HOW CAN DEEP-CULTURAL PATTERNS AID IN RESETTLEMENT? A CASE STUDY OF THREE MARSHALLESE COMMUNITIES

James P. Miller[1]
[1]University of Oregon, Eugene, Oregon

ABSTRACT: The projected impact of global climate change on community resilience places a significant proportion of the world's population in a precarious position. The increase in storm surges and sea inundation events create a poor outlook for small island nations in the South Pacific, decreasing habitability. Forced displacement and relocation is a likely future that many communities face in Small Island developing states, such as the Republic of the Marshall Islands. The impending landlessness faced by the Republic of the Marshall Islands calls to question the viability of the Marshallese culture and whether or not it can survive resettlement within another nation. As a freely associated state of the United States, there is a high probability that resettlement will follow the current chain migration of Marshallese into the United States.

This paper addresses the complexity of resettlement programs with cultural resilience in mind as we approach the design, development and planning of climate resettlement schemes. The study analyzes the cultural patterns imbued in the dialectic between culture and the built-environment of the Marshall Islands by employing a multi-sited ethnography across three communities in the Marshall Islands. Primarily qualitative analysis is employed to uncover deep-time cultural patterns that persist across time and space. These methods hope to develop a deeper understanding of cultural resilience in relation to the built environment in the Marshall Islands within a complex systems approach.

The goal of the research is to not only develop a language for building cultural resilience in resettlement programs, but also expand the development discourse to consider the agency of the built-environment in providing for more inclusive environments and the need for transformative action to be truly inclusive. Based on the positive attributes of deep-cultural patterns, they demonstrate a phenomenon that must be considered in any development project.

KEYWORDS: deep-culture, resilience, climate change, resettlement

INTRODUCTION

The projected impact of global climate change on community resilience places a significant proportion of the world's population in a precarious position; as sea level rise and sea surface temperatures change, there will be an increase of tropical storm frequency and intensity, which will significantly affect the ability of coastal zones to protect themselves from storm surges (Dasgupta et al. 2009). The increase in storm surges and sea inundation exacerbated by existing anthropocene environmental degradation create a poor outlook for small island nations in the South Pacific, decreasing habitability (Church, White, and Hunter 2006; Lilleør and Van den Broeck 2011; McGranahan, Balk, and Anderson 2007; Nunn and Mimura 1997; Pelling and Uitto 2001). Climate change is creating a particular urgency for small island populations to find solutions for mitigating vulnerability and build community resilience. The projected sea level rise over the next century, which ranges from a 0.5 to 2 meters (National Research Council (U.S.) 2010) will leave atoll nations – with peak elevations of 3-6 meters - almost entirely inundated by seawater (Spennemann 2006; Webb and Kench 2010). Forced displacement and relocation is a likely future that many communities face in Small Island developing states, such as the Republic of the Marshall Islands. The estimated sea level rise will inundate nearly the entire nation within the next century. The impending landlessness faced by the Republic of the Marshall Islands calls to question the viability of the Marshallese culture and whether or not it can survive resettlement within another nation.[1] As a freely associated state of the United States, there is a high probability that resettlement will follow the current chain migration of Marshallese into the United States.

The mass displacement of populations caused by global climate change is one of the most pressing issues we will likely face in our lifetimes. When a community's identity is rooted in a place, how does its culture survive environmental forced migration? This study seeks to uncover the continuity of culture in the built environment of the Marshall Islands and investigate the cultural patterns that continue to manifest themselves. By focusing on the vernacular habitat of the Marshall Islands I hope to demonstrate that these patterns are necessary in order to enhance both cultural continuity and cultural capital in resettlement programs in order to mitigate cultural degradation.

