

PERSPECTIVE OPEN



Postcolonial lessons and migration from climate change: ongoing injustice and hope

Keith Morrison¹✉, Moleen Monita Nand², Tasneem Ali³ and Sotiana Mele¹

The 2022 Intergovernmental Panel on Climate Change (IPCC) reported that the ongoing impacts of colonisation compromise the ability of many peoples to adapt to the effects of climate change. The interaction between climate justice and postcolonial justice raises many important questions about the interconnectedness and common causes of coloniality and anthropogenic climate change. We recognise a dynamic interaction, and that it is a feature of necropolitics causing both coloniality and anthropogenic climate change. Through grounded experience of cultural traditions in Pacific Islands countries (PICs), and use of transdisciplinary anticipatory systems and resilience theories, we proffer conceptual models to show how IPCC scenarios can be used to assist both climate justice and postcolonial justice, but also to forewarn how IPCC scenarios can also be used to deepen injustice. There are strident expressions within PICs to proactively engage in restorative climate justice. Our conceptual models summarise this as an emerging multi-scalar process, which we term tri-SSM. We argue tri-SSM is a hopeful regenerative kernel empowering vulnerable communities, including their proactive use of migration.

npj Climate Action (2023)2:22; <https://doi.org/10.1038/s44168-023-00060-7>

INTRODUCTION

Climate justice is a popular movement of civil society¹, with a heartfelt following in Pacific Island countries (PICs) where there is a strongly felt grievance at how we have contributed miniscule amounts to the cause of anthropogenic climate change but are nevertheless suffering some of its most severe detrimental effects². For many in the PICs, climate justice is more than merely a grievance; it is also a catalyst for seeking transformative change, symbolised by an address by a Samoan New Zealander, Brianna Fruean, at the 26th Council of Parties (COPs), 'We are not drowning we are fighting' as 'resilient beacons of hope'³. In this paper, we herald this view and outline how we have learnt to further empower it. But first it is necessary to contextualise the PICs, because the transformative change being sought addresses more than climate injustice.

The PICs are a vast 'sea of islands' in the Pacific Ocean, and notwithstanding being an admixture of states suffering past and present colonisation and current neocolonialism from countries with capitalist economies, the PICs form a region where traditional cultural practices, worldviews, and languages remain dominant, and where educational achievement, including research degrees, are highly valued. In the PICs, there are richly textured societies that weave in multilingual university-trained researchers grounded in traditional languages, worldviews, and practices.

As PIC researchers, the authors of this paper recognise our felt grievances, but more importantly our hope, and endeavour to articulate the overarching role of our respective traditional cultural worldviews in guiding and enabling our work for restorative climate justice. We recognise there are many definitions and approaches to climate justice. We argue that this is because the meaning of climate justice is contextual⁴. Within our context, we discern a common ethical theme of a personal and community concern for well-being, which is suggestive of virtue ethics; a personal passion with which we seek to use our research training

to benefit our communities. It is from this context that we develop our approach to climate justice.

Describing our ethical approach as a type of virtue ethics is given further weight when recognising that the influential moral philosopher Alasdair MacIntyre lamented the loss of virtue due to the neoliberal economy, arguing that virtues require a telos or overarching orientation, horizon, and purpose⁵. Our respective cultural traditions all have vibrant horizons of meaning that inspire our work. Therefore, our starting point in articulating our understanding of climate justice is in relation to our common overarching horizon of meaning found in our respective traditional cultural worldviews. There are two key concepts from PICs cultural traditions that we use to articulate our view of climate justice, *mauri* and *va*. They have been chosen because they are amenable to cross-referencing to the contemporary transdisciplinary theories of anticipatory systems and resilience. *Mauri* primarily refers to life force, and in human life to the meaningful process of growth in virtue. *Va* refers to spatial framing of the meaningful flow of *mauri*, extending into a fifth dimension of social-ecological space including noetic (mental or spiritual) activity, and a sixth dimension of divine activity^{6–8}.

The two concepts, *va* and *mauri*, outline the well-recognised PIC's lifeworld of personal relationships as the means and end for the development of well-being, which comes from seeking less, through putting the well-being of others first^{7,9,10}. Intrinsic to this lifeworld however is discernment that *va* can become degraded through loss of *mauri*, where social-ecological systems (SES) disintegrate into imbalance and disharmony⁷. Colonialism, neo-colonisation, and capitalist development are expressions of this disintegration of *va*, due to a belief in 'one truth ideology' to justify imperial exploits^{9,10}.

Other postcolonial literature defines 'necropolitics', to describe the politics underlying coloniality and capitalist development^{11–13}. Necropolitics justifies who suffers ill-being and (slow) death and who benefits with well-being, based on 'false universalisms'^{12–14}

¹Sustainable Community Development Research Institute, Suva, Fiji. ²University of Adelaide, Adelaide, SA, Australia. ³Fiji National University, Lautoka, Fiji.

✉email: etenauna@hotmail.co.nz

Climate change is a feature of necropolitics, but not only through causing climate change. A feature of necropolitics most pertinent to climate justice is that necropolitics also determines adaptations to climate change¹⁵. Moreover, even some expressions of supposed climate justice are conceivably instruments of necropolitics when they seek to maintain coloniality and associated capitalist development¹². Therefore, in our traditional cultural PICs approach to climate justice, based on *va* and *mauri*, we recognise that climate justice is inseparable from postcolonial justice.

To help articulate our approach to climate justice, we use the transdisciplinary theory of anticipatory systems¹⁶. Anticipatory systems theory refers to living systems as a process of feedforward and feedback. Feedforward is produced as models about the environment to base decisions upon. Feedback is received from the environment about the success or otherwise of the decisions, to improve the model used for feedforward. PICs' traditional cultures explicitly engage with both feedforward and feedback to produce adaptive SES through narrative-making^{9,17}. Narrative-making is how *va* is sought to be enhanced. Therefore, we construe seeking of justice, both climate and postcolonial, and virtue generally to enhance well-being, as a process of narrative-making within SES.

A feature of approaching justice as enhancing *va* for the well-being of all, and therefore defining climate and postcolonial justice as overcoming the degradation of *va* by climate change, by overcoming the necropolitics causing climate change, is that the resilience of SES becomes focused upon. Vibrant, balanced, and harmonious *va* attuned to *mauri*, is resilient. Anticipatory systems theory also assists with this, by providing a framework with which to apply different aspects of resilience theory within our PICs context. The framework outlines the processes involved in adaptation within a resilient process to bring about transformation of disintegrated SES. This enables our approach to climate justice to be framed as restorative justice brought about by the transformation of degraded *va*. We outline a transdisciplinary regenerative kernel for *va* as our contribution to climate justice, indicating how it has been and can be applied to migration as a type of climate change adaptation.

We start by providing background through reviewing anticipatory systems theory and resilience theory, and cross reference it to the PICs traditional cultural narrative-making processes. Further background is then given about migration as climate change adaptation in PICs, with an example of culturally facilitated proactive migration, and a comparison between proactive and forced migration. Conceptual models of our regenerative kernel for *va* are then outlined, followed by a discussion of the application of our regenerative kernel for restorative climate justice in PICs.

BACKGROUND

Anticipatory systems

Anticipatory systems theory refers to how all living systems, from the most fundamental biological entities to human societies use models of the environment to respond to the environment¹⁸. This gives living systems the ability to respond immediately to the environment¹⁶. The models of the environment are feedforward, and feedback is received from the environment to the living system to correct the model. There are two levels to feedback, responding to two levels of error. Firstly, there is parametric error, which refers to the need to modify the values of variables within a model. Responding to such errors allows reversible interactions with the environment to be corrected. Secondly, there is systemic error due to irreversible changes resulting in errors that cannot be corrected by changing variables within the existing system structure.

