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<https://doi.org/10.5281/zenodo.22110436>**A Gender-Responsive Framework for Climate Mobility and Flood Resilience in Pakistan****Iqra Rehman (Corresponding Author)**

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iqrarehman3716@gmail.com**Abstract**

Floods in Pakistan increasingly interact with preexisting gender inequalities, shaping women's mobility, livelihoods, safety, access to resources, and recovery opportunities. This study develops a Gender-Responsive Climate Mobility and Flood Resilience Framework for Pakistan through a structured integrative review of evidence published between 2010 and 2026, complemented by an analysis of relevant national policy documents. Peer-reviewed studies and selected institutional reports were examined to identify recurring patterns in gendered vulnerability, displacement, adaptation, livelihood recovery, and community resilience. The findings indicate that women's experiences of flooding are strongly influenced by preexisting poverty, limited access to land and financial resources, care giving responsibilities, restricted decision-making power, protection risks, and unequal access to early-warning systems and essential services. However, the evidence also demonstrates women's adaptive capacity through local knowledge, livelihood diversification, community participation, and collective coping strategies. The policy analysis indicates that Pakistan's climate and disaster governance frameworks increasingly recognize gender inclusion and women's participation; however, the integration of gender considerations across preparedness, mobility, displacement, recovery, and long-term adaptation remains uneven. Based on these findings, the proposed framework connects preexisting gendered vulnerability with preparedness, early warning, safe mobility, protection during displacement, livelihood recovery, and long-term adaptation and resilience. The framework provides an integrated basis for understanding and addressing the gendered dimensions of climate-related mobility and flood resilience in Pakistan.

Keywords: Gender-Responsive Climate Mobility; Flood Resilience; Gendered Vulnerability; Climate Adaptation; Pakistan

1. Introduction

Pakistan is highly exposed to recurrent floods, and the consequences of these events extend far beyond physical damage to homes, infrastructure, and agricultural land. Floods disrupt livelihoods, displace households, interrupt access to services, and create long-term recovery challenges. However, these impacts are not experienced equally. Gender, poverty, access to resources, household roles, and institutional support influence how individuals prepare for floods, whether they can evacuate safely, how they experience displacement, and how quickly they can recover (Rana et al., 2023; Waseem & Rana, 2023).

Women and girls can face distinctive constraints during flood emergencies because of unequal access to information, mobility, land, credit, employment, and decision-making. Caregiving responsibilities may also increase during crises, while displacement can create additional concerns related to privacy, sanitation, health, and gender-based violence. At the same time, evidence from Pakistan shows that women are not passive victims of disaster. They contribute to household survival, livelihood diversification, local preparedness, social support, and

community resilience. A gender-responsive approach must therefore recognize both vulnerability and agency (Nosheen et al., 2023; Ullah et al., 2024; Uzair et al., 2026).

Climate mobility provides an important lens through which these issues can be connected. In this study, climate mobility includes evacuation, temporary displacement, migration, staying in place, return, and relocation following flood events. Mobility is not treated automatically as successful adaptation. A household may leave a hazardous area and still face food insecurity, unsafe shelter, loss of income, or limited access to services. Conversely, some women may remain in flood-affected locations because of caregiving responsibilities, resource limitations, or household decision-making structures. These patterns show that mobility and immobility are both socially and gendered processes (Feroz et al., 2022; Khalid et al., 2024).

Existing research in Pakistan has examined several parts of this problem. Studies have explored multidimensional poverty and flood vulnerability, women's economic and agricultural losses, gender-based violence, climate-induced displacement, early-warning gaps and community resilience. Yet these areas are often studied separately. There is less integration between evidence on gendered vulnerability, mobility, protection, recovery, and long-term resilience (Waseem & Rana, 2023).

This study addresses that gap by synthesizing Pakistan-focused evidence published between 2010 and 2026 and comparing the findings with relevant national climate and disaster-management policies. It then develops a Gender-Responsive Climate Mobility and Flood Resilience Framework that treats resilience as a continuous pathway from pre-flood vulnerability and preparedness through evacuation, displacement, recovery and long-term adaptation.

The study is particularly relevant because Pakistan's policy environment has increasingly incorporated gender, social inclusion, early warning, disaster-risk reduction and climate adaptation. Yet formal recognition does not necessarily mean that these commitments are experienced consistently at community level. Examining the relationship between published evidence and policy therefore helps identify where existing approaches are strong and where practical gaps remain. The study ultimately seeks to identify the conditions, resources and institutional arrangements needed to support safer mobility, stronger recovery and more inclusive flood resilience (Government of Pakistan, 2021, 2022, 2023; IUCN Pakistan, 2022; National Disaster Management Authority, 2026).

2. Historical Background

Flooding has long been one of Pakistan's most consequential climate-related hazards, but the period from 2010 onward is especially important for understanding the contemporary relationship between disaster risk, displacement and resilience. The 2010 floods stimulated a substantial expansion of research on flood vulnerability, preparedness, livelihoods and disaster governance. Waseem and Rana (2023), in their review of Pakistan's flood literature, show that themes such as social vulnerability, gender, food security, risk perception and resilience became increasingly visible within national research during this period. The disaster also reinforced concerns about whether flood-risk management was sufficiently connected to local vulnerability, poverty and community capacity.

