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ROLE OF SOCIAL MARKETING IN PROMOTING CLIMATE RESILIENCE AND SUSTAINABLE BEHAVIOUR

[1]Wasif Husain, [2]Qurratul Aein Ali

[1]Research Scholar, [2]Assistant Professor

[1,2]Department of Social Work,

[1]Aligarh Muslim University, Aligarh, India

Abstract: Globally, ecological stability, public health, and socioeconomic growth are all under serious risk from climate change, disproportionately affecting vulnerable groups. This study critically examined the primary purpose of social marketing as a tactical communication tool to support climate change adaptation and mitigation. This study examined how attitudes, subjective norms, and perceived behavioral control affect environmentally sustainable activities. It is based on behavioral theories such as the Theory of Planned Behavior (TPB) and the Theory of Reasoned Action (TRA). In creating interventions that promote behavioral change at the individual and group levels, it emphasizes the value of Community-Based Social Marketing (CBSM) and the 8Ps framework (product, price, place, promotion, policy, partnerships, publics, and purchase strings). Furthermore, the paper advocates inclusive, participatory methods that incorporate local knowledge systems and prioritize policy lobbying, technological innovation, and awareness-raising tactics centered on infotainment. This study offers a thorough approach to promoting sustainability, resilience, and public participation in climate governance by fusing social marketing concepts with climate action. In light of growing climate issues, the results highlight the transformative power of social marketing in influencing policy discourse and pro-environmental behavior.

Keywords **–** Development communication, Social marketing, Climate Change, Mitigation, Sustainability, Policy Advocacy

1. INTRODUCTION

Currently, the world is witnessing climate change. There has been an unprecedented increase in the scale of human activity which has led to the disruption of diverse social–ecological systems. Global warming has induced an increase in sea levels, severe storms, increased flooding, drought-like situations and scarcity of freshwater, which, in turn, has aggravated the vulnerabilities of millions of poor and marginalized populations across the globe (Santha, 2020). Climate change (CC) is an intergovernmental complex challenge globally with its influence on various components of ecological, environmental, socio-political, and socio-economic disciplines (Adger et al., 2005). Climate change involves heightened temperatures across the world.(Battisti & Naylor, 2009). It has been reported that immediate attention and due steps might increase the probability of overcoming devastating impacts. It is not plausible to interpret the exact consequences of climate change (CC) on a sectoral basis (Izaguirre et al., 2020). The Earth's climate is changing faster than at any other time in recorded history, owing mostly to human activity. There is scientific consensus that unabated carbon emissions will cause global warming of at least several degrees Celsius by 2100, posing significant local, regional, and global dangers to human society and natural ecosystems. Global climate change has already had a wide range of effects on every region of the world, as well as on many economic sectors. (Climate Change Knowledge Portal, W.B.,2021). The Intergovernmental Panel on

Climate Change (IPCC) defines climate change adaptation *as the process of adjustment to the actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm and exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to the expected climate and its effects.*(IPCC, 2014, p. 118).

Climate change presents huge challenges for India and other parts of the world. It has already had an impact on India's many sectors, worsening current vulnerabilities and jeopardizing long-term development efforts. Climate change has far-reaching consequences in India beyond agriculture and water supplies, affecting health, biodiversity, and infrastructure. Development of serious public health hazards. Future climate predictions for India are alarming.

For this study secondary data has been collected. From the website of KSE the monthly stock prices for the sample firms are obtained from Jan 2010 to Dec 2014. And from the website of SBP the data for the macroeconomic variables are collected for the period of five years. The time series monthly data is collected on stock prices for sample firmsand relative macroeconomic variables for the period of 5 years. The data collection period is ranging from January 2010 to Dec 2014. Monthly prices of KSE -100 Index is taken from yahoo finance.

2. CLIMATE CHANGE IN INDIA

As stated by the Joint Global Change Research Institute and Battelle Memorial Institute, Pacific Northwest Division, *"Given inherent uncertainties, global climate forecasts indicate numerous alterations in India's future climate: "Glaciers receding at an average rate of 10–15 meters per year. Flooding is likely in river valleys fed by these glaciers, resulting in a scarcity of water for drinking and agricultural irrigation. Trends show warming in the mean annual temperature and enhanced precipitation over the Indian sub-continent. Temperature increase of 0.5°C by 2030 and 2-4°C by the end of this century leading to higher levels of tropospheric ozone pollution. More days of extreme rainfall events led to significant flooding. The Indian summer monsoons are intensifying with a warming climate. This timing may also shift, causing drying during the late summer growing season. Earlier snowmelt can have significant adverse effects on agricultural production. Growing aerosols emissions from energy production will affect both regional and global hydrological cycles and agricultural production* (*Climate2030_india*, 2009).

