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Sheltering the Displaced: Lessons from Global Disasters and Conflicts

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1 ABSTRACT

Housing and shelter solutions play a crucial role in disaster recovery, yet many displaced communities face prolonged instability due to inadequate policies and poorly integrated temporary housing. This paper explores global approaches to post-disaster housing, analysing both short-term shelter solutions and long-term integration strategies. Using a mixed-methods approach, the study employs bibliometric analysis to identify research trends and gaps in disaster housing literature alongside a comprehensive literature review of past policies and interventions. Findings highlight the socio-economic and psychological impacts of displacement, the limitations of emergency shelters, and the challenges of transitioning temporary housing into permanent settlements. Case studies from major disasters, including Hurricane Katrina, the Haiti earthquake, and the Syrian refugee crisis, offer insights into both successful and problematic housing recovery efforts. The paper concludes with policy recommendations for governments and humanitarian organisations, emphasising the need for resilient, community-driven, and sustainable housing solutions. By synthesising existing research and lessons from past disasters, this study aims to contribute to ongoing discussions on improving post-disaster housing strategies.

Keywords: Disaster Recovery, Housing Solutions, Temporary Shelters, Post-Disaster Policy, Urban Resilience

2 INTRODUCTION

Housing serves as a fundamental pillar of human well-being, providing not only physical shelter but also a sense of security, belonging, and normalcy. In the aftermath of disasters, whether natural or conflict-induced, housing assumes an even more critical role, acting as the bedrock for restoring stability and rebuilding shattered communities. The destruction or damage of housing stock precipitates severe crises, often exacerbating pre-existing vulnerabilities and disproportionately impacting marginalised populations (Quarantelli, 1995). Displacement, a common consequence of such events, disrupts lives and severs crucial social and economic ties, thrusting individuals and families into precarious situations. These displaced populations face a multitude of interconnected challenges that hinder their ability to secure safe and stable shelter. Inadequate or damaged infrastructure, including water and sanitation systems, transportation networks, and communication lines, complicates access to essential resources and impedes reconstruction efforts. Limited financial resources, compounded by job losses and economic disruption, further constrain the ability of affected populations to rebuild their homes and livelihoods. Policy constraints, such as unclear land tenure arrangements, bureaucratic delays, and a lack of coordinated planning, can also impede recovery processes and prolong displacement. Addressing the complexity of post-disaster housing demands a nuanced and interdisciplinary approach, one that recognises the intricate interplay of social, economic, and environmental factors (Alexander, 2013). Effective solutions must consider not only the physical reconstruction of housing but also the restoration of social networks, economic livelihoods, and community infrastructure.

Despite increasing global awareness and concerted efforts to address post-disaster housing needs, significant gaps persist in the implementation of effective and sustainable long-term solutions. While emergency shelters provide crucial immediate relief, they are often designed for short-term use and lack the durability, habitability, and essential amenities required for prolonged habitation (Sphere Association, 2018). The transition from temporary shelters to permanent housing frequently proves problematic, with numerous obstacles hindering a smooth and timely process. These obstacles can include bureaucratic bottlenecks, funding shortfalls, land ownership disputes, and a lack of access to building materials and skilled labor. Consequently, many displaced individuals find themselves trapped in a state of prolonged instability, residing in inadequate temporary accommodations for extended periods, which can have detrimental effects on their physical and mental health, as well as their social and economic well-being (Kelman, 2015). Adding another layer of complexity, the increasing frequency and intensity of natural disasters due to climate change underscore the urgent need for integrated and sustainable housing solutions (Burby, 2006). As climate-

related risks escalate, housing must be designed and constructed to withstand more extreme weather events, incorporating resilience measures and adaptive strategies to minimise future damage and displacement. Furthermore, sustainable post-disaster housing must consider environmental impacts, promoting the use of eco-friendly materials and construction techniques and minimising the carbon footprint of reconstruction efforts. The convergence of these challenges highlights the critical importance of developing comprehensive and forward-thinking approaches to post-disaster housing that prioritise resilience, sustainability, and the long-term well-being of affected communities.

