The challenges of climate change adaptation for displaced communities: The Bikini community on Kili and Ejit Islands

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Abstract

The displaced Bikini community on Kili and Ejit Islands are facing significant threats from sea level rise. This effect of climate change is just the latest devastation to face this community. In 1946, the Bikinians were coerced into leaving their homes on Bikini Atoll to allow the United States to conduct nuclear tests. Their forced relocation has led to the community suffering long term impacts associated with displacement as they are still unable to return home. The vulnerabilities faced by the Bikinians due to displacement are intensifying the Bikinians' exposure and sensitivity to climate change. However, the Bikinians are not passive victims of displacement or climate change and have shown high levels of resilience to the disruptive impacts of these processes. The strategies first developed in response to their displacement must now consider climate change. Conversely, for their adaptation to climate change to be successful, these strategies must address the impacts of displacement as the underlying cause of Bikinian vulnerability.

The threats of climate change for the community on Kili and Ejit are considerable. Despite having developed strategies to respond to the vulnerabilities they face, climate change will continue to make life on Kili and Ejit Islands difficult because of the underlying social, cultural, economic and environmental characteristics. There may be limits to the Bikinians' ability to adapt and remain resilient. The Bikinians, already forced from their homes, have been highly mobile with most of their population residing on other islands within the Marshall Islands or in the United States. Climate change may force yet more Bikinians to consider migration as a form of adaptation.

This study explores how the vulnerabilities the Bikinians endure because of their displacement contribute to vulnerabilities associated with climate change. This study analyses these issues and focuses on how Bikinians adapt and build resilience. In seeking to share the story of the Bikinians this study draws on bwebwenato (talk story) research methods with members of the Bikinian leadership, and an analysis of documents detailing their struggle for justice against their displacement, and their experience with climate change.

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List of Acronyms

CMI	College of the Marshall Islands
FAD	Fish Aggregating Device
IASC	Inter-Agency Standing Committee
ICCPR	International Convention on Civil and Political Rights
ICESCR	International Convention on Economic, Social and Cultural Rights
ICJ	International Court of Justice
IDMC	Internal Displacement Monitoring Centre
ILO	International Labour Organisation
IPCC	Intergovernmental Panel on Climate Change
IRB	Institutional Review Board
KBE	Kili, Bikini, Ejit Local Government
MLLW	Mean Lowest Low Water
MUHEC	Massey University Human Ethics Committee
NCT	Nuclear Claims Tribunal
RBA	Rights Based Approach
RMI	Republic of the Marshall Islands
SDG	Sustainable Development Goal
UDHR	Universal Declaration of Human Rights
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations International Strategy for Disaster Reduction
US	United States of America

Chapter 1 Introduction

1.1 Setting the scene

Having secured the Marshall Islands from Japanese forces during World War Two, the United States (US) selected Bikini Atoll as the site to start their post-war nuclear testing programme. In 1946, the US coerced the Bikinians into leaving their homes so they could conduct these tests. The Bikinians were eventually relocated to Kili and also in the 1970s to Ejit and have suffered the impacts of displacement and numerous rights violations. Being forced to relocate disconnected the Bikinians from their atoll home which had formed the basis of their culture and society. It removed them from their well-defined livelihood systems and their source of self-sufficiency which they had developed over generations on Bikini Atoll (Mason, 1950; Kiste, 1977; Niedenthal, 1997 and 2013; Sutoris, 2011; Report of the Special Rapporteur, 2012; Tabucanon, 2014). Being relocated initially to Kili and later Ejit, meant the Bikinians were placed on islands that was significantly different to their atoll home, where they were expected to survive with little resettlement support. Displacement has been devastating for the Bikini community and the effects continue to be felt to this day as the Bikinians continue to fight to be allowed to return home.

Now on Kili and Ejit Islands, the Bikinians are facing the growing threat of sea level rise because of climate change. The impacts from climate change are projected to significantly increase throughout this century and the risks are considerable for low lying coastal areas which has important implications for the Bikinians (Forbes et al., 2013; Weir, 2017; IPCC, 2019). The impacts of climate change are greater for those people and communities already socially and economically disadvantaged (IPCC, 2014). This is one reason why Lewis (2018, p. 193) described climate change as a 'multiplier of vulnerabilities' as it can amplify existing inequalities. Therefore, when attempting to understand how the Bikinians may be affected by climate change, it is necessary to understand the influence displacement has on their vulnerability. The impacts of climate change cannot be addressed in isolation from their pre-existing social conditions (Barnett, 2010; Kelman, 2014; Oliver-Smith, 2014; Ensor et al., 2015; Christoplos and McGinn, 2016; Suliman et al., 2019; Bordner et al., 2020; Eriksen, 2021). While the Bikinians have been able to develop strategies to respond to their vulnerabilities, the current and future impacts from climate change can be seen as considerable. Climate change now threatens a second forced migration if the Bikinians are unable to adapt and remain on their islands (Bordner, 2019, p. 274). This thesis looks to establish how displacement influences the Bikinians' vulnerability to climate change, in order to understand the nature of their vulnerability and how this vulnerability is being addressed in their strategies to adapt and build resilience.

1.2 Personal positionality and motivation

My connection with the Bikini community is linked to a consultancy role that commenced in 2019. In this role I led the development of a Tourism Feasibility Study for Bikini Atoll and was part of a team that developed a Master Plan for Kili. While engaging with the Bikinians on the Kili Island Master Plan, I started to appreciate how climate change vulnerability could not be considered in isolation from the underlying development challenges and vulnerabilities generated by their experience of displacement. At this time, I was seeking a topic for my Master's thesis, looking to explore how climate change was considered by communities in Oceania. I chose to research the Bikinians now living on Kili and Ejit Islands as I was interested in understanding how a community with a long history of displacement could adapt to the risks of climate change and maintain a viable future on these islands. I began to appreciate, that because of their displacement, this community has always struggled on Kili and Ejit and that climate change was a continuation of the challenges they faced.

As a development practitioner working in Oceania, I undertook this research to increase my understanding on the causes of community vulnerability to climate change and how development guided by a rights-based approach (RBA) can help address these vulnerabilities and lead to more effective adaptation. It is my hope that this research has been a positive and worthwhile experience for the Bikinians and that the results may be of some use to the Kili, Bikini, Ejit (KBE) Local Government and the community. I discussed this research with the Bikinian leadership on several occasions and asked how it could be tailored to meet their needs. Their simple response was to tell their story, to keep their struggles alive and relevant and I hope this thesis can contribute to that in some small part.

In my research I have used the term "Oceania" when referring to islands and nations located within the Pacific Ocean. The use of this term follows the work by Hau'ofa (1993) and Bordner (2019) who employ the term Oceania to reflect the ontologies from the people that live there, with Oceania being an expansive socially and culturally connected "sea of islands." This is opposed to the marginalising depictions of the Pacific Islands, coined by colonialist systems, where the islands in the Pacific Ocean are often denoted as being small, remote and isolated (Hau'ofa, 1993).

1.3 Research context

The research started out exploring the concept of climate change vulnerability in the context of the Bikini community. The aim and objectives soon expanded to include the concept of displacement as it became evident that to understand the Bikinians' vulnerability to climate change, there was a need to understand their underlying social vulnerabilities. This research also expanded to include strategies to

adapt in recognition of the resilience that the Bikinians have developed to address displacement and climatic change.

A RBA has been used to frame the research as both displacement and climate change have significant rights implications. A RBA is a conceptual framework for applying a human rights lens and has been used to understand the causes and consequences of the Bikinians' displacement and vulnerability to climate change. RBAs have also been used to explore adaptation as Barnett (2010) argues that strengthening the achievement of rights through adaptation could help address the underlying causes of vulnerability and improve resilience.

Qualitative methods were selected to allow the Bikinians to tell their story in their words as much as possible. A document analysis was undertaken on key documents prepared by the Bikinians, or based on their testimony, that established their experience of displacement and climate change vulnerability. Bwebwenato, a Marshallese term for 'talking story' and analogous to Talanoa, the Samoan term, was used to guide semi-structured interviews. Bwebwenato were held with members of the Bikinian leadership to hear and record their personal narratives and the experiences of their friends, family and the wider community. Plans to undertake a larger number of community interviews was not possible as a result of COVID-19 travel restrictions. Instead, a small number of interviews with members of the Bikini leadership were undertaken remotely. These interviews have provided a rich source of data.

1.4 Research aim, questions and objectives

The aims of this research are firstly to understand how displacement influences the climate change vulnerability of the Bikinian community and secondly the effect displacement has on Bikinian adaptation and resilience to climate change. Under these aims, two research questions were pursued, each question contains objectives that guided the research:

QUESTION 1:	How is displacement contributing to the Bikini community's vulnerability to climate change?
Objective 1.1:	Understand how the Bikini community on Kili and Ejit has been affected by displacement.
Objective 1.2:	Determine the factors that contribute to climate change vulnerability on Kili and Ejit.
Objective 1.3:	Explore how displacement and climate change vulnerability affects the fulfilment of human rights for the Bikini community.

QUESTION 2:	How does the Bikini community face challenges and build on opportunities?
Objective 2.1:	Understand the strategies the Bikinians have developed in response to displacement and climate change.
Objective 2.2:	Determine the role of migration as part of the Bikinians' response strategy.

1.5 Thesis layout

This thesis is divided into eight chapters. Chapter 1 has introduced this research and sets out the context, conceptual and theoretical frameworks, the motivation for this research and the researchers positionality. This chapter has also stated the research aims, questions and objectives that guide this thesis. Chapters 2, 3 and 4 consist of literature reviews, which analyse and assess the conceptual and contextual setting for this research. Chapter 2 introduces the concept of RBAs in the context of development studies. This chapter explores the impact displacement has had on the rights of the Bikinians, as well as current and possible future rights violations as a result of climate change. Chapter 3 studies the concept of mobility and how forced mobility and immobility can potentially lead to displacement. This chapter explores the literature to determine the causes of the Bikinian displacement and the key displacement impacts suffered by the Bikini community. Chapter 4 provides context on the concept of climate change vulnerability and considers how climate change can create vulnerability in Oceania and the Marshall Islands. The chapter then examines the climate change exposure, sensitivity and adaptative capacity for the community on Kili and Ejit. Finally, the chapter analyses the literature to understand the role of the Bikinians' underlying social, cultural and economic conditions generated by displacement on their vulnerability to climate change.

Chapter 5 outlines the methodology and specific methods used in this study. This section outlines the use of an exploratory case study, along with impacts and reflections on the methodology due to the COVID-19 pandemic. This Chapter also discusses the thematic analysis used in exploring the research data and the limitations of the research. Chapter 6 presents an analysis of findings from the research related to the Bikinians' experience of displacement. This Chapter also analyses the strengths and strategies developed by the Bikinians in response to their displacement. Chapter 7 then provides an analysis of the data to understand how the Bikinians are being affected by climate change. This chapter uses the research questions to guide the identification and analysis of the key themes that emerged. Chapter 7 then explores the adaptative capacity of the Bikinians as a displaced community, with a focus on migration as a potential strategy in adaptation. Chapter 8 concludes the thesis drawing final discussions and summarising key findings in order to provide answers to the two research questions.

Chapter 2 Bikinian Rights in the Context of Displacement and Climate Change

2.1 Introduction

This chapter analyses the literature around human rights as a conceptual framework within the context of the Bikinians' displacement and climate change vulnerability. The chapter begins with an exploration of rights considerations in development, before exploring the application of rights-based approaches (RBAs). The next section explores further the role of RBAs in understanding and avoiding displacement, looking at the Bikinian experience of displacement and the impact displacement has had on their rights. The third section analyses rights consideration in addressing climate change and the link between rights and vulnerability to understand how rights violations generated from displacement may contribute to the Bikinians' vulnerability to climate change.

2.2 Rights in development

This section will explore the importance of rights in development, the international conventions and declarations that guide rights fulfilment and the usefulness of a RBA in development. By exploring rights and why they are important, impacts of displacement and climate change can be ascertained. The relationship between rights violations from displacement and the influence on Bikinian climate change vulnerability can then be analysed and explored.

Human rights are important in development as when they are addressed, development is more likely to be inclusive, participatory, sustainable and effective at reducing poverty (Winkler and Williams, 2017; Arts, 2017). The importance of development and rights was emphasised in the 1986 United Nations (UN) Declaration on the Right to Development which described the right to development in Article 1 as "an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development" (UN, 1986; and cited in: Arts, 2017, p. 59; UN Human Rights Office of the High Commissioner, 2021). This declaration states that development should incorporate a RBA so that it realises all human rights and fundamental freedoms in development including the right of self-determination and sovereignty over natural wealth and resources (Article 1) (UN, 1986; and cited in: UN Human Rights Office of the High Commissioner, 2021).

For decolonising states like the Marshall Islands, the right to self-determination is especially important in development because of the impact of colonialism on self-determination (Bordner, 2019, p. 186). As discussed by Bordner (2019, p. 220), the right to self-determination guarantees people the ability to make free and genuine choices about their status and future, and it is an important precondition for the enjoyment of other human rights. For people that were colonised, independence can only be gained when they achieve self-determination through unrestricted sovereignty, use of their national territory, and the ability to freely pursue their economic, social, and cultural development (Bordner, 2019, p. 226). For the Marshallese, and the Bikinians in particular, Bordner (2019) suggests full self-determination is still denied them due to the long-term impacts of US colonialisation and continued US control of Marshallese affairs and territory, as discussed further below in Section 2.3 which explores the Bikinian displacement. The right to self-determination is set out in the first article of both the 1966 International Convention on Civil and Political Rights (ICCPR) and the International Convention on Economic, Social and Cultural Rights (ICESCR) (UN, 1966a; UN, 1966b). As discussed by Bordner (2019, p. 220 and 228), the right to self-determination is "enshrined in our international legal system" and is considered to be "the most sacrosanct norms of international law" because of its inclusion in the foundational and legally binding ICCPR and ICESCR.

The reference to rights obligations in international conventions and declarations such as the ICCPR and ICESCR are important as they provide the basis for the achievement of people's rights. The rights and freedoms that everyone is entitled to were initially laid out in the 1948 Universal Declaration of Human Rights (UDHR). The UDHR seeks to ensure human dignity and the fulfilment of basic human needs by setting out the fundamental rights to which a person is entitled (van der Ploeg and Vanclay, 2017). Under the UDHR human rights are confirmed as being universal and inalienable, indivisible, interdependent and inter-related (van der Ploeg and Vanclay, 2017). However, as the UDHR is not legally binding, the primary source of guidance on human rights under international law are the ICCPR and the ICESCR, which are legally binding on all states that have ratified them (Humphreys, 2010). When considered together, the UDHR, ICESCR and ICCPR form the basis of the International Bill of Human Rights. Despite the existence of this bill, it has been necessary to extend and reinforce legal frameworks for certain groups of people, such as women, children and Indigenous peoples, culminating in a comprehensive set of international human rights instruments (Laczko and Aghazarm, 2009). It is important to consider the various international right conventions when defending rights from the impacts of displacement or climate change. The defence of human rights becomes easier when it can be demonstrated that these rights are included in recognised international human rights conventions and law (Bell, 2011).

Also important in the consideration of rights in contemporary development are the Sustainable Development Goals (SDGs). The SDGs are an important component of the 2030 Agenda for Sustainable Development, which was adopted by the UN General Assembly in 2015 as an intergovernmental voluntary agreement guiding global development efforts from 2016 until 2030 (Arts, 2017; Pogge and Sengupta, 2016). The SDGs are a statement of the 2030 Agenda's aspirations and its 17 goals provide guidance for a wide range of development programmes that aim to achieve sustainable development, end poverty, fight inequality and tackle climate change (Pogge and Sengupta, 2016; Major et al., 2018). One of the values of the SDGs is their commitment and grounding in international human rights principles (Feiring et al., 2017; Kjaerum, 2018; Kaltenborn et al., 2020). The commitment to human rights is expressed in the preamble that states the SDGs seek to realise the human rights of all (UN, 2015a, p. 9). The human rights commitment is also reinforced by the grounding of the SDGs in the UDHR and other international rights treaties and instruments such as the Declaration on the Right to Development (UN, 2015a; Pogge and Sengupta, 2016). Winker and Williams (2017) and Kjaerum (2018) explain that this grounding in international human rights law provides a framework and accountability mechanism that seeks to provide transformative structural changes in development.

However, the SDGs have been criticised for not integrating or framing rights more fully within and throughout its goals and targets (Arts, 2017; Winkler and Williams, 2017; Kjaerum, 2018). Arts (2017, p. 60) states for example that only occasionally does a rights objective appear in the SDG targets. The SDGs also highlight the tension between development and human rights. In discussing this tension, Pogge and Sengupta (2016, p. 93) state that severe human rights violations normally require immediate remedial action to address the cause and ensure rights requirements are fulfilled. The SDGs, however, invite an incremental approach and the slow eradication of those deprivations that may restrict human rights fulfilment, as growth and development can take time to achieve results (Pogge and Sengupta, 2016, p. 83-90). Pogge and Sengupta (2016, p. 93) suggest the SDGs promote a false sense of success and make it easy for governments to make slow progress on the realisation of rights. As a result, the 2030 Agenda falls short of adopting a universal zero target approach for all economic and social human rights obligations with Pogge and Sengupta (2016, p. 83 and 88) suggesting that the SDGs are unlikely to help achieve the realisation of rights for all.

Despite this tension between rights and development, it is still important to use rights obligations to guide development as they can play an important role in understanding and addressing people's vulnerabilities especially in the face of climate change (Arts, 2017, p. 59). RBAs provide a framework for applying a rights lens in various settings. In a development context a RBA considers both individuals and community groups as rights-holders ensuring the fulfilment of their rights is central to the outcomes of development as well as the development process itself (Uvin, 2007; van der Ploeg and

Vanclay, 2017; Kjaerum, 2018; Mukherjee and Mustafa, 2019). This approach is important as development challenges, such as displacement and vulnerability to climate change, are social processes and result from failures or omissions by duty bearers to protect the vulnerable (Scott and Salamanca, 2021a). With rights at the forefront of development, rights holders are empowered to claim their rights as laid down in international rights instruments from duty bearers (Uvin, 2007; Gromilova, 2014; Ensor et al., 2015; Lewis and Maguire, 2016; van der Ploeg and Vanclay, 2017; Scott and Salamanca, 2020). As a result of this empowerment, RBAs can help the most vulnerable and marginalised ensure their views and needs are prioritised through their active participation as rights holders (Uvin, 2007; Ensor et al., 2015; Mukherjee and Mustafa, 2019).

For the Bikinians, RBAs are also useful in understanding the causes and consequences of displacement so duty bearers can be held accountable and claims can be made to remedy rights violations (Uvin, 2007; van der Ploeg and Vanclay, 2017; Kjaerum, 2018; Scott and Salamanca 2020). RBAs are also a valuable approach in the context of climate change vulnerability as climate change poses a significant threat to the enjoyment of a wide range of rights and developing effective responses to climate change is reliant on safeguarding these rights (Laczko and Aghazarm, 2009; Caney, 2010; Lewis, 2018; Naser et al., 2019). For example, international human rights law confirms that the right to life imposes a duty on authorities to protect people from foreseeable natural disasters such as climate change (Scott and Salamanca, 2021a). When authorities fail to meet their obligations, a RBA can be used as an advocacy tool by drawing attention to the rights consequences of failing to address climate change (Hassine, 2015; Lewis, 2018; Scott and Salamanca 2020; Scott and Salamanca, 2021a; Scott, 2021). Using a RBA can help determine the root causes of vulnerability to climate change and then guide appropriate responses to address the structural conditions that underpin vulnerability (Naser, 2013; Lewis and Maguire, 2016; Scott, 2021; Scott and Salamanca 2021b). A RBA response that addresses vulnerability can help guide efforts to adapt in place and help avoid the need to relocate as a response to climate change (Naser, 2013).

This section has demonstrated that while there are tensions between development and rights in addressing social deprivations, there is value in the use of RBAs to improve the outcomes of development. The use of a RBA in understanding and avoiding displacement is explored further below.

2.3 Using RBAs to understand and avoid displacement

This section analyses RBAs in the context of displacement and in understanding and avoiding displacement from occurring. Exploring RBAs in this context allows an analysis of the Bikinians'

displacement from a rights perspective. There are a number of international conventions and guidelines that confirm forced relocations are a clear violation of rights and which also seek to safeguard rights when relocation must occur (Laczko and Aghazarm, 2009). The right to be protected from forced relocation is outlined in Article 25 of the UDHR and Article 11 of the ICESCR. The Guiding Principles on Internal Displacement (the Guiding Principles) also confirm in Principle 6 that people have the right to be protected against being arbitrarily relocated and if relocation must occur, that it should not last longer than necessary (UN, 1998). In addition to the Guiding Principles, the legally binding International Labour Organisation's (ILO) Indigenous and Tribal Peoples Convention (No. 169, 1989) and the UN Declaration on the Rights of Indigenous Peoples (2007) also prohibit the forced removal of Indigenous peoples from their land (cited in Tabucanon, 2014).

However, even with these instruments in place, widespread forced relocations still occur (van der Ploeg and Vanclay, 2017). It has been estimated that development projects, such as those associated with urban redevelopment, large-scale infrastructure, or facilities for mega-events, such as the Olympic Games, lead to approximately 10 to 15 million people being forced to relocate every year (van der Ploeg and Vanclay, 2017, p. 34; McDermott and Gibbons, 2017, p. 587). Forced relocations are also undertaken in an effort to remove people from risks arising from armed conflict and natural hazards (Kälin, 2010; McDermott and Gibbons, 2017). In 2020, the Internal Displacement Monitoring Centre (IDMC) recorded that 30 million people had been forced to relocate because of weather related disasters (cited in Clement et al., 2021, p. 2).

Forced relocations undertaken as a response to natural disasters and climate change are complex from a rights perspective (McDermott and Gibbons, 2017). Relocation in these cases is often carried out to protect the right to life but can lead to the limitation of a number of other rights during and after relocation, leading to experiences of displacement and maladaptation (Naser, 2013; Gromilova, 2014; McDermott and Gibbon, 2017). Forced relocation can affect economic, social and cultural rights including the right to health, food, water, housing and an adequate standard of living (Lewis and Maguire, 2016; van der Ploeg and Vanclay, 2017; Naser et al., 2019). These rights violations are likely to become more severe when people cannot return to their homes and the longer displacement lasts the more entrenched rights violation will become (Lewis and Maguire, 2016; Naser et al., 2019). Forced displacements can also affect the rights of host communities that see the displaced arrive in their places. Host communities may be forced to give up their rights to land and resources for new arrivals (Connell, 2012; Edwards, 2013; Donner, 2015). It is therefore important that when people are forced to relocate their rights as well as those of host communities are protected to avoid displacement (Lewis and Maguire, 2016; van der Ploeg and Vanclay, 2017).

The protection of rights in relocation will become an increasingly important consideration as the impacts of climate change are expected to force greater numbers of people to become mobile, with the UN Framework Convention on Climate Change (UNFCCC) identifying planned resettlement as a form of climate change adaptation (Gromilova, 2014; Oliver-Smith, 2014; McAdam and Ferris, 2015). However, relocation as a response to climate change has not gained widespread support (McAdam and Ferris, 2015). A key reason for this lack of support for relocation as a response to climate change is the significant rights implications, as discussed above (Leckie, 2014; Naser et al., 2019; Scott and Salamanca, 2021a). Many people are vulnerable to climate change because of their underlying social and economic conditions and cannot afford a further reduction in the fulfilment of their rights as a result of forced relocation (Scott and Salamanca, 2021a). It is important then to consider rights as a component of climate change vulnerability, as the failure to protect people exposed to climate change places them at risk of forced relocation leading to further rights violations.

When forced relocation must occur, more sustainable outcomes may be achievable by developing a RBA that promotes the protection of rights and empowers people to guide a resettlement process to address their needs (Connell and Tabucanon, 2015; Gromilova, 2014; Lewis and Maguire, 2016; van der Ploeg and Vanclay, 2017; Farbotko et al., 2018). Central to a RBA is the recognition that, even in the worst case of displacement, people remain entitled to the fundamental rights which are guaranteed to them under international law (Lewis and Maguire, 2016). In addition to the Guiding Principles on Internal Displacement discussed above, the Inter-Agency Standing Committee (IASC) Operational Guidelines on Human Rights and Natural Disasters (2006) for example adopts RBAs to assist in identifying the relevant needs and rights of people affected by natural disasters and ensures humanitarian action is undertaken in accordance with rights standards (Oliver-Smith, 2014; McDermott and Gibbons, 2017). As such, a RBA could assist in the prevention of displacement occurring when relocation is needed, including as a response to climate change.

