

# Addressing Climate Change through Community Mobilization: A Systematic Review

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**Abstract:** Climate change is witnessed yearly through altered climatic patterns and severe natural incidents such as floods, droughts, and extreme cold. This global challenge requires international and local attention to promote community mobilization, an essential component in addressing this change. This study used a systematic review method that thoroughly examines specific objectives and offers a roadmap for future research. The PRISMA 2020 guideline was used for data collection from multiple databases such as Scopus, Web of Science, Academia, JSTOR, and Google Scholar for articles published between January 2000 and October 2024, addressing climate change, community mobilization, grassroots initiatives, and resilience strategies aligned with SDG-13. A total of 65 articles out of 34631 were selected for this study. It was done to identify the effectiveness of community-based strategies to tackle climate change resilience and to provide recommendations to policymakers and social workers for enhancing community mobilization and collaboration in climate resilience efforts. The finding shows that there are several practices of community-based strategies for climate resilience like community-based adaptation planning, awareness among the people, and adopting climate-resilient infrastructure.

**Keywords:** climate change; community mobilization; climate resilience; green social work; SDG: Goal-13

## 1. Introduction

Climate change is a serious global issue impacting all countries worldwide (Brooks, Neil Adger and Mick Kelly, 2005). The “Intergovernmental Panel on Climate Change (IPCC)” defines climate change as a shift in climate conditions identified through average changes and variability over an extended period. It is recognized as one of the most extreme challenges of the 21st century, climate change and global warming have significantly affected lives in the last 65 years (Conrad and Hilchey, 2011; Moser, 2016) and their impacts extend across ecosystems, human health, socio-political frameworks, and socio-economic structures (Nelson, Adger and Brown, 2007; Lwasa, 2015; Abbass et al., 2022). Despite several attempts by governments and international organizations to address this issue, the potential of grassroots efforts, particularly community mobilization, has received less attention and is crucial. Community mobilization uses people's collective strength to deliver localized, sustainable solutions, and greatly contribute to global climate change efforts (Berrang-Ford, Ford and Paterson, 2011; Tyler and Moench, 2012; Gompf, Traverso and Hetterich, 2020).

### 1.1. Climate Change, Community Mobilization, and Its Adaptation

The climate change impact can be seen across the world and is being witnessed through changing weather patterns, such as excessive rise in temperature, extreme cold, extreme rainfall, and drought,



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which has significantly affected many regions (Füssel, 2007). Community mobilization has not received enough attention, even though international accords such as the "Paris Accord" have mentioned the pledges from all nations to decrease emissions, collaborate to adapt to the effects of climate change, and encourage governments to enhance their commitments over time. The agreement paves the way for wealthy countries to help poor countries with their climate change reduction policy and adaptation efforts and establish a framework for transparent monitoring and reporting on governments' climate change protection objectives. This accord establishes a long-term foundation for global action. It marks the start of a worldwide transition to net-zero emissions. Implementation of the agreement is also critical for achieving the Sustainable Development Goals (UNFCCC, 2016).

Community-level activities are crucial for community resilience and bring change in behaviour among the people (Djalante and Thomalla, 2011). This change is now observed from the long-term trends in temperature, rain, and other climatic events such as atmospheric pressure and humidity. These climatic changes have contributed to irregular weather patterns, the disappearance of global ice sheets, and rising sea levels, which collectively represent some of the most significant global and regional impacts of climate change (Ford et al., 2018; Sharma, Andhikaputra and Wang, 2022; IPCC, 2023).

Whereas the term community mobilization influences individual and collective efforts by offering a sustainable way to build resilience and promote sustainable practices at the grassroots level (Groulx et al., 2017; Chanda et al., 2024; Zenda, 2024). Also adopting local resilience methods like rainwater harvesting, agroforestry, solar power microgrids and drought-resistant crops contributes to global climate resilience efforts in a larger context.

### *1.2. Rationale of the Study*

This study is important because it has systematically reviewed the existing community-based strategies to tackle climate change and assess their effectiveness at the grassroots level. This study has also highlighted successful case studies, identified challenges, and proposed policy recommendations that aim to bridge the knowledge gap and bring advocacy for greater public engagement in climate resilience efforts. The outcome of this study will be used as valuable resources and guidelines for policymakers, social workers, community leaders, and people, which will offer insights into local action that, can be used as a complement to global initiatives in addressing climate change.