A common problem with resettlement programs is the tendency to overlook the complexity of the system, disregarding

the inherent place-based, social and cultural issues (Oliver-Smith and de Sherbinin 2014; Scott 1998). In order to properly approach resettlement, a process-based perspective needs to be implemented. By not sustaining cultural values that provide people with a sense of identity or investing in the enhancement of both tangible and intangible cultural capital, cultural systems may break down and lead to loss of welfare and economic output (Throsby 2014). In considering cultural resilience as an approach to sustainability, change is inherent as an adaptive strategy to disturbances; therefore, culture change does not necessarily mean the loss of culture, but "a creative space where new forms of cultural understanding (and practice) are developed in the dynamism that exists in cross-cultural engagement"(Wesson 2013, 108). Investing in efforts to maintain cultural patterns to reduce the stresses on the health, well-being, and security of the displaced populations will provide a mechanism for mitigating further vulnerability to more unpredictable events in the post-resettlement system. Since these mechanisms are culturally embedded, a sustainable approach must invest in whatever possible models contribute to the mitigation of any possible vulnerability to cultural patterns (Maffi 2007, 274).

This study develops insight into the implications of vernacular architecture within the discourse of climate displacement and resettlement planning and views the vernacular as a medium for analyzing cultural resilience. It is not to assume a desire for or maintenance of "traditional" architecture, but the evolution of the vernacular architecture that continues to support the inhabitants' way of life. These concepts are an ever-changing and adaptive set of ideas that shape how the Marshallese engage with their built environment. The understanding of culturally supportive principles within the housing design of Marshallese will be essential for both developing more sustainable communities today as well as developing resettlement plans. The study takes a theoretical position that the persistence of a cultural pattern's relationship within the built environment demonstrates both the resilience of the pattern and a high value in cultural capital. Deriving from Jacka (2015), it questions how social transformation over time has limited or expanded the resilience of these patterns manifest in habitation. Through a study of the complex relationship between culture and the built environment of the Marshallese, I hope to expand the theoretical discourse on vernacular architecture and cultural resilience. My central hypothesis is that deep cultural patterns are embedded within the built environment, demonstrating a specific dialectical relationship between people and architecture. This research will bring a needed cultural perspective to critical social issues in sustainable architecture. The dissertation will also present design and planning principles for creating cultural resilience in forced displacement and resettlement projects.

1.0 HUMAN RESETTLEMENT

Resettlement should be seen as a development project, and therefore sustainability is a necessity in its approach (Oliver-Smith 2010). As scholars of resettlement programs have demonstrated, lessons advanced on development forced displacement and resettlement offer a vital perspective into understanding resettlement programs across all three forms of resettlement (Oliver-Smith 2009). Using varied definitions of "success" we may be able to reach an understanding on the role of sustainability in resettlement programs and how cultural supportive mechanisms might be seen as a necessity for sustainable solutions. In order to apply the model of cultural sustainability developed above to resettlement programs, it will be helpful to provide a brief overview of current resettlement models.
The breadth of literature on displacement and resettlement is quite vast – especially with the rapid increase in forced displacement and resettlement, but the three most salient models are 'impoverishment risks and reconstruction,' 'involuntary resettlement and sustainable livelihoods,' and 'inherent complexity'. These models were developed by Michael Cernea (1998), Christopher McDowell (2002), and Chris De Wet (2006), respectively, and are commonly used to evaluate resettlement programs. Additionally, the work of Anthony Oliver-Smith has been invaluable in understanding post-disaster resettlement and implications inherent within the built-environment, such as quality of design, spatial organization, and appropriate housing (Oliver-Smith 1990).

1.1 Impoverishment risks and reconstruction (IRR)

Michael Cernea's model has been widely accepted and used as a strategy in development forced displacement and resettlement (DFDR). He outlines eight risks to which people are subjected by displacement: landlessness, joblessness, homelessness, marginalization, social disarticulation, food insecurity, increased morbidity, and loss of access to common property resources (Cernea 1998). These risks represent the inherent vulnerability within the resettlement process, and the failure of a resettlement program to provide for vulnerability mitigation based on these elements will inhibit resilience and lead to loss of welfare during a second calamity (the first being the displacement) (M. M. Cernea and McDowell 2000; Oliver-Smith and de Sherbinin 2014).

