life.Barely able to able to afford food during food shortages leading to
- malnutrition and various other diseases.
- Prone to diseases such as malaria, dengue and ticks
- Heatstroke

• Higher level of stress and anxiety. The World Health Organization (WHO) estimates that climate change is expected to cause approximately 250,000 additional deaths per year between 2030 and 2050, with the majority occurring in low-income countries. People who migrate or take refuge in other countries also tend to be poor and suffer due to the climatic issues.



RESULTS OR FINDINGS

2. Old people and people with diseases-

Climate change severely affects the health of the old people. While the young and healthy population has the ability to adapt and survive under changing climatic conditions, old people and people with diseases are the ones who have to suffer. Their health problem worsens and leads to death in a lot of cases. Problems such as-

- Respiratory issues
- Heart Attack
- Diabetes
- Heatstroke

Are quite common among the old generation. These days even the younger generation has started to develop these diseases at an early age. According to the reports by United Nations Office for Disaster Risk Reduction (UNDRR), 53% of the deaths in natural disasters between 1998 and 2017 occurred among the people over the age of 60. A study published in the journal Nature Climate Change in 2020 estimated that, globally, heatrelated deaths among people over 65 could increase by 527% by 2050 if no mitigation measures are taken



3. Children

Infants and small children are also vulnerable to the climate change as their bodies have not developed the resistance against the climate change. Climate change negatively affects them in their developing stage such that a lot of them become cancer patients, asthma patients and heart patients at an early age.





CONCLUSION & WAY FORWARD

It can be concluded that those without health or wealth or both are the ones who are subjected to the injustices of the climate change. These vulnerable groups have to suffer the most without any fault of their own.. This not only impacts the personal development of the being but also deteriorates the society in general. So, climate injustice is not an issue affecting only a certain group but an issue which affects all directly and indirectly. The solutions to the problem of climate injustice are- afforestation, proper management of land, reducing harmful emissions by shifting to green economy, avoiding activities resulting in pollution (or doing them in a limited and controlled manner) etc. The key aspect that will lead to a widespread implementation of these solutions is Education and Awareness. Without education and awareness, these solutions to will merely remain a few lines on the paper. The actual implementation of them and the path to climate justice can only be paved if majority people of the world are educated and aware about the climate related issues and the action against it (climate change) is taken unanimously.

REFERENCES

Saraswat, C., & Kumar, P. (2016). Climate justice in lieu of climate change: a sustainable approach to respond to the climate change injustice and an awakening of the environmental movement. Energy, Ecology and Environment, 1, 67-74.

Anguelovski, I., Connolly, J. J., Pearsall, H., Shokry, G., Checker, M., Maantay, J., ... & Roberts, J. T. (2019). Why green "climate gentrification" threatens poor and vulnerable populations. Proceedings of the National Academy of Sciences, 116(52), 26139-26143.

Arvind Kumar, D.P. Singh, Heat stroke-related deaths in India: An analysis of natural causes of deaths, associated with the regional heatwave, Journal of Thermal Biology, Volume 95, 2021, 102792, ISSN 0306-4565

Unites States Environmental Protection agency (.gov)

Yale Sustainability (University of Yale)

Images- Google images

CONTACT

Mail; kamakshi.gupta@terisas.ac.in

CLIMATE NEWS

India is building the world's largest renewable energy park to power 18 million homes

The project in Khavda desert in Gujarat will stretch over 726 sq. kilometres, create 1,00,000 jobs and mitigate 50 million tonnes of CO2 emissions annually. (Livemint)

Amazon Deforestation in Brazil halved in 2023

Data shows that the rate of deforestation in Brazil's Amazon fell by almost 50% in 2023 in comparison to the previous year. It was the lowest recorded rate in the last half decade. (BBC)

World's Renewable energy capacity has grown 50% in the last year alone

An IEA report found that renewable energy capacity grew at a record pace in 2023, mainly driven by China, Europe, the US, and Brazil. These numbers offer hope that COP28 targets of tripling capacity by 2030 can be achieved. (Guardian)