3 LITERATURE REVIEW

3.1 Urban Resilience & Disaster Risk Reduction (DRR)

Urban resilience encompasses the capacity of urban systems, including individuals, communities, institutions, and infrastructure, to withstand, adapt to, and recover from shocks and stresses, particularly disasters (Meerow, Newell, & Stults, 2016). It emphasises proactive strategies to anticipate, absorb, and bounce back from disruptive events, minimising damage and facilitating a swift return to normalcy (Cutter et al., 2008), involving not only physical infrastructure but also social, economic, and institutional dimensions (Pike et al., 2010). Disaster Risk Reduction (DRR) frameworks provide a structured approach to building urban resilience by focusing on proactive measures to minimise disaster risks (UNDRR, 2019). The Sendai Framework for Disaster Risk Reduction 2015-2030, a key international agreement, emphasises understanding disaster risk, strengthening disaster risk governance, investing in DRR for resilience, and enhancing preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction 2 (UNDRR, 2015). Effective DRR incorporates risk assessment, land-use planning, building codes and regulations, early warning systems, public awareness campaigns, and community participation (UNISDR, 2009).

3.2 Sustainable Recovery Models

Sustainable recovery models move beyond simply rebuilding infrastructure to emphasise reconstruction strategies that contribute to long-term community well-being and resilience (Johnson & Olshansky, 2016). These models recognise that recovery is not just a return to the pre-disaster state but an opportunity to build back better, creating more sustainable, equitable, and resilient communities (Berke et al., 2014). Key principles of sustainable recovery include environmental sustainability by minimising environmental impact through the use of locally sourced and sustainable materials, energy-efficient building designs, and waste reduction strategies (Vale & Campanella, 2005), economic feasibility by promoting economic recovery through job creation, business revitalisation, and access to financial resources (Chang-Tai & Hui, 2014), social inclusivity by ensuring that all members of the community, especially vulnerable groups, have access to housing, resources, and decision-making processes (Aldrich, 2012), community participation by engaging affected communities in the planning and implementation of reconstruction efforts to ensure that their needs and priorities are addressed (Davidson et al., 2007), and resilience building by incorporating measures to reduce future disaster risk, such as improved building codes, land-use planning, and community-based disaster preparedness programs (Kelman, 2015). Integrating displaced communities into host environments is a critical aspect of sustainable recovery, requiring attention to social cohesion, economic integration, and access to services (Muggah, 2012).

3.3 Key Trends in Disaster Housing Research (Bibliometric Analysis)

3.3.1 Emerging Themes & Research Gaps

Bibliometric analysis, a quantitative approach to analysing scholarly literature, has revealed several emerging themes in post-disaster housing research (Santos, 2020). These include a growing focus on climate resilience, investigating how housing can be designed and built to withstand the increasing impacts of climate change, such as extreme weather events and sea-level rise (IPCC, 2022), social equity, addressing the disproportionate impacts of disasters on vulnerable populations and ensuring equitable access to housing and resources during recovery (Fainstein, 2010), and adaptive housing models, exploring innovative housing designs and construction techniques that can be adapted to different contexts and needs, including prefabricated and modular housing solutions (El-Anwar & Chen, 2016). Despite these advancements,

significant research gaps remain, particularly in understanding the long-term social and economic impacts of displacement and developing effective strategies for policy implementation and long-term recovery planning, especially in resource-scarce settings (Aldrich, 2012).

3.3.2 Influence of Policy & Governance

Policy and governance play a crucial role in shaping post-disaster housing outcomes (Twigg, 2015). Effective housing recovery requires strong leadership, clear policies, efficient bureaucratic processes, and robust financial mechanisms (Johnson, 2007). Coordination among various levels of government, international agencies, non-governmental organisations, and community stakeholders is essential for successful housing reconstruction (Birkmann et al., 2010). However, bureaucratic inefficiencies, lack of transparency, extreme corruption, and funding constraints often hinder recovery efforts (Olshansky, 2005). Furthermore, land tenure issues whivh are particularly in informal settlements, can pose significant challenges where reconstruction is concerned (Moser & Norton, 2001).

3.4 Short-Term vs. Long-Term Housing Approaches

3.4.1 Emergency Shelters

Emergency shelters provide immediate, temporary housing in the aftermath of a disaster (Sphere Association, 2018). These shelters can include tents, prefabricated units, community centers, and temporary settlements. While emergency shelters provide crucial life-saving assistance, they often lack adequate living conditions, privacy, sanitation, and security (Saunders, 2015). Overcrowding, lack of access to basic services, and psychological stress can make emergency shelters unsuitable for long-term habitation (Boano, 2009). Furthermore, the prolonged use of temporary shelters can create dependency and hinder the transition to permanent housing solutions.