The following decade saw repeated flood events across different provinces, including riverine flooding, flash floods and glacial lake outburst floods. These events highlighted the diversity of flood risk across Pakistan. Research increasingly demonstrated that the effects of floods could not be explained solely through physical exposure. Poverty, livelihood insecurity, unequal access to resources and institutional capacity also shaped disaster outcomes.

Evidence from communities in Khyber Pakhtunkhwa, Punjab and northern Pakistan gradually strengthened the gender dimension of this discussion. Research identified differences in

preparedness, economic vulnerability, mobility, safety, access to relief and recovery opportunities. In mountain communities such as Hassanabad in Hunza, women demonstrated hazard awareness and community preparedness capacity, while institutional participation remained more limited (Khalid et al., 2021). In D.G. Khan, research similarly highlighted social and psychological dimensions of women's flood vulnerability (Feroz et al., 2022).

The 2022 floods intensified attention to these issues. Subsequent research documented displacement, livelihood destruction, housing loss, food insecurity and pressure on basic services. Studies from Nowshera, Rajanpur and Rahim Yar Khan showed that women's experiences of flooding were closely connected to economic insecurity, care giving burdens, protection concerns, mobility constraints and unequal access to recovery resources. Abbas et al. (2024) further illustrated how floods interacted with preexisting displacement among Afghan refugees.

Policy development also evolved during this period. The National Climate Change Policy (Government of Pakistan, 2021) strengthened attention to gender-responsive climate action, while the Climate Change Gender Action Plan (IUCN Pakistan, 2022) and National Adaptation Plan (Government of Pakistan, 2023) further emphasized social inclusion, adaptation and disaster-risk reduction. The post-2022 Resilient Recovery, Rehabilitation and Reconstruction Framework (Government of Pakistan, 2022) also increased attention to resilient reconstruction and vulnerable populations.

The period from 2010 to 2026 therefore demonstrates substantial learning but also continuing fragmentation. Vulnerability, mobility, protection, livelihoods and adaptation have often been addressed through separate research and policy processes. This historical trajectory provides the basis for developing an integrated framework connecting gendered vulnerability before floods with mobility, displacement, livelihood recovery and longer-term resilience.

3. Research Questions

1. How does gender shape flood-related mobility and recovery in Pakistan?
2. What factors support or limit women's adaptation and resilience in flood-affected communities?
3. How do existing Pakistani policies address these gendered needs, and what should a gender-responsive climate mobility and resilience framework for Pakistan include?

4. Research Objectives

1. To critically synthesise existing evidence on the gendered dimensions of flood-related vulnerability, climate mobility, displacement, livelihood disruption, and recovery in Pakistan.
2. To examine the social, economic, institutional, and policy factors that shape women's capacity to prepare for, respond to, adapt to, and recover from flood-related displacement and climate risks.
3. To analyse relevant national policies and institutional frameworks in Pakistan and assess the extent to which they address gender-specific needs related to climate mobility, disaster preparedness, protection, livelihood recovery, and long-term resilience.
4. To develop an evidence-informed Gender-Responsive Climate Mobility and Flood Resilience Framework for Pakistan that integrates gender-sensitive preparedness, safe mobility, protection, livelihood recovery, adaptation, and women's participation in decision-making.

5. Significance of the Study

This study is significant because it brings together three areas that are often treated separately in Pakistan's flood literature: gender, climate mobility and resilience. Existing research has

documented women's economic vulnerability, livelihood losses, displacement, protection risks, limited access to resources and under representation in decision-making. However, these findings remain dispersed across different disciplines and locations. By synthesizing them within a single analytical structure, this study provides a clearer explanation of how gender shapes the complete flood-resilience pathway (Khalid et al., 2024; Nosheen et al., 2023; Ullah et al., 2024; Uzair et al., 2026).

The study is also important for policy. Pakistan has increasingly incorporated gender and social inclusion into climate adaptation and disaster-management frameworks, but evidence from flood-affected communities continues to identify gaps in early warning, evacuation, protection, livelihood recovery and meaningful participation. Comparing empirical findings with policy commitments can therefore highlight where implementation and coordination require strengthening (Government of Pakistan, 2021, 2023; IUCN Pakistan, 2022; National Disaster Management Authority, 2026).

A further contribution is the proposed Gender-Responsive Climate Mobility and Flood Resilience Framework. Rather than treating mobility simply as evacuation or displacement, the framework connects preparedness, movement, protection, recovery and long-term adaptation. It also recognizes women as both people who may experience structural disadvantage and active contributors to resilience through local knowledge, care giving, livelihood strategies and community networks.

The study also demonstrates the usefulness of integrating peer-reviewed research with selected institutional evidence when analyzing climate mobility. Its broader contribution lies in shifting the question from whether women are vulnerable to how gendered constraints can be reduced while existing adaptive capacities are strengthened. The framework may therefore support future research, policy discussion and more inclusive disaster preparedness and recovery planning in Pakistan.

6. Literature Review

Research on flooding in Pakistan increasingly demonstrates that disaster vulnerability is shaped by social and economic conditions rather than physical exposure alone. Waseem and Rana (2023), reviewing 601 Pakistan-focused flood studies, identified social vulnerability, gender, livelihoods, food security, risk perception and resilience as major themes, while also highlighting continuing socioeconomic and institutional barriers to effective flood-risk reduction.

