

ABSTRACT

In an era defined by accelerating climate change and increasing disaster frequency, vulnerable communities, particularly Indigenous populations in the Global South, are disproportionately exposed to natural hazards and environmental shocks. The Global Assessment Report 2025 on Disaster Risk Reduction projects that by 2030 the world may experience up to 560 disasters annually (UNDRR, 2025). While natural hazards such as cyclones, floods, and tsunamis affect populations globally, their impacts are socially mediated and unequally distributed, often reinforcing systemic inequities of class, gender, and ethnicity (Burns, 2025; Hagen, 2015; Sellers, 2016). Nowhere is this asymmetry more pronounced than in the South Pacific, where small island nations contend with geographic isolation, limited resources, and deeply entrenched socio-economic vulnerabilities.

Indigenous communities in these regions, although often framed as passive victims of environmental crises, possess sophisticated, context-specific knowledge systems that have historically guided risk detection, disaster preparedness, and community resilience. Despite the value of these Traditional Knowledge Systems (TKS), modern disaster risk reduction (DRR) frameworks continue to prioritize Western scientific paradigms, marginalizing Indigenous epistemologies and failing to engage local populations as co-constructors of resilience strategies (Motsumi & Nemaconde, 2025; Singer et al., 2023).

This study contends that reimagining DRR through a culturally grounded and inclusive framework, one that centers TKS and community agency, is essential to enhancing disaster resilience in the Pacific and beyond. It aims to challenge technocratic dominance in disaster governance and reposition Indigenous knowledge not as peripheral, but as foundational to effective, equitable DRR strategies. The study further centers gendered experiences, highlighting the essential yet overlooked contributions of indigenous women in disaster preparedness and community resilience.

Research Objectives

This thesis is situated at the intersection of Indigenous knowledge, disaster risk reduction, and gendered resilience, with a specific geographical focus on the Samoa context. It is guided by three interrelated objectives:

1. **To identify and analyse elements of Indigenous Knowledge Systems** as embedded within Pacific Island communities.
2. **To evaluate the contributions of Indigenous Knowledge Systems to disaster preparedness and community resilience**, illustrating their relevance in enhancing local adaptive capacities.
3. **To investigate the gendered dimensions of disaster resilience**, focusing on the roles and contributions of Samoan women within their socio-cultural and institutional settings.

These objectives are addressed through a culturally grounded methodological approach that integrates Pacific research protocols, particularly the Talanoa method (Vaiote, 2006), with a theoretical framework combining the Indigenous and Traditional Knowledge Theory for DRR (Dhungana et al., 2023), the Community Resilience Framework (Sulaiman et al., 2019), and the Women's Resilience Conceptual Framework (Alam & Rahman, 2018).

This study was conducted through online Talanoa sessions to answer the research questions complemented with Nofo or observations at Lotofaga Village, Samoa.

Key Findings

1. Traditional/Indigenous Knowledge Systems as Foundations of Resilience

TKS in the Pacific represent dynamic, adaptive, and intergenerational forms of knowledge developed through centuries of interaction with specific environmental contexts. These systems include early warning signals (e.g., bird migrations, plant flowering, animal behavior), adaptive architecture (e.g., stilt housing, raised crop beds), and socio-cultural institutions (e.g., aumaga, village councils) that coordinate disaster responses (Chand et al., 2014; Rumbach & Foley, 2014).

The thesis critiques dominant framings that cast Indigenous knowledge as static or anecdotal, proposing instead that it be recognized as an autonomous epistemology—complementary to, but not subsumed by, Western science (Clapperton, 2016; Dekens, 2007). Samoa, as the case study, illustrated how culturally embedded practices contribute directly to anticipatory action, resource management, and community cohesion.

2. Traditional roles strengthened Women's Disaster Resilience

Women in Pacific Island communities, particularly in Samoa, hold critical roles in disaster preparedness that remain largely invisible in policy and academic discourses. The study documents how Samoan women, as matriarchs, educators, and healers, maintain and transmit TKS through rituals, oral narratives, caregiving roles, and traditional ecological practices. Their knowledge extends to food preservation, water sourcing, and safe shelter identification, skills essential in disaster contexts (Anderson et al., 2023; Enarson & Chakrabarti, 2009).

Yet, gendered power dynamics, both within Indigenous cultures and formal DRR systems, limit the participation of women in decision-making processes. The findings implied that without recognizing the intersection of gender and traditional roles and knowledge, DRR frameworks risk further marginalizing women's contributions and weakening community resilience.

3. Pacific research approaches is necessary for Pacific voices

Despite the global embrace of the Sendai Framework (UNDRR, 2015) and the Framework for Resilient Development in the Pacific (PIFS, 2016), implementation remains uneven. TKS is often misinterpreted too often in DRR initiatives, with little regard for Indigenous ownership, consent, or cultural specificity. This results in epistemic injustice, where Indigenous worldviews are rendered secondary to technocratic interventions (Weaver, 2023; Ocholla, 2007). The findings from the study highlighted the urgency in introducing culturally relevant and context-specific Pacific research tools and approaches in disaster studies, centering Indigenous agency, supports knowledge sovereignty, and respects the lived realities and values of Pacific peoples.

Conclusion

This research contributes to the growing body of scholarship that advocates for the integration of Indigenous knowledge systems into global sustainability and disaster risk reduction paradigms. It demonstrates that Indigenous Traditional Knowledge Systems are not relics of the past but living, dynamic frameworks capable of informing contemporary disaster resilience. In the Pacific, where formal DRR systems often fail to reach the most remote and vulnerable communities, Indigenous knowledge provides culturally resonant, resource-efficient, and ecologically sustainable alternatives. Furthermore, this research aims to address a critical gap in understanding the role of Indigenous community actions in community-based disaster risk reduction (CBDRR) in Samoa. The findings will contribute to a stronger evidence base for shaping future policies that enhance community participation in disaster risk reduction, promote the use of culturally grounded Pacific research methodologies, and recognize the vital role of women in disaster preparedness efforts.