The next part of this section explores rights associated with the Bikinian displacement. Colonial control of the Marshall Islands by the US, that occurred from the end of World War Two through to 1978, had little regard to the well-being and rights of the Marshallese people (Marcoux, 2021). Both De Ishtar (2003) and Marcoux (2021) suggest that the US capitalised on a lack of international oversight during their control of the Marshall Islands to undertake nuclear and other military tests that led to the violation of rights for a number of communities including the Bikinians. Many of these rights violations were undertaken at a time when there was no or limited international legal human rights instruments protecting people and communities (Tabucanon, 2014). The relocation of the Bikinians from their atoll to Rongerik in 1946 occurred prior to the establishment of the US Trust Territory of the Pacific Islands by the UN Security Council in 1947 which included the Marshall Islands. Their relocation from Rongerik

to Kwajalein, then onto Kili, occurred in 1948 after the Trust had been established, but prior to the ratification of the UDHR in December 1948. The establishment of the Trust Territories by the UN created binding obligations on the US to encourage respect for human rights and to ensure fundamental freedoms for all (Bordner, 2019; Marcoux, 2021). The Trust also required the US to protect the Marshallese against the loss of their lands and resources and to protect their health and well-being (Marcoux, 2021). In reality however, the US nuclear testing programme has displaced the Bikinians and other Marshallese communities from their lands in a clear violation of their duty under the Trust (De Ishtar, 2003; Marcoux, 2021).

The long-term removal of the Bikinians from their home by the US was a forced relocation. With no established international rights instruments protecting the Bikinians from their removal from Bikini Atoll, the US did not provide them with any choice or opportunity to negotiate their resettlement (Tabucanon, 2014). Not only did long-term relocation contravene the provisions of the Trust, by contemporary standards it also contravened the rights of the Bikinians (Weisgall, 1980; Sutoris, 2011; Tabucanon, 2014; Marcoux, 2021). For example, the UDHR and the later Guiding Principles on Internal Displacement assert that no one should be arbitrarily displaced and deprived of their property and that everyone has the right to freedom of movement and residence (Williams, 2008; Kälin, 2010; Basu, 2011; Naser et al, 2019). The taking of Bikini Atoll without appropriate consent or adequate compensation, and continued restrictions over the return and use of their customary land violates Bikinian rights to their property (Tabucanon, 2014; Marcoux, 2021).

Ongoing concerns around the radioactive contamination of Bikini Atoll from the nuclear tests mean the Bikini people are still unable to return to their home. This situation violates their right to their land, their right of return and ensures their indefinite displacement (UN Human Rights Council, 2012; Bordner et al., 2016). Tabucanon (2014) argued that with continued displacement, the Bikinians should be provided with an option to return home. The Guiding Principles on Internal Displacement confirms the importance of the right to return in order to meet obligations to the right to life, dignity, liberty and security (Principle 8), while Principle 28 confirms that people have the right to have their property returned to them (UN, 1998; Williams, 2008; Kälin, 2010; Tabucanon, 2014; Naser et al., 2019). The long-term separation from their home also affects Bikinians' cultural rights as the identity of the Bikini community is grounded in their connection to their atoll home with their entire social order largely defined and structured by land rights (Kiste, 1977). The UN Declaration on the Rights of Indigenous Peoples, which the US has endorsed, underlines the right of Indigenous peoples to the lands, territories and resources that they have traditionally owned, occupied or otherwise used or acquired (Article 26). If land cannot be returned, Article 16 of the ILO's Indigenous and Tribal Peoples Convention (1989) confirms that relocated people should be provided with lands of equal quality and

legal status to that previously occupied by them, and suitable to provide for their present needs and future development. As discussed further in Chapter 3, none of these requirements have been adequately addressed for the Bikinians by the US. In this regard, the US has an obligation to protect Bikinian lands and resources, instead of leaving them unresolved (UN Human Rights Council, 2012).

The Bikinians' belief that their rights have been violated was upheld when the US admitted responsibility for the environmental destruction of Bikini Atoll and the loss and damage to their property because of nuclear testing (Sutoris, 2011; Tabucanon, 2014). While the US admitted legal responsibility and paid limited compensation, the Bikinians still lack the means, infrastructure and technical capacity to find a durable solution to their displacement and remain dependent on compensation payments (Bordner, 2019; Centre for Political Ecology, 2014). Further, Bordner (2019, p. 245-247) suggests that the US's failure to remediate Bikini Atoll and other Marshallese Islands, or provide adequate compensation is directly impeding their ability to adapt to climate change. Adequate compensation would facilitate the implementation of adaptation strategies they may wish to pursue but cannot currently afford (Bordner, 2019, p. 245), which is discussed further in Chapter 4.

This section explored displacement in the context of rights and demonstrated the usefulness of a RBA in analysing the causes of the Bikinians' displacement. Through this analysis, it has been established that displacement has significantly affected the rights of the Bikinians. The next section explores how climate change also influences the rights of the Bikinians.

2.4 Rights considerations in climate change

This section will analyse the potential impacts of climate change on rights, and how weak rights fulfilment and protection may lead to climate change vulnerability. The rights implications and considerations of climate change for the Bikinians will also be explored. There is a strong relationship between rights and climate change vulnerability which has been recognised by the UN Human Rights Council, who in 2008 adopted Resolution 7/23 recognising the significant implications climate change will have on the full enjoyment of rights (Caney, 2010; Bell, 2011; Gromilova, 2014; Hassine, 2015; Lewis, 2018; Mukherjee and Mustafa, 2019). Additionally, the Intergovernmental Panel on Climate Change (IPCC) predicts with confidence that climate change will result in potentially life-threatening impacts which will violate a number of fundamental rights (Lewis and Maguire, 2016; Arts, 2017; Lewis, 2018). The broad range of climate change impacts will interfere with the realisation of an equally broad range of civil, political, economic, social and cultural rights as set out in the major international human rights documents, such as the UDHR, ICCPR, and ICESCR (Cullet, 2010;

Humphreys, 2010; Bell, 2011; Levy and Patz, 2015; Lewis, 2018). Rights potentially affected by climate change include for example, the right to life, health, food, water, an adequate standard of living and the right to self-determination (Bell, 2011; Hassine, 2015; Lewis, 2018; Mukherjee and Mustafa, 2019; Naser et al., 2019; Whyte et al., 2019). Of importance for low-lying communities in Oceania is the potential impact on the right to self-determination which may be affected by the loss of land from sea level rise and increased extreme weather events (Lewis, 2018).

In many cases vulnerability to climate change is a consequence of inadequate rights protections, which generates vulnerable social, economic and cultural conditions. These vulnerabilities then interact with the impacts from climate change, further limiting the ability of individuals and communities to enjoy their rights (Naser, 2013; Lewis and Maguire, 2016; Lewis, 2018; Mukherjee and Mustafa, 2019; Scott, 2021; Scott and Salamanca 2021b). As a result, the worst effects of climate change are likely to be felt by those who are already vulnerable because of their weak rights protections. Bordner et al. (2020) suggest this includes communities in the Marshall Islands such as the Bikinians, who have suffered rights violations as a result of their displacement, which has resulted in significant social and economic vulnerabilities. As climate change is seen to violate rights, Bell (2011) argues that there is no need for a rigorous defence based on rights claims to justify urgent action on climate change. Kälin (2010) and Bronen (2018) both agree and argue that reducing climate change vulnerability is a rights obligation because if an impact or disaster is foreseeable and the state is able to prevent a threat to life and property, then the state is obliged to take appropriate action to prevent the threat materialising.

Such a defence is useful as international climate change instruments are weak in addressing rights (Kälin, 2010; Bronen, 2018). For example, the UN Framework Convention on Climate Change (UNFCCC) is considered a key international instrument that addresses the need for action on climate change (Levy and Platz, 2015; Mukherjee and Mustafa, 2019). However, the UNFCCC has been criticised as the inclusion of rights is limited to a single reference within the preamble. This reference only urges states to respect, promote and consider rights obligations when taking action on climate change, making a minimal contribution to addressing rights within climate change (Lewis, 2018; Advisory Council on International Affairs, 2019; Boyle, 2020). With this weakness in addressing the challenges of climate change from a rights perspective, other solutions are needed to protect the rights of those impacted by climate change (Lewis, 2018).

By seeking to safeguard rights, RBAs provide the means to develop effective responses to climate change (Laczko and Aghazarm, 2009; Caney, 2010; Lewis, 2018; Naser et al., 2019). In addition to this, a RBA would ensure climate change responses do not generate negative consequences or maladaptation (Caney, 2010; Gromilova, 2014; Scott and Salamanca, 2021a). Maladaptation can occur

when rights protections are weak and development favours technical solutions providing quick short-term fixes (Christoplos and McGinn, 2016). A RBA can help avoid maladaptation by ensuring responses are expanded beyond short-term technical solutions to instead address the underlying inequality that contributes to making people vulnerable to climate change (Ensor et al., 2015; Christoplos and McGinn, 2016; Lewis, 2018). An approach that focuses on achieving appropriate rights standards also provides a good way of addressing the risk and uncertainty associated with the gaps in knowledge around the impacts and risks of climate change (Caney, 2010). Additionally, Barnett (2010) argues that island and atoll communities are likely to be vulnerable to climate change because of these islands physical and social characteristics, and there are limits to what adaptation can achieve. Because of the high level of vulnerability, Barnett (2010) argues that action to protect political, social and economic rights may be a far more important adaptation strategy in exposed communities than specific actions that seek to address climate change impacts. Therefore, while a RBA may seek to address the underlying causes of vulnerability, it also needs to address wider development challenges in order for any measures aimed at reducing vulnerability to be successful (Kelman, 2014; Ensor et al., 2015; Christoplos and McGinn, 2016). The best option in reducing vulnerability will come from a RBA that seeks to eliminate rights violations as well as strengthening the achievement of rights through development (Barnett, 2010).

A key right of the Bikinians that needs protection in addressing climate change is their right to self-determination (Bordner, 2019). For many communities in Oceania, climate change could make their homes and land uninhabitable resulting in a loss of sovereignty and self-determination (Bordner, 2019). The Bikinians' right to self-determination has already been affected through the loss of their home and their displacement. Any forced relocation from the Marshall Islands because of climate change would likely further erode the Bikinians' right of self-determination (Bordner, 2019, p. 231). As discussed by Bordner (2019) the right to self-determination is important as it provides the ability for people to make choices about their status and future and is an important precondition for the enjoyment of other human rights.

This section has explored rights considerations in the context of climate change and has linked rights and climate change vulnerability. Climate change vulnerability can in many cases be a consequence of inadequate rights protection measures. Existing vulnerabilities can also interact with climate change to further impact rights. It is likely that the displacement suffered by the Bikinians has resulted in vulnerabilities that influence the community's exposure and sensitivity to climate change, explained further in Chapter 4.

2.5 Chapter conclusion

This chapter has established the framework of this thesis: human rights in the context of displacement and climate change vulnerability. Based on the findings of the literature, rights can be used to understand the causes and consequences of displacement and climate change vulnerability. Both processes can occur when there are weak strategies towards rights protection, and in turn both displacement and climate change can further limit the rights fulfilment of the Bikinians.

The Bikinian displacement occurred as a result of violations to their rights suffered during the 76 years they have been living on Kili and Ejit. Key rights violations include the loss of rights to their lands and the right of return. Their experience also demonstrates the potential for rights violation to become more severe and entrenched when people cannot return to their homes. It is likely that climate change will generate a number of impacts that will have significant implications for the enjoyment of rights for the Bikinians while living on Kili and Ejit. As Bordner et al. (2020) and Scott and Salamanca (2021b) have suggested, vulnerability to climate change is likely a consequence of inadequate human rights protections, which results in vulnerable social, economic and cultural conditions. In seeking to understand and address Bikinian vulnerability to climate change, the long-term entrenchment of these rights violations impacting on Bikinians because of their displacement will be a significant consideration in this thesis.

Analysing the literature also indicates that a RBA is a suitable approach to understanding and planning for responses to displacement and climate change for the Bikinians. A RBA could help the Bikini community highlight the root causes of any vulnerability, guide the most appropriate responses to address the conditions that underpin this vulnerability, and empower the community to claim their rights from duty bearers, in their case the US. The US authorities having been responsible for Bikinian rights violations and are the key duty bearers that should be made responsible to protect the Bikinians against future violations from climate change.

There are two other advantages to the Bikini community in considering the use of a RBA when addressing the risks from climate change. The first is that a focus on rights helps address the risk and uncertainty that is associated with current climate change knowledge, which is especially relevant for communities living on Kili and Ejit that do not have the resources to assess detailed information or model climate trends. Secondly, a RBA also accounts for the fact that there may be limitations on what adaptation can achieve on Kili and Ejit, and the best approach for the Bikinians is to address wider development challenges that will aid reducing vulnerability and address the impacts of long-term displacement.

Chapter 3 Displacement and the Bikini Community

3.1 Introduction

This chapter provides background and context to the displacement of the Bikini community. The first section explores the concept of mobility and its different scales. Exploring the concept of 'mobility' provides the ability to unpack and understand the causes and consequences of the Bikinian displacement. With the concept of mobility analysed, the next section analyses the concept of displacement. The last section explores the Bikinian displacement, determining what led to their community to experience the impacts of displacement and how these impacts have affected the Bikini community on Kili and Ejit Islands.

3.2 Mobility in Oceania

This section analyses the literature on mobility and explores its different scales. Mobility research was labelled as a "new paradigm" by Hannam et al., (2006, p. 2). Mobility has been defined as something that has the potential to move or is capable of actual movement and embraces a number of different layers including physical, social and digital for example (Sager, 2006, p. 466; Vickers et al., 2019, p. 698). For the purpose of this thesis, only physical movement will be considered. Mobility can vary spatially and temporally. It can range from short term to permanent movements, and from large-scale international movements of migrants to local daily travel within individual everyday life (Hannam et al., 2006; Sager, 2006; Schiller and Salazar, 2013; Baldwin et al., 2019). Mobility also covers a spectrum from being fully mobile to being immobile or stuck (Fradejas-García and Mülli, 2019). It can also take a variety of forms from tourism, migration and resettlement to involuntary forced movement and displacement (Baldwin et al., 2019).

The right to freedom of movement was established in the 1948 UN Universal Declaration of Human Rights (UDHR) (Sager, 2006; Fradejas-Garcia and Mülli, 2019; Bianchi et al., 2020). Article 13 of the UDHR confirms that 'everyone has the right to freedom of movement and residence within the borders of each State' and 'has the right to leave any country, including his own, and to return to his country' (UN, 2015b, p. 28). Today, the entitlement to free-flowing mobility is, according to Bianchi et al. (2020), firmly established in many capitalist societies. An important part of free-flowing mobility is having the means to travel and because of the availability of global transportation technology, Nail (2019, p. 375) suggests that we live in an age of movement with more people on the move than ever

before. Presumably, this conclusion was made prior to the COVID-19 pandemic which saw a decline in mobility as restrictions were placed on global travel to control the transmission of the virus.

Mobility is central to the history and identity of Oceanic cultures and it was through their skills in navigating large areas of open ocean that the settlement of the widely dispersed islands of Oceania was possible (Farbotko et al., 2018). As islands were settled, they were added to a social and cultural network that maintained connections to the founding community (Fischer, 2002; Thu, 2020). In maintaining these connections, Oceanic people were in constant circulation between islands (Hau'ofa, 1993; Uan and Anderson, 2014; Suliman et al., 2019). This has led to Hau'ofa (1993, p. 152), and later research (see Farbotko et al., 2018, p. 396), to consider Oceania as a connected "sea of islands". As a result of these ties, communities in Oceania were able to improve their resilience to environmental change by utilising their social connections to access resources or even return home if required making survival on small islands possible (Donner, 2015; Connell, 2015; Kelman, 2018; Corendea and Mani, 2018; Clement et al., 2021). This includes the Marshallese who refined their well-developed canoe-building and navigational skills to allow them to maintain inter-atoll ties, which proved vital in times of need (Rudiak-Gould, 2013; Whyte et al., 2019).

More recently however, and despite the assertion of Nail (2019, p. 375) above, people are rarely able to migrate wherever they wish as mobility is controlled by the fixed borders of nation states (Kumari Rigaud et al., 2018; Whyte et al., 2019; Bianchi et al., 2020). The creation of state borders in Oceania removed the ability of people to move freely between islands (Hau'ofa, 1993; Suliman et al., 2019; Whyte et al., 2019). Colonialisation confined Oceania's people to contracted spaces within boundaries that today still define the island states and territories of Oceania (Hau'ofa, 1993; Suliman et al., 2019). As a result, Suliman et al. (2019) suggest that many people in Oceania feel that mobility is not available on their terms. However, Clement et al. (2021, p. 231) suggest there is a high degree of mobility between states in Oceania under visa-free or visa-on-arrival privileges. Many countries in Oceania have large proportions of their population living and working abroad, facilitated by entry arrangements such as seasonal migrant worker schemes for example (Farbotko et al., 2018, p. 396). Thus, mobility continues in Oceania to be a positive adaptation strategy related to livelihood diversification and socioeconomic improvement as well as risk reduction and adaptation to escape development challenges at home (Kumari Rigaud et al., 2018; Bordner, 2019; Clement et al., 2021).

However, Corendea and Mani (2018, p. 308) warn that mobility for economic reasons can also lead to increased vulnerability if it fails to produce anticipated benefits. Migration may disrupt social and cultural networks, cause the loss of identity associated with ancestral land and community, and require integration into communities who could be hostile to migration (Corendea and Mani, 2018, p.

306). The COVID–19 pandemic has also significantly affected mobility patterns, for example, access to seasonal worker's programmes, which for some are an important means of alleviating poverty (Clement et al., 2021, p. 4).

The discourse around climate change in Oceania often emphasises the need for mobility over immobility (Gill et al., 2011; Baldwin et al., 2019; Bettini, 2019; Suliman et al., 2019; Whyte et al., 2019). Any forced relocation because of climate change will be a concern for many Oceanic communities as it would be reminiscent of past colonial removals and potentially lead to displacement (Suliman et al., 2019; Clement et al., 2021). Mobility as a response to climate change is often rejected by Oceanic people, who state they would prefer to stay on their land (Suliman et al., 2019). For this reason, the World Bank (2021) reports that migration as a climate change response would be considered a last resort for many people in the Marshall Islands. The World Bank (2021) goes on to report that gradual migration can reduce the social and cultural impacts of migration, especially when the Marshallese diaspora in places like the US could help migrants find cultural connections and economic opportunities. Such migration can form part of a successful strategy to diversify livelihoods and reduce risk (van der Geest, 2020, p. 111).

This section explored literature on mobility, explaining the history of mobility in Oceania and the importance of mobility in the current discourse around climate change. The next section analyses the causes and consequences of force relocation and displacement.

3.3 The causes and consequences of displacement

Building on the literature on mobility above, the first part of this section examines the causes of displacement, focusing on how the lack of choice, community participation and support contribute to the occurrence of displacement. The second part of this section explores the consequences of displacement in Oceania.

Displacement is associated with the negative outcomes of forced mobility and is a significant risk when people have been 'uprooted' and their attachment to their place of origin undermined (Thu, 2020, p. 531). As discussed by Gill et al. (2011) displacement may not be a one-off event and can be a process that could last months or many years, such as in the case of the Bikinians. During this process, a range of different mobilities may be enacted depending on where those being displaced are located to, whether they have the resources to meet their needs, whether they are free from the cause of their mobility and whether they want to, and can, return home (Gill et al., 2011, p. 302). Displacement can also lead to stuckness or involuntary immobility which arises when a person desires to move but is

unable to do so (Blondin, 2020). The consequences of displacement can be severe as communities forced to relocate risk losing their established capital in all its forms, that is natural, human and social capital (Cernea, 2004). The impoverished social, cultural and economic conditions experienced when this occurs can be considered displacement (McAdam and Ferris, 2015).

Forcing people to relocate can reduce, or even fully remove their ability to influence decisions around the relocation process and its outcomes (Edwards, 2013; Tabe, 2019). The result is a disempowered community that will struggle to direct the relocation process to meet their needs potentially leading to long-term impoverishment, marginalisation and displacement (Donner, 2015; Hermann and Kempf, 2017; Tabe, 2019). To avoid displacement, a community must have the choice to consent to relocation and to the conditions under which it occurs. Choice is important as it means being able to exercise the opportunity to be mobile or having the choice of not being mobile at all (Sager, 2006; Park and Pellow, 2019; Baldwin et al., 2019). When choice is removed, mobility can be imposed or forced on people who may not want to move, or alternatively, people that may want mobility may become immobile (Gill et al., 2011).

Choice is a necessary precursor to community participation in the relocation process, in which the community may be empowered to influence decisions that affect them (McAdam, 2014; McAdam and Ferris, 2015; Hermann and Kempf, 2017). Displacement is more likely to occur when there is not effective community participation in the relocation process (Oliver-Smith, 2014; Tabucanon, 2014; Tabe, 2019). This is because a community may determine risks, problems or opportunities differently from people outside their community (Nunn, 2009; Cernea, 2004). Additionally, if the community cannot direct the relocation process to restore livelihoods, their impoverishment is likely, and Oliver-Smith (2014) states that relocation decisions made without sufficient knowledge of both the community and the receiving environment are likely to end in displacement.

For empowerment to occur, a consultative process and participatory structures must be in place to enable all sectors of the community to make informed choices and to be able to communicate these through a transparent decision-making process (McAdam, 2014; McAdam and Ferris, 2015). As stated by Oliver-Smith (2014) when a community has control over the relocation process, they are better able to deal productively and positively with the change ahead of them to help avoid displacement. The community's control over relocation links to their right to self-determination in making decisions around mobility as stated by Bronen (2018) and Bordner (2019) and outlined in Chapter 2.

Even with choice and participation in the relocation process, relocation is at risk of leading to displacement when there is a lack of sufficient and sustained relocation support (McAdam, 2014). Relocation is a highly complex process and levels of financial support are often inappropriate to ensure

successful resettlement (Ferris, 2015; Tabe, 2019). Communities need support to redevelop livelihoods, acquire land and secure access to resources, education and health services (Connell, 2012; Donner, 2015). When there is a lack of choice over relocation, or a lack of participation in the process and its outcomes, and when those being relocated are not adequately supported in the establishment of their new homes and livelihoods, displacement is almost certain to result. Research undertaken by Cernea (2004) identified eight key impacts of displacement which have been used by a number of researchers to understand the effects of forced relocation in Oceania (see for example Edwards, 2013, and Tabucanon, 2014). Impacts are also reflected in discussions on relocation by Farbotko et al. (2020). Displacement impacts as determined by Cernea (2004) are outlined in Table 1 and these key themes are discussed further below.

Of Cernea's eight displacement impacts, landlessness is considered the most important. As discussed in Chapter 2, the right to land is protected under a number of international rights conventions that make it clear people have a right to landownership and are not to be forcibly removed or evicted from their land (Laczko and Aghazarm, 2009; Tabucanon, 2014; McDermott and Gibbons, 2017). Land is the location of homes, community and the basis of productive systems (Cernea, 2004). Land is especially important in Oceania as communities have strong social and cultural bonds to their land (Edwards, 2013; Weir et al., 2017; Corendea and Mani, 2018). In Oceania land is the foundation of social, cultural and community systems and structures, the source of cultural and spiritual wellbeing and the basis of communal and individual identity (Boege, 2011; Oliver-Smith, 2014; Tabucanon, 2014; Tabe, 2019; Clement et al., 2021). For the Marshallese, land is an integral part of their culture and way of life and to lose their land is to lose their culture and custom (Bordner, et al., 2020). In a new location, the connections to land that formed the community's social fabric are difficult to re-establish (Oliver-Smith, 2014; Weir et al., 2017; Tabe, 2019). As a result, forced relocation will nearly always lead to the experience of displacement for Oceania's communities (Corendea and Mani, 2018; Tabe, 2019; Clement et al., 2021). The connections to land are so strong, that McAdam and Ferris (2015) state that past displacements in Oceania have generated long term inter-generational psychological consequences for relocated communities. These risks are also present for host communities who may be forced to give up their land for new arrivals (Connell, 2012; Edwards, 2013; Donner, 2015).

Table 1: Impacts of Displacement

Displacement Impact	Description of Impact
Landlessness	The principal form of de-capitalisation and impoverishment as it removes both natural and human capital including livelihoods. Unless the land basis of productive systems is reconstructed or replaced, impoverishment is likely.
Joblessness	The loss of waged employment. When people are forced to relocate, there is a risk that unemployment or underemployment can endure for long periods.
Homelessness	The loss of shelter tends to be only temporary for the majority of people being resettled. However, resettlement can result in a deterioration of housing standards. The loss of an individual home and the loss of group cultural space can also result in alienation and status-deprivation.
Marginalisation	Relocation places people in new locations and different environments, which can reduce the ability to practice their livelihood skills, rendering their human capital obsolete. As a result, people lose economic power and can become impoverished. This economic marginalisation is often accompanied by social and psychological marginalisation, such as a drop in social status and development of feelings of injustice and deepening vulnerability.
Food insecurity	Resettlement increases the risk that people will become temporary or chronically undernourished because of the unavailability of food as rebuilding regular food production capacity can take many years.
Increased morbidity and mortality	Displacement can result in a decline in health when people experience higher levels of exposure and vulnerability to illness and disease.
Loss of access to common property and services	The loss of access to common property assets that belong to the community can result in a deterioration in incomes and livelihoods. Loss of common property assets are generally not valued or compensated by outside authorities.
Social disarticulation	Forced displacement can disperse and fragment communities, disrupt patterns of social organisation, interpersonal ties and scatter kinship groups. As a result, networks of reciprocal assistance and mutual services can be disrupted. This results in a loss of social capital compounding the loss of natural, physical and human capital. The loss of social capital is typically unperceived and not compensated, with long-term consequences as social networks are difficult to rebuild.

