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Lessons learned and policy implications from climate-related planned relocation in Fiji and Australia

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Planned Relocation is a form of mobility in response to climate-related shocks and slow onset change. While the primary focus of the seminal Foresight report on Migration and Environmental Change dealt with mobility processes of migration and displacement, planned relocation was discussed as a viable, yet fraught adaptation strategy. Since the publication of the Foresight report in 2011, considerable research into planned relocation has progressed understanding, in part due to the emerging case study examples globally over the last 10 years. The authors of this article have undertaken research in communities across Australia and Fiji who have initiated and undertaken planned relocation processes, to varying degrees of completion and success. As part of the Research Topic—Climate Migration Research and Policy Connections: Progress Since the Foresight Report—in this article we look back at the lessons that emerged from the Foresight report, and provide key insights from our experiences, as well as through drawing on the broader literature, and through doing so offer lessons learned, and policy insights for planned relocation across these regions, and beyond. This research is especially relevant given the context of planned relocation in these two nations: Australia, a country that has experienced severe fires and flooding events over the last few years, which have raised important questions around the role planned relocation may play in future national adaptation discussions and planning, with buy-back schemes occurring across the country; and Fiji, a country at the forefront of planned relocation globally, with 800 communities listed as in need of relocation by the Government of Fiji, and numerous cases of completed, initiated and planned relocation emerging. Primary findings indicate: there are examples of people choosing to remain in sites of exposure despite relocation plans, making the notion of “voluntariness” essential; relocation has the potential to be a successful adaptation option if planned well with strong participatory governance; a need to think broadly and holistically around the needs and livelihoods of effected communities in relocation planning; and the need for longitudinal studies to track the implications and impacts (both positive and negative) of relocation in the long term.

KEYWORDS

planned relocation, managed retreat, adaptation, Foresight Report, Fiji, Australia, climate change

1. Introduction

As climate impacts intensify, various forms of human mobility will be exercised by populations as both pre-emptive and reactive adaptation strategies. The Cancún Adaptation Framework (adopted in December 2010) recognized “climate change induced displacement, migration and planned relocation” as forms of mobility central to climate change adaptation (UNFCCC, 2011, p. 5). Since then, a number of developments in policy have occurred, including the Task Force on Displacement within the Warsaw International Mechanism on loss and damage, and the Global Compact for Migration. Consequently, displacement, migration and planned relocation have all received significant attention over the ensuing years. For example, the seminal Foresight Report on Migration and Global Environmental Change, published in 2011, synthesized current literature on global drivers and forces linked to population mobility (including migration, displacement, and relocation).

While all are forms of human mobility, they are distinct. Displacement refers to the sudden and forced movement of people in response to a hazard event (environmental, social, or political), can often be temporary, and is largely associated with sudden onset disaster events. Ajibade et al. (2020) make a clear distinction between migration and planned relocation, which are often incorrectly conflated throughout the literature. Climate-related migration is defined broadly as human mobility toward a new location driven by a combination of push and/or pull factors. Planned relocation refers to the movement of people and infrastructure away from increasing exposure to environmental and climate risks and hazards, usually over a short geographical distance (Hino et al., 2017).

As part of this Research Topic—Climate Migration Research and Policy Connections: Progress Since the Foresight Report—this paper focusses on the process of planned relocation. Specifically, the planned relocation of communities which can be defined as the movement of people, typically in groups or whole communities, as part of a process led by the state or other organization, to a predefined location (Bower and Weerasinghe, 2021). Planned relocation is often referred to as managed retreat, or planned retreat. While discussed within the Foresight (2011), planned relocation received less attention as a viable and important mobility response and was described as an option “fraught with pitfalls, where there are few positive experiences on which policy lessons can be built” (p. 676). Since the Foresight report was published in 2011, there has been significant knowledge generated surrounding climate-related planned relocation. In this article, the authors draw on their own experiences working in both Australia and Fiji, along with examples from global case studies of planned relocation, to provide insights, lessons and recommendations.

The rest of this article will be as follows. First, a literature review on planned relocation, post the 2011 Foresight review will be presented. This literature review is aimed at showcasing how far the literature in this field has grown and highlight key case study examples. Next, an overview of the two regions that will be drawn upon, Australia and Fiji, is presented. This will be followed by recommendations, insights, and lessons that have emerged since the publication of the Foresight report, drawing on examples from our collective experiences in Fiji and Australia, and the broader

literature. A conclusion and future research section explores important opportunities for further research going forward.

