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Beyond adaptation: Pacific voices on health, identity, and rights amid climate loss and damage

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Loss and damage is an essential but under-examined aspect of climate justice, particularly for Pacific Small Island Developing States (PSIDS), disproportionately impacted despite minimal global emissions contributions. In the context of the International Court of Justice's ongoing advisory proceedings on states' climate obligations, this study explores the lived experience of health—related loss and damage in PSIDS as a contribution to the emerging international research agenda on climate-health justice. Using a qualitative thematic analysis (Braun and Clarke six-phase framework) of witness statements and documentary submissions from Vanuatu and the Melanesian Spearhead Group, supplemented by a targeted literature review, we identify interlocking themes of direct physical health impacts, psychosocial and cultural harm, erosion of traditional knowledge, strain on health systems and gender-specific vulnerabilities, this research identifies a complex tapestry of experienced harm tied inextricably to relational values of Pacific people. It is evident there are significant gender-differentiated health impacts including heightened exposure to infectious diseases, compromised nutrition, increased psychosocial trauma, loss of traditional medicinal knowledge, and deterioration of health infrastructure. Women face additional vulnerabilities linked to reproductive health, gender-based violence, and increased caregiving burdens exacerbated by climate-induced displacement and resource scarcity. The erosion of cultural identity, spiritual wellbeing, and connection to ancestral lands further compounds these issues. By synthesizing legal testimony and academic literature, the study contributes new evidence to international discussions on non-economic loss and damage and offers a framework for future comparative research across small-island contexts. Results underscore the urgent need for gender-responsive climate policies and culturally grounded interventions, integrating traditional knowledge systems and strengthening health infrastructures to address interconnected vulnerabilities effectively.

KEYWORDS

loss and damage, non-economic loss and damage, climate change health impact, climate change justice, Pacific Islands Pacific Islanders

1 Introduction

Loss and damage has emerged as a critical concept within climate justice discourse, particularly for Pacific Small Island Developing States (PSIDS) that face severe and irreparable harm from climate change despite contributing minimally to global greenhouse gas emissions. The concept encompasses both economic and non-economic impacts resulting from climate change that exceed communities' adaptive capacities. While loss and damage is often conceptualized through the dichotomy of slow-onset events (such as sea-level rise and ocean acidification) and sudden-onset disasters (such as cyclones and flooding), the reality for PSIDS involves complex, interconnected climate-driven changes that transcend simple categorization. An area of growing concern is that of the health implications of climate change—and this can be viewed through the framing of non-economic loss and damage.

Pacific Island countries (PICs) are recognized as Small Island Developing States (SIDS) exceptionally susceptible to the effects of climate change, which significantly impacts the health and welfare of their populations (Bowen et al., 2024). Certain groups, including women and Indigenous peoples, experience disproportionately high health risks stemming from climate change (Bowen et al., 2024). The interaction of gender, health, and climate change is a vital area of study in the Pacific Islands, although the literature indicates notable gaps in research specifically dedicated to this intersection (Bowen et al., 2024; Howard, 2022). Such gaps impede the design of appropriate needs based policy responses.

PSIDS initiated the request for an Advisory Opinion from the International Court of Justice (ICJ) in recognition of the urgent and existential threat posed by climate change to their peoples, cultures, and territories. The aim was to clarify the legal obligations of states under international law to protect the climate system and to affirm that severe harm from climate inaction constitutes a violation of fundamental rights, including the right to health, culture, and self-determination. For PSIDS, witness statements were central to this effort, providing lived evidence of how climate change is already disrupting health, livelihoods, and cultural identity. By grounding legal arguments in detailed personal and community testimonies, PSIDS not only humanized the legal process but also amplified Indigenous and gendered perspectives often marginalized in international fora. These witness accounts therefore serve as both a foundation for legal advocacy and a crucial record of climate impacts, shaping future research, policy, and justice efforts in the region.

By integrating these personal accounts into legal submissions, PSIDS emphasized that climate change is not solely a technical or economic issue but a lived, multidimensional crisis affecting bodies, cultures, and communities. This approach underscores the necessity of centering local voices and lived realities in both legal advocacy and scholarly research. In parallel, academic inquiry into climate change in the Pacific is increasingly attentive to the diverse, intersecting ways in which these impacts are experienced, particularly through the lenses of mental health, social wellbeing, and Indigenous epistemologies. This evolving body of research demonstrates that the lived experiences captured in witness statements are not only crucial for international legal processes but are also foundational for deepening our understanding of the psychosocial, cultural, and intergenerational consequences of climate change across the Pacific.

Research exploring the connections between climate change, mental health, and wellbeing in the Pacific, particularly from Indigenous perspectives, is an evolving field (Mengesha and Sarnyai, 2025; Newport et al., 2024; Tiatia et al., 2023). These studies highlight that climate change impacts vary among different population groups based on factors like geographical location, access to resources, information, and protective measures (Mengesha and Sarnyai, 2025). The effects of climate change on mental health can be direct, indirect, short-term, or long-term, and occur along a continuum of severity (Leal Filho et al., 2022). Indigenous Pacific ontologies underscore the interconnectedness of experiences and impacts, suggesting that consequences can be felt collectively and potentially transmitted across generations (Newport et al., 2024). For instance, a study on psycho-social distress among pregnant women following Cyclone Pam in 2015 examined this impact (Kim et al., 2022).

Whilst literature acknowledges that demographic traits such as age and gender can influence vulnerability to climate challenges (Bowen et al., 2024), scholarship specifically linking gender, climate change, and security often addresses gender superficially (Howard, 2022). This limited approach often conflates gender with women or includes women as participants without conducting a deeper analysis of gender roles and relations (Howard, 2022). Despite the frequent depiction of women as highly vulnerable to climate change, there is a scarcity of academic work that moves beyond this general observation (Howard, 2022).