Source: Adapted from Cernea (2004, p. 18-26)

Landlessness has a significant impact on the ability to rebuild and maintain livelihoods. While Cernea (2004) considers joblessness as a significant displacement risk, for many remote Oceanic communities such as the Bikinians, paid employment is rare and there is little prospect of generating informal income locally (Edwards, 2013). For this reason, it is better to discuss impacts on livelihoods as opposed to joblessness. A failure to restore livelihoods as part of the relocation process usually results in impoverishment (Tabucanon, 2014; Tabe, 2019). The loss of livelihoods can result in a loss of status, social identity, marginalisation and social disarticulation and can leave people powerless to engage in their own recovery (Oliver-Smith, 2014). Livelihood loss is also connected to the loss of common property and services and landlessness which can disrupt access to natural resources and suitable productive land during relocation (Dannenberg et al., 2019). As discussed by Edwards (2013) communities are generally not moved to comparable locations. Additionally, host communities are likely to be protective of their own common property and services and may place restrictions on resources such as fishing grounds and forest products for new arrivals (Edwards, 2013). The lack of access to common property and resources, or new and unfamiliar resources at a relocation site, may mean the community needs to develop new methods of collecting food with regular food production capacity potentially taking years to rebuild, which can lead to food insecurity (Edwards, 2013). As discussed in Chapter 2, there is a risk that displacement can negatively affect the right to food, water and an adequate standard of living (Lewis and Maguire, 2016; van der Ploeg and Vanclay, 2017; Naser et al., 2019).

Food insecurity can contribute to the risk of increased morbidity and mortality, contravening the right to life as discussed in Chapter 2 (Naser, 2013; Gromilova, 2014; McDermott and Gibbon, 2017). Food insecurity can be of particular concern to communities in Oceania who may already be suffering from reduced physical health because of poor diets and limited health care (Edwards, 2013). Increased morbidity and mortality can also be affected by impacts on mental health, reduced social capital, poor water and sanitation, exposure to environmental hazards, exposure to new diseases and limited access to health care services at the relocation site (Edwards, 2013; Dannenberg et al., 2019). Oliver-Smith (2014) suggest one of the most significant consequences of displacement is psychological marginalisation, especially when the trauma from displacement develops into grief for a lost home and anxiety about an uncertain future. This view is supported by both Edwards (2013) and Dannenberg et al. (2019), who discuss the increase in stress and associated mental health problems for those who are displaced suggesting that this stress can manifest itself in increased morbidity and mortality rates. Compounding this stress is the loss of community and social networks that enable people to access social and emotional support, that in the stress of displacement becomes more important (Boege, 2011; Oliver-Smith, 2014).

Displacement occurs when communities cannot direct their resettlement to meet their needs. This situation results in impoverishment and in Oceania because of the social and cultural importance of land, displacement has strong consequences. The next section analyses the causes and consequences of the Bikinian displacement.

3.4 The Bikinians' displacement experience

The first part of this section explores how the loss of the Bikinians' homeland and its resources, the lack of choice and participation in decisions around relocation, and insufficient resettlement support have led to the Bikinians experiencing displacement. The next part of this section then examines the consequences of displacement for the Bikini community, focusing on the key issues of landlessness, loss of common property and services, food insecurity, marginalisation and social disarticulation.

3.4.1 The devastation of the Bikini Atoll community

Archaeological research on Bikini Atoll has identified cultural deposits dating back over 3,000 years before the present (Streck, 1990, p. 247). However, despite 3,000 of years of occupation on Bikini Atoll, the Indigenous population was disposed of in less than one month after the Bikinians were informed of their relocation (Tabucanon, 2014). The United States (US) assumed control of the Marshall Islands during World War Two and in 1946 coerced the Bikinians into leaving their homeland so they could test nuclear weapons on the atoll (Smith, 2009). The Bikinians had no desire to leave their homes and only assented to their relocation in the belief that leaving would be temporary (Kiste, 1977; Niedenthal, 2013). There was little participation by the Bikinians in the decision to relocate. The Bikinians were able to vote on which atoll to relocate to. The island leaders selected Rongerik over more unfavourable atolls (Kiste, 1974). After two years on Rongerik, the Bikinians were suffering serious levels of starvation and malnutrition and were evacuated to a US military base on nearby Kwajalein Atoll (Kiste, 1974 and 1985). On Kwajalein, a vote of all adults was held with the result of selecting the uninhabited Kili Island as their second relocation site. As recorded by Kiste (1974 and 1985), these votes were the only time the Bikini adult population was involved in the decision-making process, although their involvement was limited to a vote on the resettlement location where they had limited choice on location and which did not include a return home.

Considerable support would have been required for the Bikinian resettlement to be successful on Rongerik or Kili. There was limited participation by the Bikinians in the relocation process so they could ensure their needs were met and insufficient assistance was provided once they had relocated (Mason, 1950; Kiste, 1974; Weisgall, 1980; Tabucanon, 2014). There was a lack of long-term

resettlement planning by the US especially around re-establishing self-sufficiency and the US made no effort to understand the Bikinian social, cultural and economic requirements for a successful relocation (Rudiak-Gould, 2013; Tabucanon, 2014). They failed to comprehend the basis of Bikinian self-sufficiency, which relied heavily on marine based fishing and gathering within the large Bikini Atoll lagoon (Kiste, 1977; Weisgall, 1980; Sutoris, 2011). Had the US understood the importance of this lagoon in Bikinian self-sufficiency, they may have realised that Rongerik and Kili, lacking similarly sized lagoons, were incompatible with the Bikinian traditional livelihood strategies (Kiste, 1974). The US did not seek to understand the capacity of Rongerik and Kili to support the Bikini population and the change that was required to Bikinian livelihood strategies to make resettlement in these locations successful. By being relocated to Kili the Bikinians were given an almost impossible task to re-establish their community because of the significant differences between the large Bikini Atoll with its expansive lagoon and the small, low-lying swampy single limestone island of Kili.

Kiste (1974) and Chambers (1971) were both of the view that the inexperience of the US in Micronesia led them to erroneously conclude that moving the small population of 167 Bikinians could be easily accomplished with little planning or support. With relocation occurring less than a month after the Bikinians were first informed of their removal, planning and preparations for relocation to Rongerik consisted only of the preparation of dwellings, water cisterns and short-term food supplies (Mason, 1950; Chambers, 1971; Tabucanon, 2014). There was a similar lack of planning for the next relocation to Kili. These deficiencies ultimately led to the failure of the resettlement at Rongerik and long-term issues of displacement at Kili as discussed further below. In fact, Kiste (1974) is quite scathing of the approach from the US authorities to the Bikinian resettlement and writes that even if these aspects were appreciated, they were unlikely to have been given any priority over the military and scientific imperatives of the US nuclear testing programme.

Following the conclusion of nuclear testing, an attempt was made to resettle Bikini Atoll when in 1969 the US Atomic Energy Commission declared Bikini safe for resettlement (Niedenthal, 1997, p. 28; Tabucanon, 2014, p. 21). However, conflicting information on the radiological conditions on the atoll meant the Bikini Council voted not to return but did not prevent individuals from doing so. Three extended families, numbering 139 Bikinians, returned to live on Bikini in 1972 (Niedenthal, 1997, p. 32; Report of the Special Rapporteur, 2012, p. 5; Tabucanon, 2014, p. 21). According to Davis (2007, p. 226), a major factor in the decision to return was landownership. All Bikinians have the right to use land on Bikini. However, landownership follows a matrilineal system and is largely held by clan heads known as alaps (Kiste, 1974). Those that returned to Bikini held traditional ownership over large amounts of land on the atoll (Davis, 2007, p. 226). However, further testing in 1977 revealed high levels of radiation in the environment that exceeded permissible limits and it was concluded that the

returned Bikinians had absorbed doses of cancer-causing radiation. In 1978, the 139 returnees were again relocated (Niedenthal, 1997, p. 28; Report of the Special Rapporteur, 2012, p. 5; Tabucanon, 2014, p. 21). This group did not want to return to Kili and instead formed a new community on the small uninhabited island of Ejit on Majuro Atoll (Davis, 2007, p. 224; Rudiak-Gould, 2013, p. 24). The US reversed its initial position and concluded that radiation on Bikini Atoll posed a danger to people through consumption of locally produced food and declared the atoll off limits for at least 50 years (Tabucanon, 2014, p. 21).

When Bikini Atoll is eventually declared safe, Davis (2007, p. 225) considers it unlikely that people will return in large numbers. While the atoll remains culturally important for Bikinians, most have never lived on or even visited Bikini (Davis, 2007, p. 217). Few Bikinians remain who have a memory of life on the atoll prior to 1946, apart from the 139 that lived on Bikini temporarily in the 1970s (Davis, 2007, p. 224). Interviews conducted by Davis (2007, p. 225) found that some Bikinians would not contemplate a return because of the radiation risk as well as the lack of social and economic opportunities. For others, their traditional ownership of family land on Bikini may be a reason to return as it was in the 1970s (Davis, 2007, p. 227). Davis (2007, p. 225) also considered that for others, Bikini would be a place to visit and could be included as a part of existing paths of circular migration between Kili, Majuro Atoll and the US.

3.4.2 The consequences of the Bikinians' displacement

The failure of the US to plan for the long-term success of Bikinian relocation led to the community suffering significant displacement. The loss of their land and the atoll's extensive natural resources was and remains the most important impact of their displacement, which resulted in impacts associated with food insecurity, social disarticulation and marginalisation. For the Bikini people, their removal from Bikini Atoll disconnected them from their well-defined livelihood systems and their source of self-sufficiency (Mason, 1950; Kiste, 1977; Niedenthal, 1997 and 2013; Sutoris, 2011; Tabucanon, 2014). The resettlement of the Bikinians on islands where they could not reconstruct their productive systems was one of the principal sources of frustration for the Bikinians (Tabucanon, 2014).

Landlessness had a significant social and cultural impact on the Bikini community. The Bikinians, like all Marshallese, consider land as their most prized resource and is the preeminent form of wealth (Kiste, 1977; Rudiak-Gould, 2013). The value of land partly explains why some Bikini alaps with land holdings returned to Bikini Atoll in 1972 despite concerns over radioactive contamination (Niedenthal, 1997). Due to the isolation of Bikini Atoll, the Bikinians developed a particularly strong connection to their land, which formed the basis of their culture, identity, social systems and status (Mason, 1950;

Kiste, 1977; Niedenthal, 1997 and 2013). Tabucanon (2014) explained that for the Bikinians, their atoll was the only home they knew. It was the home and burial ground of their ancestors and the setting for their myths and legends. The loss of Bikini Atoll was to remove the place to which they anchored their identity (Tabucanon, 2014). The social order of the community was also largely defined and structured by land rights inherited from previous generations through matrilineage kinship (Kiste, 1977; Davis, 2007; Sutoris, 2011). Thus, the loss of their land constituted a loss of the basis of their social structures (Sutoris, 2011; Rudiak-Gould, 2013; Tabucanon, 2014). The Bikinians' traditional social arrangements built on Bikini Atoll over generations could not be recreated on Kili and later Ejit, which created long-standing tensions among the community (Tabucanon, 2014).

Food insecurity is another significant impact associated with displacement experienced by the Bikinians. By the end of two years on Rongerik, the Bikinians were facing starvation and severe malnutrition, as was observed directly by Mason (1950) and reported by Chambers (1971), Kiste (1977), Sutoris (2011), and Niedenthal (2013). Within two months of their resettlement, the Bikinians reported that Rongerik's resources were inadequate and by the end of 1946, they experienced serious food shortages (Kiste, 1977; Hezel, 1995). The situation for the Bikinians on Kili Island was similar. The small landmass and lack of resources on both Rongerik and Kili meant they were unable to support a community of any size, which is why they were both uninhabited before the Bikinians arrived (Mason, 1950; Lieber, 1977; Chambers, 1971; Kiste, 1977). Table 2 contains a comparison of the size of Bikini Atoll, Rongerik Atoll, Kili Island and Ejit Island, demonstrating how relocation sites are significantly smaller than Bikini Atoll.

Table 2: Comparison of Bikini Settlement Sites

Bikinian Settlement Site	**Land Area (km^2)**	**Lagoon Area (km^2)**
Bikini Atoll	600	594
Rongerik Atoll	1.68	144
Kili Island	0.93	0
Ejit Island	0.049	295

Source: Adapted from Chambers (1971, p. 33); Terry and Thaman (2008, p. 3); Spennemann (1996, p. 341).

Rongerik and Kili having a smaller land mass compared to Bikini Atoll and lacking a large lagoon or accessible fishing grounds, was a poor choice for the relocation of the Bikini people as they were unable to re-establish their traditional subsistence systems which had been based predominately on Bikini's large lagoon (Chambers, 1971; Kiste, 1977; Weisgall, 1980; Sutoris, 2011; Niedenthal, 2013; Tabucanon, 2014). According to Sutoris (2011, p. 32) land-based subsistence had consisted of growing breadfruit, coconut and pandanus, with the Bikinian diet consisting mainly of food gathered from the

atoll's lagoon and reefs. As the Bikinians had always depended on marine resources, they had never devoted much time or effort to agriculture and on Kili they were required to change to new and previously unknown agriculture-based subsistence systems (Chambers, 1971; Kiste, 1977).

On Kili, there was some support to develop agriculture but this was met with only limited success as these programmes were affected by exposure to adverse environmental conditions and a lack of enthusiasm from the Bikinians because of their discontent at their prolonged relocation (Sutoris, 2011). Kiste (1977) records that in 1957 and 1958 typhoons severely damaged agricultural crops, requiring the community to be placed on a food relief programme. However, even though the crops and vegetation eventually recovered, there was no further effort by the Bikinians to re-establish crops. The Bikinians preferred instead to rely on food aid and establish a dependency on the US (Kiste, 1977). The preference to rely on food aid came from a growing belief held by the Bikinians that they had been done a great injustice and it was the responsibility of the US to provide for them (Kiste, 1977). Many Bikinians believed that if they made further attempts to make relocation on Kili successful, this would remove the need for the US to return them to Bikini (Kiste, 1977). Even if the Bikinians had tried to make a successful shift to agricultural-based subsistence, it is likely Kili's small size and lack of suitable land would limit the ability of agricultural production to meet the needs of the community. Long term survival on Kili was only possible with long term food aid (Chambers, 1971; Sutoris, 2011; Niedenthal, 2013). Similarly, those Bikinians that relocated to Ejit face a similar situation, with the island being too small for agriculture to support the population, they also rely on food aid (Rudiak-Gould, 2013, p. 24).

The impacts of the loss of Bikini Atoll on Bikinian social systems led to social disarticulation. On Bikini Atoll, the Bikinians developed an identity, society and culture based on their traditional subsistence patterns and land ownership (Kiste, 1977; Sutoris, 2011; Tabucanon, 2014). As discussed by Rudiak-Gould (2013) land and subsistence is important for maintaining hierarchal systems in Marshallese society. With the loss of their land, these traditional social arrangements and power structures changed on Kili. Land ownership was no longer based on traditional lineage structures, but instead on larger family units for reasons of population growth and the breakdown of traditional social arrangements as a result of many young men seeking greater freedom and economic independence from the traditional family hierarchies (Kiste, 1977; Sutoris, 2011; Tabucanon, 2014). With more households and changes to the division of land, the traditional division of labour that had been based on family organised land units also changed, further affecting subsistence patterns (Sutoris, 2011). These changes along with a growing population resulted in tensions among the community and the long-term fragmentation of Bikinian social structures, culture, identity and lifestyle (Chambers, 1971; Kiste, 1977; Tabucanon, 2014). Currently, while many Bikini people still reside on Kili, a large number

have migrated and dispersed throughout other islands within the Marshall Islands, including Ejit and Majuro, and in the US. This wide dispersion has led to a fragmentation of their community (Connell, 2012; Keown, 2017).

As a result of these negative changes to their social and cultural networks, and feelings of frustration at the inability to re-establish traditional subsistence systems, marginalisation emerges as a consequence of displacement. The Bikinian discontent over their situation on Kili deepened their belief that they had been done a great injustice (Kiste, 1977 and 1985). Many Bikinians described living on Kili, and subsequently Ejit, as like living in a prison (Weisgall, 1980; Niedenthal, 1997; Rudiak Gould, 2013; Tabucanon, 2014; Bordner, 2019; Bordner et al., 2020). The reference to a prison is because of the feeling of being stuck on these islands and the inability to sail from the island to fish or visit other islands for a distraction from village life, like they were able to do on Bikini (Weisgall, 1980; Niedenthal, 1997; Tabucanon, 2014). Eventually the community developed a positive collective image of themselves in parallel with the development of an identity of a victimised people which proved successful in negotiations with the US to seek compensation for their displacement (Kiste, 1985).

With an acceptance by the US of their moral responsibility for their displacement, the Bikinians successfully negotiated compensation payments from the US worth tens of millions of US dollars (Kiste, 1977; Niedenthal, 1997 and 2013). While the US provided monetary compensation, most Bikinians feel that the US has been reluctant and late in providing reparations and that these reparations are inadequate as they still cannot return home (Rudiak-Gould, 2013). Additionally, the long-term impacts of providing a small society with considerable sums of money were never seriously considered and these funds have led to an entrenched dependency on financial compensation payments (Chambers, 1971; Kiste, 1985; Sutoris, 2011; Tabucanon, 2014). While access to these funds has led to some economic empowerment and enabled access to social services, it has also led the Bikinians to become a consumer-oriented society further eroding traditional culture and social systems, and despite these large pay-outs, they remain discontented at their relocation (Kiste, 1985; Hezel, 1995; Niedenthal, 1997; Sutoris, 2011; Tabucanon 2014).

As well as the key displacement impacts outlined above, the Bikinians that relocated to Bikini in 1972 suffer as a result of their exposure to high levels of radiation while on the atoll. Their exposure to this radiation has resulted in radioactivity induced illness and cancer related deaths (Niedenthal, 1997; Sutoris, 2011). The subsequent relocation to Ejit increased the Bikinians' social dislocation and fragmentation, and culture degradation (Sutoris, 2011). The continued contamination of the atoll violates their right of return and the use of customary land also violating rights to property and

movement and ensuring their indefinite displacement (Report of the Special Rapporteur, 2012; Bordner et al., 2016; Tabucanon, 2014; Marcoux, 2021).

In conclusion, the US took the Bikinians from an environment where they had evolved and developed successful livelihood strategies and placed them in a significantly different environment and expected them to continue to survive with limited support. The overall result is the social disarticulation and marginalisation of this community which continue to be experienced today.

3.5 Other experiences of relocation and displacement

The literature shows that the Bikinians' experience of displacement is not unique. Case studies within the literature highlight how other communities have experienced displacement as a consequence of being forced from their land with little support to re-establish their social and cultural networks. There are, however, other examples of relocations that have resulted in more positive outcomes where communities had greater control and support in their relocation. Several Marshallese communities have suffered displacement for the purpose of US military and nuclear tests, including the community from Enewetak Atoll which was also used as a nuclear test site. The forced relocation of the Rongelap Atoll community demonstrates that the Bikinians are not alone in experiencing long term displacement due to US nuclear testing. Radioactive fallout from nuclear tests conducted on Bikini Atoll forced the US to evacuate the Rongelap and Utirik Atoll communities located to the east of Bikini. While some communities such as the Enewetak and Utirik communities have returned to some of their home islands, the Rongelap community, like the Bikinians, remains displaced (Connell, 2012; Report of the Special Rapporteur, 2012; Bordner et al., 2020). The Rongelap community returned in 1957 after the US deemed it was safe but were told not to eat locally produced food as it would be too contaminated. Many in the community became sick and some died, which the community attributed to radiation. They were eventually evacuated by Greenpeace in 1985 after the US refused to help them. The Rongelaps were relocated to the overcrowded island of Ebeye on Kwajalein Atoll, where most still remain to this day, while they, like the Bikinians, have to wait for the US to remediate their atoll (Connell, 2012; Report of the Special Rapporteur, 2012; Bordner et al., 2020).

In comparison, the displacement of the Chagossians in Mauritius also occurred to accommodate US military needs. In 1965 the Chagossians were forced from their homes in the Chagos Islands by the British to make way for a US military installation. Britain has repeatedly rejected the right of the Chagossians to return even though Britain will regain control over Chagos when the US lease ends in 2036 (Bordner, 2019). In 2019, the International Court of Justice (ICJ) issued an advisory opinion

stating that Britain did not have sovereignty over the Chagos Islands and that their control of this archipelago has resulted in the prolonged and forced exile of Chagossians from their homes. The ICJ stated that Britain was obliged to relinquish control over Chagos to Mauritius so they could complete the decolonisation of its territory in a manner consistent with the people's right to their self-determination (Bordner, 2019).

Other case studies show strong similarities with the causes of the Bikinians' displacement. The relocation of the I-Kiribati from the Gilbert and Phoenix Islands to the Solomon Islands in the 1960s, resulted in their experience of displacement partially because the community was unable to direct resettlement to meet their needs. These I-Kiribati have been unable to re-establish livelihoods and have struggled to adjust to an environment that differs significantly from their atoll homes (Donner, 2015; Tabe, 2019). Their experience highlights the point made by Oliver-Smith (2014) that relocation decisions made without sufficient knowledge of both the community and the receiving environment are likely to end in displacement, as happened to the Bikinians. Also similar to the Bikinians is their continue experience of impoverishment, cultural discrimination and limited access to land and services despite having lived in Solomon Islands for more than 60 years (Donner, 2015; Tabe, 2019).

Another important example with reference to climate change (discussed further in Chapter 4), are the Carteret Islanders who have migrated as a response to the impacts of climate change (Boege, 2011; Connell, 2015). A local grassroots organisation, Tulele Peisa, was established to lead a voluntary relocation programme (Connell and Lutkehaus, 2017; Dannenberg et al., 2019). Because the Carteret community is responding to the gradual impacts of climate change, there is a distortion between forced and voluntary relocation. Tulele Peisa considered the relocation to be voluntary, while the community felt they had been forced from their homes (Boege, 2011). This distortion may also contribute to the limited resettlement support received from the governments of Papua New Guinea and Bougainville (Rakova, 2014). Local landowners at the new location remain sceptical over the needs of the Carteret Islanders to relocate to the mainland because of the absence of what they perceive as clear evidence of risk (Connell and Lutkehaus, 2017). The example of the Carteret Islanders relates to the Bikinians because the detailed relocation plan developed by Tulele Peisa demonstrates the comprehensive planning that is required to attempt to avoid generating displacement (Boege, 2011; Leckie, 2014).

When community concerns and needs are at the forefront of relocation, displacement is more likely to be avoided. The community of Vunidogoloa in Fiji, for example, was relocated two kilometres inland as a response to climate change (Tabe, 2019, p. 2). Relocation included a high level of community participation with the villagers able to direct and guide relocation to meet their needs. Relocation led

to a transformative change as it has helped improve the community's social and economic conditions (Tabucanon, 2014; McNamara and Des Combes, 2015; Tronquet, 2015; McNamara et al., 2019; Connell, 2012; Tabe, 2019; Piggott-McKellar et al., 2019; Farbotko et al., 2020). In 1945 the population of Banaba in Kiribati was forcefully relocated to Rabi Island in Fiji by the British Administration as they were viewed as an obstacle to phosphate mining operations (McAdam, 2014; Tabe, 2019). Connell and Lutkehaus (2017) attribute the avoidance of many impacts as associated with displacement because the colonial government had financially supported this resettlement. The resettlement site of Rabi Island was without other claimants, and issues of land ownership could therefore be avoided, but resettlement had similar environmental challenges that were described in the Bikinian case, and the Banabans had to adjust to a new environment. However, the Banaban Islanders were consulted well before their relocation and were able to develop their own government on Rabi Island with autonomy and legal authority replicating their original social systems (Connell and Lutkehaus, 2017, p. 90 and 91).

These examples of relocation and displacement provide important comparisons to the Bikinians and considerations for the Bikinians in any future of climate change induced migration.

3.6 Chapter conclusion

This chapter explored the concept of mobility to analyse displacement. Displacement can result as a risk and occurs when relocation is forced on a community and when their ability to direct the relocation process to meet their needs is removed or limited. The consequences of displacement includes impoverishment as during the process all forms of capital are removed. As some of the above examples have shown, for communities in Oceania, the strong social and cultural ties to their land mean that forced relocation is likely to generate displacement when these ties are severed.

