Climate Change and Social Inequality: Vulnerabilities of Marginalised Communities

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Abstract:
Climate change represents one of the most profound and pressing challenges facing humanity in the twenty-first century. Its impacts are diverse, ranging from rising global temperatures and sea-level rise to increased frequency and severity of extreme weather events. While climate change affects all regions and populations to varying degrees, its consequences are not experienced equally. Marginalised communities, often encompassing groups defined by ethnicity, socioeconomic status, geography, and other social determinants, are disproportionately vulnerable to the adverse effects of climate change. The intersection of climate change and social inequality reveals significant disparities in exposure to climate risks, capacity to adapt, and access to resources for resilience, thereby reinforcing and exacerbating existing inequalities. The present paper explores the vulnerabilities of marginalised communities in the face of climate change, examining the multifaceted nature of these risks and highlighting the imperative for equitable and inclusive climate policies. Understanding the vulnerabilities of marginalised communities requires a contextual analysis of both climate-related hazards and the socio-political conditions that shape exposure and adaptive capacity. Climate change hazards such as heat waves, floods, droughts and storms pose physical threats that can lead to loss of life, livelihoods, and property. However, the extent to which communities suffer from these hazards depends heavily on their resilience, which is mediated by underlying social, economic and political factors. Marginalised groups often inhabit geographically vulnerable areas, such as floodplains, coastal zones, or arid lands, due to historical processes of dispossession, discrimination, and exclusion from more secure living spaces. For instance, low-income populations in urban centres frequently reside in informal settlements characterized by inadequate infrastructure, poor housing quality and insufficient sanitation facilities, rendering them particularly susceptible to climate-induced disasters.

Keywords: *Climate change, Humanity, Marginalised communities, vulnerabilities, Hazards.*

Introduction:

Climate change represents one of the most pressing global challenges of the twenty-first century, affecting all parts of society and the environment. While its impacts are widespread, they are not evenly distributed. Marginalised communities, often defined by socio-economic status, race, ethnicity, geographic location, and other factors face disproportionately greater vulnerabilities in the face of climate change. The impacts of climate change including rising temperatures, sea-level rise, intensified storms, droughts and shifting disease patterns exacerbate existing social vulnerabilities. Marginalised communities often reside in areas more exposed to environmental hazards, such as

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floodplains, urban heat islands, or drought-prone rural regions. This increased exposure arises both from systemic inequalities in housing and land use and from historical patterns of discrimination, including environmental racism where minority groups are disproportionately located near polluting industries or hazardous waste sites.

Moreover, marginalised populations typically have fewer resources to prepare for, respond to, and recover from climate disasters. Economic disadvantage limits access to quality healthcare, insurance and adaptive infrastructure. Social isolation and lack of political representation can further reduce their ability to voice concerns or influence policy decisions. For example, low-income neighbourhoods may lack adequate cooling centres during heat waves or flood defences in hurricane-prone regions. Consequently, when climate- related disasters occur, these communities experience higher mortality rates, greater economic losses, and prolonged recovery periods compared to more privileged groups.

Understanding the vulnerabilities of marginalised communities necessitates an intersectional approach that recognizes how multiple social factors compound risk. Race, class, gender, age, disability status, and migrant status can interact to produce complex layers of disadvantage. Women in low- income communities, for instance, often face heightened risks during climate disasters due to caregiving responsibilities and reduced access to resources. Indigenous peoples may confront threats to their traditional lands, culture, and livelihoods from climate-induced environmental changes. Furthermore, marginalised communities frequently rely heavily on natural resources for subsistence and income, such as small-scale farmers, fishers, and pastoralists. Climate change disrupts these livelihoods through unpredictable weather patterns, crop failures, and depleted fisheries. This economic insecurity can drive migration and displacement, leading to additional social stresses and potential conflicts.

India, a country characterized by diverse climatic conditions, frequently experiences extreme weather events, among which floods and droughts are most significant. These events have profound impacts on the socio-economic fabric and ecology of the region. Floods and droughts in India are complex phenomena demanding integrated management approaches. Addressing these challenges is critical to safeguarding human lives, ensuring food security and promoting sustainable development in the country.