### *1.3. Objectives of the Study*

- To find out the effectiveness of community-based strategies, through community mobilization for addressing issues related to climate change.
- To provide recommendations to policymakers and social workers to enhance community mobilization and collaboration in climate resilience efforts.

## **2. Methodology Used for the Systematic Review**

### *2.1. Research Philosophy*

This systematic review is based on the *interpretivism* approach, which emphasizes the subjective interpretation of the literature on climate change, community mobilization, and grassroots initiatives. The interpretivism paradigm is suitable as it allows for an in-depth analysis of existing knowledge and contextual understanding of the previous studies.

### *2.2. Research Strategy*

The strategy used for this study was a *systematic literature review* (SLR) to identify, evaluate, and synthesize relevant studies. Which has a structured approach that ensures the rigour and transparency necessary for analyzing existing research. A systematic review method ensures objectivity through a clearly defined research process (Tranfield, Denyer and Smart, 2003). The approach provides in-depth analysis, practical insights for stakeholders, and a roadmap for future research (Sheppard et al., 2011). This review evaluates "Addressing Climate Change through Community Mobilization" at both national and global levels. This review formulated objectives and structured methods to critically evaluate and synthesize relevant research, focusing on climate variability, community mobilization, and the quality of evidence to encourage critical engagement.

### 2.3. Research Type

This study is a *quantitative systematic review*, as it has synthesized themes and insights from existing literature rather than collecting new empirical data.

### 2.4. Time Horizon

The research follows a **cross-sectional** approach, analyzing studies published within a specified timeframe rather than tracking changes over time. The inclusion criteria limited the review to full-text articles in English, published between January 2000 and October 2024, addressing climate change, community mobilization, grassroots initiatives, and resilience strategies aligned with SDG-13 (Climate Action), which was officially established in the year 2015. This study included relevant studies from the year 2000 onwards to get a comprehensive approach to climate change and community mobilization before its formalization, also research from MDG-7 (Ensure Environment and Sustainability), which has covered climate change as well as environmental challenges has laid the foundation of SDG-13. The period between 2000-2015 had significant climate policy developments, such as the “(Paris Accord, 2015)” which has given the framework for global climate action. Therefore the inclusion criteria were adjusted. Exclusion criteria omitted non-English publications, articles before 2000, and studies not centred on climate change or community mobilization. This approach ensured a comprehensive literature review on climate change through community mobilization.

### 2.5. Methods of Data Collection

**Search Strategy:** The PRISMA statement-guided data collection method was used from multiple databases such as Scopus, Web of Science, Academia, JSTOR, and Google Scholar.

**Search Terms:** Climate Change, Community Mobilization, Community-based Adaptation, and Green Social Work were used with Boolean operators “AND” and “OR” were applied to refine results to select the previous studies.

**Screening Process:** The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework guided the study selection process.

### 2.6. Eligibility of Studies

**Inclusion Criteria:** The study has included studies mainly focused on climate change, community mobilization, grassroots initiatives and goal 13 of the sustainable development goal. Only peer-reviewed articles, books, and reports were published in the English language between January 2000 to October 2024, because this study was started in November 2024.

