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Climate-Resilient Microfinance: Effectiveness of Sustainable Financing Models for Vulnerable Rural Households in India

Vishnu Datta
Research Scholar, Department of Commerce,
Shyama Prasad Mukherjee Government Degree College,
University of Allahabad, Prayagraj
E-mail ID- vishnudatta88363@gmail.com
Dr. Alok Singh
Assistant Professor, Department of Commerce,
Shyama Prasad Mukherjee Government Degree College,
University of Allahabad, Prayagraj
E-mail ID- draloksingh@outlook.com

Abstract

Climate change poses a major challenge in the rural villages of India, particularly for those whose livelihood is dependent on the agricultural and natural resources. These frequent floods, droughts, heat waves and irregular rainfall affect the income, food security and overall quality of life of low-income families; they are now more vulnerable. Traditional financial systems are often poor in these types of situations to serve the specific needs of climate change affected communities. This has led to interest in climate-resilient microfinance as a valuable instrument to help vulnerable rural households adapt and to strengthen their resilience. This study looks at how microfinance organizations might use sustainable financing methods to support climate resilience. The study is descriptive with exploratory nature type and is entirely based on secondary data such as publications, research papers, peer-reviewed journals and other reliable academic publications. The study shows that sustainable financing models have been adopted by microfinance institutions including climate-resilient microcredit, green microfinance, microinsurance, climate adaptation finance, blended finance, FinTech-enabled finance, gender-responsive finance and climate-smart agricultural finance. The results show that these finance approaches greatly enhance adaptive ability, increase financial inclusion, promote opportunities for sustainable livelihoods, and lessen risks associated to climate change. But problems such as the lack of financial education, inadequate technological infrastructure, institutional challenges, inability to fund proposals, and poor climate-risk assessment techniques are often key limitations in their effectiveness. The study concludes that more policy support, technology innovation and cooperative financial structures are required to expand the climate-resilient microfinance and bring sustainable rural development in India.

Keywords: Rural households, Sustainable financing models, Climate-resilient microfinance.

Introduction

The climate change is one of the most pressing development challenges in India today. Its impact is especially high in rural parts of the country where many of the people work and earn a living from the land and natural resources. The country has experienced a great rise in the number and frequency of climate-induced shocks and stresses including heat waves, floods, droughts, landslides, incompatibility of rainfall etc. in the recent years. These events have further compounded the

vulnerabilities of affected populations and have devastating effects on livelihoods, property and infrastructure and agriculture. Indoors and outside: Several districts in India seem to be exposed to climate risks regularly. The impact on low income rural households, landless workers and small and marginal farmers who rely significantly on weather conditions is very bad. The below average rainfall, irregular rainfall behaviour, increasing temperatures, and frequent floods all have reduced harvests and income security in agriculture. Thereby, many rural families are confronted with increasing economic fragility and difficulties to cope with climate shocks.

Climate change has an impact on more than just agriculture. Rural communities have to deal with problems such as water shortages, depleting natural resources, health problems as well as disruption of essential services. These struggles have led to a rise in poverty and social and economic inequalities. Given the realities, financial tools that could assist poor households to manage climate risks and have long-term climate resilience are sorely needed.

In this context climate-resilient microfinance has become a strategy that can be used. MEs can overcome household vulnerabilities and adapt to environmental shifts by providing financial services, such as climate-aware loans, savings schemes, green financing options, and insurance products to them. Using such financial mechanisms can help communities invest in activities that build resilient livelihood and help them rebuild in the aftermath of climate impacts more quickly and to become more resilient to future shocks. Considering this, the present research focuses on discovering the sustainable financing strategies adopted by the MFIs and its role in enhancing the climate resilience of the rural households under MFIs in India. The study also assesses these models' efficacy and pinpoints the main obstacles to the successful execution of climate-resilient microfinance initiatives.