2. Literature review: Climate-related relocation post Foresight Report (2011)

This section summarizes literature that has been published, primarily since the publication of the Foresight report in 2011. This is done, to showcase the growing literature that has emerged over the last 10 years on planned relocation. A relevant example of the emergence of research on this topic is from a recent literature review undertaken by O'Donnell (2022). O'Donnell (2022) analyzed the last 5 years (2017–2022) of literature on managed retreat (often used interchangeably with planned relocation) and identified 135 academic articles over this 5-year period. This was a notable increase in comparison to the 5-year earlier period (2012–2017). In a review of the literature undertaken by Marter-Kenyon (2020), they similarly show an increase in literature over time, particularly since the formal recognition by the United Nations Framework Convention on Climate Change (UNFCCC) that relocation is a form of human migration in response to climate change.

In terms of geography, cases of planned relocation have been identified across all continents (excluding Antarctica) and specifically, in 78 countries (Bower et al., 2022). Depending on the language used and parameters of the relocation process explored, the geographical distribution of case studies differs somewhat. A high concentration of the literature on planned relocation is centered in Europe, the USA, Asia, and the Pacific Islands (Bower and Weerasinghe, 2021; Bower et al., 2022; O'Donnell, 2022). When exploring drivers of relocation, there is a high concentration associated with relocation in response to hydrometeorological events such as flooding, storms and tsunamis (Bower and Weerasinghe, 2021), and in low-lying coastal regions from slow onset change such as sea level rise and erosion (Bower et al., 2022). The drivers of relocations can be understood and explored further through a geographical lens. For example, in the literature in small island states there most relocation occurs away from low-lying coastal areas from slow on set changes, while in comparison, there is a large concentration of research related to disaster events such as hurricanes in North America (Bower et al., 2022).

A key concept that has emerged is understanding the causality of drivers that precipitate relocation, and the degree to which climate change can be identified as a known contributor (Marter-Kenyon, 2020). Despite the literature often pointing to a singular hazard or “event,” the drivers of relocation are more complex. There can be several experienced hazards or events that precipitate over time (i.e., multiple experiences of flooding that worsen with climate impacts) and eventually lead to relocation. Further, not all factors that influence planned relocation are climate related. For example, historic land use planning, land management practices, histories of marginalization, and development can be factors at play. Arnall (2014, 2019) explores this when looking at relocation in Mozambique in response to flooding, documenting “causes”

of flooding to be erratic weather (with a possible climate-related dimension), yet also draws attention to the impacts from dam developments which are present for hydroelectricity generation which have increased susceptibility of downstream populations to flooding events. In the Carteret islands, Papua New Guinea, relocation plans are spurred by a range of factors including coastal erosion, coastal flooding, soil salinity, population pressure, reef-based activities and tectonic movement, with potentially attribution to climate change (Campbell, 2010; Edwards, 2013; Burkett, 2015; Dannenberg et al., 2019). As well as complex drivers, there are troubling pasts of governments using relocation and resettlement of communities as a form of surveillance and control (De Wet, 2012; Marter-Kenyon, 2020), and some fear that climate change might be used to legitimize more coercive intentions to relocate populations (Sherman et al., 2016).

Given the environmental and social controversies associated with relocation, a strong focus on social justice has emerged in recent literature on planned relocation. A recent special issue in *Science* focussed on these justice implications through exploring questions such as “how should managed retreat address centuries of colonialism, racism, discrimination, multigenerational displacement, disinvestment, and other injustices?” and “How can managed retreat improve well-being?” (see Siders and Ajibade, 2021). Siders and Ajibade (2021) and others (see Meerow et al., 2019; Wilmsen and Rogers, 2019; Frost and Miller, 2021) identify several considerations and lenses through which to explore justice when planning for sea-level rise, including planned relocations, and include: redistribution justice (accounting for the socially vulnerable), intergenerational equity and justice (not leaving future generations with exacerbated climate risks), procedural justice (processes are fair and include people in decision-making) distributive justice (benefits and outcomes are evenly distributed) responsibility (awareness of risks and options), and beneficiary pays (those who benefit should pay). This focus on justice has further been explored in relation to the concept of loss and damage, and whether relocation should itself be viewed as adaptation or a form of loss and damage. This is given the extensive non-economic losses that arise from climate related mobilities, including psychological harm and distress, especially amongst indigenous populations where high incidence of relocations have occurred (McNamara et al., 2018; Clissold et al., 2022).

