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Editorial



Climate change has become a reality and it is a threat to the existence of our planet. Humanity is in a state of climate emergency. Rising temperatures, ecological disasters, unpredictable and extreme weather conditions, declining biodiversity, severe fires and melting glaciers are the hot-button issues that have dominated the global politics in the past few decades. The lethal impacts of climate change are tangible. Break down of social organization, food insecurity; economic losses and deterioration of health are some of the palpable effects of climate change. We seem to have accepted these changes as constituting the 'new normal.' The whole 'Earth Cries' to use Ben Okri's title of his new poem. He describes a groaning Earth and the human accountability in this poem: "Insects are perishing, /Flowers are mourning /When will truth/come? When will we have the courage/To give this hour in history its true name? Must the Earth/Bleed to nurture?" There is an injunction to humankind to act to salvage the situation and preserve something of that which remains of the Earth to the future generations: "We are the gods that must do it/We are the gods that must step up/ To the biggest crisis in the history/Of human consciousness as we know it." Earth has ceased to be "the right place for love" ("Birches," Frost) and has become a place for aggressive looting and mindless exploitation of resources. Human greed and the unquenchable desire to monopolize resources have unequivocally driven this crisis to a tipping point. While it is argued that this situation cannot be reversed, it can be mitigated. Only concerted efforts at the global and regional levels with the combined participation of Governments, NGOs and individuals can achieve solutions. The Solid ground we stand on could melt away if we do not respect nature, if we do not learn to co-exist, if we do not learn to reduce our greed.

The thematic "Climate Change" for this issue of NEW FRONTIERS is timely and pertinent. We write this editorial at a time when we read about the plans of felling nine lakh trees in Great Nicobar Islands in the name of Development. Large scale destruction of nature would be detrimental to achieving sustainable development goals. We 'talk the talk' but we fail to 'walk the talk.' The climate focus in this issue, hence is one small step towards creating awareness about the impending threat we face collectively as humans.

There are many aspects to climate change. It involves socio-political, cultural, economic and gender dimensions. The essays collected in this issue reflect the various dimensions. They are a response to this urgent wake-up call for humanity to show their tiny acts of love for nature.

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CLIMATE CHANGE AND MENTAL HEALTH OF YOUTH: EXPLORING THE ROLES OF SOCIAL WORKERS IN ADDRESSING CLIMATE-RELATED DISTRESS AND IMPACTS

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Introduction

Climate change has emerged as a crucial concern with far-reaching consequences for both current and future generations. As scientific evidence accumulates, it is becoming clear that climate change not only poses serious environmental and socioeconomic issues but also has a significant influence on mental health. The vulnerability of young people, who face unique and complex issues in the context of a rapidly changing climate, is of special concern (Berry et al., 2010). According to research, youth are especially vulnerable to experiencing climate-related distress and subsequent mental health concerns. Adolescence, as a developmental stage marked by considerable physical, cognitive, and emotional changes, makes young people more susceptible to the psychological pressures associated with climate change (Drolet, 2017).

Uncertainty about the future, the loss of natural settings, increasing exposure to climate-related information, and the possibility of direct exposure to catastrophic weather events can all contribute to increased depression, anxiety, and hopelessness among young people. Furthermore, the long-term effects of climate change have the potential to impact young people's mental well-being throughout their lifetimes (Palinkas et al., 2020). The negative effects of climate change, such as displacement, food and water insecurity, loss of livelihoods, and rising social inequities, can amplify existing stressors and impose new burdens on youth mental health.

The link between Climate Change and Mental Health

Climate change and mental health have recently received increased attention from researchers, political leaders, and practitioners. Individuals, particularly young people, are becoming increasingly vulnerable to psychological and emotional distress as the effects of climate change manifest in various ways, including extreme weather events, rising

temperatures, and environmental degradation (Cianconi et al., 2020). Climate-related distress encompasses a wide range of mental health difficulties that may arise from the consequences of climate change. Anxiety and sadness are common among those grappling with the uncertainty and concerns associated with climate change (Gifford & Gifford, 2016). Extreme weather disasters, such as hurricanes, wildfires, or floods, can induce symptoms of post-traumatic stress disorder (PTSD), including intrusive memories, hypervigilance, and emotional reactivity (Padhy et al., 2015).

Moreover, if individuals feel overwhelmed by the scale and significance of environmental issues, a sense of helplessness and despair, known as eco-anxiety, may emerge (Charlson et al., 2021). Understanding the intricate connection between climate change and mental health is crucial for developing effective strategies to mitigate its adverse impact on children. Climate change implications extend beyond physical environmental changes and encompass social, economic, and psychological dimensions. Natural disasters, for instance, can disrupt social networks and support systems, exacerbating mental health challenges among young people.

Furthermore, chronic stressors associated with climate change, such as food and water insecurity, environmental degradation, and the potential for resource scarcity, can contribute to a pervasive sense of uncertainty and anxiety about the future. Prolonged exposure to such stressors can lead to the onset or exacerbation of mental health issues in young individuals, who are at a critical stage of identity formation and psychological development. Recognizing the immense impact of climate change on mental health, researchers and practitioners are striving to gain a better understanding of the mechanisms through which climate change affects psychological well-being (Hayes et al., 2018). This includes examining the psychosocial connections that link climate change and mental health, such as the disruption of social support networks, changes in community cohesion, and the amplification of existing social inequities.

The Vulnerability of Youth

Among the various demographic groups affected by the mental health impacts of climate change, youth are particularly vulnerable. Adolescence is a crucial developmental stage characterized by physical, cognitive, and emotional changes that can amplify the challenges posed by climate change and the accompanying psychological distress. There are several reasons why youth are more prone to experiencing psychological distress related to climate-related events (Busch et al., 2019). Firstly, concerns about their future, such as uncertainty

about environmental stability, resource availability, and the implications of climate change for their personal and professional goals, can contribute to increased worry and stress. The prospect of inheriting a damaged world and the potential constraints it may impose on their opportunities can have a significant impact on their mental health (Cloughton, 2021).

Moreover, the loss of natural settings, which are essential for recreation, connection with nature, and a sense of belonging, can profoundly affect young people. Ecosystem degradation, deforestation, and biodiversity loss not only deprive youth of important spaces for physical activity and leisure but also undermine their emotional connection to the natural world (Sanson et al., 2019). This loss can give rise to feelings of grief, despair, and alienation, exacerbating mental health issues (Lee et al., 2020). In today's interconnected world, youth are increasingly exposed to a constant stream of climate-related information through media platforms and social networks. While access to information is crucial, it can also overwhelm and disturb young people. Continuous exposure to news about climate-related disasters, species extinction, and the catastrophic effects of environmental degradation can evoke negative emotions (O'Brien et al., 2018).

Recognizing the unique vulnerability of youth, social workers play a crucial role in addressing their mental health needs in the context of climate change (Appleby et al., 2017). Social workers are trained in providing mental health support, advocacy, and community-based solutions, enabling them to address the complex challenges that young people face. By adopting a strengths-based approach, social workers can empower youth by strengthening their resilience, coping mechanisms, and adaptive skills to manage the psychological pressures associated with climate change (Gharabaghi et al., 2018).

The Role of Social Workers in Addressing Climate-Related Distress

Social workers are at the forefront of addressing mental health concerns and promoting social justice, positioning them well to address climate-related distress among young people. Their unique roles, skills, and experiences enable them to play a vital role in supporting the mental well-being of youth affected by climate change. One key aspect of social workers' roles is their ability to provide direct assistance and interventions to those experiencing climate-related distress. Social workers have specialized training in mental health assessment, counseling, and treatment, enabling them to address the emotional and psychological needs of youth affected by climate change (Dominelli, 2011).

Through individual or group therapy sessions, social workers can create a safe and compassionate space for young people to express their concerns, develop coping mechanisms,

and navigate their emotional responses to climate-related issues. Social workers are skilled in community engagement and can mobilize resources and support networks to address the broader social determinants of mental health (Allen, 2020). They can collaborate with community organizations, schools, and local authorities to design and implement comprehensive programs that promote youth resilience, environmental knowledge, and adaptive coping skills. By fostering partnerships and involving community stakeholders, social workers can establish holistic support systems that address the social, economic, and environmental factors contributing to climate-related distress. Social workers also serve as crucial advocates for policy reforms and structural interventions that promote climate justice and equitable mental health outcomes (Alston, 2015). They can leverage their expertise to raise awareness about the mental health impacts of climate change and advocate for the allocation of resources and programs that prioritize youth well-being. By participating in policy discussions and contributing to the development of climate change adaptation and mitigation strategies, social workers can ensure that mental health considerations are integrated into broader climate action initiatives.

Furthermore, social workers can engage in educational and preventive activities to enhance climate resilience and promote the mental well-being of young people (Peeters, 2012). They can collaborate with schools and educational institutions to develop age-appropriate programs that foster climate literacy, environmental stewardship, and emotional well-being. By equipping young people with knowledge, skills, and support networks to navigate climate-related challenges, social workers can empower them to become advocates for environmental sustainability and mental health awareness in their communities.

Rationale of the Study

The study aims to investigate the role of social workers in addressing climate-related mental health issues among young people. The rationale for conducting this study is based on several key factors:

- **Growing Concern:** Climate change is recognized as a significant global concern, with wide-ranging consequences for both the environment and human well-being. While the physical impacts of climate change have received considerable attention, the mental health implications, particularly among young people, have gained increasing recognition as a pressing issue.
- **Vulnerability of Youth:** Research indicates that youth are particularly vulnerable to experiencing psychological distress related to climate change. Adolescence is a critical

developmental stage characterized by significant physical, cognitive, and emotional changes, which can amplify the challenges posed by climate change and contribute to mental health issues. Understanding the unique vulnerabilities of youth in the context of climate change is crucial for developing effective interventions.

- **Mental Health Consequences:** Climate change can have profound effects on mental health, including anxiety, depression, PTSD, eco-anxiety, and feelings of hopelessness and helplessness. These mental health consequences can impact various aspects of young people's lives, such as academic performance, social relationships, and overall well-being. Exploring the specific mental health challenges faced by young people due to climate change is important for addressing their needs.
- **Role of Social Workers:** Social workers play a critical role in addressing mental health concerns and promoting social justice. Their expertise in mental health assessment, counseling, and community-based interventions makes them well-suited to address climate-related distress among young people. Investigating the specific role social workers can play in supporting the mental health of youth affected by climate change can contribute to the development of effective interventions and strategies.
- **Research Gap:** While there is growing recognition of the mental health impacts of climate change, limited research has focused specifically on the role of social workers in addressing these issues among young people. This study aims to fill this research gap by exploring the unique contributions and potential of social workers in addressing climate-related mental health challenges among youth.

By conducting this study, we aim to contribute to the existing knowledge on the interaction between climate change and mental health, with a particular emphasis on the role of social workers. The findings can inform policy, practice, and interventions that support the mental well-being of young people in the face of climate change.

Methods and Procedure

To address the predetermined research questions, a systematic literature review methodology was employed. A systematic literature review aims to identify, assess, and interpret all relevant findings on a specific research topic. In this study, the focus was on understanding the role of social workers in addressing climate-related mental health issues among young people.

The literature search was conducted using online databases and academic resources. The search was limited to articles published between the years 2010 and 2023, ensuring that

the most recent and relevant studies were included. The search terms used were "Climate change and Mental health," "Role of Social Workers," and "Climate-related Distress."

The search process involved screening the titles and abstracts of the identified articles to determine their relevance to the research questions. Full-text articles that met the inclusion criteria were then carefully reviewed and analyzed. Additional relevant studies were also identified through the reference lists of the included articles.

The selected articles were critically evaluated and synthesized to extract key findings and insights related to the role of social workers in addressing climate-related mental health issues among young people. The extracted information was then organized thematically to identify common patterns, emerging themes, and gaps in the literature.

Throughout the process, efforts were made to ensure the inclusion of diverse perspectives and a comprehensive representation of the existing literature on the topic. Any discrepancies or disagreements in the selection and interpretation of studies were resolved through consensus among the research team.

By employing a systematic literature review methodology, this study aimed to provide a comprehensive understanding of the role of social workers in addressing climate-related mental health issues among young people. The findings from the review can inform future research, policy development, and practice in this area.

Findings

The findings of the systematic review on the impact of climate change on youth mental health indicate the following:

- **Link between Climate Change and Distress:** The review identified significant evidence supporting a connection between climate change and increased levels of distress among young people. The findings suggest that climate-related events and the anticipation of future climate change implications contribute to negative psychological effects in youth.
- **Range of Mental Health Effects:** The review synthesized previous research highlighting various mental health effects experienced by young people in response to climate change. These effects include anxiety, sadness, post-traumatic stress disorder (PTSD), and feelings of hopelessness and helplessness.
- **Vulnerability of Marginalized Adolescent Populations:** The review emphasized the vulnerability of marginalized adolescent populations, such as those from low-income families and minority communities. These populations often face disproportionate

exposure to climate-related risks and have limited access to resources and support networks, which can exacerbate their mental health challenges.

- **Role of Social Workers:** The study recognized the critical role of social workers in addressing the mental health impacts of climate change on youth. Social workers were found to be well-positioned to provide support, advocacy, and intervention techniques to young people. They can contribute to reducing the mental health effects of climate change by promoting resilience, facilitating coping mechanisms, and facilitating community participation.

Overall, the findings of the systematic review underscore the need for targeted interventions and support systems to address the mental health challenges faced by young people in the context of climate change. Social workers play a crucial role in providing the necessary assistance and advocating for the well-being of young individuals affected by climate-related distress.

Suggestion

Based on the findings of the systematic review, here are some additional recommendations for social workers to address climate-related distress among youth:

1. **Strengthening Support Systems:** Social workers should work towards enhancing support systems for youth affected by climate change. This can involve collaborating with community organizations, schools, and mental health providers to establish robust referral networks and ensure that appropriate resources and services are accessible to young people in need.
2. **Promoting Self-Care and Emotional Well-being:** Social workers can facilitate workshops and educational sessions that focus on self-care practices and emotional well-being in the face of climate-related distress. This may include teaching coping strategies, mindfulness techniques, and stress management skills to help youth navigate their emotions and build resilience.
3. **Advocating for Climate Justice:** Social workers should advocate for climate justice, addressing the root causes of climate change and working towards equitable solutions. This includes advocating for policies that prioritize the needs and well-being of marginalized communities, who are often disproportionately affected by climate change.
4. **Incorporating Ecotherapy and Nature-based Interventions:** Social workers can explore the use of ecotherapy and nature-based interventions as part of their therapeutic approaches. Engaging with nature and the environment has been shown to have positive

effects on mental health, and incorporating outdoor activities, nature walks, and environmental education can help young people reconnect with nature and enhance their well-being.

- 5. Building Resilient Communities:** Social workers should engage with community members and organizations to foster resilience at the community level. This can involve facilitating community dialogues, organizing resilience-building workshops, and promoting community-led initiatives that address climate-related challenges and promote social cohesion.

By implementing these suggestions, social workers can play a vital role in supporting youth mental health in the context of climate change and contribute to building more resilient communities.

Summation

In conclusion, this systematic review sheds light on the significant link between climate change and increased levels of distress among youth. The findings underscore the urgent need to address the mental health implications of climate change for young people. Social workers are in a prime position to play a crucial role in managing and reducing climate-related distress among youth.

By raising awareness and education about the mental health consequences of climate change, social workers can help communities, families, and policymakers understand the importance of addressing this issue. Multidisciplinary collaborations will enable social workers to develop comprehensive strategies and interventions that draw on the expertise of various fields. Resilience-building interventions, community involvement, and ecotherapy can empower youth to cope with the challenges of climate change while fostering a sense of purpose and belonging.

Social workers should advocate for climate justice and equitable solutions, addressing the root causes of climate change and its disproportionate impacts on marginalized communities. By strengthening support systems and promoting self-care practices, social workers can provide valuable assistance to young people facing climate-related distress.

In conclusion, social workers have a unique skill set and expertise that allows them to effectively address the mental health challenges arising from climate change. Their active involvement is crucial in mitigating the impact of climate change on youth mental health and supporting the well-being of future generations. By recognizing the specific challenges faced

by young people and utilizing their professional skills, social workers can make a significant impact in supporting and empowering youth in the face of climate-related distress.