Review of Literature

Abraham and Fonta (2018) examined the perceptions of farmers in the northern part of Nigeria regarding climatic change as well as the extent to which access to finances facilitated the adoption of adaptation measures. Survey data of 320 rural farmers were gathered and analyzed using descriptive statistics, chi-square testing, and the Spearman correlation analysis. Results indicated a significant increase in farmers' financing requirements because of climate change. However, the financial constraints in accessing financial services affected their ability to adopt successful adaptation measures, highlighting the importance of financial inclusion for climate resilience.

Kandikuppa and Grey (2022) They have undertaken a study to trace the link of rural household debt with climate change in India. The authors applied regression analysis to test impact of climate change over the debt levels using longitudinal data collected from agricultural databases, India Human Development Survey (IHDS) and MERRA-2 climate datasets. Their research found that temperature fluctuations and droughts had a notable and substantial effect on increasing the household debt with marginal and socioeconomically vulnerable rural households experiencing greater increases.

Yang et al. (2022) looked into how China's farming households' financial susceptibility is affected by climate change. Finally, an ordered logit model was used for data analysis based on meteorological data and the China Household Finance Survey (CHFS 2017). Results indicated that fluctuations in temperature and rain fall caused a decrease in agricultural productivity, poor health and limited access to credit for farmers making them vulnerable financially.

Ahmed et al. (2024) explored the impact of climate related disaster on the social and financial performance of Microfinance Institutions (MFIs). The study adopted a dynamic panel Generalised Method of Moments (GMM) approach to analyze secondary data obtained from 717 MFIs that were active in 119 countries from the period of 1999-2019. The results showed that climate hazards like wildfires, floods, droughts, and storms have a detrimental impact on social outreach, asset quality, capital sufficiency, and liquidity. Climate issues are a major concern and pose a serious danger to the long-term viability and resilience of MFIs, the report shows.

Alamm et al. (2025) looked at how financial technology, Islamic social finance and microfinance can work together to enhance climate resilience. The study was carried out using mixed-method approach which involved case studies, statistical analysis, and literature review, and found evidence that digital Islamic finance instruments can play a vital role to enhance financial inclusion, as a support for adaptation to climate change, and for the achievement of sustainable development goals for vulnerable groups.

Dorfleitner et al. (2025) examined how microcredit portfolios are affected by climate change and evaluated the role that Ecosystem-based Adaptation (EbA) techniques play in lowering risks associated with climate change. The study found that the intensity of climate shocks contributes to an increased risk of credit and to greater vulnerability of borrowers based on their survey responses from approximately 1,500 MFIs across both geographies. At the same time, it has been proved that EbA projects contribute to strengthen the resilience; nevertheless, there are still limitations in its uptake because MFIs do not offer adequate funding.

Shanta et al. (2025) The authors of this report asked themselves what role financial inclusion could play to support smallholder farmers in northwest Bangladesh to boost their agricultural production and climate resilience. The study used the Harrod-Domar Model, MVP Regression, FGT Index, and Stochastic Frontier Model on 300 homes' worth of survey data. The results indicated that significantly reducing financial barriers led to high agricultural productivity, higher adoption of climate adaptation measures and lowered the vulnerability of the farmers to climate change shocks.

Nikita Gopal et al. (2026) Inventoried climate finance options for the more resilient fishing industry. 59 research papers from 2010 to 2025 were examined in the study using a narrative review methodology. The findings showed that, climate finance mechanisms including insurance schemes, credit facilities (concessional), and blended finance mechanisms are critical factors in increasing adaptive capacity and reducing vulnerability of fishing communities to climate threats.

Objectives of the Study

The present study has been undertaken with the following objectives:

- To examine the role of climate-resilient microfinance in strengthening the resilience of vulnerable rural households.
- To identify and analyses the sustainable financing models adopted by microfinance institutions to address climate-related challenges.
- To assess the main obstacles to implementing climate-resilient microfinance initiatives.

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Research Methodology

The research approach was descriptive and exploratory to understand how microfinance can be extended and become more climate resilient to enhance the resilience of vulnerable rural communities in India. The descriptive method can help describe the various sustainable financing models are already implemented by MFIs, whereas the exploratory method helps to understand how effective, applicable and practical these instruments are in the context of climate change. The sources of secondary data in this study are reliable and legitimate such as peer-reviewed journal articles, research papers published by national and international organizations and other scholarly publications etc. The gathered data was methodically evaluated and interpreted to determine the main sustainable financing methods being used, evaluate the role of microfinance institutions in fostering climate resilience, and look at the main obstacles preventing their effective adoption.