There is a symbiotic relationship between the humans and the environment. The environment provides humans with vital resources such as food, water, air, and materials for energy and shelter. In exchange, humans can safeguard a healthy and productive environment by planting trees, conserving natural habitats, and responsibly managing resources. Both humans and the environment prosper when equilibrium is upheld. However, this relationship is disrupted when humans damage the ecosystem through pollution or deforestation, leading to detrimental impacts such as climate change which eventually affect people as well. Therefore, collaboration and care that benefit both people and the environment are characteristics of a symbiotic connection.

3. CLIMATE CHANGE AND ITS CONSEQUENCES

"How much we are endangered????"

The impact of climate change has been significant enough to endanger human health both directly and indirectly via heat stress, degraded air quality, rising sea levels, food and water security, extreme weather events and population migration. The indirect effects of climate change such as mental health problems due to stress, loss of homes, economic instability, and forced migration are also important (K. H. Kim et al., 2014). The consequences of climate change include the following.

- **Impact on Ecosystems**: It affects different species and ecosystems in interconnected ways. The consequences for one species can have a cascading effect on others, illustrating the intricate web of life and potential for widespread ecological disruption. (J. Kim & Lee, 2024).
- **Effects on Agriculture and Food Supply**: It can effect the plants and animals that humans rely on for food. Climate change can alter growing conditions, potentially leading to reduced agricultural yields and food security challenges. (J. Kim & Lee, 2024).
- **More Extreme Weather Events**: Climate change increases the frequency and severity of extreme weather events such as hurricanes, droughts, floods, and wildfires. (Climate Change and Extreme Weather. NOAA, 2022).

- **Melting Glaciers and Sea Level Rise**: Melting polar ice caps and glaciers contribute to sea level rise, threatening coastal communities and small island nations with flooding and erosion. (Global Climate Change: Vital Signs of the Planet. NASA, 2023).

4. THE INFLUENCE OF HUMAN ACTIVITY ON CLIMATE CHANGE

"How much of a contributor are we????"

- **Greenhouse Gas Emissions**: Burning of fossil fuels increases atmospheric CO_2, CH_4 (methane), and N_2O (nitrous oxide), enhancing the greenhouse effect. (AR6 Synthesis Report: Climate Change 2023, 2023).
- **The Climate Cost of Consumerism**: Excessive use of energy-intensive goods, such as meat, electronics, and fast fashion, strains natural resources fueled by social pressures and advertising speeds up the usage of fossil fuels, mining, and deforestation. This creates waste that frequently ends up in landfill which releases more emissions, in addition to depleting important ecosystems that serve as carbon sinks.
- **Deforestation**: The removal of forests disrupts evapotranspiration and changes surface albedo, leading to increased local temperatures and altered precipitation patterns, that can exacerbate extreme weather events. (Parween et al., 2024). Additionally, while deforestation does not directly cause climate change, it has an indirect effect through its relationship with agriculture and livestock, which are significant contributors to greenhouse gas emissions. (Leon et al., 2022).
- **Unplanned urbanization** can have a strong impact on the local climate, such as the heat island effect (Oke, 1973; Karl et al., 1988; Peng et al., 2005; Zhong et al., 2017), uneven spatial distribution of precipitation (Shepherd and Burian, 2003; Li et al., 2008), and frequent extreme weather events such as floods and storms (Huff and Jr., 1972; Jauregui and Romales, 1996; Kong et al., 2018).(Chen et al., 2021).