India advocates for emphasizing 'green credits' as a substitute for carbon offsets at COP28

India promotes green credits initiative at COP28 . Launched in October by the Indian Ministry of Environment, the Green Credit Initiative (GCI), under the Green Credit Program, initially focuses on water conservation and afforestation projects. It is a market-based mechanism designed to encourage voluntary environmental efforts from individuals, communities, and private sectors. (ET Energy World)

Chile becomes the first nation to ratify the UN Ocean Treaty

The Chilean Senate unanimously voted to ratify the agreement to protect 30% of oceans by 2030, with 59 more countries needed for the agreement to enter in force. (Greenpeace)



Editorial Board - VASUNDHARA 14th Edition

Core Team



M.Sc. Economics

(Editor in Chief) Sunaina Saxena.

(Sub-Editor) Ànshika Sah, M.Sc. ESRM







Abhiniti Gupta. M.Sc. Economics



Anuja Ramugade, M.A. SDP

Sana Grover, M.Sc. Economics





Editorial Team



Deepali Singh, M.B.A (SM)

Rishu Gupta, M.A. SDP

Anukriti Sharma, M.Sc. ESRM



(Managing Editor) Soumit Pandey, M.Sc. Economics

(Content Lead) Aakriti Arora. M.Sc. Economics



Pritish Kumar Acharya, M.Sc. Economics



Yamine Gupta, M.Sc. Economics



Rajlakshmi Choudhary, M.Sc. ESRM



Raghunandan Nair,

M.Sc. ESRM



Aakash Ghosh, M.Sc. Economics



(Design Lead) Rayena Sarkar, M.Sc. WSG



(Editorial Lead) Pratha Mishra, M.Sc. WSG



Purvi Gupta, M.Sc. ESRM



Meghma Mitra, M.Sc. WSG



Pratha Mishra, M.Sc. WSG



M.Sc. Economics



Gautam Matta, **M.Sc. Economics**







Design Team



Mansi Vatwani, M.Sc. ESRM



Vaishnavi, M.Sc. **Economics**



Kanishka Pathak, M.A. SDP



Prachi Mahale, M.B.A (SM)



Sakshi Saini, M.Sc. ESRM



Vikas Meena, M.Sc. WSG



Arundhati Powdel, M.A. SDP

Referenc

A GLIMPSE THROUGH THE EYES OF THE VULNERABLE (UNVEILING THE DELHI **FLOODS IN 2023)**

- Government of the United States of America. (2021, October 22). Report on the Impact of Climate Change on Migration (October 2021) - World. ReliefWeb. Retrieved January 15, 2024, from https://reliefweb.int/report/world/report-impact-climate-change-migration-october-2021
- Hari, V., Dharmasthala, S., Koppa, A., Karmakar, S., & Kumar, R. (2021). Climate hazards are threatening vulnerable migrants in Indian megacities. Nature Climate Change, 11(8), 636–638. Retrieved January 15, 2024, from https://doi.org/10.1038/s41558-021-01105-7
- Homes, clothes, books washed away, Delhi flood victims stare at battle to stay afloat | Delhi News. (2023, July 18). Times of India. Retrieved January 15, 2024, from https://timesofindia.indiatimes.com/city/delhi/homes-clothes-books-washed-away-delhi-flood-victims-stare-at-battle-to-stay-afloat/articleshow/101866806.cms
- Kumar, H. (2023, July 10). Deadly Monsoon Flooding and Landslides Lash Northern India. The New York Times. Retrieved January 15, 2024, from https://www.nytimes.com/2023/07/10/world/asia/indiamonsoon-flooding-landslides.html
- McLeman, R. A., & Hunter, L. M. (2010, May). Migration in the context of vulnerability and adaptation to climate change: insights from analogues. NCBI. Retrieved January 15, 2024, from
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3183747/
 Taskin, B. (2023, July 21). 'Tired of rebuilding home': In relief camps, Delhi's flood-displaced forced to relive 1978 horror. ThePrint. Retrieved January 15, 2024, from https://theprint.in/india/tired-of-
- rebuilding-home-in-relief-camps-delhis-flood-displaced-forced-to-relive-1978-horror/1678446/
 2023 North India floods. (n.d.). Wikipedia. Retrieved January 15, 2024, https://en.wikipedia.org/wiki/2023_North_India_floods#cite_note-27 from
- Yasir, Sameer; Kumar, Hari (10 July 2023). "Deadly Monsoon Flooding and Landslides Lash India". The New York Times. ISSN 0362-4331. Archived from the original on 11 July 2023. Retrieved 15 July 2023.
- Delhi Flood Victims, July 18 https://timesofindia.indiatimes.com/city/delhi/homes-clothes-books-washed-away-delhi-flood-victims-stare-at-battle-to-stay-afloat/articleshow/101866806.cms
- Tired of rebuilding home July 21 https://theprint.in/india/tired-of-rebuilding-home-in-relief-camps-delhis-flood-displaced-forced-to-relive-1978-horror/1678446/
- 2023 North India floods https://en.wikipedia.org/wiki/2023_North_India_floods#cite_note-27
- Report on the Impact of climate change on Migration (October 2021) World. (2021, October 22). ReliefWeb. https://reliefweb.int/report/world/report-impact-climate-change-migration-october-2021
- Migration in the context of vulnerability and adaptation to climate change: Insights from analogues , May 2010.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3183747/#:~:text=In%20the%20field%20of%20climat e,of%20communities%20or%20socioeconomic%20systems