This broader perspective is supported by Rana et al. (2023), who examined 452 households in Charsadda and Nowshera and identified a significant relationship between multidimensional poverty and climate vulnerability. Education, health, financial assets, natural resources and livelihood security influenced the capacity of communities to withstand and recover from flooding. However, the heavy representation of male respondents also illustrates how household-level studies may insufficiently capture women's direct experiences.

Gender-specific studies provide a clearer picture of these structural inequalities. Nosheen et al. (2023) found that women experience climate-related pressures through agricultural livelihood disruption, food and water insecurity, health risks, limited mobility and restricted participation in climate decision-making. Similarly, Uzair et al. (2026), examining communities in Rajanpur, identified significant gender differences in economic and agricultural vulnerability. Women faced weaker access to land, credit and agricultural inputs while simultaneously carrying greater unpaid care and rehabilitation burdens.

Mobility and displacement introduce additional vulnerabilities. Khalid et al. (2024), studying 826 climate-induced migrants in Rahim Yar Khan, found that floods were the dominant cause of reported displacement and that households experienced substantial livelihood and wealth losses

following movement. Women faced particular challenges relating to food insecurity, sanitation, menstrual hygiene and safe water. This evidence demonstrates that leaving a hazardous location does not necessarily constitute successful adaptation.

The gendered nature of mobility is also visible in preparedness and evacuation. Khalid et al. (2021), studying the Shishper GLOF in Hunza, found that women possessed hazard knowledge and were willing to participate in disaster mitigation, although their participation was inadequately incorporated into formal institutional arrangements. Feroz et al. (2022) similarly reported social and psychological vulnerability among women in D.G. Khan, including dependence on male relatives and concerns relating to safety during emergencies. These findings demonstrate that access to information, social norms and household authority influence the capacity to act on flood warnings.

Protection during displacement is another recurring concern. Ullah et al. (2024) linked displacement in Snowshed with economic hardship, overcrowded relief environments, healthcare limitations and gender-based violence. Lemon's (2025) systematic review similarly identified displacement, infrastructure loss, resource scarcity and harmful gender norms as mechanisms connecting extreme weather with violence against women and girls.

Comparative evidence from Bangladesh also demonstrates how unsafe shelters, inadequate privacy, sanitation problems and care giving responsibilities may influence evacuation decisions (Fatema et al., 2023). Although these findings cannot be treated as direct evidence about Pakistan, they help contextualize the mechanisms through which gender may shape disaster mobility.

Internationalist also requires consideration. Abbas et al. (2024) demonstrate how the 2022 floods compounded vulnerability among Afghan refugees through housing loss, livelihood disruption and psychological stress. Their study also highlights a methodological problem: cultural barriers prevented direct female interviews despite women being included in the intended sample.

Importantly, the literature does not portray women solely as victims. Women contribute to resilience through care giving, livelihood diversification, local knowledge, social networks and community participation. Abdul Rahman et al. (2026) identify physical, social, psychological, economic and environmental dimensions of women's flood vulnerability while simultaneously emphasizing adaptive capacity.

Overall, the literature indicates a pathway from pre-existing inequality to preparedness, mobility, displacement, protection, recovery and adaptation. However, these stages are rarely examined together, creating the need for an integrated gender-responsive framework.

7. Literature Gap

The literature demonstrates substantial knowledge concerning flood vulnerability, gender inequality, displacement, livelihoods and adaptation in Pakistan, but three important gaps remain.

First, these issues are commonly examined separately. Studies of poverty and vulnerability rarely trace how gender subsequently shapes evacuation and displacement, while mobility studies often provide less attention to long-term livelihood recovery and adaptation.

Second, the relationship between mobility and resilience remains insufficiently integrated. Evacuation, migration and displacement are frequently treated as outcomes of flooding, whereas resilience is discussed through household resources, coping capacity or institutional preparedness. Yet the evidence suggests that the ability to move, remain safely displaced, return, relocate and rebuild livelihoods is itself shaped by gendered access to resources and decision-making.

Third, the evidence base is geographically and methodologically uneven. Some districts and provinces are better represented than others, and women remain underrepresented in several studies.

Consequently, existing research does not yet provide a single Pakistan-specific framework connecting gendered vulnerability, climate mobility, protection, recovery and institutional support. This study addresses this gap by synthesizing these dimensions and translating them into an evidence-informed framework for action.

8. Theoretical Framework

This study integrates Social Vulnerability Theory, Adaptive Capacity, and a gender-internationalist perspective. Social vulnerability approaches explain disaster impacts as outcomes of underlying social, economic and institutional conditions rather than hazard exposure alone. Cutter et al. (2003) show that socioeconomic status, demographic characteristics, access to resources and characteristics of place can produce differentiated vulnerability, while Adger (2006) conceptualizes vulnerability as susceptibility to harm combined with limited capacity to cope, recover and adapt. In this study, these ideas provide the basis for examining how poverty, livelihood insecurity, unequal asset ownership and weak access to services shape flood risk before displacement occurs.

The adaptive-capacity perspective complements social vulnerability by focusing on the resources and capabilities that enable households and communities to anticipate, respond to and adjust to environmental change. Smit and Wandel (2006) emphasize that adaptive capacity is context-specific and is influenced by access to assets, knowledge, institutions, social networks and opportunities. This perspective is directly connected to the framework stages concerned with preparedness, access to warnings, mobility decisions, livelihood recovery and longer-term resilience.