Discussion

➢ The Role of Climate-Resilient Microfinance

Climate change has become a major concern for the people living in rural areas in India, particularly for those who are engaged in climate change sensitive livelihoods such as agriculture. Low-income households, landless workers and small and marginal farmers are among the most affected as there is a strong correlation between environmental conditions and economic security. Climate induced catastrophes such as drought, floods, heatwaves, irregularities in rains etc., pose high financial risks and affect livelihoods of rural households. Microfinance is increasingly important in this context as a beneficial instrument to stimulate adaptation and reduce vulnerability in the face of climate change. The provision of microfinance services to rural households—including microcredit, saving products, microinsurance and emergency financing—helps to equip them to manage and adapt to climate-induced challenges through climate-resilient approaches to microfinance. The financial products help farmers get access to drought-tolerant seed varieties, improved irrigation techniques, investment in climate-smart agricultural practices, and exploring alternative income streams. These investments reduce the risks climate change poses to households, and enhance their resilience to shocks.

One of the key contributions of climate-resilient microfinance is increasing financial inclusion. Many rural households, particularly those of the economically disadvantaged are not able to access conventional financial services. Microfinance organizations bridge this gap, as they offer financial services that are both easily reachable and affordable, and locally adaptable. This increases vulnerable communities' capacity to manage risks, maintain income levels, and make sound investments for increased long-term financial security. The advantages of climate-resilient microfinance go beyond monetary assistance. It promotes eco-friendly practices, income generation and social and economic opportunities. They tend to be used by women, self-help organisations and other groups which are under-represented within society, and through which women are able to be more involved in home decision-making and economic activity. These results enhance community resilience in general as well as individual well-being.