Challenges and considerations in planning and policy have emerged as central to the research in this field. This includes from the starting point of decisions to relocate, questions and issues related to “voluntariness,” coordination across actors involved in planning for relocation, and land use planning (O’Donnell, 2022). Farbotko et al. (2020) explore the concept of voluntary immobility, and that relocation policy and planning must account for these populations, especially as relocation may indeed increase exposure and vulnerability rather than reduce it. Examples of voluntary immobility in the face of increasing exposure are emerging (see Schewel, 2020; Wiegel et al., 2021; Yee et al., 2022a). Reasons for people remaining are complex and can span emotional, risk, economic, and social domains and differ across demographic factors such as age, and length of time living in place (Seebauer and Winkler, 2020). In a similar vein, including local communities and those affected in the decision-making process around relocation early on in the process, can create a slow exposure, and enhance the

acceptance of relocation for some community members. Outside of having effective coordination in relocation processes, Siders et al. (2019) argues for retreat to be effective it must be strategic, in that it incorporates opportunities for socioeconomic development, and should be managed in a context specific and innovative way.

Given the complex nature of relocation processes, it usually requires coordination across various actors involved from the local communities, local, provincial, or national governments, or external agencies. The role of various actors differs significantly across case studies from the literature. Some examples emerge where the government is driving relocation. For example, in the Solomon Islands, the Government has been planning the relocation of an entire island in response to sea-level rise and associated coastal hazard risk (Albert et al., 2017). In Cuba, the government has implemented a relocation policy whereby communities living in coastal protected areas must relocate, which has been met with strong resistance by the coastal community of Carahatas (Aragón-Duran et al., 2020). There are cases where relocation has been initiated by communities at the local scale and that have since sought government support. For example, the Indigenous community of Newtok in Alaska voted for relocation, chose a new relocation site, acquired land title, and begun constructing houses in response to significant biophysical hazards experienced in the village. A Planning Group was subsequently established to assist Newtok in the relocation consisting of numerous state, federal, and tribal governmental and non-governmental agencies (Bronen and Chapin, 2013). Cases of communities initiating and executing relocation independently have also emerged. In response to mass erosion, a community in Brazil mobilized community resources to relocate and build new houses in another location (Gini et al., 2020).

Planned relocation is a complex process and there is not a one size fits all approach. Relocation differs based on the number of people involved in the relocation, the distance over which they move, the driver or event that precipitates relocation, who has initiated and coordinated the relocation process, and the degree of willingness to relocate (Bower and Weerasinghe, 2021; Piggott-McKellar et al., 2021). Accounting for this heterogeneity, planned relocations are viewed as an option of last resort and only to be considered when other *in situ* adaptation options have been exhausted (Lawrence et al., 2020). However, relocation is an option that will remain in the toolbox of adaptation planning, especially as increasingly thresholds for *in situ* adaptation are met. This is exemplified in the most recent IPCC reporting where planned relocation has become a dominant adaptation measure discussed and addressed (Pörtner et al., 2022). For example, in a Special Report on Responding to Sea Level Rise, planned relocations are presented as the only feasible option, alongside avoidance, to remove coastal risks in coming decades, yet not without broader social, political, cultural and economic risks (IPCC, 2022).

3. Case study examples

The two regions presented here are Australia and Fiji. These two countries offer very different contexts, insights, and comparisons for planned relocation practice and policy. Australia

is a country that has experienced severe fires and flooding events over the last few years, which have raised important questions around the role planned relocation may play in future national adaptation discussions and planning, with buy-back schemes recently announced in Northern New South Wales (NSW) and Southeast Queensland (QLD). This in contrast to Fiji, a country at the forefront of planned climate-related relocation globally, with roughly 800 communities assessed as highly vulnerable and in need of relocation (GIZ, 2019), and numerous cases of completed, initiated, and planned relocation undertaken and emerging. As such, these two countries provide an interesting basis for exploring planned relocation.