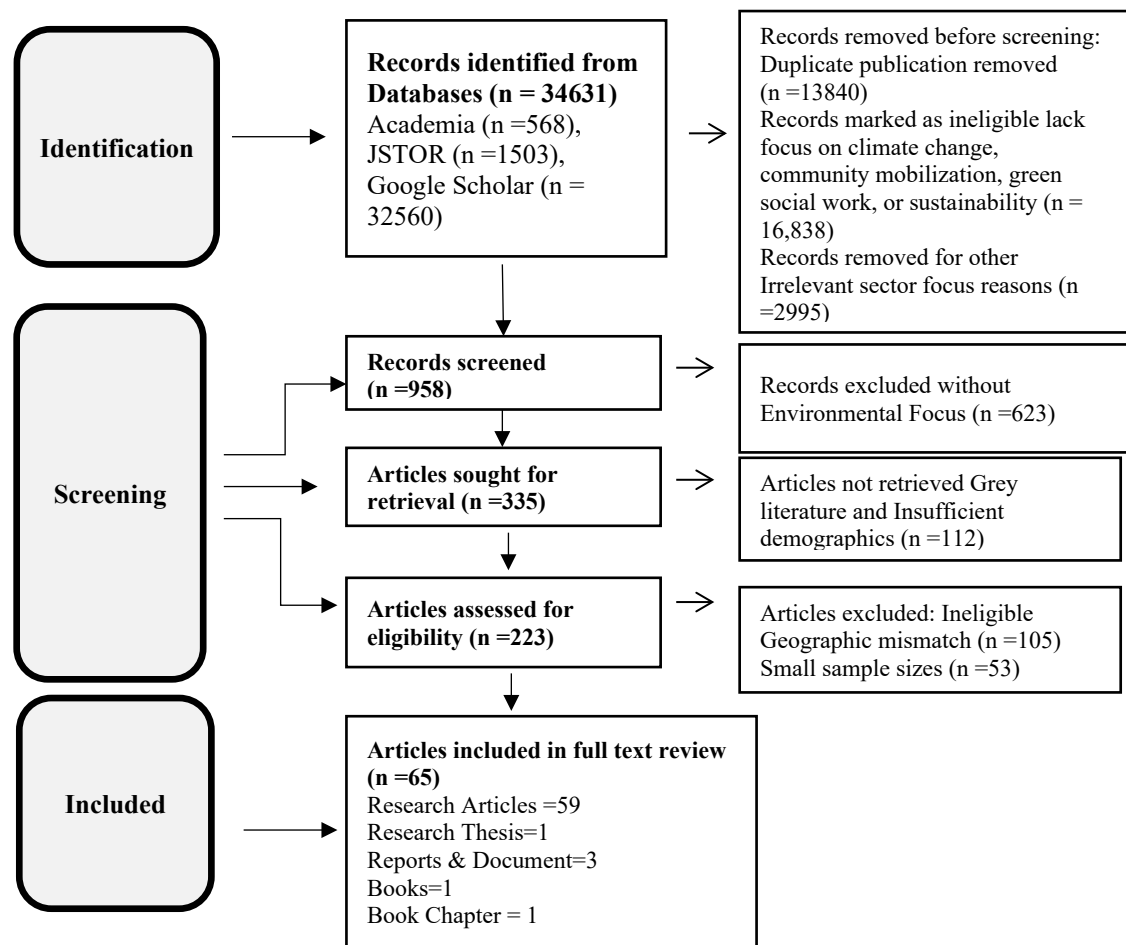
**Exclusion Criteria:** Studies which were excluded mostly non-peer-reviewed articles, working papers, unpublished manuscripts, also studies with insufficient methodological details which lacked any relevance to the research area, the articles which were written in languages other than English were excluded due to translation constraints. The eligibility criteria were chosen to ensure that only high-quality, relevant, and widely accessible research was included in the synthesis of the research paper.

### 2.7. Data Analysis Techniques

The study used the “Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020, in which a *thematic analysis* approach was applied to identify recurring themes in the selected literature. Thematic coding and categorization helped in synthesizing findings effectively.

### 2.8. Methodological Limitations

Potential limitations include constraints in the database because this study has overlooked relevant research which was not indexed in the selected databases. The language bias was there because of the exclusion of non-English studies which may have limited the global insights.



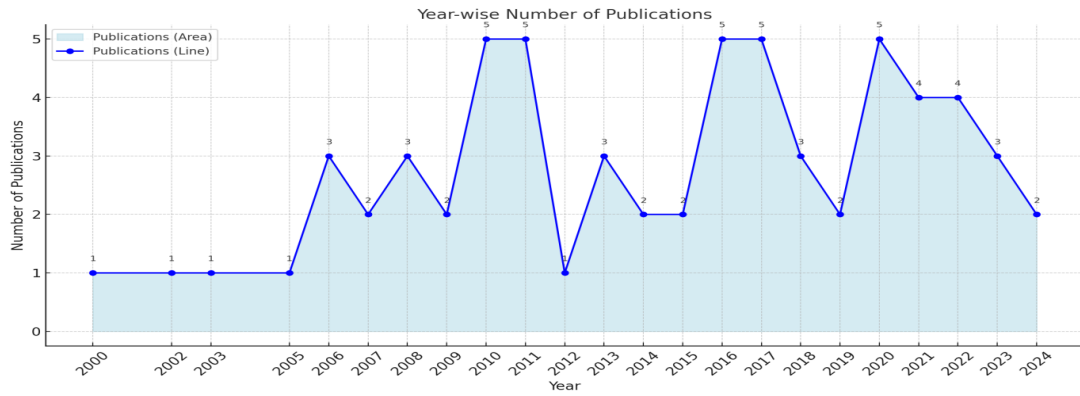
**Figure 1.** Flow diagram of the literature screening process.