Current strategies to enhance adaptation planning in the Pacific Islands acknowledge the importance of integrating social factors, such as gender equity, into assessments of vulnerability and adaptation (Bolton et al., 2020). Understanding the role of intersecting inequalities, including financial, socioeconomic, cultural, and gender status, is seen as essential because these factors contribute to a community's sensitivity and vulnerability to climate change impacts (Bolton et al., 2020). Research frameworks are increasingly valuing Pacific research protocols, fostering relationships between researchers and knowledge holders, and embedding Indigenous Pacific knowledge systems to articulate Pacific understandings of these complex linkages more effectively (Newport et al., 2024; Tiatia et al., 2023). Concepts such as indigeneity, agency, mobility, wellbeing, belonging, spirituality, religiosity, and intergenerational experiences are considered pertinent in this context (Newport et al., 2024; Tiatia et al., 2023). Studies utilizing methods like the Delphi technique alongside Pacific methodologies aim to privilege Pacific perspectives on climate change, mental health, and wellbeing (Langridge et al., 2020; Tiatia et al., 2023). Methodologies that incorporate cultural protocols and principles like relational space (va fealoaloa'i), respect (fa'aaloalo), and collaboration (agaga fesoasoani) are highlighted as vital for culturally grounded research (Newport et al., 2024).

Unlike earlier syntheses that draw exclusively on published studies (e.g., Kim et al., 2022; McIver et al., 2016), our analysis triangulates legal submissions, witness testimonies and literature to uncover how health-related loss and damage is experienced in everyday life. It foregrounds gendered vulnerabilities and indigenous relational worldviews that are often omitted or treated superficially in climate-health research. By doing so in the context of the ICJ advisory opinion, the study not only fills empirical gaps but also provides evidence relevant to international legal debates on state responsibility. This research aims to explore how existing literature and the extensive witness evidence gathered by select Pacific SIDS in the process of seeking an advisory opinion on climate change from the International Court of Justice, can facilitate future, context-driven research to unpack the experience of loss and damage. By focusing down on health, we are able to unpack one element of experience. The intention is to grow such assessment across all areas of loss and damage to create a holistic, contextualized understanding of harm. While this study does not attempt to provide a comprehensive account—given its limited data sources and focus on health—it offers a pathway for further inquiry, prioritizing approaches led by Pacific peoples themselves. In doing so, it seeks to catalyze more nuanced, locally grounded research agendas on climate-related loss and damage in the region.

This paper is innovative in two respects. First, it combines primary testimony—witness statements submitted to the ICJ

advisory opinion on climate change—with peer-reviewed literature to illuminate the non-economic dimensions of loss and damage, including cultural identity and gendered health impacts. Such testimony is seldom incorporated into academic analyses, yet it provides rich, lived evidence that can inform both scholarship and legal advocacy. Second, the study is situated within a pivotal moment for international law: the ICJ's 2025 advisory opinion clarified that states are legally obliged to protect the climate system and prevent harm, emphasizing that climate action is a human-rights duty. By analyzing Pacific submissions to this process, the study contributes evidence to inform international legal and policy debates.

2 Method

This study employed a qualitative thematic analysis to examine gendered dimensions of health-related loss and damage resulting from climate change in Pacific Small Island Developing States (PSIDS). Initially, a targeted literature review identified critical intersections among gender, health, and climate impacts in the Pacific context, informing the analytical framework (Bowen et al., 2024; Howard, 2022; Mengesha and Sarnyai, 2025; Newport et al., 2024; Tiatia et al., 2023).

Subsequently, Braun and Clarke (2006) established six-phase thematic analysis framework was utilized to systematically interpret qualitative data sourced exclusively from testimonial and annex submissions provided by Vanuatu and the Melanesian Spearhead Group (MSG) to the International Court of Justice Advisory Opinion (ICJAO). This framework involved: (1) data familiarization through detailed reading; (2) generating initial codes preserving direct quotations and citations; (3) identifying thematic clusters inductively, with attention to gender, culture, health, and interconnectedness; (4) refining themes for coherence and removing redundancies; (5) clearly defining and labeling finalized themes and sub-themes; and (6) presenting results while preserving original testimonial authenticity and context.

Given the sensitivity and Indigenous knowledge dimensions inherent to this study, the thematic analysis consciously aligned with Pacific research protocols emphasizing relational ethics, cultural respect, and epistemological validity (Newport et al., 2024; Tiatia et al., 2023). The use of testimonial narratives provided rich contextual insight into lived experiences of gendered climate impacts, enabling deeper exploration of non-economic forms of loss and damage.

3 Results

Table 1 presents health impacts associated with climate change in the Pacific Islands that have been identified in the reviewed literature:

TABLE 1 Health impacts identified in the literature.