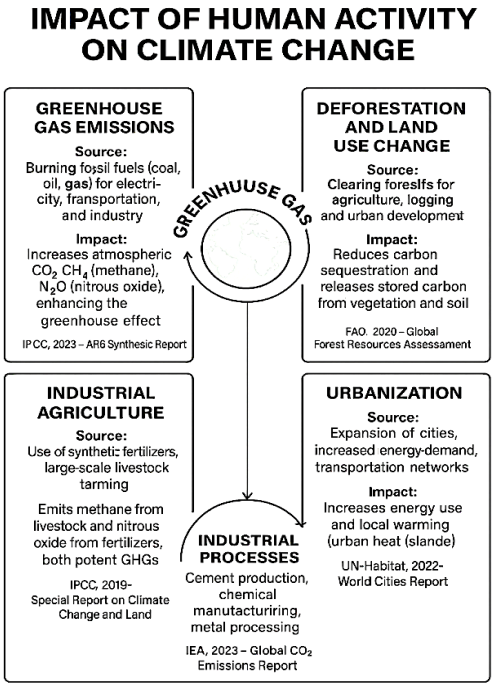

Fig.1. Impact of Human Activity on Climate Change

Unlike other species, whose communication is mostly instinctive and limited to immediate needs, humans can communicate far more complex and advanced concepts, allowing us to share ideas, emotions, knowledge, and plans through spoken and written language, art, media, and technology. This ability has enabled us to build civilizations, pass down knowledge across generations, and collaborate globally. Communication is essential for resolving the complex issues of climate change by raising knowledge, creating understanding, and mobilizing action at the individual, community, and societal levels. Effective communication tactics are essential for translating scientific discoveries into accessible information, involving multiple stakeholders, and driving joint efforts.

5. COMMUNICATION AS A KEY TO NAVIGATING CLIMATE CHANGE COMPLEXITY

The origin of the word *"communication"* is *"communicare"* or *"communis"* which means to "impart," "to participate," "to share," or "to make common." According to Keith Davis, *"Communication is a process of*

passing information and understanding from one person to another." In the words of Murphy, Hildebrandt, Thomas, *"Communication is a process of transmitting and receiving verbal and non-verbal messages. It is considered effective when it achieves the desired response or reaction from the receiver."* Communication is essential to the advancement of human civilization particularly during industrialization and modernization. Currently it is crucial to address societal concerns, encourage innovation, and change influence. One important subfield, development communication, employs strategic communication to empower communities, promote social and economic development, and aid in informed decision-making.

6. DEVELOPMENT COMMUNICATION: A FOCUSED APPROACH IN THE COMMUNICATION ARENA

Nora C. Quebral first introduced the term "development communication" in 1972 to define the field as**,** *"the art and science of human communication linked to a society's planned transformation from a state of poverty to one of dynamic socio-economic growth that makes for greater equity and the larger unfolding of individual potential."* Development communication refers to the use of communication strategies and procedures to promote social and economic development. It encompasses a wide range of approaches and actions aimed at creating awareness, distributing knowledge, fostering discussion, and inviting engagement from individuals and communities. Information and education, behavior modification and social marketing are some of the tactics used in communication development.

7. THEORETICAL FRAMEWORK

This research utilizes two fundamental theories as its conceptual framework, specifically the planned behavior theory, which concentrates on the phenomenon of behavioral acts. According to the planned behavior theory (Ajzen, 1991) attitudes, subjective norms and perceived behavioral control constitute the three critical components that influence intentions, which subsequently govern behaviors. The extent to which a behavior is authentically within an individual's control, as well as the reliability of perceived behavioral control as a valid predictor of actual behavioral control, may result in external factors that can either facilitate or inhibit behaviors, irrespective of intent. By employing the instance of the adoption of evidence-based instructional practices (EBIPs) as the target behavior, we can elucidate the following components. (i) **Attitudes** towards teaching and learning in general, as well as the usage of EBIPs in particular, are crucial in this context. (ii) **Subjective norms** can be thought of as social pressures, and they involve both other's perceived expectations and how much an individual values those expectations.(iii) **Perceived behavioral** control refers to an individual's perception of their ability to accomplish a given behavior in their situation. The more favorable the three factors, the more probable the intention and action will take place.

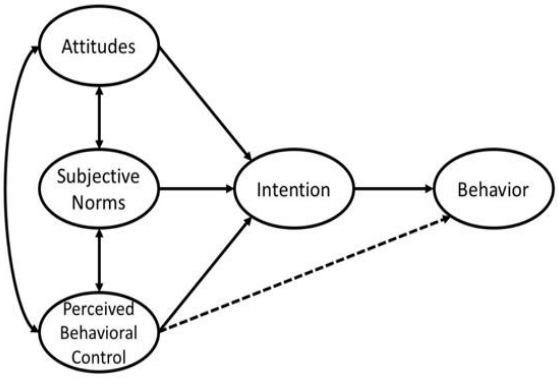

Fig.2.Theory of Planned Behavior (TPB) by Icek Ajzen 1985

7.1. Theory of Reasoned Action

The Theory of Reasoned Action (TRA) is a foundational behavioral theory developed by Martin Fishbein and Icek Ajzen in 1967.(Ajzen, 2005). This helps in designing interventions that aim to change attitudes or perceived norms to encourage desired behaviors. It aims to predict and understand an individual's behavior based on their intention to perform that behavior, which is shaped by two key factors.