The convergence of water scarcity and climate change risks exposes critical vulnerabilities in infrastructure, governance and natural ecosystems. Inadequate water storage and distribution systems fail under stress, while policy frameworks often lack the flexibility to respond effectively to shifting conditions. Ecosystems dependent on stable water sources suffer degradation, reducing biodiversity and ecosystem services vital for human survival. Addressing these vulnerabilities demands integrated approaches that encompass sustainable water management, climate resilience, and social equity.

Investments in technology, data-driven decision-making, and community engagement are essential to build adaptive capacity. Ultimately, securing water resources amidst climate uncertainty is imperative for safeguarding livelihoods and fostering resilient societies.

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Government adaptation strategies, plans and programmes demonstrate a concerted effort to secure water resources amidst climate change challenges. By integrating scientific knowledge, sustainable practices and stakeholder participation, these measures aim to enhance resilience and safeguard water availability for future generations. Continued commitment and adaptation refinement remain essential as climate dynamics evolve.

Climate change is not just an environmental issue but a profound social justice challenge. Marginalised communities face a convergence of risks due to historical and systemic inequalities that intensify their exposure and sensitivity to climate impacts. Recognizing and addressing these intertwined vulnerabilities is essential for crafting effective and equitable climate policies. Only by integrating social equity into the climate agenda can society hope to build resilience that protects its most vulnerable members and promotes sustainable, inclusive development for all.

Review of literature:

Tiasa Adhya, (2011) explains the concepts of vulnerability and adaptation in the context of climate change. It illustrates selected successes and failures of reactive adaptation to analogous changes in environmental or socio- economic conditions and it explores the challenges and potential benefits of deliberately stoking the nation‘s adaptive capacity with proactive policies in anticipation of climate change. The case study of translocation of crops demonstrates that the agricultural sector can expand the range of certain crops to include climates that are as different as the levels of climate change projected to occur over the next few decades. The Great Plains example shows that adaptations can happen in response to resources becoming limited. The Great Salt Lake example shows that society can, to some degree, address immediate and vital problems brought about by a changing climate.

Meena kumari (2010) presents a detailed analysis of the association of agricultural output with monsoon rainfall where two indicators of El Nino Southern Oscillation (ENSO) and Indian Ocean Sea Surface temperatures (SST) are measured. The study considers aggregate food grains, cereals, pulses and oilseeds, rice, wheat, sorghum, groundnut and sugarcane by season at national and for particular regions within India. In the findings we see the kharif growing season coincides with the south-west monsoon therefore here the correlation between monsoon and crops is particularly strong. While analysing crop-climate association on a regional scale we see that production varies from one region to another within India. The results of this study provide evidence that crop response to monsoon rainfall has some predictability, even before the start of the growing season. This type of analysis, at a finer spatial scale, could provide useful information for targeting interventions.

G. Bhalla, (2009) in his book studies climate with anthropological, archeological and historical perspective. They review the aspects of our physiological, intellectual development and social behaviour that have been influenced by climatic factors and how the features of our lives- diet, health and relation with the nature are product of the climate that evolved. The book looks into the past only to gain knowledge for the future; how man can learn to adapt effectively by changing some of his habits. Effect of climate on human history can be seen as the book is supported by scientifically

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analysed data. The author also suggests that how IPCC predictions can be set against what happened during the last ice-age and in the Holocene and in particular when the climate shifted radically in between those two periods.

Research Gaps:

One of the most notable research gaps in current research pertains to the multidimensional nature of vulnerability among marginalised populations. While many studies have documented the physical risks posed by climate change, fewer have adequately captured the complex social, economic and political factors that exacerbate vulnerability. Additionally, there is a paucity of localized and community-specific studies. Much of the extant literature focuses on broad regional or national analyses, which may overlook the contextual nuances that shape vulnerability and adaptive capacity at a finer scale. Marginalised communities often possess unique socio-cultural characteristics and face distinct challenges that influence their ability to respond to climate-related hazards. Without localized data and community-centred research, interventions may fail to meet the specific needs of these populations, leading to ineffective or unjust outcomes. Another critical gap involves the representation and participation of marginalised groups in climate-related research and policy development. Marginalised communities are frequently underrepresented in decision-making processes and research agendas, resulting in a lack of their voices and experiences in shaping solutions. This exclusion perpetuates cycles of marginalisation and undermines efforts to develop equitable adaptation and mitigation strategies. Future research must prioritize inclusive methodologies that empower marginalised communities through participatory approaches and co-production of knowledge. While significant strides have been made to acknowledge the intersection of climate change and social inequality, research gaps persist that limit our understanding of the vulnerabilities faced by marginalised communities. Addressing these gaps requires interdisciplinary, localized, inclusive, and long- term focused research approaches. By doing so, scholars and policymakers can better inform equitable and effective climate action that protects the most vulnerable and promotes social justice in the face of global environmental change.