Infectious diseases	Nutrition and food security impacts
- Diarrhea, often associated with increased annual average temperature and reduced water availability (Kim et al., 2022; Singh et al., 2001). - Leptospirosis, particularly linked to cyclones and floods (Natuzzi et al., 2016). - Typhoid fever, zoonosis and Vector-borne diseases which are all highly climate sensitive (McIver et al., 2016), including Zika, Dengue, and Chikungunya (Leal Filho et al., 2019).	- Malnutrition (Albert et al., 2020; McIver et al., 2016). - Food insecurity, access, including threats to the food chain, such as the decline and loss of coral reefs affecting fish and seafood protein sources (Bowen et al., 2024; McIver et al., 2016).
Injuries and deaths	**Mental health and wellbeing impacts**
- Injuries and deaths linked to weather patterns (Bowen et al., 2024; Natuzzi et al., 2016).	- Mental distress and greater incidence of mental health problems including anxiety, depression, psycho-social distress, and other psychological disorders (Mengesha and Sarnyai, 2025; Tupou et al., 2023; Vafeiadou et al., 2023; Leal Filho et al., 2022). - Trauma from rapid onset climate-induced disasters like hurricanes, floods, and wildfires (Leal Filho et al., 2022). - Suicide (Vafeiadou et al., 2023; Leal Filho et al., 2022). - Decline in mental wellbeing (Mengesha and Sarnyai, 2025; Vafeiadou et al., 2023). - Accute stress symptoms and increase in post-traumatic stress disorder (PTSD) symptoms (Vafeiadou et al., 2023) as well as 'pre-traumatic' stress (Raisele et al., 2025) - Climate-related distress as well as stress and worry, particularly linked to rising sea levels and displacement from land (Mengesha and Sarnyai, 2025; Tabe, 2019). - Transmission of consequences to later generations (Newport et al., 2024). - Disorders of mental/psychosocial health (diffuse impacts) (McIver et al., 2016). - Decline in community wellbeing (Vafeiadou et al., 2023).
Other physical health impacts	
- Non-communicable diseases (NCD) including Respiratory diseases (Bowen et al., 2024; Pawankar and Wang, 2021). - Skin issues (Bowen et al., 2024).	
Increased vulnerability due to pre-existing conditions and demographics	
- Increased vulnerability due to pre-existing medical conditions, such as diabetes and asthma as well as for aged groups, particularly to temperature, cyclones, and volcanic activity (Bowen et al., 2024). - Increased vulnerability and impacts on children through increased infectious diseases, malnutrition, physical injuries from storms, psychological stress due to displacement and domestic violence, and reduced access to clean water and nutrition (Burton et al., 2011).	
Water security and quality impacts	**Systemic and structural health determinants/impacts**
- Issues with water quality and unsafe water conditions (Bowen et al., 2024). - Issues with water security, access, and safety (McIver et al., 2016).	- Strain on health service capacity, vulnerability and impact on health systems, and impact on critical infrastructure essential for community wellbeing, including housing, food delivery, education, and essential service provision (Bowen et al., 2024). - Health workforce needs and capacity issues during disaster response (Rumsey et al., 2014). - Poverty and socio-economic disadvantage acting as risk factors (Bowen et al., 2024). - Population pressures as diffuse impacts (McIver et al., 2016). Health facility needs for urgent upgrades, as many are old, coastal, and heavy users of fossil fuels (Bowen et al., 2024).

This provides a backdrop of what the health dimensions could be in the subsequent assessment. The goal of the following thematic analysis is to identify, organize, and categorize distinct and overlapping themes related to health and wellbeing as described in the ICJAO submissions from PSIDS, particularly those of Vanuatu and the Melanesian Spearhead Group (MSG), including witness statements, annexes, and books of exhibits.

3.1 Direct physical health impacts of environmental degradation and climate change

This theme covers the tangible effects on human physiological health, including diseases, injuries, and nutritional status resulting from environmental changes.

3.1.1 Sub-theme 1.1: Increased incidence of climate-sensitive diseases and illnesses

Climate change is fueling a rise in vector- and water-borne diseases. The region is seeing more cases of "malaria, dengue, cholera, filariasis, leptospirosis, schistosomiasis, and ciguatera fish poisoning" (Melansian Spearhead Group (MSG), 2024, p. 502). Extreme weather in 2023 caused "severe temperatures, heat stress, excessive rainfall, and floods," all linked to disease outbreaks (Melansian Spearhead Group (MSG), 2024, p. 502).

Paige West reports worsening public health in New Ireland, PNG: "nobody at the hospital [is] able to help people with climate-related health problems" and health infrastructure is "in decline over 14 years" (Melansian Spearhead Group (MSG), 2024, p. 429). The closure of hospitals and aid posts, especially as dependence on government health services grows, is exacerbating population vulnerability (Melansian Spearhead Group (MSG), 2024, p. 429).

Witnesses' reports of rising malaria, dengue, cholera and leptospirosis mirror the literature on climate-sensitive diseases. Higher temperatures and dwindling freshwater are linked to more diarrhoeal illness (Kim et al., 2022; Singh et al., 2001); leptospirosis outbreaks follow cyclones and floods (Natuzzi et al., 2016). Typhoid and other zoonoses increase when sea-level rise and heavy rain contaminate water supplies, whilst vector-borne diseases such as malaria and dengue are highly climate sensitive (Leal Filho et al., 2019; McIver et al., 2016). Whilst strain to health services and inadequate infrastructure have also been observed in the reviewed literature (Bowen et al., 2024; McIver et al., 2016).

3.1.2 Sub-theme 1.2: Trauma, injuries, and fatalities from extreme weather events

Extreme weather is causing rising trauma, injury, and death. These include both immediate fatalities and "mental health issues" from ongoing exposure to disasters (Melansian Spearhead Group (MSG), 2024, p. 502). Cyclone Winston killed 44 people and affected more than 60% of Fiji's population (Melansian Spearhead Group (MSG), 2024, p. 485).

Professor Halvaksz describes this as "slow death"—a structural form of harm where "drivers of climate and structural power make people sacrificable" (Melansian Spearhead Group (MSG), 2024, p. 369). In Malaita, Solomon Islands, Faye Mercy Saemala links children's illness outbreaks to high tides: "continuous flu and cough, diarrhea, malaria, severe vomiting and stomach ache" follow floods and water contamination. "We have to travel 1.5 km to the clinic for treatment," often after mosquito outbreaks from debris left by tides (Melansian Spearhead Group (MSG), 2024, p. 189).

A regional study identifies priority health threats as: "trauma from extreme events, heat illnesses, vector-borne and zoonotic diseases, food and water insecurity, respiratory illnesses, and psychosocial ill-health" (Melansian Spearhead Group (MSG), 2024, p. 503).