• Hari, V., Dharmasthala, S., Koppa, A., Karmakar, S., & Kumar, R. (2021). Climate hazards are threatening vulnerable migrants in Indian megacities. Nature Climate Change, 11(8), 636–638. https://doi.org/10.1038/s41558-021-01105-7

THE DISPARATE IMPACT OF CLIMATE CHANGE ON WOMEN: EXAMINING **VULNERABILITY THROUGH A GENDER LENS**

- Facini, A. (2023, January 3). BRIEFER: Climate Change as a "Threat Multiplier": History, Uses and Future of the Concept. The Center for Climate & Security. https://climateandsecurity.org/2023/01/brieferclimate-change-as-a-threat-multiplier-history-uses-and-future-of-the-concept/
- Making climate finance work for women: Overview of bilateral ODA to gender and climate change-OECD. (n.d.). https://www.oecd.org/dac/gender-development/making-climate-finance-work-forwomen.htm
- Sorensen, C., Saunik, S., Sehgal, M., Tewary, A., Govindan, M., Lemery, J., & Balbus, J. (2018). Climate Change and Women's Health: Impacts and Opportunities in India. GeoHealth, 2(10), 283-297. https://doi.org/10.1029/2018GH000163
- Explainer: How gender inequality and climate change are interconnected. (2022, July 14). World Economic Forum. https://www.weforum.org/agenda/2022/06/explainer-how-gender-inequality-andclimate-change-are-interconnected/#
- Dimensions and examples of the gender-differentiated impacts of climate change, the role of women as agents of change and opportunities for women. Synthesis report by the secretariat | UNFCCC. (2022, June 1). https://unfccc.int/documents/494455

BREATHING AGAINST THE ODDS- THE IMPACT OF CLIMATE ON HEALTH **DISPARITIES IN URBAN MARGINALIZED COMMUNITIES**

- NewsHour. marginalized-communities-most

- Yip, L. (2021, July 15). Why marginalized groups are disproportionately affected by climate change. Earth.org. https://earth.org/marginalised-groups-are-disproportionately-affected-by-climate-change/

FROM WARRIORS TO VICTIMS: THE ONGOING PLIGHT OF DISPLACED TRIBALS

- Conservation in India: An Analysis. Russian Law Journal, 11(1S). https://doi.org/10.52783/rlj.v11i1s.366 Global Assessment Report in May 2019
- Radhika Borde & Bettina Bluemling (2021) Representing Indigenous Sacred Land: The Case of the Niyamgiri Movement in India, Capitalism Nature Socialism, 32:1, 68-87, DOI: Niyamgiri Movement in 10.1080/10455752.2020.1730417