Objective:

The main objective of present paper is to reduce the vulnerabilities of marginalised communities to climate change, explains their rationale and outlines strategic approaches to achieve them.
Present paper has been based on the idea that marginalised communities experience disproportionately greater vulnerability to climate change because pre-existing social, economic and political inequalities amplify exposure to hazards, increase sensitivity to climate impacts and constrain adaptive capacity.
Socio-economic dimensions of climate vulnerability:

Climate change poses a significant threat to global stability, yet its impacts are not experienced uniformly. Marginalised communities bear a disproportionate burden due to pre-existing social inequalities that exacerbate their vulnerabilities. These communities often live in environmentally

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hazardous areas, lack adequate infrastructure and have limited access to resources necessary for adaptation and recovery. The intersection of climate change and social inequality manifests in heightened exposure to extreme weather events, such as floods, droughts and heat waves. Marginalised groups, including low-income populations, indigenous peoples, and racial minorities, frequently reside in regions more susceptible to these climate hazards. Furthermore, systemic barriers restrict their capacity to prepare for, respond to and recover from environmental crises. Economic constraints limit access to healthcare, insurance, and social services, thereby increasing risk and compounding the consequences of climate-related disasters. Addressing these disparities requires integrative policies that acknowledge the socio-economic dimensions of climate vulnerability. Sustainable development must prioritize equitable resource distribution, community empowerment, and inclusive decision-making processes. By strengthening resilience in marginalised communities, societies can foster greater climate justice and reduce the widening gap created by environmental and social inequities.

In addition to heightened exposure, marginalised communities confront systemic barriers that limit their capacity to adapt to climate impacts. Adaptation refers to the adjustments in social, economic, and environmental systems in response to actual or expected climatic stimuli and their effects. Effective adaptation often requires access to financial resources, technology, education, information, political representation, and social networks. Yet, marginalised groups disproportionately lack these adaptive assets. Economic deprivation restricts their ability to invest in resilient infrastructure or to relocate from vulnerable areas; limited access to education and information impedes awareness about climate risks and adaptation options; and political marginalisation often translates into exclusion from decision-making processes that affect resource allocation and disaster response. Indigenous peoples, for example, may face legal and institutional challenges in securing land rights vital for their livelihoods, even as they are intimately connected to their local environments and possess valuable traditional ecological knowledge.

Moreover, the interplay between climate change and social inequality leads to compounding vulnerabilities that amplify the severity of climate impacts. This phenomenon is referred to as a "double burden" or "climate inequality nexus," whereby structural inequalities and climate hazards interact synergistically. Women, children, the elderly, persons with disabilities, and racial and ethnic minorities frequently experience intersecting forms of marginalisation that exacerbate their susceptibility. Women in many developing contexts bear disproportionate responsibility for domestic tasks such as water collection, food production, and caregiving. Climate-induced resource scarcities, like droughts or floods, intensify these labour burdens, affect health outcomes, and limit women's participation in formal economic and political activities. Simultaneously, social norms and discriminatory practices may further restrict their access to resources necessary for adaptation, such as land ownership, credit, or training.

The environmental degradation associated with climate change also threatens the cultural integrity and social cohesion of marginalised communities. Indigenous peoples, pastoralists, and small-scale farmers often have livelihoods and cultural identities deeply intertwined with their natural environments. Climate change-related disruptions such as shifting rainfall patterns, desertification,

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or loss of biodiversity can erode traditional knowledge systems, displace populations, and provoke conflicts over scarce resources. Social conflicts, in turn, undermine community resilience and complicate cooperative management of common resources critical for adaptation. Marginalised groups frequently have fewer legal protections and political voice to safeguard their rights in these contexts, increasing their vulnerability to exploitation and dispossession.