## 2.9. Results

The data presented follows the PRISMA 2020 Flow Diagram, documenting a systematic approach to identifying, screening, and including studies in a systematic review (Milcu et al., 2013). Figure 1 above, highlights it in three phases; *Identification Phase*: Initially, 34,631 records were identified, with Google Scholar contributing the most. After removing 13,840 duplicates and 16,838 irrelevant records, 2,995 additional records were excluded for lacking relevance to the focus areas. *Screening Phase*: A total of 958 records were reviewed, title review and records excluded without environmental focus (623), abstract reviews (112), and methodology reviews (158), for reasons such as inadequate environmental focus, geographic mismatch (105) studies did not focus on community-driven climate action, and small sample sizes (53). *Included Phase*: A total of 65 studies were included, comprising 59 research articles, one thesis, three reports, one book, and one book chapter. This rigorous process refined the dataset to high-quality studies aligned with the research criteria.

## 2.10. Syntheses and Analysis of Results

Figure 2 highlights the year-wise distribution of these publications over 25 years (2000–2024), revealing three distinct phases. *Early Phase (2000–2009)*: Minimal activity with peaks in 2006 and 2008. *Middle Phase (2010–2016)*: A significant rise, peaking in 2010 and 2011, driven by events like the Paris Accord (2015). *Recent Phase (2017–2024)*: Stable publication rates of three to five annually, influenced by milestones like SDGs and the COVID-19 pandemic. The 65 studies include 42 quantitative, 16 qualitative, and seven mixed-methods studies, further categorized as follows: 28 systematic reviews, 12 literature reviews, eight narrative reviews, five scoping reviews, two thematic reviews, and one meta-analysis. The studies span regions such as Africa (17 studies), South Asia (18 studies), the Philippines (4 studies), Canada (3 studies), Europe (11 studies), and 12 with a global focus. Themes include climate adaptation, health care, governance, and resilience. Renowned journals, such as *Nature Climate Change*, *Sustainability Science*, and *Climatic Change*, feature these studies, highlighting interdisciplinary approaches to climate change, sustainability, and resilience.



**Figure 2.** Number of published articles per year.

### 3. Findings and Discussion

#### 3.1. Thematic Analysis

Thematic analysis identified critical patterns in community mobilization for climate resilience across three interconnected levels, i.e., micro, meso, and macro levels.

**Micro-level** initiatives such as community-based participatory planning, awareness campaigns among the locals, and infrastructure development at the grassroots level are significantly successful. From different case studies in India, it was found that 75 percent of surveyed communities have adopted climate-resilient practices through targeted interventions (UNDP, 2015). These initiatives underscore the importance of empowering local stakeholders to proactively mitigate climate risks at the grassroots level (McLeman and Smit, 2006).

NGOs and social workers play an important role in addressing regional challenges and bridging gaps between the communities and policymakers at the meso level (Dodman and Mitlin, 2013). For example, grassroots organizations in Kenya have supported over 10,000 households in adopting sustainable farming techniques, directly contributing to the sustainable development goal 13, (Elasha et al., 2005; Adams et al., 2016). Whereas social workers enhanced these efforts by promoting behavioural changes and advocating for supportive policies, ensuring that regional strategies align with broader climate resilience goals (Healy and Thomas, 2020, p. 73).

The national policies and global initiatives highlight the need for systemic change and external support at the **macro level**. The integrated climate-resilient urban planning project in Brazil is a prime example, achieving a 20 percent reduction in flood risks in vulnerable areas by aligning national strategies with local implementation efforts (IPCC, 2023). These large-scale projects highlight the importance of robust policy frameworks and international collaboration in fostering sustainable solutions. Together, these levels demonstrate the interconnected and multi-scalar nature of efforts required to address climate challenges effectively, emphasizing the value of combining grassroots initiatives with regional and national strategies.

#### 3.2. The Community-Based Adaptation Strategies at the Micro Level

The grassroots mobilization of resources, public awareness campaigns, and climate-resilient infrastructure are important strategies adopted at the micro level (Conrad and Hilchey, 2011; Westerhoff et al., 2018). The local knowledge is a key to climate change adaptation, leading to the growing use of community-based adaptation. Effective strategies at the micro level address both biophysical and socio-political factors (Ostojic, 2022). It emphasizes diversifying livelihoods, strengthening social networks, and involving youth and women in climate action to tackle climate change. Climate-smart agricultural practices, health initiatives, and cultural integration are also critical components, supported by interdisciplinary research (Agrawal, 2008; Adams et al., 2016). Such community-driven interventions form the foundation of effective climate adaptation strategies (Klöck, Fink and Fink, 2019). In Table 1 the identified themes and related studies are mentioned below.