- Kurian, A. (2020). Ecotourism and conservation refugees: The Indian Scenario, Mahatma Gandhi University, Kerala available at http://www.envirobiotechjournals.com/EEC/v27FebSupplIssue2021/EEC-51.pdf
- Bandyopadhyay, G. (2021). Development versus Displacement in the Backdrop of Growing Environmental Damage: Impact upon the Aboriginals of India. Economy Polity Environment : An International Peer-Reviewed Journal of Social Studies, 3(1), 01-16. Retrieved from https://www.epef.in/index.php/epe/article/view/23
- Ramamurthy, M. J., & Hoffman, D. (2023). "Development" definitions of internally displaced people and the government: A study of the Chenchu tribe in the Nallamala forest of southern India. Frontiers in Conservation Science, 4. https://doi.org/10.3389/fcosc.2023.1126168
 Eviction of Tribals: Forced Displacement and Its Links With Poor Health. (n.d.). The Wire.
- https://thewire.in/rights/supreme-court-eviction-tribals-displacement
- India's Indigenous people demand land rights after being displaced by tiger conservation projects. (2023), available at https://www.abc.net.au/news/2023-04-09/india-indigenous-demand-land-rights-
- Balaji M. (2023) Climate-induced displacement: A new normal for India's vulnerable communities | Climate Connection. (n.d.). https://climateconnection.org.in/updates/climate-induced-displacementnew-normal-indias-vulnerable

communities#:-:text=Climate%2Dinduced%20displacement%3A%20A%20new%20normal%20for%20 India's%20vulnerable%20communities,Tue%2C%2004%2F07&text=Extreme%20climatic%20events%2 Ocan%20trigger, events%20like%20floods%20and%20storms.

NURTURING RESILIENCE: IMPACT OF CLIMATE CHANGE ON FARMERS

- Dhakal, C., Khadka, S., Park, C., & Escalante, C. L. (2022, July). Climate change adaptation and its impact on household farm income and revenue risk exposure (10(1):100082 ed.). Resources, Environment and Sustainability. https://doi.org/10.1016/j.resenv.2022.100082
- International Fund for Agricultural Development (IFAD). (2014, November). Small farms, big impacts: International Fund for Agricultural Development (IFAD), (2014, November), Shall fairins, big impacts: mainstreaming climate change for resilience and food security November 20. IFAD. https://www.ifad.org/en/web/knowledge/-/publication/small-farms-big-impacts-mainstreaming-climate-change-for-resilience-and-food-securi-1
 Reserve Bank of India. (2016, July). Master Direction - Regional Rural Banks - Priority Sector Lending - Targets and Classification (Updated June 18, 2019).
- Reserve Bank of India. (2016, July). Master Direction Regional Rural Banks Priority Sector Lending Targets and Classification (Updated June 18, 2019). https://www.rbi.org.in/commonman/Upload/English/Notification/PDFs/34MD27062019.pdf
 Talukder, B., van Loon, C. W., Hipel, K. W., Chiotha, S., & Orbinski, J. (2021, December). Health impacts of climate change on smallholder farmers. In One Health (Issue 13). ScienceDirect. https://www.sciencedirect.com/science/article/pii/S2352771421000483#:~:text=Sea%20level%20rise%20 causes%20growing,%5D%2C%20%5B61%5D%5D.
 Verma, S., & Sudan, F. K. (2021, August 31). How Do Marginal and Small Farmers Perceive the Impacts of Climate Change on Livelihoods? A Case Study from Jammu Region, India (Issue Regional Economic Development Research, Volume 2 Issue 2 (2021), 96-238). https://doi.org/10.37256/redr.2220211016