➢ Sustainable Financing Models Adopted by Microfinance Institutions

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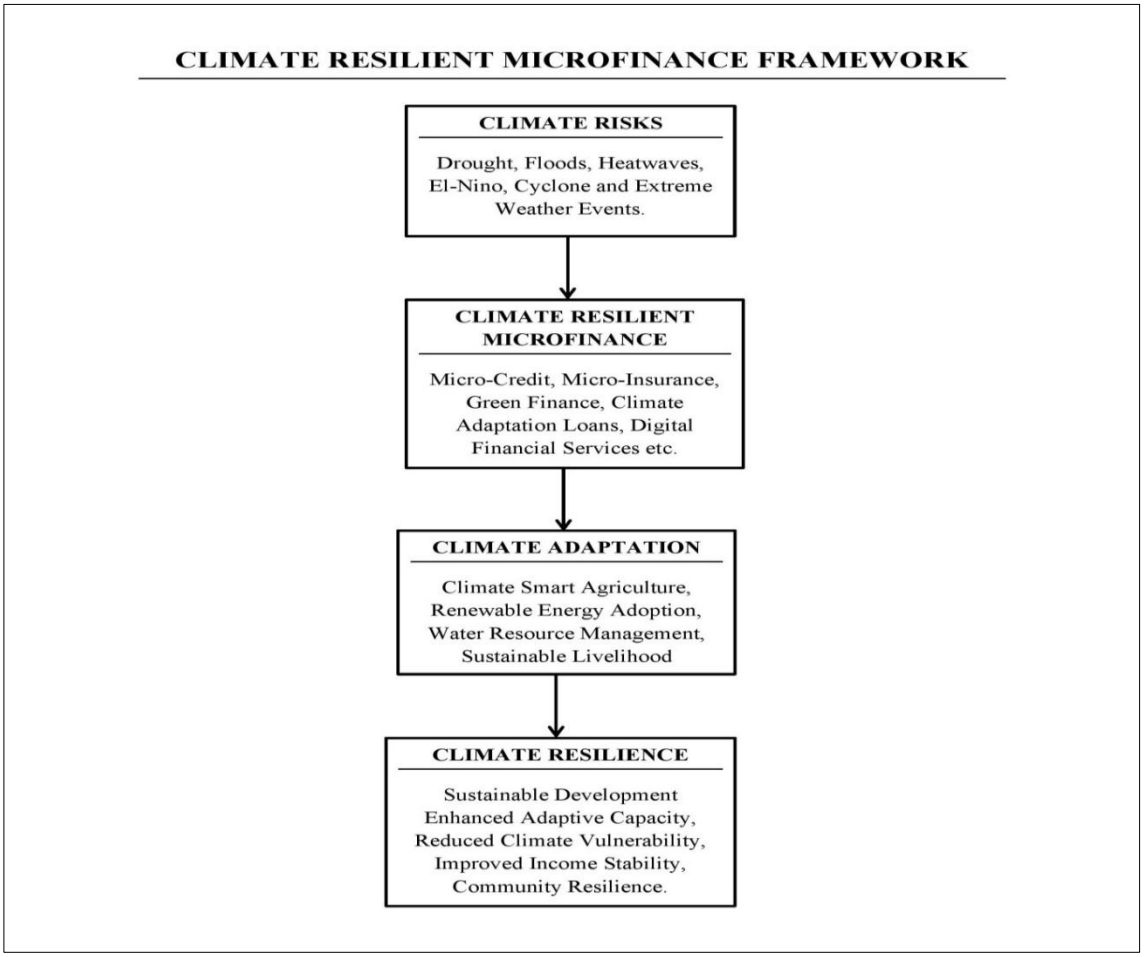
The literature reviewed suggests that the MFIs have started playing their wider role as a way to address the problems related to climate change and thereby resorting to multiple avenues for funding their projects on Sustainable Development Goals (SDGs). These organizations are increasingly delivering state-of-the-art financial products tailored to low-income and vulnerable families, that enable them to enhance their adaptability and resilience. There are currently a number of MFIs running ecosystem-based adoptions programs, green financing programs, savings-based financial services, microinsurance programs, climate-smart loans and classic microcredit. The package of funding options combined with continued and growing environmental uncertainties, helps households to reduce climate risks, improve livelihood security and progress towards sustainable development.



(Source: Compiled By Author**)**

The literature identifies several sustainable financing models through which Microfinance Institutions (MFIs) contribute to climate resilience, financial inclusion, and sustainable livelihood development among vulnerable communities.

Green Microcredit Financing

Green microcredit finance is provided for sustainable livelihood projects, water conservation, renewable energy and climate-smart agriculture. These loans facilitate low-income families to make investments that increase livelihood opportunities but also reduce climate risks. Agrawala and Carraro (2010) pointed out the importance of microfinance as a source of

funding regional climate adaption projects. Similarly, Ahmed, Diaz-Rainey and Roberts (2024) asserted that MFIs have begun adopting green lending more often to encourage green production methods and renewable energy technology.

Micro-Insurance Financing

Microinsurance is a vital risk management mechanism for securing the livelihoods of vulnerable households from climate shocks such as flood, drought, storm and crop losses. Insurance helps households retain financial stability and recover from unfavourable occurrences faster by lowering financial uncertainty and making up for losses. Based on the findings in the Ahmed et al. (2024) study, the researchers pointed out that index-based microinsurance is currently a prosperous innovation in the enhancement of climate adaptation and strengthening the resilience of the vulnerable population.

Climate Adaptation Credit

Climate adaptation credit provides targeted investment support to become more climate change resilient. The loans enable farmers and small-scale businessmen to invest on drought-resistant crops, improve irrigation systems and implement adaptive technology. These actions mitigate exposures and enhance production under the new climate conditions. Adaptation financing was identified as important to bolster resiliency for climate vulnerable communities and a significant correlation with the need for credit was found by Abraham and Fonta (2018).

