

A Conceptual Study on Magnitude of Climate Change and its Effect: Integrating Eco-Friendly Community Practices

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Publication Date: 2026/03/11

Abstract: Climate change presents a pressing global change, necessitating collaborative community-based initiatives, to foster resilience, promote sustainability and ensure a livable future. This paper explores the relationship and also analyses the intersection of climate change with diseases, biodiversity, economy, global regions, mental health, children, youth and elderly. It also discuss about the Climate Action taken from different groups to mitigate climate change. The paper emphasizes the eco-friendly behavior by integrating resilience in climate change through ecological, social, and economic perspectives aligning their practices with the Sustainable Development Goal of United Nations ‘Climate Action’ (No. 13) for a transformative and sustainable future by developing a sense of belonging early in life and encourages a lifelong connection to the environment. By addressing the climate action, The uniquely positioned Social Workers are meant to be advocated for marginalized groups, promote sustainable practices, and create inclusive solutions to climate challenges. This paper suggests the recommendations that the communities can adopt to catalyze climate resilience, social equity, and environmental justice, ultimately contributing to a sustainable future in better way. This discussion calls for a shift in social work education and practice, highlighting the need for interdisciplinary collaboration, community-led initiatives, and systemic change in tackling the global climate crises.

Keywords: Climate Change, Community Empowerment, Climate Action, Social Work.

How to Cite: Harish Kumar S.; Swetha Shali S.; Dr. F. X. Lovelina Little Flower; Dr. R. Arjunan (2026) A Conceptual Study on Magnitude of Climate Change and its Effect: Integrating Eco-Friendly Community Practices. *International Journal of Innovative Science and Research Technology*, 11(3), 200-206. <https://doi.org/10.38124/ijisrt/26mar122>

I. INTRODUCTION

The shift in temperature and the change in weather pattern for a prolonged time is known as Climate Change. The climate change is primarily driven by the activities of humans such as burning fossil fuels like coal and green house gases (UN, 2023). One of the major impacts to our ecosystems is climate change (Parry ML, 2009). According to the WHO, In between the year 2030 and 2050, 2,50,000 death per year might be caused by climate change. Biodiversity is continually transformed as effect of Climate Change (Behera et al, 2019), it also causes a huge and major difference in the weather condition across the tropic region to poles (Kashif Abbass et al 2022). The climate change has a direct impact on the biodiversity of Earth which has direct effect on species to adapt by moving, modifying phonological routine, or generating physiological features which is different from their body (Lohmann et al 2012). It has been encountered that

during the past 65 years the change in climate change has globally anticipated and then observed changes in climate for the present century (21st) which is very significant (Ijaz Younis, 2022). The climate change which has been occurring in the contemporary era is very pervasive that are altered by human activities, increasing the challenges for managing resource and conservation (Cambridge University Press, 2014). The climate change relatively has inter-governmental challenge because of its influence environment, ecological, socio economic and socio-political components or disciplines (Feliciano et al, 2022) effecting the Earth and urge for collective action internationally (David A. Groneberg 2020). Major shifts in wind patterns, amount of precipitation or the average temperature and change in weather events will victimize the food, water and health of the people (Markus Braun 2020). It is now widely accepted that climate change is occurring as an outcome of the accumulation of greenhouse gases in the atmosphere arising from the burning of fossil

fuels (Haines et al,2006). The Climate change's consequence on vulnerable group and on the major biological subjects, have been seeking a concern for humankind. The physical and mental health of the human can be directly or indirectly affected by floods, rise in temperature, hurricanes, heat waves, floods, droughts, fires, loss of forest along with disappearance of river and desertification (Paolo cianconi et al,2020). In the next few decades, the production in crop will also be affected dramatically due to the factors included in the regulatory measurements like pest invasions, progress and growth and weather tempted change as the reason for variations in integral abiotic factors such as carbondioxide, solar radiation and precipitation (Cammell and Knight 1992). The reason for rising cause of rapid species extinction and the threat to earth's biodiversity is the climate change (Manes et al. 2021). The climatic events are strongly related to the vast scale species dynamics which are given by several studies (A. M. D. Ortiz et al. 2021). The key casualty of climate change is acknowledged to be the human health (Costello et al. 2009). This research article intended to show the climate change's effect briefly among communities and to make them aware, understand, adopt and mitigate climate change and make them ready for social action.