3.1. Australia

While regions in the global south and small island states, such as our Pacific Neighbors, are often considered those most exposed to climate change (Barnett and Campbell, 2010; Althor et al., 2016), all regions of the world will be affected. While Australia has historically experienced severe hazard events including droughts, cyclones, floods, and bushfires, according to the State of the Climate report produced by the Bureau of Meteorology and The Commonwealth Scientific and Industrial Research Organization (CSIRO), climate change impacts are already being experienced in Australia and are exacerbating these already experienced disaster events. Some examples of climate attribution in Australia include: the climate in Australia has warmed 1.4 degrees Celsius since 1910, with seven of the nine hottest years on record occurring between 2013 and 2019; rainfall has become more variable, with some regions experiencing more frequent rainfall, while other regions are experiencing lower than average rainfall; short duration extreme rainfall events have increased by 10 percent or more in some regions across Australia, posing a risk for flash flooding; the length and intensity of fire seasons has increased since 1950; sea-levels are rising; and, a downward trend in snowmelt in alpine regions has been experienced over recent decades (The Bureau of Meteorology CSIRO, 2020).

Major flooding events across 2021–2022 plagued the east coast of Australia (State of New South Wales, 2022). This flooding has reinvigorated attention around the need for more dedicated local land use planning and preparedness, including through the option of relocation and retreat schemes to move affected communities to safer locations. In both Northern NSW and Southeast QLD, respective governments have announced buy-back schemes for affected households. In Northern NSW, an \$800 million Fund has been developed to assist severely affected households, including through retreat, and in Southeast QLD a Resilient Homes Fund has been announced with \$741 million toward households level adaptation, including buy-backs.

The only clear and executed example of relocation in Australia in the modern era,¹ is of the town of Grantham. The second author

undertook research in Grantham in 2013 (see Sipe and Vella, 2014). Grantham is situated ~100 km outside of Brisbane, in Queensland. Grantham had experienced severe flooding events over the years leading up to 2011. In January 2011 a flash flood tore through the town, demolishing properties and killed 12 of the 370 residents. As a result of this flood, the town of Grantham mobilized and implemented a relocation plan. This process was exceptionally quick and within 11 months, the first home in the new location as occupied. Although some residents did not relocate and some expressed concern about the process, Grantham is widely seen a success story. The success of this community relocation case study was down to a range of factors which were built into the planning and management of the relocation and include: strong leadership of the Lockyer Valley Regional Council, strong and adaptive coordination efforts across local, state and federal government, the ability to acquire land that was adjacent to the original site and was suitable, the inclusion of community members in decision-making and considerations.

3.2. Fiji

While sea level rise is impacting livelihoods and people globally, rates of sea level rise are not globally uniform with significant variations regionally (Meyssignac et al., 2017a,b). For example, the documented rate of sea level rise in the Western Pacific Ocean is four times that of the global average (Nurse et al., 2014) while in the ocean near and around Fiji, sea levels have been rising about 5.5 mm per year since 1992 which is roughly twice the global average (Martin et al., 2018).

Over the last 10 years there are emerging case studies in Fiji of villages planning for relocation. Currently there are ~800 villages listed as in need of relocation (GIZ, 2019). In addition to having a high number of villages earmarked for relocation, Fiji was the first country to develop planned relocation guidelines (see Government of Fiji, 2018). The information and data drawn on in this article derives from ethnographic fieldwork undertaken in Fiji over several years and numerous site visits across different communities. The first author has visited sites in 2017, 2019, and 2020 and has published articles related to planned relocation and mobility in Fiji (see Piggott-McKellar et al., 2019, 2021; McMichael et al., 2021; Piggott-McKellar and McMichael, 2021). Here we will explore some of these examples across the spectrum of relocation responses and draw on relevant case studies where relevant. An overview of some of these are presented below to give context.

Vunidolova is often viewed as one of the earliest examples of planned climate-related relocation within Fiji. In 2014, the village was relocated from the coastline to roughly 2 km inland owing to increased flooding events, coastal erosion, and saltwater intrusion. This relocation was initiated by the community, who approached the Government of Fiji for support. The Government of Fiji coordinated the relocation process, and the community also provided some significant in-kind contributions. After years of consultations and planning, eventually 30 new houses were built on land already owned by the village. The community were provided with livelihood additions in their relocation including pineapple plantations, cattle and fishponds.