A gender and internationalist perspective explains why vulnerability and adaptive capacity are not distributed evenly among women or between women and men. Crenshaw (1989) established internationalist as an approach for understanding how overlapping social positions can produce distinctive forms of disadvantage. In climate-change research, Djibouti et al. (2016) caution against reducing gender analysis to a simple women-versus-men binary and argue that gender interacts with class, livelihood, age, power and other social relations to shape vulnerability and adaptation. This is particularly relevant to flood-affected women, female-headed households, low-income agricultural communities and already displaced populations in Pakistan.

Together, these perspectives underpin the proposed framework: social vulnerability explains unequal starting conditions; adaptive capacity explains the ability to prepare, move, cope, recover and adapt; and gender/internationalist explains why these capacities vary across people and places (Adger, 2006; Crenshaw, 1989; Cutter et al., 2003; Djoudi et al., 2016; Smit & Wandel, 2006).

9. Research Methodology

This study employed a structured integrative review combined with policy analysis and framework development. The review was designed to bring together heterogeneous evidence from qualitative, quantitative and mixed-methods studies rather than to estimate a pooled effect size. Literature was identified primarily through Google Scholar, while Consensus was used as a supplementary research-discovery tool. Reference lists of highly relevant studies and reviews were also screened manually. Scopes and Web of Science were not searched; therefore, the study is not presented as an exhaustive systematic review.

The review covered evidence published between 2010 and 2026. Search combinations were developed around four concepts: flooding, gender, mobility and resilience. Records were

screened sequentially by title, abstract and full text. Studies were included when they focused on Pakistan, examined floods or climate-related flooding, and provided evidence relevant to gender, women, displacement, mobility, vulnerability, recovery, adaptation or resilience. International studies were retained only where they provided directly relevant comparative or conceptual support. Studies dealing solely with hydro logical modelling, engineering or physical flood processes without a meaningful social or gender dimension were excluded, as were duplicates and publications lacking sufficient relevance or methodological detail.

The final evidence synthesis comprised 12 sources: 11 academic articles/reviews and one institutional research report. Of these, nine provided Pakistan-specific evidence, while three were retained for comparative or conceptual support. Five national policy and institutional documents were analysed separately. Data were extracted on location, design, sample, gender findings, mobility, livelihoods, protection, adaptation, institutional issues and study limitations. Findings were coded thematically, compared with policy commitments, and then mapped to proposed framework components.

Search Strategy and Eligibility Criteria

Table 1. Search strategy and eligibility criteria

Element	Applied approach
Primary search platform	Google Scholar
Supplementary discovery tool	Consensus
Additional search method	Reference-list screening
Publication period	2010–2026
Search string 1	("flood" OR "flooding") AND ("women" OR "gender") AND Pakistan
Search string 2	(flood* OR flooding) AND (gender OR women OR female*) AND (displacement OR mobility OR migration OR evacuation) AND Pakistan
Search string 3	(flood* OR flooding) AND (gender OR women OR female*) AND (adaptation OR resilience OR recovery OR vulnerability) AND Pakistan
Inclusion criteria	Pakistan-focused evidence; floods/climate-related flooding; gender/women; mobility, displacement, vulnerability, recovery, adaptation or resilience; 2010–2026; English-language academic studies and selected high-quality institutional evidence
Exclusion criteria	Pure hydrology/engineering or physical flood modelling without a social/gender dimension; duplicates; insufficiently relevant or methodologically unclear studies; non-Pakistan studies except limited conceptual/comparative evidence
Final evidence set	12 sources
Pakistan-specific evidence	9 sources
Comparative/conceptual evidence	3 sources
Policy documents analysed separately	5 documents

Search Strategy and Eligibility Criteria

The literature search was designed to identify Pakistan-focused evidence examining the relationship between gender, flooding, climate mobility and resilience. Google Scholar was used

as the primary search platform because of its broad coverage of multidisciplinary academic literature, while Consensus was used as a supplementary discovery tool. Reference-list screening was additionally conducted to identify relevant studies that may not have appeared through the primary keyword searches.

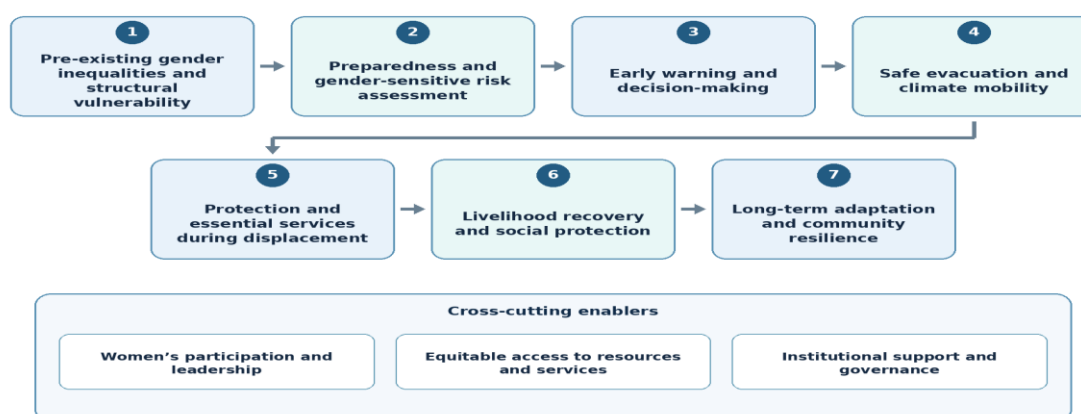
The search covered publications from 2010 to 2026, reflecting the period in which research on Pakistan's flood vulnerability, gender, displacement and climate resilience expanded substantially following the major 2010 floods. Three complementary search strings were used to capture different dimensions of the research question. The first focused broadly on flooding and gender; the second incorporated mobility-related concepts including displacement, migration and evacuation; and the third incorporated adaptation, resilience, recovery and vulnerability. Studies were considered eligible when they focused on Pakistan and addressed at least one relevant dimension of gendered flood vulnerability, mobility, displacement, recovery, adaptation or resilience. English-language academic studies and selected high-quality institutional evidence were included. Studies concerned exclusively with hydrology, engineering or physical flood modelling were excluded where they did not contain a relevant social or gender dimension. Duplicate, insufficiently relevant and methodologically unclear sources were also excluded. A small number of non-Pakistan studies were retained only where they provided relevant conceptual or comparative evidence that helped contextualize the Pakistan-focused findings. The final evidence base comprised 12 sources, including 9 Pakistan-specific studies and 3 comparative or conceptual sources. In addition, 5 policy documents were analysed separately to compare formal policy commitments with themes identified in the empirical literature. The policy documents were not counted as part of the 12-source empirical evidence set because they served a different analytical purpose.