1.2 Involuntary resettlement and sustainable livelihoods

McDowell (2002) combined Cernea's IRR approach with Sustainable Livelihoods[2] research in order to develop this methodological framework for research on resettlement. McDowell's approach is mostly concerned with the socio-cultural component inherent in community disarticulation. "The unraveling of spatially and culturally based patterns of self-organization, social interaction, and reciprocity represents loss of valuable social capital that compounds the loss of both natural and human-made capital" (McDowell 2002). Anthony Giddens' work on agency and the way behavior shapes the world provided important insights for McDowell. The complexity of these power relations made it clear that

an equilibrium stasis was unachievable in the forces that fundamentally shaped the people-environment relationship of displaced peoples. Implementing a transformative[3] process, McDowell's methodology seeks to understand the impacts of identified risks on livelihood, understand adaptation processes, understand institutional processes in re-settlers' adaptation strategies, and focus on sustainable outcomes.

1.3 Inherent complexity

De Wet (2006) proposes an "inherent complexity" approach to development forced displacement and argues that:

> there is a complexity in resettlement, which arises from the interrelatedness of a range of factors of different orders: cultural, social, environmental, economic, institutional and political – all of which are taking place in the context of imposed space change and of local-level responses and initiatives (p. 190).

This takes place simultaneously with pre-resettlement processes and post-resettlement processes. De Wet argues that the inherent complexity within resettlement programs requires open-ended, participatory processes rather than the predominantly economic and bureaucratic perspective. To overlook complexity undermines the success of resettlement program, negatively impacting the health, wellness, and security of the displaced population.

From these models, it is evident that establishing 'success' requires understanding the inherent complexities within a resettlement program and building resilience into the displaced population. Planning for complexity improves the chances for sustainable outcomes. As key components of the complex system, culture and its supporting elements are integral to resettlement planning and cannot be overlooked. Interlocking Wesson's concerns with those of De Wet would require building an understanding of the cultural dynamics within a displaced population prior to resettlement planning, especially if that population had already faced displacement. These models are critiqued for being overly general and for focusing on narrow elements of the resettlement experience, which are mostly economic (Muggah 2000). In regards to the dynamics of a system constantly in flux, it is important to realize that even a successful resettlement program cannot return economic, environmental, social, or cultural norms back to their pre-resettlement state. Downing and Garcia-Downing (2009) argue that it is highly improbably that the everyday cultural patterns of a pre-displacement population may ever be recovered, let alone restored. The standard operational approach is not effective in dealing with an evolutionary process in which the interaction between social, cultural, economic, and environmental factors are constantly in flux; rather an open-ended, collaborative and participatory approach is necessary in order to achieve sustaining social and cultural processes over time (Oliver-Smith, 2009; De Wet, 2006).

2.0 THREE MARSHALLESE VILLAGES

2.1 Methodology

In order to develop a well-supported notion of cultural patterns that manifest in the built environment and persist through the evolution of culture, primary field research is layered with the analysis of archival data relevant to human habitation on the islands and the historical change to the built environment in conjunction with the archaeological record on human settlement of the Marshallese. The unit of analysis for this study is the land parcel called the *weto* (Figure 1), which stretches from the lagoon of an atoll to the ocean providing access to resources necessary for sustainable livelihoods; the *weto* allows one to understand the system of habitation that represents the cultural habitus.[4]