3.4.2 Permanent Solutions

Permanent housing solutions aim to integrate displaced populations into long-term resettlement programs and urban planning processes (Mulligan & Nadarajah, 2012). These solutions need to prioritise participatory design by involving affected communities in the design and construction of their homes to ensure that their needs and preferences are met (Aysan & Haigh, 2012), community-led reconstruction by empowering communities to lead the reconstruction process, fostering ownership and promoting long-term sustainability (Johnson, 2007), land tenure security by clarifying land ownership and providing secure tenure rights to residents to facilitate reconstruction and prevent future displacement (Durand-Lasserve et al., 2015), and access to basic services by ensuring access to essential services, such as water, sanitation, electricity, transportation, and healthcare, in permanent housing locations (UN-Habitat, 2016). The transition from temporary shelters to permanent housing is a complex process that requires careful planning, coordination, and financial resources. It is crucial to establish clear timelines, provide financial assistance to affected families, and address land tenure issues promptly to avoid prolonged displacement and facilitate a smooth transition to long-term housing solutions.

4 CASE STUDIES: LESSONS FROM PAST DISASTERS

4.1 Hurricane Katrina (USA, 2005)

Hurricane Katrina exposed significant weaknesses in disaster preparedness and response, particularly regarding housing. The Federal Emergency Management Agency (FEMA)'s provision of temporary housing, primarily through trailers, was plagued by logistical problems, health concerns, and a lack of accessibility for vulnerable populations such as the elderly and disabled (Comerio, 2006). Furthermore, bureaucratic hurdles and insurance complexities hindered rebuilding efforts, leaving many displaced residents in limbo for long periods (Gotham, 2010). However, Katrina also highlighted the crucial role of community-driven recovery initiatives. Organisations like the Make It Right Foundation, founded by Brad Pitt, and local community groups demonstrated the power of participatory planning and community-led reconstruction in creating more sustainable and resilient housing solutions (Elliott, 2011). These initiatives often incorporated green building practices, addressed affordability issues, and prioritised the needs and preferences of affected communities, demonstrating the potential for long-term, positive change following a disaster.

4.2 Haiti Earthquake (2010)

The 2010 Haiti earthquake presented a complex humanitarian crisis, with hundreds of thousands displaced and in need of shelter. International aid and NGOs played a significant role in providing emergency shelter, primarily through tents and tarpaulins (Shelter Cluster, 2010). However, the sheer scale of the disaster and logistical challenges hampered these efforts, leading to overcrowding, inadequate sanitation, and vulnerability to further hazards such as flooding in temporary settlements (Buckley, 2012). A major obstacle to long-term housing solutions was the complex and often unclear land tenure system in Haiti. Disputes over land ownership and lack of secure tenure rights hindered reconstruction efforts and created challenges for integrating displaced populations into permanent housing (Smucker et al., 2015). The influx of aid also raised major concerns about coordination and effectiveness, with some critics arguing that a lack of local ownership and top-down approaches undermined long-term recovery prospects (Farmer, 2011).

4.3 Syrian Refugee Crisis

The Syrian refugee crisis, beginning in 2011, has resulted in a protracted displacement scenario, with millions seeking refuge in neighboring countries and beyond. Housing for Syrian refugees has taken various forms, including informal settlements, refugee camps, and integration into host communities (UNHCR, 2023). Informal settlements, often characterised by inadequate shelter and limited access to basic services, have become a common, yet precarious, housing option for many refugees (Human Rights Watch, 2016). Host country policies have significantly impacted the living conditions and integration prospects of Syrian refugees. Some countries have adopted relatively open policies, providing access to housing, education, and employment opportunities, while others have imposed stricter regulations, limiting refugees' access to resources and hindering their ability to rebuild their lives (Wickramasekara, 2017). The long-term nature of the crisis has highlighted the need for sustainable housing solutions that go beyond temporary shelter and facilitate the social and economic integration of refugees into host communities (Betts & Collier, 2017). The challenges of providing adequate and sustainable housing for refugees in protracted displacement situations underscore the need for international cooperation, long-term planning, and policies that promote inclusion and self-reliance.