¹ There are examples of historic community relocation prior to Grantham. One example is Gundagai in New South Wales which was relocated in 1,852 after the deadliest flood event in Australia's history after the town was developed and settled on a flood plain (see State of New South Wales, 2022).

Multiple examples of partial community relocation exist in Fiji, where only a portion of the community relocated, including Denimanu, Vunisavisavi and Narikoso (see Piggott-McKellar and McMichael, 2021 for further information). One example of this occurred in Denimanu village, on Yadua Island. After a cyclone in 2013 two rows of houses at the front of the village closest to the shoreline were destroyed. As such, these houses were relocated on a hill slope. This new location is still within walking distance from the original site, however, there have been some concerns amongst community members about possible impacts associated with landslides, given the primary school had recently been destroyed by a landslide event. In addition to these examples of partial village relocation there have also been emerging examples of communities, or portions of communities opting to remain despite either the opportunity for relocation as proposed by the government or external organization (Karoko village), or when the village has initiated their own relocation plans (Vidawa). In these cases, people have chosen to remain owing to deep attachment to place, and perceived risks and obstacles in relocating.

4. Insights and recommendations

Six recommendations were provided in the Foresight report pertaining to planned relocation. These policy recommendations were: (1) Given the challenges involved, a carefully planned movement is clearly superior to hastily organized, under-resourced, internal relocation; (2) The need to plan carefully also implies that funding has to be secured well in advance, and not, for example, raised when natural disasters precipitate the need for urgent relocation; (3) Large-scale movement of agricultural populations to another agricultural area is at best high risk and unlikely to be conducive to permanent transformation of living conditions; (4) As all examples have highlighted, the key question of economic livelihoods in destination areas is not easily resolved; (5) Organized relocation tends to be very expensive; (6) Finally, all current programmes should be voluntary in that participation can in principle be refused (Foresight, 2011).

While all of these recommendations listed in the Foresight Report have relevance and still retain useful lessons to draw on, there are lessons from more recent research that need to be woven into future recommendations for planned relocation. Here we present insights into these, through primarily drawing on experiences from the authors research from Australia and Fiji, as well as the broader literature. It is important to note that these recommendations are by no means exhaustive. Rather, the aim here is to present insights into how our knowledge of relocation has expanded over the last 10 years, and present new insights to consider in future research and policy.

(i) Participation in relocation should be voluntary, and support where possible populations who choose to remain

Ensuring participation in relocation programmes is voluntary was listed as a recommendation in the Foresight report. This recommendation remains relevant today. Within Fiji's Relocation Guidelines, it is stated that relocation is, by definition, a voluntary process (Government of Fiji, 2018, p. 6). The importance of relocation plans and policies being voluntary is especially relevant given the checkered history and past of

some nations where resettlement and relocation policies and plans have been implemented coercively (Marter-Kenyon, 2020). And further, the most recent IPCC recognizes that significant impacts associated with involuntary displacements and migrations (including relocation) (IPCC, 2022).

While voluntariness is essential, it is not straightforward. It is influenced by a range of factors evidenced through our experiences in both Fiji and Australia. Within Fiji, there were examples across villages of predominantly older generations who sought to remain in place, despite relocation plans, while younger generations opted to relocate to safe locations. This process of younger generations retreating and rebuilding their livelihoods in regions further away from climate risks, while older generations remained despite exposure to climate risks, occurred in multiple villages. In Fiji, there were also examples of entire villages choosing to remain in place. One such example of this is published in this special issue (see Yee et al., 2022a,b). Yee et al. examines how a strong concept of Vanua (a Fijian term which exemplifies broadly strong attachment and connection to place and people) has resulted in a community resisting relocation despite significant climate risks and being presented with an option to relocate.

In Grantham, Australia, several households chose to remain in the old site despite the relocation program going ahead. This was owing to some dispute over the causes of the flooding and differing perspectives of the likelihood of flooding of such a high magnitude occurring again. Research in an Australian context to date is yet to focus specifically on detailed decision-making behavior related to climate-related relocation options, however does note existing variables that interplay with immobility decision-making. Graham et al. (2018) use a values-based assessment to show that for some people, place attachment is a key factor in people's consideration against relocation using a case study from the Gippsland East coast in Victoria, Australia. Furthermore, the recent release of the Flood Inquiry into the floods in Northern NSW presents mixed results on public intentions to participate in a voluntary buy back scheme with some comments indicating a strong interest in participation, while others cited financial difficulties and an inability to afford to live elsewhere, as well as deep routed connections to community and place (State of New South Wales, 2022).