This chapter has shown that the Bikini community has suffered significant displacement impacts that continue to be felt today. Their displacement has robbed them of their land, one of the most significant assets to any Marshallese community. It has broken their connection to their traditional systems of self-sufficiency, their customs and social systems, their connection to their ancestors, in essence the basis of who they are as Bikinians. Instead, today, they are defined by their displacement. The community remains scattered, and for those that remain on Kili and Ejit, almost totally dependent on assistance for survival. The literature review revealed that the US has failed in its responsibility to the Bikinians. Instead of remediating Bikini Atoll so the community can return home, the US chose to

pay large amounts of financial compensation. As a result, the Bikinians today still lack the ability to safely return to Bikini Atoll.

Chapter 4 Climate Change Vulnerability

4.1 Introduction

This chapter analyses the literature around climate change vulnerability and explores the factors that influence the vulnerability of the Bikinian community on Kili and Ejit Islands to climate change. The chapter begins with an exploration of the importance of climate change in development before exploring climate change trends and risks for the Marshall Islands. This is followed by an analysis of climate change vulnerability for Kili and Ejit, looking at each island's exposure and sensitivity to climate change, and the ability of the Bikinians to adapt to changing climatic conditions. The last section explores the impacts of the Bikinian displacement on their vulnerability and their adaptation, and the importance of building resilience. The exploration of these themes in the literature helps to answer research Question 1: 'How is displacement contributing to the Bikini community's vulnerability to climate change?', and Question 2: 'How is Bikinian climate change adaptation shaped by the effects of displacement?'

4.2 Climate change and development

This section provides context on the reasons why considering the consequences of climate change is important in development. The section also considers the influence of climate change on the long-term inhabitability of low-lying islands and atolls. Climate change has been defined in the UN Framework Convention on Climate Change (UNFCCC) (1992) in Article 1 as changes in the climate attributed directly and indirectly to human activity that alter the composition of the global atmosphere in addition to natural climate variability (UN, 1992). The impact of this change is a warming of the earth's atmosphere and oceans, which the Intergovernmental Panel on Climate Change (IPCC) warns will cause long-lasting changes in all components of earth's climate system (IPCC, 2014). The changing climate will result in the increased likelihood of significant and irreversible impacts for people and ecosystems, potentially pushing many people into poverty and straining the fiscal capacity of governments as they try to respond and adapt (IPCC, 2014; Bronen, 2018; Kumari Rigaud et al., 2018). As a result, Clement et al. (2021, p.1) suggest that the impacts of climate change have the potential to reverse decades of development progress. The IPCC (2014) warn that these impacts are unevenly distributed and are generally greater for those people and communities already disadvantaged (IPCC, 2014).

The change to the world's oceans, through warming, acidification and rising sea levels is a significant concern for the millions of people living in low-lying coastal zones, including many communities in Oceania (IPCC, 2019). Rising seas are considered to be a significant risk, especially when they combine with other natural hazards, such as tropical cyclones, extreme winds and rainfall, waves, storm surges and king tides to exacerbate coastal flooding, erosion and soil and groundwater salination (Bronen, 2018; IPCC, 2019; Narayan et al., 2020; Ranasinghe et al., 2021). These impacts, which are expected to increase, are already being felt in many coastal communities (Oppenheimer and Glavovic, 2019; IPCC, 2019). The impacts of climate change will vary across Oceania because of the different social, cultural, economic, geological and ecological contexts of each island (Farbotko et al., 2018). However, it is generally considered that smaller island states and communities in Oceania, including the Marshall Islands, are highly vulnerable to climate change as a result of their small size, remoteness, lack of adaptive capacity and frequent natural hazards (Forbes et al., 2013; Weir et al., 2017; IPCC, 2019; Clement et al., 2021).

With many natural systems already stressed because of human induced pressures, the additional stress from climate change may further intensify vulnerabilities (Oliver-Smith, 2014; Corendea and Mani, 2018). As a result, it is considered likely that some islands will become uninhabitable (Edwards, 2013; Forbes et al., 2013; Oliver-Smith, 2014; Bordner, 2019; IPCC, 2019). This may mean communities in low lying areas will be forced to relocate or migrate affecting cultural identity and sovereignty, potentially leading to displacement (IPCC, 2014; Donner, 2015; McNamara and Combes, 2015; Weir, et al., 2017; Bronen, 2018; Bordner, 2019; McMichael et al., 2019; Clement et al., 2021). As discussed by Masselink et al. (2020, p. 5) climate change and associated sea level rise are among the greatest threats to the continued existence and sovereignty of states like the Marshall Islands. The next section explores the specific climate change risks and impacts for the Marshall Islands.

4.3 Climate change risks in the Marshall Islands

Climate change is a significant development challenge for the Marshall Islands. The Marshall Islands, similar to other atoll states and territories in Oceania such as Micronesia, Palau, Kiribati, Tuvalu and Tokelau, are considered to be particularly vulnerable to the effects of climate change creating a significant risk to their sustainability and survivability (Barnett and Adger, 2003; Edwards, 2013; IPCC, 2014; Nurse et al., 2014; Ford and Kench, 2015; Tronquet, 2015; Connell, 2015; McNamara et al., 2019; Kane and Fletcher, 2020). These states are vulnerable because they comprise predominately low-lying islands that depend on coral growth for their landmass. These islands have shallow freshwater lenses, high population densities in urban centres but a dispersed geography over large areas, small and

vulnerable economies, fragile island ecosystems and a heavy dependence on marine resources. All these factors are readily influenced by climate change (Mortreux and Barnett, 2009; Republic of the Marshall Islands, 2011). The World Bank (2021) believes that without appropriate adaptation and mitigation, the Marshall Islands will be one of the first nations to experience sea level rise as a genuine existential threat. Within the Republic of the Marshall Islands (RMI) National Climate Change Policy Framework (RMI, 2011) the RMI described climate change as the greatest threat to its atolls and people, undermining efforts towards sustainable development and threatening the survival and sovereignty of the Marshall Islands.

According to the literature, flooding and inundation exacerbated by sea level rise presents the most serious climate change risk to communities in the Marshall Islands. Studies by Storlazzi et al. (2018), Stege (2018) and Smith and Juria (2019) conclude that more frequent and widespread inundation of low-lying areas of the Marshall Islands, because of sea level rise, will result in some areas becoming uninhabitable by the end of this century. Inundation will damage infrastructure and houses and cause the irreversible salination of freshwater aquifers and soils long before the atolls are submerged by sea level rise (Rudiak-Gould, 2013; Weir et al., 2017; Storlazzi et al., 2018; Stege, 2018; van der Geest et al., 2019; Kane and Fletcher, 2020). As life becomes more difficult because of these impacts, Rudiak-Gould (2013) and Bordner et al. (2020) believe more people will decide, or will be forced, to relocate. Bordner (2019, p. 197) suggests that the idea of forced relocation as a response to climate change is particularly concerning for communities within the Marshall Islands, such as the Bikinians, that already have a history of displacement. Because of this legacy of displacement, the Marshall Islands leadership is committed to adapting to climate change to avoid the need to migrate (Bordner et al., 2020).

However, Bordner (2019) and Bordner et al. (2020) also report that the Marshall Islands lacks the resources to implement the necessary adaptation and must rely on external financial and technical assistance in their adaptation. Such dependence can be a major barrier to Marshall Islands plans to adapt in place as many entities providing aid tend to have their own agendas that often ignore local priorities to remain in place assuming migration as inevitable (Bordner, 2019; Bordner et al., 2020). Bordner (2019, p. 180 and 218) suggests that this view by outsiders that places like the Marshall Islands will be lost to rising sea levels, as larger and more powerful states continue to contribute to climate change, is reminiscent of the US decision to sacrifice the lands and people of the Marshall Islands to its nuclear testing programme, as they view these islands and its people as expendable. For the Marshallese, the loss of their land through sea level rise and forced relocation would have social and cultural ramifications affecting their natural and inalienable right to their lands, which is established in the constitution of the RMI (Clement et al., 2021; The World Bank, 2021).

The next section explores further the climate change risks and impacts faced by the Bikini community on Kili and Ejit.

4.4 Climate change vulnerability on Kili and Ejit Islands

This section analyses the concept of climate change vulnerability before exploring the vulnerability of the Bikinian community on Kili and Ejit Islands.

4.4.1 Climate change vulnerability

Climate change vulnerability is a function of exposure to climate change, sensitivity to the impacts of climate change and the adaptive capacity to respond to these impacts (Ford, 2013; McCubbin et al., 2015; Nguyen et al., 2017; Kumari Rigaud et al., 2018; McNamara et al., 2019). In analysing vulnerability, the degree of change is important as the Bikini community on Kili and Ejit would not be considered vulnerable if the impacts generated from climate change were minor or trivial (Gallopin, 2006). Exposure is described as the nature and degree to which people, households, or an entire community, are at risk from climatic variations (Nguyen et al., 2017). McNamara et al. (2019) assert that exposure is largely dependent on location, geography and the extent of change, with the location of Oceanic islands in climatologically hazardous zones a key contributor to their exposure. Further, exposure of Oceanic states to climate hazards is influenced by their characteristically small geographical land areas, small populations and remoteness (McNamara et al., 2019). The term sensitivity is used to describe the degree to which a community is affected by climate change either adversely or beneficially (Nguyen et al., 2017). McNamara et al. (2019) write that the economic instability of many small island states because of their constricted human and natural resource bases contributes to their sensitivity to climate change.

Adaptive capacity is the third component of vulnerability and describes the resources and capabilities that a community or state can utilise to reduce, adjust, or respond to the risks and impacts of climate change in order to moderate harm or exploit beneficial opportunities (Kuruppu and Willie, 2015; Nguyen et al., 2017). The adaptive capacities of communities in island states can be limited by a lack of resources and can be undermined through a dependence on outside donor knowledge and funding. These risks can reduce the ability of local leaders and institutions to lead adaptive changes (McNamara et al., 2019). This definition of climate change vulnerability is useful in examining the literature on the vulnerability of the community on Kili and Ejit through exploring their exposure, sensitivity and adaptive capacity.

4.4.2 Kili Island

Kili Island was subject to a vulnerability assessment by Ford (2013), which provides a good basis for the analysis of the island's climate change vulnerability. The exposure of Kili to climate change is determined by its relatively low-lying profile. The residential area of the island is four metres or less relative to Mean Lowest Low Water (MLLW) and much of the central section of the island is only between two and three metres above MLLW (Ford, 2013, p. 8 and 9). Because of this low-lying profile, Kili is highly exposed to the risk of flooding and inundation. Rising sea levels will increase both the frequency, magnitude and severity of flooding and inundation on Kili meaning more of the island will flood more regularly (Ford, 2013) and is, in keeping with the conclusions reached by Storlazzi et al. (2018), Stege (2018) and Smith and Juria (2019), of more frequent and widespread inundation of low-lying areas in the Marshall Islands. Smith and Juria (2019) also confirm that most inundation events that have occurred on Kili are a combination of extreme sea levels (from storms for example) and wave action. Ford (2013) also warns that increase sea levels and flooding are likely to contribute to coastal erosion at Kili, altering the islands coastline.

The community on Kili according to Ford (2013), is moderately sensitive to their exposure to sea level rise. This assessment by Ford (2013) was based on the community's low dependence on locally grown food meaning that salination from flooding that damages crops was not a critical food security issue. A number of key assets, including the school, airport runway and some housing, are also located in low-lying areas of the island which are highly susceptible to inundation (Ford, 2013). Rudiak-Gould (2013) and other sources, such as media reports, reported that flooding in 2011 damaged crops and housing, and that widespread flooding in 2015 also reached the village damaging many houses. The adaptive capacity of the Bikinians on Kili was considered by Ford (2013) to be moderate to high. Ford (2013) based this assessment on the ability of the community to access heavy equipment to aid in response and recovery and access to the runway for emergency relief. What Ford (2013) fails to appreciate is that the high dependency on imported food makes the Bikini community vulnerable when flooding inundates the runway, disrupting the ability to land food and supplies on the island, which is especially critical when responding to a natural disaster. Additionally, the poor anchorage available on Kili, also restricts the landing of supplies by boat (Rudiak-Gould, 2013). Ford (2013) considers that Kili is highly vulnerable to climate change. This conclusion was reached by Ford (2013) because Kili is highly exposed to inundation which is expected to increase in frequency and magnitude with sea level rise.

4.4.3 Ejit Island

Unlike Kili Island, Ejit has not been subject to a detailed vulnerability assessment. However, Ejit is located within Majuro Atoll, 400 metres from the suburb of Djarrit that forms part of the Majuro urban area. As the capital and largest city of the Marshall Islands, Majuro has been subject to a number of climate change studies within the literature. Because of the close proximity to Djarrit, and as Ejit is formed from the same islet chain, the findings of the literature on Majuro can be considered relevant to Ejit.

Majuro is considered highly vulnerable to sea level rise because of its low profile, exposure to high wave events, eroding shoreline, dense population and limited freshwater resources (Ford, 2012; Gesch et al., 2020). Majuro experiences coastal inundation on a nearly annual basis and flooding is expected to increase in frequency and intensity (Smith and Juria, 2019; Gesch et al., 2020). The sensitivity to inundation was demonstrated in 2014, when high tides and waves combined to flood large areas of Majuro, damaging 110 homes and forcing 940 people to evacuate (van der Geest et al., 2019, p. 34). Further, it has been estimated by the World Bank (2021) that a 1metre sea level rise would put 37 percent of Majuro's buildings at risk of permanent inundation. It is also expected that more frequent inundation will result in the salination of Majuro's groundwater that will affect freshwater supplies and vegetation (van der Geest et al., 2019, p. 34; Kane and Fletcher, 2020, p. 9). Kane and Fletcher (2020, p. 9) conclude that islands within Majuro Atoll are already starting to show a decline in their physical stability because sea level rise is contributing to extreme tides, inundation, salinisation, sediment mobilisation and erosion, which will get worse as sea levels increase.

A decrease in water quality from human activities around Majuro has also been linked to the instability of Majuro's islets. Poor water quality is having a significant impact on the production of foraminifera or shell-secreting organisms which are an important source of sediment for island replenishment (Ford, 2012; Kane and Fletcher, 2020). Additionally, Ford (2012, p. 18) also reports that poor water quality has increased coral mortality around Majuro reducing the generation of calcareous sediment, further reducing the natural replenishment of shorelines. The implication is that Majuro's coastline and reef system has reduced resilience to climate change (Why, 2010; Smith and Juria, 2019). To protect against inundation, government authorities and families in Majuro, including Ejit, have built and reinforced seawalls and earthen berms along the most vulnerable sections of shoreline (van der Geest et al., 2019, p. 34). Around 30 percent of Majuro's eastern coastline is now surrounded by seawalls (Smith and Juria, 2019, p. 202). However, as discussed by Why (2010, p. 63), such measures can contribute to sediment deprivation, resulting in further coastal degeneration. Additionally, such measures are only effective for low to intermediate levels of sea level rise and when sea level rise

reaches 0.5 metres about 80 kilometres of Majuro shoreline will need to be protected (The World Bank, 2021). As sea-levels continue to rise, and coastal inundation increases, it is likely that more transformational resilience measures will be needed in the medium to long-term (The World Bank, 2021).

4.5 The need to consider Bikinian displacement in vulnerability

This section examines the need to consider the consequences of displacement when addressing the climate change vulnerability of the Bikini community on Kili and Ejit.

4.5.1 Understanding and addressing social vulnerability

It is necessary to understand people's underlying social and economic conditions when considering climate change and adaptation, as pre-existing vulnerabilities shape the extent to which they are affected by climate change (Kumari Rigaud et al., 2018; Bordner, 2019; Scott and Salamanca, 2021a). Bennett et al. (2016) also suggest that the many social, political, economic, demographic and environmental stressors that communities in Oceania experience makes them more vulnerable to climate change. Climate change is likely to combine with these stressors and other development challenges to amplify existing inequalities and increase vulnerabilities (Oliver-Smith, 2014; Lewis, 2018; Whyte et al., 2019). Lewis (2018) goes on to suggest that a complex relationship exists between climate change, vulnerability and rights, where pre-existing violations of rights increase vulnerability to climate change, which in turn further undermines people's rights. As a result, the world's poorest, who often suffer significant rights violations, can be disproportionately impacted by climate change (Kumari Rigaud et al., 2018; Clement et al., 2021). Therefore, when attempting to understand how communities will be affected by climate change, it is important to understand the root causes of social vulnerability (Barnett, 2010; Kelman, 2014; Oliver-Smith, 2014; Ensor et al., 2015; Christoplos and McGinn, 2016; Suliman et al., 2019; Bordner et al., 2020; Eriksen et al., 2021).

The complex processes that drive vulnerability to climate change are often overlooked in the literature, which tends to focus on physical impacts, assuming climate change to be an environmental or geophysical issue (Rudiak-Gould, 2013; Connell, 2015; Ford and Kench, 2015; Kelman, 2018; Eriksen, et al., 2021). The focus on physical impacts can lead to the implementation of inappropriate and ineffectual adaptation policies and practices affecting the ability of communities to deal with climate change (Connell, 2015; Ford and Kench, 2015; Kelman, 2018). Additionally, when adaptation policies fail to address the social causes of vulnerability, policies can reinforce, redistribute, or even

create new sources of vulnerability (Eriksen et al., 2021). Only once the interaction between existing social, economic and cultural vulnerabilities and climate change is understood can effective adaptation be determined (Hay and Mimura, 2006; McCubbin et al., 2015; Eriksen, et al., 2021).

Climate change is often considered as the principal development challenge facing Oceania (Kelman, 2014). The emphasis on climate change depoliticises and downplays other development challenges facing communities, potentially shifting the focus of development away from the issues that contribute to the root causes of vulnerability (Kelman, 2014; McCubbin et al., 2015; McNamara et al., 2019). In Oceania, Whyte et al. (2019) argue that the impacts of colonialism, capitalism and industrialisation have created more vulnerability than climate change. Baldwin et al. (2019) agree and suggest that development challenges faced by Oceania's communities, including the Bikinians, is the result of colonialism, with climate change just one of many stressors they face. Colonialism and post-colonial systems in the Marshall Islands and in other states and territories throughout Oceania have left them without the resources they need to pursue their adaptation resulting in a dependence on external financial and technical support (Hau'ofa, 1993; Weir et al., 2017; Bordner, 2019; Bordner et al., 2020). This in turn creates an unbalanced relationship between Oceania and the outside institutions they rely upon for climate change adaptation funding, perpetuating subordination and entrenching the dependency that created vulnerability in the first place (Rudiak-Gould, 2013; Bordner et al., 2020). Bordner et al. (2020) also contends that the most significant impacts of US colonialism on climate change vulnerability in the Marshall Islands will be experienced by the Bikinians and other communities that have already been subject to displacement. The disposition of these communities from their land results in an increased vulnerability to climate change through the disruption of social and cultural networks and the concentration of populations in overcrowded and resource-poor urban centres, like Kili and Ejit (Bordner, 2019; Bordner et al., 2020). The impact of Bikinian displacement on their climate change vulnerability is discussed further below.

4.5.2 The impact of Bikinian displacement on vulnerability

The literature suggests the Bikinians' forced relocation from Bikini Atoll to Kili and Ejit is an important component of their vulnerability to climate change, as this experience impacts their adaptive capacity. Bikini Atoll has an expansive lagoon and healthy reef system despite the history of nuclear testing, which would likely provide a higher level of resilience against climate change when compared to Kili or Ejit (Bordner, 2019, p. 202). However, the option of living on Bikini Atoll cannot be realised, because of its radioactive contamination (Bordner, 2019, p. 202). On the other hand, the physical and natural characteristics of Kili and Ejit contribute to the Bikinians' vulnerability. The lack of a lagoon and reef

system on Kili means the island has virtually no protection against frequent flooding (Bordner, 2019, p. 203). The displacement of the Bikinians also led to the breakdown of their traditional cultural, social and economic systems (Tabucanon, 2014; Tabe, 2019). As discussed by Kelman (2018) historically Oceanic communities have had the knowledge and skills necessary to adapt to their changing environment developed through generations of survival on Oceanic islands. In building the capacity to adapt to climate change, it is important for Oceanic communities like the Bikinians to incorporate local or customary knowledge, skills, and management into their adaptation (Cinner et al., 2018; Corendea and Mani, 2018). The forced relocation of the Bikinians resulted in traditional coping strategies and social and cultural capital, that was built up over generations on Bikini Atoll, and which would have been helpful in responding to the impacts of climate change, being lost, or degraded (Weir et al., 2017).

It is possible that displacement has resulted in some economic empowerment of the Bikinians through the award of significant compensation payments, which in turn may contribute to their ability to adapt to climate change. According to Cinner et al. (2018), adaptive capacity increases when people and communities have access to resources and assets to draw on during times of need and have the power and freedom to utilise their resources to respond as necessary. However, adaptative capacity also depends on people's belief in their ability to adequately respond to the events that are affecting them (Cinner, et al., 2018). For the Bikinians, their displacement has caused long term feelings of injustice, victimisation and vulnerability, which resulted historically in the Bikinians not wanting to make resettlement on Kili a success (Kiste, 1977 and 1985; Sutoris, 2011). The choice to settle on Ejit instead of Kili by those that left Bikini Atoll following the failed resettlement attempt in the 1970s, attests to the Bikinians' unhappiness at being forced to live on Kili. These same feelings of victimisation and vulnerability may affect the Bikinians' belief in their ability to make positive changes on Kili, and to some extent Ejit, as part of any adaptation. The connection between these feelings of marginalisation and their adaptive capacity is analysed further in Chapter 7.

A concern for the Bikinians is the tension between self-determination in adaptation and dependency on external funders and the potential for such dependency to diminish sovereignty as discussed by Bordner et al. (2020). These authors suggest that aid institutions tend to discount the existential implications of failing to pursue large scale adaptation in the Marshall Islands, assuming that migration is inevitable, rational and even desirable. Such forced relocation is a critical issue for the Bikinians and Bordner et al. (2020) report that Bikinian leaders see a direct connection between their displacement as a result of US nuclear testing and the threat of climate change induced displacement. The experience of their displacement means that Bikinian leaders have a desire never to be forced to relocate again (Bordner et al., 2020). In interviews within Bordner's study, Bikinian Councilperson

Peterson Jibas is quoted as stating climate induced relocation would be another disaster for the Bikinians and a continuation of the devastation from their original forced displacement (Bordner, 2019, p. 198; Bordner et al., 2020, p. 6). In his study of Marshallese attitudes towards climate change, Rudiak-Gould (2013) also identified this view amongst people he interviewed, that climate change impacts are merely the latest in a string of disasters inflicted by outsiders on the Marshallese. Bikinian cultural leader Alson Kelen was quoted in Bordner (2019, p. 198) as stating that the outcomes of nuclear testing and climate change will be the same in terms of forced relocation. However, he also explains that the continuity of the Marshallese on their islands underscores the resiliency and strength of Marshallese people, who have survived on the islands for thousands of years, survived colonisation, and survived nuclear testing. Peterson Jibas confirmed that the Kili, Bikini, Ejit Local Government Council (KBE) was searching for any option to avoid migration for their people as many people did not want to move (Bordner, 2019, p. 195).

4.5.3 The role of resilience in vulnerability and adaptation

Resilience is an important component of adaptation. For a community such as the Bikinians, discussions of vulnerability focus on negative qualities and characteristics. Because of this, Joakim et al. (2015, p. 150), suggest it is necessary to recognise the inherent resiliencies or capacities that communities like the Bikinians can access when coping with climatic change. It is therefore important to discuss an integrated approach to vulnerability, adaptation and resilience as doing so helps understand the holistic nature of climate change and highlights the ability of a community to deal with uncertainty and change (Joakim et al., 2015, p. 147). Further, Joakim et al. (2015, p. 146) state that the concepts of vulnerability and resilience need to be integrated in order to frame the implementation of adaptation. This is because determining vulnerability provides an understanding of the social, economic, historical, cultural and political processes that lead to increased risk, whereas resilience explores the opportunities for moving forward and reducing the impacts of shocks and stresses associated with climate change (Joakim et al., 2015, p. 146). Expanding on this, vulnerability can be considered as the pre-existing background condition that contributes to risk, and resilience as the capacity and strategies (including adaptation) undertaken to reduce effects, recover and transform from climate stressors (Joakim et al., 2015, p. 148 and 150).

However, there was no evidence of a commonly agreed definition of community resilience in the literature (Patel et al., 2017, p. 1). Some of the literature appears to base their definition of resilience on the UN International Strategy for Disaster Reduction (UNISDR) definition, where resilience is seen as “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate

and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions" (UNISDR, 2009, p. 24). Based on this definition by the UNISDR, the literature refers to community resilience as the capacity of a community to bounce back by recovering from adversity using its own resources, maintaining its essential functions and potentially even experiencing growth as part of their response (Edwards and Wiseman, 2011, p. 188; Bergstrand et al., 2014, p. 393; Joakim et al., 2015, p. 143).