**Table 1.** Micro-level Themes and Strategies for Community Mobilization in Climate Change Adaptation (*Community-based initiatives and localized efforts for direct impact*).

| Themes Identified                          | Community Mobilization Strategies                                                                                                               | Authors                                        |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Grassroots Mobilization for Climate Change | Encouraging community-led initiatives like tree planting, water conservation, and neighborhood action groups.                                   | Ayers and Forsyth (2009); Allen (2006)         |
| Public Awareness & Education               | Conducting workshops, awareness campaigns, and information dissemination on climate risks and sustainable practices.                            | Adams et al. (2016); Ebi and Semenza (2008)    |
| Climate-Resilient Infrastructure           | Constructing flood defenses, drought-resistant housing, and community shelters.                                                                 | Berkes and Jolly (2002); Fawzy et al. (2020)   |
| Strengthening Social Networks              | Establishing local organizations, cooperative groups, and peer-support systems for climate adaptation.                                          | Brooks et al. (2005); Bryan and Behrman (2013) |
| Livelihood Diversification                 | Introducing alternative income activities such as agroforestry, beekeeping, and eco-tourism to reduce dependency on climate-vulnerable sectors. | Aryal et al. (2020); Ford et al. (2018)        |
| Awareness of Disaster Preparedness         | Training communities on early warning systems, evacuation planning, and response strategies.                                                    | Allen (2006); Djalante and Thomalla (2011)     |

Community-based adaptation strategies, such as neighbourhood-level projects and participatory planning, effectively address climate change (Joshi, Agrawal and Lie, 2022). Initially, adaptation received little attention when climate change was introduced as a topic at the UN General Assembly in 1988. Early initiatives prioritized mitigating greenhouse gas emissions and enhancing carbon storage. The UNFCCC, established in 1992, made only brief mentions of adaptation without providing a clear definition (Filho, 2017; Bisaro, Roggero and Tomas, 2018; Pham and Saner, 2021). In 2001, IPCC defined adaptation as “*adjustments in natural or human systems in response to climate change impacts*”, and in 2007, it became a formal component of the Bali Roadmap, alongside mitigation, technology cooperation, and finance within the post-Kyoto framework (Berrang-Ford et al., 2011; Fawzy et al., 2020; Robinson, 2020). International efforts were applied to reduce and cut off greenhouse gases, but still, global warming continues at an alarming rate. This reality highlights the urgent need for robust adaptation measures, particularly in developing countries, where climate vulnerabilities are more pronounced (Ayers and Forsyth, 2009). Bridging the gap between policy and local action requires a strategic shift towards community-based adaptation.

### 3.2.1. Grassroots Mobilization for Climate Action

Community leaders play a pivotal role in motivating collective action, and small-scale projects highlight the potential of localized efforts in addressing climate change (Tanner et al., 2009; Biesbroek et al., 2013). Vulnerability to climate change is shaped by structural factors such as gender, caste, ethnicity, and age, which are further influenced by location-specific socio-cultural dynamics (Nelson, Adger and Brown, 2007; Mubaya and Mafongoya, 2017; Ngcamu, 2023). The regional variability in greenhouse gas emissions, average temperatures, and precipitation underscores the diverse health impacts of climate change across regions, localities, and social groups (Ebi and Semenza, 2008). Institutions significantly influence climate adaptation by mediating access to assets and shaping resource allocation. Public (state) organizations (e.g., government agencies and elected bodies), private (market) entities (e.g., SELCO India, Solar Sister (Africa), Barefoot College (India), Husk, Power Systems (India, Africa), Eco-Fuel Africa (Uganda), and civic (civil society) organizations (e.g., SHGs, NGOs, and cooperatives) collectively contribute to rural adaptation. These institutions focus on governance and welfare, innovation and economic growth, and empowerment and sustainability, respectively (Agrawal and Lemos, 2007). Effective collaboration among multiple stakeholders is essential for achieving sustainable adaptation outcomes (Berkes and Jolly, 2002; Sharma, Andhikaputra and Wang, 2022).