The fatalities and injuries described after cyclones, floods and heatwaves are consistent with research showing that extreme weather causes direct trauma and heat-related deaths (Bowen et al., 2024; Natuzzi et al., 2016). McIver et al. (2016) likewise list trauma from extreme events and heat illness among priority climate-sensitive health risks., whilst Burton et al. (2011) observed greater vulnerability of children.

3.1.3 Sub-theme 1.3: Compromised nutrition and food security

Climate change is severely affecting nutrition through damaged ecosystems and crop failure. The Torres Strait Islanders case confirms that "destruction or withering of traditional gardens through salinification" and marine loss are degrading both nutrition and culture (Republic of Vanuatu, 2024, p. 85). John Aini states: "We use both [reef and forest] to live. When they are gone, that is it" (Melansian Spearhead Group (MSG), 2024, p. 359).

In Tanna, Jimmy Namile recounts the aftermath of Cyclone Pam: "We had no food… I ate dried coconut flesh and the stem of the Taro Fiji plant… it burns your throat." Children drank floodwater and missed school for months. "The children really suffered" (Republic of Vanuatu, 2024, p. 181).

Food systems are highly vulnerable. Ni-Vanuatu are planting fewer traditional crops like yam, while depending on ava—a fragile cash crop—amid "no breeding programs" (Republic of Vanuatu, 2024, p. 235). Jerry Jacka (Melansian Spearhead Group (MSG), 2024, p. 395) explains how people survive on "tree burn leaves and wild greens," which cause diarrhea if eaten too much. Overconsumption of cabbage leads to "iodine deficiencies" and "thyroid problems," showing that emergency diets are not nutritionally safe.

The Vanuatu annex confirms "negative impacts on traditional diets and food security" as a key form of loss and damage (Republic of Vanuatu, 2024, p. 137).

Accounts of destroyed gardens, lost fisheries and reliance on poor emergency diets reflect climate-driven food insecurity. Malnutrition increases when droughts, storms and sea-level rise damage crops and fisheries (Albert et al., 2020). McIver et al. (2016) note that malnutrition is highly climate sensitive and that sea-level rise and changing rainfall reduce agricultural yields and freshwater availability.

3.2 Mental, emotional, and psychosocial health consequences

This theme focuses on the psychological distress, emotional suffering, and impacts on social wellbeing stemming from environmental destruction and the loss of cultural and personal security.

3.2.1 Sub-theme 2.1: Anxiety, distress, and trauma

Climate-related displacement and environmental change are producing deep psychological trauma. In Fiji, Sailosi Ramatu compares relocation to "mourning"—"even more loss than losing a loved one" (Melansian Spearhead Group (MSG), 2024, p. 120). Others express existential grief. Ara Kowou from PNG states, "This is our only home. We cannot leave" (Melansian Spearhead Group (MSG), 2024, p. 163), while Francoise Neudjen in New Caledonia says, "We've accepted it but our hearts are broken" due to the compounded loss from colonization and climate change (Melansian Spearhead Group (MSG), 2024, p. 145).

Leticia Witie, facing rising seas and uprooted coconut trees, shares: "This island is my home... it represents strength, love... I am afraid" (Melansian Spearhead Group (MSG), 2024, p. 160). Such testimonies reflect loss of safety, security, and psychological grounding.

Penioni Soqovata's plea to world leaders—"We are struggling, what is going to happen? We are about to die"—captures the desperation of those facing irreversible loss (Melansian Spearhead Group (MSG), 2024, p. 6). Vanuatu's compounded disaster cycles, described as "a constant mode of disaster recovery" (Republic of Vanuatu, 2024, p. 99), leave no time to heal, escalating cumulative trauma. Mental health infrastructure is critically under-resourced, despite evidence of need post-disasters (Republic of Vanuatu, 2024, p. 76).

Witnesses' grief and anxiety over displacement and repeated disasters are echoed in studies reporting increased mental distress, anxiety, depression and suicide following climate-related events (Mengesha and Sarnyai, 2025; Tupou et al., 2023; Vafeiadou et al., 2023; Leal Filho et al., 2022). McIver et al. (2016) identify mental and psychosocial disorders as diffuse impacts of climate change, and research on Pacific communities shows that forced relocation severs emotional ties to place, leading to grief and anxiety (Tabe, 2019).

3.2.2 Sub-theme 2.2: Loss of cultural identity and spiritual wellbeing

The environment is inseparable from spiritual and cultural identity. Islanders describe yams, coconuts, and medicinal plants as tied to "the cosmos and the being as relational" (Melansian Spearhead Group (MSG), 2024, p. 143). In the Torres Strait case, the Human Rights Committee upheld that disrupted access to ancestral graveyards violates cultural rights (Republic of Vanuatu, 2024, p. 90), affirming that "the right to transmit a culture... to new generations" is protected under Article 27 of the ICCPR (Republic of Vanuatu, 2024, p. 89).

Fabrice Wacalie laments, "having lost only language has caused us to lose all the knowledge we have about plants" (Melansian Spearhead Group (MSG), 2024, p. 37), linking language loss to the erosion of cultural memory. His testimony highlights "le patrimoine humain" (human heritage) and the Kanak role as "guardians... for all humanity of particular species" (Melansian Spearhead Group (MSG), 2024, p. 39). Language shifts—"we have new elements coming… and we have to name them"—are reshaping culture and displacing meaning (Melansian Spearhead Group (MSG), 2024, p. 17).

The cultural impact is not abstract: customary authorities are now urging people not to take shells from beaches to stop erosion—changing rituals as climate alters the landscape (Melansian Spearhead Group (MSG), 2024, p. 17, 39). As noted in the Vanuatu annex, "cultural and natural heritage are indivisible" (Republic of Vanuatu, 2024, p. 72).