Because the initial number of search results and title/abstract exclusions was not recorded prospectively, this study does not present a retrospective PRISMA-style screening flow or invent numerical screening counts. Instead, the study is explicitly presented as a structured integrative review. This approach allows the available evidence to be thematically synthesised while maintaining transparency about the limitations of the search and screening process.

10. Figure and Framework Evidence Mapping

Gender-Responsive Climate Mobility and Flood Resilience Framework for Pakistan

Evidence-informed pathway from vulnerability to resilience



Gender shapes every stage; the pathway is analytical rather than strictly linear.

Figure 1. Gender-Responsive Climate Mobility and Flood Resilience Framework for Pakistan.

Source: Author's own synthesis based on the evidence review and policy analysis.

The framework follows the pathway:

Pre-existing gender inequality → preparedness → early warning and decision-making → safe evacuation and climate mobility → protection during displacement → livelihood recovery → long-term adaptation and resilience with women's participation and leadership, equitable access to resources and services, and institutional support and governance operating across all stages. The mobility stage is operational as evacuation decision-making, mobility support, temporary displacement and safe movement. Return and relocation are treated as conditional elements of longer-term adaptation rather than separate stages because direct Pakistan-specific empirical evidence on these outcomes was more limited. Although the framework is presented sequentially for analytical clarity, it should not be interpreted as a strictly linear pathway. Vulnerability, mobility, recovery and adaptive capacity can interact recursively across disaster phases, and institutional conditions can influence several stages simultaneously.

Evidence Mapping of Framework Components

Table 2. Evidence mapping of framework components

Framework Component	Empirical Evidence from Reviewed Studies	Policy Reinforcement	Decision / Justification
1. Pre-existing gender inequalities & structural vulnerability	Abdul Rahman et al. (2026); Nosheen et al. (2023); Rana et al. (2023); Uzair et al. (2026)	Government of Pakistan (2021, 2023)	Keep. Poverty and unequal access to land, assets, credit, education and services shape vulnerability before floods.
2. Preparedness & gender-sensitive risk assessment	Feroz et al. (2022); Khalid et al. (2021); Waseem & Rana (2023)	Government of Pakistan (2021, 2023)	Keep. Awareness, preparedness, local knowledge and participation influence flood response capacity.
3. Early warning & decision-making	Khalid et al. (2021, 2024); Nosheen et al. (2023)	Government of Pakistan (2023); NDMA (2026)	Keep. Access to information and participation in decisions support timely protective action.
4. Safe evacuation & climate mobility	Feroz et al. (2022); Khalid et al. (2021, 2024)	Government of Pakistan (2023); NDMA (2026)	Keep with cautious wording. Evidence supports safe movement, evacuation and temporary displacement.
5. Protection & essential services during displacement	Abdul Rahman et al. (2026); Fatema et al. (2023); Khalid et al. (2024); Ullah et al. (2024)	Government of Pakistan (2023); IUCN Pakistan (2022); NDMA (2026)	Keep – strongly supported. Shelter, privacy, healthcare, WASH, food security and GBV protection are recurring concerns.
6. Livelihood recovery & social protection	Abbas et al. (2024); Khalid et al. (2024); Nosheen et al. (2023); Uzair et al. (2026)	Government of Pakistan (2022); NDMA (2026)	Keep. Income, agricultural assets, credit and social protection are important for recovery.

7. Long-term adaptation & community resilience	Abdul Rahman et al. (2026); Khalid et al. (2021); Nosheen et al. (2023); Waseem & Rana (2023)	Government of Pakistan (2021, 2023)	Keep. Local knowledge, participation, livelihood diversification and institutional learning support resilience.
Cross-cutting: Women's participation & leadership	Khalid et al. (2021); Nosheen et al. (2023); Ullah et al. (2024)	Government of Pakistan (2021, 2023); IUCN Pakistan (2022); NDMA (2026)	Keep. Women's participation is relevant across preparedness, response and recovery.
Cross-cutting: Access to resources & services	Khalid et al. (2024); Rana et al. (2023); Uzair et al. (2026)	Government of Pakistan (2021, 2022); NDMA (2026)	Keep. Resource access influences vulnerability, mobility, protection and recovery.