### 3.2.2. Public Awareness and Education

Awareness campaigns are essential for fostering climate-friendly practices and promoting behavioural change (McLeman & Smit, 2006). Partnerships among public, civic, and private organizations are crucial in addressing climate hazards through co-management, public-private



partnerships (PPPs), and integrated governance (Hügel and Davies, 2020). These collaborations enhance resource mobilization, policy implementation, and community engagement (Phillips et al., 2015).

### 3.3. Community-Based Adaptation Strategies at Meso Level

At the *meso level*, strategic interventions highlight climate adaptation, including overcoming mobilization barriers, integrating SDG-13 for climate action, developing community-based adaptation plans, strengthening resource management systems, enhancing urban resilience through ecosystem services, and leveraging technology for knowledge sharing and capacity building is pivotal in ensuring long term sustainability (Bhamra, Dani and Burnard, 2011). These approaches emphasize the importance of collaboration and community involvement in addressing climate challenges. By fostering participatory models, communities can effectively enhance their resilience and adapt to changing environmental conditions. Participatory decision-making and resource-sharing models, such as cooperative societies, play a significant role in promoting climate resilience (Agrawal, 2008; Warner, 2010). In Table 2 the identified themes and related studies for meso level are mentioned below.

**Table 2.** Meso-Level Themes and Strategies for Community Mobilization in Climate Change Adaptation (Institutional, organizational, and regional-level strategies bridging local and national efforts).

| Themes Identified                              | Community Mobilization Strategies                                                                                         | Authors                                                      |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Social Work & Climate Resilience               | Addressing barriers like lack of resources, political resistance, and social inequities to enhance community cooperation. | Abbass et al. (2022); Biesbroek et al. (2013)                |
| Integration with Sustainable Development Goals | Integrating climate adaptation with SDG-13 (Climate Action) and other relevant goals.                                     | Filho (2017); Ford et al. (2018)                             |
| Community-Based Adaptation Planning            | Developing localized adaptation plans focused on risk assessment, resource allocation, and implementation.                | Agrawal (2008); Ayers and Forsyth (2009)                     |
| Strengthening Resource Management Systems      | Enhancing governance structures for effective water, energy, and natural resource management.                             | Biesbroek et al. (2010); Bisaro et al. (2018)                |
| Urban Resilience & Ecosystem Services          | Promoting green spaces, ecosystem-based adaptation, and sustainable urban planning.                                       | Bibri and Krogstie (2017); Dodman and Mitlin (2013)          |
| Technology & Innovation                        | Leveraging digital tools, GIS mapping, and data-driven models for climate adaptation.                                     | Conrad and Hilchey (2011); DeCock-Caspell and Vasseur (2021) |

#### 3.3.1. Social Work and Climate Resilience

Social workers play a vital role in bridging community efforts with organizational resources, providing perspectives for social-ecological systems analyses, fostering ecological awareness, and empowering vulnerable populations to adapt to climate change at the meso level (Folke, 2006). They collaborate with local and global organizations to advocate for inclusive policies, ensuring socio-economic and environmental justice for marginalized groups. These interventions build community resilience and enhance the adaptive capacity among the people (Berrang-Ford, Ford and Paterson, 2011; Tyler and Moench, 2012).

#### 3.3.2. Impact of Climate Change on Vulnerable Societies

Climate change is always vulnerable to society, and it is responsible for global challenges, including health crises, agricultural disruptions, and environmental degradation (Mugeere, Barford and Magimbi, 2021). There are direct consequences of climate change, such as heatwaves, vector-borne diseases, and waterborne diseases that disproportionately affect vulnerable societies with limited access to healthcare services and adaptive resources in the community. Psychological effects, including anxiety and trauma, further burden these communities (Greenhalgh et al., 2016; Abbass et al., 2022). To alleviate these effects, integrated health policies and climate adaptation strategies need to be strengthened at local and global levels.

### 3.3.3. Risk Management in Climate Change Adaptation

The unpredictable weather conditions lead to climate change-related disruption, significantly altering the global climate patterns and affecting agriculture patterns. Farmers and their families face significant challenges as a result of these changes (Soz and Raza, 2024). Effective risk management becomes essential, with strategies like co-investment, community support, and crop insurance providing much-needed relief. Innovations such as index-based insurance and advanced forecasting systems further support the shift toward climate-smart farming; also, the adaptive irrigation system and resilient crop varieties support a long-term solution to mitigate these agriculture vulnerabilities. Local, national and global institutional measures further support the agricultural sector's resilience to climate risks (Eakin, 2005; Aryal et al., 2020).