Testimonies about disrupted rituals and language loss align with evidence that rising seas and forced relocation undermine cultural continuity (Mengesha and Sarnyai, 2025; Vafeiadou et al., 2023). Studies on climate-induced displacement warn that relocation causes stress, loss of traditional knowledge and erosion of cultural links, supporting witnesses' assertions that environmental degradation threatens cultural and spiritual wellbeing (Tupou et al., 2023).

3.2.3 Sub-theme 2.3: Disruption of place-based wellbeing and connection to ancestral lands

Disconnection from land is deeply wounding to cultural identity and personal wellbeing. Experts in New Ireland describe the "interconnectedness of everything" as a spiritual and relational truth (Melansian Spearhead Group (MSG), 2024, p. 49), where nature, self, and community are part of a single living system.

Relocation, even when necessary, does not sever these ties. When Vunidogoloa villagers in Fiji moved, they "retained the name of [the] old village" and rebuilt their church—symbols of rootedness despite physical displacement (Melansian Spearhead Group (MSG), 2024, p. 106). Yet, as Robsin Tigona notes, constant climate disasters are forcing people into "recovery upon recovery" (Republic of Vanuatu, 2024, p. 99), destabilizing place-based identity and any chance of regrounding.

This continual rupture impacts collective mental health and belonging. The failure to secure ancestral land means not just material loss, but disconnection from the past, spirit, and future. As reaffirmed in cultural frameworks across the Pacific, to lose land is to lose a piece of the self.

The severed connections to ancestral lands described by villagers correspond to research linking rapid-onset disasters to disrupted social networks and "climate-related distress" (Leal Filho et al., 2022; Mengesha and Sarnyai, 2025). Studies of Pacific Island children confirm that relocation threatens development and induces grief and anxiety, mirroring testimonies of communities trying to maintain identity by retaining village names and rebuilding churches.

3.3 Erosion of traditional knowledge systems supporting health and wellbeing

This theme addresses how the loss of languages, biodiversity, and cultural practices undermines traditional ecological and medicinal knowledge crucial for community health.

Climate change is severely undermining traditional healing systems, which remain central to community health and spiritual life across Vanuatu and Melanesia. In Port Resolution, Werry Narua explains that banana plants have "different medicinal uses" across varieties—leaf, trunk, fruit, and root—and that "the loss of the

Sarawei, Finger and Yatir Banana" means the community can "no longer access the medicine they provide" (Melansian Spearhead Group (MSG), 2024, p. 282). These medicines are embedded in a relational system of kastom exchange: "They will come to us to ask for the medicine… which will cure their sickness."

In Yakel, Naus Iaho describes preparing sacred fertility medicine known only to her and one other woman. She warns that "now it is hard to find those herbs" after TC Pam and unusual rains, and that "making the medicine is my sacred duty… when I can't do it, to me it is a failure" (Melansian Spearhead Group (MSG), 2024, p. 247). Sera Nawahta similarly fears she cannot pass on fever and headache remedies to her daughter, calling them "essential medicine for the community" (Republic of Vanuatu, 2024, Annex N, p. 187).

This erosion of healing practices is exacerbated by environmental loss. Cyclone Harold alone "directly affected 37% of households' access to traditional sources of food, medicine, and shelter" (Republic of Vanuatu, 2024, p. 17).

The crisis is also one of language. Dr. Fabrice Wacalie explains that "by destroying nature, man destroys himself," as Indigenous languages preserve crucial ecological knowledge (Melansian Spearhead Group (MSG), 2024, p. 295). He notes that in his language, the word for "leaf and lung, and sap and blood," are the same—revealing a worldview in which human health and ecological health are inseparable (Melansian Spearhead Group (MSG), 2024, p. 312).

Other testimonies confirm this epistemology: "When we lose plants and animals, we lose the words for them… Then we do not know how a particular plant can help us because we have lost its name" (Melansian Spearhead Group (MSG), 2024, p. 360). The example of "mitche" in the Drehu language reveals how names encode use—"mit" meaning sacred and "che" meaning life—marking the plant's role in spiritual and physical protection (Melansian Spearhead Group (MSG), 2024, p. 304).

The replacement of Indigenous names with scientific Latin terms is deepening this rupture: "we have lost our language… and so that's a real problem for us" (Melansian Spearhead Group (MSG), 2024, p. 33). As Wacalie underscores, biodiversity loss from fire or cyclone is compounded by language loss—people "don't know how to spell species in their own language. They only know the scientific name" (Melansian Spearhead Group (MSG), 2024, p. 34, 304).

Witnesses' fears about losing medicinal plants and language are supported by research showing that climate-induced relocation can result in the loss of traditional knowledge and cultural links. Particularly we see this is the holistic cultural identity connected to place in the Pacific and the harm of climate change on this grounding (Raisele et al., 2025; Tupou et al., 2023; Tabe, 2019).

3.4 Impacts on health systems, services, and access to care

This theme examines the effects of environmental crises on the functionality, accessibility, and capacity of formal health services and the wellbeing of service providers.

3.4.1 Sub-theme 4.1: Strain on and deterioration of health infrastructure and services

Climate disasters are overwhelming state capacity: "We are currently experiencing problems with acquiring adequate resources" to respond to compounding disasters (Republic of Vanuatu, 2024, p. 200). Rising seas have destroyed health clinics and homes, leaving once-thriving communities looking "like ruins" (Melansian Spearhead Group (MSG), 2024, p. 163).

3.4.2 Sub-theme 4.2: Increased dependence and barriers to accessing care

People face "more dependence upon government services... but basic services are disappearing," with hospitals and aid posts closing as disease burdens like malaria increase (Melansian Spearhead Group (MSG), 2024, p. 394). Tench Islanders report deep mental health trauma, with some saying: "We wish that our children weren't alive... because the island is gone" (Melansian Spearhead Group (MSG), 2024, p. 430).