As well as adapting to new circumstances, other literature suggests that resilience is the process of learning, reorganising and changing as a response to a disaster or climate experience thereby achieving greater resiliency and functionality (Lavell et al., 2012, p. 53; Joakim et al., 2015, p. 144). According to Khan et al. (2020, p. 97), this definition of resilience corresponds to the IPCCs definition, which also talks of not only coping with an event but responding and reorganising in ways that maintain function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation. As a result, a resilient community is one that takes intentional action to enhance the personal and collective capacity of its citizens and institutions to respond to and influence the course of change and to continually develop and transform their community rather than simply surviving or coping with stress and change (Edwards and Wiseman, 2011, p. 189). Norris et al. (2008, p. 127) elaborates that community resilience comes from four primary sets of adaptive capacities: economic development, social capital, information and communication, and community competence. This means that it is a community's social infrastructure, not physical infrastructure, that ultimately determines resilience (Aldrich and Meyer, 2014, p. 254). The concept of resilience, like vulnerability, requires a knowledge of the communities underlying social, cultural and economic conditions. The resilience of the Bikinians is discussed in more detail in Chapters 6 and 7.

4.6 Chapter conclusion

Drawing on the literature review, it can be ascertained that the impacts of displacement are likely to be contributing to the Bikinian's vulnerability to climate change. Both Kili and Ejit islands are exposed to climate change induced sea level rise which is exacerbating flooding and inundation. It is also apparent that the impacts of displacement constrain the adaptive capacity of the Bikinians as a result of their social fragmentation and entrenched feelings of injustice and vulnerability. The failure to re-establish traditional social, economic and cultural practices is likely contributing to the Bikinian sensitivity to the impacts of climate change and their ability to adapt and build resilience.

Despite historically not wanting to make the resettlement of Kili and Ejit a success, Bikinian representatives in Bordner's (2019) and Bordner's et al. (2020) study explained that the KBE is investigating all options to adapt to avoid further forced relocation. However, life on Kili and Ejit is becoming more difficult with the impacts of climate change and as was outlined in Chapter 3, migration has already been used at the individual level as a form of personal adaptation. As a result, there is a tension regarding climate change induced migration. On the one hand the literature indicates that further relocation because of climate change would be seen as a continuation of Bikinian displacement and could be considered another disaster. However, on the other hand, there was a view that climate change induced migration can be used as a strategy to access social and economic opportunities, as discussed in Chapter 3.

The next chapter outlines the methodological consideration of this thesis before the presentation of the research findings.

Chapter 5 Research Methodology

5.1 Introduction

The aim of this research is to understand how displacement influences the climate change vulnerability of the Bikinian community on Kili and Ejit, and the effect displacement has on their adaptation and resilience. This chapter describes the methodology and the methods that have been used to investigate the research aim. This chapter then outlines the methodology used to explore and analyse the themes that emerged from the data. The methods chosen, fieldwork preparations and the impact of COVID-19 on the fieldwork are then outlined. The ethical and cultural considerations that have shaped the development of the methods are also detailed.

5.2 Qualitative methodology

A qualitative research methodology has been chosen for this research as it provides a means of focusing on the way the Bikinians interpret and make sense of their experiences of displacement and climate change. Qualitative research captures multiple versions of experiences or truths and explores and analyses these through a variety of lenses (Baxter and Jack, 2008; O'Leary, 2017). This approach helps achieve an holistic understanding of the complexities of the Bikinians' experiences, lives, behaviours and social realities (Mayoux, 2006; Lune and Berg, 2017; Savin-Baden and Major, 2013; Stewart-Withers et al., 2014). Taking this approach requires a researcher to be flexible and open-minded in the collection of data as it means listening to the Bikinians tell their story and then interpret its meaning to find common themes (Hennink et al., 2011). The experiences of the Bikinians are then linked to other theoretical and empirical research in the literature to help contextualise and explain the findings (O'Leary, 2017). Employing these methods in this qualitative research allows the voice of the participants to be told and understood (Clifford et al., 2010).

Within this qualitative framework, the research involves an explanatory case study that allows an in-depth examination of the possible cause-and-effect relationship between displacement and climate change vulnerability as experienced by the Bikinian community on Kili and Ejit (Savin-Baden and Major, 2013). For this Bikinian case study, a pragmatic qualitative research approach was used that draws upon the most sensible and practical research methods available to answer the research questions (Savin-Baden and Major, 2013). The Bikinian context is studied by using a document analysis and the collection of personal accounts through bwebwenato/talk story style semi-structured interviews. Undertaking this approach allows the multiple facets of the relationship between

displacement and climate change to be analysed and understood (Baxter and Jack, 2008; Starman, 2013). One of the advantages of this approach is the collaboration between me as the researcher and the research participants which enables the Bikinians to share their story, and me to better understand their experiences (Baxter and Jack, 2008). The methods used in this approach are described below.

5.3 Methods

This section outlines the methods employed in the collection and analysis of research data to answer the research questions.

5.3.1 Document analysis

A document analysis was selected as a method to understand what the Bikini community on Kili and Ejit has expressed regarding the impacts of their displacement and climate change. A document analysis is a research method that follows a systematic procedure for analysing the contents of written documents (Bowen, 2009; Wach et al., 2013; O'Leary, 2017; Chanda, 2021). The analysis of documents can provide important background context and historical insight and is an effective means of gathering data when events, such as the Bikinian displacement, cannot be observed (Bowen, 2009; Chanda, 2021). A document analysis can also identify trends and observations on how a topic has progressed through time, which is important in the Bikinian case study to understand the long-term impacts of their displacement and exposure to climate change (Wach et al., 2013; Morgan, 2021). While the document analysis provides a subjective perspective on displacement and climate change, many of these documents have a political purpose. Because of this, it is necessary to be aware of the source and the context of these documents especially in view of the lack of physical interaction between the researcher and the data (McLennan and Prinsen, 2014; Ralph et al., 2014).

The document analysis examines information collected from two types of data. The first group of documents comprises legal statements and decisions given in the course of Bikinian claims made to the Marshall Islands Nuclear Claims Tribunal (NCT) and the US Court of Federal Claims. These documents contain detail on the effects of displacement on the Bikini community and were sourced via comprehensive records available online. The documents analysed were:

- The recorded evidence of the Bikinians given during the 1999 sitting of the US Committee of Resources at the US House of Representatives Hearing on the status of nuclear claims, relocation and resettlement efforts (Committee on Resources, 1999).

- The 2001 decision of the NCT, which discusses the impact of displacement on the Bikinians based on their testimony (NCT, 2001)
- The recorded evidence of the Bikinians that formed the Bikinian 2006 lawsuit against the US Government in the US Court of Federal Claims (The US, 2006).

Claims against the US in US courts and Congressional and Senate hearings were undertaken by the Bikinians as they sought to redress damages to persons and property as a result of the US nuclear tests. The three documents were selected as they provide insight into how the Bikini community felt they have been affected by their displacement. In the case of the 1999 US House of Representative Hearing (Committee on Resources, 1999) and 2006 Bikinian Lawsuit (The US, 2006) these accounts are provided in the Bikinians' own words in the evidence they provided.

The second group of documents were produced by the Kili, Bikini, Ejit (KBE) Local Government Council. This includes two resolutions passed by KBE in 2015, a 2018 statement of the KBE Mayor and the official website of KBE. The KBE resolutions discuss the unsuitability of Kili and Ejit as a home for the Bikini people and the need for relocation and resettlement because of the impacts of climate change. Each resolution ends with a request to the US for greater access to their trust fund to facilitate relocation. These requests were supported by the KBE Mayor who presented to the US Senate explaining why the Bikinians desired unrestricted access to their funds. The KBE documents assessed were:

- Resolution Number 2015-46 of the KBE Local Government Council (KBE, 2015a).
- Resolution Number 2015-54 of the KBE Local Government Council (KBE, 2015b).
- The 2018 Statement of KBE Mayor Anderson Jibas to US Senate Committee on Energy and Natural Resources regarding the resettlement and relocation of the people of Bikini (US Senate, 2018).

The requests by KBE for greater access and ownership of their trust fund were analysed as these documents demonstrated how Kili and Ejit are being affected by climate change. These documents also contain details on how the KBE leadership is addressing these effects by utilising these trust funds to develop their adaptative capacity and as well as their consideration of further relocation. These documents also link the impacts of displacement to climate change vulnerability. All documents were obtained from the official KBE website.

The contents of the official website of KBE (http://www.bikiniatoll.net/) (Official Website, 2022) were also analysed. The KBE website was selected as it contains text, interviews, videos and photos that

expressed the thoughts and views of KBE and the community on the effects of displacement and climate change on Kili and Ejit. The website also contains information on the strategies used by KBE and the Bikinians in response to the vulnerabilities that result from displacement and climate change.

The document analysis organised the information contained within these sources into major themes which become the categories for analysis (Maguire and Delahunt, 2017; Chanda, 2021). Using the literature as a guide, key themes were identified for displacement and climate change vulnerability. These themes were later refined as the document analysis was undertaken. The documents were then reviewed and the key text highlighted and annotated according to each theme as it appeared in the document. The themes were then grouped within a spreadsheet to explore the subthemes running through each theme. The data analysis process is discussed further below with the themes set out in Table 4.

5.3.2 Bwebwenato and semi-structured interviews

In undertaking this research, I wanted the Bikinians to tell their story and to record their experiences of displacement and climate change as completely as possible. For this reason, I chose semi-structured interviews based on bwebwenato. Bwebwenato or talk story, is analogous to Talanoa, both of which are Indigenous research methods that derive from Indigenous oral traditions (Vaioleti, 2013; Nimmer, 2017). In the Marshall Islands, bwebwenato is a culturally appropriate way for the participants to share their knowledge (Nimmer, 2017, p. 49). Bwebwenato values and is bound by the concepts of kautiej (respect), jouj eo mour eo (reciprocity) and jouj (kindness) (Jim et al., 2021, p. 138 and 139). While this method uses ideas from an Indigenous Marshallese approach, I am not a Marshallese or Indigenous researcher. However, this approach was used as it is appropriate to my approach with the Bikinians. Prior to conducting this research, I discussed my research proposal and the research approach with the Bikinian leadership. The leadership were gracious in their support of this research and the approach to engage with the leadership.

Semi-structured interviews are a research method that seeks to collect targeted data through engaging in conversation with participants to explore topics in depth, providing information directly answering the research questions. This method fits well with the bwebwenato approach (Longhurst, 2010; Savin-Baden and Major, 2013; Mueller, 2019). The semi-structured interviews were framed around bwebwenato to allow participants the opportunity to answer and share their experiences in their own way, often through telling their story (Nimmer, 2017, p. 49).

The advantage of using bwebwenato / talk story style semi-structured interviews is that it involves research through conversation and the reciprocal exchange of experiences and thoughts while capturing multiple perspectives, identifying commonalities and creating benefit mutual to both researcher and participants (Affonso et al., 1996; Steele, 2012). Conversations are conducted without a rigid framework and questions are used only as a means to stimulate a casual, free-flowing conversation that allows sufficient time for the engagement (Affonso et al., 1996; Steele, 2012; Vaioleti, 2013). While conversations may not follow a rigid framework, it does take place within a culturally appropriate framework in accordance with appropriate convention and customs (Affonso et al., 1996; Tecun et al., 2018). For the Bikinians who participated in this research, they chose the timing and setting for the interviews.

As the bwebwenato/ talk story method is based on the participants values, beliefs and experiences, it emphasises the importance of the relationship between the researcher and participants (Affonso et al., 1996; Prescott, 2008; Tecun et al., 2018; Jim et al., 2021). The approach builds on existing and on-going relationships and as a result, a researcher approaches existing contacts and through this familiarity and trust facilitates conversations (Tecun et al., 2018). This trust allows the participant to drive the conversation, with the freedom to begin, end and compose the conversations content (Affonso et al., 1996). As discussed by Affonso et al. (1996) this freedom can assist in ensuring confidentiality, as having the ability to drive the conversation means participants can portray experiences in ways that protect themselves or other people. A bwebwenato style approach, through its cultural basis and ability to ensure confidentially, provides an important ethical dimension in conducting research within an Indigenous community (Affonso et al., 1996). Bwebwenato also provides the Bikini community the chance to explore and discuss issues they felt were important. Additionally, undertaking interviews provided for the collection of multiple realities through the study of a small number of in-depth cases (O'Leary, 2017; Stewart-Withers et al., 2014).

To facilitate the conversation and ensure the discussion provides answers to the research questions, key themes were developed into questions. These were established following the literature review and the document analysis as information contained within these documents suggested questions to be asked during the interviews (Bowen, 2009). The themes for the questions were:

- Challenges faced by the community as a result of their displacement.
- Climate change impacts experienced by the community and their ability to respond.
- Connections between the impacts of displacement and climate change vulnerability.
- Considerations of mobility as a response to displacement and climate change.
- Human rights considerations in displacement and climate change vulnerability.

Interviews were meant to be undertaken in person, but because of COVID-19 related travel restrictions the planned island-based field work could not be completed (as discussed further below). Interviews were instead requested with the Bikini leadership and elected KBE officials via email and phone calls. The Bikinian leadership was chosen as they were considered likely to have a good understanding of the displacement and climate change issues being faced by those that live on Kili and Ejit. People in a leadership position can hold knowledge that goes beyond the private experiences and knowledge base of individual community members (O'Leary, 2017). The information government and traditional leaders can hold means they can be a high-value source of data (Fife, 2005).

The initial aim was to complete approximately twelve to fifteen interviews, but in the end, four interviews and one written response was gained. Participants were provided the option of remaining anonymous, however, all participants consented to being identified in the research. All participants also consented to the interviews being recorded so they could be transcribed later. As the research aimed to capture and share Bikinian perspectives as wholly and directly as possible, the accuracy of the participants experiences and perceptions were not challenged or altered in the transcripts (Bordner et al., 2020). Further, to ensure the participants' views were accurately captured, each participant was provided the opportunity to review and edit their interview transcripts before it was included in the thesis.

Because of the inability to organise and conduct interviews on the ground, a Marshallese research assistant helped to recruit participants. An information sheet and the questions were provided to participants prior to the interviews in both Marshallese and English. The information sheet set out the research topic and objectives, how data would be collected, when and where data would be used and published and the rights of the participants. The information sheet also set out the voluntary nature of participation. Participants were offered the option of an interview over Zoom or telephone, either individually or as a group, and in English or Marshallese. They were also offered the option of providing a written response only. Interviews conducted were held over Zoom, individually and in English. One participant felt more comfortable reading prepared answers to the questions on the data sheet. Another participant provided a written response. Three participants fully engaged in the bwebwenato via Zoom, providing a rich commentary on their experiences allowing topics to be explored as the conversation progressed.

At the end of each interview, the participants were asked if there was anything I or the research could do to benefit the Bikini community. The majority asked that the research help to tell the Bikinians' story, to keep it relevant and known. In respect of this request, and in acknowledgement of the

participants permission to be identified in the thesis, their full names have been attributed to the information they have provided. Participants in the research are presented in Table 3.

All participants are male. I would have liked to have obtained an equal number of female participants. However, it was difficult to recruit participants remotely, even with the help of a research assistant. Additionally, I had predetermined to interview the leadership of the Bikinian community. According to the KBE website, there are 30 positions on the KBE Council and the council executive. Only two or three of these positions are filled by women, making them a small sample of the leadership.

I have also committed to provide a copy of the final thesis to KBE for refence and use as they see fit. The next section outlines the methods used to analyse the data collected from the document analysis and the interviews.

Table 3: Research Interview Participants

Name	Position with Bikini Community	Residence	Gender	Method
Anderson Jibas	Current Mayor of the KBE Local Government Council. Mayor for two terms	Kili, and part time on Majuro	Male	Interview over Zoom
Peterson Jibas	Senator and Vice Speaker of the RMI Parliament	Mostly on Majuro due to RMI Parliament, spends time on Kili	Male	Interview over Zoom
Wilson Note	Council member of KBE. Has previously been KBE Mayor	Kili and Majuro	Male	Written responses provided
Alson Kelen	Executive Director at Waan Aelõñ in Majel (Canoes of the Marshall Islands). Commissioner at National Nuclear Commission, RMI. Has previously been RMI Senator and KBE Mayor	Ejit	Male	Interview over Zoom
Glann Lewis	Council member of KBE	Majuro	Male	Provided prepared answers over Zoom

5.4 Data analysis

The data collected from the document analysis and semi-structured interviews was analysed through a qualitative thematic analysis. The thematic analysis is the process of recognising patterns within the data, with the themes that emerge becoming the categories for analysis (Bowen, 2009). Search terms were developed from key themes that emerged from the literature review that referenced the research questions. During the course of the thematic data analysis, these predefined terms were refined as required. The terms were also used in the content analysis to categorise the data according to the research aims and objectives (Bowen, 2009; Snelson, 2016). The search terms and the relationship to the research aims and objectives are set out in Table 4.

Table 4: Search terms and their relationship to research aims and objectives

Research Aim	Research Question	Research Objective	Themes for analysis	Search Terms	
To understand how displacement influences the climate change vulnerability of the Bikinian community on Kili and Ejit Islands and the effect displacement has on their adaptation	RQ1. How is displacement contributing to the Bikini community's vulnerability to climate change?	1.1 Understand how the Bikini community on Kili and Ejit Islands has been affected by displacement.	Key impacts of displacement: Landlessness and the impact on cultural connections Self-sufficiency Food insecurity Social disarticulation Marginalisation, impoverishment, and feelings of injustice and vulnerability	Land Livelihoods Culture Food	Supplies Fishing Injustice Vulnerability
		1.2 Determine the factors that contribute to climate change vulnerability on Kili and Ejit Islands.	The three functions of vulnerability: Exposure Sensitivity Adaptive capacity	Flooding Inundation High tides Storms Erosion Drought	Food Water Houses Skills Knowledge Relocation
		1.3 Explore how displacement and climate change vulnerability affects the fulfilment of human rights for the Bikini community	Impacts of displacement on Bikini rights	Food Water Health Relocation Land	Return Culture Self-determination
	RQ2. How does the Bikini community face challenges and build on opportunities?	2.1 Understand the strategies the Bikinians have developed in response to displacement and climate change	Adaptative capacity and the ability to build resilience	Skills Knowledge Money	Costs Relocation Choice
		2.2 Determine the role of migration as part of the Bikinians' response strategy	Resettlement, relocation and migration	Displacement Culture Relocation	Resettlement US

Regarding displacement, the key displacement impacts as identified by Cernea (2004) and discussed in Chapter 3 formed the basis of the search themes. For climate change vulnerability, themes were identified through the components of vulnerability, that is exposure, sensitivity and adaptative capacity as they related to the community on Kili and Ejit, as was discussed in Chapter 4. Themes associated with rights were identified in Chapter 2.

Once all the data had been collected and categorised it was placed in tables to generate groups of themes. As discussed by Saldana (2009), themes are a phrase or sentence that identifies data and its meaning. After sorting, a thematic analysis was used to identify and explore trends and relationships within these themes (Snelson, 2016). The data that explained the experience of displacement was then analysed and explained in Chapter 6; and in Chapter 7 the Bikinian climate change vulnerability was presented. The analysis in these two chapters outline the frequency and context in which the search terms appear within the documents and interviews and relationships between these themes.

5.5 Field work

This section outlines the key considerations and steps in undertaking the interviews with the Bikini leadership.

5.5.1 Support of the Bikini leadership towards this study

It has been my desire that this research be conducted with the support of the Bikini leadership and that they be given the opportunity to give input into my research aims. The proposed aims and objectives of this research were first discussed with the KBE leadership in 2020. In 2021 the research objectives and research methods were confirmed once it was known interviews would need to be conducted remotely because of COVID-19 travel restrictions. The Bikini leadership confirmed they were happy for the research to proceed. Subsequently the KBE Mayor kindly provided written confirmation of their support for the research in June 2021.

5.5.2 Approval to undertake research in the Marshall Islands

At the same time as obtaining support from the Bikini leadership, formal approval to conduct this research was obtained from the RMI Government. With the assistance of my supervisor and staff at Massey University, it was determined that formal approval was needed from the Office of the Chief

Secretary of the Nitijela (the Parliament of the RMI). The Chief Secretary confirmed that the Government did not currently have a review board for social research and that the College of the Marshall Islands (CMI) had graciously offered to assist by assessing the research proposal under their Institutional Review Board (IRB) policy and procedures. The IRB approves all research involving human subjects conducted by CMI students or staff. The CMI IRB requires that research must follow requirements adapted from the US Department of Health and Human Services Policy for the Protection of Human Subjects (45 CFR 46, Subpart A). As part of the process, an application was submitted demonstrating how risks to participants would be minimised, that informed consent would be obtained from participants, their privacy maintained where warranted and the benefits of the research and the findings would be shared with the RMI and the community. I was also required to complete the US National Institute of Health's Protecting Human Research Participants course. I completed this course and obtained certification in June 2021. Confirmation from the CMI that the research was approved and could proceed was subsequently provided in July 2021.

5.5.3 Limitations: Conducting research during COVID-19

The original intent of the field work was to spend several weeks in the Marshall Islands, in Majuro and on Kili and Ejit, interviewing members of the community. However, the COVID-19 pandemic resulted in restrictions on international travel with the Marshall Islands shutting their borders. Additionally, leaving New Zealand would only be possible with long periods spent in managed isolation. This made the planned field work impossible. As a result, I changed the way I collected data utilising email, phone calls and the Zoom platform. Instead of engaging with the wider Bikinian community, I focused on a small subset comprising the leadership. Recruitment of this group relied on emails and phone calls. The shift away from the personal contact of in-person recruitment and interviews restricted my attempts to conduct my research utilising bwebwenato/ talk story approaches and to build relationships with participants.

Recruitment of participants remotely proved particularly difficult. To overcome this, a Marshallese research assistant was obtained to help contact potential participants on my behalf and coordinate interviews. Before commencing the fieldwork, I briefed the research assistant about the research project, the bwebwenato semi-structured interview process, ethical issues and COVID-19 considerations triggered by their role (McLennan et al., 2014). The research assistant had worked with the RMI Government and had experience in conducting interviews with stakeholders in the Marshall Islands. That the research assistant knew some of the participants was invaluable in setting up some of these interviews.

The COVID-19 pandemic has had a significant impact on this research in a number of areas. The first is that I was unable to spend time in the Marshall Islands and was unable to engage with the community as planned. This meant I have been unable to explore the wider community's experiences of displacement and climate change. Secondly, to make remote interviewing more manageable, I decreased the numerical targets for interviews and focused instead on a smaller number of the leadership. This meant my research focused on one group that generally comprised older male members of the community. However, they were knowledgeable and had strong opinions on the impacts of displacement and climate change. Thirdly, recruiting participants remotely was very difficult, and only possible with the help of the research assistant. Recruitment was still difficult as the assistant could only assist part time. I feel that had I been able to undertake the field work, through devotion of time and efforts, and with the help of the research assistant, recruitment would have been more successful. The leadership and the Bikini community were also dealing with the disruptions of COVID-19 and this may have affected recruitment. Lastly, while the interviews over Zoom were fruitful and conversations occurred to explore themes, it was much harder to engage in conversation and build a rapport over Zoom in the bwebwenato style. This view is based on my experience of working in the Marshall Islands as a consultant, where I have experienced the benefits of building relationships and taking the time to have conversations in person with various Marshallese communities. Despite these COVID-19 related limitations, I feel I have collected a sufficient quality and quantity of research material.

5.6 Ethical considerations

Ethical considerations are important when undertaking research with people and communities. It is the responsibility of the researcher to ensure the physical and mental well-being of all people involved in the research, as well as ensuring their dignity, privacy and safety is maintained (Banks and Scheyvens, 2014; O'Leary, 2017). This research has been approved by the Massey University Human Ethics Committee (MUHEC) as Low Risk on 14 August 2020.

5.6.1 Concerns of sensitivity

It was important that when engaging with the Bikinians that the approach was respectful, sensitive and undertaken in a culturally appropriate manner (Banks and Scheyvens, 2014; Scheyvens et al., 2014). As set out in the Massey University Pacific Research Guidelines and Protocols (2017), the values of respect, reciprocity, relationships, humility, service and community are important considerations

when undertaking research in Oceania. These values are reflected in the bwebwenato approach to the interviews. The approach to the research also needed to be considerate of sensitivities around the experiences of displacement. It was clear from the literature review, as well as my previous engagement with the Bikinians, that there is still a strong feeling of injustice regarding displacement. The same care was also applied to discussions around climate change and feelings of uncertainty and anxiety about how climate change was affecting the community were considered. Moreover, the community has been subject to numerous studies and research, including clandestine research by the US on the effects of radiation on human health. I was cognisant of any reluctance or hesitancy in the willingness to engage in this research. In view of these sensitivities, it was important for me to discuss the research approach with the Bikini leadership prior to engagement to ensure the research remained respectful of the Bikini community and its experiences.