5 METHODOLOGY

For this study, a mixed-methods approach was utilised, incorporating both a comprehensive literature review and a bibliometric analysis. This methodological framework enables a thorough examination of post-disaster housing solutions by integrating qualitative insights with quantitative data-driven analysis (Creswell & Plano Clark, 2011). This study aims to explore key trends, challenges, and best practices in post-disaster housing by addressing the following research questions:

- What are the key trends in post-disaster housing research?
- What are the challenges and best practices for transitioning from temporary to permanent housing?
- How can policy interventions improve housing recovery?

5.1 Literature Review

The literature review served to contextualise the historical and contemporary challenges of post-disaster housing. It explores systemic barriers, policy limitations, and socio-economic constraints that impact equitable access to adequate housing for displaced populations. By analysing key policy documents, academic articles, case studies of past disasters (e.g., Hurricane Katrina, Haiti Earthquake, Syrian Refugee Crisis), and reports from international organisations (e.g., UN-Habitat, UNHCR, Sphere Association), this review critically examines the successes and shortcomings of various post-disaster housing interventions. The literature review also provides insights into the socio-economic and psychological impacts of displacement, the limitations of emergency shelters, and the challenges of transitioning to permanent housing (Aldrich, 2012; Comerio, 1998; Davis, 1978; Felix et al., 2013, 2015; Johnson & Olshansky, 2016).

5.2 Bibliometric Analysis

A bibliometric analysis was conducted to map and analyse the knowledge structure of "post-disaster housing" using a quantitative approach. This method provides insights into key themes, influential authors, and emerging trends (Van Eck & Waltman, 2010). Relevant publications from 2000 to 2024 were extracted

from Scopus using search terms like “post-disaster housing,” “temporary shelters,” and “disaster reconstruction.” VOSviewer was used to visualise co-authorship networks, citation relationships, and thematic clusters (Donthu et al., 2021). Document and author co-citation analyses identified influential works and collaboration patterns, highlighting global research distribution and thematic gaps in the field.

5.3 Case Study Selection

Three case studies were chosen for their diverse socio-economic and geographical contexts such as Hurricane Katrina (USA, 2005) for examining federal response failures and community-driven recovery. Haiti Earthquake (2010) for analysing the role of international aid and challenges in land tenure security and Syrian Refugee Crisis for investigation of housing solutions for displaced populations in protracted crisis scenarios.

6 RESULTS, ANALYSIS, AND DISCUSSION

6.1 Analysis of Annual Publications

Understanding publication trends over time is crucial for assessing research interest in a field. This study analysed bibliometric data from 2007 to 2025, revealing an initial slow progression in post-disaster housing research. From 2007 to 2011, publication rates increased slightly but declined between 2011 and 2017, followed by stagnant growth. A significant surge occurred from 2017 to 2021, rising from three to fifteen publications, driven by global disasters and conflicts. Events such as the Syrian refugee crisis (Aldrich & Meyer, 2015), hurricanes Harvey, Irma, and Maria (2017), the Sulawesi earthquake and tsunami (2019), and the Beirut port explosion (2020) exposed housing failures, shifting research toward sustainable, long-term solutions (Johnson & Olshansky, 2016). The COVID-19 pandemic (2020–2021) further reshaped priorities, emphasising public health integration in emergency housing.

Between 2021 and 2023, publication rates declined, possibly due to shifting academic interests. However, from 2023 to 2024, the number of publications doubled, reflecting renewed urgency following major global disasters and conflicts that worsened shelter displacement. Climate change-induced disasters, including wildfires, floods, and cyclones, have also fueled demand for climate-resilient housing solutions. Overall, the trend indicates growing scholarly attention to post-disaster housing, shaped by real-world crises and evolving research priorities.

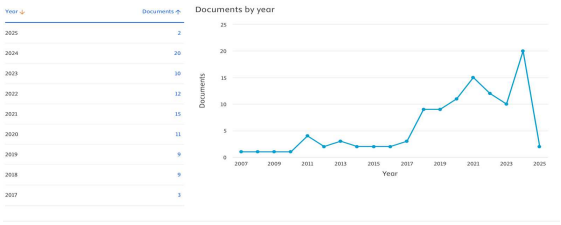

Fig 1: Graph depicting the publication trend of the topic area between 2007 and 2024.