These experiences from Fiji and Australia indicate that despite diverse socio-cultural, economic, and political contexts, people will, and are, choosing to stay in places of objective high risk, largely given strong connections to place. This is further reinforced from the global literature where factors including age, gender, length of time living in a location, underlying values, previous hazard experiences, and social connections have been shown to influence mobility preferences (Adams, 2016; Graham et al., 2018; Seebauer and Winkler, 2020; McMichael et al., 2021; Farbotko, 2022). While it is agreed that relocation should be a voluntary process, how governments and other relevant stakeholders deal with populations who choose to stay in places of high exposure, and what this means for investment in *in-situ* adaptations such as protection and accommodation, are areas requiring increased attention.

(ii) Strong governance and coordination across actors, at all levels, particularly affected populations

Drawing on examples across Australia and Fiji, the importance of strong participatory governance emerged as a key recommendation. Looking at the governance of relocation

process in Grantham, this has been documented and largely viewed as an effective process. Several factors, including having one leading body acting as the face of the relocation process to the community, and a strong and definitive end goal, contributed to this. While there was some contention between layers of government throughout the relocation process, this was not seen to impede the process. This strong coordinated governance allowed the expedition of planning approvals and processes which would otherwise have dragged the processes out by years, instead of the 11 months it took for the first house to be relocated. Effective communication with the community was established early in the relocation process and ensured the building of trust amongst the governing relocation body and the community. This paved the way for effective communication and coordination throughout the life of the relocation planning process. In addition, regular meetings with community members were undertaken to allow affected peoples to express their concerns and have input into the process as it progressed. This effective communication is one of the reasons the Grantham relocation is largely viewed as a success.

On the contrary, in most of the relocation case studies from Fiji, people felt largely that they did not have a voice and were not included in decisions that were being made regarding relocation. This caused frustration and a lack of trust between communities and Government. For example, in Narikoso village in Fiji, original plans were for the entire village to relocate, however only seven households were eventually relocated, which the village members expressed they had no control over: *“It’s good to have one big village. If it is seven houses it is not so good. First time they [Government of Fiji] came here they bring the money with them and they told us that all the houses will move over there. And after Winston they came again and told us that it is only seven houses because the money is less. And we just say, ‘not so good’”* (Piggott-McKellar and McMichael, 2021, p. 110).

However, it is important to state that strong and effective participatory governance does not necessitate the management and authority of an external actor in making decisions related to relocation process. Rather, it can mean that relocation is a process that can be undertaken at the local level and governed by internal processes and structures. For example, in Vidawa village in Fiji the community governance structure was used, without any overarching government body, to make decisions in the village around relocation, where houses will be built, and to mobilize the community. This process had resulted in the village deciding that no new houses would be built in the current village and began the clearing of land, and building of new houses, on the hill away from the coast, drawing on government resources where they were available. Other examples of internally driven relocation globally emphasize the findings from Fiji (see Gini et al., 2020). While this is by no means stating that government assistance should not be provided, nor prioritized, it does raise important questions around the need to support communities with access to appropriate resources, who have the leadership and governance to manage relocation, and adaptation (McNamara et al., 2018).

(iii) Accounting and planning for socially vulnerable and marginalized groups

The impacts of climate change are most severely experienced across people who are most vulnerable

(Bohle et al., 1994; Otto et al., 2017). This also is true of adaptation itself, including planned relocation. People who are socially marginalized are those most likely to experience adverse outcomes and even maladaptation because of relocation processes, particularly if these underlying issues are not addressed from the outset. This includes people who do not have a voice in decision-making given cultural and social norms, elderly populations, landless peoples, and those with a disability.

Across examples from Fiji, impacts on socially marginalized groups were evident. In a number of cases, women were largely left out of consultation processes related to relocation given the patriarchal and hierarchical social structures. As such women felt that important aspects of relocation were not considered for them in planning processes. This was evident during fieldwork where discussions with women’s groups led to issues being raised related to kitchens not being built in the new houses, and that a women’s shop was not built in one village. These added impacts were not isolated to women but also older generations. In Vunidogoa as the village relocated 2 km inland, older populations are unable to walk the distance back to the old village. As such they have lost a direct form of livelihood in fishing, and connection to the coastline, which is an important part of their everyday livelihood and place-based connection. This loss was specific to older village members as able bodied younger generations are able to retain that connection through walking down to the old village site. In Australia, in Grantham, the strong levels of community engagement, including case workers who worked directly with affected residents, were present throughout the consultation and planning process. This was done with the expressed aim to target individual needs in decision making processes as a way to reduce any adverse outcomes on vulnerable and marginalized groups.