7.2. Core Components of TRA:

1. **Behavioral Intention**: This immediate predictor of behavior reflects the extent to which a person is prepared to perform a behavior. The stronger the intention, the more likely it is that the behavior will occur.

2. **Attitude towards the Behavior**: This refers to an individual's positive or negative evaluation of performing the behavior. It is influenced by, (i) beliefs about the outcomes of the behavior and (ii) the evaluation of those outcomes

3. **Subjective Norms**: These are the perceived social pressures to perform or not perform the behavior. They are influenced by, (i) Normative beliefs (what important others think the person should do) and (ii) Motivation to comply with those beliefs

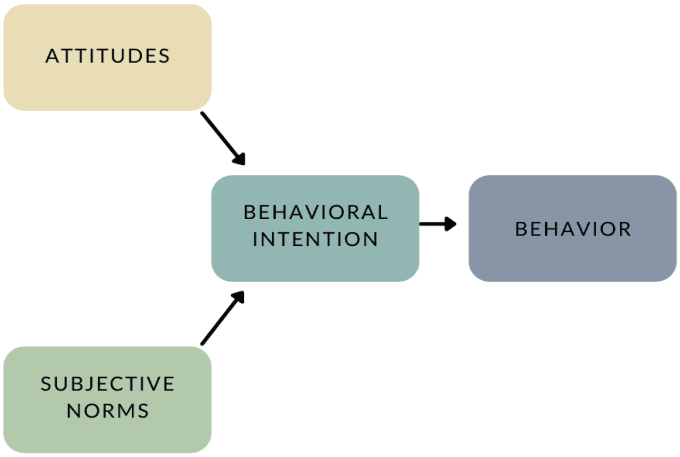

Fig.3. Theory of Reasoned Action by Martin Fishbein and Icek

TRA posits that:

- If a person believes that performing a behavior will lead to positive outcomes (attitude),
- And believes that significant others expect them to perform it (subjective norms),
- Then they form a strong intention to perform the behavior, which is likely to lead to actual behavior.

8. Model for Climate Change Mitigation and Adaptation using Theory of Reasoned Action

This study proposes that The Theory of Reasoned Action (TRA) can be applied effectively to climate change mitigation and adaptation by understanding and influencing the psychological and social factors that shape environmentally responsible behavior. Specifically, it involves applying the TRA to assess how people's beliefs, attitudes, and perceived social norms shape their intentions and actions towards reducing greenhouse gas emissions (mitigation) and adjusting lifestyles and systems to cope with the impacts of climate change (adaptation).