5.6.2 Conflicts of roles and positionality

I have worked previously with the Bikini leadership in a consultancy role. This role assisted in establishing a relationship with the Bikini leadership and facilitating discussions regarding my research. While I have approached this research as a development studies research student rather than a development practitioner, my experiences have influenced my positionality and have been considered in this research (O'Leary, 2017). Leaning on Banks and Scheyvens (2014) I have sought to try and ensure my research was a positive and worthwhile experience for the participants. It was also my aspiration that the results of this research be useful for the Bikini community. In discussing how this research could be beneficial to the community, the leadership simply requested that their story continue to be told and that a copy of the completed thesis be shared with the Bikini leadership.

5.7 Chapter conclusion

This chapter has provided an overview of the approach undertaken in the collection and analysis of data to answer the research aim and questions. A qualitative approach comprising an explanatory case study and qualitative methods was considered to be the most appropriate means of answering the research questions. This approach has provided the best means of understanding the perspectives of the Bikinians as they have related to their experiences of displacement and climate change vulnerability through the collection of information that focuses on the depth of information. The fieldwork has been significantly affected by the COVID-19 pandemic, but alternative means of

collecting data were implemented. The experiences of the Bikini leadership, as they relate to displacement and climate change, are explored in Chapter 6 and 7.

Chapter 6 The Experience of Displacement

6.1 Introduction

The purpose of this chapter is to present the results of the document analysis and semi-structured interviews and analyse these to understand the Bikinians' experience of displacement. The sections in this chapter are organised into key themes of displacement as determined in the literature and refined during the analysis of the research results.

Section 6.2 analyses key themes on the vulnerabilities experienced by the Bikinians because of displacement and addresses Research Question 1. The themes analysed in this section relate to the impacts of landlessness and the loss of common property and services, food insecurity, social disarticulation, economic marginalisation and the generation of feelings of injustice and uncertainty. Section 6.3 then analyses key themes related to the strategies and strengths that the Bikinians have developed and applied in response to these vulnerabilities addressing Research Question 2. In responding to displacement the section analyses Bikinian strategies to develop food security, obtain economic empowerment, access social and economic opportunities through migration and their efforts to seek justice from the US. The difficulty in developing strategies in direct response to landlessness and loss of culture are also analysed.

6.2 Vulnerability experienced through displacement

This section explores themes in the data related to displacement and the vulnerabilities experienced by the Bikinians. The section examines how landlessness and the loss of common resources has generated long term vulnerability associated with cultural and social disarticulation, food insecurity and marginalisation.

6.2.1 Vulnerabilities that result from landlessness and loss of common resources

The most frequently mentioned theme related to displacement identified in the documents and interviews was the loss of the Bikinian homeland. The loss of the Bikinians' land and common resources, such as the atoll lagoon and its vast marine resources, affected Bikinian society and culture and their ability to be self-sufficient. With the inability to re-establish self-sufficiency on Kili and later Ejit Islands, issues around food insecurity soon rose and this concern continues today. One of the documents, the KBE Resolution 54, for example, explains that the traditional lagoon-based

subsistence skills that the Bikinians had developed on Bikini Atoll were rendered useless on the single island of Kili (KBE, 2015b). Additionally, two participants, Peterson Jibas and the previous Mayor, Alson Kelen, have explained what the KBE Resolutions also outlined: that the absence of a central lagoon on Kili creates the need to fish in the surrounding waters. However, rough sea conditions heavily restrict the ability to fish in the open ocean (KBE, 2015a and 2015b). Alson Kelen said that fishing is very important to the Marshallese diet and culture. Along with Glann Lewis and Wilson Note, Alson Kelen lamented that the inability to fish on Kili has led to the loss of the community's maritime skills they once relied on to survive.

Four of the participants were of the view that the resources available to the community were very limited and not sufficient. Alson Kelen said: "Both Ejit and Kili are small and could not support traditional lifestyles". This view was also expressed in the KBE Resolution 54, which states that Kili did not have the resources to sustain a population of more than a few hundred people (KBE, 2015b, p. 3). As a result of the failure to re-establish their self-sufficiency, the Bikinian Lawsuit and Nuclear Claims Tribunal (NCT) Decision stated that the Bikinians developed by necessity a long-term reliance on imported food aid (The US, 2006; NCT, 2001). This food aid dependency was confirmed by both Peterson Jibas and Mayor Anderson Jibas who commented on the Bikinians' dependency on supplies that must be imported by aircraft or ship.

The loss of Bikini Atoll also led to the loss or degradation of Bikinian culture. The House Hearing evidence (Committee on Resources, 1999), the NCT Decision (NCT, 2001) and the Bikinian lawsuit (The US, 2006), explained that Bikinian culture, society and identity were rooted in their ancestral atoll home and its islands, reefs, and lagoon. Specifically, the NCT Decision (NCT, 2001, p. 24) elaborated that the Bikinians considered that "the very essence of their perceptions of themselves, was intimately tied to their home atoll" and that "the loss of their ancestral homeland represented the worst calamity imaginable for the Bikinians". In this context, most interview participants also spoke of the loss of land and resources resulting in a loss of culture, especially traditional maritime skills. During his interview, council member Glann Lewis stated: "We [have] lost our skills and legacies that our ancestors once had". Council member and former mayor, Wilson Note, made a similar point saying:

> Our elders were best known for their skills in navigating and building canoes. These skills were taken away from our community when we relocated.

Alson Kelen also had a strong opinion of the effect of this loss on Bikini cultural when he stated:

> Ninety-nine per cent of Bikinians have never been to Bikini Atoll before, it is a myth, a fairy tale. It gives you a feeling you are a nomad, a no-one. They can't talk proudly of their land and ancestors, they have lost the connection over generations, and feel you're not Marshallese.

This quote from Alson Kelen indicates the importance of land in Bikinian and Marshallese culture and the impact on culture when the ties to ancestral lands are severed. Alson Kelen's quote also indicates the extent of the Bikinians' severance with their homeland, stating that the majority of Bikinians have never been nor even visited Bikini Atoll. As stated by current Mayor Anderson Jibas, the Bikinian people have been forced to live in a state of exile for 76 years. The landlessness and loss of common resources experienced by the Bikinians has been disastrous from a social and cultural perspective. The loss of Bikini Atoll not only led to an inability to re-establish self-sufficiency, but also contributed to their experiences of food insecurity, social disarticulation and marginalisation as discussed further below.

6.2.2 Vulnerabilities in relation to food insecurity

As discussed above, the document analysis and interviews show a strong link between the inability to establish self-sufficiency and food insecurity. Themes related to food insecurity were mentioned as a constant, and at times significant, effect of displacement. When the current Mayor, Anderson Jibas, was asked what he considered as the key impacts of displacement, the simple answer was "lack of food." The House Hearing evidence (Committee on Resources, 1999), the NCT Decision (NCT, 2001), and the Bikinian Lawsuit (The US, 2006) all referenced the inability to be self-sufficient on Kili, which led to food shortages and the need to be placed on long term food aid. The documents recounted the experience of food shortages and starvation during the first years of relocation on Rongerik; they also outlined the numerous and ongoing food shortages experienced when the Bikinians were moved to Kili (NCT, 2001; The US, 2006; Official Website, 2022). The initial and severe starvation suffered on Rongerik has had a lasting impact on the Bikinians. The KBE Resolution 54 compared conditions on Kili to those faced on Rongerik in 1946, observing that the Bikinians have been relocated to places that cannot sustain the community (KBE, 2015b, p. 3).

The research results also indicate that flooding and inundation that regularly occur on Kili and Ejit contributes to food insecurity affecting the Bikinians' attempts to grow crops, which was not a significant part of Bikinian culture, but something the community has developed as they try to diversify their food resources. The KBE Resolution documents outline how flood damage and salination of soils and groundwater restricts crop growth, further exacerbating food insecurity (KBE, 2015a and 2015b). Senator Peterson Jibas recounted how "the water just came in and just killed all crops [and]

contaminated the land." As mentioned above, as a result of their food insecurity, the Bikinians have developed a long-term dependence on imported food aid (The US, 2006; NCT, 2001; Official Website, 2022). Peterson Jibas, Anderson Jibas and the KBE Resolutions documents identified the fragile nature of this dependency. They explain that the community relies on supplies from Majuro and other islands through air and sea connections that can easily be disrupted by adverse weather conditions which can flood the runway and disrupt the unloading of supply boats, contributing to food insecurity when supplies run low (KBE, 2015a and 2015b). The ongoing food insecurity is described by KBE Resolution 54 (KBE, 2015b, p. 2) as having taken a "severe psychological toll on the people" and contributes to the Bikinians' experience of social disarticulation as analysed below.

6.2.3 Vulnerabilities associated with social disarticulation

Themes related to social disarticulation are strongly linked to the Bikinian encounters with landlessness and food insecurity. Anderson Jibas confirmed that displacement had "transformed our traditional society", and a key outcome has been social disarticulation and the uprooting and scattering of the Bikini community. As discussed in the House Hearing document (Committee on Resources, 1999), the Bikinian Lawsuit (The US, 2006) and the two KBE Resolutions (KBE, 2015a and 2015b), the Bikini population is located throughout the Marshall Islands and also externally in the US. Mayor Anderson Jibas described the extent of this scattering, stating:

> We are scattered all over the world… some are on Kili, about 700 [Bikinians], 2,000 in Arkansas, 1,000 in Hawai'i on Hilo, [and a] couple of thousand [are] in Majuro.

This means, of the 6,000 Bikinians, only a small number still reside on Kili and Ejit, and half reside outside the Marshall Islands in the US. Because of this scattering of the community, the Mayor on the KBE Website described the Bikini people as being "nuclear nomads" (Official Website, 2022), which was a phrase repeated by Peterson Jibas, Anderson Jibas, and Alson Kelen in their interviews.

Traditional land right systems that had been developed on Bikini Atoll and that had shaped the organisation of the community and its household groups, changed dramatically with relocation to Kili, contributing to the Bikinians' social disarticulation as outlined in the NCT Decision (NCT, 2001). On Kili, household groups did not function as effectively as social and economic units as they had done on Bikini Atoll, contributing further to the breakdown of traditional ways of life adding to the difficulties experienced by the community. The interview participants spoke of extended family members leaving Kili and Ejit because life there was difficult, with many moving to the US in particular to pursue economic and social opportunities. When Alson Kelen was asked if these family members would

return, his response was, “no, they will not come back”, as they and their families were now emersed in US society further contributing to the Bikinians’ social disarticulation. While it is common for communities in Oceania to be scattered as people follow social and economic opportunities, the difference for the Bikinians is that they have been forced to relocate and cannot return to their homes. The social disarticulation of the Bikinians highlights that displacement may not be a one-off event and can be experienced over many years. This point is discussed further in Chapter 8. The next subsection explores vulnerabilities related to marginalisation.

6.2.4 Vulnerabilities that are connected to marginalisation

Themes related to the marginalisation of the Bikinians were frequently discussed within the data. Marginalisation was experienced as economic marginalisation, but most significantly for the Bikinians, as the generation of feeling of injustice and deepened vulnerability.

The economic impacts of displacement contributed to the Bikinians’ perceptions of being marginalised. The evidence given at the US House Hearing (Committee on Resources, 1999) and outlined in the NCT Decision (NCT, 2001) discuss the financial costs borne by the Bikinians as a result of their displacement and the need to develop new housing, infrastructure, skills and education in order to survive. The NCT decision and Bikinian lawsuit also highlight the Bikinians’ belief that displacement has denied them the opportunity to conduct meaningful economic activity and an inability to provide for the needs of the community (NCT, 2001; The US, 2006). However, the Bikinians’ evidence at the US House Hearing (Committee on Resources, 1999) had discussed the ability of KBE to meet some of these costs as a result of US compensation, but that meeting resettlement costs was a major drain on these funds. Despite the availability of these funds, two participants were of the view that the compensation provided by the US was inadequate to address the needs of the Bikinians and fell far short from what was initially promised by the US and awarded to the Bikinians by the NCT, which the US refuses to honour. However, it was also suggested that no monetary amount could compensate for the scale of loss and hardship suffered by the Bikini community (Committee on Resources, 1999; NCT, 2001).

The documents and interviews also frequently referred to the Bikinians’ perception that they had been subjected to a great injustice at the hands of the US. For example, the KBE website (Official Website, 2022) contains a video detailing the history of the Bikinian displacement, stating that the Bikinians are “still victims of the nuclear age”. Three of the participants expressed the feeling that their displacement was not “fair”. Peterson Jibas explained this feeling further saying that the Bikinians had sacrificed much for the US and their interests, and he suggested that in return the US had “taken

everything away from us". A message from the Bikinian Mayor on the KBE website states that the US had not kept their promise to return them to their homeland, outlining this break of trust as one of the main reasons the Bikinians feel a sense of injustice (Official Website, 2022). The interview participants vividly expressed this feeling of injustice with Glann Lewis lamenting the "unjust" loss of the "beloved homeland of our forefathers". Both Peterson Jibas and Anderson Jibas spoke of the US having broken their promise to return the Bikinians to their "pristine atoll" once testing was completed. Anderson Jibas suggested the US promises were "no more than lies". These feelings of injustice, along with the impacts of their landlessness and food insecurity, has contributed to the Bikinians experiencing feelings of deepened vulnerability.

In terms of this sense of vulnerability, the NCT Decision (NCT, 2001) outlined how the forced removal of the Bikinians and the resulting inability to practice their traditional livelihoods has affected the community's confidence and had created anxiety and uncertainty about their future. Such feelings were expressed by participants. For example, Mayor Anderson Jibas stated that when considering life on Kili, "I don't see an island, but a rock, that we live on, the people of Kili. We cannot really survive on it", and that "Kili is a prison". Similarly, Senator Peterson Jibas suggested the Bikinians were suffering mentally on Kili and Ejit, as there is "nothing on these two islands" and "no lagoon", which had formed such an important part of traditional life on Bikini Atoll. Regarding their long-term relocation on Kili, Peterson Jibas suggested that "living on Kili for two weeks is paradise, but try and survive on it for two years, it's a disaster". Alson Kelen also suggested there was little on these islands for the people to do: "We get up in the morning, cook rice, corned beef, get ready for lunch, ready for dinner, and repeat". Similarly, the NCT document stated that relocation had meant that people's lives had been radically altered, with traditional activities such as building canoes being replaced with boredom and meaningless activity (NCT, 2001). These views highlight the feeling of containment, unfulfillment and monotony that the Bikinians were experiencing on Kili in particular, and that contribute to the community's feeling of anxiety and uncertainty and ultimately deepened their vulnerability.

This section has analysed the research results towards greater understanding of the effects of displacement on the Bikinians. Landlessness, the loss of common resources and the effect of these issues on self-sufficiency and culture have emerged as significant vulnerabilities generated by displacement. Relocation from Bikini Atoll is also closely linked to other vulnerabilities associated with displacement, such as food insecurity, feelings of injustice, a sense of deepened vulnerability and social disarticulation. When the effects of these vulnerabilities are combined, it can be concluded that the Bikinians have been significantly affected by their displacement. However, the Bikinians have developed strategies to increase their resilience, which are analysed in the section below.

6.3 Strengths and strategies in response to vulnerability

This section explores how the Bikinians have developed and applied strengths and strategies to address the vulnerabilities that have been generated by their displacement. The section analyses how the Bikinians have developed strategies related to addressing vulnerabilities associated with food security and economic empowerment. The section also analyses the strategy to use migration as a means to access social and economic opportunities, and the Bikinians ongoing efforts to seek justice from the US. The section, however, highlights that the cultural impacts of their landlessness cannot be easily addressed.

6.3.1 Locally produced food

The above section has shown that the effects of food insecurity have been substantial for the Bikinians on Kili and Ejit Islands. Communities have tried to address this vulnerability by growing food and by fishing, even though the conditions on Kili and Ejit make these activities difficult. One of the biggest challenges to growing food is the frequent flooding from the sea, which damages crops and causes salination of the soil and groundwater. In response to this flooding, Senator Peterson Jibas talked in his interview about building sea walls to restrict flood waters inundating Kili and Ejit and that people were trying to plant crops on higher ground. However, Peterson Jibas explained that there is "really no higher ground on Kili". On Ejit, previous Mayor Alson Kelen explained that residents are raising plants above the contaminated soil and water by utilising whatever they have available, putting plants in pots, old fridges, tyres, and redundant boats. Alson Kelen also stated that soil education was now part of the school curriculum to better understand soil science and food production.

In addition to strategies around crops, Peterson Jibas explained that the RMI Government had recently installed a fish aggregating device (FAD) at Kili at the request of KBE, which made fishing more effective. Peterson Jibas explained that by utilising the FAD, fish congregate in the one location. This meant fishing could be conducted closer to shore, which made fishing safer and saved precious fuel. While such strategies have, according to Peterson Jibas, greatly assisted efforts to produce food locally, the Bikinians still remain reliant on food aid. Outward migration is seen by many as a strategy to address these vulnerabilities that contribute to making life on Kili and Ejit difficult as discussed below.

6.3.2 Migration to access social and economic opportunities

Large numbers of Bikinians have moved throughout the Marshall Islands and the US. Many Bikinians are likely to have undertaken migration as a personal strategy in response to the effects of displacement. Such migration was discussed by Alson Kelen when he talked of his family migrating from Kili to escape the "harsh conditions" experienced there. Mayor Anderson Jibas also spoke of migration from Kili to Ejit and Majuro as these locations provided better access to the food and resources that are available in Majuro. As a consequence, they have greater food security when compared to living on Kili which remains isolated and at high risk of disruption to food supplies.

Many of the interview participants also discussed the migration of family members to the US to access social and economic opportunities. In this context, Mayor Anderson Jibas suggested that over half of Bikinians now reside in the US. The KBE website states that this migration strategy started in the 1970s and '80s with many Bikinians emigrating to the US in search of a better life (Official Website, 2022). Wilson Note gave an example of this strategy when he explained that many of his family members had left Kili because of the difficult living conditions and migrated to the US for medical, economic and education opportunities. Alson Kelen noted that many of his family have also moved for economic reasons. He also stated, now that their children have been through the US education system, migrant families have settled within the US society with jobs and greater access to social and economic opportunities not otherwise available on Kili or within the Marshall Islands. As a result, Alson Kelen suggested many were unlikely to return. The Bikini leadership also acknowledged the benefits of migration from Kili and Ejit having requested the US remove the community to another location in the Marshall Islands or US (KBE, 2015b). Because of the deteriorating living conditions, they also requested and were granted full access to compensation trust funds to facilitate resettlement of the community outside the Marshall Islands (US Senate, 2018). Gaining unrestricted access to these funds was another strategy of the Bikinians to address the effects of vulnerabilities associated with displacement, as discussed in the following section.

6.3.3 Economic empowerment through control of trust funds

While displacement resulted in Bikinian economic marginalisation, the US has provided compensation payments to the Bikinians allowing them to deliver social services such as health care, education and food supplies (Committee on Resources, 1999). The US also made a Resettlement Fund as compensation available to the Bikinians. However, access to this fund was tightly controlled by US authorities (Official Website, 2022). The control of Bikinian funds and budgeting by the US was a system that the Bikinians considered condescending and colonialist (US Senate, 2018). As a result, the

Bikinians launched a successful strategy to take control of these funds which was an important victory for the Bikinians when viewed against the injustice of their displacement at the hands of the US (Official Website, 2022). The KBE website explains that to have control of the Resettlement Fund is to finally have control over their own future, important to the Bikinians as "nobody understands the needs of Bikini better than the Bikinians themselves" (Official Website, 2022). According to the KBE website and Anderson Jibas, gaining control of their finances means the Bikinians can allocate budgets and resources to where they think it is needed most (Official Website, 2022). Anderson Jibas stated: "we can choose our own destiny in using our trust fund… to take care of our people".

Control of their finances has allowed the Bikinians to direct funds towards meeting their basic needs in relation to health, education, transportation and agriculture (Official Website, 2022). For example, funds have been used by the KBE to provide health care outside of the Marshall Islands when needed and offer education scholarships (US Senate, 2018). Two new boats were also bought for Kili to help ensure supplies reach the island, as explained by Peterson Jibas. Access to these funds has allowed the KBE to respond to natural hazards and the impacts of climate change, undertaking the renovation and rebuilding of houses damaged by flooding (US Senate, 2018; Official Website, 2022). KBE was also able to purchase land near Hilo, Hawai'i, to provide the community with options in the future if climate change makes living on Kili and Ejit too difficult as discussed by Peterson Jibas and Anderson Jibas. The use of these funds to address climate change is discussed further in Chapter 7.

The Bikinians' strategy around the use of their trust funds includes an acknowledgment that these funds are finite and not sufficient to meet all their needs (Official Website, 2022). As a result, the Bikinians are trying to develop projects that they hope will generate income and eventually less reliance on these funds (US Senate, 2018; Official Website, 2022). The Bikinians intend to use some of the land purchased at Hilo to generate revenue from land development, commercial activities and farming and agriculture according to Peterson Jibas and Anderson Jibas. The Bikinians are also using their funds to support and grow tourism centred on Bikini Atoll that will ensure long-term revenue and provide employment (US Senate, 2018; Official Website, 2022). As discussed by Anderson Jibas, tourism would be centred on the recovered marine and reef ecosystems, and the physical remains and artifacts of US nuclear tests. Mayor Anderson Jibas also considered that tourism would provide an opportunity for the Bikinians to tell the world what had happened on the atoll and to their community. This strategy of telling their story links to the Bikinians' strategy of addressing the injustice of their displacement as discussed in the next section.

6.3.4 Seeking justice

In response to the deep feelings of injustice, the Bikinians have developed strategies to seek justice from the US and to hold them accountable for past actions and unfulfilled commitments and promises. Both Anderson Jibas and Peterson Jibas talked in their interviews about how they and the Bikinian leadership continue to engage with the US Government requesting that they fulfil their responsibilities and commitments to the Bikinians including the restoration of Bikini Atoll so they can return home. Senator Peterson Jibas, for example, recounted his engagement with the US Ambassador to the RMI reminding them of the sacrifices made by the Bikinians for US interests, only for the US to ignore its promises. Anderson Jibas also spoke of the role of the Bikinian leadership in engaging with the RMI Government to ensure Bikinian grievances and needs were addressed in bilateral agreements with the US.

Another strategy of the Bikinians in their pursuit of justice is to ensure their story would not be forgotten. This strategy was outlined by Alson Kelen who during his interview stated:

> the more the story is told, someone may listen and determine that these people need help, and something needs to be done to make things better.

Anderson Jibas spoke of several ways Bikinians were trying to achieve this strategy, including through investing in education to empower their community to be able to: “tell the world of our story, what happened and what can be done”.

Anderson Jibas explained that the Bikinians had received funding and support from the Canadian Government to complete a short film that will tell the story of the Bikinians’ displacement. Anderson Jibas hoped that this film could be used to assist their engagement with a worldwide audience so they could gain international support as they continued to seek justice from the US. In terms of outside support, the KBE Website discussed this strategy, stating that because of the failure of the US to restore Bikini Atoll, the Bikinians had to gain international assistance to help remediate the atoll so they could return (Official Website, 2022). The Bikinians have also sought international support to address the current challenges being faced on Kili and Ejit. According to Mayor Anderson Jibas, KBE has applied for funding from the RMI and US authorities as well as other countries to assist in the development of sea walls and docks on Kili and Ejit. The Bikinians’ strategy to respond to vulnerabilities created by the flooding on Kili and Ejit is analysed below.

6.3.5 Addressing vulnerability to flooding and landlessness

To address the flooding that is occurring on Kili and Ejit, and the sense of vulnerability that this brings, the Bikinians have a strategy to protect these islands by building sea walls. Sea walls are funded by a variety of sources, including by individuals to protect their own houses, by KBE directly, and from external sources and other countries, such as the recent sea wall built on Ejit funded by the US Government as discussed by Peterson Jibas and Anderson Jibas. However, building sea walls has its limitations as was discussed by Alson Kelen, as while they may help prevent flooding from the sea, inundation will still result from rising groundwater. While sea walls may provide only limited effectiveness in reducing flooding vulnerability (as explored further in Chapter 7), it is at least a response by the Bikinians to address some of their vulnerabilities, unlike the difficulty in developing strategies to address the cultural effects of landlessness.

The data within the documents and interviews did not identify any strategies that addressed the cultural loss that resulted from the severance of the Bikinians from their homeland. The main recourse to the cultural effects of landlessness would be the fulfilment of the Bikinians' right of return, which is dependent on the atoll being remediated. As discussed by the leadership and on the KBE website, the Bikinians have little hope that the US will fulfil their promise of remediating the atoll so the community can return (Official Website, 2022). The fulfilment of this right is a key driver of the Bikinian strategy to address the injustice they have suffered from their displacement at the hands of the US as explained above. Without the fulfilment of the right of return, the feeling of injustice is likely to remain. The fulfilment of the right of return is discussed in more detail in Chapter 8.

The Bikinians have developed strategies and strengths in response to many of the vulnerabilities generated by their displacement. However, living conditions on Kili and Ejit remain difficult. Because of these difficult living conditions and the struggle in obtaining justice and a return home, personal adaptation strategies around migration to access social and economic opportunities are likely to remain important for the Bikinians and is discussed further in Chapter 8.