The framework was therefore constructed through evidence mapping rather than imposed a priori. Each stage corresponds to recurrent findings in the reviewed evidence, while policy analysis was used to identify whether those needs were already recognised institutionally and where implementation questions remain. Components with weaker direct empirical support, particularly return and relocation, are retained only as conditional aspects of longer-term adaptation rather than as independent framework stages.

11. Discussion and Analysis

11.1 Policy Commitment-Evidence Gap Analysis

Pakistan's climate and disaster-policy architecture has increasingly incorporated gender equality, social inclusion, climate adaptation and disaster resilience. The National Climate Change Policy 2021 explicitly recognizes gender-sensitive climate action, including gender analysis in project and programme planning and gender-responsive budgeting and resource allocation. The policy framework also acknowledges that women may experience climate impacts differently because of unequal access to decision-making and economic resources. The Climate Change Gender Action Plan (ccGAP), launched in 2022 by the Government of Pakistan and IUCN Pakistan, further established a gender-responsive road map covering six priority sectors, including disaster-risk reduction, agriculture and food security, water and sanitation, forests and biodiversity, integrated coastal management, and energy and transport.

The reviewed empirical literature, however, indicates that the existence of policy commitments does not necessarily guarantee their consistent translation into local-level outcomes. This study therefore does not classify policies as successful or unsuccessful. Instead, it compares stated policy commitments with recurring issues identified in Pakistan-focused research. Where empirical studies continue to document barriers corresponding to areas already recognized in national policy, these findings are interpreted as possible policy-to-practice or implementation gaps rather than as direct evidence of policy failure.

The first area concerns gendered structural vulnerability and access to resources. Pakistan's National Climate Change Policy recognises the importance of gender-sensitive planning and resource allocation. However, the reviewed literature identifies continuing inequalities in women's access to land, agricultural resources, credit, livelihoods, information and decision-making. Studies by Nosheen et al. (2023), Rana et al. (2023) and Uzair et al. (2026) indicate that

socioeconomic disadvantage can increase women's exposure to flood impacts and constrain their capacity to recover. This suggests that policy commitments to gender-responsive adaptation need to be accompanied by mechanisms that translate gender considerations into access to productive assets, financial resources and livelihood opportunities.

A second area is women's participation and leadership. The cc GAP was specifically designed to strengthen women's meaningful participation and influence in climate-related decision-making and implementation. It was developed through a participatory process involving government, civil society, academia, women's organizations and other stakeholders. The reviewed studies nevertheless show that women's participation in formal disaster and climate decision-making can remain limited, despite evidence of women's local knowledge and willingness to participate in preparedness and mitigation activities (Khalid et al., 2021; Nosheen et al., 2023). The evidence therefore points to a need to examine not only whether women are formally included, but also whether their participation has meaningful influence over preparedness, evacuation, recovery and adaptation decisions.

A third area concerns disaster preparedness, early warning and safe mobility. Pakistan's policy framework increasingly connects climate adaptation with disaster-risk reduction and community-level preparedness. The National Adaptation Plan (NAP), approved in 2023, is listed by the Ministry of Climate Change as a national policy instrument. The reviewed evidence indicates, however, that access to information, household decision-making, social norms and institutional arrangements can influence women's ability to respond to hazards and evacuate safely (Feroz et al., 2022; Khalid et al., 2021, 2024). This creates an important analytical distinction between the availability of an early-warning system and women's actual ability to receive, interpret and act upon warnings.

The fourth area is protection and essential services during displacement. The ccGAP explicitly includes disaster-risk reduction and water and sanitation among its priority sectors and highlights gender-specific vulnerabilities. The empirical evidence reviewed in this study identifies concerns involving shelter, sanitation, menstrual hygiene, healthcare, food security, protection and gender-based violence during displacement (Khalid et al., 2024; Ullah et al., 2024). These findings suggest that gender-responsive disaster planning needs to evaluate the quality and safety of displacement, rather than measuring success only by the number of people evacuated or relocated.

A fifth area is livelihood recovery and long-term resilience. Pakistan's broader climate-policy architecture increasingly links adaptation with livelihood protection and resilience. The ccGAP, for example, identifies agriculture and food security as a priority sector and emphasises gender-responsive climate action. Yet the reviewed literature shows that women can experience prolonged livelihood and asset losses after floods, particularly where they have limited access to land, credit, agricultural inputs and formal employment (Khalid et al., 2024; Uzair et al., 2026). This indicates that recovery policies should be assessed beyond immediate relief and reconstruction by considering whether women regain sustainable livelihood opportunities and productive resources.

Overall, the comparison suggests that Pakistan has developed a substantial policy basis for gender-responsive climate and disaster action, but the empirical literature continues to identify barriers in participation, resource access, preparedness, protection and livelihood recovery. The evidence should not be interpreted as demonstrating that national policies have failed. Rather, it highlights the importance of implementation mechanisms, local institutional capacity, monitoring and gender-disaggregated evidence. IUCN's provincial ccGAP initiatives themselves

emphasise the need to move from policy commitments towards implementation and to develop gender-responsive projects and local action.