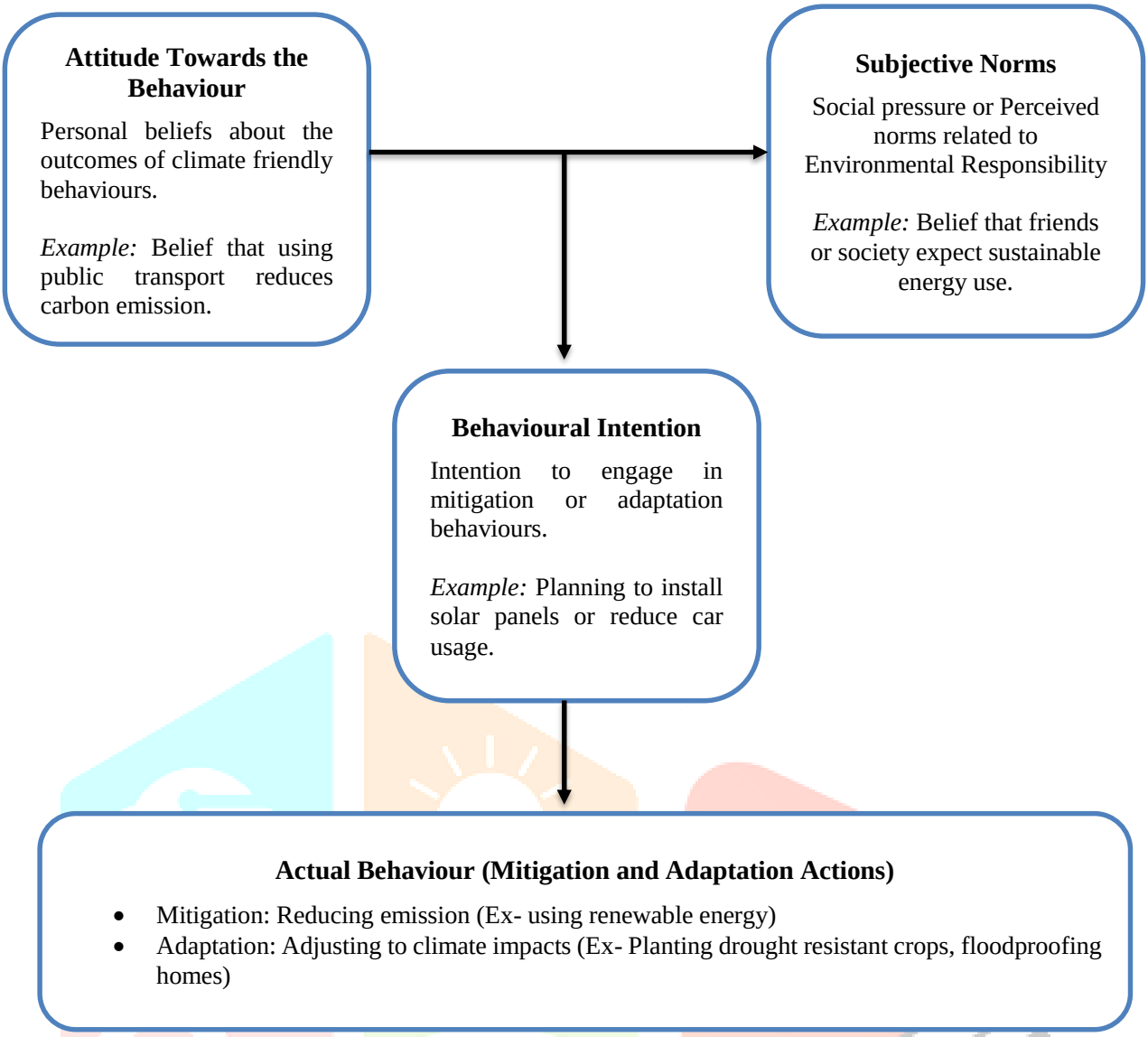

Fig.4. Model for Climate Change Mitigation and Adaptation using Theory of Reasoned Action

8.1. Social Marketing: A Pathway To Effective Behavior Change

The origins of the term "social marketing" can be traced to Kotler and Zaltman's classic 1971 article in the journal of marketing titled *"Social Marketing: An Approach to Planned Social Change" (Kotler and Zaltman,1971).* The same marketing tactics used to sell customers' products could also be used to sell ideas, attitudes, and behaviors. *(Kotler and Zaltman,1971).* The very first formal definition of social marketing was that offered by Kotler and Zaltman in 1971 (p. 5); *"Social marketing is the design, implementation and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution, and marketing research."*

8.2. Social Marketing Approach to Encourage Eco-Friendly Actions

The community-based social marketing (CBSM) framework has been widely utilized in social marketing to create and implement programs that encourage environmentally conscious behavior (McKenzie-Mohr, 2011).

Practitioners have mostly employed the CBSM framework in community-based citizen-centered programs to encourage pro-environmental behaviors including cutting back on waste, saving water, and preserving fish and animal habitats. Numerous scholarly works have shared this characteristic as well *(Rodriguez-Sanchez et al., 2023).* Evidence from the past suggests that determining the scope of criteria used in social marketing programs is critical since interventions with more criteria are applied and appropriately reported have a higher chance of producing beneficial behavioral changes *(Tkaczynski et al., 2020).* Lynes et al. (2014) and Fries et al. (2020) offered numerous benchmark criteria based on Andreasen's (2002) six benchmarks and the CBSM framework. Based on these benchmark criteria, these initiatives could be

enhanced and made more effective. According to McKenzie-Mohr (2011), the CBSM structure consists of five phases.