6.4 Chapter conclusion

This chapter has presented the results of the data to understand the Bikinians' experience of displacement in response to Research Question 1, and the strategies they have developed in response to these experiences in response to Research Question 2. Through the analysis of the research results, it was determined that the most substantial displacement themes that emerged were those related to landlessness and loss of common resource because of the loss of Bikini Atoll. This in turn has led to

the development of vulnerabilities related to the loss of self-sufficiency and culture and vulnerabilities associated with social disarticulation, food insecurity and economic marginalisation. The effect of these vulnerabilities have led to the Bikinians developing feelings of injustice and a deepened vulnerability from the difficult living conditions on Kili and Ejit and the cultural loss from the severance with their homeland. The interviews with the Bikinian leadership highlighted how deep and strong these feelings of injustice and vulnerability are within the community, even though the Bikinians' initial displacement occurred over 75 years ago.

The Bikinians have developed strategies to address many of these vulnerabilities. The Bikinians have achieved most success in the implementation of strategies to address economic marginalisation by gaining unrestricted control of their compensation funds. Access to these funds has allowed the Bikinians to respond to the vulnerabilities related to food insecurity and to support the community through the provision of education and health care. The analysis of the research results has also shown that it has been nearly impossible for the Bikinians to develop strategies to counter the effects of landlessness on Bikini culture. The cultural impacts associated with landlessness will remain without a return to their homes, meaning vulnerabilities associated with feelings of injustice, deepened vulnerability, food insecurity and further social disarticulation are likely to remain.

The limitations of living on Kili and Ejit make it difficult for the Bikinians to develop strategies that wholly reduce or eliminate these vulnerabilities. Personal strategies to address these vulnerabilities through migration to access social and economic opportunities are likely to remain important, while potentially affecting Bikinian culture through further social disarticulation. The strategies that the Bikinians have developed in response to these vulnerabilities will also be important in addressing climate change, which is discussed in Chapter 7.

Chapter 7 Bikinian Climate Change Vulnerability

7.1 Introduction

The purpose of this chapter is to present the results of the document analysis and semi-structured interviews to understand how the Bikinians are being affected by climate change. This chapter analyses vulnerability by looking at the exposure and the sensitivity of the Bikinians to the effects of climate change and their capacity to adapt to these changes. Exposure, sensitivity and adaptative capacity are the three components of vulnerability as established in Chapter 4.

Having used the data for analysis, the sections in this chapter are structured into key themes around vulnerability. Section 7.2 analyses the Bikinians' exposure and sensitivity to climate change on their locations of displacement, Kili and Ejit and, hence, addresses Research Question 1. The themes analysed are associated with flooding and inundation of Kili and Ejit and the influence vulnerabilities, generated by displacement, have on the Bikinians' exposure and sensitivity to flooding. Section 7.3 then analyses key themes related to the adaptive capacity of the Bikinians as a displaced community which addresses Research Question 2. In particular this section analyses the role existing vulnerabilities have on strategies for climate change adaptation, including those related to food insecurity, economic marginalisation and perceptions of injustice and deepened vulnerability. Section 7.4 continues to address Research Question 2, analysing themes that relate to migration as an adaptation strategy, which include returning to Bikini Atoll, a continuation of current migration trends and future relocation to Hilo in the US state of Hawai'i.

7.2 The exposure and sensitivity of Bikinians to climate change

This section first provides an analysis of the data to identify themes related to the ways in which the community on Kili and Ejit are exposed to climate change. The second subsection examines community sensitivities around this exposure. The data suggests that vulnerabilities caused by displacement have an important role in generating vulnerabilities to climate change.

7.2.1 Exposure to climate change on Kili and Ejit

An important impact of climate change outlined in the data is sea level rise, which contributes to flooding and inundation on Kili and Ejit. The two 2015 KBE Resolutions (KBE, 2015a and 2015b) have stated that Kili and Ejit have been subject to inundation every year since 2011 and twice in 2015.

Senator Peterson Jibas also talked about this flooding and recalled more recent severe events in 2016 and 2018. He suggested that flooding has become so common that "it is like a routine now, we're going to get flooded this month, next month…" indicating that the frequency of flooding has potentially increased over the past ten years. The current Mayor, Anderson Jibas, and also previous Mayor, Alson Kelen, considered that severe flooding tended to occur during the winter months of January and February when winter swells and high tides combine with rising sea levels to flood large areas of Kili and Ejit. A video on the KBE website shows wave levels high enough during these floods that they overtop Kili's protective seawalls as it did in the widespread inundation in 2015 (Official Website, 2022).

Kili's low elevation, like Ejit's, puts it at risk of exposure to sea level rise and wave-driven flooding as explained on the climate page on the KBE website (Official Website, 2022). Glann Lewis commented, when asked how relocation has influenced exposure to climate change, that both Kili and Ejit are smaller and flatter than Bikini Atoll, making them more exposed to flooding. Two members of the KBE Council also thought that rising groundwater, resulting from sea level rise and high tides, contributed to the inundation experienced on Kili. The lack of a fringing reef was also thought to contribute to Kili's exposure to wave induced flooding, in the view of the participants, as the presence of reef systems can protect against storm surges and high waves. Comparisons were made between Kili with no reef, and the extensive reef systems around Bikini Atoll. Peterson Jibas stated in this context:

> Kili is just a single island [with] nothing around it or surrounding it. But on Bikini it's probably more protected because the islands are surrounded by the reefs.

This point was specifically referenced on the KBE website which explains that the forced relocation to Kili has exposed the community to the consequences of climate change "due to their life in exile on the reefless Kili Island" and as a result, the community is at the "mercy of the ocean, which grows fiercer by the day" (Official Website, 2022). The KBE website outlined the Bikinians' belief that without the protection of a reef system, exposure to wave driven flooding would continue to threaten homes and the safety of the population on Kili (Official Website, 2022). Other lesser effects of climate change noted in the data include coastal erosion. Peterson Jibas had observed increased rates of erosion on the northern and western coasts of Kili resulting in the loss of land and sections of coastal road which he attributed to sea level rise.

The exposure of the Bikinians to these impacts of climate change has caused sensitivities associated with food insecurity and damage to housing and infrastructure, explained below.

7.2.2 The effect of climate change on the Bikinians

The sensitivities of the Bikinians to the impacts of climate change have been identified in the data. Interviews and documents have indicated that in some instances sensitivities exist because climate change is contributing to existing vulnerabilities generated by displacement. An example of this is the Bikinians' food insecurity. There are references of the flooding, discussed above, damaging or killing crops and contaminating the land through salination, mentioned by several participants and statements in the KBE Resolutions (KBE, 2015a and 2015b). Peterson Jibas commentated that when flooding damaged crops, it made life on the islands very hard because of the effects on food availability. Flooding also causes salination of groundwater, which Alson Kelen and Wilson Note explained has increased hardships on Kili as it meant groundwater can become unsuitable for the community to use. Flooding of the airfield on Kili also contributes to food insecurity as it restricts the ability of aircraft to bring in food and supplies as discussed by three of the participants and the KBE Resolution 54 (KBE, 2015b). Wilson Note stated that on one occasion inundation caused incoming flights to be cancelled for a month contributing to food insecurity when supplies run low. The Bikinians are also sensitive to rough sea conditions experienced around Kili, that are exacerbated by climate change. The participants talked about how these sea conditions could be experienced for six to eight months of the year making it very difficult, and at times impossible, to fish and unload cargo, which they observed also contributed to their food insecurity.

Flooding of Kili and Ejit has also caused extensive damage to homes as described by Anderson Jibas. The video of the 2015 flooding on the KBE website (Official Website, 2022) shows flood waters covering three quarters of Kili to a depth of three to four feet (0.92m-1.2m), causing flooding of a number of houses. Both KBE Resolutions documents and the KBE website discuss how flooding and storm surges are also damaging Kili's infrastructure, such as the seawall that was built to protect Kili in the 1980s (KBE, 2015a and 2015b; Official Website, 2022). In talking about the impacts of these events on the community, Wilson Note observed that the community "had [been] affected physically, mentally, and socially". This quote suggests that the flooding is creating feelings of vulnerability, potentially building on existing perceptions of vulnerability developed as a result of displacement, as was outlined in Chapter 6.

This section analysed the data to suggest that Kili and Ejit are highly exposed to climate change induced flooding and inundation which is becoming more frequent and of greater magnitude because of sea level rise. Vulnerabilities generated by displacement contribute to the community's sensitivity to flooding. Flooding also creates new vulnerabilities through damage to housing and infrastructure.

The next section analyses the adaptative capacity of the Bikinians, the strategies they have developed in response to the effects of climate change and how displacement influences these strategies.

7.3 The adaptative capacity and resilience of a displaced community

This section explores themes in the data related to the adaptative capacity of the Bikinians and the resources and capabilities this displaced community has developed to respond to climate change and build resilience. The section analyses how displacement influences the Bikinians' adaptative capacity and resilience through exploring themes associated with food insecurity, economic marginalisation and perceptions of injustice and vulnerability.

7.3.1 Adapting to vulnerabilities related to food insecurity

Climate change exacerbates existing vulnerabilities related to food insecurity requiring the Bikinians to consider climate change in their strategies around food security. Chapter 6 had explored how displacement has led to the development of an ongoing reliance on imported food. In the sections above it has been outlined that over the last ten years climate change has exacerbated damage to crops and restricted access to fisheries. The lack of a safe anchorage and a suitable airport runway means landing supplies can be disrupted for long periods by adverse weather conditions, causing supplies to run low. All these factors combined are resulting in reduced food security on Kili.

Strategies the Bikinians have developed in response to vulnerabilities associated with food security need to address the effects of climate change. The Bikinians are trying to protect crops from sea level rise by building sea walls and planting crops above flood and salination levels. These strategies were discussed on the KBE website, the Mayors Statement to the US Senate and by the participants (US Senate, 2018; Official Website, 2022). While imported food potentially reduces the reliance on locally produced food, which can be readily affected by climate change, the Bikinians are also trying to ensure the supply lines that bring in imported food are secured against climate change. Anderson Jibas confirmed that an important adaptation strategy for the Bikinians was to seek support from the international community to find a means to unload ships safely in all conditions. The approach to obtain outside assistance links to the Bikinians' strategy of seeking international support as was discussed in Chapter 6. As was also outlined in Chapter 6, the Bikinians are not without economic resources, but addressing the costs of responding to climate change could quickly deplete financial resources, as discussed below.

7.3.2 Economic marginalisation in adaptation

The economic empowerment that the Bikinians obtained through control of their trust funds has assisted them in undertaking limited climate change adaptation. One of the arguments in support of their claim to these funds, explained in the documents, was that it would allow Bikinians to better respond to climate change (KBE, 2015a and 2015b; US Senate, 2018). Utilising these finances, the KBE have been able to renovate and rebuild houses damaged by flooding, provide drinking water when wells were contaminated through salination and provide financial support to families affected by floods (US Senate, 2018; Official Website, 2022). These funds also allowed the KBE to attempt to protect the community from flooding and coastal erosion by building coastal defences and ensuring houses are less prone to flooding (Official Website, 2022). The Bikini leadership has also been successful in obtaining external funding from the US to build sea walls on Ejit, according to Mayor Anderson Jibas. Obtaining external funding saved the community from drawing on its trust fund to pay for these works, again demonstrating the importance of the Bikinians strategy to seek international support.

However, despite these successes the Bikinians still consider themselves economically marginalised (Official Website, 2022). This sense of economic marginalisation is expressed by two of the participants and on the KBE website which states that the trust funds are limited, and when they were set up by the US it was never anticipated that they would need to be used to finance climate change adaptation (Official Website, 2022). As was mentioned in Chapter 6 the Bikinians were trying to develop additional income to address the limitations of these trust funds. This additional financial support will be important for providing adaptation if Kili and Ejit are to remain habitable for as long as possible. Maintaining the habitability of these islands is important as the KBE believe that many in the community are economically powerless to leave Kili under their own resources (KBE, 2015a and 2015b). This perception of economic marginalisation and the concerns around food security affect existing feelings of injustice discussed in the next section.

7.3.3 Feelings of injustice and deepened vulnerability

As a result of their displacement, the Bikinians have developed feelings of injustice and a deepened sense of vulnerability. The data suggests that these perceptions now include concerns and anxiety associated with climate change. Adaptation strategies, and in particular whether to adapt and stay on Kili and Ejit or migrate, are affected by these concerns. When Peterson Jibas and Anderson Jibas were

asked about the relationship between displacement and climate change, their responses were shaped around feelings of injustice not only at the perceived unfairness of their treatment by the US, but also at the difficult living conditions, which climate change is contributing to. As stated by Peterson Jibas:

> We've learnt to accept the fact we're facing climate change and after facing being nuclear nomads now we have to face this. Another ordeal!

Regarding the effect of climate change on these sentiments of vulnerability, councilperson Glann Lewis thought that:

> Kili and Ejit are some of the [most] vulnerable islands in the Marshall Islands because of climate change

He went on to say:

> We are bothered by the sounds we hear at night thinking about how long we have until the waves appear to take away or kill things we value.

These quotes demonstrates how perceptions of injustice, anxiety and uncertainty now include climate change. Three other interview participants expressed similar anxiety and uncertainty because Kili and Ejit Islands were perceived as small, which they believed increased their vulnerability to climate change. For example, when discussing climate change on Kili, Peterson Jibas considered Kili to be "small and very vulnerable". The KBE website in this context explained that when the tides are high, the community is trapped on Kili with no ability to retreat to higher ground, which the KBE believes puts their lives at risk (Official Website, 2022) further adding to the sense of vulnerability felt by the Bikinians.

These feelings of injustice and vulnerability influence, for some, thoughts around whether they should consider relocation as a form of climate change adaptation. When council member Glann Lewis was asked whether or not the Bikinians would stay on Kili and Ejit, his response was framed by feelings of unfairness, stating that, given:

> … the unjustified experiences we are facing, YES, I strongly agree that we should relocate.

This unjustified experience Glann Lewis referred to, included the hardships faced on Kili from both displacement and climate change. When asked the same question, the response from council member Wilson Note captured his sense of vulnerability and uncertainty stating:

> I don't really know where the people will move to, but l only know that living on Kili and Ejit is not safe and not productive for our people.

These quotes indicate how perceptions of injustice and vulnerability, first generated by displacement, are being exacerbated by climate change and which influence considerations around adaptation.

These results indicate that vulnerabilities generated by displacement can influence the adaptative capacity of the Bikinians and their overall resilience. The next section explores the influence displacement has on migration as an adaptation strategy for the Bikinians in more detail.

7.4 Strategies for return, migration and relocation

The section explores themes on migration, return and relocation as adaptation strategies for the Bikinians. This section looks at a potential return to Bikini Atoll, a continuation of existing migration trends and migration to Hilo in Hawai'i. The data suggests that despite the Bikinians' adaptation measures, climate change will make life increasingly difficult on Kili and Ejit. As a result, climate change will become a consideration in decisions to migrate for some Bikinians. For example, KBE Resolution 46 states that as a result of the "ongoing deterioration of conditions on Kili and Ejit" many Bikinians want to "move out of the Marshall Islands" to the US (KBE, 2015a, p. 2). However, despite the challenges, some consider Kili and Ejit to be their home and will want to remain. Peterson Jibas believed that "people don't want to go". He explained that migration would be a personal choice and said:

> I really think nobody wants to leave the country, that is going to be like the second devastation, or third, from the [nuclear] testing or the displacement of people of Bikini to get up and go and leave to a totally different country or culture or language.

When asked if he thought the community would stay on Kili and Ejit, Mayor Anderson Jibas similarly responded:

> I would say it is complicated because my family on Ejit love Ejit… people that live on Kili and grew up there, love the exile on the isolated island.

Alson Kelen added:

> People have said they will always go, some people will always stay in the Marshalls, some people will go, many don't know.

These quotes indicate that the decision to leave will be difficult and complicated for some who may have an attachment or connection to Kili or Ejit. However, as was mentioned in Chapter 6, many Bikinians have already left as a response to displacement. For some, migration is an opportunity to

access social and economic opportunities and to connect with existing Bikinian communities in the Marshall Islands and the US which will make migration easier. The data suggests there is an appreciation that migration may need to be considered as a climate change adaptation strategy. As stated by Peterson Jibas:

> We were forced out … to relocate, now we're pretty much being forced to get up and go because of climate change!

The Bikinian leadership are being proactive in planning for future relocation. As discussed further below, they have bought land in Hilo, Hawai'i as insurance against climate change and in 2015 the KBE tried to lobby the US authorities to support the relocation of the Bikinians to other locations within the Marshall Islands or US because of the hardships being faced on Kili and Ejit (KBE, 2015a and 2015b). In considering migration as a response to climate change, three themes were identified in the data: a return to Bikini; continuing with existing current migration trends from Kili to other locations within the Marshall Islands or to the US; and a new settlement in Hilo, Hawai'i.

7.4.1 A return to Bikini Atoll

From the outset of their displacement, the Bikinians have sought a return to Bikini Atoll (KBE, 2015a and 2015b; Official Website, 2022). After all, as discussed with Peterson Jibas, the only land that belongs to the Bikinians is Bikini Atoll itself. There would be several advantages associated with a return. As discussed above, Bikini Atoll may offer more protection against flooding and erosion when compared to Kili because, as Peterson Jibas stated, "Bikini [is] probably more protected, because the islands [are] surrounded by the reefs". The KBE website also refers to the protection of the encircling coral reefs against wave driven flooding on Bikini Atoll, stating:

> Bikini has an especially effective coral rim that encircles the lagoon making it an ideal location for settlement. It's therefore imperative that they [the Bikinians] be able to return home (Official Website, 2022).

Another advantage of relocation to Bikini Atoll relates to food security. Peterson Jibas suggested that while they would still be impacted by climate change on Bikini, they would "have enough resources – food and all the stuff you rely on". Similar thoughts were shared by Alson Kelen and Anderson Jibas who both commented that the community could live comfortably on Bikini Atoll as it had an abundance of resources, which reduces vulnerabilities associated with food insecurity as experienced on Kili in particular.

However, the radioactive contamination of the atoll means the ability to return to Bikini is severely restricted. Anderson Jibas contemplated that the reality is the Bikinians cannot return because of the contamination. The KBE website states that the US has "explicitly" said they will not provide the assistance necessary to remediate and resettle Bikini Atoll (Official Website, 2022). As explained by Peterson Jibas and Anderson Jibas, the US is still to honour its promise to return Bikini Atoll back to the Bikinians in its original condition. Three of the participants corroborated that radioactive contamination is keeping the community from returning and Peterson Jibas went on to state that the Bikinians would be happy to return home, but only when it has been remediated by the US.

7.4.2 Continuing current migration trends

The most likely scenario for any migration-based adaptation strategy would be the continuation of existing outward migration. The data confirms that one of the key impacts of displacement has been the scattering of the Bikini community throughout the Marshall Islands and the US (Committee on Resources, 1999; The US, 2006; KBE, 2015a and 2015b; Official Website, 2022). Two of the interview participants stated that large numbers of Bikinians have moved from Kili to live elsewhere in the Marshall Islands, especially in the capital Majuro, because of the availability of social and economic resources elsewhere.

Many Bikinians have also migrated to the US, particularly Hawai'i and Arkansas. Peterson Jibas explained that Bikinians have moved to the US as they and other Marshallese are allowed to live and work there under the Compact agreement between the US and the RMI Governments. The main reason for their migration as explained by Glann Lewis was "to find a better living". Alson Kelen and Wilson Note also talked of many of their family members moving for economic, medical and educational opportunities. They also spoke of the next generation growing up in the US and entering the school system, resulting in their becoming tied to the US. Because of the opportunities available in the US, emigration could tend to remain one way, contributing to the Bikinians' social and community disarticulation. Alson Kelen for example commented when asked if his family would ever come back:

> No, travelling is really expensive. We send their requirements from the RMI, but they will never return to Majuro, most have never been back for forty years.

And he continued:

> Many kids don't care about the RMI. They are now in America, and it's a totally different story.

It is possible that these social and cultural anchors in the US will result in others considering such a move if life on Kili and Ejit becomes increasingly difficult with the continuing effects of climate change. Having diaspora clusters in the US means there are social and cultural networks that can make settlement more successful by opening up social and economic opportunities for others. Further migration to the US may be facilitated by KBE purchasing land in Hawai'i, as explored below.

7.4.3 Relocation to Hilo

A third migration location identified in the data was Hilo, Hawai'i, which is facilitated by the KBE. As discussed by Peterson Jibas and Anderson Jibas, the KBE had purchased land in Hilo to offer the Bikinians somewhere to live as "insurance" against the effects of climate change and sea level rise. However, Alson Kelen expressed some concern at the purchase of land near Hilo as an adaptation strategy. When asked to share his thoughts on moving to Hilo, he said that such a move had been tried before and had not been successful as there had been conflict with the host communities. Alson Kelen stated that this conflict arose as the Hawaiians did not want other Micronesians on their traditional lands when they themselves were homeless and landless, warning that some of the current purchase may be on traditional land and could be subject to future legal issues. Alson Kelen also believed that the KBE needed to consider the suitability of Hilo as a settlement site. He stated that KBE had the money to buy the land, but not for the studies needed to make it liveable. He cautioned "we don't have the means to develop that land. [This is] like buying a large roll of material – but no means to make clothes". Hilo was bought with the intention of maintaining social and cultural cohesion by allowing the Bikinians to relocate with other members of their community. If it can be made a successful centre of Bikinian relocation it could contribute to helping maintain Bikini social and cultural networks.

This section has outlined that for many Bikinians, migration to the US in particular could become an adaptive response to climate change, which would continue a strategy already used in response to displacement.

7.5 Chapter conclusion

The research results presented in this chapter indicate that the Bikinians perceive their vulnerability to climate change as attributed to a continuation of the vulnerability caused by their displacement. This result provides a strong response to Research Question 1. For the Bikinians, the processes of displacement and vulnerability to climate change cannot be separated. Their forced relocation to Kili

with its low-lying profile and lack of protection from a surrounding fringing reef has meant the community is highly exposed to the effects of sea level rise. The Bikinians also consider that they would be less exposed to these effects if they had remained on Bikini Atoll.

Displacement has influenced the adaptative capacity of the Bikinians and their ability to address vulnerabilities associated with climate change, which has addressed Research Question 2. The Bikinians still have to address the impacts of their displacement and now more recent vulnerabilities associated with climate change. The Bikinians' economic empowerment has allowed their community to develop strategies in response to sea level rise. However, as the data suggests, life on Kili and Ejit remains difficult and these difficulties may increase despite adaptation strategies. As a result, climate change contributes to existing perceptions of injustice and vulnerability, and feelings of anxiety and concern regarding the community's future on Kili and Ejit. These feelings influence, for some, their thoughts around whether they should consider migration as a form of adaptation. Such considerations can be difficult for some who, despite their history of displacement, consider Kili and Ejit as their home and may not want to leave. For others, the difficulty of living on Kili and Ejit and the prospect of rising sea levels may mean the decision will be made to migrate. It is likely that many Bikinians will consider the US as a migration destination because of the social and economic opportunities that exist there and also because of the cultural and social anchors that are present in the already existing diaspora.

Chapter 8 Discussion and Conclusion

8.1 Introduction

This chapter provides the final discussion, highlighting key results and the conclusion of this thesis. The purpose of this chapter is to provide a response to the research questions and a review on how the findings align with the literature. First, the chapter will briefly recap this thesis outlining the reasons and rationale of the research aim and the approach. This chapter will then explain the key findings in relation to the research questions and the literature. Section 8.2 will respond to Research Question 1 explaining the influence displacement has on the climate change vulnerability of the Bikinians on Kili and Ejit. Following this, Section 8.3 responds to Research Question 2, explaining how the Bikinians have faced the challenges of displacement and climate change through strategies to adapt and build resilience. Section 8.4 then presents the final conclusion summarising the findings and significance for the Bikinians.

To recap, the aim of this research was to understand how displacement influences the climate change vulnerability of the Bikinian community and the effect displacement has on Bikinian adaptation and resilience. In Chapter 4 it was explained that sea level rise is considered to be a significant threat to Kili and Ejit and the World Bank (2021) and Masselink et al. (2020) reported that the Marshall Islands could be one of the first nations to experience sea level rise as a genuine existential threat. In exploring Bikinian vulnerability to this threat of climate change, there is a need to consider the underlying causes of their social vulnerability, which was an approach that was described widely in the literature by Barnett (2010), Kelman (2014), Oliver-Smith (2014), Ensor et al. (2015) Christoplos and McGinn (2016), Suliman et al. (2019), Bordner et al. (2020), and Eriksen et al. (2021). For the Bikinians, their pre-existing social conditions are shaped by their long experience of displacement as was discussed in Chapter 3 and 6. This research has found that the Bikinians have developed ways to address some of the vulnerabilities they face and with climate change exacerbating existing vulnerabilities, the Bikinians have needed to consider climate change in these strategies. Additionally, the feelings of injustice and vulnerability that have been generated by displacement now also include concerns and anxiety associated with climate change which influences considerations around adaptation and whether to adapt and stay on Kili and Ejit or to migrate. The next two subsections provide responses to the two research questions by discussing the research results in light of the literature review.