### 3.3.4. Barriers to Community Mobilization

Community mobilization is important for climate resilience but faces significant challenges such as poverty, limited education, inadequate healthcare access and other facilities. Insufficient policy support and inconsistent political will further hinder effective adaptation (Biesbroek et al., 2010, 2013). These barriers require a dual approach, i.e., integrating local grassroots initiatives complemented by top-down policy frameworks to ensure resource availability and institutional backing (Allen, 2006).

## 3.4. Community-Based Adaptation Strategies at the Macro Level

At the **macro level** strategies, key highlights themes focus on climate adaptation, governance and policy frameworks, infrastructure, and social integration (Bryan and Behrman, 2013). These strategies prioritize participatory governance, policy advocacy, the development of climate-resilient infrastructure, and effective natural resource management, all aligned with SDG-13 to ensure comprehensive and scalable climate resilience (Fawzy et al., 2020). In Table 3 the identified themes and related studies are mentioned below for the macro level.

**Table 3.** Macro-level Themes and Strategies for Community Mobilization in Climate Change Adaptation (National and Global Policies, governance frameworks, and large-scale interventions).

| Themes Identified                  | Community Mobilization Strategies                                                                            | Authors                                                |
|------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Governance & Policy Frameworks     | Strengthening participatory governance at national and global levels, ensuring inclusivity.                  | Agrawal and Lemos (2007); Füssel (2007)                |
| Policy Advocacy & Leadership       | Supporting local leadership in influencing climate policies and ensuring grassroots concerns are addressed.  | Berrang-Ford et al. (2011); Chusnia and Nugroho (2023) |
| Multi-Stakeholder Collaboration    | Fostering partnerships between governments, private sectors, and civil society for resilient climate action. | Dodman and Mitlin (2013); Ford et al. (2018)           |
| Climate-Resilient Infrastructure   | Advocating for large-scale investments in climate-proof infrastructure and sustainable urban planning.       | Bhamra et al. (2011); Filho (2017)                     |
| Disaster Risk Reduction            | Strengthening early warning systems, climate adaptation policies, and emergency response frameworks.         | Djalante and Thomalla (2011); Fawzy et al. (2020)      |
| Best Practices & Knowledge Sharing | Documenting and disseminating successful adaptation strategies at national and international levels.         | Bisaro et al. (2018); Eakin (2005)                     |

### 3.4.1. Success Stories and Lessons Learned

Global success stories from countries like Kenya, India, and Brazil highlight the significance of international support, robust governance, and participatory decision-making at the macro level (Revi, 2008). These nations demonstrate the effectiveness of integrating top-down and bottom-up approaches, where national strategies complement local efforts. Such initiatives emphasize the critical role of multi-level governance in building climate resilience (Warner, 2010; UNFCCC, 2016).



### 3.4.2. Climate-Resilient Infrastructure

Investments in sustainable technologies and nationwide climate-resilient infrastructure are vital for enabling local adaptation efforts. Governments must prioritize creating a robust framework to support community-level actions, ensuring long-term sustainability and resilience against climate impacts (Agrawal, 2008; Sharma, Andhikaputra and Wang, 2022).

### 3.4.3. Barriers to Community Mobilization

While scaling a successful local intervention to a national or global level faces many challenges, such as policy gaps, limited funding, and systemic inequities, and these barriers restrict the widespread mobilization needed for impactful climate adaptation, emphasizing the importance of addressing these obstacles through targeted policy advocacy and resource allocation (Berrang-Ford, Ford and Paterson, 2011; Tyler and Moench, 2012).

## 4. Conclusion

This study highlights the critical role of community-based strategies in addressing climate change, and collective efforts must transcend individual and collective awareness to focus on systematic and collective action at local, national, and global levels. This is possible by fostering collaboration with public, private, and civil society organizations, which can promote participatory decision-making and put collective efforts with global frameworks such as the SDGs through which communities can adapt to address climate change issues more effectively. Grassroots movements led by climate scientists like Peter Kalmus, Climate activists like Sonam Wangchuk and many volunteer groups are crucial in drawing attention to the climate crisis. Government, policymakers, corporations, citizens, and international organizations must collaborate with local communities to align grassroots efforts with global climate goals, such as the Paris Agreement and the United Nations Sustainable Development Goals (SDGs) to curtail the excessive use of fossil fuels and prioritize renewable energy sources (Mensah, 2019). Only through collective action, backed by urgency and strong determination, we can hope to protect our planet in the future. The success of climate adaptation techniques is completely reliable on the ability to use the collective power of communities by ensuring that no person is left behind in this fight against climate change issues, which is a complete plan that not only improves the immediate impacts of climate change effects also establish a foundation of sustainable development by enabling communities to succeed on these environmental challenges.