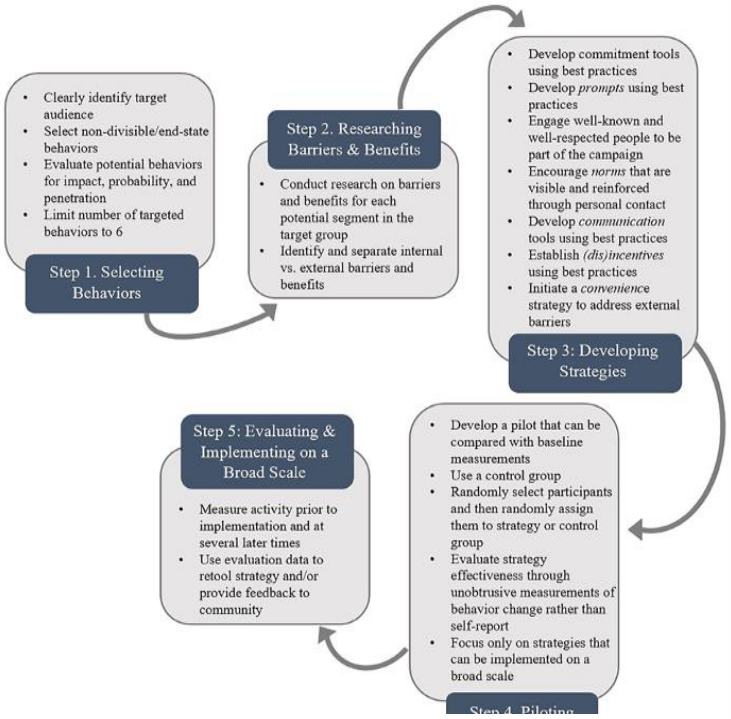

Fig.5. CBSM Structure by McKenzie-Mohr, 2011

8.3. 8Ps of Social Marketing

Borden introduced the concept of the marketing mix in 1962 and Jerome McCarthy popularized the four Ps in 1964. The four Ps of price, product, place, and promotion have become the four gospels of marketing.(Magrath, 1986). All elements of 8Ps marketing impacted a person's decision about purchasing accounting services, as well as having a long-term relationship with the firm providing these types of services (Bushong & Koku, 2012). It was also found that when the 8 Ps marketing mix was implemented successfully, it led to higher customer satisfaction ratings, greater company profits, and a larger market share (Lovelock & Wright, 2002; Vaccaro & Cohn, 2004). (Parmer et al., 2021)

8Ps of Marketing- The study highlights that the 8Ps of Marketing if applied strategically to climate change mitigation and adaptation by influencing individual and collective behaviors can result in effective climate preservation. Here's how each P can be aligned with climate change objectives:

Table 1. The 8Ps Of Social Marketing for Climate Change Mitigation and Adaptation

P	Definition	Application to Climate Change and Mitigation
Product	The desired behavior or offering designed to meet the target audience's needs.	Promote low-carbon behaviors or technologies (e.g., energy efficiency, public transport, renewable energy adoption).
Price	The cost (financial, time, effort, psychological) associated with adopting the behavior.	Reduce financial, psychological, or convenience-related barriers (e.g., subsidies for solar panels, tax incentives for electric vehicles).
Place	The locations and channels through which the behavior is promoted or facilitated.	Ensure accessibility to climate-friendly options (e.g., bike lanes, green energy plans available through utilities, local recycling facilities).

Promotion	Communication strategies to inform, persuade, and motivate the target audience.	Use persuasive communication to raise awareness and motivate action (e.g., media campaigns on reducing energy use, school education on sustainability).
Policy	Supportive laws, regulations, or institutional actions that enable behavior change.	Advocate for laws and regulations (e.g., carbon pricing, emission caps, green building codes) that support low-emission lifestyles.
Partnerships	Collaborations with organizations or stakeholders to enhance campaign effectiveness.	Collaborate with NGOs, businesses, governments, and communities to amplify climate action efforts.
Purse Strings	The funding and financial resources available to support the initiative.	Secure funding from government grants, environmental funds, or CSR programs to implement mitigation strategies.
Publics	Internal and external groups involved in or affected by the social marketing effort.	Engage both external stakeholders (citizens, media) and internal teams (government agencies, NGOs) to align goals and deliver consistent messages.