6.2 Intellectual Knowledge Structure of the Field

The intellectual knowledge structure of the post-disaster housing field is revealed through an analysis of co-citation patterns, which illuminate the relationships between influential works and the evolution of key concepts. By examining how often documents are cited together, we can identify core literature that forms the foundation of the field, map thematic clusters representing distinct areas of inquiry, and trace the flow of ideas and influences between researchers. This analysis provides a valuable understanding of the intellectual underpinnings of post-disaster housing research, highlighting seminal contributions and emerging trends that shape the direction of future scholarship.

6.2.1 Conceptual Structure

The second dataset analysed co-occurring keywords in research publications from 2007 to 2025 to identify high-demand research areas. From 760 keywords exported from Scopus, different occurrence thresholds were tested. At a minimum of five occurrences, only 21 keywords met the threshold, with just two relevant to the research. Lowering the threshold to four which results in 28 keywords, and to three, which results in 42 keywords yielded similar results. Reducing it to two occurrences included 110 keywords but still only

captured two relevant ones. Lastly, setting the minimum to one included all 760 keywords, forming 38 clusters with 7,469 links and a link strength of 7,750. Despite this broad scope, only three research keywords appeared exactly, one was split into two separate terms, and one was absent entirely. Table 1 lists the top 10 preferred keywords in this research area. The strong link between keywords and publication trends highlights the need for greater focus on housing solutions, whether through permanent post-disaster reconstruction or climate-resilient housing. Addressing these challenges contributes significantly to advancing sustainable housing research.

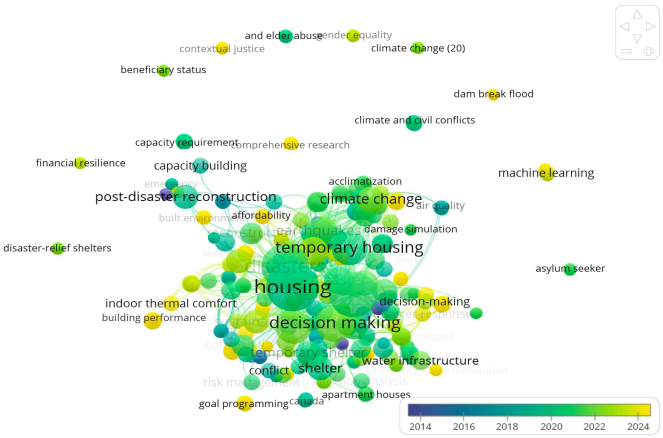

Figure 2: Visualised network map of research themes, overlay between 2014 and 2024 (10-year period) to understand the trajectory of research themes.

Keyword	Occurrences	Total link strength
Urban resilience	1	9
Site location for post-disaster temporary housing	1	11
Public policy	1	16
Post-disaster relocation model	1	17
Post-disaster	3	24
Temporary shelter	5	36
Disaster recovery	5	70
Climate change	6	106
Disaster management	19	301
Housing	22	331

Table 1: The top 10 Keywords in the research network

6.2.2 Intellectual Structure

To delve into the intellectual structure of post-disaster housing research, a co-citation analysis was employed. This method, as described by Small (1973), examines the frequency with which two documents are cited together, revealing intellectual connections and mapping the knowledge structure of the field. By analysing author and document coupling, the co-citation analysis aimed to identify influential works that have shaped the discourse, discern emerging research clusters representing key thematic trends, and understand the evolution of ideas within this interdisciplinary area of study. This approach allows for a deeper understanding of how foundational research informs current investigations and highlights potential areas for future scholarly inquiry.

Document Co-Citation Analysis

A document co-citation analysis mapped the intellectual landscape of post-disaster housing research, identifying key works that shaped the field. Using the Scopus database, 11,236 cited references were analysed, focusing on 554 references cited at least three times for the purpose of relevance. The co-citation network, visualised with VOSviewer, revealed thematic clusters, including temporary housing solutions (Felix et al., 2013, 2015), post-disaster recovery (Aldrich, 2012; Comerio, 1998; Davis, 1978), and community resilience (Amsden et al., 2010; Saldivar & Krasny, 2004). Work which is highly influential emerged from the likes of Aldrich's Building Resilience (2012), which emphasises social capital where recovery is concerned, Davis's Shelter After Disaster (1978) which is a foundational study on shelter planning, and lastly, Comerio's Disaster Hits Home (1998), which helped shape urban housing policy. These frequently co-cited publications represent seminal contributions to the field. The analysis enhances understanding of post-disaster housing research trends, informing future studies and policy interventions for resilient housing solutions.