The concepts of *va* and *mauri* constitute a meta-model of how to create feedforward in response to feedback about model error, both parametric and systemic. They do so by ensuring ecological resilience. Whether parametric or systemic error must be addressed, it is achieved through ecological resilience, which is maintained by always ensuring a requisite diversity of models at play that focus on the purpose for feedforward and hence models. The purpose for feedforward and models is to seek well-being, which is maintained by enhancing *va* through being attuned to *mauri*. Then, when any model fails and is selected against by co-evolution due to systemic error, there are alternative models that are still in play to be able to ensure adequate response to the environment due to only having parametric error impacting upon their functionality to seek well-being^{8,19,20}. Therefore, what the concepts *va* and *mauri* guide is a proactive process to continually explore new possible models of how to seek well-being, to ensure there is always requisite diversity of models available for ecological resilience.

To seek to enhance *va* by becoming ever more attuned to *mauri* inspires feedforward. The inspired feedforward is termed *lauga* or oratory that seeks to find ways to enhance *va* to reestablish and ever improve balance, harmony, and well-being²¹. Feedback is equally necessary, however to know what to address. This is created through *talanoa* or ordinary discussion in response to experiences by the community¹⁷. The cyclical or spiralling interaction of *lauga* and *talanoa* forms a recursive three-stage process: first *liuliu* or deconstruction in response to feedback from *talanoa*; second *lilii* or reconstruction from *lauga* expressing feedforward, and third *toe liuliu* or a return to *talanoa* to listen to feedback^{9,17}.

The use of such narrative-type methodologies within PICs is well documented as a research methodology, including within institutions and regional agencies of PICs^{22,23}. Such methodologies are recognised as a means by which to critically develop new approaches through engagement with others and the environment¹⁷. In this spirit, consideration of similar transdisciplinary methodologies is helpful. One is soft systems methodology (SSM). SSM was first developed to describe a learning loop with two levels, comprised by worldviews and rules²⁴. A complex messy 'rich picture' is created (collectively brainstormed through *talanoa*) to visualise feedback from embedded or tacit knowledge from a community of their worldviews, before being narrated (through *lauga*) for feedforward as a conceptual model, whereupon policy implications are collaboratively developed to establish improved rules. The implementation then brings further feedback, and so the process undergoes another cycle with further feedforward.

What is important for climate justice is to determine the various forums where SSM can be used to address the effects of climate change, so that *va* is enhanced. To outline a kernel process, we argue there are three intrinsically nested forums within SES. We term them tri-SSM^{8,19,20} (see Fig. 1). SSM₁ refers to the personal learning nurtured by cultural traditions to nurture leadership in a community. SSM₁ is where communities are engaged with to co-create narratives or models to address issues, for example, climate change. SSM₁ is recursive, with monitoring co-established using local knowledge to develop community resilience and well-being^{8,19}. SSM₂ is learning carried out within institutions to develop policies and disciplinary knowledge. SSM₂ is interaction within and between institutions. SSM₂ seeks to lift conversations above departmental jealousies, to discover and serve a higher coherent purpose, and does so by ensuring SSM₁ is engaged with. Otherwise, SSM₂ becomes merely technocratic in seeking to coerce through finding leverage over communities, which is counter-productive for restorative justice, and degrades *va*. SSM₂ has proven to provide a helpful methodology for community-based research involving participation of multiple government departments and NGOs^{8,19}. SSM₃ refers to learning through adaptive governance, including intergovernmental interactions,

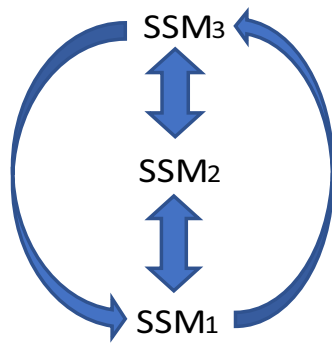


Fig. 1 Emergent interactions between three soft systems methodologies (tri-SSM), which form and continually transform civil society. Tri-SSM refers to emergent complex interactions between three soft systems methodologies. Soft systems methodology (SSM) models the emergent processes of adaptation that use symbolic language. SSM recognises that the creation of rules that structure social organisation is dependent on the worldviews of those who create the rules. Therefore, both worldviews and rules make up the feedforward in anticipatory soft systems, and adaptation of worldviews is related to the adaptation of social structures. SSM₁ refers to emergent informal community development guided by worldviews based on cultural traditions. SSM₂ refers to emergent co-development and co-adaptation of and by formal institutions, for example, interactions within and between government ministries, universities, and United Nations' agencies. SSM₃ refers to emergent adaptive governance, for example elections within a democratic government.

such as regional forums and COPs, expressed by leadership developed in communities, and informed by institutional and disciplinary knowledge²⁵. SSM₃ is inseparable therefore from SSM₂, and hence SSM₁. Otherwise, it becomes totalitarian ideological imposition, and cause of further injustices.

SSM₁ is at the heart of our tri-SSM regenerative kernel for restorative climate justice. The process brings a growing agency for self-determination within communities, experienced as creative exploration²⁶. With agency established, resilience and leadership can then also emerge²⁷. The anticipatory thought nurtured within the community through the process recursively reforms a link between the past and future, as ongoing revisualisation on a theme^{26,28}. The process both maintains dwelling in a place, with its social-ecological rhythms, and explores new possibly emergent opportunities^{9,28}, one of which can be migration⁷.

The resilience nurtured by tri-SSM is psychological, social, and ecological. Psychological resilience is maintained by *va* through connection provided by stable and harmonious relationships^{8,19,20}. Psychological resilience however also maintains and enhances *va* through a horizon of hope or openness to attune to *maur*^{8,19,20}. Both feedforward of participation in wayfinding through *lauga*, as well as feedback of inclusive participation within *talanoa*, are involved. Moreover, crucial for psychological resilience and restorative climate justice, is discernment to be suspicious, to recognise where *va* is being degraded and to explore why and what to do about it^{8,19,20}. Challenging whatever is said and done needs to occur at every step. Only then can horizons of real hope open. Otherwise, they are indistinguishable from fantasies.

Social resilience is at the heart of what makes both *talanoa* and *lauga* possible. Social resilience is the emotional intelligence to listen to others and to express what they can understand. It is to be open to honouring and respecting where and how others are, to nurture *va* in-between them and oneself^{8,19,20}. There is no other way to nurture *va*. The process has four stages that forms a continuous loop^{29,30}. First there is perseverance to maintain existing relationships. Second there is resistance to proposed changes, which is where suspicion is necessary within *talanoa*

when discussing feedback and information, including for example Intergovernmental Panel on Climate Change (IPCC) scenarios. Third there is adaptation, which requires coherence between the narratives created by the community and those of agencies in collaboration with. At best, this requires narratives to be co-created. Fourth there is transformation, which occurs when adaptations successfully address systemic error. This requires ecological resilience as well as social and psychological resilience. This is where multiple adaptations are necessary so that co-evolutionary processes will not select against all possible opportunities to adapt. Therefore, the resilience loop is continuous and always creating new adaptations ready for implementation.

Degradation of *va* through coloniality

The injustices needing to be transformed in PICs are inseparable from the operation of coloniality imposing capitalist economy and Modernity^{9,13,14,31–34}. The imposition has involved overt brutality through military force, but also covert use of what is termed biopower:³⁵ disempowerment through legally imposed definitions of supposed normality that marginalise traditional cultural institutions and practices, and hence sabotage the maintenance and enhancement of *va*. When applied to colonisation, commentators on the notion of biopower emphasise that biopower is not benign, but rather a politics that decides who are to be given well-being and who are to be given ill-being and death, with the colonised, and associated enslaved and indentured labourers, generally deemed to deserve the latter. The term necropolitics has been used to describe it^{11–13}. Necropolitics at its most insidious is internalised as a culture, whereupon people self-regulate themselves to its agenda via the market processes of the neoliberal capitalist economy. This self-regulated ill-being is recognised as the cause of contemporary mental ill-being, social crises, and premature death^{36–39}. A person is traumatised into choosing flexibility and compliance to do whatever is expected of them through blaming themselves when they fail. It is disintegrating the fabric of PICs' societies, or in other words, destroying *va*⁹.