Blended Finance Model

The blended finance model brings about funds for climate related projects using a mix of government finance, donor support, concessional loans, and private sector investment. This strategy enhances the amount of money available for adaptation and resilience-building initiatives by distributing risks across several stakeholders. Integrated Finance Systems can support vulnerable communities to adapt to climate change whilst also attracting private investment, according to Gopal et al. (2026).

Digital Financial Services (FinTech-Based Finance)

The delivery of financial services has greatly improved as a result of the increasing use of digital technologies. Mobile banking, digital payment systems, blockchain applications and crowdfunding platforms all enable synergy to execute and enhance the reach and effectiveness of operations by MFIs. The merger of FinTech and microfinance has enhanced resource mobilisation, financial inclusion, and investment to support the implementation of climatic resilient activities particularly in disadvantaged areas, according to Alam et al. (2025).

Islamic Social Finance and Microfinance

Islamic social finance is now an acceptable alternative way of providing financing to the climate changes vulnerable population. Poorly managed microfinance programs are utilizing innovative financial products such as Zakat, Waqf and Sadaqah to provide a moral and inclusive financial assistance. In the context of sustainable livelihood, Alam et al. (2025) argue that Islamic social finance aids the sustainable livelihoods of underprivileged communities and renders them climate resilient in line with the objective of social justice.

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Ecosystem-Based Adaptation (EbA) Financing

Ecosystem-based adaptation financing is targeted towards investments towards environmental sustainability and reducing climate change vulnerabilities. Like agroforestry, biodiversity conservation, sustainable land management, and other initiatives are encouraged by MFIs through this financing system. Dorfleitner et al. (2025) find that ecosystem-based adaptation programs offer the possibility of making borrowers more climate hazard-appropriate and, at the same time, curbing and protecting the environment.

Community-Based Financing Model

Community-based financing in particular savings-led strategies helps low income households build financial resilience, through consistent savings accumulation. These savings also reduce the amount of debt with external creditors and serve as a buffer in the event of a crisis. Savings products are also useful for saving for adaptation investments and increase long-term financial planning. Climate volatility often exacerbates household debts as asserted by Kandikuppa and Grey (2022) and savings practices play an essential role in enhancing financially disadvantaged rural households' financial resilience.

From a broader perspective, the literature posits that sustainable financing models introduced by MFIs are important to mitigate climate risks, adequately diversify livelihoods and enhance resilience of marginalized communities. Even though they have become more central in importance, they are facing obstacles like limited outreach, limited funding and credit risks related to climatic changes impacting effectiveness and scale.

- **Challenges in the Implementation of Climate-Resilient Microfinance Programs**

However, a number of institutional, financial, technological and socioeconomic factors constrain the effectiveness of climate-resilient microfinance programs for supporting vulnerable rural families. The frequency and severity of extreme weather events have increased due to climate change, putting microfinance institutions (MFIs) and their borrowers at greater danger. According to recent research, climate risks like droughts, floods, and storms have a negative impact on MFIs' financial performance by raising loan defaults, decreasing liquidity, and degrading portfolio quality (Ahmed et al., 2024). Likewise, MFIs are hesitant to continue their climate focused financing programmes because of the significant credit risks that agricultural borrowers are exposed to as a result of their climate sensitivity (Dorfleitner et al., 2025).

Financial resources and finance are also key challenges as they are not available in sufficient amounts or quality for adaptation. Despite the increased attention that climate finance has received worldwide, many MFIs in rural areas still lack access to long term, reasonably priced capital. Besides, the effectiveness of the microfinance interventions is hampered due to low financial literacy among rural households, deficient understanding of climate adaptation strategies and weak adoption of climate smart technologies among rural households. The increasing temperature and climate uncertainty have also been linked to increased rural indebtedness in India, with a particular focus on semi-arid regions and those at risk of drought (Kandikuppa & Grey, 2022).

Poor institutional capacity, limited insurance protection, a lack of mechanisms for assessing climate risk, lack of digital infrastructure, and lack of coordination between

governments, financial institutions, and development organizations also hinder the successful implementation of climate-resilient microfinance programs. Thus, the effectiveness and sustainability of climate resilient MF in India can be achieved by addressing the issues through governmental intervention, technical innovation, financial inclusion and capacity building initiatives.