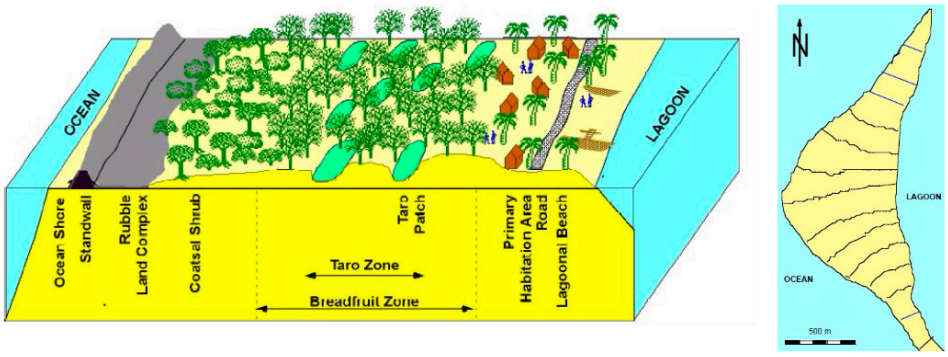


Figure 1: Diagram of a *weto* Each piece of land from ocean to lagoon is the weto. Source: (Spenneman 1990).

Employing a multi-modal methodology, the study was conducted on three different villages in the Marshall Islands, consisting of Djarrit-Uliga-Delap, Majuro, an urban center; Laura, Majuro, a semi-rural village; and Namdrik atoll, a remote atoll. The selection was based on the different contexts, demonstrating theoretical replication (Yin 2009). The research design consists of data collection through ethnographic field study of selected villages, building and site surveys, and archival research on each village selected, consisting of historical development, family lineage, and

oral histories. The goal is to uncover the changes of the social and cultural significance given to spatial arrangements, material use, building design, and the integration of resource management within the habitation zone (the *weto*).

The field study in each village consisted of participant observation, interviews, building and land parcel surveys, and participatory mapping. The study primarily focused on two *bwij* (extended family) in each village and their corresponding *wetos*. The goal of the observations was to develop an understanding of the minutiae of daily life in regards to habitation and to begin to understand cultural and social norms associated with spatial relationships, the use of materials, and the production of dwellings. Observational studies of human spatial behavior demonstrate that such differences in accessibility determine how people are likely to distribute themselves in space; these observations uncover frequency of activity patterns. Twenty interviews were conducted to uncover meaning in space, form, materials, and processes and to understand how relationships to the land and dwellings have changed throughout an inhabitant's life. The building surveys consist of mapping the *weto* and measured building plans. These drawings were analyzed based on their components and the level of connection between spaces. The interrelationships, measure of access, depth, and spatial permeability are calculated and used to bring interpretations of social meaning of space. This data layered with the historic and current patterns of human activity helps to contextualize spatial significance. Lastly, participatory mapping allowed inhabitants to demarcate importance and meaning directly to their wetos and dwellings. This process helped to visualize resource use, the importance drawn to elements of habitation, and changes over time (McLees 2013). The process also builds common understanding on spatial distribution and status of resources, land use, and building use. Qualitative research software was used to code and analyze data, uncovering patterns and emergent themes related to the socially spatial patterns that continue support Marshallese culture across space and time.

2.2 Analysis

Over twenty core socio-spatial patterns have been uncovered that support the Marshallese way of life on the weto. Data analysis has not been fully completed for all of the data collected during the dissertation field work; therefore, it is a working list. Table 2 provides a matrix of these patterns as observed in each location.

Table 2: Working list of culturally supportive, socio-spatial patterns of the Marshall Islands

	Pattern	Namdrik	Laura Village	Djarrit-Uliga-Delap, Majuro
The cookhouse	The earth oven (*um*)	X	Present	
	The cookhouse at the center of the *Bwij*	X	-	XM
	Alcoves for storage and cooking in the cookhouse	X	X	-
	A space for chatting in the cookhouse	X	X	X
	Local resources used in construction of the cookhouse	X	X	
Housing form & function	Three trees (*pandanus*, coconut, and breadfruit) providing sustenance and defining the landscape	X	X	X
	A central 'big house' for the elders and children	X	XM	XM
	A cluster of familial homes around the large house	XM	XM	XM
	A place for resting under the shade	X	X	X
	A place for keepsakes under the roof	X	-	-
	Houses for married couples without room for children	X	X	X
	Orienting the house along the lagoon	X	XM	-
	Protection for the side of the house where the soul rests	-	-	-
	Unhealthy housing sites at the ocean and	X	-	-