This centuries-long period of colonial and neo-colonial injustice within PICs, which continues to deepen today, has occurred over roughly the same period as the Anthropocene. The term Anthropocene must however be decolonised because it gives a false impression that humanity as a whole is the cause of the pathological process constituting the Anthropocene. Rather, it is a set of behaviours imposed by a colonising subset of humanity onto a colonised subset of humanity through necropolitics^{12,31,40,41}. Systems theorists have known this for some time. It has long been recognised that the loss of learning loops by the culture of Modernity, has resulted in the loss of reflexivity to address systemic error, and is the cause of the emerging ecological crises and climate change⁴², as well as the cause of totalitarian socio-political pathologies⁴³.

False universalisms: one-truth ideology

The capitalist economy focuses on addressing parametric error to increase growth, refusing to question the assumptions of modern science and institutions associated with capitalist economy^{9,11–13,44}. The conceptual models structuring capitalist economy and Modernity are presumed to be universally true^{13,14}. There is a refusal to engage reflexively to critically explore alternative possibilities. There is a blindness to the operation of one-truth ideology⁹. Indeed, there is a dismissal of critical exploration as mere utopian fantasy²⁵, ironically masking a rigidly held utopian presumption of Western superiority⁴⁴. Nevertheless, creatives worldwide, including in PICs, are heralding the process, whereby opening horizons of hope^{2,45}.

Unfortunately, the scenario narratives of the IPCC remain within the bounds of only addressing parametric error⁴⁶. Consequently, IPCC scenario narratives have been described as dystopian, and

considered counter-productive to attempts to engender motivation to explore hopeful possibilities of collaborative transformation for climate justice⁴⁷. Similarly, there is a recognised crisis of trust in the United Nations Framework Convention on Climate Change (UNFCCC) process that bases its narratives on those produced by the IPCC⁴⁸. Even though scenario narratives produced by the IPCC are a product of remarkable global collaboration to summarise contemporary published scientific research in relation to climate change, the IPCC is nonetheless an intergovernmental panel, and so does not seek to reflect concerns and views of traditional cultural communities marginalised by governments, nor participate in reflexive critical discussion of climate necropolitics. The Modern scientific method, which the IPCC is premised in, is careful to ensure immediate ethical practice through ethics committees but nonetheless remains blind to the long-term ethical and hence justice consequences of its overarching orientation⁴⁴—it is premised in false universalisms. It epitomises the one-truth ontology that is also behind colonisation⁹. In other words, IPCC scenario narratives can be abused to further disempowerment and injustice, to degrade *va* and the *mauri* of communities, by demanding compliance by supposedly ignorant communities of traditional cultures to implement climate science. But IPCC scenario narratives need not be a source of disempowerment and continuing colonial and neo-colonial injustice. Rather, they can be developed within a co-narrative-making process, whereby climate change-affected communities listen and provide feedback, to critically co-create local hopeful anticipatory narratives with scholars and policymakers^{8,19,49}. Hopeful narratives that seek collaborative adaptation to transform injustices to enhance *va* are possible but requires the IPCC to first recognise that the narration process creating its scenarios is inadequate. It requires the IPCC to recognise that scenarios that critically address necropolitics in context, are necessary, to address the systemic error in development models that have caused anthropogenic climate change.

Migration

Migration is an example of a concept that has been reflexively considered^{32,50,51}. Human migration has negative connotations within dominant Western society. For a start, it is something that animals also do, and even worse, human migration is often seen as an illegal threat. As a result, it has been argued that migration is an unhelpful term to define what is legitimate and necessary mobility of people to fulfil needs for well-being^{32,51}. But a focus on 'mobility' presumes that it is mobility that is being constrained by external forces, whereas it is often immobility that is being sought and under threat, for example, because of climate change. Therefore, the term (im)mobility or im/mobility was coined to recognise that both mobility and immobility are constrained and under threat, depending on context^{52–54}.

We recognise the value in coining the term (im)mobility but draw attention to the Samoan term *malaga* meaning a journey, which already encapsulates how both mobility and immobility are valued⁷. Moreover, *malaga* serves to focus attention on the purpose for both mobility and immobility, which is to enhance *va*⁷. Notwithstanding our preference for the term *malaga*, we also value however the interwoven implicit and entailed meanings of how the term migration refers to something humans do alongside animals, all equally constrained by climate change. We also value that the term migration has different meanings from different worldviews. This multivocal polysemy is informative of hidden assumptions in worldviews, especially how coloniality with false universalisms seek security through control. But we want to focus on another point, which is that descriptions of migration, mobility or immobility are often primarily attempts to understand it to discover ways to apply leverage over people to manage or govern

them. For us, this leaves out what is most important, which is human agency, and by doing so only exacerbates injustices.

Our concern is intimidated by the focus on the affective dimensions of (im)mobility^{14,55,56}. But the best foundation for exploring *malaga* for climate justice is the heuristic of an im/mobility cube⁵². The metaphor of a Rhombic cube is used to emphasise the multi-dimensional determinants of im/mobility, and how in different contexts different aspects may be out front to focus on by communities. It is a very effective metaphor for the complex and proactive nature of *malaga*. We suggest using some version of an im/mobility cube as a catalyst for considering what potentially needs to be addressed when co-creating narratives by agencies interacting with communities.

We also volunteer examples of types of recent migration that help explore *malaga* as a proactive choice in face of climate change. First, is an example of culturally facilitated informal migration, *vakavanua*, within Fiji. Second, is a comparison of a proactive and forced migration by two whole islands from PICs now called Tuvalu and Kiribati, to two neighbouring islands in Fiji.

Culturally facilitated proactive migration—*vakavanua*

An example of culturally facilitated migration, *vakavanua*, can be seen in the iTauke-Fijian or indigenous Fijian village, Kalabu. Kalabu is in greater Suva. Suva is the capital of Fiji. Kalabu has ~300 inhabitants, and ~2000 informal migrants living adjacent on village-owned land⁵⁷. *Vakavanua* is a cultural imperative (virtue) requiring that migrants who respectfully seek to live on village land, and who respect village protocols, are accepted to do so. Land is made available for them to make houses and grow food, rent free. In 2014 the migrants included: iTauke-Fijians from around the country seeking work opportunities; Indo-Fijian descendants of indentured labourers, who had lost land leases, and Solomon Island descendants of indentured labourers⁵⁷. iTauke-Fijian migrants included those who migrated for environmental (climate change) reasons from the low-lying Lau group of islands in Fiji.

Being in the greater Suva area, Kalabu is a very convenient for paid employment, schooling, and medical care, as well as allowing greater freedom, access to land to grow food, and community ties through being close to Kalabu. *Vakavanua* successfully maintains embeddedness of migrants in their natural environment, society and cultural traditions, enabling them to maintain their agency to be self-determinant about their future.

Vakavanua is clearly a virtue that assists postcolonial justice and climate justice. Sadly, however, it has also been frowned upon by formal authorities (e.g., the iTauke Land Trust Board), because it limits the rent-gaining opportunities that supposedly helps economic growth in Fiji. This serves to highlight the injustices that use of *vakavanua* for restorative justice can help address. It can transform colonial and neo-colonial injustice by enabling escape from a poverty trap created by the neoliberal market economy, which expects people to seek the goal of formal land tenure while simultaneously making it very difficult to achieve. For those who are landless due to being descendants of indentured labourers caught in a poverty trap, it gives hope to be able to work to overcome the injustice meted out to them. *Vakavanua* also achieves initial steps of restorative climate justice by enabling safe transitions for iTauke-Fijians from ancestral homes that are becoming unviable due to climate change.