Conclusion

Climate change is one of the most pressing problems of rural India, predominantly facing low-income rural people, whose livelihoods are dependent on agriculture and natural resources. Abilene is facing challenges for sustainable rural development due to intensified events like droughts, floods, heat waves and irregular and unpredictable rainfalls, leading to growing socioeconomic vulnerabilities. In this regard, the current study looked at the function of climate-resilient microfinance, identified the sustainable financing models that Microfinance Institutions (MFIs) have embraced, and evaluated the main obstacles to their application.

The study's findings indicate the importance of climate-resilient MFIs for enhancing the adaptation capacity of rural households who are vulnerable. MFIs assist households in managing climate-related risks, diversifying their sources of income, and bolstering their financial security by giving them access to financial services like green microcredit, microinsurance, climate adaptation loans, digital financial services, and community-based financing mechanisms. These 'climate-smart' financing mechanisms not only include measures focused on financial inclusion but also those that can facilitate climate-smart behaviour that can favour long-term livelihood sustainability. However, a variety of challenges limit the effectiveness and development of climate-resilient MFIs.

Lack of policies and methods to assess climate risk, lack of technology infrastructure and of financial and climate awareness, financial constraints, and institutional weaknesses remain significant problems. These are especially detrimental to the financial sustainability and reach of climate-related finance solutions in remote and under-resourced rural communities. Coordinated action of the local communities, financial institutions, development groups and legislators is required to get rid of such constraints. The effectiveness and accessibility of microfinance can be improved by providing more resources for capacity development programs, digital infrastructure, financial products and climate related financing. Moreover, the coping capacity of vulnerable peoples could be strengthened by strengthening institutions and integrating climate adaptation into financial services.

Thus, as a final point, it could be observed that climate resilient microfinance is one of the important ways that can promote sustainable development in rural India. It can play a major role in building resilient rural communities, increasing financial inclusion, implementing adaptive livelihoods and reducing vulnerabilities related to climate change. To make these financial systems work for equitable growth and building the capacity of the rural household to address the rising issues of climate change, it will be critical that they will be strengthened and expanded.

Reference

Abraham, T. W., & Fonta, W. M. (2018). Climate change and financing adaptation by farmers in northern Nigeria. *Financial Innovation, 4*(1), 11. https://doi.org/10.1186/s40854-018-0094-0

Ahmed, I., Diaz-Rainey, I., & Roberts, H. (2024). *Performance and climate risk in microfinance institutions*. SSRN. https://doi.org/10.2139/ssrn.4967514

Alamm, M. S., Zahid, Z., Naher Nipa, N., & Khalil, I. (2025). Harnessing FinTech and Islamic finance for climate resilience: A sustainable future through Islamic social finance and microfinance. *Humanities and Social Sciences, 13*(3), 207–218. https://doi.org/10.11648/j.hss.20251303.12

Ali, M. A., & Kamraju, M. (2025). Financial imperatives and innovations for climate resilience. In *Global climate governance: Strategies for effective management* (pp. 89–122). Springer Nature Singapore.

Agrawala, S., & Carraro, M. (2010). *Assessing the role of microfinance in fostering adaptation to climate change* (OECD Environment Working Papers No. 15). OECD Publishing. https://doi.org/10.1787/5kmlcz34fg9v-en

Bandyopadhyay, N., Ray, I. D., & Jaiswal, P. (2026). Gender-specific climate finance in India: Bridging gaps and exploring future scope. In *Gender, climate change and disaster resilience: An Asia-Pacific perspective* (pp. 119–134)

Carter, M. R., Little, P. D., Mogues, T., & Negatu, W. (2007). Poverty traps and natural disasters in Ethiopia and Honduras. *World Development, 35*(5), 835–856. https://doi.org/10.1016/j.worlddev.2006.09.010

Chhetri, S. (2025). Financing climate resilience: NABARD's role in sustainable rural development in India. *International Journal for Multidisciplinary Research, 7*(3). https://doi.org/10.36948/ijfmr.2025.v07i03.46815

Dey, A., Gupta, A. K., & Singh, G. (2019). Innovation, investment and enterprise: Climate resilient entrepreneurial pathways for overcoming poverty. *Agricultural Systems, 172*, 83–90. https://doi.org/10.1016/j.agsy.2019.02.008

Dorfleitner, G., Forcella, D., & Gerckens, A. (2025). Climate change in microcredit portfolios: Evidence on vulnerability, adaptation and implications for inclusive finance. *Business Strategy and the Environment, 34*(4), 4409–4435.