Accordingly, the central policy issue identified by this study is not simply policy absence, but the translation of national commitments into consistent local practice. The proposed Gender-Responsive Climate Mobility and Flood Resilience Framework addresses this issue by connecting policy commitments with the stages through which households experience floods: pre-existing vulnerability, preparedness, early warning, mobility, protection during displacement, livelihood recovery and long-term adaptation. Future research should therefore assess these stages through province-specific and community-level evidence, allowing policymakers to determine where implementation is effective, where gaps persist, and which interventions most effectively strengthen women's resilience and agency.

Table 3. Policy commitment-evidence gap analysis

Policy / framework	Verified policy commitment	Evidence from the review
National Climate Change Policy (Government of Pakistan, 2021)	Calls for pro-poor gender-sensitive adaptation, gender-sensitive vulnerability indicators, and measures focused on women's needs, women's participation in climate decision-making, recognition of women's local/indigenous knowledge, and gender-responsive budgeting/resource allocation.	The reviewed evidence identifies continuing limitations in women's access to resources and participation in adaptation and mitigation decision-making, alongside institutional and socioeconomic gaps in flood-risk management (Nosheen et al., 2023; Waseem & Rana, 2023).
Climate Change Gender Action Plan (IUCN Pakistan, 2022)	Seeks to strengthen institutional processes and women's participation in climate decision-making and implementation across six priority areas, including disaster risk reduction, agriculture/food security, WASH and energy/transport.	Displacement-related evidence documents continuing problems involving food security, WASH, menstrual hygiene, access to support, protection and participation (Khalid et al., 2024; Ullah et al., 2024).
National Adaptation Plan (Government of Pakistan, 2023)	Treats gender, youth and social inclusion as a priority area; proposes gender- and socially-inclusive DRM capacity building, quotas for women in district/municipal DRM authorities, GBV reporting mechanisms, last-mile early-warning dissemination, and community participation in evacuation planning.	Pakistan-focused studies document barriers relevant to women's participation, mobility, protection and access to services (Khalid et al., 2021, 2024; Ullah et al., 2024).
Resilient Recovery, Rehabilitation and Reconstruction Framework (4RF) (Government of Pakistan, 2022)	Promotes community-driven and people-centred recovery, equality and opportunities for women and other vulnerable groups, and prioritises housing, agriculture and livelihoods within resilient reconstruction.	Post-flood studies show differentiated livelihood, food-security and resource-recovery challenges (Khalid et al., 2024; Uzair et al., 2026).
National Policy Guidelines on	Provides explicit guidance on women's participation and	The guidelines are newer than most empirical studies included

Vulnerable Groups in Disasters, Updated Version-2025 (National Disaster Management Authority, 2026)	leadership, targeted early-warning outreach, gender-responsive evacuation and shelter, women-only sanitation, GBV prevention/response, reproductive health and livelihood/economic support.	in this review, so the available evidence cannot be used to evaluate their implementation.
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Overall, the comparison indicates that Pakistan does not lack gender language in its climate and disaster-policy architecture. The more important question is whether commitments across climate adaptation, disaster response, social protection and livelihood recovery are implemented as a connected pathway at local level (Government of Pakistan, 2021, 2022, 2023; IUCN Pakistan, 2022; National Disaster Management Authority, 2026).

11.2 Discussion

The evidence reviewed in this study indicates that gendered flood resilience in Pakistan is best understood as a connected process rather than as a series of separate problems. Pre-existing poverty, unequal access to resources and social norms shape preparedness before flooding occurs. Preparedness influences access to warnings and evacuation decisions; displacement alters exposure to protection, health and livelihood risks; and longer-term recovery depends on whether households regain resources and institutional support. Gender therefore operates throughout the disaster cycle.

One of the clearest findings is that mobility does not automatically represent successful adaptation. Khalid et al. (2024) demonstrate that displacement may protect households from immediate flood danger while simultaneously worsening food insecurity, sanitation problems and livelihood loss. The quality of movement is therefore as important as movement itself. Safe climate mobility requires warning information, secure shelter, access to basic services, livelihood continuity and realistic possibilities for longer-term recovery.

Mobility and immobility are also gendered. Feroz et al. (2022) identified social and safety concerns that could influence women's willingness or ability to evacuate independently. In contrast, Khalid et al. (2021) documented women in Hassanabad who possessed considerable hazard knowledge and participated in preparedness activities. These differences demonstrate that women cannot be treated as a homogeneous group. Education, age, household position, displacement status, livelihood and local institutions can intersect to shape individual capacities and decisions, consistent with the intersectionality perspective used in this study (Crenshaw, 1989; Djoudi et al., 2016).

Economic inequality provides another connection between mobility and resilience. Uzair et al. (2026) found that flood-affected women in South Punjab experienced weaker access to land, credit and agricultural resources while simultaneously undertaking substantial unpaid care work. Returning home therefore does not necessarily mean that recovery has occurred. If women continue to lack control over productive resources, post-flood recovery can reproduce the inequalities that existed before the disaster. This is consistent with social-vulnerability approaches, which emphasise that disaster impacts are shaped by underlying socioeconomic conditions (Adger, 2006; Cutter et al., 2003).

Protection risks similarly continue after evacuation. Ullah et al. (2024) connect displacement with overcrowded relief settings, healthcare limitations, economic pressures and gender-based violence. Memon (2025) also identifies displacement, infrastructure damage, resource scarcity and gender norms as mechanisms linking extreme weather with increased violence against women and girls. This reinforces the conclusion that evacuation is only one stage of protection.