Comparison of proactive and forced migration

In the 1940s, two independent migrations of complete island populations from two islands in the then Gilbert and Ellice islands (now Kiribati and Tuvalu, respectively) occurred. They migrated to neighbouring islands in Fiji. Beyond this, the similarities stop. One was forced by colonial authorities, and the other was a proactive decision by a community.

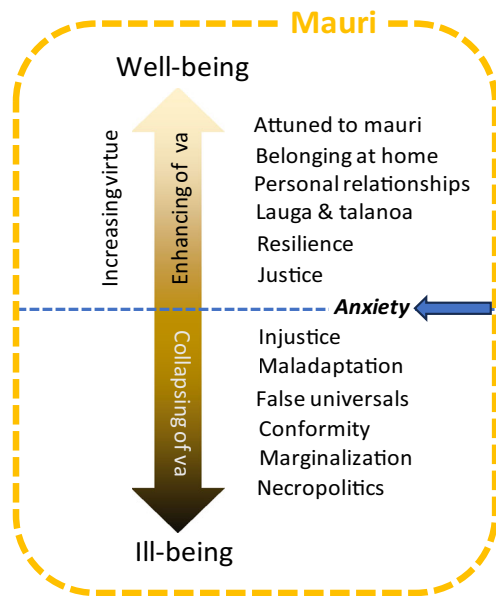


Fig. 2 Personal decision-making for justice. Personal decisions involve an intrinsic primal decision between adaptation that results in the enhancement of well-being, and maladaptation that results in the loss of well-being and increase in ill-being. To experience the need for primal personal decisions is to experience anxiety and the need to adapt. To deny anxiety leads to an implicit choice for maladaptation. However, whatever primal decision is made, *mauri* or the divine life force, works to enhance well-being. If the choice is made to face anxiety there is direct enhancement of well-being. If the choice is to deny anxiety, there is an ironical correction through emergent negative feedback within the anticipatory systems of life to increase anxiety. To deny anxiety means to deny aspects of knowledge about reality, for example climate change and coloniality. This degrades and ultimately collapses *va* or supportive personal relationships. The degradations are manifest as injustice through imposed false universals demanding conformity, which marginalises, excludes, and engages in necropolitics to decide who supposedly deserves well-being and who deserves ill-being and death. If instead there is the choice made to face anxiety and to work with knowledge, *va* is enhanced and is manifest as justice to inclusively support increase in well-being, including a sense of belonging at home for all. It also brings resilience, through the proactive expression of *lauga* or wayfinding and facilitation of *talanoa* or inclusive conversations to respond to all feedback that the *mauri* has brought.

The forced migration was from Banaba Island in present-day Kiribati, with relocation to the then uninhabited island, Rabi, in Fiji. The forced migration was an overt colonial injustice. Banaba was mined for phosphate by the British colonial government for nearly 90 years. Halfway through the process a decision was made to remove the Indigenous community on the island. World War II was used as a pretext to first relocate the whole community to the main island of what is now Kiribati, Tarawa. They were never returned home, and instead tricked into being relocated to Rabi. Even after a court case, where some redress was gained by the community, grievance continues to today, manifesting inter-generational trauma in failure to identify with belonging in Fiji⁵⁸. An interesting twist is that a group of Rabi immigrants have now proactively chosen to migrate to take up *vakavanua* hospitality to explore opportunities in Suva, in an attempt to escape the injustice meted out to them⁵⁷.

The proactive migration was in 1947 from Vaitipu island in what is now Tuvalu, to Koia Island, neighbouring Rabi Island in Fiji. In complete contrast to Rabi, the population of Koia does not feel grievance and has generally successfully integrated into the wider

Fiji community, identifying far more as Fijian, whilst maintaining their Tuvaluan cultural traditions.

There was overt colonial injustice carried out against the inhabitants of Banaba. This has still not been honestly narrated to the stage that the descendants are able to fully gain the resilience to adapt to their new home in Rabi. Agencies need to listen to the Rabi community to co-create coherent narratives that fully acknowledge the injustices. The narratives will then need to continue to be told. It will never be a matter of moving on. Rather, it will always be a matter of retelling the story, adding step-by-step how the injustice has become slowly transformed by exploring new opportunities.

Koia residents, by contrast, have not only maintained resilience and well-being but have enhanced it. There are also supportive narratives from Fiji authorities that have empowered the new Koia community to create hopeful narratives to adapt to opportunities that Fiji provides. There was no baggage to address first before establishing trust and collaboration. The narratives being retold by the Koia community celebrate the adaptation and continuing transformation of their community, adaptation, opportunities discovered, and achievements.

CONCEPTUAL MODELS

Traditional cultural knowledge systems in PICs are embedded in material and noetic realms that engage with the divine¹⁹. Traditional knowledge is a multi-dimensional personal experience, where ethics is experienced as choosing a horizon for the visualisation of hopeful possibilities that nurture the development of well-being⁸. Moreover, because it is a personal experience, ethics is experienced as manifesting virtues, each of which nurtures different aspects of well-being. The virtue of justice is to engage in restorative justice by enabling others to develop well-being.

The experience of the virtue of justice involves persisting in continuing to be open to explore possibilities for adaptation to develop well-being, and to resist denial of knowledge that enters onto a path of un-caring maladaptation^{8,19,49,57}. The choice to develop the virtue of justice is experienced as a motivation in the heart, where the heart-of-the-heart lifts upwards to choose to open the mind-in-the-heart to a horizon of hope to explore possible adaptations that develop well-being. The divine is experienced as a horizon of hope, with personal and community development of well-being experienced as divine characteristics.

Mauri

Figure 2 is a conceptual model synthesising several cultural traditions present within PICs. It models the experience of the heart making the primordial choice between adaptation and maladaptation. Symbolising the experience of the horizon of hope is the Aotearoa-New Zealand Maori term, *mauri*. *Mauri* has multivocal polysemy. *Mauri* means at least three distinct things, but far from being ambiguous, the multivocal polysemy points to a level of meaning higher than conceptual knowledge, to poetically implicate personal use of culture in connection with all life^{8,19,59}.

Mauri simultaneously means: (i) the life force of all; (ii) a talismanic cultural object that guides revelation of the life force of all, and (iii) the heart-of-hearts (*mauli* in Samaan) of a person^{6,8,19}. The *mauli* is where the divine is engaged with to become truly natural and hence fully human, and which experiences the *mauri* as life force of all, and creates *mauri* as talismanic art objects, for example, the art of the Climate Warriors².

Mauri is manifest when a hopeful heart expresses innovative creativity, inspired by a relationship with others, bringing a sense of belonging in a place^{8,19}. But it is a recursive choice of anticipation having to be repeatedly made, and which starts out

first as a choice to face anxiety, to choose to persist in responding to tacit knowledge of embedded experience in the social and natural world of injustices, and then to resist influences attempting to gloss over, ignore, and to deny them. Persistence and resistance inspire faith to creatively and critically research to explore possible adaptations to develop well-being. The choice to adapt and to continue to develop well-being manifests leadership, restorative justice, and resilience. It is a choice that trusts in the intrinsic nurturing power of grounded embeddedness in the natural world and cultural traditions; the trust that constitutes the PICs lifeworld of relationships⁹.