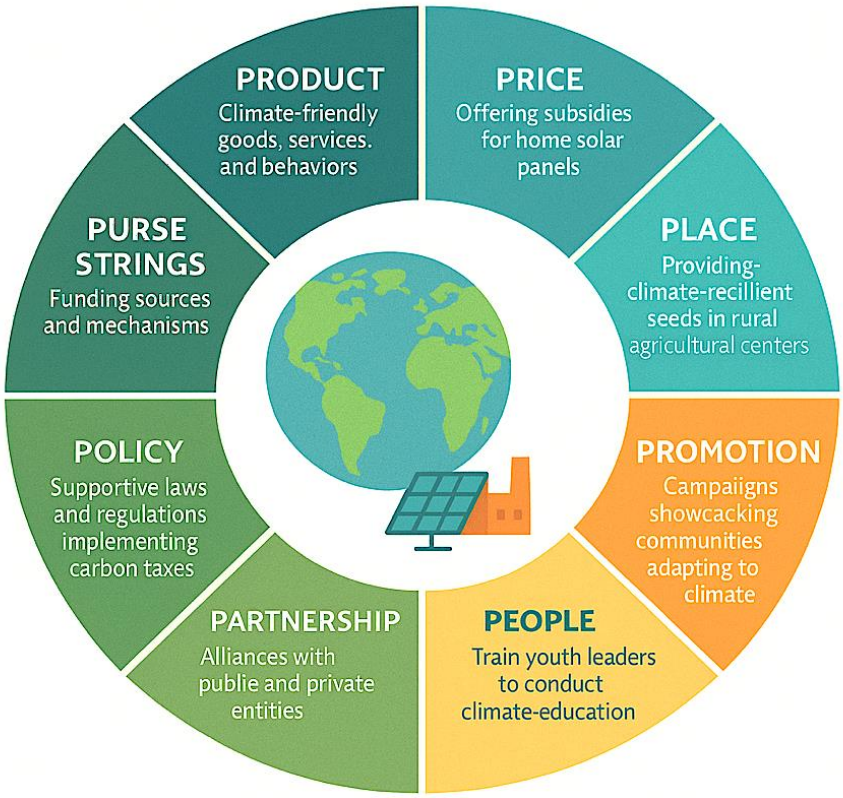

Fig.6. 8Ps of Social Marketing for Climate Change Mitigation and Adaptation

9. ENHANCING CLIMATE CHANGE MITIGATION THROUGH SOCIAL MARKETING

Social Marketing can be a powerful instrument in the fight against climate change by promoting legislative reforms, fostering sustainable behaviors, and raising public awareness. It uses focused initiatives to inform people and communities about the critical need to slow climate change and prepare for its effects. It's efforts can encourage eco-friendly behaviors including cutting back on energy use, minimizing waste production, and switching to renewable energy sources by utilizing the concepts of consumer behavior and persuasion. Social marketing has become a dynamic force in climate protection, bringing about revolutionary change through collective action, education, and lobbying. By mobilizing public support, shaping behavior, and propelling policy changes, social marketing can cultivate a sustainable future for future generations.

Table 2. Major advertisements/campaigns for climate preservation, mitigation, and adaptation worldwide (Act Now | United Nations, 2018)

S.No	Campaign / Advertisement	Country / Region	Focus Area	Medium Used	Impact
1	ActNow (UN Climate Action) (*Act Now | United Nations*, 2018)	Global (UN Member States)	Encouraging individual climate actions	Mobile app, digital media	Over 6 million individual actions logged globally; improved behavioral awareness.
2	Earth Hour (WWF) (*Join the Biggest Hour for Earth | Earth Hour*, 2007)	Global (190+ countries)	Energy conservation, awareness	Lights-off campaign, TV, events	Participated by 190+ countries annually; symbolic collective action for global awareness.
3	Fridays for Future / #ClimateStrike (Fridays For Future ,2018)	Global, led by Sweden	Youth climate advocacy	Social media, global strikes	Sparked global youth engagement, influenced climate policies in Germany, Sweden, etc.
4	Save the Arctic (Greenpeace) (*Energy - Greenpeace International*, 2012)	Global, Arctic-focused	Arctic preservation	Petitions, influencers, digital media	Over 8 million petition signatures; Shell halted drilling in Arctic (2015)
5	Mission LiFE (Lifestyle for Environment)	India	Sustainable living, emissions reduction	TV, print, community outreach	Integrated in India's G20 presidency; policy and behavior change agenda now embedded
6	Unite2FightCorona (MoEFCC for climate)	India	Climate-health link, adaptive behaviors	Print, jingles, campaigns	Built broader public awareness post-pandemic on sustainable living.
7	Switch Off to Switch On (TERI)	India	Energy conservation at household level	TV, community events	Reduced energy use among 500,000+ urban households in pilot cities.
8	Urban Resilience & Sustainable Cooling (CSE)	India	Urban climate adaptation	Reports, training	Informed India's cooling action plans and municipal heat action planning.