Works Cited

- Allen, M. D. (2020). Climate change in Alaska: Social workers' attitudes, beliefs, and experiences. *International Journal of Social Welfare*, 29(4), 310-320.
- Alston, M. (2015). Social work, climate change, and global cooperation. *International Social Work*, 58(3), 355-363.
- Appleby, K., Bell, K., & Boetto, H. (2017). Climate change adaptation: Community action, disadvantaged groups, and practice implications for social work. *Australian Social Work*, 70(1), 78-91.
- Berry, H. L., Bowen, K., & Kjellstrom, T. (2010). Climate change and mental health: A causal pathways framework. *International Journal of Public Health*, 55, 123-132.
- Busch, K. C., Ardoin, N., Gruehn, D., & Stevenson, K. (2019). Exploring a theoretical model of climate change action for youth. *International Journal of Science Education*, 41(17), 2389-2409.
- Charlson, F., Ali, S., Benmarhnia, T., Pearl, M., Massazza, A., Augustinavicius, J., & Scott, J. G. (2021). Climate change and mental health: A scoping review. *International Journal of Environmental Research and Public Health*, 18(9), 4486.
- Cianconi, P., Betrò, S., & Janiri, L. (2020). The impact of climate change on mental health: A systematic descriptive review. *Frontiers in Psychiatry*, 11, 74.
- Cloughton, I. (2021). Global youth activism on climate change. *Social Work & Policy Studies: Social Justice, Practice and Theory*, 4(1).
- Dominelli, L. (2011). Climate change: Social workers' roles and contributions to policy debates and interventions 1. *International Journal of Social Welfare*, 20(4), 430-438.
- Drolet, J. L., & Sampson, T. (2017). Addressing climate change from a social development approach: Small cities and rural communities' adaptation and response to climate change in British Columbia, Canada. *International Social Work*, 60(1), 61-73.
- Gharabaghi, K., & Anderson-Nathe, B. (2018). Children and youth in the era of climate change. *Child & Youth Services*, 39(4), 207-210.
- Gifford, E., & Gifford, R. (2016). The largely unacknowledged impact of climate change on mental health. *Bulletin of the Atomic Scientists*, 72(5), 292-297.

- Hayes, K., Blashki, G., Wiseman, J., Burke, S., & Reifels, L. (2018). Climate change and mental health: Risks, impacts, and priority actions. *International Journal of Mental Health Systems*, 12(1), 1-12.
- Lee, K., Gjersoe, N., O'Neill, S., & Barnett, J. (2020). Youth perceptions of climate change: A narrative synthesis. *Wiley Interdisciplinary Reviews: Climate Change*, 11(3), e641.
- O'Brien, K., Selboe, E., & Hayward, B. M. (2018). Exploring youth activism on climate change. *Ecology and Society*, 23(3).
- Padhy, S. K., Sarkar, S., Panigrahi, M., & Paul, S. (2015). Mental health effects of climate change. *Indian Journal of Occupational and Environmental Medicine*, 19(1), 3.
- Palinkas, L. A., & Wong, M. (2020). Global climate change and mental health. *Current Opinion in Psychology*, 32, 12-16.
- Peeters, J. (2012). A comment on 'Climate change: Social workers' roles and contributions to policy debates and interventions'. *International Journal of Social Welfare*, 21(1), 105-107.
- Sanson, A. V., Van Hoorn, J., & Burke, S. E. (2019). Responding to the impacts of the climate crisis on children and youth. *Child Development Perspectives*, 13(4), 201-207.

AN ANALYTICAL RESEARCH ON CLIMATE CHANGE: ITS CAUSE AND IMPACT

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Abstract

The World-wide Industrialization and Globalization is considered to be one of the major factors of rising status of the economic growth but it has adversely dragged down the balance between all the natural resources and resulted into a severe threat of climate change. A long-term change in temperature and weather patterns, such as those brought on by variations in the solar cycle or manmade activities like carbon emissions, is referred to as climate change. Climate change is one of the most critical global challenges of the 21st century. It poses severe threats to ecosystems, human well-being, and socio-economic stability. This research paper aims to provide a comprehensive overview of the major causes and impacts of climate change and emphasizes the urgent action at local, national, and international levels to combat climate change effectively.

Key Words: *Threat, Global Warming, Deforestation, Emission, gases, Heat waves.*

Introduction

It has been observed that in most of the states of Europe and northern Asia, Spring season arrives sooner and winter arrives later, increasing it by up to three weeks. This change in the season cycle occurred due to the imbalance of atmospheric gases and variations in the temperature which is commonly termed as 'Climate Change'. Since we began keeping track of rising temperature in the 1800s, the past 25 years have seen the highest temperatures. Some of the major observations of climate change are exemplary. Polar bear attacks on people, houses, and hunting camps have increased as a result of polar bears' diminished ability to hunt due to melting Arctic ice. Hurricanes are intensifying and occurring more frequently because of the warm, moist air arriving from the Tropics. The Himalayan glaciers, which feed the rivers in Pakistan, Afghanistan, India, and China and supply 40% of the world's population with drinking water, are melting. Evidently "In Yosemite National Park, one of the world's great treasures, we see trees dying because of a hotter and drier climate, as they

become more susceptible to disease and pests. The chipmunks that tourists love to feed have migrated 400 feet further up, and the glaciers in the Sierra Nevada have shrunk by 50 percent”. (McNall, Rapid Climate Change)

Background and significance of climate change

With a 1.5°C (2.7°F) increase in global warming, there will be numerous climate dangers that cannot be avoided over the next 20 years. There will be severe effects, some of which will be irreversible. In cities, where more than half of the world's population resides, climate change consequences, dangers, and adaptation are discussed. Heatwaves, storms, droughts, flooding, and slow-onset changes like sea level rise are all posing a growing threat to people's health, life, and means of subsistence as well as to property and vital infrastructure, such as energy and transportation systems.

Research objectives

The main objective of this research paper is to discuss and highlight the cause and impact of Climate Change. There are some possibilities to “stabilize greenhouse gas levels in a timeframe sufficient to allow ecosystems to adapt naturally to climate change, ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner” (Mitigation and Adaptation).

Our planet is blessed with biodiversity where flora and fauna united create an aesthetic ambience. The signs of climate change can ruin the beauty of the planet and turn it down completely into the Jungle of concrete. The jeopardous atmosphere will be a cause of catastrophes. This is one of the burning issues need to be discussed and analyzed its crucial impact. There are numerous ways and initiatives to reduce climate change which involves lessening the flow of heat trapping gases in the atmosphere.

Causes of Climate Change

There are two factors termed as external and internal factors liable for the climate change. Referring Pidwirny’s observation, stated in this figure says that external factors proliferates good amount of solar radiation whereas internal factors involve land, sea, mountains and atmospheric layers emit a huge amount of harmful gases which increase heat and responsible for alterations to the environment.

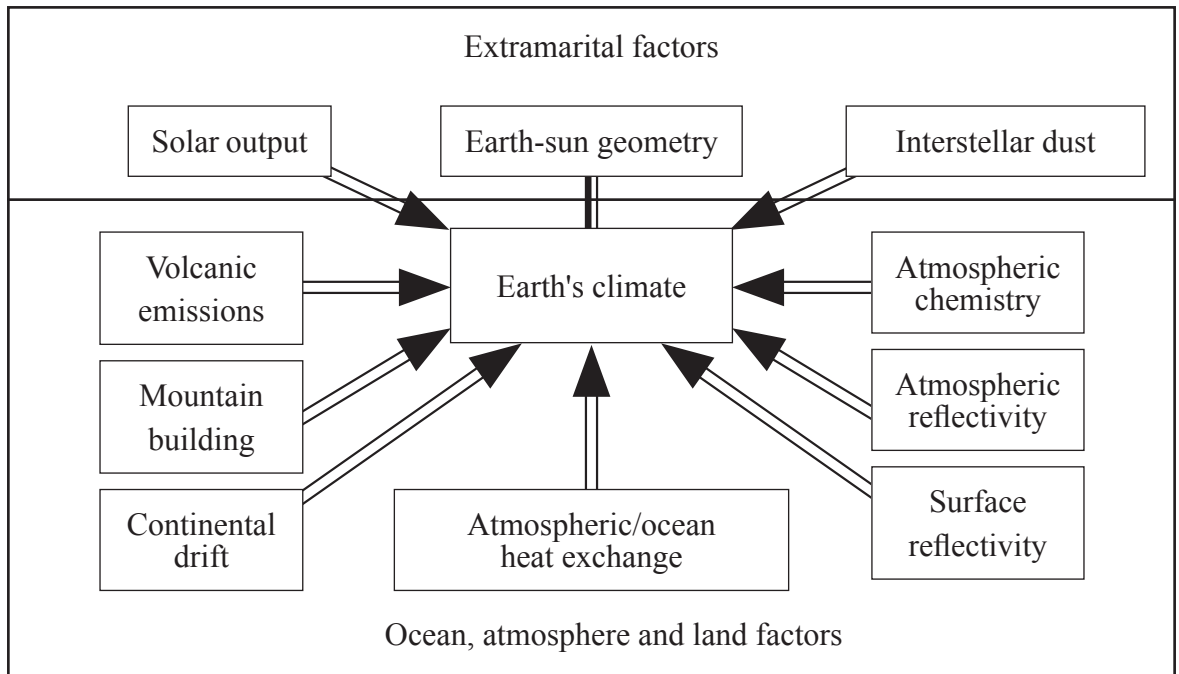


Fig. 1: Factors that influence the earth's climate (Pidwirny)

Other than these factors, human activities have also been the main contributors to climate change, particularly the use of fossil fuels like coal, oil, and gas. The burning of fossil fuels releases greenhouse gas emissions that act as a shield around the planet, trapping solar heat and raising temperatures. If we talk about greenhouse gas emissions in India, Energy sector contributes more than 70% emission of Carbon dioxide and methane which are two prominent greenhouse gas emissions and responsible for the disastrous changes in the climatic situation. These are produced by burning coal or gasoline. Methane is mainly generated by trash dumps, whereas carbon dioxide can also be released during forest and land removal. The prominent sources of energy, industry, transportation, buildings, agriculture, and land use are all key emitters. Mingling of toxic gases and chemical waste into the air and water bodies contaminate the environment and ruin the Ozone layer gravely.

More over most of the packaging industries are using plastic material to keep their products durable and safe. But later on while disposing the plastic waste, it releases ample amount of carbon emissions and heat up the surroundings. Around 400 million tonnes of plastic waste is generated every year in the whole world in which more than half of the waste is made for one use and only 10% of the total generated waste is recycled. In India, every year 34 lakh tonnes of plastic waste is produced and 30% of it is recycled. These figures are surprising from the environmental point of view. Million tonnes of plastic waste is dumped into the

ocean and buried under the land. Surprisingly plastic takes over 100 years to decompose due to this soil's ability to absorb water is lost. Subsequently the underground water level is getting affected as well as the land is becoming barren. Insects that keep the soil fertile die because of plastic and then soil fertility decreases and over the period of time land reduces its crop yielding capacity.

Deforestation is the easiest solution to meet the increasing requirements of residential and industrial areas. In India, tropical forests are currently among the most productive and most endangered ecosystems due to the highest rate of deforestation. The estimated quantity of CO₂ added to the atmosphere due to deforestation in the tropics is roughly two billion tones (qtd. in Kumari, R.) therefore, it is essential to manage the rate of deforestation in order to prevent the negative effects linked to it.

Impacts of Climate Change

Environmental Impacts: We examine the anticipated effects of temperature increases from 2oC to 4oC in India in order to better comprehend the hazards of climate change on development. The experts calculated the expected effects on India's agriculture, water supplies, cities, and coastal ecosystems using the best available data and powerful computer simulations. Since last few decades, India has been experiencing rising temperatures and heatwaves. Heat waves are anticipated to cause a very significant increase in mortality and fatalities, as well as more injuries from extreme weather events. Since the 1950s, a decrease in monsoon rainfall has already been noted. Events with a lot of rain have happened more frequently as well. In broad portions of India, increased flooding as well as more frequent droughts could result from an abrupt change in the monsoon, setting off a serious crisis. In some regions, particularly in north-western India, Jharkhand, Orissa, and Chhattisgarh, droughts are anticipated to occur more frequently. The country of India is heavily reliant on groundwater because more than 60% of its agriculture is rain-fed. The rising demand for water from a growing population, more affluent lifestyles, as well as from the services sector and industry might be projected to cause lowering water tables to decline even further, despite the difficulty of predicting future ground water levels.

Sea-level rise and coastal erosion: India's proximity to the equator means that the subcontinent would see far bigger sea level rises than those at higher latitudes. Mumbai has the greatest population in the world that is vulnerable to coastal flooding since so much of the city is constructed on reclaimed ground that is below high tide. Seawater intrusion threats are further increased by rapid and haphazard urbanization. Due to their high population densities,

Kolkata and Mumbai are particularly susceptible to the effects of riverine flooding, tropical storms, and sea level rise.

Melting glaciers and polar ice caps: The majority of Himalayan glaciers, where the summer monsoon provides a significant portion of the moisture, have been retreating during the past century. The stability and dependability of northern India's largely glacier-fed rivers, particularly the Indus and the Brahmaputra, are predicted to be threatened with a warming of 2.5°C. This is due to melting glaciers and the loss of snow cover over the Himalayas. In 2021 UN Environmental Panel said the Arctic Ocean could be ice-free by the middle of the century. Ice is melting faster than expected. It is analyzed based on the report that Ice of Arctic Ocean will end by the summer of 2030.

Ecological Impacts: Environmental adaptations to climate change were known much before global warming became an issue. Impacts of climate change on agriculture and livelihoods may result in a rise in the number of climate refugees. People and animals change their habitat so that they can exist in the climates to which they are adapted.

Loss of biodiversity: Biodiversity Loss is termed as a decrease in biological diversity within a species, ecosystems, places and the earth as a whole. If there is a loss of a species in a given area or loss in the number and genetic variability of any area, it is often described as a loss in Biodiversity” (qtd. in Biodiversity Loss). The majority of endangered species can be found in regions with dense human populations, like southeast China and India's Western Ghats. Ecologist E.O. Wilson estimated, “We are losing 10,000 species or subspecies a year that makes more than 27 per day! If present trends continue we may destroy millions of kinds of plants, animals and microbe in the next few decades.” (Cunningham, 111) This traumatic observation is aligned with another threat where “One recent analysis found that approximately 60% of total global biodiversity loss for bird and mammal species has occurred in just seven countries between 1996 and 2008 – Indonesia, Malaysia, Papua New Guinea, China, India, Australia and the USA, where the majority has occurred on the islands of Hawaii.” (qtd. in Where is most biodiversity loss)

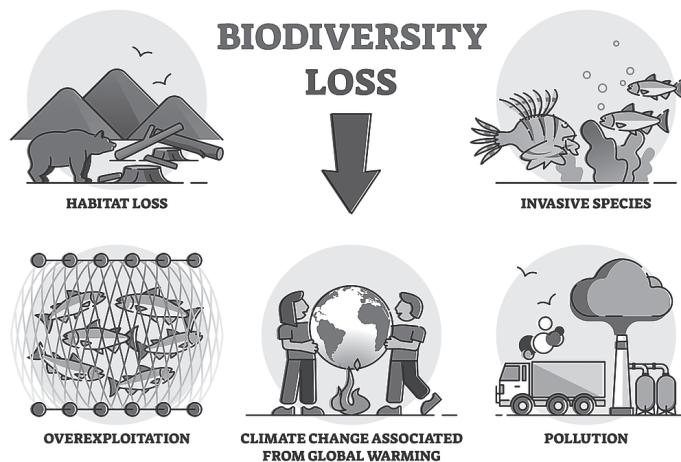


Fig: Causes of Biodiversity Loss (Grover, June 12)

A lot of human activities are to blame for this: rapid land-use change, such as through farming and logging, overfishing in our oceans and seas, polluting our air, soil, and water supplies, and hunting etc.

Socio-economic Impacts: Droughts have serious repercussions. More than half of India's cropland was damaged by droughts in 1987 and 2002–2003, which significantly reduced crop production. Due to the climate change, most of the states are experiencing scanty rain and struggling with drought. It has been reported that by the mid-2050s, fewer than 2°C warming, the nation may need to import more than twice as much food grain than it would otherwise. Rice production in India has decreased significantly as a result of rising temperatures and less rainfall. The poor are projected to be most severely impacted by the major health effects of climate change in India, including an increase in malnutrition and related health conditions like child stunting. By 2050, child stunting is anticipated to rise 35% above a scenario in which climate change does not occur. The country's food security would be under risk due to seasonal water scarcity, rising temperatures, and seawater intrusion. Human health would be at great risks. The coastal areas would experience saltwater intrusion as a result of sea-level rise and storm surges, which would affect agriculture, degrade groundwater quality, contaminate drinking water, and perhaps result in an increase in diarrhea cases and cholera epidemics because the cholera bacterium can survive longer in saltwater.