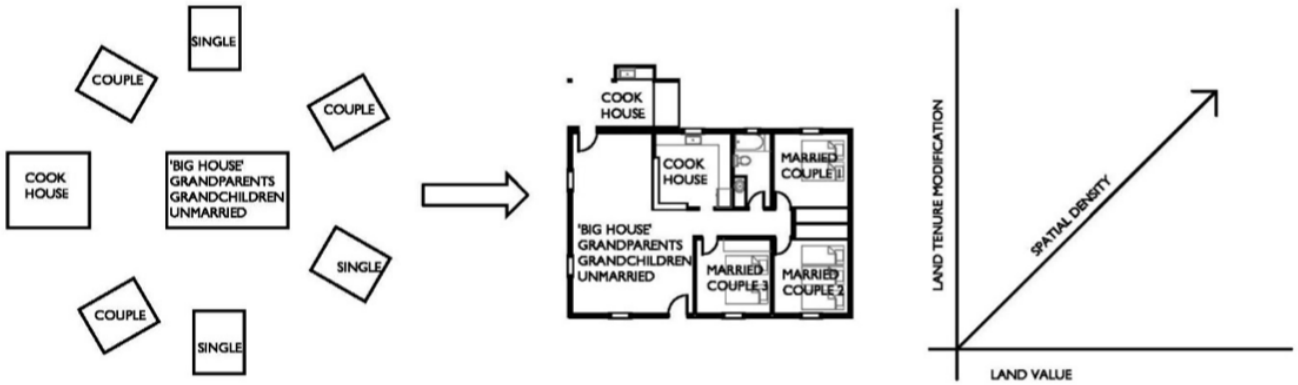
center of the island			
Local materials used for construction of homes	X	X	-
The house as a symbol of power	X	X	X
Dense but not crowded housing occupation	X	X	X
Taboos provide gradients of security	X	X	-
Sacred ground where the chief's house stood	-	-	-
A coral spread to designate one's land	X	X	X
A place for the canoe	X	-	-

X = pattern present, XM = pattern present but modified, - = not identified

It is clear that the influence of the market economy to the Marshall Islands has greatly impacted the culture and its relationship to the land. The built environment of the Marshall Islands has gone from one that is designed for efficient subsistence strategies to one that commodifies natural resources. The change in the relationship to the land is recent and drastically altered the landscape since World War II as the occupation by the United States led to an acute period of acculturation in Majuro and Kwajalein (Hezel 1994). Figure 2 provides a depiction of changes across the spectrum of urban to rural environments in the Marshall Islands. Given the vast change that has overcome the Marshallese way of life and the connection between culture and its design of the built environment, there are socio-spatial patterns that continue to support core cultural elements. As Rapoport (1969; 1982; 1983; 2006) demonstrated the importance of the core culture in developing culturally supportive environments, the process of 'syncretism' and the maintenance of core culture patterns are manifest in today's Marshallese built-environment. This analysis is not extensive given the ongoing nature of the research, but it does describe significant findings.

The land tenure system in the Marshall Islands, which is through matrilineal inheritance, maintains its central role in the Marshallese culture. Although housing disperses across the *weto*, the identity of the *bwij* rests within the land it spurred. The density of housing on the *weto* is a result of population growth and to an extent the individualizing effect of modernization (Hezel 1994; Hezel 1995). On Lojolimen *Weto*, in downtown Majuro, housing is dense, but several traditional socio-spatial patterns persist, such as the concept of 'one cookhouse per *bwij*' and the grandchildren living with the grandparents under one room. Lojolimen emphasizes the implications of population growth more than that of individuality. As observed through the active participation with a family of Lojolimen, the 'American" three bedroom track house (see figure 3) had taken the form of the traditional 'big house'. Rather than a clustering of small huts around a central cookhouse and the elder's house, each bedroom housed a couple and the children slept in the living room. The kitchen of this house was adapted by the family, but maintained the symbolic identity and location of the cookhouse. On the other hand, Likin Atbwe demonstrates the role of the individualizing effect has on the land use of the weto. Each house on Likin Atbwe is owned by a separate nuclear family within the *bwij* and often each nuclear family has their own cookhouse or has adopted the use of the western kitchen.