• Air pollution down in the U.S. but still hurts marginalized communities most. (2020, August 3). PBS https://www.pbs.org/newshour/health/air-pollution-down-in-the-u-s-but-still-hurts-

marginalized-communities-most
Chakraborty, J., & Basu, P. (2021). Air Quality and Environmental Injustice in India: Connecting Particulate Pollution to Social Disadvantages. International Journal of Environmental Research and Public Health, 18(1), 304. https://doi.org/10.3390/ijerph18010304
Hajat, A., Hsia, C., & O'Neill, M. S. (2015). Socioeconomic disparities and air pollution exposure: a global review. Current Environmental Health Reports, 2(4), 440-450. https://doi.org/10.1007/s40572-015-0069-5
Moses, E., & Excell, C. (2020). Pollution Is a Racial Justice Issue. Let's Fight it that Way. Www.wri.org. https://www.wri.org/insights/pollution-racial-justice-issue-lets-fight-it-way
Varanasi, A. (n.d.). How India's Air Pollution Crisis Impacts The Poor The Most. Forbes. Retrieved January 15, 2024, from https://www.forbes.com/sites/anuradhavaranasi/2021/07/26/how-indias-air-pollution-crisis-impacts-the-poor-the-most/?sh=54332675510b
Yip, L. (2021, July 15). Why marginalized groups are disproportionately affected by climate change.

• Challa K et al. (2023, March 27). Recognizing Role of Indigenous Communities in Biodiversity

10.1080/10455752.2020.1730417
Chhattisgarh: Tribal 'green warrior' motivates community to grow forest on 400 acre land, (2023) available at https://www.thehindu.com/sci-tech/energy-and-environment/chhattisgarh-tribal-greenwarrior-motivates-community-to-grow-forest-on-400-acre-land/article66937397.ece
Jayachandran M., (2022), Great Environmental Movements that inspire change, available at https://wildlifesos.org/conservation-awarness/great-environmental-movements-that-inspire-change/
Mahapatra, A. K., Tewari, D. D., & Baboo, B. (2015). Displacement, Deprivation and Development: The impact of relocation on income and livelihood of tribes in Similipal Tiger and Biosphere Reserve, India. Environmental Management, 56(2), 420-432. https://doi.org/10.1007/s00267-015-0507-z
Kurian A. (2020) Ecotourism and conservation refugees: The Indian Scenario Mahatma Gandhi

CLIMATE CHANGE-IS THERE TIME TO SPARE?

- Harris, G. (2014, March 28). Borrowed Time on Disappearing Land. The New York Times. https:// www.nytimes.com/2014/03/29/world/asia/facing-rising-seas-bangladesh-confronts-the-
- Panda, A. (2020, May 26). Climate change, displacement, and managed retreat in coastal India -India. ReliefWeb. https://reliefweb.int/report/india/climate-change-displacement-and-managedretreat-coastal-india
- Salzenstein, L., & Montu, R. I. (2021, December 2). How Bangladesh is beating the odds on climate disaster deaths. The New Humanitarian. https://www.thenewhumanitarian.org/investigation/2021/12/2/how-Bangladesh-is-beating-the-odds-on-climate-disaster-deaths
 Youdon, C. [1] (2020, December 21). Urban Coastal Vulnerability: Building Climate Resilience in India
- World Sustainable Development Forum. World Sustainable Development Forum. https:// worldsdf.org/research/urban-coastal-vulnerability-building-climate-resilience-in-india/

THE GLOBAL LANDSCAPE OF ATROCITIES OF CLIMATE INJUSTICE

- Agrawala, S., & Lebrun, F. C. (2006, May). Progress on adaptation to climate change in developed countries. OECD. Retrieved from https://www.oecd.org/env/cc/37178873.pdf
 Bouye, M., & Waskow, D. (2021, November 11). Climate Action Isn't Reaching the Most Vulnerable -
- But It Could. World Resources Institute. Retrieved from https://www.wri.org/insights/how-climate-
- But It Could. World Resources Institute. Retrieved from https://www.wri.org/insights/how-climate-action-can-help-vulnerable-populations
 Chinowsky, P., Hayles, C., Schweikert, A., Strzepek, N., Strzepek, K., & Schlosser, C. A. (2011, April 26). Climate change: comparative impact on developing and developed countries. Taylor & Francis Online. Retrieved from https://www.tandfonline.com/doi/full/10.1080/21573727.2010.549608
 Guivarch, C., Taconet, N., & Mejean, A. (2021, September). Linking Climate and Inequality. International Monetary Fund. Retrieved from https://www.imf.org/en/Publications/fandd/issues/2021/09/climate-change-and-inequality-guivarch-meieanguivarch-mejean-

aconet#:~:text=In%20recent%20decades%2C%20global%20economic,the%20poorest%20regions %20and%20people