These insights from Fiji and Australia indicate that planning processes can go some way to reduce negative outcomes for marginalized groups. Yet, there is a need for detailed empirical research examining community perspectives and experiences to better understand how planning processes can be more inclusive.

(iv) The identification of relocation sites should be, where appropriate, as close to the original site as possible, or provide an opportunity for people to maintain connection to the original site

Relocating your home and livelihood in response to climate exposure is a significant undertaking and can take a large toll on your life and livelihood. Place based connections, place attachments, social disarticulation, and other anticipated non-economic losses are factors cited as reasons people are reluctant to move (Seebauer and Winkler, 2020; Yee et al., 2022a). Relocation that occurs over a short geographical distance can help to minimize these. However, while desirable, this is contingent on a range of factors such as having suitable and appropriate land and land tenure arrangements in a location nearby.

All relocation cases from Fiji and Australia examined by the authors have been undertaken over a short distance (within 2 km).

In Vunidogoa in Fiji, the relocation occurred over a 2 km distance from the original site (the longest of all examples). While this has been a disruption to people’s sense of culture and place-based connections, especially the older generations who are unable to retain close physical ties to the old site (as discussed above), it has allowed many members of the community to maintain connections

to the coast and associated activities including fishing. Further, given the land remains on the village's clan land, this has largely ensured a sense of continuity and connectivity. Within Fiji this was the case in all relocations—villages were able to relocate over a short distance while remaining on clan land or negotiating with neighboring clans. While preferable, identification of land that is close to the original site is undoubtedly challenging, not least in considering the need for this land to be of reduced climate risk to make relocation viable. Across the Pacific, land tenure is one of the most challenging factors under consideration in relocation planning, as land can be held under varied and sometimes complex systems, including customary ownership (Campbell, 2010). This makes relocation, outside of small-scale movements where villages and communities are able to relocate on their own clan land very challenging and a significant future challenge. Within an Australian context, the relocation in Grantham occurred over a small distance. This was able to occur owing to the availability of adjacent farming land, outside of flood exposure, which the council was able to purchase. This allowed the new dwellings in Grantham to be an extension of the original town. While this challenge was dealt with in Grantham, the question of appropriate land for relocation is one that will remain central to relocation planning across Australia.

Looking to the broader literature, a relevant example where a community had to move a significant distance when relocating is of Isle de Jean Charles in Louisiana, in the United States. Simms et al. (2021) explore the important role that place connection played in the challenging decision to relocate, and how relocation policy was able to go some way to address and account for this loss. This was achieved through allowing the community to retain access and ownership over the properties being left behind where people can go back and visit, which was critical for the affected community to agree to the relocation process (Simms et al., 2021).

(v) Livelihoods, beyond solely economic livelihoods, should be considered and enhanced in the new site

Having strong options for livelihood development that encompasses multiple dimensions can help reduce the unknown and perceived risks and hurdles associated with relocation decision making for affected populations as well as allowing communities strong development opportunities (Siders et al., 2019). In the Foresight report, the importance, and challenge, of rebuilding economic livelihoods is stated in the recommendation “as all examples have highlighted, the key question of economic livelihoods in destination areas is not easily resolved” (Foresight, 2011, p. 179). While economic livelihoods are paramount, it is also relevant to consider the development and support of wider livelihoods in destination locations, outside of purely economic livelihoods. For example, while economic livelihoods are vital, significant adverse impacts can be experienced in the social, cultural, human, natural, physical aspects of affected people's lives and livelihoods.