The fact that core patterns, such as the 'cookhouse' and the 'big house' continue to manifest, demonstrates their resilience throughout the cultural evolution. Even as the physical representation of space or material changes, the symbolic identity persists. How these patterns might be implemented within the design of a resettlement program would be dependent on a predictive model of change induced during resettlement. Their transformation, depicted in figure 4, demonstrates what could be expected in a post-resettlement community. While the pattern fits within a typical western house, the use of space and density of occupants is in opposition to standard land use codes and ordinances in the United States. This alludes to the necessity of policy leading the charge in allowing for more culturally supportive environments of climate refugees.



In considering cultural resilience, change is inherent as an adaptive strategy to disturbance regimes; therefore, culture change does not necessarily mean the loss of culture, but "a creative space where new forms of cultural understanding (and practice) are developed" (Wesson 2013, 108). Based on Wesson's argument, investing in efforts to maintain cultural patterns to reduce the stresses on the health, well-being, and security of the displaced populations will not sustain the pre-displacement culture, but will provide a mechanism for mitigating further vulnerability to greater stochastic events in the post-resettlement system. In so doing, we can provide mechanisms that will most likely alleviate the shock and allow elements of the culture to persist – dependent on their desires in the evolution of their cultural identity. Understanding cultural patterns as elements that help support the continuity and enhancement of cultural capital, it is clear that ensuring the continuity is a necessity to create sustainable development and sustainable resettlement schemes.

Figure 3: The plan and aerial view of a house in Lojolimen. On the house plan: 1 = kitchen/ cookhouse, 2 = bedroom, 3 = living room, 4 = shop, 5 = lanai.

CONCLUSION

The developing pattern language, which demonstrates supportive socio-spatial relationships across time and space, will continue to be tested through follow up surveys and interviews in order to corroborate evidence. It is the intention to develop this pattern language as a working framework for both current land use and development projects in the Marshall Islands as well as potential resettlement programs. As the patterns become a participatory knowledge source from Marshallese communities, it provides a way forward within a participatory process to building consensus toward the design, planning, and policy making of future resettlement schemes. In addition, it provides a methodology for all future climate change induced resettlement programs to learn from and aid in their own efforts.

The analysis of the established patterns is being incorporated into architectural design guidelines, aiding Marshallese place making. The goal of this research is to provide the necessary evidence for developing both design principles and policy concerning resettlement procedures in order to support cultural continuity through migration and lead toward more resilient and inclusive communities for environmentally displaced populations. If deep-cultural patterns manifest in the built-environment of the weto persist through time and demonstrate a high value in capital due to their resilience, than these patterns demonstrate a phenomenon that must be considered in any development project.

The great difficulty will be to see how effective an environment based on culturally supportive principles will actually be at both mitigating vulnerability and supporting cultural continuity. Communities in locations such as the Marshall Islands are rooted in place; they "live in space: heavy, resilient, untouchable, which ties down time and keeps it beyond…control" (Bauman 1998, 88–89). This is a challenge that will require broader analysis of multiple global case studies between trans-local spaces. Even in light of trans-local place-making, these studies will not shed light on the generative capacity of a population that will no longer have a place to return as these studies have just begun. When a communities' 'local' will be no more and transnational ties are severed, what roots will grow and how will they be nourished?

REFERENCES

Bauman, Zygmunt. 1998. Globalization: *The Human Consequences*. European Perspectives. New York: Columbia University Press.

Campbell, John. 2012. "Climate-Induced Community Relocation in the Pacific: The Meaning and Importance of Land." *In Climate Change and Displacement Multidisciplinary Perspectives*, edited by Jane McAdam. Portland: Hart.