## 5. Recommendations

### 5.1. For Policymakers

Policymakers play a pivotal role in addressing climate change through proactive measures and strategic planning (Filho, 2017). Climate change is impacting lives, especially the underprivileged, with visible effects. Asia and the Pacific face rising temperatures and extreme weather like droughts and floods, harming rural livelihoods. Mobile soil testing labs assess soil fertility and recommend crops (Soz and Mankar, 2021). Targeted actions are essential to mitigate these effects.

- *Promote Renewable Energy:* by enforcing regulations and providing incentives to transition from fossil fuels to renewable energy resources like solar, wind, and hydroelectric energy, e.g. the PM-KUSUM scheme under which solar pumps are being given to farmers at a subsidized rate, and India's International solar alliance (ISA) for promoting solar energy adoption in the developing countries.
- *Invest in Climate Resilience:* By allocating funds and resources to grassroots climate action projects. Incorporating community feedback into national climate adaptation plans ensures tailored and effective solutions such as the National Adaptation Fund for Climate Change (NAFCC) which supports climate-resilient agriculture methods by promoting drought-resistance crops.
- *Support Research and Innovation:* Fund climate-related research to understand and combat geographical challenges like low rainfall, high winds, and vegetation dryness.

### 5.2. For Communities

Communities are at the frontline of climate adaptation and must adopt proactive measures to safeguard their environments and livelihoods (Sheppard et al., 2011; Bibri and Krogstie, 2017). Climate change poses one of the greatest threats to global health and primary health care PHC (Lokotola et al., 2023). Making it essential for communities to strengthen networks and partnerships with NGOs, academic institutions, and government bodies (Agrawal, 2008). These collaborative approaches enhance

the effectiveness of local adaptation strategies based on:

- *Enhancing Local Collaboration*: Strengthening networks with NGOs, academic institutions, and government bodies to facilitate resource-sharing and collective action for adaptation strategies against climate change, one of the successful examples is the watershed development program in Rajasthan state of India which integrates the local people through NGOs to restore degraded land and improve water conservation in the state.
- *Adaptation of Sustainable Practices*: By embracing climate-resilient techniques such as rainwater harvesting techniques, crop diversification, and use of renewable energy solutions to reduce dependence on vulnerable ecosystems at this moment.
- *Developing Local Leadership*: By encouraging and supporting local community leaders, they can mobilize resources, advocate for policy changes, and lead climate resilience initiatives at the grassroots level.

### 5.3. For Social Workers

Social workers act as caregivers, resource mobilizers and educators, they can act as a bridge between policymakers and communities, fostering awareness and resilience at the grassroots level (DeCock-Caspell and Vasseur, 2021; Chusnia and Nugroho, 2023). Training communities in sustainable practices and climate-resilient techniques is very important for empowering individuals who prioritize community-based approaches to climate resilience (Allen, 2006; Sheppard et al., 2011; Zenda, 2024). Their empowerment focuses not only on the technicalities of capacity-building but also on realizing its potential in fostering long-term change (Aryal et al., 2020; Chanda et al., 2024; Zenda, 2024), which can be done by:

- *Community Education to Adapt Climate Resilient Activities*: Conduct workshops and training sessions to teach sustainable practices, such as water conservation, renewable energy use, and waste management.
- *Empower Vulnerable Groups to Cope*: By focusing on marginalized communities disproportionately affected by climate change by providing them with sufficient resources, technical training, and capacity-building initiatives. The Green Belt Movement of Kenya founded Wangari Maathai has empowered many rural women by training them in reforestation and land conservation.
- *Promote Collective Action*: Encouraging communities to form local climate action groups, enabling them to advocate for change and share resources effectively. The Chipko movement in Uttarakhand state of India, where villagers used to hold the trees in protest against deforestation in the region.

One of the most common and suitable examples is the Haritha Haram project in Telangana state of India where the state Government, schools and colleges, NGOs, the Corporate sector, and other organizations widely participate every year for massive community-driven afforestation to improve the environmental sustainability and mitigate climate change effects.

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