II. EFFECTS OF CLIMATE CHANGE

➤ *Climate Change and Diseases*

The climate change is mainly caused due to global spread of vector borne diseases as well as the extreme weather-related mortality and morbidity (Lemery et al 2021, UNEP 2017). The AMR abbreviated as Antimicrobial Resistance is a serious worldwide health concern which is on the rise (Garner et al. 2019). This phenomenon is mainly concerned by the health experts throughout the world which can have the main potential to reverse all the progress practically till now in the health discipline (Gosling and Arnell, 2016). For acquiring resistance to this, many pharmaceutical enterprises globally produce a vast number of antibiotics, and harmful microorganisms. It can be understood how powerfully this concept can undermine both the global and the national the economy (UNEP 2017). There is a fact that Antimicrobial Resistance is not spreading in a certain region or a country, instead this is thriving on all seven continents. This scourge is accelerating humanity's transition to the antibiotic age in the post period, it may once again cause both endemic and pandemic for which the antibiotic susceptible bacteria after becoming resistant (WHO 2018). On one hand, the warmer temperature may favor the survival of some new organisms but on the other the changing climate temperature might cause the extinction of the species. It was discovered here that some of the diseases can reappear after being undetected or reported (Patz et al, 2000). We can take Corona virus (CORONA-19) as a recent example is a corona virus outbreak in the Republic of China, which caused pneumonia and severe acute respiratory problems (Cui et al. 2021; Song et al. 2021). As a result, it can be highlighted that different vectors are influenced by the climate change resulted in the spread of various diseases (Santos et al. 2021).

➤ *Climate Change Effecting Biodiversity*

The worlds's climate regulators are considered to be the forests (FAO, 2028) which play an essential role in controlling nitoden and carbon cycle globally (Rehman et al. 2021, Carvalhais, 2019). So disruptions that created in the forest environment have a huge effect on both micro climates and mcro climates (Ellison et al., 2017). Climate change has large number of disastrous consequences, including pest outbreaks, droughts and forest fires. (Environmental protection agency, 2018). Globally over 1.6 billion people rely on forests as their main source of income within that 350 million people rely more heavily as their primary source (Bank, 2008). Over 1.2 billion people depends on agro-forestry and particularly about indigenious 60 million people depends completely on forest and forest products for their survival (Sunderlin et al., 2005). Up-scaling hotter climate may benefit moving organisms with shorter generation because they can live in more harsh condition than the immobile organisms (Fettig et al., 2013) and those organisms are highly adaptable for new environment (Jactel et al., 2019). Prior to Climate change, the influence of the previously described causes, such as droughts and storms, was present making the woods vulnerable to the interventions of insect pest yet, the forests in worldwide have remained sturdy, green and assiduous (Jactel et al., 2019). Climate change make the forest communities nearly more vulnerable making their socio economical conditions weaker (Rahman and Alam, 2016).

➤ *Climate Change and Economy*

The economic growth and total productivity has been hugely impacted by changing climate. It is concerned mainly by both local and international policy makers because of its impact on economic growth (Ferreria et al., 2020 and Lamperti et al., 2021). The negative effects related with climate change on agricultural output are thus important for making sense on development of policies adapted locally and the policy contracts design of productive climate. With the quick increasing effect of global warming during 1980s period, temperatures have begun to rise internationally, resulting in an extraordinary alteration of rainfall and evaporative effects in many countries. Many nations' development in agriculture has been susceptible, dependent and delicate to the climatic change for a longer period and the development in Agriculture Total Factor Productivity simply called as ATFP influences diverse farmer yields and crops (Wu 2020). One of the susceptible countries in the world is China for its big population, hard environmental circumstances, rapid Climate Change, power of disaster and low environmental. China suffered with an economic loss of about 298,300 million Yuan according to a data survey of January 2016 Yuan and various natural catastrophes affected approximately 137 million Chinese citizens (Xie et al. 2018). UNEP un escape report says that India will loss 35% of its GDP due to climate change.