Summation

On the basis of keen research work done in the field of rapid climate change, we have analyzed major dominating causes and its impact on related aspects of our society. We

can categorically implement few changes to sustain our natural resources. Restore Earth's natural systems, including forests, aquifers, grasslands, and fisheries. There is strong need to aware current and future generations to stop practicing various activities which are directly responsible for climate change. Being a cognizant citizen must establish ecological resilience.

Works Cited

Biodiversity Loss- NCERT Notes for UPSC. Retrieved June 16, 2023. <<https://byjus.com/free-ias-prep/ncert-notes-loss-of-biodiversity/>>

Cunnigham, William P., Cunningham, Mary Ann. (2007). Biomes and Biodiversity. *Principles of Environmental Science*. New Delhi: Tata McGraw-Hill Companies. p. 111.

Grover, Neha. (2023, June 12). Causes for Biodiversity Loss-Environment Notes. Retrieved June 16, 2023. <<https://prepp.in/news/e-492-causes-for-biodiversity-loss-environment-notes>>

Kumari, R., Banerjee, A., Kumar, R., Kumar, A., Saikia, P., & Latif Khan, M. (2020). Deforestation in India: Consequences and Sustainable Solutions. IntechOpen. doi: 10.5772/intechopen.85804.

McNall, S. G. (2011). *Rapid climate change: Causes, consequences, and solutions*. Taylor & Francis Group. Retrieved June 7, 2023. *ProQuest Ebook Central*. <http://bookcentral.proquest.com/lib/inflibnet-ebooks/detail.action?docID=981859>.

Mitigation and Adaptation | Solutions - NASA Climate Change. Retrieved June 19, 2023. <<https://climate.nasa.gov/solutions/adaptationmitigation/#:~:text=The%20goal%20of%20mitigation%20is,to%20proceed%20in%20a%20sustainable>>

Pidwirny, M., (2006). Causes of Climate Change. In: *Fundamentals of Physical Geography*, James, P., D. Sack and R.E. Gabler (Eds.). 2nd Edn., Cengage Learning, Boston, MA., USA., pp: 210-213.

Where is most biodiversity loss happening and why? Retrieved June 19, 2023. <<https://royalsociety.org/topics-policy/projects/biodiversity/where-is-most-biodiversity-loss-happening-and-why/>>

GENDER AND CLIMATE CHANGE IN INDIA: A SOCIAL WORK DISCOURSE

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Introduction

Gender is undoubtedly an important contemporary issue that needs to be addressed at every stage of life. Women play a vital role in maintaining and managing the family and the environment and become self-evident in interacting with the nature. Climate changes are inevitable in today's modern consumer world. More data and research reveal that there is a clear correlation exists between disparate impacts of climate change and women globally. The critical reflection on Climate Change and gender in everyday practices makes the social workers attempting to address the Gender inequality coupled with climate crises which threatens the way of life, livelihoods, health, safety, and security for women worldwide more indispensable. Women experience the greatest form of climate change impacts, which amplifies the existing women based issues such as gender inequalities and gender discrimination. Today the greatest challenge to be addressed by the Social Work fraternity is to diminish the gender and climatic threats. Historically, climate change scientists, researchers, and policymakers have struggled to make vital connections between gender, social equity, and climate change.

Gendered Impacts of Climate Change:

- 1. *Women as Environmental Curators:*** In India, women often have primary responsibilities for natural resource management, including water, fuel collection, and agricultural activities. Climate change-induced droughts, deforestation, and unpredictable discreet climatic changes disproportionately affects the women, limiting their access to healthy food and hygienic water, increasing their workload and jeopardizing their food security especially in the rural parts of India.
- 2. *Health and Sanitation Challenges:*** Women's health is uniquely impacted by climate change. Extreme weather events, such as heat waves and floods, amplify the risk of

malnutrition, waterborne diseases, and vector-borne illnesses. Limited access to healthcare services and sanitation facilities further exacerbates these challenges, particularly for marginalized women in remote areas. Hence women need to be given more protection at times of disaster.

3. ***Displacement and Migration:*** Climate change-induced disasters such as cyclones and floods often result in forced displacement and migration. Women and girls are affected and they also face heightened risks of violence, exploitation, and human trafficking to a large extent in the migration process and in displaced areas. Additionally, the breakdown of social support systems in the society can further marginalize the women, exacerbate their vulnerability.
4. ***Economic Disparities:*** In India, women's economic opportunities are closely tied to climate-sensitive sectors such as agriculture, fisheries, forestry etc. Environmental degradation, erratic weather patterns, and changing agricultural practices disrupt livelihoods, leading to increased poverty and economic disparity among women. Moreover, traditional gender norms and unequal access to resources hinder women's abilities to adapt to changing climatic conditions.
5. ***Impacts of Cosmetic and beauty products:*** Increased cosmetic manufacturing can be said as one of the major chemical emission industries in the world. Women being the major consumers of cosmetics and beauty products, there is a significant rise in the cosmetic productions that leads to environmental deterioration. But the rapid industrialization has made people to go for instant results or remedies and it didn't fail to leave women and their concern for personal care.
6. ***Gender health and climate change:*** The poor medicinal waste management system and the disposal pattern of the wastes impacts the environment in many ways. For example, sanitary pads are produced from 90% of plastic materials with the leak proof base layer to the synthetics that absorbs the blood flow, and with the plastics that are used in packaging the products. A single woman over the course of her lifetime using sanitary products leaves a carbon footprint of 360kg of Co₂ emissions. Lack of the health education among women in rural areas aggravates the issue which leads to affect the environmental conditions from macro to micro level. In general, women and environment are intertwined and women are closely associated with the sustainable environment. However, the recent industrial trends and technological development depict that women might be the one among many contributors to climate change.

Gender and Climate-change responsive Strategies

1. **Empowering Women:** Enhancing their access to education, healthcare, and economic resources can increase their level of resilience to climate change. Efforts should focus on promoting women's participation in decision-making processes during climate crisis, ensuring their land and property usage, and providing opportunities for crisis coping skills.
2. **Strengthening Health Systems:** Recognizing the differential impacts of climate change on women's health, it is crucial to invest in health care infrastructure, including reproductive health services, sanitation facilities, and awareness campaigns targeting women's specific health needs in climate-vulnerable regions.
3. **Climate-Resilient Livelihoods:** Supporting women's economic empowerment through sustainable livelihood options such as promoting climate-smart agriculture, renewable energy initiatives, and microfinance opportunities can help mitigate the adverse impacts of climate change and reduce economic disparities.
4. **Gender-Responsive Policies:** Integrating a gender lens into climate-change policies is crucial for ensuring equitable and inclusive outcomes. This includes gender-disaggregated information, gender-responsive budgeting, and mainstream gender considerations in climate change adaptation and mitigation strategies.
5. **Women in participatory decision making:** The participatory and decision making roles of women in current Indian society are considered to be fragile as women are still being considered to be the second gender. As discussed above, women are closely associated with the environment and they also possess the skills to preserve the nature. But the imminent role of women in protecting the environment is yet to be realized by the authorities involved in climate action programmes.

Social Work Discourse on Gender and Climate Change

Gender and climate change are interconnected issues that require attention from a social-work perspective. Climate change affects different genders in distinct ways owing to existing social and cultural norms, power dynamics, and economic disparities. Women often bear the brunt of climate change impacts, particularly in developing countries, where they are unduly affected by poverty, limited access to resources, and traditional gender roles. Disruptions in agriculture, water scarcity, and natural disasters can exacerbate gender inequalities, leading to increased vulnerability and challenges for women.

Social workers play a vital role in addressing the gendered impact of climate change. By advocating gender-responsive policies and programs that recognize the specific needs and experiences of women and promote gender equity in climate change adaptation and mitigation strategies. Social workers can also empower women by facilitating their participation in decision-making processes, building resilience, and supporting access to education, healthcare, and economic opportunities. Through creating awareness among women in households, work environments and women students in educational sectors about the close associations women have with the environment, the social workers can take a step ahead in involving women in preventive measures against climate change at the grass root level.

Furthermore, social workers can engage in community education and awareness campaigns to promote sustainable behaviours and environmental friendly practices. By integrating a gender lens into their work, social workers can help create inclusive and just responses to climate change, ensuring that the voices and rights of all individuals are recognized and protected, regardless of gender difference.

Summation

Gender and climate change in India are intertwined concerns that require holistic and inclusive approach. Recognizing the differential impacts on women and men, the social work intervention strategies and initiatives should adopt gender-responsive strategies that empower women, strengthening the health systems, promote climate-resilient livelihoods, and integrate gender considerations into policies and programmes. By addressing the gendered dimensions of climate change, India can strive towards a more just, sustainable, and resilient future for all its citizens. Let us build a gender justice society to face the climatic crisis.

Works Cited

Baines, D (1997) '*Feminist social work in the inner city: The challenges of race, class, and gender*'. *Affilia* 12(3): 297–317.

Subramanian R,(2019), '*Disaster Management*', Vikas publishing house pvt ltd, Noida

Thompson N (2012), '*Anti-Discriminatory Practice: Equality, Diversity and Social Justice*', 5th ed. Basingstoke: Palgrave Macmillan.

Hicks, Stephen (2015), '*Social Work and Gender: An Argument for Practical Accounts*', *Qualitative Social Work*, 14(4): 471-478, Sage publications, UK.

Pearse, Rebecca (2016), '*Gender and Climate Change*', Willey Interdisciplinary Reviews, Vol-8, Issue 2/E451

Dankelman, Irene (2010), '*Gender and Climatic Change: An Introduction*', Earthscan, London

Buckingham, Susan & Le Masson, Virginne, (2017) '*Understanding Climate Change through Gender Relations*', Taylor & Francis, UK

Eastin, Joshua (2018), '*Climate Change and Gender Equality in Developing States*', World Development Report 107, Pg. 289-305

www.atgender.eu/wp-content/uploads/sites/2017/08teachinggenderinsocialwork.pdf

<https://digitalcommons.wku.edu>

www.socialworkers.org/practice/Women-issues

www.unwomen.org/en/news_stories/explainer/2022/02

https://www.un.org/womenwatch/feature/climate_change/downloads/womenand

https://reliefweb.int/report/world/gender_and_disaster/

<https://www.ohchr.org/en/climate-change/gender-responsive-climate-action>

A HOLISTIC STUDY ON CLIMATE CHANGE AND WAYS TO MITIGATE IT

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Abstract

“Need to Mobilize Fund Flows for Green Financing Needs” the thought provoking statement from Mr. Dinesh Kumar Khara, Chairman, State Bank of India, countries tycoon in banking sector in the recently held seminar on “Climate Finance and Risk” emphasize on the need for focusing on the area of Climate Change and its impact on livelihoods of mankind. This research paper follows a similar pattern of interpretation on climate change and climate system followed by mitigation of it, role of G20 nations and their striving efforts in addressing global warming and finally it ends up with SBI statement on climate funding.

Keywords: *Climate Change, Global Warming, CO2 Emission, G20 Nation, Environmental Activist.*

Introduction

Climate change pertains to significant, prolonged changes in the average weather pattern that rejigs global climate. Sun, earth and oceans, wind, rain and snow, forests, deserts and savannas, and everything people do, too is all revolves around global climate[1]. The climate of a place, say New Delhi, can be toxic during festival season like Diwali, due to smog. The AQI (Air Quality Index) of nations capital is deteriorating day by day, temperature rise, heat waves, incessant lashing of rainfall are directly connected with mortality rate.

The Climate System

The gravity of this issue of Global Warming & Climate Change can be felt by each and every individual within their proximity. Generally global climate is influenced by myriad factors like Sun, Earth Position in Space etc and it comprises of five major parts, such as 1) Atmosphere, 2) Lithosphere, 3) Hydrosphere, 4) Cryosphere, and Biosphere.

It is estimated that in the year 2020 millions of people (30 millions) suffered the plight of climate change. Experts says emission of greenhouse gases is the main reason.

COP-24 & COP-27 Climate Conference: Conference of Parties -24 held at Poland in 2018 a result of strenuous effort of United Nation Climate Change conference aims at dealing with tackling problems of climate change. After a series of discussion on various front in this 2018 conference, it was further extended to COP-27 in 2022 November at Egypt where funding for subdue of effects of global warming and climate change takes the centre stage in 2022 climate summit. “Loss and Damage Fund Facility (LDFF)” were set up at COP-27. This LDFF will lend a helping hand for small countries that bear the brunt of unusual climate change. Transitional Committee were also formulated to operationalize the fund on the three aspects, such as ‘fund composition,’ ‘mandate,’ and ‘timeline.’

One major suggestion given by participants of COP-27 is that “All Fossil Fuel and not just Coal Emission has to be controlled” phrase needs to be added in the rule book. But clarity is yet to be arrived by members on various crucial factors regarding climate change.

Interpretation on Climate Change

Environmental activist (Particularly Spanish) zero down the major reasons behind the scorching sun and incessant rainfall as a result of two major effects called (i) EL NINO: During El Niño, trade winds weaken. Warm water is pushed back east, toward the west coast of the Americas, and (ii) LA NINA: During La Niña events, trade winds are even stronger than usual, pushing more warm water toward Asia. Off the west coast of the Americas, upwelling increases, bringing cold, nutrient-rich water to the surface.

Understanding climate change tends to be the need of the hour, as we all witness unusual weather condition and climate change across all geography. The Sun serves as the primary energy source for Earth’s climate. Some of the incoming sunlight is reflected directly back into space, especially by bright surfaces such as ice and clouds, and the rest is absorbed by the surface and the atmosphere.[6] But since the recent past, human activities have been the vital factor of climate change, predominantly due to the burning of fossil fuels like coal, oil and gas. Burning fossil fuels emanates greenhouse gas emissions that act like a blanket wrapped around the Earth, trapping the sun’s heat and raising temperatures. The latest report warns that atmospheric levels of the three main greenhouse gases - carbon dioxide, methane, and nitrous oxide - reached new record highs in 2021, showing the biggest year-on-year jump in methane concentrations since systematic measurements began nearly 40 years ago.

As the global warming increases, people’s health conditions and daily routines too get disrupted. The effects of climate change can be mitigated by following activities as per the advices of experts: afforestation, and wise travelling by reduced CO2 emission.

Tackling Climate Change: WIM

The global institutions and various countries joint together in addressing this issue of climate change rigorously as it becomes everybody problem, they have constituted various mechanism in addressing these issues and one such is Warsaw International Mechanism (WIM). WIM was made initially to address loss and damage that countries face due to climate changes. As an extended support to WIM, Santiago Network was meant to be the technical arm of WIM in dealing with reducing the effects of climate change & global warming.[8]

*G20 & Climate Change:*India took over the presidency of the G20 – the grouping of the world’s 20 biggest economies, which collectively account for 75-80% of global GHG emissions – in December 2022. At the transition of the presidency from Indonesia to India, the Indian prime minister, Narendra Modi, said the challenges of “climate change, terrorism, and pandemics can be solved not by fighting each other, but only by acting together”.

According to officials of more than one delegation, who spoke on condition of anonymity since the suggestions were “informal”, they suggested that India is in a position to advance its net-zero year to 2050, and that an announcement to this effect by the Indian prime minister at the G20 summit scheduled for September would be “a huge thing”. Indian officials talked of “pressure by developed countries” in this regard.

India’s Strategic Vision - In particular Indian Government works with a strategic vision of zero carbon emission by 2070. To achieve this splendid vision stringent measures in reducing the CO₂ emissions were introduced by the way of enforcing BS-VI norms for vehicle emission, followed by ironhanded control over factories emission by monitoring factories operations through legally empowered authorities.

Role Models for Eco-Friendly Environment - Prominent Persons & Environmental Activist like Nobel LaurateMs.VangariMathaye, M S Swaminathan&Nammalvar are role models for the contemporary society people in attaining environmentally friendly society by encouraging nature friendly practices and planting millions of trees.[10] Ironically in the name of development we are forced to do deforestation by the way of building bridges and highways. Recently, Ballia a district from eastern part of Uttar Pradesh bordering with neighbouring state Bihar has witnessed the highest number of deaths due to heatwaves which is mainly due to deforestation.