8.2 How displacement has influenced the Bikinians' climate change vulnerability

This section provides answers to Research Question 1: How is displacement contributing to the Bikini community's vulnerability to climate change? This question is responded to by comparing the findings of the research data against the literature. This section starts with a general analysis of how displacement intensifies climate change vulnerabilities, then focuses on key themes that include the right to food and the growth of the Bikinians' marginalisation and perceptions of injustice as examples of how displacement influences climate change vulnerability.

8.2.1 Displacement intensifies vulnerabilities associated with climate change

The analysis of the research results has indicated that the Bikinians' vulnerability to climate change cannot be uncoupled from their experience of displacement. As explained in Chapter 7, the Bikinian leadership demonstrated a direct relationship between their displacement and climate change vulnerability. The KBE website and three of the participants explained because of their displacement the community had been placed on Kili and Ejit Islands, which are more exposed to sea level rise and flooding than compared to their home on Bikini Atoll (Official Website, 2022). In the view of Rudiak-Gould (2013, p.15) the vulnerabilities the Bikinians face started long before climate change with their displacement, and climate change was just the latest devastating encounter experienced at the hands of western and colonising influences.

A key impact of displacement, stated by three of the interview participants, and the documents analysed in Chapter 6, was the disruption to Bikinian culture and society, which was tied to their traditional home (Committee on Resources, 1999; NCT, 2001; The US, 2006; Official Website, 2022). This social and cultural disruption was one of the causes of the social disarticulation suffered by the community as highlighted by the interview participants and the data (Official Website, 2022; NCT, 2001). The literature also reported that displacement led to social disarticulation and disruption to Bikinian society and culture, as explained by Kiste (1977), Connell (2012) and Keown (2017). The research found that as living conditions on Kili and Ejit get more difficult with the effects of climate change, further migration and greater social disarticulation is possible in the future. Alson Kelen and Peterson Jibas, as was explained in Chapter 7, thought that climate change would result in the community leaving Kili and Ejit and were worried this would lead to additional cultural loss. Concerns from the Bikinians about climate change further disrupting their society and culture align with literature, as outlined in Chapter 3, from the World Bank (2021) who concluded that climate change induced migration in Oceania would mean a disruption to people's culture through the collective loss

of their way of life and community. Bordner (2019) and Clement et al. (2021) agreed and thought climate migration would cause the loss of identity, sovereignty, livelihoods, social connections and would result in cultural loss.

The research by Kumari Rigaud et al. (2018), Bordner (2019), and Scott and Salamanca, (2021a), determined that pre-existing vulnerabilities shape the extent to which climate change affects people (see Chapter 4). In keeping with this argument, it was suggested by Bordner et al. (2020) that the Bikinians have suffered rights violations from displacement, which result in significant social and economic vulnerabilities that contribute to their vulnerability to climate change and further rights limitations. The data of my research showed that many of the interview participants lamented the loss of Bikinian culture and social capital, the subsequent loss of self-sufficiency and resilience, and the hardships that resulted. It is this social and cultural capital that Oceania communities, like the Bikinians, have relied on in the past to adapt to changing environmental conditions, the loss of which could affect their ability to build resilience. The data aligns with the literature that suggests this social disarticulation has a negative impact on social capital and community resilience (Norris et al., 2008; Aldrich and Meyer, 2014). Further, the literature by Donner (2015), Connell (2015), Kelman (2018), Corendea and Mani (2018) and Clement et al. (2021) state that the loss of cultural connections to land and social connections to other communities within Oceania, which communities have traditionally relied on to improve their resilience, have been lost to the Bikinians, increasing their vulnerability.

8.2.2 Vulnerabilities related to the right to food

Food insecurity, despite the right to food, provided a strong example of vulnerability generated by displacement influencing the Bikinians' vulnerability to climate change. The data showed that for the Bikinians, as a result of their displacement, rights breaches to access food and food insecurity have been ongoing concerns. In the view of Cernea (2004), food insecurity is a key risk of displacement (see Chapter 3). Chambers (1971) and Kiste (1977) had also reported that the Bikinians have suffered severe food shortages during their relocation to Rongerik and on Kili, and my research data has confirmed that food shortages are still an issue. For example, Anderson Jibas and Wilson Note had mentioned that the Bikinians have not been able to practice their traditional livelihoods on Rongerik, Kili or Ejit, leading to food shortages and episodes of starvation. These observations were outlined in the literature by Chambers (1971), Weisgall (1980), Sutoris (2011), Niedenthal (2013), and Tabucanon (2014), who explained that relocation meant the Bikinians were unable to re-establish their traditional marine based subsistence patterns. The food shortages and starvation experienced by the Bikinians are referred to in the data as being particularly devastating to the community, contributing to their

perceptions of vulnerability (Committee on Resources, 1999; NCT, 2001; The US, 2006; KBE, 2015a and 2015b; Official Website, 2022). Mason (1950), Chambers (1971) and Kiste (1977) had fairly early on already noted that relocation had a significant impact on the Bikinians.

Additionally, Alson Kelen, Glann Lewis and the KBE Resolution stated that Kili and Ejit's small size and lack of resources meant the community is unable to support their needs (KBE, 2015b). As a result of food shortage, the Bikinians have developed and maintained a long-term reliance on food aid as was discussed by participants and documents (Committee on Resources, 1999; NCT, 2001; Official Website, 2022). The literature by Chambers (1971), Kiste (1977) and Rudiak-Gould (2013) also argued that Kili and Ejit Islands were small and did not have the resources to support a community of any size and they state that this was why both islands were uninhabited before the Bikinians arrived (Chapter 3).

The data indicated climate change as contributing to vulnerabilities around food. Flooding, storms and adverse sea conditions exacerbated by climate change damage crops and restrict access to fisheries, reinforcing a reliance on imported food (KBE, 2015a and 2015b). The literature also suggested that climate change is adding to vulnerabilities related to food, aligning with the findings of the research data. The Bikinians' experiences are reflected in the literature by the RMI (2011), Rudiak-Gould (2013), van der Geest et al. (2019) and the World Bank (2021), which believed that climate change will reduce food security within the Marshall Islands. However, while the Bikinians do not rely heavily on locally produced food, which can be readily impacted by climate change, climate change is exacerbating disruptions to food supplies leading to food shortages particularly on Kili as was mentioned by three of the interview participants and on the KBE website (Official Website, 2022). In terms of food shortages, Ford (2013) outlined that the availability of imported food meant flooding and damage to crops was not a critical food security issue on Kili. The observation in the data that Kili is susceptible to disrupted food supplies corresponds to the work by Rudiak-Gould, (2013) who stated that the poor anchorage on Kili restricts the landing of supplies by boat leading to concerns about food insecurity. Food vulnerability was found not to be a significant issue for the community on Ejit because of the close proximity of Majuro and the availability of food and resources there, as indicated by Mayor Anderson Jibas and Senator Peterson Jibas.

8.2.3 Growth of perceptions of injustice

For the Bikinians, the data indicated that feelings of injustice first generated by their displacement continue and deepen with the effects of climate change and influence other vulnerabilities such as those associated with social disarticulation. Peterson Jibas and the NCT Decision (see Chapter 6) stated

that the Bikinians did not want to leave their homeland, and the inability to influence their forced relocation and return home has resulted in the Bikinians developing feelings of injustice (NCT, 2001). The findings of the data fit with the literature as Cernea (2004) suggests that one of the key impacts of displacement is marginalisation and the development of feelings of injustice and deepening vulnerability (see Chapter 3). As also explained by Kiste (1977) and Niedenthal (2013) the Bikinians had no desire to leave Bikini Atoll and did so in the belief that relocation would only be temporary.

Mayor Anderson Jibas, Glann Lewis and Peterson Jibas stated that despite wanting to return to Bikini Atoll the Bikinians have not been able to because of radioactive contamination. The research data showed that the Bikinians perceived their continued displacement as being unjust and the data discussed the unfairness of their treatment and the broken promises made by the US. The injustice of the Bikinians displacement was outlined in the Report of the Special Rapporteur (2012), Bordner et al. (2016), Tabucanon (2014) and Marcoux (2021), who discussed the inability of the Bikinians to return to their atoll, which this literature states violates their right of return and the use of customary land. The literature analysed in Chapter 3 also highlighted that as a result of their displacement, the Bikinians felt they had been done a great injustice at the hands of the US (Kiste, 1977 and 1985; Sutoris, 2011).

The data also aligns with the literature on the potential loss of Kili and Ejit to sea level rise. The data suggests that climate change is making life difficult and many Bikinian contemplate the loss of Kili and Ejit and the need for relocation. As was explained in Chapter 7, forcing the community to consider relocation influences the Bikinian feelings of injustice as was discussed by KBE council members Peterson Jibas, Wilson Note and Glann Lewis and set out in the KBE resolutions (KBE, 2015a and 2015b). In the view of Storlazzi et al. (2018), Stege (2018) and Smith and Juria (2019) (see Chapter 4), because of sea level rise, many islands in the Marshall Islands, including Kili and Ejit, may become uninhabitable by the end of this century. This is why Masselink et al. (2020, p. 5) suggested that sea level rise is amongst the greatest threats to the continued existence of sovereignty for states such as the Marshall Islands. In the data, Peterson Jibas considered any climate change induced migrations would amount to another devastating forced relocation, which would mean a violation of their right to self-determination and denying the Bikinians' autonomy over their future. For the Bikinians, leaving the Marshall Islands would also affect the limited governance they enjoy through the KBE Local Government Council. It is not surprising then that the interview participants and the KBE website spoke of the feeling of injustice and unfairness when contemplating climate change induced relocation while they are still suffering from the impacts of their original displacement (Official Website, 2022). As outlined in Chapter 4, the literature from Bordner (2019) contained quotes from Marshallese and Bikinians discussing the unfairness of forced relocation from climate change, mirroring the data.

Additionally, the World Bank (2021), Bordner (2019), and Clement et al. (2021) also discussed the loss of culture, social connections and livelihoods that would result from climate change induced migration. The findings of the research added to the literature by describing the depth of feeling around Bikinians' perception of injustice at their displacement and potential further relocation from climate change.

By comparing the results of the research with the literature, it can be concluded that displacement is intensifying Bikinian vulnerabilities associated with climate change. Key examples that were identified were the loss of culture, food insecurity and perceptions of injustice. These vulnerabilities of displacement not only contribute to vulnerabilities associated with climate change but are also exacerbated by climate change. The next section looks at the ways the Bikinians have faced these challenges.

8.3 How the Bikinians have faced the challenges of displacement and climate change

This section provides answers to Research Question 2: How does the Bikini community face challenges and build on opportunities? This section outlines how the Bikinians have responded to the vulnerabilities generated by displacement and climate change through adapting and building resilience. This section discusses the role of self-determination in the Bikinians' adaptation. The importance of the Bikinians' economic empowerment is also discussed as well as the need for economic diversification. Lastly, this section discusses migration as a response to the Bikinians' displacement and climate change.

8.3.1 The role of self-determination in adapting and building resilience

This subsection discusses the importance of self-determination in the Bikinians' adaptation. For the Bikinians, the data identified that seeking justice for their long-standing displacement is a key strategy in adapting to displacement and climate change and their self-determination has been important in these strategies. A significant victory in the Bikinians' fight for justice, as discussed by Anderson Jibas and Peterson Jibas, has been obtaining full control of compensation trust funds allowing some economic empowerment. As outlined in the data, fulfilling the right to self-determination was important in the Bikinians desire to gain control of these funds, as was described by Anderson Jibas and outlined on the KBE website, so they could determine how best to allocate financial resources within the community (Official Website, 2022). The results of the research data aligns closely with the literature in Chapter 4, as Bordner (2019) and Bordner et al. (2020) suggested that, for adaptation to

be successful, self-determination is important as communities must have the ability to make choices. There was also widespread support in the literature on the importance of placing rights, such as the right to self-determination, at the forefront of adaptation strategies as justification for action from duty bearers (Uvin, 2007; Gromilova, 2014; Ensor et al., 2015; Lewis and Maguire, 2016; van der Ploeg and Vanclay, 2017; and Scott and Salamanca, 2020). This approach was one of the reasons for the Bikinian success in gaining access to their trust funds discussed in the data (see Chapter 6), because of their ability to define themselves as a victimised people and the need for action from the US, which assisted in in their negotiations with the US as was highlighted by Kiste (1977 and 1985) and Niedenthal (1997 and 2013).

In the data, the KBE website and interview participants also indicated that self-determination is imperative for Bikinian strategies around migration to escape the difficulties on Kili and Ejit and accessing social and economic opportunities (Official Website, 2022). However, as outlined in Chapter 7, Peterson Jibas and Alson Kelen believed that not everyone will want to migrate, confirming the importance of self-determination for people in making their own decisions around how they adapt. The importance of self-determination in making decisions on future adaptation, whether it be adapting in place or migrating mirrors the literature by Bordner (2019) and Bordner et al. (2020). This literature stated that as a result of their displacement, some Bikinians would be determined to stay on Kili and Ejit while others would want to leave. As discussed by Kane and Fletcher (2020) and Bordner et al. (2020) migration as a response to climate change may not always be inevitable as long as the community can fulfil their right to self-determination and have ownership of their adaptation strategies. The ability to remain in place is also linked to the Bikinians' economic empowerment, which is discussed below.

8.3.2 Economic empowerment and economic diversification

This section will discuss the Bikinian strategies for economic empowerment. The data has highlighted that the Bikinians' obtained economic empowerment when they lobbied for and received unrestricted access to their compensation trust funds, as was established in Chapters 3 and 6. The research showed that for the Bikinians access to their trust funds was an important step in being able to address vulnerabilities associated with displacement and more recently, climate change (Official Website, 2022). It was shown in Chapter 3 that the Bikinians negotiated compensation payments from the US worth millions of US dollars and later gained complete control of their trust fund (Kiste, 1977; Niedenthal, 1997 and 2013). The importance of having available economic resources for adaptation was an issue explored in the literature review (see Chapter 4). Bordner (2019) and Bordner et al. (2020)

for example, considered having access to financial resources important in adaptation because it allows communities to implement adaptation that reflects their priorities. Cinner et al. (2018) also stated that adaptive capacity increases for people and communities when they have access to resources and assets to draw on when needed.

However, despite access to these funds the Bikinians still consider themselves economically marginalised (Official Website, 2022). Two of the participants and the KBE website expressed the belief that the funds available are limited and it was never anticipated they would need to be used to finance climate change adaptation (Official Website, 2022). While they have been able to fund some adaptation, as was explained by Peterson Jibas, the financial limitations of these funds are demonstrated by the Bikinians' attempt to address their right to food. Securing reliable food supply requires significant economic investment in order to develop the runway and build docking facilities, as was stated by Anderson Jibas. The data aligns with the literature on the limitations of the Bikinians' funds. The IPCC (2014), Bronen (2018), and Kumari Rigaud et al. (2018) warn that climate change will strain the fiscal capacity of many governments and communities, while Bordner et al. (2020) suggested the Marshall Islands lacked the necessary resources to implement the adaptation required to address their climate change risks. Hau'ofa (1993), Weir et al. (2017), Bordner (2019) and Bordner et al. (2020) also noted this issue and thought that post-colonial systems in the Marshall Islands have left communities like the Bikinians dependent on external financial and technical support. Anderson Jibas acknowledged, as was outlined in Chapter 7, that the Bikinians cannot afford the port and runway adaptation measures on their own and must rely on outside support. Rudiak-Gould (2013) and Bordner et al. (2020) warn that dependency on outside support can perpetuate subordination and entrench dependency that can generate additional vulnerability through the implementation of measures that do not always address the needs of the community.

Meeting the costs of adaptation and reducing dependency on outsiders makes Bikinian strategies around generating revenue increasingly important. The research discussed in Chapter 6 and 7 showed Bikinian plans to utilise some of the land purchased near Hilo for economic activity and the promotion of tourism centred on Bikini Atoll. These plans will be an important means of not only reducing reliance on their trust funds but also bolstering economic resources for adaptation as discussed by two of the participants and in the KBE documentation (US Senate, 2018; Official Website, 2022). The importance of economic resources for any future Bikinian relocation to Hilo was highlighted by the Banaban relocation to Rabi Island in Fiji, explored in Chapter 3. Discussing the Banabans' relocation, Connell and Lutkehaus (2017) considered the availability of financial support eased the burden of resettlement and promoted more positive outcomes for the community. Migration as a strategy of the Bikinians is discussed below.

8.3.3 Migration in response to displacement and climate change

This section looks at the role of migration as a response to the impacts of displacement and climate change. For the Bikinians' the data showed that migration from Kili to Ejit to other places within the Marshall Islands and the US has long been a response to their displacement. The interview participants and the KBE website explained that the majority of Bikinians live outside Kili and Ejit, with around half having migrated to the US in search of social and economic opportunities (Official Website, 2022). These findings are substantiated in the work by Gill et al. (2011) which suggests that displacement may not be a one-off event and that a range of different mobilities may be enacted, including further migration (Chapter 3). Connell (2012), Tabucanon (2014) and Keown (2017) have discussed the large numbers of Bikinians that have migrated from Kili and Ejit and dispersed throughout the Marshall Islands and the US to escape the impacts of displacement and to pursue social and economic opportunities as part of personal adaptation strategies. The dispersal of the Bikinians also reflects migration of other communities in Oceania with Clement et al. (2021) and Farbotko et al. (2018), as was discussed in Chapter 3, suggesting many communities have large proportions of their population living and working abroad. This is because migration can be a positive adaptation strategy for many in Oceania as discussed by Kumari Rigaud et al. (2018), Bordner (2019), and Clement et al. (2021), which aligns with the data on the use of this strategy by the Bikinians. Migration was also discussed in the data as a climate change adaptation strategy as outlined below.

It was explained by some of the interview participants (see Chapter 7) that migration from Kili and Ejit may become a response to climate change. This view was shared by the KBE leadership as evident in the 2015 KBE Resolution which stated that as a result of the deterioration in living conditions on Kili and Ejit many Bikinians want to migrate, especially to the US (KBE, 2015a, p. 2). It was the view of Rudiak-Gould (2013) and Bordner et al. (2020) (see Chapter 3) that more people in Oceania would choose to migrate as life becomes difficult with climate change. Suliman et al. (2019) suggested however, that migration as a response to climate change is often rejected by Oceanic people reflecting the tension between not wanting to leave their homes and the need to escape the effects of climate change. The data aligns with the literature on this tension, with Peterson Jibas warning that being forced to relocate because of climate change could be another disaster for the community. The literature shared the concerns of Peterson Jibas on the potential negative impacts of migration if it is forced, with Naser (2013), Gromilova (2014), and McDermott and Gibbon (2017) explaining that forced relocation is a clear violation of human rights. However, these authors acknowledged that

forced relocation may be needed in exceptional circumstances, such as a response to climate change in order to protect the right to life.

Perhaps partly in response to these concerns, the discussion by the interview participants stated that KBE has plans to facilitate a more structured community migration to Hilo where KBE has purchased land for this purpose. In avoiding another community devastation as described by Peterson Jibas above, it is interesting to consider the Bikinians' plans to relocate to Hilo with the literature which contained case studies on relocation that had generated positive results as well as displacement. The planned relocation of the Vunidogoloa village in Fiji as discussed by Tabe (2019) and Tabucanon (2014) highlighted the importance of the community being able to direct relocation to achieve positive outcomes. Whereas the case study of the I-Kiribati and their relocation to the Solomon Islands as discussed by Donner (2015) and Tabe (2019) showed how failure to include the community in resettlement can lead to displacement. These examples provide important considerations for the Bikinians and show the need to empower their community to direct any relocation to meet their requirements.

The data also indicated that maintaining cultural connections in migration was important for the Bikinians with Anderson Jibas pointing out the centres of Bikini diaspora that have developed in the US. Peterson Jibas and Alson Kelen discussed that migration to the US has been facilitated by certain rights accorded to the Marshallese to live and work in the US. According to the interview participants, these rights are expected to become increasingly important for the Bikinians if climate change worsens living conditions on Kili and Ejit. The literature proposes that gradual migration, which the Bikinians are undertaking to the US, can reduce the social and cultural impacts of migration and can form a successful adaptation strategy especially when the diaspora helps migrants establish social and cultural connections and find economic opportunities (van der Geest, 2020; The World Bank, 2021). As described by Anderson Jibas, it is likely that the Bikinians are already connecting to their diaspora centred in Majuro, Hilo and Arkansas. The connection to this dispersed diaspora could provide a positive network for the Bikinians, similar to the concept of the "sea of islands" discussed in the literature (see Chapter 3) developed by Hau'ofa (1993, p. 152) and Farbotko et al. (2018, p. 396) that were traditionally established in Oceania to build and improve resilience to change by utilising social connections.

It can be concluded that the Bikini community have developed several strategies in response to the challenges they face. However, significant vulnerabilities will remain on Kili and Ejit. Addressing these challenges, in particular flooding and food security, will require support from outside the community. It is also likely over time these vulnerabilities will make living on Kili and Ejit increasingly difficult and

many may consider utilising strategies related to migration. By connecting with existing diaspora in the Marshall Islands and US, or carefully planning relocation to Hilo with the community directing relocation to meet their needs, may mean the cultural and social impacts from migration can be avoided.

8.4 Conclusion

The aim of this research was to understand how displacement influences the climate change vulnerability of the Bikinian community on Kili and Ejit and the effect it has on Bikinian adaptation strategies. Analysing the data and literature has shown that displacement intensifies vulnerabilities associated with climate change and the Bikinians feel that displacement has left them more exposed to climate change than if they had been left on, or were able to return to, Bikini Atoll. This thesis has focused on several key examples that have demonstrated the relationship between displacement and climate change vulnerability. An important example has been the difficulties faced by the community in developing resilience around food security, which is now being exacerbated by climate change. Climate change is also contributing to feelings of injustice connected to the perception of deepening vulnerability, first experienced by the Bikinians as a result of their displacement and now exacerbated, as climate change makes living on Kili and Ejit increasingly difficult.

The data also showed that the strategies developed by the Bikinians to address the effects of displacement must include responses to climate change. In the development of these strategies, this study has identified the importance of Bikinian self-determination. A significant strategy for the Bikinians has been winning control over their compensation funds allowing them to address some of the effects of displacement and climate change. This strategy also highlights the importance of being free to choose how they use these funds. However, the implications of climate change are considerable and the Bikinians may struggle to adapt and build resilience on Kili and Ejit with the resources available to them. It is perhaps not surprising then that Bikinians feel that these funds may not be sufficient to provide for their adaptation on Kili and Ejit. A lack of adaptative capacity will influence the ability of the Bikinians to ensure rights are protected and may require significant investment from external sources to build the resilience needed. For this reason, migration may become increasingly important for many Bikinians and connecting with diaspora could provide a means to avoid generating impacts associated with displacement.

I have aimed for this study to be beneficial to the Bikinians, and so I end this thesis with recommendations based on the research findings which are intended to inform Bikinian considerations on adaptation and resilience strategies. These recommendations are:

Firstly, vulnerabilities associated with food insecurity need to be addressed. It will be important for the Bikinians to find ways to develop safe portage and make the runway more resilient to climate change. Such investment would help maintain food security assisting the community to remain on Kili and Ejit. Other options to increase food self-sufficiency will only provide a limited contribution to food security. If food security cannot be safeguarded, vulnerabilities associated with food insecurity will increase and will further contribute to the community's vulnerability.

A second recommendation relates to the need to support the Bikinians' right to work and develop livelihoods through education. The Bikinians' strategy to provide and support education is important for the community to address vulnerabilities at a personal and community level. Education and training will provide the means for the community to promote Bikinian interests as discussed by the leadership and will assist the community to develop their own adaptation responses and resilience as their skills and knowledge increase. It will also increase their ability to pursue livelihoods if they migrate.

It is recommended that the Bikinians continue to fight for their right of return. They have used their image of a victimised people to great effect to obtain compensation from the US while they wait for their right of return to be fulfilled. If the US continues to refuse to remediate Bikini Atoll, they may consider further compensation as an alternative. Additional financial resources would be a valuable contribution to the Bikinians' ability to adapt and build resilience.

Lastly, I would recommend that the Bikinians promote their rights to culture, freedom of movement and the right to live and work in the US to facilitate successful migration and avoid further displacement. Supporting and promoting cultural anchors in migration locations will make migration easier as it will help maintain cultural connections and help members of their community establish themselves in these locations.

In conclusion, their long-term displacement has been devastating for the Bikini community. Climate change could result in social and cultural devastation in addition to the hardship the Bikinians are experiencing. While the Bikinians have developed some strategies to address the vulnerabilities they face, they will need support to deal with the considerable impacts from climate change. It is surely time for the US to take up their responsibilities regarding this displaced community and to assist in the Bikinians adaptation to climate change.

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