Field, E., Pande, R., Papp, J., & Rigol, N. (2013). Does the classic microfinance model discourage entrepreneurship among the poor? Experimental evidence from India. *American Economic Review, 103*(6), 2196–2226. https://doi.org/10.1257/aer.103.6.2196

Field, E., Pande, R., Papp, J., & Rigol, N. (2013). Does the classic microfinance model discourage entrepreneurship among the poor? Experimental evidence from India. *American Economic Review*, *103*(6), 2196–2226. https://doi.org/10.1257/aer.103.6.2196

Gopal, N., Anakha, K. S., Abhishek, K. H., Geethalakshmi, V., De Silva, D. A. M., Sajeev, M. V., Senevirathne, S., Bandara, R., & Bindu, J. (2026). Climate finance to address climate vulnerability and increase resilience: A review. *Fishery Technology*, *63*(1), 42–57. https://doi.org/10.56093/ft.v63i1.168828

Hussain, A. B., Islam, M., Ahmed, K. J., Haq, S. M. A., & Islam, M. N. (2021). Financial inclusion, financial resilience, and climate change resilience. In W. Leal Filho (Ed.), *Handbook of climate change management: Research, leadership, transformation* (pp. 2085–2107). Springer International Publishing.

Kandikuppa, S., & Gray, C. (2022). Climate change and household debt in rural India. *Climatic Change*, *173*(3–4), Article 20. https://doi.org/10.1007/s10584-022-03407-x

Kaur, K., Kaur, J., & Singh, R. (2023). Climate resilient agriculture. In K. Sood, S. Grima, P. Young, E. Ozen, & B. Balusamy (Eds.), *The impact of climate change and sustainability standards on the insurance market*. Wiley. https://doi.org/10.1002/9781394167944.ch7

Narayan, M., Kumar, N., Parida, V. K., & Kumari, P. (2025). Sustainable finance in emerging markets: Adaptive governance and environmental, social, and governance innovation for equitable climate resilience. *Development and Sustainability in Economics and Finance*, Article 100101.

Shammin, M. R., Haque, A. E., & Faisal, I. M. (2021). A framework for climate resilient community-based adaptation. In *Climate change and community resilience: Insights from South Asia* (pp. 11–30). Springer Nature Singapore.

Shanta, S. A., Islam, M. S., & Ghosh, B. C. (2025). Bridging financial gaps to enhance climate resilience and agricultural productivity of smallholder farmers in Northwestern Bangladesh. *Discover Sustainability*.

Suarez, P., Ching, F., Ziervogel, G., Lemaire, I., Turnquest, D., de Suarez, J. M., & Wisner, B. (2008). *Video-mediated approaches for community-level climate adaptation*. *IDS Bulletin*, *39*(4), 96–104. https://doi.org/10.1111/j.1759-5436.2008.tb00482.x

Tàbara, J. D., Takama, T., Mishra, M., Hermanus, L., Andrew, S. K., Diaz, P., Ziervogel, G., & Lemkow, L. (2020). *Micro-solutions to global problems: Understanding social processes to eradicate energy poverty and build climate-resilient livelihoods*. *Climatic Change*, *160*(4), 711–725. https://doi.org/10.1007/s10584-019-02448-z

Yang, S., Zou, K., Lei, T., Ni, Z., & Yang, J. (2022). Climate change and farmers' household financial vulnerability: Evidence from China. *Frontiers in Environmental Science*, *10*, 908428. https://doi.org/10.3389/fenvs.2022.908428