Summation

India stands at 7th position among the world most affected countries by climate change as per State Bank of India statement. The pathetic situation is that relatively small share of about 7% of climate capital flows into the nation. As for as achieving eco-friendly environment plantation of ample trees will ameliorate the debilitated environment. Reports from World Bank claims that \$83 billion were allocated in the past 5 years to various nations, yet no constructive reforms were made by many nations in achieving environmentally friendly society. There must be a robust climate focused framework backed by union government regulation.

Works Cited

[https://www.un.org/en/climatechange/what-is-climate change#:~:text=Climate%20change%20refers%20to%20long,activity%20or%20large%20volcanic%20eruptions.](https://www.un.org/en/climatechange/what-is-climate-change#:~:text=Climate%20change%20refers%20to%20long,activity%20or%20large%20volcanic%20eruptions.)
<https://qz.com/india/1739286/delhi-smog-climate-change-might-kill-millions-of-indians-by-2100>
<https://www.climatechange.environment.nsw.gov.au/global-climate-system#:~:text=The%20global%20climate%20system%20is,such%20as%20greenhouse%20gas%20emissions.>
<https://www.thehindubusinessline.com/news/world/cop27-ends-with-historic-decision-on-damage-fund-little-progress-on-other-issues/article66160068.ece>
<https://oceanservice.noaa.gov/facts/ninonina.html>
<https://royalsociety.org/topics-policy/projects/climate-change-evidence-causes/basics-of-climate-change/>
https://www.un.org/en/climatechange/reports?gclid=EAIaIQobChMI5J_08N_d_wIV13R9Ch11wQ7fEAAYASAAEgILQvD_BwE
<https://unfccc.int/topics/adaptation-and-resilience/workstreams/loss-and-damage/warsaw-international-mechanism>
https://www.thethirdpole.net/en/climate/what-is-india-bringing-to-g20-on-climate/?gclid=EAIaIQobChMI_fTHtOLd_wIVj38rCh1AkQyuEAAYAAEgIf-vD_BwE
<https://www.jagranjosh.com/general-knowledge/list-of-famous-environmentalists-in-india-1650613701-1>
https://www.thehindu.com/news/national/other-states/facing-the-heat-heatwave-deaths-in-ups-ballia-and-a-government-in-denial/article67002612.ecechromeextension://efaidnbmnribpcajpcglclefindmkaj/https://sbi.co.in/documents/17826/26668959/151022Climate+Change+Risk+Management+Policy_Abridged+Version.pdf/ee84cf18-f5be-5823-234d-6d03667eafee?t=1665814460351

CLIMATE CHANGE AND MENTAL HEALTH: THE POTENTIAL ROLE OF MINDFULNESS-BASED INTERVENTIONS IN PROMOTING PSYCHOLOGICAL WELL-BEING

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Abstract

Climate change can cause unemployment, forced-displacement, and undermine social cohesiveness and community resources, all of which have a negative impact on mental health. Mindfulness is a technique for paying attention to the present moment that includes techniques such as meditation, breathing, and yoga. Mindfulness practices enable people to better control and regulate thoughts and emotions. The purpose of this paper is to investigate the possible relevance of mindfulness-based interventions in increasing psychological well-being in the context of climate change. It aims to direct future research and practice by emphasizing the need for integrative mindfulness approaches in combating climate-related distress.

Keywords: *global warming, psychological health, moment-by-moment awareness, mediation, mental regulation*

Introduction - Extreme weather events and mental health

Climate change is increasing the frequency and severity of extreme weather events such as floods and storms. People who live through these experiences may be subjected to potentially traumatic occurrences. As a result, many people may have increased psychological anguish, and a small percentage will develop serious mental health issues, such as post-traumatic stress disorder (PTSD), depression, or substance use disorders (Clayton, S., 2021).

Heat and mental health

Temperatures are rising around the world as a result of climate change, which can have a number of negative effects on mental health. Higher temperatures, according to one theory, might impair mood, making people more irritable and stressed, as well as worsening

symptoms of mental health disorders (Trombley, J, et al., 2017). Warming nights are undermining human sleep globally and unequally.

Air pollution and mental health

Climate change and rising temperatures have been demonstrated to increase allergens and contaminants in the air, resulting in poorer air quality. According to emerging data, poor air quality can have a significant influence on mental health, particularly despair and anxiety (Buoli, M, et al., 2018). Exposure to air pollution during childhood and adolescence has also been linked to the development of mental health disorders when children enter adulthood. It's speculated that this is because air pollution interferes with the proper development of the central nervous system (King, J. D, et al., 2022).

Infectious disease and mental health

Climate change is a major contributor to the spread of infectious diseases such as malaria, and dengue fever in new places of the world. Higher rates of infectious illness exposure can have a major negative influence on mental health due to hospitalization or living with the long-term consequences of severe infection (Müller, N, 2014).

Impact of climate change on Mental Health

Although climate change is a worldwide phenomenon, its effects are perceived unequally around the world. Indigenous populations are particularly attached to and reliant on the natural environment around them, putting them at a higher risk of poor mental health as a result of climate change. (Lawrance, E. L, et al., 2022). Children and teenagers, the elderly, the chronically ill, individuals with cognitive or mobility challenges, pregnant and postpartum women, and people with mental illnesses may be especially vulnerable (Vergunst, F., & Berry, H. L. 2022).

Mindfulness-based Interventions to promote Psychological well-being

Mindfulness-based interventions are most typically offered through the practice of mindfulness meditation, while mindfulness can be attained through a variety of strategies. During mindfulness meditation, the practitioner will often help the individual or people in therapy to focus their attention on the present moment (Wamsler, C, 2018).

Benefits of Mindfulness-based Interventions

Mindfulness can be extremely beneficial, since it can help people better detach themselves from negative thoughts, feelings, and body sensations that may be present, frequently before

they become too overwhelming. Those who can acquire this level of awareness may find it easier to adopt other therapeutic procedures to address potentially damaging cognitions and avoid unpleasant consequences (Panno, A, et al., 2018).

Impact of mindfulness on Climate change

a) Increased awareness and acceptance:

Mindfulness practices help people become more aware of and accepting of their own feelings and experiences.

b) Emotional regulation:

Mindfulness practice improves emotional regulation, allowing people to better manage their reactions to environmental difficulties and climate-related stressors.

c) Enhanced resourcefulness:

Mindfulness practices promote resourcefulness by teaching people to be present in the moment and respond well to a variety of situations.

d) Empathy and compassion:

Individuals can extend their compassion to the natural environment and all beings affected by climate change by acquiring a deep sense of interconnectivity.

e) Engaged action:

Mindfulness can motivate people to take meaningful action. People can actively contribute to good change by adopting sustainable choices, supporting environmental initiatives, campaigning for policy changes, and participating in communal efforts to reduce and adapt to climate change by creating a feeling of presence and purpose.

Rationale of the Study

Extreme weather events, rising temperatures, and ecosystem changes caused by climate change can cause severe psychological discomfort, including anxiety, sadness, trauma, and post-traumatic stress disorder (PTSD). Mindfulness-based interventions (MBIs) emphasize the cultivation of present-moment awareness, non-judgmental acceptance, and compassionate action, and are based on contemplative practices and Eastern philosophical traditions. These interventions have been shown to reduce stress, anxiety, and depression symptoms while also enhancing resilience and general psychological functioning. A systematic review will help identify the gaps, strengths, and limitations of previous studies by synthesizing and critically evaluating the available evidence, while also exploring the potential mechanisms by which MBIs may contribute to psychological well-being in the context of climate change.

Methods and Procedure

In order to address predetermined research questions, a systematic literature review was employed as the methodology. Systematic literature review identifies, assesses and interprets all findings on a study issue. The information recorded by the literature search was 2010 to 2023. The search term “Climate change and Mental health, Mindfulness based Intervention, Psychological well-being” were used to find papers online.

Findings

The findings of a systematic review of current literature reveal a substantial relationship between climate change and mental health, underlining the potential relevance of mindfulness-based interventions in boosting psychological well-being. The studies examined consistently show that climate change and its related environmental problems contribute to a variety of psychological distress symptoms, including anxiety, sadness, and post-traumatic stress disorder. Furthermore, mindfulness-based interventions, such as mindfulness-based stress reduction and mindfulness-based cognitive therapy, have shown promise in improving mental health outcomes and resilience in the face of climate-related stresses. These approaches appear to improve self-awareness, emotional regulation, and adaptive coping techniques, thereby minimizing the negative psychological effects of climate change. However, additional research is needed to better understand the processes by mindfulness-based interventions and to determine their long-term effectiveness in treating the mental health impacts of climate change. Overall, our findings emphasize the value of mindfulness-based interventions as an adjunctive strategy to increasing psychological well-being in the context of climate change.

Suggestion

1. Create customized mindfulness programmes:
Creating mindfulness-based solutions that are specifically adapted to the psychological issues faced by climate change.
2. Cultivate mindfulness of climate-related emotions:
Encouraging people to become more sensitive to their emotions and thoughts about climate change.
3. Encourage self-care practices:
Self-care practices should be incorporated into mindfulness-based interventions to assist individuals in managing their mental health and well-being in the face of climate change.

4. Enhance coping skills and resilience:

Incorporating mindfulness practices can improve coping and resilience in the face of climate-related stressors.

5. Foster a sense of community and social support:

Individuals may feel more connected, validated, and less alone as a result of this, generating a sense of collective resilience and well-being.

Summation

Climate change brings multiple issues that go beyond its environmental implications, affecting individuals' and communities' mental health and psychological well-being. Mindfulness provides individuals with coping techniques for navigating the emotional discomfort, nervousness, and sadness connected with climate change. Mindfulness-based interventions have shown to have the ability to reduce stress, anxiety, and depression as well as to help people develop effective coping strategies for dealing with loss and grief. Additionally, these interventions can encourage pro-environmental behavior, empathy, and connectivity, all of which are essential for fostering sustainable responses to climate change.

Works Cited

- Anālayo, B. (2019). A task for mindfulness: facing climate change. *Mindfulness*, 10(9), 1926-1935.
- Berry, H. L., Bowen, K., & Kjellstrom, T. (2010). Climate change and mental health: a causal pathways framework. *International journal of public health*, 55, 123-132.
- Buoli, M., Grassi, S., Caldiroli, A., Carnevali, G. S., Mucci, F., Iodice, S., ... & Bollati, V. (2018). Is there a link between air pollution and mental disorders?. *Environment international*, 118, 154-168.
- Burgess, R., Deschenes, O., Donaldson, D., & Greenstone, M. (2017). *Weather, climate change and death in India*. University of Chicago.
- Burke, C. A. (2010). Mindfulness-based approaches with children and adolescents: A preliminary review of current research in an emergent field. *Journal of Child and Family Studies*, 19, 133-144. <https://doi.org/10.1007/s10826-009-9282-x>
- Charlson, F., Ali, S., Benmarhnia, T., Pearl, M., Massazza, A., Augustinavicius, J., & Scott, J. G. (2021). Climate change and mental health: a scoping review. *International Journal of Environmental Research and Public Health*, 18(9), 4486.
- Chiesa, A., & Malinowski, P. (2011). Mindfulness-based approaches: Are they all the same? *Journal of Clinical Psychology*, 67(4), 404-424. <https://doi.org/10.1002/jclp.20776>
- Cianconi, P., Betrò, S., & Janiri, L. (2020). The impact of climate change on mental health: a systematic descriptive review. *Frontiers in psychiatry*, 11, 74.

- Clayton, S. (2021). Climate change and mental health. *Current Environmental Health Reports*, 8, 1-6.
- Grabow, M., Bryan, T., Checovich, M. M., Converse, A. K., Middlecamp, C., Mooney, M., ... & Barrett, B. (2018). Mindfulness and climate change action: A feasibility study. *Sustainability*, 10(5), 1508.
- Hayes, S. (n.d.). About ACT. Retrieved from https://contextualscience.org/about_act
- Jinnah, S. (2011). Climate change bandwagoning: The impacts of strategic linkages on regime design, maintenance, and death. *Global Environmental Politics*, 11(3), 1-9
- King, J. D., Zhang, S., & Cohen, A. (2022). Air pollution and mental health: associations, mechanisms and methods. *Current Opinion in Psychiatry*, 35(3), 192-199.
- Lawrance, E. L., Thompson, R., Newberry Le Vay, J., Page, L., & Jennings, N. (2022). The impact of climate change on mental health and emotional wellbeing: a narrative review of current evidence, and its implications. *International Review of Psychiatry*, 34(5), 443-498.
- Majeed, H., & Lee, J. (2017). The impact of climate change on youth depression and mental health. *The Lancet Planetary Health*, 1(3), e94-e95.
- Müller, N. (2014). Infectious diseases and mental health. *Comorbidity of Mental and Physical Disorders*, 99.
- Palinkas, L. A., & Wong, M. (2020). Global climate change and mental health. *Current opinion in psychology*, 32, 12-16.
- Panno, A., Giacomantonio, M., Carrus, G., Maricchiolo, F., Pirchio, S., & Mannetti, L. (2018). Mindfulness, pro-environmental behavior, and belief in climate change: the mediating role of social dominance. *Environment and Behavior*, 50(8), 864-888.
- Scafuto, F. (2021). Individual and social-psychological factors to explain climate change efficacy: The role of mindfulness, sense of global community, and egalitarianism. *Journal of Community Psychology*, 49(6), 2003-2022.
- Thompson, R., Hornigold, R., Page, L., & Waite, T. (2018). Associations between high ambient temperatures and heat waves with mental health outcomes: a systematic review. *Public health*, 161, 171-191.
- Trombley, J., Chalupka, S., & Anderko, L. (2017). Climate change and mental health. *AJN The American Journal of Nursing*, 117(4), 44-52.
- Vergunst, F., & Berry, H. L. (2022). Climate change and children's mental health: a developmental perspective. *Clinical Psychological Science*, 10(4), 767-785.
- Wamsler, C. (2018). Mind the gap: The role of mindfulness in adapting to increasing risk and climate change. *Sustainability Science*, 13, 1121-1135.
- Wamsler, C., Brossmann, J., Hendersson, H., Kristjansdottir, R., McDonald, C., & Scarampi, P. (2018). Mindfulness in sustainability science, practice, and teaching. *Sustainability science*, 13, 143-162.
- What is DBT? (n.d.). Retrieved from <http://behavioraltech.org/resources/whatisdbt.cfm>

LITERATURE AND CLIMATE CHANGE: A GLIMPSE INTO ENVIRONMENTAL CONSCIOUSNESS IN THE WORKS OF

Amitav Ghosh

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Abstract

The capacity of literature to surpass limitations and illuminate significant social issues is evident in the literary writings. Climate change has emerged as a significant and urgent issue, posing a global problem with wide-ranging implications. This article aims to examine the significance of Indian literature in promoting environmental consciousness with a specific emphasis on the literary contributions of Amitav Ghosh, a highly esteemed novelist in India. In his literary works, Ghosh adeptly interlaces themes that underscore the imperative nature of environmental awareness and proactive measures.

Key Words: *Climate Change, Ecology, Ramifications, Inter-connectedness, Consciousness*

Introduction

In recent years, the urgency to address climate change has become increasingly apparent, and the need to engage with this global crisis is more crucial than ever. Literature, as a powerful medium, has the ability to evoke emotions, inspire action, and raise awareness about pressing issues. Indian author Amitav Ghosh, with his thought-provoking narratives, intertwines the realms of literature and climate change, providing a unique perspective on this critical subject. Through his remarkable works, Ghosh captures the ecological challenges faced by India and the world, forcing readers to confront the consequences of our actions and the need for collective action.

The Hungry Tide: An Exploration of Ecological Ramifications

The literary work titled *The Hungry Tide* by Amitav Ghosh is situated inside the Sunderbans, a geographical area in India characterised by its mangrove forest ecosystem. This novel effectively functions as a microcosm, offering a condensed representation of the broader environmental predicament. The story takes place in a context characterised

by the escalation of sea levels, the decline of biodiversity, and the imminent danger faced by indigenous populations. Ghosh's evocative portrayal of the natural environment and its interconnectedness with human life elicits a feeling of urgency and underscores the profound consequences of climate change on fragile ecosystems. In this literary work, Ghosh effectively conveys a poignant message on the potential ramifications of disregarding environmental concerns. Through his storytelling, he conveys the interconnectedness of human lives with the natural world, urging readers to acknowledge the far-reaching impact of climate change.