Across Fiji, there were examples of where people experienced both improved and adverse outcomes on livelihoods post relocation. In the partial planned relocation of Denimanu in Fiji, houses were built and facilities and services such as toilets, water tanks, and electricity were provided which were greatly improved from the previous houses, where these services and facilities were limited. Yet, given only half of the village relocated, challenges associated with social disarticulation were experienced

given the division of the village into two. In Vunidologoa, the government went some way to consider broader livelihoods through the planned relocation including alternative livelihood options which were included in the new site (fishponds, pineapple plantations). Additionally, the location of the new village has improved access to transport, and thus schools, health services, and markets. Community members expressed that this improved access to services has significantly improved their daily lives in the few years after the relocation. However, unanticipated negative impacts on livelihoods were later experienced by residents. These included increased access to and consumption of packaged food and alcohol which have impacted health, disruptions to traditional values, and reduced mental wellbeing and loss of place attachment given the village has relocated away from the coastline (for further detail see McMichael and Powell, 2021). In Grantham, Australia, there have been no follow up studies examining how relocation has impacted broader livelihoods, making this a critical gap in the literature.

5. Conclusion and future directions

In the seminal Foresight report published in 2011, planned relocation was viewed as a fraught adaptation strategy with limited evidence to its effectiveness and use as an adaptation option (Foresight, 2011). As this research has shown there has been significant growth of research over the last 10 years in relation to planned relocation with this likely to increase further in future years. With this growing body of research have come learnings, lessons, and recommendations which have been summarized and explored through the lens of the authors experiences undertaking research and fieldwork with relocated communities across Australia and Fiji. Importantly, moving into an era where relocation will increasingly be viewed as an option in the adaptation toolbox (albeit an option of last resort), relocation should be seen as having the potential to enhance the livelihoods of all effected people, if planned well with a strong participatory governance model; yet must not be seen as an option that is appropriate and suited to all people, in all places, on the basis of objective high climate risk, but must rather account for individual perspectives and knowledge.

This research shows a shift in research and focus beyond financial considerations of relocation, which were the primary focus of the Foresight report recommendations. While funding and budgets for relocation are essential considerations, especially when looking to the scale that some relocations will incur, and subsequent costs, research and experience has shown that there are broader considerations. For example, impacts associated on people's livelihoods from relocation that need to be accounted for and considered go beyond the financial; social bonds, cultural continuity and connections, and impacts on health and wellbeing are challenging to retain and require thought and planning. This requires strategic and well managed relocation planning that can not only reduce exposure to physical hazards, but use the relocation process as an opportunity to rebuild lives and livelihoods (Siders et al., 2019).

Looking to locations of Fiji and Australia, we see very different contexts for relocation, yet broad lessons have still emerged across the two regions. While there are limited case studies in Australia of planned and executed relocation. Grantham presents

an important example of what has been seen as an overall, successful relocation. Looking to the future, planned relocation is likely to play an important role in future land use planning in Australia especially considering the projection and high likelihood of growing climate hazards (The Bureau of Meteorology CSIRO, 2020). This is evidenced from the recent flood events that greatly damaged regions across New South Wales and Queensland and the subsequent buy-back schemes announced in Northern NSW and Southeast Queensland. In Fiji, relocation is emerging as central to adaptation plans and policies with several communities who have already initiated, undertaken and complete relocation, and another 800 communities listed as in need of future possible relocation (GIZ, 2019).

While there has been a growing literature base on planned relocation, most case study examples are still recent, or have limited follow up research and analysis into the long-term implications on lives and livelihoods. The examples drawn on in this research were all visited and studied within a 4-year period of the relocation occurring. Longitudinal studies of relocated communities will help to give insights beyond the relocation process itself, but also into the longer-term implications of relocation to learn best practices and share lessons. Learnings that do emerge should be made available and shared, both the positive and negative outcomes, and the gray in between; as Westoby et al. (2020, p. 388) argue that within climate adaptation “successes are celebrated, but failures are habitually obscured, leaving a major knowledge base untapped.” Given the significant impacts planned relocations can have on peoples lives and livelihoods, and the likelihood it will be increasingly used as an adaptation strategy, this becomes paramount.

Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: Several datasets exist from multiple fieldtrips. Requests to access these datasets should be directed at: a.piggottmckellar@qut.edu.au.

Ethics statement

The studies involving human participants were reviewed and approved by University of Melbourne (approval number 1851729.1) and University of Queensland (approval number

20170302). The patients/participants provided their written informed consent to participate in this study.

Author contributions

Conceptualization and writing—original draft preparation: AP-M. Methodology and writing—review and editing: AP-M and KV. All authors have read and agreed to the published version of the manuscript.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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