Author Co-citation Analysis

For this data set, the minimum number of citations of a cited reference was capped at 3. For a minimum number of citations of a cited reference being 2, of the 11236 cited references, 554 met the threshold, and for a minimum number of citations of a cited reference being 1, of the 11236 cited references, 11236 met the threshold. Neither of these minimums were not preferred as they made the data too large and too tedious to analyse, and therefore, a minimum of 3 is what the authors settled for. Author co-citation analysis was performed to examine the intellectual relationships between researchers contributing to the field of post-disaster housing. This approach identifies influential authors whose work is frequently cited together, revealing collaborative networks and shared intellectual influences. For this analysis, a minimum of three citations for a cited reference was set as the threshold, balancing the need to capture impactful contributions while maintaining a manageable dataset. From the initial 11,236 cited references, 554 met this criterion, forming the basis for the co-citation network. Analysing these co-citation patterns helps illuminate the key researchers shaping the discourse, the evolution of thought within the field, and the potential for interdisciplinary collaborations. This analysis complements the document co-citation analysis by focusing specifically on the researchers who have contributed significantly to the body of knowledge on post-disaster housing.

Figure 3: Visualised document co-citation network map of shelter displacement due to conflicts and disasters

6.2.3 Social Structure

In the last data set, the social structure of the field was developed by the authors. This approach was followed for the exploration of how authors collaborate and contribute to the body of knowledge from the perspective of the different networks and countries.

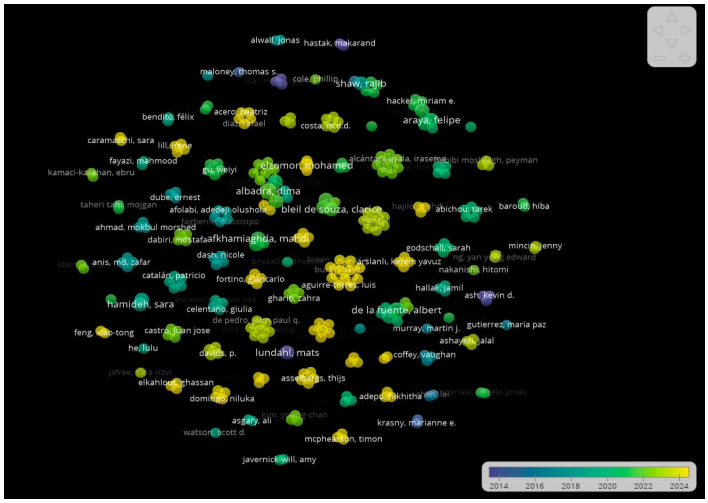

Figure 4: Visualisation of co-author network

Co-authorship Analysis

Scientific collaboration is essential for advancing knowledge, fostering specialisation, and enhancing skills. It enables diverse perspectives to drive progress while fulfilling institutional and national goals. This study analysed research networks using a minimum threshold of one document per author and zero citations,

maximising the dataset to 284 authors. The total co-authorship link strength was calculated, identifying the most influential researchers. The co-authorship network visualisation reveals distinct clusters of researchers frequently collaborating on post-disaster housing studies. A key cluster centers around "Lundahl, Mats," while "Alwall, Jonas Hastak, Makarand" and "Ash, Kevin D." appear as significant contributors. The colour gradient from 2014 to 2024 illustrates the evolution of collaborations, with "Bendito, Félix" and "Aceron, Beatriz Diaz" forming recent connections, while earlier collaborations involve "Cole, Phillip Shaw." This visualisation offers a snapshot of the field's social structure, highlighting influential researchers and their collaborative networks.

Analysis of Country Collaboration

Within the global knowledge society, it is critical for there to be an understanding of the collaboration of countries to unpack where influential authors have emerged from and what their impact is globally. This analysis reveals key collaboration patterns, highlighting the top five research clusters. The largest collaboration, Cluster 6, involves the USA, Chile, Egypt, and South Korea, with 32 joint publications. Cluster 3 follows with 27 publications from the UK, Canada, Hong Kong, and Peru. Cluster 4 is in third place, featuring 18 publications between Iran, Australia, Spain, and Finland. In fourth place, Cluster 1 includes 14 publications across South Africa, Japan, the Philippines, New Zealand, Bangladesh, Denmark, Mexico, and Zimbabwe. Finally, Clusters 2 and 7 tie for fifth place, each with 10 publications. Cluster 2 involves India, Italy, and Saudi Arabia, while Cluster 7 includes the Netherlands and Sweden.