➤ *Climate Change and Mental Health*

The world health organization propaganda emphasises the need for the protection of negative effects of the changing climates. The 2008 World Health Day topic "Protecting health from climate change" increases awareness of Hazards

of health given through variability of global climate. Changing climatic conditions enlarges the condition of anxiety, distress, and the population trouble, mental health issues of individuals. Additionally, regular disclosure to utmost global disasters, namely post-traumatic stress disorder, geological disasters, pervasiveness facilitates development of chronic psychological disfunction. Furthermore, tiresome media attention increases stress level of individuals (American psychological association, 2020). likewise, residents in flood effected locations resides in continual terror of or being engulfed and killed by floods. Aside from human life, the impact of infrastructure caused because of flooding is a major causes of making strain among these vulnerable sections. comprehensively stated that exacerbated psychological difficulties towards sufferer populations (Ogden 2018). The impact of climate changes on mental health is a noticeable problem there is a need for addressing the intangible impact on human kind caused by climate change.

➤ *Climate Change and Elderly*

Countless senior citizens, particularly in the developing countries, dearth the mental, physical, social, and financial resource required towards preventing or mitigating the impact of jarring climatic conditions. As we aware that temperature rise can be fatal for elderly people (Gary haq, 2023). For example, reduced ability on control of bodily temperature in elder recurring health issues such that of respiratory disease, cardiovascular impact, susceptibility to dehydration and diabetes. exacerbate this temperature affiliated mortality amidst adults on the age of 65 and older has nearly magnify globally in the last two decennary during the last two decades, causing around 300,000 casualty in year 2018. In 2022 European heigh of summer caused in 9,222 heat caused deaths among elderly of age group 65 to 79 along, considerable heigh to 36,848 people loss their lives who were 80 and above. The changing climatic conditions have notable impact on the old age population, with far-reaching consequences. Because of the convergence of vulnerable geographic areas and low resilience to high weather impacts and maximizing the level of sea, vulnerable populations in the global south will have the burden of the consequences. Everyone has the probability on the impact of climate change, however the economically vulnerable poor section of the population will lose their livelihood due to climate impact. Global warming effect among health on elders, their families, and carers must be recognized so that preventative actions can be implemented (Sabrina Maria Sarkar 2023). Climate change causes the vulnerable loos their livelihood and older population are vulnerable among the vulnerable who suffers from health and economical standpoints this climate impacts makes their conditions worst and causes devastation impact on their mental, physical and economic health.

➤ *Climate Change and Children*

Global warming impact poses an immediate danger for the future generations it is the biggest challenge to the younger generation and children as it poses major threats to their health, nutrition, education, and future (UNICEF). Younger generation are more prone to ill effects of climate change than the adults, along with the persistent effect and

prolonged consequences for their psychological and physical health (Ann v sanson, 2019). Climate change consequences might effect directly or indirectly even effect after a long period. Heat related issues, casualties and injurie, exposure to these environmental impact and pandemic that are more seen in the temperature increase that are investigated well with evidence (Sheffield & Landrigan, 2010). The physical and mental consequences on climatic happenings that received minimal attention, though evidence gathered from natural disasters demonstrates they may be equally destroying (Speiser, 2017). Significant raise of Post-Traumatic Stress Disorder PTSD, Anxiety and sadness, sleep issues, intellectual deficiencies, and identifying the problem have been reported (Majeed & Lee, 2017). For instance, during the 2010 Pakistan flood, 73% of younger on4es at the age of 10 to 20 years old adolescents had significant PSTD Level, with migrated girls suffering the maximum impact (Gibbons, 2014). According from the report of save the children 2019 events that are extreme which includes floods, hurricanes, wild fire have turned a new normal to fight against.