Safe shelter, sanitation, privacy, healthcare and protection from violence remain essential during displacement.

The evidence also challenges narratives that present women exclusively as disaster victims. Women contribute to household survival, caregiving, livelihood diversification, environmental knowledge and social networks. Nosheen et al. (2023) emphasise women's potential role in climate adaptation, while Khalid et al. (2021) demonstrate their willingness to participate in disaster mitigation. Abdul Rahman et al. (2026) similarly show that adaptive capacities can coexist with structural vulnerability. This supports an adaptive-capacity perspective in which resilience depends not only on exposure or disadvantage but also on access to knowledge, assets, institutions and opportunities (Smit & Wandel, 2006).

The proposed framework responds to fragmentation across the literature and policy environment by linking seven stages: pre-existing vulnerability, preparedness, early warning and decision-making, safe mobility, protection during displacement, livelihood recovery and long-term adaptation. Three cross-cutting enablers operate throughout this pathway: women's participation and leadership, equitable access to resources and services, and effective institutional support.

The framework's principal contribution is therefore conceptual integration. It does not suggest that all Pakistani women experience flooding in the same way. Rather, it provides a structure for examining whether women can prepare, access information, make mobility decisions, remain safe during displacement, recover livelihoods and participate in long-term adaptation. The framework remains an evidence-informed conceptual model rather than a validated operational tool, and its future value will depend on empirical testing across different provinces, rural and urban environments, and diverse displacement contexts.

12. Recommendations / Policy and Practice Implications

The findings suggest that gender-responsive flood resilience in Pakistan requires coordinated action across preparedness, mobility, displacement and recovery.

First, early-warning systems should be designed so that women receive information directly rather than depending solely on male household members or informal communication. Community preparedness programmes should include women in risk communication, evacuation planning and local disaster committees (Government of Pakistan, 2023; National Disaster Management Authority, 2026).

Second, evacuation and temporary displacement should be planned around safety and dignity. Safe evacuation support, including transport where needed, secure shelters, privacy, women-friendly sanitation, menstrual hygiene facilities, healthcare, food, water and protection from gender-based violence should be incorporated into emergency planning from the beginning. Evacuation should therefore be evaluated not only by the number of people moved but also by whether displaced populations remain safe and adequately supported (Government of Pakistan, 2023; IUCN Pakistan, 2022; National Disaster Management Authority, 2026).

Third, recovery programmes should strengthen women's economic resilience. Access to cash assistance, credit, agricultural inputs, livelihood restoration and appropriate social protection is particularly important where women depend on agriculture or informal work. Recovery programmes should also recognise unpaid caregiving responsibilities that may limit women's ability to participate in livelihood activities (Government of Pakistan, 2022; Khalid et al., 2024; Uzair et al., 2026).

Greater coordination is required between climate-adaptation, disaster-management and social-protection institutions. Early warning, evacuation, livelihood support and long-term adaptation

should be treated as parts of a continuous resilience process rather than separate policy areas (Government of Pakistan, 2021, 2022, 2023; IUCN Pakistan, 2022).

Finally, local and provincial institutions should establish mechanisms for meaningful women's participation in planning, monitoring and recovery decisions. Gender-disaggregated data should be collected more consistently, and the proposed framework should be empirically tested across different provinces and social settings before being translated into an operational planning tool (Government of Pakistan, 2021, 2023; IUCN Pakistan, 2022; National Disaster Management Authority, 2026).

13. Limitations

This study is based on secondary evidence and therefore reflects the strengths and weaknesses of the available literature. Included studies vary in methodology, sample size, geographical coverage and gender representation.

The evidence is geographically uneven, with stronger representation from parts of Punjab, Khyber Pakhtunkhwa and northern Pakistan than from some areas of Sindh and Balochistan. Women are also underrepresented in some household surveys and qualitative studies.

The literature search relied primarily on Google Scholar, with Consensus used as a supplementary research-discovery tool. The study should therefore be understood as a structured integrative review rather than an exhaustive systematic review.

Finally, the proposed framework is conceptual and evidence-informed rather than empirically validated. Future research should test and refine its components across different provincial, rural, urban and displacement settings.

14. Conclusion

This study examined how gender shapes flood-related mobility, recovery and resilience in Pakistan and developed an evidence-informed Gender-Responsive Climate Mobility and Flood Resilience Framework. The review demonstrates that women's flood vulnerability cannot be explained by hazard exposure alone. Poverty, limited access to land and finance, caregiving responsibilities, mobility constraints, protection risks, information gaps and restricted participation in decision-making interact across different stages of the disaster process.

A central conclusion is that mobility should not automatically be treated as successful adaptation. Evacuation may reduce immediate exposure to flooding, but displacement can create new risks involving unsafe shelter, health, sanitation, food insecurity and livelihood loss. Climate mobility should therefore be understood as a process extending from preparedness and evacuation through displacement, recovery, return or relocation and longer-term adaptation.

The study also shows that women are not only vulnerable to structural inequalities; they are active contributors to resilience through local knowledge, livelihood strategies, and caregiving and community networks. The proposed framework consequently links pre-existing vulnerability, preparedness, early warning, safe mobility, protection, livelihood recovery and long-term adaptation, while placing women's participation, resource access and institutional support across all stages.

Future research should empirically test and refine the framework across diverse flood-prone communities in Pakistan. Such testing would strengthen its practical value for gender-responsive climate adaptation and flood-resilience planning.

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