3.4.3 Sub-theme 4.3: Wellbeing of health and emergency responders

NDMO staff face dual burdens as disaster responders and victims: "Their houses had been blown off... but they do their best not to concentrate on that" while serving others in crisis (Republic of Vanuatu, 2024, p. 224).

Reports of destroyed clinics and overstretched health workers reflect findings that extreme weather strains health systems and critical infrastructure (Bowen et al., 2024). Rumsey et al. (2014) emphasize the need for expanded health-workforce capacity during disasters, while McIver et al. (2016) note that socio-economic disadvantage and population pressures exacerbate these challenges.

3.5 Holistic and interconnected nature of health: environment, culture, and wellbeing

This theme reflects the understanding that human health is intrinsically linked to the health of the environment and the vitality of cultural systems, emphasizing a holistic perspective.

Dr. Wacalie warns that "by destroying nature, man destroys himself," linking environmental harm to loss of cultural and psychological wellbeing (Melansian Spearhead Group (MSG), 2024, p. 295). John Aini emphasizes the deep "connection with the environment" essential to human balance and health.

This framing of health as inseparable from environmental and cultural vitality is well documented in literature on the Pacific identity from the writings of Epeli Hau'Ofa (2008) and many indigenous scholars, including Thaman (2003), as well as by Raisele et al. (2025) and Tabe (2019) in examining the wound of climate change to a people holistically connected to the land and sea.

3.6 Exacerbation of social determinants of health and community resilience

This theme focuses on how environmental degradation worsens underlying social factors that influence health outcomes and undermines community support systems crucial for resilience.

Women from Yakel, Vanuatu report that "food shortages are affecting our health" and "women are dying younger." Climate impacts have led to "quarreling among men," breakdowns in family harmony, and violence against women due to stress and scarcity (Melansian Spearhead Group (MSG), 2024, p. 269).

Stories of food shortages, increased violence and family breakdowns underscore how climate change worsens poverty and social inequities. Bowen et al. (2024) identify poverty and socio-economic disadvantage as risk factors for climate-related health impacts, while McIver et al. (2016) highlight population pressures and socio-economic disadvantage as diffuse climate impacts.

3.7 Health as a human right: violations stemming from environmental harm

This theme underscores the perspective that environmental destruction and the failure to protect against it constitute violations of fundamental human rights related to health and wellbeing.

Environmental degradation on Indigenous lands harms physical and mental wellbeing; failure to adapt was found to violate health-related rights, with cultural loss worsening psychological suffering (Torres Strait Islanders case, UNHRC).

The assertion that environmental destruction violates the right to health is grounded in evidence that climate change increases infectious diseases, malnutrition and mental-health disorders (McIver et al., 2016) and damages infrastructure and services (Bowen et al., 2024). These studies could support claims that government inaction infringes upon health rights.

3.8 Gender-specific health impacts

This theme concerns the differential health impacts of climate change on men and women.

Professor Tan Sri Dr. Jemilah Mahmood states that "climate change is not gender neutral"—women are more severely affected due to social roles, discrimination, and poverty (Melansian Spearhead Group (MSG), 2024, p. 500). They face increased caregiving burdens, psychological distress, and higher rates of domestic violence, especially during displacement and male migration. Pregnant women are particularly vulnerable, with climate impacts linked to "preterm birth, low birth weight and infant mortality." Poor nutrition worsens risks for both mothers and infants.

Climate change also threatens Sexual and Reproductive Health and Rights (SRHR), including menstrual health, with the greatest impacts on "adolescents, sex workers, people with disabilities, and those of diverse SOGIESC [Sexual Orientation, Gender Identity, and Expression, and Sex Characteristics]" (Melansian Spearhead Group (MSG), 2024, p. 500). A Women Deliver report confirms that both climate impacts and responses exacerbate SRHR challenges.

Johanna Gusman adds that during the 2015-2016 PNG drought, women and girls faced increased harassment while fetching water and bore "an increased share of the workload" (Melansian Spearhead Group (MSG), 2024, p. 491). In Fiji, climate change is degrading ecosystems essential for livelihoods, culture, and well-being (Melansian Spearhead Group (MSG), 2024, p. 491).

Women's disproportionate burdens—caregiving during disasters, increased violence, and reduced access to reproductive health services—are documented in gender-focused climate-health studies. Leal Filho et al. (2022) report that women experience higher mental-health impacts and domestic violence during climate events; Mengesha and Sarnyai (2025) and Vafeiadou et al. (2023) note increased anxiety, depression and PTSD among women. McIver et al. (2016) also point out that socio-economic disadvantage amplifies vulnerability.

3.9 Attribution

This theme concerns how communities are experiencing shifts and how they attribute it to climate

Community testimonies from across the Pacific reveal that while people have long adapted to natural variability, the current scale and unpredictability of climate impacts are profoundly different—and deeply threatening. In Kenani Village, Fiji, elders note that "our parents would get yams that were very big but now the size of the yams is decreasing every time we harvest," describing sorrow and even shame in cultural rituals when "we present the yam to the chief and God" and "feel sad because how can we present a small yam…?" They reflect that, although they are used to "planting on the same land for so many years," now "too much rain" and "too much sun" have made it "very difficult to prepare the land," and "we do not get as much dalo as before and they are even smaller now," sometimes arriving "empty handed" at funerals and gatherings (Melansian Spearhead Group (MSG), 2024, p. 121). In New Caledonia, a Kanak sea guardian explains that, as someone "always part of the sea," they have noticed the ocean has "grown increasingly disturbed in recent years," with "the disappearance of fish and shellfish near the coast" caused by hotter seas—an unprecedented loss even in a place used to coping with change, as now "the species have disappeared… only in the past few years, as the ocean temperature has gotten hotter" (Melansian Spearhead Group (MSG), 2024, p. 125). Elsewhere, residents emphasize that "normally here we have just two seasons" and have always adapted to "La Nina and El Nino," but recently, "the temperatures are going up and down… the amount and intensity of rain is now much greater than in the past." They stress that "these have been accentuated recently. We have never experienced La Nina and El Nino like we experience now," and this "upheaval" has thrown off the entire cycle of planting, harvesting, and traditional knowledge (Melansian Spearhead Group (MSG), 2024, p. 142, 153). In Papua New Guinea, people recall that their village "used to be on higher ground" but "is now taken by the sea,"