➤ *Climate Change Effects on Global North*

One of the most significant challenges is considered to be climate change around the world. The mitigation and adaptation strategy are same when the country is either developed or developing (Wijaya A S, 2014). On account of the report given by United Nations Environmental Program UNEP, 'Developed nations are equipped well to handle some of the challenges created by climatic change as the countries can face economic strains due to infrastructure damage, increased insurance costs, and the need for investments in adaptive measures. The change in climate has major impact on developed nations through various possibilities, inspite of those countries advanced infrastructure and resources. The Intergovernmental Panel on Climate Change (IPCC, 2021) says that the impact can include rising sea levels threatening coastal cities, increase in intensity and frequency of farthest change in weather events such as heat waves and hurricanes, disruptions in agriculture in regard to change in weather pattern, and challenges to public health related to fast spreading of disease and heat related illness and these impacts are expected to intensify over time if significant measures aren't taken to reduce climatic change.

➤ *Climate Change in Global South*

The developing countries also known as third world countries are mainly impacted by the climate change and global warming (Shukla, 1999). The extreme weather events such as storms, droughts and floods are increasingly faced by the global south regions. The report from International Panel on Climate Change 2021 tells that the country Africa is particularly susceptible to droughts and erratic rainfall patterns due to change in climate. The climate change's economic impact in the Global South are significant, affecting GDP, livelihoods, and overall development (World Bank, 2021). Climate change contributes the spreading of diseases such as dengue and Malaria because shifting temperatures helps in expanding the range of vectors which carrying diseases. Low-lying coastal areas especially in the Global South regions are highly vulnerable to rise in sea levels, posing threats to infrastructure, human settlements,

and livelihoods (UNEP, 2020). The climate change can make significant threats in agricultural sector due to change in rainfall patterns, rise in temperature and change in weather conditions (IPCC, 2021). The change in rainfall pattern and melting of glaciers impact the availability of water in many Global South regions (UNDP, 2020). This scarcity exacerbates existing challenges, leading to conflicts over water resources and affecting sanitation, hygiene, overall public health, economy and infrastructure loss, effects human capital, overall growth, extreme poverty in global south countries such as India.

III. CLIMATE ACTION

➤ *Children and Youth Actions Towards Climate Change*

Young people have more concern regarding climate change. In a variety of ways, they have taken this concern into their own hand. They are using the courts try forcing the government to act upon the climate related problems in several ground-breaking legal cases. In April 2018, the Colombian Supreme Court had claimed that deforestation in the Amazon harmed their right to a healthy environment in favor of twenty-five young plaintiffs. Similarly in 2017 at Portugal seven young people petitioned the European Court of Human Rights in the aftermath of devastating fires for a verdict compelling 47 nations to halt the extraction of further fossil fuels (Portugal News, 2017). Youth in the United States have filed multiple lawsuits opposite to the government entities, by demanding the safeguard of environment, their lives and future generations (Irfan, 2019). Moreover in August 2018, Greta Thunberg 15 years old girl of Sweden, went on strike in a school to urge the Climate Action movement towards the Swedish Government very seriously. She articulated a positive remark at high-level gatherings internationally that have raised legal awareness among magnitude of the current situation confronting the present generation. Many young people were inspired by her to join her cause, children with an estimated amount of 1.4 million taking part in a global strike at 1,400 cities across 110 countries in March 2019 (Carrington, 2019). In India a little girl Licypriya Kangujam eight years old from North-Eastern state showed her voice against climate change by wearing a plant powered oxygen to highlight the problem.

➤ *India and Climate Change*

Grasslands, Mangroves, Coastal zones, Water and biodiversity are the natural resources in which 700 million rural people rely on the climate sensitive sectors such as forestry, fishery and agriculture in India, a developing country for their livelihood. Because of its large population, India has to be concerned about the climate change (Muniandi balasubramanian2012). In June, 2008 the National Action Plan on Climate Change (NAPCC) was released in emphasizing the position of research initiatives regarding the long-term dedicative adaptation strategies towards climate change for promoting the Sustainable Development Goals (SDG) and socio-economic growth with climate resilient. India consists of second largest urban system in the world that covers approximately 11% of the urban population in the world. Rise in sea level, increasing temperatures, pollution in air, extreme events such as heat waves, droughts and floods,

urbanization, increasing infrastructure, and ecological imbalances are all the alarming sign of climatic change in urban India. As an emerging and fast-growing economy, Our Country, India acts as a small contributor to the past emissions, but it may act as a heavy contributor to future emissions (Navroz K. Dubash et al 2018).