The novel titled *The Hungry Tide* is situated in Bhatiradesh, a region known for its tidal characteristics within the Sundarban in West Bengal. The perpetual physical instability, the daily oscillation between land and water, and most importantly the description of the landscape's flexibility is truly remarkable. *The Hungry Tide* demonstrates the disruption of the Sundarban ecosystem as a result of ecological modifications. Many ecological changes resulting from globalization have led to the occurrence of disturbances and the process of industrialization. According to Rachel Carson, "The historical narrative of life on Earth has predominantly revolved around the intricate interplay and dynamic interactions among various organisms and the environment in which they are situated. To a significant degree, the morphology and behavioural patterns of the vegetation and animal life on Earth have been shaped by the surrounding environment" (Carson 42).

Ghosh's Sundarbans depiction takes readers into a natural paradise. The mangrove forests, Bengal tigers, and complicated ecosystem of the area set the scene for the story. Rising sea levels, crumbling shorelines, and diminishing islands threaten the Sundarbans' survival. The novel humanises climate change via personal stories and environmental issues. Cetologist Piya Roy connects the story's scientific and human elements. She reveals the Sundarbans' fragile environment by studying uncommon river dolphins. Ghosh portrays her as a symbol of perseverance and determination, symbolising scientists and researchers who study and counteract climate change.

Engaging in self-reflection Kanai recollects the remarkable assemblage of individuals within the Sundarban jungle upon his initial arrival to the area. In light of his location and comprehension, Nirmal expresses his astonishment by stating: "It is worth noting that such occurrences are typically limited to the realm of cinema. Jungles are devoid of human presence. In this location, there exist areas that exhibit comparable levels of congestion to those observed in bustling Kolkata marketplaces. In certain river systems, the number of

boats present surpasses the quantity of trucks observed on the Grand Trunk Road” (*The Hungry Tide*, 85).

Nilima was renowned for her unwavering determination, resolute perseverance, and unyielding tenacity, which were indicative of her vulnerable state of insecurity and created ‘The Badabon trust’ to save the humanity and the environment. Nilima establishes her own identity by founding the Badabon trust, which seemingly serves as a means for her self-expression and self-differentiation. Nilima, along with other women, actively aligns herself with the perspective of ecofeminism.

The Ibis Trilogy: An Exploration of Ecological Transformations

In his monumental Ibis Trilogy, comprising *Sea of Poppies*, *River of Smoke*, and *Flood of Fire*, Ghosh presents a historical perspective on climate change and its ramifications. Set against the backdrop of the opium trade, the trilogy explores the ecological transformations caused by human exploitation and colonialism in the Indian subcontinent and beyond. The first book of Amitav Ghosh's Ibis trilogy, titled *Sea of Poppies*, offers a comprehensive portrayal of the intricate mechanisms involved in the Opium trade during the period of British India. In contrast, the second book, *River of Smoke*, serves as a contextual backdrop, illustrating the escalating conflicts between China and the foreign merchants engaged in Opium transactions, who have established their operations in Canton. In the last work, titled *Flood of Fire*, Ghosh provides a comprehensive account of the escalating tensions between the East India Company merchants and the Chinese government, ultimately leading to the historical event referred to as the ‘First Opium War’ (1839-42).

Ghosh intertwines historical events, socio-political complexities, and environmental changes, highlighting the far-reaching consequences of human actions over time. The trilogy serves as a cautionary tale, reminding us that the choices we make today have lasting effects on our planet and future generations. Aliya Shahnoor Ameen states, “European colonial powers, led by the British East India Company, established trading posts throughout Southeast Asia. But at the heart of their business was a desire to illegally enrich themselves and seize political power learn how the imperial authority planted the seeds of ecological calamity across the area and how Amitav Ghosh painstakingly portrays environmental upheaval in his trilogy” (Ameen 38).

In *Sea of Poppies*, Ghosh sheds light on crises such as social dominance, cultural dominance, and natural dominance. The cultivation of opium and its subsequent effects on the environment, as well as on the lives of humans and other creatures, are depicted in the

novel *Sea of Poppies*. The poppy plants in bloom at the novel's outset hint that opium would play a significant role in the story's protagonists' destinies. The cultivation of opium has had the dishonorable side consequence of putting an end to the production of edible food crops. The novelist uses the outflow of sewage from the opium plant in the Ganga to illustrate the river's degradation. The majority of Indians adored the river, and everyone has to drink from it. However, it becomes unfit for human consumption due to sewage contamination.

Ghosh shows the effects of the drug on creatures like monkeys that inhabited the area around the opium factory. Addiction and dependence develop in humans who are repeatedly exposed to the substance. Ghosh argues that similar effects may be seen in monkeys once they become hooked to the toxin. They acted strangely and couldn't move quickly and freely between locations. Human and animal health have been severely impacted by the opium factory's waste products. "People who live in close proximity to industries typically have health problems such as headaches, nausea, and difficulty breathing. There was always a large number of fisherman on the bank because of the common idea that fish were easier to catch after nibbling at the shards" (SOP 92).

The River of Smoke depicts the devastating effects of the opium traffic between Calcutta and Canton, China, on the local population and the environment. An opium addict's remorseful monument to the Chinese Emperor is depicted in the novel *River of Smoke*. When seen in the perspective of Ghosh's whole body of work, the novel's call to action seems to support a more isolated ecological system, exposing the benefits of human interaction with nature to be an illusion. Even if they are successful in persuading people to take action, it will be too late to stop significant climate changes. "But I hope that a new generation will emerge from this conflict with clearer eyes than their predecessors, that they will break free of the isolation in which humanity was trapped during its derangement, that they will rediscover their kinship with other beings, and that this vision, which is both new and ancient, will find expression in a revitalized art and literature" (ROM 161-162).

The narrative in *Flood of Fire* is conveyed through the perspectives of various characters, including Kesri, who serves as a havildar in the Bangal Native Infantry, Neel, a former zamindar now employed as a translator in Canton, Zachary Reid, an American sailor whose voyage commenced aboard the Ibis, and Shireen Modi, the spouse of a recently deceased Parsi merchant who embarks on a journey to the 'Maha Chin' with the intention of reclaiming her husband's outstanding debts.

The Ibis Trilogy by Amitav Ghosh, which is set in British-era India, examines the effects of opium on the environment. Ghosh writes to show how human greed has destroyed the natural environment. The tale serves as a powerful analogy for the environmental effects of European empire. This exemplifies the mindset that justifies destroying the ecology of the conquered nation in the name of free commerce.

The novel *Gun Island*, written by Amitav Ghosh, demonstrates the author's awareness of the growing problem of environmental destruction. The novel provides for us a glimpse of the way in which the ecological crisis has led to problems like as global warming and climate change, which have finally led to the problem of 'displacement' of both humans and animals all across the planet. In this work, Ghosh has expertly described the emotional upheaval and the grief that comes from witnessing the misery of nature via his writing. The rise in sea level in the Sunderbans has led to a fast shift in the dynamics of the land in terms of its ecological impact, as "the islands of the Sundarbans are constantly being swallowed up by the sea; they are disappearing before our eyes" (GI 18). Tipu, a character in the book, embodies the mentality of today's young people, who are able to pick up the usage of new technologies extremely fast and are also willing to tackle any obstacle in order to realise their aspirations of leading a more fulfilling life.

The novel brings up a topical ecocidal worry in the shape of the destruction and devastation of natural resources that may be caused by massive ambitious initiatives such as the installation of a refinery in the ocean. William Rueckert writes, "All of the oceans of our home are slowly becoming contaminated by all of the pollutants disposed of in modern communities" (Rueckert 112). According to Khoche, "In *Gun Island*, Ghosh depicts the displacement and migration of humanity as well as how tough life can be for individuals who are forced to leave their nations and families behind; in particular, this significant issue and its varied ramifications are represented by the narrative of Tipu and Rafi. Tipu is brilliant and resourceful, and he wants to move somewhere else to have a better life" (259). *Gun Island*, is a testimonial to the fact that anthropogenic activities are not only depleting the planet of its natural resources but also giving rise to a variety of global catastrophes.

The Calcutta Chromosome: An Exploration of Unregulated Scientific Progress

Ghosh's science fiction *The Calcutta Chromosome* might be seen as an indirect commentary on the apprehensions surrounding uncontrolled technological advancements, while it does not explicitly tackle the issue of climate change. The tale effectively integrates several topics like genetic engineering, sickness, and the erosion of human connection with

the environment. Ghosh's examination of the unanticipated outcomes resulting from human activity functions as a didactic narrative, reflecting the possible repercussions of climate change and emphasising the need for conscientious measures.

By blending intricate ecological narratives with human experiences, historical perspectives, and social injustices, Ghosh presents a comprehensive portrayal of the complex interplay between nature and humanity. Through his captivating storytelling, Ghosh compels readers to reflect on their own responsibilities and engage actively in the quest for environmental preservation. This implies that the aforementioned time could have had a greater degree of severity than previously acknowledged. The long-standing societal structure, which had endured for several generations, was disrupted.

Summation

The literary works of Amitav Ghosh provide a comprehensive and insightful examination of the convergence of literature and climate change. Ghosh's literary works underscore the need of collective action, advocating for people, organisations, and governments to critically evaluate their interactions with the environment and adopt proactive measures to address the challenges posed by climate change. In light of the pressing circumstances surrounding global warming, the integration of literature and narratives pertaining to climate change assumes a critical role in motivating transformative action and cultivating a more profound comprehension of our collective need to safeguard the Earth for forthcoming cohorts. It is through literature that we can foster environmental consciousness and inspire collective action to mitigate the impacts of climate change. Ghosh's works stand as a testament to the power of storytelling in shaping a sustainable future for generations to come.

Works Cited

Ghosh, Amitav. *The Calcutta Chromosome*. Picador, 1996.

---. *The Sea of Poppies*. Penguin, 2008.

---. *The River of Smoke*. Penguin, 2011.

---. *The Flood of Fire*. Penguin, 2015.

---. *The Hungry Tide*. Harper Collins, 2018.

---. *Gun Island*. Farrar, Straus and Giroux, 2019.

Ameen, Aliya Shahnoor. "Sailing through the Environmental Warfare – An Ecological

Journey towards the Heart of Amitav Ghosh's *Ibis Trilogy*." *Language in India*, vol. 18, no. 5, May 2018, pp. 34-42.

Carson, Rachel. *Silent Spring*. Houghton Mifflin, 2002. www.google.co.in/books/

Khoche, P.D. "From The Sundarbans to Italy: Ecocritical Concerns in *The Hungry Tide* and *Gun Island* by Amitav Ghosh." *International Journal of Humanities, Law and Social Sciences*, vol. 8, no. 1, 2021, pp. 258-260.

Rueckert, William. "Literature and Ecology: An Experiment in Ecocriticism." *The Ecocriticism Reader: Landmarks in Literary Ecology*, edited by Cheryll Glotfelty and Harold Fromm. University of Georgia Press, 1996, pp. 105-123.

AN ANALYSIS OF CLIMATE CHANGE IN JESSIE GREENGRASS' *THE HIGH HOUSE*

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Abstract

Over the past half-decade, climate change has surfaced as a prevailing motif in literature. The term "cli-fi" (climate change fiction) has emerged due to its prevalence in fictional works, leading to conjecture that it represents a unique literary genre. The increased publication of literature on climate change has resulted in an enhanced involvement with climate change within all of literary studies, particularly within the ecologically focused sector of literary studies known as ecocriticism. The proliferation of eco-critical evaluations of literature pertaining to climate change, specifically novels, is contributing to the formation of a climate change fiction canon. This study is an attempt to explore climate change in the novel Jessie Greengrass' *The High House*.

Keywords: *The High House, Jessie Greengrass, Climate Change, Eco criticism, Cli-Fi (Climate change fiction).*

Introduction

The genre of "cli-fi" is experiencing a significant growth, as evidenced by many literary works. In contemporary times, it can be perceived as self-centered for artists of any discipline to create pieces that do not address current social issues. Jessie Greengrass' second novel delves into the topic of global warming, presenting a vision of a flooded East Anglia in the near future. The strength of the work lies in the characters' ability to recall the gradual progression towards catastrophe, as well as the daily attempts of common individuals to suppress their awareness of it. As one of the survivors, Caro, recalls, "The crisis transitioned from a remote menace to an impending likelihood, yet we chose to disregard it like background noise."

At the onset of the novel, Caro is portrayed as a teenager. Francesca, the partner of her father, is a prominent climate scientist and advocate, and it is a cause that Caro's father will also support. Although Francesca exhibits principle and tireless qualities, her constant fixation on the impending apocalypse alienates her from experiencing basic human pleasures, rendering

her unlikable. The character developed by Greengrass is a perceptive creation that offers readers a means to express their unease. Caro's exhaustion with Francesca's admonitions reflects what one experience.

Caro is unaware that her father and stepmother are making arrangements for her and her half-brother, Pauly, to seek shelter at the High House in Suffolk. This property is situated on a bluff and boasts several amenities such as an orchard, water-driven generator, tide pool, vegetable garden, and a barn stocked with clothing, toys, medicine, and even a boat. A young woman named Sally is hired to serve as a caretaker and is subsequently stationed at the location along side her grand father. Caro's paternal figure and step-parent are actively campaigning when a sequence of catastrophic storms ensue[1]. They manage to contact Caro in a timely manner, instructing her to escort Pauly to the High House. It is at this location where they encounter Sal and Grandy for the initial time. The individuals in question persisting an environment that has been rendered nearly devoid of human habitation. Their activities include cultivating potatoes, caring for poultry, sowing a modest amount of wheat, and taking precautions against mishaps and illnesses. The inquiry pertains to the ultimate purpose: "What alternative remains available to the minority of individuals who have endured, except to become both the unpardonable and the unpardoned Caro inquires.

Not with standing its somber thematic content, this literary work is imbued with the elation and gratification of nurturing a progeny. Caro assumes the role of a parent to her half-brother Pauly even before the crisis occurs. Greengrass effectively portrays how the uncomplicated routines of caring for a toddler can provide solace. Caro finds comfort in the structure of her daily activities, such as preparing snacks, feeding ducks, playing tag, Greengrass adeptly portrays the intricate dynamics that may arise among individuals residing in close proximity. Specifically, she illustrates how Pauly's arrival subtly alters Caro's familial ties with her father and stepmother, and how Sal's aversion towards Caro, who exhibits physical vulnerability and evident sorrow, manifests. The circumstance of both women being orphans does not serve as a basis for shared empathy, but rather incites criticis more potentially envious sentiments. Upon Sal's observation that Caro and Pauly appear content, her grandfather's brief reply expresses a significant amount of information.

The novel's irregular narrative structure contributes to a gradual revelation of details about the High House and Sally's identity, resulting in a slow start. Additionally, some inaccuracies regarding the behavior of birds in response to changing weather patterns and the hibernation patterns of badgers detract from the portrayal of natural upheaval. Despite

the contrasting backgrounds and dispositions of Caro and Sally, their vocal expressions remain indistinguishable.

The inquiry pertaining to all climate fiction (cli-fi) literature revolves around the appropriate course of action that the reader ought to undertake in response to the cautionary message suit seeks to impart [2]. The High House is not able for its recognition that contemporary writers and artists may have a limited capacity to effect change, and instead may serve a valuable role in facilitating communal acknowledgment, acquiescence, and as simulation of our share in ability to take action. Caro reminisces about individuals persevering with their daily routines such as commuting, taking vacations, engaging in weekend shopping, visiting the countryside, and spending leisurely afternoons in the park, despite being on the brink of a calamity. The actions undertaken were not a result of a lack of knowledge or carelessness, but rather due to a perceived absence of alternative options.

Discussion

One might believe that they possess an abundance of time. Suddenly, there is a cessation of the aforementioned action. Jessie Greengrass' latest novel, *The High House*, has been recognized for its literary merit and thought-provoking content, having been shortlisted for prestigious awards such as the 2021 Costa Novel Award, the 2022 Encore Award of The Royal Society of Literature, and the 2022 Orwell Prize for Political Fiction. The novel is both unsettling and aesthetically pleasing, as noted by the author herself.