Vulnerabilities of Marginalised communities:

Addressing the vulnerabilities of marginalised communities to climate change requires a multi-dimensional and justice-oriented approach. Climate policies and interventions must prioritize equity, recognizing the differentiated risks faced by diverse social groups and engaging them in participatory decision-making processes. This entails not only mitigating greenhouse gas emissions globally but also implementing adaptation strategies tailored to the specific needs and knowledge of marginalised populations. Investments in climate-resilient infrastructure, social protection mechanisms, capacity-building, and inclusive governance are essential components. For example, community-

based adaptation initiatives that empower local actors and integrate indigenous knowledge have demonstrated effectiveness in enhancing resilience. Furthermore, international frameworks, such as the Paris Agreement and the Sustainable Development Goals, emphasize the necessity of ensuring that climate action contributes to poverty alleviation, gender equality, and human rights.

Climate change-induced health impacts also disproportionately affect marginalised populations. Increased air pollution, heat exposure, and vector-borne diseases exacerbate existing health disparities. Limited access to healthcare services further complicates their ability to manage illnesses. Mental health consequences from trauma associated with extreme weather events and displacement represent growing concerns as well. The persistence of social inequality in climate resilience is in part due to inadequate policy responses and institutional frameworks. Many climate adaptation and mitigation programmes fail to incorporate equity considerations or to actively engage marginalised communities in decision-making processes. This omission risks perpetuating inequities and undermining the sustainability of interventions.

There is also a global dimension: poorer nations, often with historically lower greenhouse gas emissions, suffer more from climate impacts without sufficient financial and technical support from wealthier countries. This international disparity mirrors domestic inequalities and calls for climate justice approaches that address both environmental sustainability and social equity. Addressing the vulnerabilities of marginalised communities in the context of climate change requires multi-faceted strategies:

1. **Inclusive Policy Making:** Ensuring representation and meaningful participation of marginalised groups in climate governance improves relevance and effectiveness.
2. **Targeted Investment:** Directing resources to build adaptive capacity such as resilient infrastructure, access to healthcare, and education helps reduce vulnerability.
3. **Social Protection Measures:** Implementing social safety nets can cushion the economic shocks from climate events.

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4. **Environmental Justice Initiatives:** Addressing the root causes of environmental racism and spatial inequalities mitigates exposure risks.
5. **International Cooperation:** Developed countries must fulfil commitments to support climate adaptation in vulnerable nations through finance, technology transfer, and capacity building.

The vulnerabilities of marginalised communities to climate change underscore the urgent need for intersectional approaches that combine environmental action with social equity. Only through deliberate inclusion and targeted support can the disproportionate impacts of climate change on vulnerable populations be effectively mitigated.

Conclusion:

The present study concludes that climate change exacerbates pre-existing social inequalities and imposes disproportionate burdens on marginalised communities. The multifaceted vulnerabilities spanning health, livelihoods, culture and governance require integrated responses that combine robust mitigation with equitable adaptation. Policies centred on participatory governance, targeted social protection, resilient infrastructure and the dismantling of structural injustices can reduce vulnerability and enhance resilience. Addressing climate change without prioritizing equity risks deepening disadvantage and undermining the effectiveness and legitimacy of both national and international climate action. A just response to climate change is therefore both a moral imperative and a practical necessity for sustainable, inclusive development. The nexus between climate change and social inequality highlights how marginalised communities face intensified risks and diminished adaptive capacities. Their heightened vulnerabilities

stem not only from environmental exposure but also from entrenched social, economic, and political disadvantages. Recognizing and addressing these intersecting challenges is crucial for advancing climate justice and promoting sustainable development. As the global community confronts the escalating impacts of climate change, fostering resilience and equity for marginalised populations must remain at the forefront of policy agendas and collective action. Only through such inclusive efforts can the dual crises of climate change and social inequality be effectively mitigated, securing a just and sustainable future for all.

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