In 2008, India's Prime Minister launched the National Water Mission for conserving water and reducing waste and ensuring equity. In January 2010, the National Solar Mission was launched to reduce the harmful effect of power generation on the environment. In 2011 The National Mission for Enhanced Energy Efficiency (NMEEE) was launched in 2011 by the Government of India to strengthen the energy efficiency market. In one of the eight missions, the National Climate Change Action Plan (NAPCC) was outlined in 2010 and it was approved by the Union Government in 2014. International solar alliance was initiated by India in 2015, Jal Sakthi Ministry for drinking water supply and Ministry of Environment, Forest and Climate Change for addressing climate change ministry are some of major initiatives of India to combat climate change.

➤ *International Actions Towards Climate Change*

The United Nation Conference on Environment and Development (UNCED) was held at Rio de Janeiro in 1992 which led to the creation of United Nations Framework Convention on Climate Change (UNFCCC). The main motto is to regulate the greenhouse gases in the atmosphere, recognizing the concern for responsibility for every individuals. This convention came into force in 1994. The Kyoto Protocol, 1997 came into force on 2005, which tells about the combating of stabilizing the concentration of green house gases in the atmosphere following the SDG principles. This protocol gives guidelines regarding rules and regulations to be followed by the industrialized countries to reduce the emission of Carbon-dioxide (CO₂), Methane (CH₄), Nitrous-oxide (N₂O), Chloro-fluorocarbon (CFC), Hydro-fluorocarbon (HFC) and Perfluorocarbons (PFC). By 2050, about 68% of the world population expected to be lived in urban areas. The impact of climate change on cities is visible in fundamental services, infrastructure, housing, livelihoods, and public health. The UN warns of significant health and economic losses due to climatic catastrophes, mandating development and transit measures. The Biodiversity Convention formally known as Convention on Biological Diversity, 1992 is a multilateral treaty which has three goals such as the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from genetic resources. For stabilizing the green house gas concentration in the atmosphere, the United Nations Frame work Convention (1994) made a treaty internationally to combat dangerous human interference with the climate system. The Climate Smart Agriculture (CSA) was introduced by UN Convention to Combat Desertification (1994) for developing strategies in agriculture to secure sustainable and organic food. Cartagena protocol on bio safety 2000 regulating genetic engineering and its large reflection on global climate. In 2010, the Minamata Convention was adopted in Nagoya, Japan, which came into force in 2014 to reduce the release of mercury and mercuric

compounds. Sustainable developmental goal was adopted in 2015 in Paris which set 17 targets to be achieved by 2030. Conference of parties are held every year for discussing the climate change's effect every year.

➤ *Eco-Friendly Behavior*

The behavior in which individuals or communities take actions protectively towards environment is known as Eco – friendly behavior or environment – friendly behavior (Krajhanzl, J, 2010). Eco-friendly behavior involves adopting practices that reduce one's environmental footprint by minimizing resource consumption and waste generation (Johnson & Smith, 2020). Human being can be engaged with recycling the household waste responsibly. Buying sustainable products such as green energy-based items, local food, using electric vehicles can help in mitigate climate change. (Van Valkengoed, A.M,2019). Eco-friendly behaviors not only benefit the environment but also contribute to improved individual well-being and community health (Adams et al., 2018). Most of the young people are aware of climatic change and express their concern, anxiety, anger, grief, and a sense of vulnerability about how it may affect their life (UNICEF 2013). In a previous survey by Eleven to Sixteen years old about 74% British were concerned about the effect of climate change on their future, while in underdeveloped countries 63% were concerned about the effect of climate change on the families especially in children. So there should be definitely a need for innovative, participatory, affect-driven and interdisciplinary approaches towards climate change education and intervention are largely missing, there is a need for expansion of innovative education towards climate change that straightly involve young generation for giving response to socio political, ethical and legal complexities of climatic change. (Russell, D., & Cutter Mackenzie-Knowles, A. 2019).