A work of fiction depicting a catastrophic event, situated in the region of Suffolk. A female climate scientist and her spouse covertly engage in preparations for their former High House, situated on a bluff. The preparations include the establishment of a vegetable garden, installation of a windmill and generator, and creation of a tide pool. Additionally, a boat is being made ready for use.

The literary working question is situated within a temporal frame work that is proximate to the present, yet the precise proximity of said future remains indeterminate. It is widely acknowledged that due to the escalating sea levels resulting from the phenomenon of climate change, there exists a possibility that any nation comprising of islands may face the peril of being submerged by the ocean in a span of a few decades[3]. This narrative could potentially manifest into a veritable actuality for the upcoming cohort of readers. According to Greengrass, the future had unexpectedly become the present while individuals were occupied with their daily routines. Despite the awareness of its inevitability, the sudden

arrival of the future was surprising, akin to the realization of aging overnight.

What adaptations will they make? In a world where social status is no longer determined by heritage or wealth, but rather by the possession of a piece of land that is elevated and not submerged by seawater, how can individuals acquire the necessary skills to coexist harmoniously? The ability to cultivate one's own food source is essential for survival in this context.

During a recent lecture hosted by the Institute of Advanced Studies at University College London, Jessie Greengrass expressed her lack of solutions on the topic at hand. *The High House* can be regarded as a theoretical exercise. The author's narrative extends beyond the confines of a dystopian novel, encompassing not only the creation of a fictional world but also an examination of the internal and inter personal factors that are essential for the coexistence of human beings.

The narrative is conveyed through the perspectives of three juvenile individuals, namely Caro, her fraternal half-sibling Pauly, and Sally. Caro assumes the role of her brother's caregiver by default, as her father and Pauly's mother, Francesca, who are both scientists, are on a mission to alert the global community about the imminent climate crisis [4]. The individuals in question engage in global travel to attend conferences, and it is through this activity that they ultimately meet their demise in the United States due to inclement weather conditions on the West Coast.

According to Caro's recent telephonic communication with her father, she takes Pauly to the high house that shares its name with her, situated in close proximity to the sea, where she had spent her summer vacations during her formative years. Overwhelmed by grief, she arrives at the location only to discover the presence of two unfamiliar individuals. Curiously, Caro is anticipated by them. Francesca has made arrangements for the survival of Caro and Pauly by enlisting the help of Grandy, an elderly gentleman, and his granddaughter Sally, to instruct her children in fundamental agricultural practices. The location features an orchard and a tidal pool which serves as a source of electricity for the residence.

The quartet acquires the ability to coexist harmoniously. The experience of encountering nature is portrayed in a contrasting manner between Pauly's sense of elation, Caro's sorrow, and Sally's pragmatic approach. Women experience emotions such as jealousy, resentment, and abandonment issues, however, they develop the ability to set these emotions aside. The trio acquires knowledge on the rigors of survival, which entails enduring frigid

winters, coping with hunger, engaging in laborious agricultural activities throughout the day, conserving electricity, preserving any items that may prove useful in the future, limiting food and medicine consumption, and maintaining physical well-being to prevent the need for antibiotics.

The narrative reaches its apex with the advent of the floods, which serves as a pivotal moment that highlights the central predicament of the novel: the decision between self-preservation and the act of alerting others. Under the guidance of Grandy, Sally and Caro dutifully tolled the church bell throughout the night, fulfilling their ethical obligation despite the possibility of it being futile. Despite its ominous tone, this literary work possesses a profound ethical dimension, prompting inquiries that extend beyond the realm of ecological concerns.

Located at the top of an inclining hill, distanced from a coastal hamlet, the High House boasts a tidal basin, a mill, a produce garden, and a paramount barn replete with provisions. As of present, Caro, Pauly, Sally, and Grandy have remained unharmed by the surging water that poses an imminent threat to the town's destruction, and may have already caused devastation elsewhere. What is the duration of mentioned period?

Upon the occurrence of a climate disaster in a distant location, Caro and her younger half-brother Pauly make their way to the High House, following a call from their father and stepmother who advise Caro to leave London[5]. The two pairs, consisting of Grandy and his granddaughter Sally, adapt to cohabitation in their newly acquired residence, which has been repurposed from a summer abode. However, there exist constraints to their safety, limitations to the available resources, and boundaries to the knowledge that Grandy, the erstwhile

Caretaker of the village, who possesses versatile skills, can impart to the mdu etoh is deteriorating health. The High House is a poignant work of fiction that explores the themes of parenthood, love, sacrifice, and survival amidst the looming possibility of extinction. This novel is a remarkable and emotionally resonant portrayal of what can be preserved in the face of an apocalyptic event.

Summation

Jessie Greengrass' notable literary work, *The High House*, predominantly takes place in a bleak future. However, it is not exclusively categorized as dystopian literature. Instead, it bears a striking resemblance to contemporary literature, portraying a narrative that closely mirrors our impending reality. This novel portrays a world that is gradually being devastated

by climate change, rather than one that has been completely transformed by it. This depiction serves to highlight the current state of our world, which is being destroyed at a steady pace while humanity remains passive and fails to take action.

The High House is a significant literary work that portrays the current state of affairs and the potential future outcomes if the current trend of climate change is not addressed. Although it does not conclude on a positive note, the novel's significance lies in its ability to capture the essence of the present moment. Despite the apparent predictability of the narrative, the work contains plenty of stress and drama. The quality of the writing is exceptional, and the characters are highly relatable, eliciting a strong emotional response from the reader and compelling them to continue reading until the end. Despite being a work of fiction, *The High House* evokes a sense of authenticity, rendering it a splendid literary piece that prompts a clear call to action for its readership.

Works Cited

<https://www.theguardian.com/books/2021/jun/26/stories-to-save-the-world-the-new-wave-of-climate-fiction>

<https://www.harvardreview.org/book-review/the-high-house/JessieGreengrass.TheHighHouse>. Swift press, 2021.

<https://www.simonandschuster.com/books/The-High-House/JessieGreengrass/9781982180119>

<https://www.amazon.in/High-House-Novel-Jessie-Greengrass/dp/1982180110>

SOCIAL WORK AND CLIMATE CHANGE: SCOPE AND CHALLENGES

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Abstract

As a profession that is primarily concerned with social concerns and people, Social Work has been slow to adapt to climate change. In this article, the scope and challenges of the Social Work profession's contribution to climate change are examined. The profession faces significant challenges such as ideological conflicts, lack of critical literature, lack of exposure, and shortage of indigenous knowledge, in addition to the plethora of possibilities it presents for combating climate change. These possibilities include individual and community efforts, policy interventions, disaster measures, research, and maintaining gender equality.

Keywords: *Climate change, Social work, Green social work, Social work education*

Introduction

The most important problem facing both current and future generations is climate change. After a lengthy period of time, it is regarded as one of the main issues of this century. The repercussions of climate change are already beginning to harm human societies and biological variety, and they will only get worse over time. The extreme variability of the weather has a significant impact on many sectors worldwide. The threats to food security, particularly in nations whose economies are predominately based on agriculture, the loss of biological diversity, concerns regarding the spread of a variety of illnesses, the destruction of the global tourism industry, the occurrence of disasters, and other linked issues create a lot of concern.

Despite its focus on society and its people, social work has been slow to adapt to new scientific understandings. Social workers were hesitant to join the environmental movement because of their profession's historical emphasis on therapeutic approaches. They began by concentrating on the negative consequences of environmental disasters, then added an emphasis on environmental justice (Coates & Gray, 2012).

Jane Addams was the first to draw a relationship between social work and the environment, linking poverty with the state of the community in which people reside (Papadopoulou & Teloni, 2022). Both the influence of natural science in the 1950s and the environmental movements of the 1970s were pivotal in expanding Social Work's focus on environmental issues (Närhi & Matthies, 2016). The 1990s climate change and disaster period saw a substantial impact from both Social Work interventions and academic research (Papadopoulou & Teloni, 2022). An essential facet of social work is the recognition that the origins of all issues, whether on an individual, community, or societal scale, can be traced back to environmental components.

Scope of Social Work in Climate Change

In the context of climate change, the social work profession has vast opportunities. Social Work is slowly but surely being acknowledged as having a critical role to play in creating effective responses to environmental degradation, climate change, and disasters. The environment is given a significant role in the social work profession by both the International Federation of Social Workers (IFSW) and the National Association of Social Workers (NASW). In the opinion of IFSW, it is necessary to improve the relevance of environmental issues in social work education as well as the recognition of the built and natural environments in social environments. According to the NASW's own environmental policy, "Social workers have a professional obligation to become knowledgeable and educated about the precarious position of the natural environment, to speak out and take action on its behalf, and to help their clients act in an environmentally responsible manner." It also has a role in creating awareness among people regarding the issues posed by climate change, mobilizing people for community social work as a preventive action, promoting sustainable energy production and consumption, etc (Dominelli, 2011). Through these interventions, social workers can adopt various roles such as researchers, educators, clinicians, and members of the community in the area of climate change (Cumby, 2016).

Climate change and the relevance of Green Social Work

Green Social Work is an innovative approach that emphasises environmental justice within the framework of the concept of social justice. This perspective questions the environmental Social Work field's tendency to look solely at how human actions affect the physical world. (Dominelli, 2018). Green social work is also known as environmental justice social work. According to Drolet et al. (2015), Green Social work is an understanding of the environment from the standpoint of social work. According to Gordon (2017), GSW helps social workers

to approach issues of poverty and nutritional deficiency through the lens of climate change and environmental degradation. The reduction in production and consumption of nutrient-dense food as a result of the impacts of climate change, as well as the adversities caused due to various environmental disasters as a result of anthropogenic interventions, all give opportunities for social workers to intervene from the perspective of Green Social Work. Because of this, it is imperative that green social work be incorporated into existing social work curricula (Dominelli, 2018). GSW has demonstrated its own significance during the period of covid-19, where L. Dominelli highlighted how habitat destruction and environmental degradation supported the transmission of viruses to human beings, which culminated in large pandemics (Dominelli, 2021). In addition, social workers played a crucial role during that time.

Involvements in disasters as a result of climate change and environmental degradation

During a disaster, social workers look into the issues from the perspectives of social, economic, and environmental justice (Rogge, 2003). Social workers can get involved in environmental justice by assisting with rescue and relief efforts, evaluating data to aid in the formulation of rehabilitation policy, establishing community involvement in relief efforts, providing trauma care interventions, working with vulnerable groups, disseminating information, and educating the public, coordinating efforts, and networking (Desai, 2007).

Mainstream gender dimensions in climate change

When a disaster occurs, women are among the most vulnerable members of society. As a result of the dominant cultural framework, female members of the community are excluded from discussions or decision-making about climate change adaptation and mitigation. This adds to the gender disparity in the current period of catastrophe. As a consequence of this, they are significantly more prone to unfortunate events. Social workers have the opportunity to incorporate gender concerns into climate change interventions by employing effective tactics for community involvement and mobilisation. This would aid rural women's social resilience, capacity development, adaptive capacity, environmental and social justice, and equal participation in the discourse on climate change. (Nyahunda, 2021).

Role in Social Policy And Interventions

Compared to other disciplines, Social Work is more closely related to social policy (Adams, 2017). Through development, advocacy, implementation, and practise, the Social Work profession can get involved in social policy issues. With the aid of NGOs, social

workers can participate in creating successful policies that impact environmental activism in the context of climate change (Lysack, 2015). Social Work can play a role in restoring social justice to individuals who are affected by climate change and its aftereffects, starting with individual interventions to mobilise the community through community involvement (Dominelli, 2011).

Challenges of Social Work In Climate Change

The social profession's lagging involvement in environmental issues is tied to its ideological restriction of the concept of the environment. In the field of Social Work, there has always been friction between the "social" and "natural" points of view. Environmental considerations are absent from Social Work interventions for a variety of reasons, including Western cultural dominance that separates people from their physical environments (Cumby, 2016) and social interpretations of "Person-in-environment" (Coates & Grey, 2012). Human needs are the primary frame of reference for all environmental factors. This problem is exacerbated by the vagueness of the phrases "ecology" and "environment". To understand environmental concerns holistically, ideological transformation is the only option. In this aspect, indigenous practices and worldviews can be beneficial (Cumby, 2016).

Even though it has been claimed that the Social Work literature's contribution to environmental topics began in the 1970s (Germain, 1973), the contributions of such kinds of literature lack critical pieces that can spark in-depth discussions (Coates & Gray, 2012; McKinnon, 2008). The vast majority of US studies, in particular, concentrated on therapeutic features (Coates & Grey, 2012).

The lack of proper training and field-level exposure during social work education, the lack of recognition of social workers in the climate change terrain by the government and other agencies (Louis et al., 2019), and the adoption of westernised practices while avoiding indigenous models are additional challenges faced by the social work profession in the area of climate change.

Summation

In the current climate change scenario, there is a high demand for social workers. Despite the fact that the involvement of the profession was initially lower, a significant amount of change has taken place. IFSW's acknowledgement of the role of social work education in environmental issues, the NASW's Environment policy, and the emergence of Green Social Work are examples. In addition to the numerous opportunities presented by the Social

Work profession in dealing with climate change, such as individual and community efforts, policy interventions, disaster measures, research, and the maintenance of gender equality, the profession faces significant obstacles, such as ideological conflicts, a scarcity of critical literature, a lack of exposure, and a dearth of indigenous knowledge. Therefore, Social Work education needs to be revitalised in pedagogy, curriculum, and field exposure to meet these difficulties head-on. It is equally important to train social workers from an Environmental Justice perspective.

Works Cited

Adams, R. (2017). *Social Policy for Social Work*. Bloomsbury Publishing.

Coates, J., & Gray, M. (2012). The environment and social work: An overview and introduction. *International Journal of Social Welfare*, 21(3), 230–238. <https://doi.org/10.1111/j.1468-2397.2011.00851.x>

Cumby, T. (2016). Climate change and social work: Our roles and barriers to action. *Theses and Dissertations (Comprehensive)*. <https://scholars.wlu.ca/etd/1828>

Dominelli, L. (2011). Climate change: Social workers' roles and contributions to policy debates and interventions1. *International Journal of Social Welfare*, 20(4), 430–438. <https://doi.org/10.1111/j.1468-2397.2011.00795.x>

Drolet, J., Wu, H., Taylor, M., & Dennehy, A. (2015). Social Work and Sustainable Social Development: Teaching and Learning Strategies for 'Green Social Work' Curriculum. *Social Work Education*, 34(5), 528–543. <https://doi.org/10.1080/02615479.2015.1065808>

Louis, N., Kokeketo, M. F., & Calvin, M. J. (2019). Role of Social Workers in Mitigating the Effects of Climate Change in Makonde Communal Lands, Zimbabwe. *E-BANGI Journal*, 16(9), 172–183.

Lysack, M. (2015). Effective policy influencing and environmental advocacy: Health, climate change, and phasing out coal. *International Social Work*, 58(3), 435–447. <https://doi.org/10.1177/0020872814567485>

Mathbor, A. C. D., Golam M. (2022). Climate Change, Environmental Justice, and Sustainable Development in Social Work. In *Social Work and Climate Justice*. Routledge.

McKinnon, J. (2008). Exploring the Nexus Between Social Work and the Environment. *Australian Social Work*, 61(3), 256–268. <https://doi.org/10.1080/03124070802178275>

Mpambela, M., & Mabvurira, V. (2017). Effects of climate change and their indelible impact on social work profession in Zimbabwe. *African Journal of Social Work*, 7(2), Article 2.

Närhi, K., & Matthies, A.-L. (2016). *Conceptual and Historical Analysis of Ecological Social Work* (pp. 21–38). https://doi.org/10.1007/978-1-137-40136-6_2

- Noble, C. (2016). Green social work—The next frontier for action. *Social Alternatives*, 35(4), 14–19. <https://doi.org/10.3316/ielapa.872133296471245>
- Nyahunda, L. (2021). Social Work Empowerment Model for Mainstreaming the Participation of Rural Women in the Climate Change Discourse. *Journal of Human Rights and Social Work*, 6(2), 120–129. <https://doi.org/10.1007/s41134-020-00148-8>
- Papadopoulou, D., & Teloni, D.-D. (2022). Climate change, disasters and social work practice in Greece. *Critical and Radical Social Work*, 1(aop), 1–15. <https://doi.org/10.1332/204986021X16632560995141>
- Ramsay, S., & Boddy, J. (2017). Environmental Social Work: A Concept Analysis. *The British Journal of Social Work*, 47(1), 68–86. <https://doi.org/10.1093/bjsw/bcw078>
- Shokane, A. L. (2019). Social work assessment of climate change: Case of disasters in greater Tzaneen municipality. *Jamba : Journal of Disaster Risk Studies*, 11(3), 1–7. <https://doi.org/10.4102/jamba.v11i3.710>

CLIMATE CHANGE AND MENTAL HEALTH: THE ROLE OF ENVIRONMENTAL ACTIVISM IN PROMOTING PSYCHOLOGICAL RESILIENCE

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Abstract

Climate change is widely recognized as the global concern of our time, with far-reaching implications on the environment, physical well-being, and mental health of all living species. This concept paper investigates how environmental involvement may provide people a sense of purpose, empowerment, and community; thus promoting psychological resilience. It emphasizes on establishing ways to boost resilience and adaptive capacity in the face of the psychological challenges provided by climate change. The findings of this study can help in shaping the development of interventions and strategies, thus contributing to the emerging field of research on climate change and mental health.