6.2.4 Global Network Knowledge

The analysis of data that has been done throughout this study yields results that are a clear indication that a significant amount of research has been carried out globally. This is backed up by the appearance of countries that represent most of the continents. Some of the countries have not experienced severe disaster and conflict but are greatly positioned to not be reactive in a situation where conflict or disaster strikes because of background knowledge of the possibility of being exposed due to unpredictability, especially where disasters are concerned, as they are one with nature.

This global research engagement reflects a proactive approach, where countries invest in disaster preparedness and resilience-building, even in the absence of recent catastrophic events. The interconnectedness of academic networks has facilitated cross-border knowledge sharing, allowing nations with limited direct disaster experience to adopt best practices from regions frequently impacted by crises. Additionally, the growing focus on climate change and its role in intensifying natural disasters has driven global collaboration, as countries recognise that the effects of environmental shifts transcend borders. Co-citation analysis within this study highlights key research hubs such as the United States, Japan, and European nations that frequently contribute to disaster housing literature while also revealing emerging contributors from regions like Southeast Asia and Africa. This expansive network of knowledge strengthens global capacity for disaster preparedness, policy formulation, and the development of adaptable housing strategies, ultimately fostering a more resilient international community.

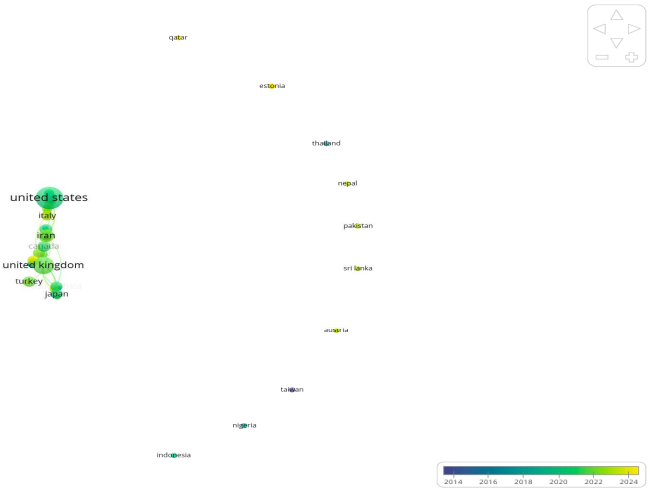

Figure 5: Visualisation of global collaboration (country collaboration network)

International collaboration in post-disaster housing research is visualised through a network of collaborating countries, revealing a global effort to address housing challenges after disasters. Dominant collaborations are evident, particularly a strong cluster centered around the United States, United Kingdom, Turkey, Japan, Italy, Iran, and Canada, indicating a significant hub of research activity among these nations. Other countries, such as Estonia, Thailand, Nepal, Pakistan, Sri Lanka, Australia, Nigeria, and Indonesia, also participate in the network, highlighting the geographically diverse nature of collaborations in this field. The time overlay, ranging from 2014 to 2024, suggests the ongoing evolution of these partnerships and the potential emergence of new collaborative ties. This visualisation emphasises the importance of international cooperation in sharing knowledge and best practices to improve post-disaster housing solutions globally.

Country	Documents	Citations	Total link strength
United States	32	1239	12
United Kingdom	16	165	17
Australia	5	151	5
Saudi Arabia	2	84	5
Iran	8	68	10
Turkey	5	58	2
Netherlands	4	43	4
Chile	3	42	2
India	3	42	4
Switzerland	2	42	3
Canada	5	41	6
South Africa	4	40	8
Spain	4	40	1
Sweden	5	40	3
Indonesia	1	39	0
Japan	4	34	7
China	4	29	4
Finland	1	28	1
Portugal	1	28	1
Zimbabwe	1	25	1