IV. THE STUDY RECOMMENDS THE FOLLOWING SOCIAL WORK SUGGESTION

➤ *Incorporating Nature in Education:*

Schools can create opportunities for children to integrate environmental themes into education. It not only enhances academic learning but also strengthens children's environmental identity. It suggests the context of climate change, this might involve individuals processing information about climate science, understanding the impacts, and evaluating their role in contributing to or mitigating climate change. Incorporating nature-based learning into various subjects, promoting field trips, and outdoor learning experiences can deepen their understanding and emotional connection to the environment.

➤ *Emotional Connection and Well-Being:*

Interact with nature positively, allowing people to appreciate and value the environment, which can translate into actions that support conservation efforts. Spending time with nature positively impacts children's mental and emotional well-being. Promoting activities that allows youth and children to experience the calming and restorative effects

of nature helps strengthen their emotional connection to the environment. Educators can nurture a sense of environmental identity among school children. This enhances their understanding of environmental issues and encouraging a long-lasting commitment to preserve and care for the natural world.

➤ *Highlighting Impact:*

Influential figures, leaders, and activists who demonstrate environmentally friendly behaviors can serve as role models, inspiring others to adopt similar practices by involving communities in climate change initiatives and showcasing successful local efforts and induce positive behaviors. By giving awareness and education to communities in highlighting the impact of individual actions on the environment. Public campaigns, educational programs, and interactive learning experiences can promote understanding and action on climate change.

➤ *Empowerment:*

Empowerment starts with knowledge. Providing education about climatic change and its causes, effects and potential solutions empowers communities to make clear decisions in their daily lives. This includes understanding the science behind climate change, its effects on communities, and how individual actions contribute to the larger problem. Encouraging communities to engage in discussions, workshops, and initiatives regarding climate change motivates a sense of responsibility. Creating social change and developing intervention suggested by distinct approach related to empowerment. It guides focus towards adaptation, competence, health system. It engages communities to take action advocating for change in biodiversity.

➤ *Advocacy and Policy Change:*

Encouraging individuals and communities to advocate for policy changes at various levels—local, national, and global. This involves promoting environmentally friendly policies, supporting renewable energy initiatives, and urging governments and corporations to take responsibility for their environmental impact which allows for collective decision-making and action planning, leading to more effective and sustainable solutions.

➤ *Participating Eco-Friendly Initiatives:*

Youth and children develop a sense of responsibility towards the environment when they are engaged in activities that promote sustainability and conservation. Encouraging them to participate in eco-friendly initiatives, such as recycling programs, community clean-ups, or school, garden projects, instills a sense of ownership and responsibility.

V. CONCLUSION

In summary, the study contributes to building a foundation for sustainable behavioral change that is essential for long-term climate resilience. Environmental education not only enhances knowledge but also shapes values, attitudes, and ethical responsibility toward nature, enabling younger generations to become informed, responsible, and proactive environmental stewards. This study highlights that youth and

children are not merely passive victims of climate change but can be active agents of change when empowered with appropriate knowledge and skills. The adaptation and mitigation strategies of climate change can be effectively transferred to the younger generation, by training them with the capacity to act assertively to environmental challenges at individual, household, and community levels. Furthermore, this study demonstrates that community-based environmental education creates a multiplier effect, influencing families, peer groups, and local institutions. By promoting sustainable lifestyles, resource conservation, and climate-sensitive practices, the study contributes to broader societal transformation toward environmental sustainability. From a policy perspective, the study offers valuable insights for policymakers, educational institutions, and private sector stakeholders. It emphasizes the community driven climate action program can be done by the integration of formal and non-formal education system related to environment. The study recommends the discussion on changing of climate by highlighting the importance of empowering youth and children through environmental education as a long-term strategy for combating climate crisis. The study clearly shows that combating climate change requires not only policy reforms and technological change but also a basic shift in personality, behavior and attitude through collective responsibility. By investing in environmental education today, societies can ensure a high resilient, sustainable, and climate-responsive future for communities, and generations to come.

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