Keywords: *Nature, Bouncing-back, Well-being, Environmentalism, Mind.*

Introduction

Understanding Climate Change and Mental Health Connection

Climate change refers to long-term changes in temperature and weather patterns. Such fluctuations can be natural, caused by variations in the environment, however, human activities have been the primary cause of climate change since the 1800s, owing mostly to the use of fossil fuels such as coal, oil, and gas. Carbon dioxide and methane are the primary greenhouse gasses affecting climate change. Agriculture, oil and gas operations are major sources of methane emissions. Energy, industry, transportation, buildings, agriculture, and land use are some of the major contributors to greenhouse gas emissions.

The aftermath of climate change has resulted through extreme climate calamities, droughts, forest fires and flooding, thus reflecting on farming and human systems (Palinkas & Wong, 2020). Health-wise, rising greenhouse gas emissions, subsequent pollution & heat, alterations

in food and nutritional intake has increased the probability of neurological conditions like stroke, dementia and potential mental illness in individuals. Change in climate can pan out and affect daily life of people, starting with unemployment, relocation, unrest in familial dynamics and mental health distortion (Trombley, et al., 2017).

New perspectives are emerging to better describe the effects of climate change on the human mind (Cianconi, P, 2020). Ecological grieving and eco-anxiety are phrases used to describe people's feelings of loss or fear in the face of climate change, especially the loss of a stable future. Solastalgia is a phrase coined to describe our nostalgia for a conventional way of life or childhood scenery that has been devastated by environmental changes. While eco-anxiety is a reasonable response to the climate disaster and does not normally rise to the level of clinical concern, it can alter views of society and the future, leading to anger, despair or paralysis, particularly among young people.

Those who affected by Climate change

Children and adolescents, elderly, chronically ill, those with cognitive or mobility disabilities, pregnant and postpartum women, and people suffering from mental illness may be more affected due to climate change (Padhy et al., 2015). Also, individuals hailing from vulnerable groups, lower socioeconomic conditions, refugees, are duly affected (Hayes et al., 2018)

How Extreme Weather Affect Mental Health

Most people's mental health implications of a single disaster include mild stress and insomnia, high-risk coping behavior such as increased alcohol use, and mental disorders such as depression, anxiety, and post-traumatic stress disorder (Gifford & Gifford, 2016). Climate-related increases in global temperatures influence communities not only through localized disasters, but also through long-term and frequently large-scale repercussions from repeated calamities and their effects on well-being, economic stability, and infrastructure in a given region. This could include cumulative communal stress, increases in poverty, domestic violence, substance misuse, and forced migration (Ramadan & Ataallah, 2021). Flooding and extended droughts have also been linked to mental health issues such as anxiety, depression, suicide, and post-traumatic stress disorder (Bourque & Cunsolo Willox, 2014).

First responders, emergency personnel, and others involved in responding to extreme weather-related disasters are more likely to suffer from mental health problems in the short and long term. These individuals may be both a responder and a victim, needing to care for the public while also dealing with the negative effects of a disaster on their own family

(Schwartz et al., 2022). Responders and emergency personnel are frequently injured or killed on the job, which can exacerbate negative consequences.

Resilience

Resilience is a broad term with multiple meanings. Ecological resilience refers to the ability of a natural system to recover after a disturbance. The ability of an ecosystem to exploit resources or cope with consequences is referred to as resilience. Any ecosystem has the ability to recover to a functional condition based on a few fundamental traits, such as permeability, productivity and landform complexity (Timpane-Padgham, et al., 2017)

Rationale of the study

The rationale for this study stems from the recognition of a critical gap in our understanding of the role of environmental activism in fostering psychological resilience. There is a growing awareness of the need to understand and treat the psychological effects of environmental damage and climate-related events as the effects of climate change become more and more obvious. In this setting, environmental activism has become a potent tool for fostering psychological adaptability and reducing the negative consequences of climate change on mental health. This study intends to contribute to the existing literature on climate change and mental health by highlighting the possible advantages of active engagement in environmental advocacy. Finally, the study's findings will help in creation of intervention and support systems that can minimize the mental health effects of climate change.

Methods and Procedure

In order to address predetermined research questions, a systematic literature review was employed as the methodology. Systematic literature review identifies, assesses and interprets all findings on a study issue. The information recorded by the literature search was 2010 to 2023. The search term “Climate change and Mental health, Environmental Activism in Promoting Psychological Resilience, Climate change and Resilience” were used to find papers online.

Findings

A systematic review of the present literature indicated a major discovery highlighting the vital importance of environmental activism in improving psychological resilience in the context of climate change. The examined studies consistently found that engagement in environmental activism was related with improved mental health outcomes and higher psychological resilience among people affected by climate change. Multiple studies

consistently revealed that those interested in environmental activism had better levels of psychological well-being and resilience than those who were not actively engaged in such activities. Environmental activism gave people a sense of purpose and agency, allowing them to address climate change issues head on. It established a strong connection to environmental issues and provided a platform for individuals to contribute to good change, resulting in a better sense of control over their situations. This sense of empowerment was found to reduce feelings of powerlessness and vulnerability, hence improving mental well-being and resilience.

Furthermore, the review emphasized the need for social support and community engagement in the context of environmental action. Participating in activist activities aided in the building of supportive networks and communities, giving people a sense of belonging and a place to share their experiences and coping skills. This social support was critical in minimizing the unfavorable psychological effects.

Suggestion

1. Examine the psychological processes and channels that environmental activism uses to strengthen resilience:
Elements like self-efficacy, empowerment, environmental identity, and communal efficacy may reduce the effects of climate change on mental health. Understanding these psychological processes can help to inform targeted support initiatives and interventions as well as useful insights into the particular facets of environmental activism that foster psychological resiliency.
2. Build resilient foundations with rapid and inclusive development:
Working towards ways to eradicate poverty and expanding access to essential services might promote resilience in vulnerable groups' mental health. Constructing sustainable and inclusive routes for adaptation, and considering connections between environmental advocacy and socioeconomic development can be beneficial.
3. Help people and firms recover faster and better:
Examining techniques for improving resilience and post-disaster recovery in mental health outcomes can aid in better recovery. Awareness about early warning systems, emergency preparedness, financial inclusion, and social protection can assist people and companies in recovering and rebuilding following climate-related events.
4. Manage effects on a large scale:
Describing the macroeconomic effects of how climate change is affecting people's

mental health needs to be addressed. Scoping into methods for increasing economic diversity and resilience to reduce these risks.

In summary, by considering the psychological mechanisms and pathways of environmental activism in promoting resilience, actionable insights that can guide policymakers, practitioners, and researchers in effectively addressing the mental health impacts of climate change can be brought upon. It will contribute to a more holistic understanding of the subject matter and pave the way for evidence-based approaches to support individuals and communities in building psychological resilience in the face of climate change challenges.

Summation

Finally, this systematic study shed light on the critical role of environmental engagement in fostering psychological resilience in the context of climate change. The evaluated research consistently shows that involvement in environmental activism is associated with improved mental health outcomes and higher levels of psychological resilience among people affected by climate change.

Works Cited

- Berry, H. L., Bowen, K., & Kjellstrom, T. (2010). Climate change and mental health: a causal pathways framework. *International journal of public health, 55*, 123-132.
- Bourque, F., & Cunsolo Willox, A. (2014). Climate change: the next challenge for public mental health?. *International review of psychiatry, 26*(4), 415-422.
- Cianconi, P., Betrò, S., & Janiri, L. (2020). The impact of climate change on mental health: a systematic descriptive review. *Frontiers in psychiatry, 11*, 74.
- Côté, I. M., & Darling, E. S. (2010). Rethinking ecosystem resilience in the face of climate change. *PLoS biology, 8*(7), e1000438.
- Gifford, E., & Gifford, R. (2016). The largely unacknowledged impact of climate change on mental health. *Bulletin of the Atomic Scientists, 72*(5), 292-297.
- Hayes, K., Blashki, G., Wiseman, J., Burke, S., & Reifels, L. (2018). Climate change and mental health: Risks, impacts and priority actions. *International journal of mental health systems, 12*(1), 1-12.
- Padhy, S. K., Sarkar, S., Panigrahi, M., & Paul, S. (2015). Mental health effects of climate change. *Indian journal of occupational and environmental medicine, 19*(1), 3.

Palinkas, L. A., & Wong, M. (2020). Global climate change and mental health. *Current opinion in psychology*, 32, 12-16.

Ramadan, A. M. H., & Ataallah, A. G. (2021). Are climate change and mental health correlated?. *General Psychiatry*, 34(6).

Schwartz, S.E., Benoit, L., Clayton, S., Parnes, M. F., Swenson, L., & Lowe, S. R. (2022). Climate change anxiety and mental health: Environmental activism as buffer. *Current Psychology*, 1-14.

Timpane-Padgham, B. L., Beechie, T., & Klinger, T. (2017). A systematic review of ecological attributes that confer resilience to climate change in environmental restoration. *PLoS One*, 12(3), e0173812.

Trombley, J., Chalupka, S., & Anderko, L. (2017). Climate change and mental health. *AJN The American Journal of Nursing*, 117(4), 44-52.

CLIMATE CHANGE CRISIS - FOCAL POINT IS WATER

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Abstract

Long-term changes in temperature and weather patterns are referred to as climate change. These variations are typically caused by differences in the solar cycle. However, since the 1800s, human activities like the burning of coal and fossil fuels have contributed to climate change. Every habitat, tree, and animal on Earth contributes to the climate. The extinction catastrophe is currently making the climate crisis worse. The biggest action that can be performed to stabilise the climate emergency is protecting and restoring environment. Most people agree that one of the causes of extinction is climate change, which has an impact on biodiversity all around the world. But very few people are aware that the decline in biodiversity is also accelerating climate change and altering weather patterns around the world. Climate change and water are intricately intertwined. The complicated effects of climate change on water are well known. Most effects of climate change are related to water, including erratic rainfall patterns, decreasing ice sheets, rising sea levels, floods, and droughts. As temperatures rise, precipitation patterns and the entire water cycle are disrupted, worsening both water scarcity and water-related dangers such floods and droughts.

Keywords: *Climate change, Weather patterns, Ecosystem, Biodiversity, Water scarcity*

Introduction

Climate change refers to the long-term changes in the Earth's weather and temperature. These are usually caused by the variations in the solar cycle. Since the 1800s, the burning of fossil fuels and coal has been one of the main causes of these changes. Almost every ecosystem, including animals, plants, and trees, is responsible for the climate of the planet. The extinction crisis is already worsening the climate crisis. It's important that the government and the private sectors work together to restore and protect the planet's natural resources. Climate change is known to have a significant impact on the biodiversity of the planet. Many people don't realize that biodiversity loss is also contributing to the climate change. It can affect weather patterns and global temperatures.

Although climate and weather are not the same thing, they are nonetheless strongly related. The term "weather" describes transient conditions that can change swiftly. A place's long-

term characteristics, such as whether it is temperate or tropical, are determined by its climate. Weather and climate have a very important link; the former is subordinate to the latter. Temperatures, weather variety, the characteristics of winters, rainfall totals, and the nature of meteorological phenomena like storm severities are all influenced by climate. The world is currently experiencing temperature increases, frequent weather extremes, and natural disasters as a result of climate change because of this fragile interaction. This article seeks to understand how water and its impacts relate to climate change.

Climate Change and Water

Climate change and water are intricately intertwined. The complicated effects of climate change on water are well known. The majority of climate change's effects are related to water, including increasing sea levels, floods, and droughts as well as unpredictable rain fall patterns and melting ice sheets. As temperatures rise, precipitation patterns and the entire water cycle are disrupted, worsening both water scarcity and water - related dangers (such floods and droughts).

Water Marginality

According to the Sustainable Development Goals (SDG) Report 2022, around two billion people globally do not have access to clean drinking water, and according to the Intergovernmental Panel on Climate Change (IPCC), more than half of the world's population experiences acute water scarcity for at least some of the year. According to the World Meteorological Organisation (WMO), these figures are anticipated to rise in the near future. Only 0.5% of the water on Earth is drinkable, whereas freshwater availability and the supply are being gravely threatened by climate change. Terrestrial water storage, which includes soil moisture, snow, and ice, has decreased by 1 cm per year during the previous 20 years, having significant effects on water security (WMO). It is anticipated that glacier-stored water and snow cover would decrease much more.

The percentage of the world's population predicted to experience water scarcity would roughly be cut in half if global warming was limited to 1.5°C as opposed to 2°C (IPCC). Climate change has an impact on water quality as well since it is expected that increased water temperatures and more frequent floods and droughts will exacerbate several types of water pollution, including sediments, pathogens, and pesticides (IPCC). It takes between 2000 and 5000 litres of water to produce a person's daily food. According to the Food and Agriculture Organisation (FAO) there will be pressure on the food supply due to climate

change, population expansion, and growing watershortages (IPCC). Furthermore, the majority of freshwater consumption, or approximately 70% on average, is used for agriculture.

India has a Water Scare

Since India pumps more groundwater than any other nation, it has reached a point where food safety and water supply are taken into account when determining political and economic stability as well as long-term public health.

In their special report, Circle of Blue explains how a country with 1.3 billion people is inviting disease, economic hardship, and social unrest by failing to preserve its water. A "toxic time bomb" with global repercussions goes hand in hand with groundwater depletion and a disrupted food supply chain. Farmers use untreated wastewater that is contaminated with industrial pollutants and human sewage when irrigation wells run dry.

As one villager said, "The water moved from providing life to taking lives."

India is losing the potential to expand its economy, protect public health, assure agriculture output, and maintain social stability as its water resources become dirtier and smaller. A catastrophic drought is affecting 330 million people in India, or a fifth of the nation's population, after two years of inadequate monsoons. The lack of rain is especially catastrophic for farmers in India, where more than 60% of agricultural land is unirrigated. The drought has forced rural families to relocate to cities by destroying crops and drying up wells that were already overworked.

Water - Related Dangers

Extreme weather events like floods and droughts have become more frequent and more severe as a result of climate change (IPCC). Increasing atmospheric moisture due to rising global temperatures leads to more storms and heavy rains, but strangely also paradoxically more intense dry periods as more water evaporates from the land and changes in global weather patterns. According to the IPCC, the risks of drought and flooding will rise further with each degree of global warming, as will the resulting socioeconomic damages.

In the majority of the world, it is predicted that heavy precipitation events would happen more frequently in the twenty-first century, leading to greater rain-related flooding. The proportion of territory experiencing extreme drought at any given time is also anticipated to rise (IPCC). Seventy percent of all fatalities resulting from natural disasters are due to water-related disasters, which have topped the list of disasters over the previous 50 years (World Bank).

When compared to the two decades prior, flood-related disasters have increased by

134percent since 2000. According to the WMO, Asia suffered the majority of the flood - related deaths and financial losses. Over the same time span, droughts both increased in frequency and duration by 29%.

India's Response to the Water Crisis

In India, during the summer, water is as valuable as gold. The nation is among the most water-stressed nations in the world because it only possesses 4% of the world's water resources compared to its 18% population. A recent study by the government's policy think tank, the NITI Aayog, found that a significant portion of Indians experience high to extreme water stress. This difficulty is exacerbated by India's reliance on a monsoon that is becoming more unpredictable for its water needs. Even as the country experiences more floods and droughts, climate change is likely to make this demand on water resources worse.

India is involved in a number of activities related to the management of water resources, as well as the provision of clean water and sanitary facilities nation wide. Here are some of the ways.