Alternatively, there is a choice to deny knowledge, for example, of climate change and the necropolitics of (neo)colonial injustice. It is simultaneously a denial of anxiety and of freedom, and therefore a type of trauma. It is what Modern development demands of people; to compulsively focus on achievement and productivity for economic growth⁹. Even though such maladaptive choices are initially likely to be an impulsive choice out of ignorance, they can become a compulsive habit once mindful exploring of possible hopeful opportunities is wilfully closed off. Therefore, a necessary facet of restorative justice is to continually provide a constructive influence by developing and communicating narratives that mercifully enable everyone to be able to start again to make new hopeful choices to mindfully participate in narrative-making. The traditional cultures of the PICs nurture this mindfulness to feel the anxiety that enables the freedom to creatively adapt, attuned to the inspiring hopeful experience of *mauri* divinely weaving together a complex co-evolving richly textured mat of coherent narratives to enhance balanced and harmonious *va*.

Va

Within the cultural traditions of PICs, the noetic realm refers to a fifth dimension in *va*, or space⁸. Complementing mindful creativity of persons, the noetic is also experienced as spiritual beings that influence biological reality as well as human communities, recognised in Western cultural traditions by the term *zeitgeist* (spirit-of-the-age). Some spiritual beings establish and maintain a *zeitgeist* for justice and are attuned to spirits that enable general well-being of biological life. Others manipulate to seek injustice to cause ill-being within necropolitics. A primordial bifurcation is therefore experienced in the fifth dimension of *va*, with people having to continually choose to either be influenced by unjust *zeitgeists* that entice entry onto a pathway of maladaptation, or to choose to be influenced by just *zeitgeists* aligned with a pathway of virtue and adaptation, seeking opportunities for enhancing well-being for all life. It can be considered an intrinsic bifurcation within SES into sustainability and unsustainability, as two distinct SES attractors⁶⁰.

Whereas the fifth dimension of *va* has an intrinsic bifurcation into two SES attractors for anticipatory feedforward, there is a higher sixth dimension of *va* that has a singular divine attractor inviting personal co-creativity. The singular divine attractor of the sixth dimension of *va* personally invites and nurtures exploration of the open-ended eternal infinite horizon of hope. This experience of the sixth dimension of *va* is opened when the mind-in-the-heart chooses virtue within the fifth dimension of *va*; chooses to enter the SES attractor of adaptation, well-being, and sustainability. All persons have the sixth dimension of *va* in their common human nature, in their *mauli* or heart-of-hearts. This sixth dimension of *va* is experienced through inspiration within narrative-making, in solidarity within civil society, and in the depth of the lifeworld of relationship⁹.

Unlike the fifth dimension of *va*, which provides a continual recursive primordial choice, the sixth dimension of *va* has divine agency to engage with, which is *mauri*. *Mauri* manifests natural potential for well-being, and ironically uses injustice wrought by

the SES attractor of maladaptation to provide negative feedback, for example, through climate change. Once the sixth dimension of *va*, *mauri*, becomes known, it becomes clear that the pathway of maladaptation, ill-being and unsustainability is a limited dead-end horizon. It also becomes known that it is always possible to become liberated from it through the empowerment of resilience: to persist in choosing the pathway of adaptation, well-being, and sustainability; to resist choices toward maladaptation, ill-being, and unsustainability; and to recover agency to be able to adapt to collaboratively transform to some extent, for some scales of an SES, the *zeitgeist*. The possibilities contained in the regenerative kernel of tri-SSM can extend all the way to South Pacific regional diplomacy, and to global COPs^{2,3,25}. This is the essence of restorative climate justice.

Coherent narrative-making

The colonial, postcolonial and neo-colonial context of PICs means that overarching narratives that engage with Western paradigms as well as cultural traditions are necessary. Hybrid narratives can assist in the co-creation of coherent narratives between communities and agencies^{29,49}. However, hybrid does not mean 'in-between' models that result in assimilation by whatever one becomes dominant⁶¹. Hybrid adaptive vibrancy can be described as inness⁶¹. All authentic traditions or paradigms have the full dimensionality of *va*, and so have true universal depth of inness, allowing co-creativity of mutual adaptation and transformative co-evolution by all traditions in dialogue. This contrasts with necropolitical one-truth ideology using false universalisms to coerce a limited horizon without openness to the sixth dimension of *va*: the in-between space established is limited to framing everything in terms of the four time-space dimensions of resources, including human resources, to gain leverage over them within a necropolitics of exclusion.

Figure 3 is an example of a hybrid conceptual model seeking to help ensure science is narrated as a means of justice, to avoid the injustice of necropolitics. Nested in the conceptual model is the *mauri* as the centre of human being, where personal learning occurs, but the *mauri* as life force is highlighted as well, as three evolutionary enfoldings that express the divine agency of the *mauri*⁵⁹.

The primary enfolding of material nature is what co-evolutionary biology narrates, but the concept of primary enfolding differs from the implicit narrative of materialistic Western science because there is also a primary enfolding of noetic nature forming the spiritual realm, as experienced and narrated by traditional cultures. The two primary enfoldings are experienced as material and spiritual embeddedness, respectively, and both are known through the intuition of tacit knowledge, which can be creatively expressed to provide inspiration for both feedforward and feedback in the narrative-making process.

SES are the content of the secondary enfolding. They emerged when human nature emerged, constituting the synthesis of material and noetic nature, with the capability to construct symbolic feedforward and to symbolise feedback. The secondary enfolding refers to the agency of the *mauri* in the sixth dimension enabling the four dimensions of material reality to become represented symbolically in the fifth dimension. Simultaneously, the tertiary enfolding of the divine 'into' each human person emerges as the capability to recognise feedback from the *mauri* in the horizon of hope of the sixth dimension. The tertiary enfolding enables the human mind to establish personal relationships with other people, and hence for *va* to fully emerge. The significance of the hybrid model is that it clarifies how full co-evolutionary emergence of the enfoldings occurs in the development of virtues, including justice.

The model implies that anthropogenic climate change is a secondary effect and source of ironical negative feedback from

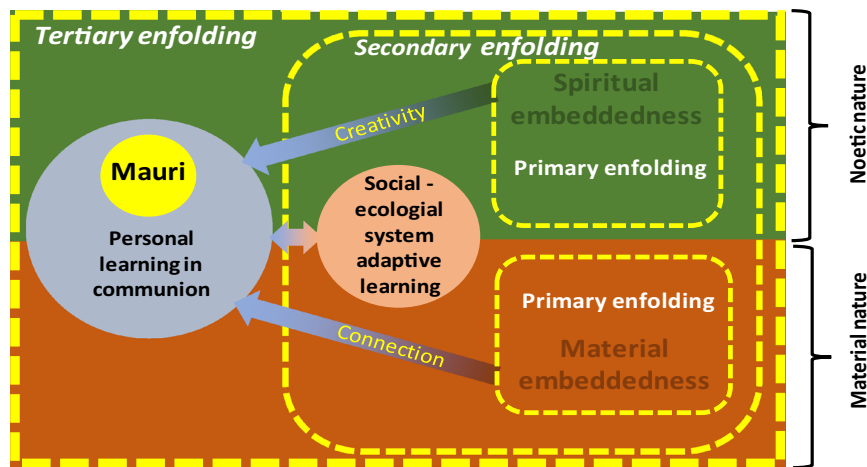


Fig. 3 A framework for the reconstruction of postcolonial narratives. Three nested enfoldings model how material reality, spiritual reality, and divine reality interact as a co-evolutionary process. An enfolding refers to the emerging and linking together of two inseparable things. The primary enfolding of material reality refers to the forming of biological entities within their environment, including the formation of the biological aspect of human nature. The primary enfolding of noetic reality refers to the formation of the hierarchy of spiritual beings, including the spiritual aspect of human nature. The secondary enfolding refers to the forming of the experience by human beings of subjectivity and objectivity through the conjoining of the co-evolution of biological life with the hierarchy of spirits, which enables the creative use of symbolic language to reflexively enhance adaptive capacity of human beings within biological life. The tertiary enfolding refers to the forming of personal relationships within community through reflexive awareness of the creation of symbols, to enable personal decisions to be made between adaptation and maladaptation. The tertiary enfolding enables human beings to attune to the co-evolution of biological life, to avoid maladaptation and the consequent selection against by co-evolution. Cultural traditions emerge from the tertiary enfolding to facilitate the attuning of human beings to divine reality, *mauri*. Divine reality is the source of all three enfoldings, including co-evolutionary selection against maladaptation. In biological life and in social–ecological systems (SES) formed by secondary enfolding, adaptation and maladaptation co-exist. The tertiary enfolding, through the emergence of cultural traditions, minimises the existence of maladaptive SES.