9	Climate Reality Project (Al Gore)	Global, HQ in USA	Climate education	Training, workshops	40,000+ global climate leaders trained; grassroots awareness worldwide.
10	IPCC Public Engagement Tools	Global	Scientific awareness of mitigation/adaptation	Reports, videos, presentations	Enhanced public understanding of climate risks; informed COP decisions and national policies.
11	Less Plastic (Protect Worldwide Campaign) (Centre for Science and Environment, 2022.)	Global (Oceans-focused)	Ocean pollution, plastic reduction	Multimedia, social media, campaign storytelling	Raised global awareness on ocean pollution; encouraged reduction in plastic usage.
12	Air Pollution Lungs Installation (PSA)	Poland	Air quality awareness, health impact	Interactive digital panels, prosthetic lungs	Real-time pollution visualization; 22,000+ panels displayed; raised national media attention.

This study proposes that, similar to various social initiatives aimed at addressing critical issues such as dowry, domestic violence, women's safety, child protection, and the empowerment of persons with disabilities, the challenges posed by climate change—along with its severe impacts, necessary preventive measures, and mitigation strategies—can also be effectively communicated to the public through infotainment-based approaches rooted in social marketing. Social Marketing can play a huge role in awareness of climate change by combining informative content with engaging media formats, which can enhance public understanding, modify human behavior towards fast climate change, eco-friendly practices, reduce-reuse and recycling and proper waste treatment.

10. FUTURE DIRECTIONS IN SOCIAL MARKETING AND CLIMATE RESILIENCE

i. *Technology and Innovation:* Advances in technology will continue to transform the landscape of development communication. Future initiatives could include digital storytelling, virtual reality experiences, interactive maps, and mobile apps to engage audiences, visualize climate impacts, and encourage community participation in adaptation and mitigation activities.

ii. *Participatory and Inclusive procedures:* Social Marketing frameworks can be greatly strengthened by incorporating participatory techniques from Participatory Rural Appraisal (PRA) and Participatory Learning and Action (PLA). This approach focuses on tools such as participatory mapping, seasonal calendars, and social resource analysis, which enable local knowledge systems and indigenous experiences to shape the trajectory of climate action initiatives. This ensures that community members not only participate but also actively lead the planning, implementation, and evaluation of climate resilience and adaptation strategies. It can promote sustainable behaviors, establish pro-environmental attitudes, and challenge detrimental norms.

iii. *Policy Advocacy and Political Will:* The creation and implementation of legislative measures such as Corporate Social Responsibility (CSR) which would require a certain portion of CSR spending by businesses to go directly towards environmental sustainability, climate change adaptation, and mitigation. By ensuring that corporate climate accountability is institutionalized rather than voluntary, such legal requirements would make a significant contribution to national and international climate goals.

11. CONCLUSION

To combat climate change and promote sustainability, it is critical that many stakeholders, including youth, farmers, governments, NGOs, and communities, adopt environmentally friendly practices. Youngsters can take the initiative by lobbying for sustainable policies, engaging in climate action, and adopting eco-friendly practices.(The Climate Reality Project). By engaging with local communities, NGOs may help people adopt sustainable livelihoods, conserve natural resources, and adapt to the effects of climate change. Farmers can help reduce climate change by implementing agroecological methods such as organic farming, crop rotation, and agroforestry, which improve soil health and resilience to harsh weather. (Life | NITI Aayog). Implementing water-saving practices such as drip irrigation and rainwater harvesting can also help to minimize water consumption and ameliorate drought effects. Policymakers can foster long-term development and climate resilience by prioritizing renewable energy investments, encouraging sustainable transportation options, and enforcing environmental legislation. The behavior change towards the use of cycle should be increased with the help of cycle campaign like #PowerThePedal by Manjula (Cyclist) and initiatives by the government like "The India Cycles4Change challenge". (Ministry of Environment, Forest and Climate Change).

On the other hand, illegal and unchecked construction ha s a significant impact on the environment. This causes environmental damage, pollution, and deforestation. Illegal construction results in air, water, and noise pollution.(*Energy - Greenpeace International*, 2012) Particulate matter(PM) produced by construction materials can lead to respiratory ailments and other health problems. To counteract these effects, strategies such as Environmental Impact Assessment (EIA), environmental management system (EMS), and green buildings (sustainable buildings) should be used. In summary, mitigating climate change demands joint efforts from all sectors of society. Youth, farmers, policymakers, NGOs, and communities can play a transformative role in mitigating climate change, safeguarding the environment, and ensuring a sustainable future for adopting eco-friendly practices, investing in long-term solutions, and lobbying for legislative reforms.

DATA AVAILABILITY

All relevant data related to the study is available in the manuscript.

DISCLOSURE OF INTEREST

The authors declare no relevant financial or non-financial competing interest.

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