and recount the shock of experiencing "the strongest winds…the first of its kind," destroying homes and vital mangroves—events "we had never experienced…before" (Melansian Spearhead Group (MSG), 2024, p. 164, 168). Fisherfolk in Malaita Province, Solomon Islands, echo this shift: "the Koburu and Ara seasons have become very unpredictable for us, the local fishermen," with "unusually low tides and unusually high tides," "heavy rainfalls," and frequent "storm surges" now leading to "rapid coastal erosion"—phenomena "we didn't experience 10 years ago" (Melansian Spearhead Group (MSG), 2024, p. 179).

4 Discussion

The International Court of Justice (ICJ) Advisory Opinion process marks a pivotal moment for Pacific Small Island Developing States (PSIDS) in articulating the full scope of loss and damage from climate change as a matter of fundamental human rights. By foregrounding testimonies from affected communities, the ICJ process elevates the lived realities of loss—extending far beyond material damage to encompass psychological, cultural, and gendered harms—and situates these within the broader legal obligations of states to protect the rights to health, culture, self-determination, and life itself. In this context, the submissions by Vanuatu and the Melanesian Spearhead Group offer compelling evidence that the impacts of climate change in the Pacific are inseparable from questions of justice and equity. They underscore that effective redress for loss and damage must not only restore what is lost, but also uphold the dignity, identity, and agency of affected peoples, making a strong case for integrated, rights-based policy responses in both national and international forums

Pacific communities have always adapted to environmental change, but what they now face is categorically different: more intense cyclones, erratic seasons, unprecedented crop failures, and coastal erosion are overwhelming traditional knowledge and resilience. Testimonies highlight a deepening sense of loss—not only of land and resources, but also of dignity, identity, and cherished cultural practices. These changes are no longer part of a natural cycle; they are rapid, unpredictable, and existentially threatening, straining both the social fabric and the ability of communities to maintain core aspects of life and ceremony. This lived experience makes clear that the Pacific is confronting a new era of risk and insecurity, and it demands that legal and policy frameworks respond to the full, interconnected nature of loss and damage now being endured.

The thematic analysis illustrates clearly that loss and damage from climate change extend beyond tangible physical impacts to encompass profound psychosocial, cultural, and gendered dimensions (Bowen et al., 2024; Howard, 2022) however gendered dimensions are not pervasive, whilst gender diverse perspectives are missing entirely. This remains a significant gap in our understanding. Consistent with prior research, increased incidence of climate-sensitive diseases such as malaria, dengue, cholera, and leptospirosis is present (Kim et al., 2022; McIver et al., 2016). Health system strain, exemplified by the closure of essential health services in Papua New Guinea, exacerbates vulnerability at a systemic level (Melansian Spearhead Group (MSG), 2024).

Vulnerability to climate-induced health risks in Pacific Island communities is profoundly shaped by the intersection of cultural identity, traditional knowledge, and gender. When ancestral lands are lost or degraded, Pacific peoples experience not just physical displacement but also spiritual and cultural rupture, undermining community cohesion and increasing psychological distress (Melansian Spearhead Group (MSG), 2024, p. 120; Republic of Vanuatu, 2024, p. 99). The erosion of traditional knowledge—such as the loss of medicinal plants and the language to describe their use—limits adaptive responses and weakens intergenerational resilience, leaving communities more exposed to illness and food insecurity (Melansian Spearhead Group (MSG), 2024, p. 282; p. 33). Gender further compounds these vulnerabilities: women, as primary caregivers and knowledge custodians, face disproportionate burdens and increased risks to their health and safety as climate impacts intensify resource scarcity and social disruption (Melansian Spearhead Group (MSG), 2024, p. 500; p. 491). These intersecting factors mean that climate risks are not experienced equally, but are amplified for those whose cultural and gendered roles are central to community wellbeing. As such, effective adaptation requires approaches that center cultural identity, safeguard traditional knowledge, and prioritize gender equity (Newport et al., 2024; Tiatia et al., 2023).

Cultural identity and traditional knowledge are central to both the experience and understanding of climate-induced health risks in Pacific Island contexts. Unlike Western biomedical models that often isolate physical health from cultural and spiritual life, Pacific ontologies emphasize the indivisibility of environment, identity, and wellbeing. People and nature are deeply intertwined, and the experience of climate change as loss and damage cannot be easily expressed in a singular ontological framework. The experiences are personal and place based and cannot be easily encapsulated into a generic model but can guide our understanding of how interconnected impacts are driving the experience of loss and damage (eg. loss of biodiversity, climate change, pollution as well as the intersections of colonialism and Western modes of knowledge).

Significant psychological trauma arises from both sudden-onset disasters and slow-onset impacts, aligning with existing research highlighting mental distress, anxiety, and trauma related to climate change (Leal Filho et al., 2022; Mengesha and Sarnyai, 2025). This distress was particularly acute in testimonies describing displacement and the loss of ancestral connections, which respondents equated with intense mourning and existential grief (Melansian Spearhead Group (MSG), 2024). Such experiences reflect the critical but often overlooked psychological and spiritual dimensions of climate change impacts, requiring a holistic response (Newport et al., 2024).