the *mauri* about several primary effects, namely ecological, social, and personal pathologies wrought by climate necropolitics. Moreover, the model also implies that the pathologies arose due to enculturation of disembeddedness, through denial of negative feedback or *talanoa*, and denial of the need for inspired feedforward or *lauga*. The model implies that Modern development, along with western colonisation and current neoliberal capitalist neo-colonisation, have been a profane regression, impossible to maintain in the long-term, and currently in the process of being selected against by co-evolution. The model implies that co-evolution will select for the survival, thriving, and growth in solidarity of vibrant adaptive cultural traditions co-creating themselves and co-evolving with all others the world over – coloniality coerced assimilation due to one-truth ideology are dead-end maladaptations.

DISCUSSION AND CONCLUSIONS

All the dimensions of *va* can potentially be brought to play in narrative-making. Participation in them all brings psychological resilience^{8,19,20}. If co-creation of coherent narratives with others operating at different levels of SES leads to successful adaptation, there is also social resilience^{8,19,20}. But for restorative justice that transforms unjust SES, ecological resilience is also necessary, through recognition of complex messiness, by ensuring a rich enough diversity of narratives, of truths^{8,19,20}. The fulfilment of resilience, enabling well-being to fully develop, is only found in humble messiness recognising the dirtiness of necropolitics⁶². It requires ongoing suspicion to always challenge, to avoid being tricked.

Critical sociology explores the messiness and dirtiness in terms of an overdetermination of external and internal aspects, humbling any expectation that any single truth can be found to control or manage climate justice⁶³. Hope is an internal requirement that guides the development of other internal requirements, namely visualising and narrating real possibilities to enhance well-being, but external conditions must align with

narratives for real possibilities to unfold. This is the real world of dirty necropolitics. But emerging out of that challenge and testing, trust can be established, to potentially enable climate change scenario narratives to serve as viable narratives for use within the UNFCCC process. Such scenario narratives can also have an integrative role necessary in the development of well-being, by exploring diverse weaving together of potential synergies to fulfil the complex sets of needs necessary for well-being. In face of complex situations, necessarily simplified by narration, a sufficient range of narrative options is required for successful adaptation, even when there is effective collaboration²⁰. This is how to avoid being tricked by impositions of the one-truth ideology and false universalisms of necropolitics.

We argue that tri-SSM can ensure that diverse internal aspects of ecological resilience are established through SSM₁, where psychological, social, and ecological resilience are maintained. But we recognise that it cannot cause the aligning of external factors for transformative restorative justice. Tri-SSM can nevertheless guide how it is possible to always prepare to be able to take up opportunities as external conditions unfold, by exploring possible scenarios of transformation of SES that could possibly emerge through SSM₂ and SSM₃ sometime in the future⁶³. Likewise, the opposite can occur and must be prepared for: external conditions may close off opportunities for restorative justice. So, what must be maintained is the core, which is SSM₁, to maintain hope in a spirit of preparation and anticipation, with a requisite diversity of narratives to extend the regenerative kernel of tri-SSM as far as is possible at any time. This is the way to maximise restorative justice in any situation, in this dirty world of society and politics, of resistance and challenge. It is how hope and meaningful activity are always possible no matter how dirty the situation.

Restorative justice is centred in SSM₁, in community life. It begins to gain traction in the messy dirty real world if it extends to include SSM₂, by engaging with institutions, and finds its wings if extended to include SSM₃ through politicisation and mobilisation, to become paradoxically, fully grounded. What is essential is to preserve SSM₁, because if it is lost, all else becomes counter-productive. SSM₁ is

the core. This is implicitly recognised by PICs, as most institutions and governance processes have prayers when starting meetings, and commonly also use other cultural traditions^{8,57}.

An important lesson that agencies interacting with communities must however learn is that resistance from communities, which will be increasingly encountered as restorative justice develops, is intrinsically good and necessary. It must not be misinterpreted. Even when it is discovered after a challenging interaction, that there never was a disagreement, the interaction is better for resistance and challenge. For example, in Kiribati visitors are met with in *mwaneaba* or village meeting houses, where questions are asked of visitors. Officials of any kind can be asked questions and required to dialogue. Officials cannot use their rank to avoid them. It enables authentic processes of engagement^{8,19}. Similarly in Aotearoa-New Zealand, in a traditional Maori cultural context, there is always a *wero* or challenge prior to any discussion with a visitor.

In addition, agencies must learn to recognise that whenever solidarity emerges in the narratives of persons, communities, and nations, it is an expression of *va* and cannot be manipulated or coerced through any 'leverage'. The solidarity is due to shared openness and co-creation with the *mauri* in the sixth dimension of *va*. It is impossible to attempt to change it, because it has no form to control, but rather has the potential for unlimited adaptation and continual transformation. Rather, what must be recognised is the need for humility to attune to the same hopeful horizon of the sixth dimension of *va* inspiring solidarity, to choose to co-create to become part of it, embedded with all others and all, in inness.

There are three stages to be recognised in every anticipatory turn within tri-SSM. The first stage is the need to establish and maintain trust, which requires respect and consistency to become attuned with the narratives that maintain the foundation of the cultural tradition of the community. The second stage is the need to ensure that the narratives that the agency creates and uses with the community are coherent with those that the community itself narrates. Otherwise, successful adaptation will not occur. It appears from published research that this is unfortunately not yet happening with formally facilitated relocation within PICs for communities facing climate change^{64–67}. The third stage is to engage in anticipatory practice for restorative justice to practically transform SES through politicisation and mobilisation, to get dirty on the ground with the community, doing whatever needs to be done, so whatever is possible is given the best chance to emerge. The process is however ongoing, even when done properly. It is not ever going to be a matter of moving on. Trust must be reestablished at every step through challenge, *talanoa* or inclusive discussion of feedback, and *lauga* or wayfinding through creative feedforward. The process is a continuous one of *liuliu* or deconstruction, *lilii* or reconstruction, and *toe liuliu* or return, prior to further *liuliu* or deconstruction and so on^{2,9}.

Looking to the future, narratives will need to be continually retold to remember the necropolitics of colonisation and neo-colonisation. This will be the case even when restoration of cultural traditions, communities and ecosystems has occurred. Human life is embedded historically in SES and so these narratives must be forever told. The generative kernel for agency, resilience, and well-being, for restorative justice, is hidden in them. But when it comes to climate justice, the situation is even more fraught. When the necropolitical causes of climate change have ceased, when colonial and neo-colonial injustices have been overcome and restorative justice fulfilled where possible, climate change will nevertheless inextricably continue for centuries if not millennia longer, as a constant reminder of past tragedy, and how the associated injustices were overcome by creative resistance. Climate injustice will remain a thorn in the side of all humanity for millennia but must become seen as meaningful. If we are ever exposed to it again, we will then know what to do to close it down as soon as possible. We need to become firmly committed to being in the *va* of SES, as *mauri*.