- Ludwig, F., Scheltinga, C. T., Verhagen, J., Kruijt, B., Ierland, E., Dellink, R., Bruin, K., Bruin, K., & Kabat, P. (2007, November). Climate change impacts on developing countries EU Accountability. Parliament. European Retrieved from https://www.europarl.europa.eu/RegData/etudes/etudes/join/2007/393511/IPOL-ENVI ET(2007)393511 EN.pdf
- Rosenthal, S., Ho, S. S., Detenber, B. H., & Lee, E. W. J. (2013, June). Perceptions of climate change in Singapore and the United States. ResearchGate. Retrieved from https://www.researchgate.net/publication/262297943_Perceptions_of_climate_change_in_Singapo re and the United States
- Yip, L. (2022, November 9). How Marginalized Groups Are Disproportionately Affected by Climate Change. Encompass HK. EARTH.ORG. Retrieved from https://earth.org/marginalised-groups-are-disproportionately-affected-by-climate-change/

ATROCITIES OF CLIMATE CHANGE AND ITS BIASED IMPACT - A VISUAL REPRESENTATION

- Saraswat, C., & Kumar, P. (2016). Climate justice in lieu of climate change: a sustainable approach to respond to the climate change injustice and an awakening of the environmental movement. Energy, Ecology and Environment, 1, 67-74.
 Anguelovski, I., Connolly, J. J., Pearsall, H., Shokry, G., Checker, M., Maantay, J., ... & Roberts, J. T. (2019). Why green "climate gentrification" threatens poor and vulnerable populations. Proceedings of the National Academy of Sciences, 116(52), 26139-26143.
- Arvind Kumar, D.P. Singh, Heat stroke-related deaths in India: An analysis of natural causes of deaths, associated with the regional heatwave, Journal of Thermal Biology, Volume 95,2021,102792,ISSN 0306-4565
- Unites States Environmental Protection agency (.gov)
- Yale Sustainability (University of Yale)
- Images- Google images

CLIMATE NEWS

- Ap. (2023, December 6). India building world's largest renewable energy project in salt deserts bordering Pakistan | Mint. Mint. https://www.livemint.com/industry/energy/india-building-world-s-largest-renewable-energy-project-in-the-salt-deserts-bordering-pakistan-11701863454397.html
- largest-renewable-energy-project-in-the-salt-deserts-bordering-pakistan-11701863454397.html
 Santos, B. S. F. (2024, January 12). Amazon rainforest: Deforestation rate halved in 2023. BBC News. https://www.bbc.com/news/world-latin-america-67962297
 Ambrose, J. (2024, January 18). World's renewable energy capacity grew at record pace in 2023. The Guardian. https://www.theguardian.com/environment/2024/jan/11/worlds-renewable-energy-capacity-grew-at-record-pace-in-2023
 Year end Review- Ministry of Environment, Forest and Climate Change. (n.d.). https://pib.gov.in/PressReleasePage.aspx? PRID=1989495#:~:text=Green%20Credit%20Initiative%20was%20Iaunched,the%20Environment%2 OProtection%20Actt%20Ia86

OProtection%20Act%201986

• Greenpeace International. (2024, January 17). Chile becomes first nation to approve ratification of historic UN Ocean Treaty - Greenpeace Internation https://www.greenpeace.org/international/press-release/64768/chile-first-nation-ratify-un-ocean-Treaty Greenpeace International. treatv





















An Eco Club Initiative @TERI SAS

FOR MORE INFORMATION:

(c) +91 11 71800222 (25 lines)

registrar@terisas.ac.in vasundhara.ecoclub@terisas.ac.ir www.terisas.ac.in

The Registrar, TERI SAS, Plot No. 10, Institutional Area, Vasant Kunj, New Delhi - 110 070, India.