The erosion of traditional knowledge, particularly around medicinal plants and healing practices, emerged prominently in the analysis, aligning with scholarly assertions on the interconnectedness of language, biodiversity, and health (Melansian Spearhead Group (MSG), 2024; Newport et al., 2024). Loss of indigenous terms for plants and their medicinal uses represents not merely a linguistic shift, but a significant disruption in community resilience and health capabilities (Melansian Spearhead Group (MSG), 2024).

Gender-specific impacts were highlighted but not extensively, consistent with Howard's (2022) critique that much climate-gender literature superficially addresses gender dynamics. Women reported severe physical and emotional health burdens linked to displacement, heightened caregiving roles, increased gender-based violence, and compromised sexual and reproductive health rights (Melansian Spearhead Group (MSG), 2024). These findings echo Bowen et al.'s (2024) argument for gender-sensitive health interventions and policy frameworks.

A recurring thread across the witness statements is the sense of intergenerational rupture. Elders describe how rising seas, extreme weather and forced relocations are severing the transmission of language, medicinal knowledge and cultural rituals to their children and grandchildren. Parents express deep anxiety that their children will inherit land that is no longer habitable, while young people speak of trauma, malnutrition and disrupted schooling. These harms give added weight to why Pacific youth have been among the most vocal advocates for the ICJ advisory opinion. Youth-led movements galvanized the campaign for a legal ruling on climate obligations, rejecting the cloak of vulnerability and reclaiming their roles as active custodians of cultural heritage and innovators of relational solutions. At the same time, they remind the world that their communities have been burdened with the costs of others' failures, forced to shoulder losses they did not cause and too often asked to trade away their futures simply to survive. This is not a plea for charity but a call for reparative justice—recognition and redress owed to those who have protected the planet while others profited from its destruction. By linking lived intergenerational harm with youth-driven advocacy, the discussion underscores that pursuing intergenerational justice means both safeguarding future generations from loss and recognizing the agency of Pacific youth in crafting solutions for the global good.

This study supports existing calls for integrating gender, cultural contexts, and indigenous methodologies into climate health strategies (Bolton et al., 2020; Tiatia et al., 2023). Methodological insights highlight the importance of relational and culturally appropriate research approaches (Newport et al., 2024). The incorporation of Pacific epistemologies, youth voices, and cultural protocols in future climate health responses could enhance resilience and adaptive capacities significantly.

5 Conclusion

This study underscores the multi-dimensional nature of climate-related loss and damage in PSIDS. By synthesizing witness statements, legal submissions and scholarly literature, we identified intersecting themes of infectious-disease burden, trauma and injury from extreme events, food insecurity and malnutrition, mental-health impacts, erosion of traditional knowledge, strain on health systems and gender-specific vulnerabilities. These impacts are not isolated; they form a complex tapestry woven from physical, psychosocial and cultural threads, all grounded in the relational values of Pacific communities. Our findings affirm that effective responses must be gender-responsive, culturally grounded and intergenerational, integrating traditional knowledge and prioritizing community resilience. The ICJ's advisory opinion provides a powerful legal framing for these responses, recognizing that states have obligations to protect health, culture and self-determination in the face of climate change. By centring Pacific voices, this research contributes evidence and moral force to ongoing debates about loss and damage and the need for justice-based climate policy.

5.1 Future research

The ICJ's advisory opinion opens new avenues for research and action. Future studies should examine how its legal findings are translated into domestic law, international policy and national action. There is an urgent need for intersectional research that goes beyond binary notions of gender to include gender-diverse and SOGIESC populations, and for longitudinal studies on reproductive health and gender-based violence following climate-induced disasters. Researchers should also explore how youth-led initiatives can be integrated into climate-health policy, assessing the effectiveness of youth-driven solutions in enhancing resilience and intergenerational equity. Finally, comparative analyses across small-island contexts could illuminate common challenges and locally tailored approaches to implementing the advisory opinion, ensuring that its promise of climate justice is realized in the lives and health of Pacific peoples.

6 Limitations

This study is limited by its focus on qualitative data from submissions by Vanuatu and the Melanesian Spearhead Group, which may not capture the full diversity of experiences across all Pacific Island countries. The reliance on testimonial evidence could introduce bias, as it reflects the perspectives of those able to participate in the process of providing evidence directed toward the questions posed to the International Court of Justice. Additionally, there are notable gaps in the academic literature specifically addressing the intersection of gender, health, and climate change in the Pacific, which restricts the breadth of analysis. For instance there is limited empirical studies on gender diverse and SOGIESC populations. Most research focuses on cisgender women, neglecting gender-diverse individuals and men. There is insufficient longitudinal research on reproductive outcomes, such as preterm birth and maternal health, following climate-induced disasters as well as scarcity of data on gender-based violence linked to climate stressors; the Tanna Women's Counseling Center reported a 300 % increase in domestic violence after cyclones (Office of the High Commissioner for Human Rights (OHCHR) Regional Office for the Paicifc, 2011) but to the best of our knowledge, there has been no peer-reviewed follow-up. Furthermore, there is an under-representation of indigenous epistemologies and relational worldviews; existing studies often employ Western biomedical framings, overlooking cultural connections between environment and health.

While the study acknowledges intersecting factors a deeper intersectional analysis is needed, and the findings cannot be generalized beyond the specific contexts examined.

Data availability statement

Publicly available datasets were analyzed in this study. This data can be found here: https://www.icj-cij.org/case/187/written-proceedings.

Ethics statement

Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

SS: Methodology, Formal analysis, Writing – review & editing, Conceptualization, Writing – original draft. VR: Writing – review & editing. RV: Writing – review & editing.

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