In the meantime, there is an urgent need for a lot of creative resistance to turn the unfolding tragedy around as soon as possible. It has started, but only just begun. In our paper we focused on one aspect of resistance, namely the challenge of migration policies that interfere with *malaga* to maintain and enhance *va*. Research literature is only just beginning to grasp that (im)mobility or *malaga* is a necessary proactive adaptive capacity that needs to be enabled and facilitated in face of climate change. We see hope in the use of an im/mobility cube that allows communities to foreground what is important for them. We also see hope in the use of the conceptual models outlined in Figs. 2 and 3 to provide background to help agencies co-create policies and plans with communities in light of information provided by the IPCC. We know that the cultural traditions of PICs enable resilience to be enhanced through the process; for transformation to emerge to enhance well-being for restorative justice. Dystopian disempowerment that deepens injustice can be avoided.

Fortunately for PICs, there are also already exemplars available to guide steps toward restorative justice in face of climate necropolitics. A clear example is the virtue of *vakavanua*, to enable people to avoid and escape poverty traps, and to transition toward new economic horizons and opportunities. *Vakavanua* can help transform the injustices of colonial-styled institutions and neo-colonial and neoliberal market economies. Governments should consider how they can seek to formally support the process to increase the proactive adaptation, resilience, and well-being of all peoples in the PICs. Another clear example is the proactive migration of Vaitipu island to Koia island. Narratives around these exemplars need to be heralded, as a basis for co-creating narratives with IPCC scenarios, to explore opportunities for other villages and islands. These are examples of how restorative justice to overcome climate necropolitics is possible, already underway, but in need of support. We offer tri-SSM as a tool to assist in empowering the process.

Reporting summary

Further information on research design is available in the Nature Research Reporting Summary linked to this article.

DATA AVAILABILITY

All data used in the case examples mentioned in the paper are available in previous publications of ours, and available through the references. The tacit knowledge of cultural traditions expressed by the authors is, however, not directly available to readers, as it comes only from lived experience within communities, though we consider that it is universally available to anyone who sincerely participates in cultural traditions.

Received: 29 January 2023; Accepted: 1 August 2023;
Published online: 21 August 2023

REFERENCES

- Porter, L. et al. Climate justice in a climate changed world. *Plan. Theory Pract.* **21**, 293–321 (2020).
- Enari, D. & Jameson, L. V. Climate justice: a Pacific Island perspective. *Aust. J. Hum. Rights.* **27**, 144–160 (2021).
- Memere, M. "We are not drowning we are fighting": Brianna Fruean tells world leaders. *Samoa Observer*, 02/11/2021. <http://www.samoasobserver.ws/category/samoa/94000> (2021).
- Derman, B. B. Polyvocal articulations of climate justice. *Polit. Geogr.* **99**, 102765 (2022).
- McIntyre, A. *After Virtue: A Study in Moral Theory*, 3rd edition. (University of Notre Dame Press, 2007).
- Aiono-Le Tagaloa, F. *Tapuai: Samoan Worship* (Malua Printing Press, 2003).
- Lilomaiva-Doktor, S. Beyond "Migration": Samoan population movement (Malaga) and the geography of social space (Va). *Contemp. Pac.* **21**, 1–32 (2009).
- Morrison, K. D. South Pacific post-colonial indigenous praxis for resilient sustainable community development. in *Indigenous Methodologies, Research and*