Stopping the loss of ground water

One of the most crucial sources for domestic water supply in rural and urban areas, as well as for irrigation, is groundwater. However, this precious resource has been overused to the point where it is now exhausted.

To help with better ground water management, the World Bank is financing the government's Atal Bhujal Yojana national groundwater programme. The largest community-led groundwater management programme in the world is being implemented in 8,220 grampanchayats across seven Indian states. Since hundreds of millions of people and communities have the power to conserve groundwater, the programme is assisting locals in understanding their water availability and usage trends so they may plan their water use appropriately.

Providing for the unmet needs of villagers in India

The World Bank has helped the government during the past ten years in its efforts to provide rural people with access to clean drinking water. Over 20 million people have benefited from a number of initiatives that received \$1.2 billion in funding overall. Many residents, especially women, had to travel more than 1.6 km to get pure water for domestic purposes.

For instance, the steep Himalayan terrain made it challenging to construct and maintain the necessary infrastructure; therefore villages in the mountain state of Uttarakhand had shortage of water supplies. By enhancing dependable rural water supply and sanitation

services throughout under serve dare as, the World Bank-financed Uttarakhand Rural Water Supply and Sanitation Project assisted nearly 1.57million people in the state between 2006 and2015.

Continuity of city water supplies

Continuous piping of water has only ever been a pipe dream in India's rapidly urbanising cities. Most urban homes only have access to water for a few hours per day, at most, and frequently only a few days per week. The poor, women,and children in particular are impacted since they must spend time and money obtaining water for everyday requirements.

Now that the Karnataka narrative has been told, it is clear that metropolitan areas can indeed have a reliable, economical, and sustainable 24/7 water supply. This strategy wastested in the three water-stressed cities of Hubballi-Dharwad, Belagavi, and Kalaburgi with support from the World Bank's Karnataka Water Supply Improvement initiative. A subsequent initiative,the Karnataka Urban Water Supply Modernisation Project, is now scaling upto cover the entire state.

Taking care of India's most famous river

India's most significant and recognisable river, the Ganga, is revered by millions as a living goddess. However, as more than 100 towns and cities discharge domestic waste into the river, the Ganga is currently under tremendous pressure from growing urbanisation along its banks.

Since 2011, the World Bank has assisted the Indian government's efforts to restore the Ganga River. Two \$1 billion World Bank initiatives are assisting in the establishment of the organisations required to manage the river and create the infrastructure required to keep itclean. The largest cause of organic pollution in the Ganga is sewage from cities. Usingsewage treatment facilities and a system of drains that have been built and maintained, sewage water from home sin several of these cities now get treated before reaching the river.

Increasing the predict ability of irrigation

India's rain-fed agriculture is a risky endeavor because of unpredictable rainfall,as well as sporadic dry spells, powerful storms, and flash floods during the monsoon season. Without irrigation facilities, agriculture is essentially impossible during the non-monsoon season. India has made significant investments in the infrastructure required to provide irrigated agriculture to huge regions of the nation during the past 50 years. Small and marginal farmers especially gain from minor irrigation projects.

For instance, to lessen the effects of climate change, a Major Irrigation and Flood Management Project in West Bengal is assisting 2.7 million farmers to obtain better irrigation services and increased protection against yearly flooding. The initiative is assisting in boosting agricultural output and raising incomes in rural regions by increasing flood management, maximising surface and ground water use, and reducing water waste.

Monitoring droughts and floods

Even if climate change is making weather patterns less predictable and increasing the frequency of catastrophic weather events, India is still vulnerable to both droughts and floods. By holding water and releasing it when necessary, reservoirs can reduce the severity of these catastrophic events. However, reservoir managers frequently lack the technology resources necessary to support them in making important choices that can prevent floods.

New procedures and technology have been implemented by two hydrological projects funded by the World Bank, providing reservoir managers with a precise picture of the water situation developing in their area. These systems have established the framework for an extensive information base that can enhance the nation's overall management of its water resources. The worst effects of droughts may also be lessened with the aid of these methods. The country's whole territory, including the basins of the Indus, Ganga, and Brahmaputra-Barak rivers, is currently being covered by the monitoring system for water resources.

Impacts of Projected Climate Change On Water

- A more intense hydrological cycle is anticipated, with both increased drought and higher annual average rainfall.
- By the end of the twenty-first century, all three river basins are expected to experience an increase in extreme rainfall and rainfall intensity. Precipitation is predicted to be higher in the Godavari basin than in the other two.
- It is also anticipated that everyday rainfall would become more intense.
- Changes in the frequency of rainy days were also evaluated; the findings showed declines in the western portions of the Ganga basin but rises in the majority of the Godavari and Krishnabasins.
- As a result, surface water availability increased generally throughout all three basins (although future population predictions would need to be taken into account to project water availability per capita).

What consequences do these for ecasts have for policy?

Changes in precipitation may have an impact on a number of planning concerns, including:

- Hydrological structure planning and design.
- Controlling flooding, managing river basins, and managing drought.
- Industrial growth and urban planning.
- Beyond the immediate problems with water supply, further policy consequences include:
 - Agricultural policy will necessitate more adaptable food policies that can anticipate the choice of crops for the planting season.
 - In regions where there is a high likelihood of precipitation, forest policy needs to take erosion mitigation measures into consideration.
 - Planning for waste water treatment and sewage systems must take capacity and overflow problems associated with heavy precipitation into consideration.
 - Sites election concerns connected to variations in precipitation must be taken into consideration when developing water-intensive industry.

Recommendations

This paper also aims to suggest methods for successfully handling the water situation.

1. According to the Water and Climate Coalition, a healthy aquatic ecosystem and better water management can reduce greenhouse gas emissions and guard against climate dangers.
2. According to the United Nations Environment Programme (UNEP), wet lands including mangroves, sea grasses, marshes, and swamps are very effective carbon sinks that absorb and store CO₂, assisting in the reduction of greenhouse gas emissions.
3. According to the UNEP, wetlands also act as a barrier against severe weather. They act as a natural barrier against storm surges and soak up extra rain and water. Wetlands also offer water storage and filtration through the plants and microbes they harbour.
4. Early warning systems for floods, droughts, and other water-related hazards have a more than tenfold return on investment and can dramatically lower the probability of disaster: according to the World Meteorological Organisation, a 24-hour storm warning can minimise subsequent damage by 30%.

5. According to the New Climate Economy research, water supply and sanitation systems that are resilient to climate change might save the lives of more than 360,000 infants annually.
6. Climate-smart agriculture can help lower the need for freshwater supplies by utilising drip irrigation and other techniques for using water more effectively (UNEP).

Summation

Ensuring sufficient unpolluted water for urban, agricultural, and industrial use is the most important issue facing India's communities. India should be able to design better water distribution systems using proactive methods instead of simply reacting to supply and demand problems. The proactive management method involves new ways of accounting for water and methods of reducing losses as well as benchmarking against international high performers. However, there are no across-the-border solutions since context matters and government and people together learn from local operating experiences. Therefore water management should be a regional, national, and International level concern, and it is in many places but generally at the level of policy rather than responsibility for infrastructure and pricing of water.

Works Cited

Ghosh, Amitav, (2017). *The Great Derangement- Climate Change and the unthinkable*. University of Chicago Press.

Rajaram, Vasudevan, (2022). *Climate Change and Environment-How it impacts us all*. University of Chicago Press.

Mridula Ramesh, (2019). *Climate Solution*. Hachette India

Mridula Ramesh, (2023). *Watershed*. Hachette India.

Madhusoodhanan, C. G., Sreeja, K.G & Eldho, T. I. (2016). *Climate change impact assessments on the water resources of India under extensive human interventions*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5012999/>.

Electronic Supplementary Material. Manish Kumar Goyal, & Rao. Y. Surampaili. (July 2018). *Journal of Environmental Engineering, Impact of Climate Change on Water Resources in India, Research Gate*.

Special Report by Circle of Blue, Water Scarcity in India.

Report by UN, Climate Action-Water at the Center of Climate Crisis

CIRCULAR ECONOMY – A VISTA OF NET ZERO

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We are the first generation to feel the impact of climate change and the last generation that can do something about it.” -Barack Obama

Abstract

Climate is nature made; Climatic change is man made. Of course, we are responsible for the chain reaction of the climatic changes and the cataclysm and upheaval in nature. Proliferation of industries lead to the increase in the green house gases, leaving the carbon foot prints and thereby it deteriorates the environment. Net zero is a state where in the amount of greenhouse gases (GHG) released into the atmosphere is balanced by the amount of GHGs released. Climate Technology is the need of the hour to reduce the emissions. Even though many such Climate Technologies are available, Circular economy is one strategy to minimize global warming, which paves way for net zero state. This paper throws light on the Net zero concepts and its impact on the circular economy to yield a sustainable development to the nation.

Keywords: *Net Zero, Circular Economy, GHG , Carbon budget, Sustainable development.*

Introduction

Net Zero

‘Net Zero’ refers to the balanced condition between the amount of emissions produced and those removed from the atmosphere in order to reduce global warming. In other words, it refers to the neutralizing the emitted green house gases.

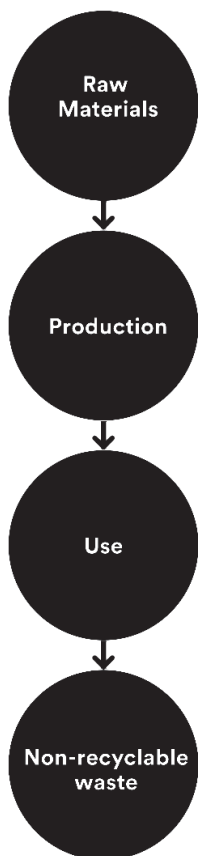
Circular Economy

World Economic Forum perceives circular economy (CE) as an industrial system that is restorative or regenerative by intention and design. Hence, the main emphasis of circular economy is towards the replenishment or renewal of the used product. Thus a continuum in the life cycle of the products can be achieved, which leads to the sustainable development. CE implementation principles are perceived as a convenient solution to achieve sustainable development goals (Saidani et al., 2019). However, Haas et al. (2015) opine that there exists

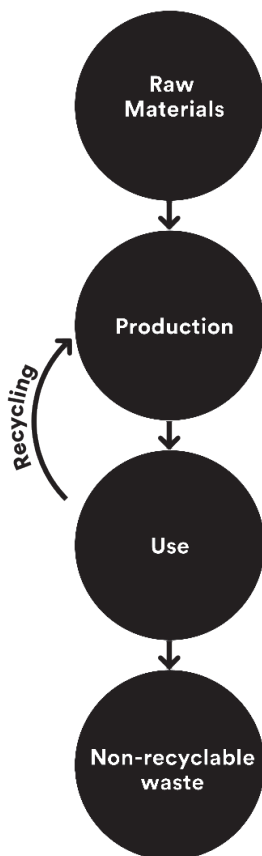
a gap in the definitions and criteria for assessing measures to improve the circularity of the economy.

In case of linear economy, the source materials are utilized for the production and after usage it will be converted into non-recyclable waste as in the case of dumping of e-waste. The case was slightly improved in the reuse economy, where recycling process will be utilized for the production of recycled products. This closet will be transformed to form a circular economy, where production, usage and recycling will be in a cyclical process.

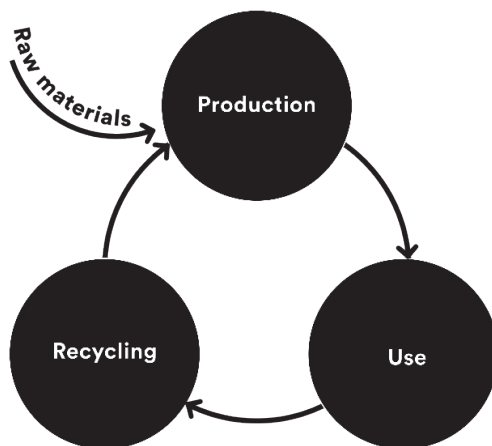
Linear Economy



Reuse Economy



Circular Economy



Source: <https://www.rts.com/resources/guides/circular-economy/> Circular economy aims at three major principles viz., elimination of waste, recycling or circulation of products and regeneration of nature.

Principles of Circular Economy

Circular Economy focuses on the elimination of wastes. The seven principles of circular economy can be explained as:

- i) Redesign – to change the existing global environment, somewhat in a much better way .
- ii) Reduce – aim is to reduce the usage and exhaustion of green house gases.
- iii) Reuse – involves the adaptability of reusable materials in the production sector.
- iv) Repair – instead of dumping the e-waste , worn out products can be refurbished.
- v) Renovate – exploring new opportunities from the existing practices instead of going for a newer product.
- vi) Recycle – is the simpler concept which is the special industrial process to make materials suitable and fit for reuse.
- vii) Recover- it involves the waste which is used with replacing with other eco-friendly materials, so as to remove the hazardous components.

India's Stance on Net Zero

Our Honourable Prime Minister of India, Shri Narendra Modi, made a commitment at the 26th conference of Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) that India would reduce its emissions to net zero by the year 2070 and set significant milestones to prioritise on this route.

The PM specifically stated that by 2030, the nation's estimated carbon emissions will be decreased by 1 billion tonnes and that India's carbon emissions relative to its GDP will be curtailed by 45% from 2005 levels, exceeding its previous-targeted emissions drop of 33-35 % from 2005 levels.

Ways to maintain Net Zero for an effective Circular Economy

- i. Maintaining Carbon Budget:** - A carbon budget is a cumulative amount of carbon dioxide (CO₂) emissions permitted over a period of time to keep within a certain temperature threshold. IPCC (Intergovernmental Panel on Climate Change) sixth Assessment report (AR6) says that the world can emit approximately 400 billion tonnes more of carbon dioxide before hitting the 1.5°C limit,
- ii. Establishing Zero Energy Buildings or Zero Net Energy Building (ZNEB)**
Net Zero transition can be classified at different levels based on the buildings which practices the same.

NZEB:A — A footprint renewables Net Zero Energy Building.

NZEB:B — A site renewables Net Zero Energy Building.

NZEB:C — An imported renewables Net Zero Energy .

3. Cradle-to-Cradle concept

The system was designed by Michael Braungart and William McDonough. The Cradle-to-Cradle concept (C2C) involves the use of waste materials for the production of a new product. This helps in the elimination of waste. In other words, the system aims at waste-to-energy process.

4. **Establishing special centres for Sustainable development :** Austin in (Texas) has established the “Materials Marketplace”, an online exchange platform to encourage industrial symbiosis and focuses on the zero-waste goals, combined with other ordinances e.g. mandating property owners to provide recycling systems for tenants and employees. Toronto in Canada has started a Circular Economy Procurement Plan which aims at waste reduction, economic growth and societal prosperity.

5. **Maintaining industrial Symbiosis:**Industrial Symbiosis is the process where the by-products from one industry forms the inputs for another industry. (Desrochers and Leppala, 2010)

6. Practising Green Business Opportunities

There is a silver lining amidst the dark, drastic climatic change. Of course, we have tremendous eco-friendly business opportunities to mitigate the carbon emission. The business model promulgates use of recycled products, thereby the reduction in carbon foot print, making our own carbon assessment, redefining the firm’s scientifically based goals, creation of a refined carbon roadmap to reduce carbon footprints

Summation

It seems the existing linear economy or the take-make-dispose system is useless as it will pollute the environment and thereby deteriorate the climate. The new circular economy model is a boon, which paves a roadmap for Sustainable Development Goal (SDG). New innovative measures for the CE must be strategized and put into action. Also an effective follow-up and plan of action is essential for the success of the programme. As far as India is concerned, start-ups must focus on the implementation of Net Zero transition. Introduction of e-vehicles, integrated waste management, battery technologies, use of biofuels will definitely close the loop.

Works Cited

<https://www.oecd.org/cfe/regionaldevelopment/Ekins-2019-Circular-Economy>

www.sciencedirect.com

Desrochers, P, S. Leppala , Industrial symbiosis: old wine in recycled bottles?
International Regional Science Review., 33 (2010), pp. 338-361 .

Haas, W., Krausmann, F., Wiedenhofer, D. & Heinz, M. How circular is the global economy?: An assessment of material flows, waste production, and recycling in the European union and the world in 2005. J. Ind. Ecol. 19, 765–777 (2015)

Saidani, M. *et al.* A taxonomy of circular economy indicatorsThe Journal of Cleaner ProductionVolume 207, 10 January 201as9, Pages 542-559