Table 2: Top 20 Countries for Global Collaboration

Analysis of international research collaboration in post-disaster housing reveals a global network with varying levels of contribution. The United States dominates with 32 documents and 1239 citations, demonstrating its significant research output and influence. The United Kingdom also shows a strong presence with 16 documents and 165 citations. Australia, despite having only 5 documents, boasts a high citation count of 151, suggesting impactful research. Other contributing countries include Saudi Arabia (2 documents, 84 citations), Iran (8 documents, 68 citations), Turkey (5 documents, 58 citations), Netherlands (4 documents, 43 citations), Chile (3 documents, 42 citations), India (3 documents, 42 citations), Switzerland (2 documents, 42 citations), Canada (5 documents, 41 citations), South Africa (4 documents, 40 citations), Spain (4 documents, 40 citations), Sweden (5 documents, 40 citations), Indonesia (1 document, 39 citations), Japan (4 documents, 34 citations), China (4 documents, 29 citations), Finland (1 document, 28 citations), Portugal (1 document, 28 citations), and Zimbabwe (1 document, 25 citations). The "Total Link Strength" further emphasises the US and UK's central roles in international collaborations, with link strengths of 12 and 17, respectively, highlighting the collaborative nature of this research field.

Case Study Insights: Lessons from Major Disasters

The United States' response to Hurricane Katrina showed the value of community-driven recovery initiatives and significant flaws in federal strategies. Projects like the “Make It Right Foundation” demonstrated how community involvement can promote creativity and enhance environmentally friendly housing solutions. This case is a prime example of the bibliometric trend that highlights the value of community involvement in post-disaster policies, showing that such strategies not only improve recovery outcomes but also foster local trust.

Recovery efforts and the move to permanent housing were made much more difficult by the Haiti earthquake's aftermath, which revealed the intricacies of land tenure security. The uncoordinated global response made clear how important it is for aid organisations to better coordinate. This supports bibliometric analysis trends and emphasises the necessity of well-defined policy frameworks. The importance of creating policies that support the integration and economic stability of displaced populations has been highlighted by the ongoing Syrian refugee crisis. Integration results were better in nations that allowed refugees more access to jobs and education. The relationship between inclusive policies and favourable housing outcomes

confirms the bibliometric trend toward flexible policy frameworks, guaranteeing that housing solutions promote long-term integration rather than just short-term fixes.

7 CONCLUSION

This study has delved into the multifaceted challenges of post-disaster housing, employing a mixed-methods approach that integrated bibliometric analysis, a comprehensive literature review, document and author co-citation analysis, and an examination of international research collaborations. The bibliometric analysis illuminated key research trends, revealing a growing emphasis on resilience, sustainability, and community-driven approaches while also highlighting persistent gaps in policy implementation and the complexities of recovery which is long-term. The literature review provided a deeper understanding of the theoretical underpinnings of post-disaster housing, the inherent limitations of emergency shelters, and the enduring challenges associated with transitions to permanent housing solutions. Case studies, including Hurricane Katrina in the United States, the earthquake in Haiti, and the Syrian refugee crisis, underscored the importance of community involvement, land tenure security, and effective coordination among various stakeholders, from local governments to international aid organisations. Document and author co-citation analyses, along with visualisations of international collaboration networks, identified key researchers, influential works, and the global interconnectedness of research efforts. The visualisation of international collaborations including contributions from the United States of America, Canada, United Kingdom, Italy, Turkey, and other nations highlighted the need for cross-border knowledge sharing and resource mobilisation to enhance housing recovery efforts.

These findings collectively reinforce the urgent need for a paradigm shift in post-disaster housing, moving beyond reactive, short-term solutions toward proactive, integrated strategies that prioritise resilience, sustainability, and the long-term well-being of displaced populations. Effective post-disaster housing requires a holistic approach that addresses the physical rebuilding of homes and the restoration of social networks, economic livelihoods, and community infrastructure. Key strategies include community-centric approaches, where displaced populations actively participate in recovery efforts, ensuring that housing solutions align with their needs, secure land tenure, which is essential for long-term stability, particularly in fragile contexts like Haiti, and comprehensive refugee integration policies, providing access to housing, jobs, and essential services, as seen in responses to the Syrian refugee crisis. Additionally, coordinated efforts among stakeholders, including governments, non-profits, and international agencies are crucial for streamlining recovery processes and optimising resource allocation. Future research should explore innovative financing mechanisms, strengthen policy frameworks, and develop deeper insights into vulnerability and resilience. By synthesising existing knowledge, critically analysing past experiences, and fostering international collaboration, this study contributes to ongoing dialogues aimed at improving post-disaster housing strategies and reducing prolonged instability for displaced communities worldwide.

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