- Practices for Sustainable Development* (eds Mbah, M. et al.) 97–116 (Springer, 2022).
9. Vaai, U. L. Relational hermeneutics: a return to the relationality of the Pacific Itulagi as a lens for understanding and interpreting life. In *Relational Hermeneutics: Decolonizing the Mindset and the Pacific Itulagi* (eds Vaai, U. L. & Aisake, A.) 17–41 (The University of the South Pacific & The Pacific Theological College, 2017).
 10. Vaai, U. L. E ititi legā mea—Less yet More! A Pacific relational development paradigm of life. In *Relational Hermeneutics: Decolonizing the Mindset and the Pacific Itulagi* (eds Vaai, U. L. & Casimira, A.) 215–231 (The University of the South Pacific & The Pacific Theological College, 2017).
 11. Mbembe, A. *Necropolitics* (trans Corcoran, S.) (Duke University Press, 2019).
 12. DeBoom, M. J. Climate necropolitics: ecological civilisation and the distributive geographies of extractive violence in the Anthropocene. *Ann. Am. Assoc. Geogr.* **111**, 900–912 (2021).
 13. DeBoom, M. J. Climate coloniality as atmospheric violence: from necropolitics toward planetary mutuality. *Polit. Geogr.* **99**, 102786 (2022).
 14. Sultana, F. The unbearable heaviness of climate coloniality. *Polit. Geogr.* **99**, 102638 (2022).
 15. O'Sullivan, A., Omukuti, J. & Ryder, S. S. Global surpluses of extraction and slow climate violence: a sociological framework. *Sociol. Inq.* **93**, 320–340 (2023).
 16. Rosen, R. *Anticipatory Systems: Philosophical, Mathematical, and Methodological Foundations* (Springer, 2012).
 17. Matapo, J. & Enari, D. Re-imagining the dialogic spaces of talanoa through Samoan onto-epistemology. *Waikato J. Educ.* **26**, <http://wje.org.nz/index.php/WJE/article/view/770> (2021).
 18. Deans, C. Biological prescience: the role of anticipation in organismal processes. *Front. Physiol.* **12**, 672457 (2021).
 19. Morrison, K. D. Community-based human ecological research for climate change management: taking faith and culture seriously. In *Handbook of Climate Change Management* (eds Leal, F. W. et al.) 1–26 (Springer, 2021).
 20. Morrison, K. D. & Nand, M. M. Ecological resilience for transformative climate change mitigation and adaptation. In *Disaster Risk Reduction for Resilience: Climate Change and Disaster Risk Adaptation* (eds Eslamian, S. & Eslamian, F.) 91–116 (Springer, 2023).
 21. Mallon, S. O le Tulafale (the orator)—language Wayfinder of Samoa <http://blog.tepapa.govt.nz/2022/05/30/0-le-tulafale-the-orator-language-wayfinder-of-samoa/> (2022).
 22. Koya-Vaka'uta, C. F. Rethinking research as relational space in the Pacific. In *Relational Hermeneutics: Decolonizing the Mindset and the Pacific Itulagi* (eds Vaai, U. L. & Casimira, A.) 65–84 (The University of the South Pacific & The Pacific Theological College, 2017).
 23. Hindley, P., November, N., Surn, S. & Wolfgramm-Foliaki, E. Rolling out the mat: a talanoa on talanoa as a higher education research methodology. *Theory Method High. Educ. Res.* **6**, 99–113 (2020).
 24. Checkland, P. *Systems Thinking, Systems Practice* (Wiley, 1999).
 25. Carter, G. Establishing a Pacific voice in the climate change negotiations. In *The New Pacific Diplomacy* (eds Fry, G. & Tarte, S.) 205–220 (ANU Press, 2015).
 26. Wagner-Lawlor, J. A. Anticipatory Utopia: Utopian narrative and an ontology of representation. In *Handbook of Anticipation* (ed. Poli, R.) 502–520 (Springer, 2019).
 27. Sanga, K. Leadership development through friendship and storytelling. In *Relational Hermeneutics: Decolonizing the Mindset and the Pacific Itulagi* (eds Vaai, U. L. & Casimira, A.) 101–113 (The University of the South Pacific & The Pacific Theological College, 2017).
 28. Ashcroft, B. *Utopianism in Postcolonial Literatures* (Routledge, 2017).
 29. Cyrulnik, B. Narrative resilience: neurological and psychotherapeutic reflections. In *Multisystemic Resilience: Adaptation and Transformation in Contexts of Change* (ed. Ungar, M.) 100–112 (Oxford University Press, 2021).
 30. Mittlemark, M. B. Resilience in the salutogenic model of health. In *Multisystemic Resilience: Adaptation and Transformation in Contexts of Change* (ed. Ungar, M.) 153–164 (Oxford University Press, 2021).
 31. Gillard, R., Gouldson, A., Paavola, J. & Alstine, J. Transformational responses to climate change: beyond a systems perspective of social change in mitigation and adaptation. *Wiley Interdiscip. Rev. Clim. Change* **7**, 251–265 (2016).
 32. Baldwin, A., Frohlich, C. & Rothe, D. From climate migration to Anthropocene mobilities: shifting the debate. *Mobilities* **14**, 289–297 (2019).
 33. Whyte, K. Too late for indigenous climate justice: ecological and relational tipping points. *Wiley Interdiscip. Rev. Clim. Change* **11**, 603 (2019).
 34. Newell, P. et al. Towards transformative climate justice: an emerging research agenda. *Wiley Interdiscip. Rev. Clim. Change* **12**, e733 (2021).
 35. Foucault, M. *The History of Sexuality. Volume 1: An Introduction* (trans Hurley, R.) (Pantheon Books, 1978).
 36. Malabou, C. *What Should We Do with Our Brain?* (Fordham University Press, 2008).
 37. Verhaeghe, P. *What About Me? The Struggle for Identity in a Market-based Society* (Scribe, 2014).
 38. Han, B. *The Burnout Society* (trans Butler, E.) (University of Stanford Press, 2015).
 39. Lykke, N. Making live and letting die: cancerous bodies between Anthropocene necropolitics and Chthulucene kinship. *Environ. Humanit.* **11**, 108–136 (2019).
 40. Davis, H. & Todd, Z. On the importance of a date, or decolonizing the Anthropocene. *ACME Int. J. Crit. Geogr.* **10**, 761–780 (2017).
 41. Tuana, N. Climate apartheid: the forgetting of race in the Anthropocene. *Crit. Philos. Race* **7**, 1–31 (2019).
 42. Bateson, G. *Steps to an Ecology of Mind* (The University of Chicago Press, 1972).
 43. Polanyi, M. *The Tacit Dimension*, Revised edition (The University of Chicago Press, 2009[1966]).
 44. Johns-Putra, A. *Climate Change and the Contemporary Novel* (Cambridge University Press, 2019).
 45. Death, C. African futurist socio-climatic imaginaries and Nnedi Okorafor's wild necropolitics. *Antipode* **54**, 240–258 (2021).
 46. IPCC. *In Climate Change 2022: Impacts, Adaptation and Vulnerability. Working Group II Contributions to the IPCC Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (eds Pörtner, H.-O. et al.) 3–33 (Cambridge University Press, 2022).
 47. Hinkel, J., Mangalagiu, D., Bisaro, A. & Tabara, J. D. Transformative narratives for climate change. *Clim. Change* **160**, 495–506 (2020).
 48. Robinson, S. & Carlson, D. A just alternative to litigation: applying restorative justice to climate related loss and damage. *Third World Q* **42**, 1384–1395 (2021).
 49. Morrison, K. D. A model to integrate university education within cultural traditions for climate change resilience. In *Climate Change and the Role of Education* (eds Leal Filho, W. & Hemstock, S. L.) 457–479 (Springer, 2019).
 50. Boas, I. et al. Climate migration myths. *Nat. Clim. Change* **9**, 901–903 (2019).
 51. Whyte, K., Talley, J. L. & Gibson, J. D. Indigenous mobility traditions, colonialism, and the Anthropocene. *Mobilities* **14**, 319–335 (2019).
 52. Zickgraf, C. Theorizing (im)mobility in face of environmental change. *Res. Environ. Change* **21**, 1–11 (2021).
 53. Ayeb-Karlsson, S. No power without knowledge: a discursive approach to investigate climate-induced (im)mobility and well-being. *Soci. Sci.* **9**, 103 (2020).
 54. Tschaket, P. & Neef, A. Tracking local and regional climate im/mobilities through a multi-dimensional lens. *Reg. Environ. Change* **22**, 95 (2022).
 55. Carling, J. & Collings, F. Aspirations, desire and drivers of migration. *J. Ethn. Migr. Stud.* **44**, 909–926 (2018).
 56. Parsons, L. Structuring the emotional landscape of climate change migration: towards climate mobilities in geography. *Prog. Hum. Geogr.* **43**, 670–690 (2019).
 57. Morrison, K. D. The role of traditional knowledge to frame understanding of migration as adaptation to the “slow disaster” of sea level rise in the South Pacific. In *Identifying Emerging Issues in Disaster Risk Reduction, Migration, Climate Change and Sustainable Development* (eds Sudmeier-Rieux, K. et al.) 249–266 (Springer, 2016).
 58. McAdam, J. *Caught Between Homelands*. <http://insidestory.org.au/caught-between-homelands> (2013).
 59. Morrison, K. D. The promise of orthodox christianity for sustainable community development. In *Radical Human Ecology: Intercultural and Indigenous Approaches* (eds Williams, L. et al.) 179–203 (Ashgate 2012).
 60. Bossel, H. *Earth at a Crossroads: Paths to a Sustainable Future* (Cambridge University Press, 1998).
 61. Aiava, F. From in-between to Inness: dehyphenating diasporic theologies from a relational perspective. In *Relational Hermeneutics: Decolonizing the Mindset and the Pacific Itulagi* (eds Vaai, U. L. & Casimira, A.) 121–142 (The University of the South Pacific & The Pacific Theological College, 2017).
 62. Vaai, U. L. A dirtified god: a dirt theology from the Pacific dirt communities. In *Theologies from the Pacific. Postcolonialism and Religion* (ed. Havea, J.) 15–29 (Palgrave MacMillan, 2021).
 63. Gunderson, R. Dialectic facing prehistoric catastrophe: merely possible climate change solutions. *Crit. Sociol.* **46**, 605–621 (2020).
 64. Charan, D., Kaur, M. & Singh, P. Customary land and climate change induced relocation: a case study of Vunidogoloa Village, Vanua Levu, Fiji. In *Limits to Climate Change Adaptation* (eds Leal Filho, W. & Nalau, J.) 345–358 (Springer, 2018).
 65. McNamara, K. E., Westoby, R., Clissold, R. & Chandra, A. Understanding and responding to climate-driven non-economic loss and damage in the Pacific islands. *Clim. Risk Manag.* **33**, 1–14 (2021).
 66. Moore, L. Putting principles into practice: lessons from Fiji on planned relocations. *Forced Migr. Rev.* **69**, 51–53 (2021).
 67. Westoby, R., Clissold, R., McNamara, K. E., Latai-Niusulu, A. & Chandra, A. Cascading loss and loss risk multipliers amid a changing climate in the Pacific islands. *Ambio* **51**, 1110–1122 (2022).

ACKNOWLEDGEMENTS

The authors wish to acknowledge our elders from whom we have learnt our respective traditional cultural knowledge, in Aotearoa-New Zealand, Samoa, and Fiji.

The authors also wish to acknowledge the support that The University of Adelaide and Fiji National University have provided, especially to access publications.

AUTHOR CONTRIBUTIONS

All authors contributed to the paper, albeit in differing ways. Most of the initial writing was done by K.M., along with the subsequent revisions and corrections. M.M.N. contributed initial writing, as did T.A., and both accessed much of the published journal material that was not open access. S.M. was a catalyst for the development of the content through *talanoa* or free-ranging conversation between all four co-authors, expressing our respective traditional cultural knowledge from our various cultural traditions.

COMPETING INTERESTS

The authors declare no competing interests.

ADDITIONAL INFORMATION

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1038/s44168-023-00060-7>.

Correspondence and requests for materials should be addressed to Keith Morrison.

Reprints and permission information is available at <http://www.nature.com/reprints>

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

© The Author(s) 2023