Cernea, Michael. 1998. "Impoverishment or Social Justice? A Model for Planning Resettlement." In *Development Projects and Impoverishment Risks: Resettling Project-Affected People in India*, edited by Hari Mohan Mathur and David Marsden, 42–66. Delhi ; New York: Oxford University Press.

Cernea, Michael M., and Chris McDowell, eds. 2000. *Risks and Reconstruction: Experiences of Resettlers and Refugees*. Washington, DC: World Bank.

Church, John A., Neil J. White, and John R. Hunter. 2006. "Sea-Level Rise at Tropical Pacific and Indian Ocean Islands." *Global and Planetary Change* 53 (3): 155–68.

Dasgupta, Susmita, Benoit Laplante, Siobhan Murray, and David Wheeler. 2009. "Sea-Level Rise and Storm Surges: A Comparative Analysis of Impacts in Developing Countries." *World Bank Policy Research Working Paper Series*.

De Wet, Chris. 2006. "Risk, Complexity and Local Initiative in Involuntary Resettlement Outcomes." In *Development-Induced Displacement: Problems, Policies, and People*, edited by Chris de Wet, 180–202. Oxford and New York: Berghan Books.

Dema, Briana. 2012. "Sea Level Rise and the Freely Associated States: Addressing Environmental Migration under the Compacts of Free Association." *Columbia Journal of Environmental Law* 37: 177–204.

Downing, Theodore, and Carmen Garcia-Downing. 2009. "Routine and Dissonant Cultures: A Theory about the Psycho-Socio-Cultural Disruptions of Involuntary Resettlement and Ways to Mitigate Them without Inflicting Even More Damage." In *Development & Dispossession: The Crisis of Forced Displacement and Resettlement*, edited by Anthony Oliver-Smith, 1st ed. School for Advanced Research Advanced Seminar Series. Santa Fe: School for Advanced Research Press.

Hezel, Francis X. 1994. *The First Taint of Civilization: A History of the Caroline and Marshall Islands in Pre-Colonial Days, 1521-1885*. University of Hawaii Press.

———. 1995. *Strangers in Their Own Land: A Century of Colonial Rule in the Caroline and Marshall Islands*. Pacific Islands Monograph Series 13. Honolulu: Center for Pacific Island Studies, School of Hawaiian, Asian & Pacific Studies, University of Hawai'i : University of Hawai'i Press.

Jacka, Jerry K. 2015. *Alchemy in the Rain Forest: Politics, Ecology, and Resilience in a New Guinea Mining Area*. New Ecologies for the Twenty-First Century. Durham: Duke University Press.

Lilleør, Helene Bie, and Kathleen Van den Broeck. 2011. "Economic Drivers of Migration and Climate Change in LDCs." *Global Environmental Change* 21 (December): S70–81.

Maffi, Luisa. 2007. "Biocultural Diversity and Sustainability." In *The SAGE Handbook of Environment and Society*, edited by Jules Pretty, Andy Ball, Ted Benton, Julia Guivant, David R. Lee, David Orr, Max Pfeffer, and Professor Hugh Ward, 267–76. SAGE.

McAdam, Jane. 2012. *Climate Change and Displacement: Multidisciplinary Perspectives*. Oxford; Portland, OR.: Hart.

McDowell, Christopher. 2002. "Involuntary Resettlement, Impoverishment Risks, and Sustainable Livelihoods." *The Australian Journal of Disaster* 2002 (2).

McGranahan, G., D. Balk, and B. Anderson. 2007. "The Rising Tide: Assessing the Risks of Climate Change and Human Settlements in Low Elevation Coastal Zones." *Environment and Urbanization* 19 (1): 17–37.

McLees, Leslie. 2013. "A Postcolonial Approach to Urban Studies: Interviews, Mental Maps, and Photo Voices on the Urban Farms of Dar Es Salaam, Tanzania." *The Professional Geographer* 65 (2): 283–95.

Muggah, H.c.r. 2000. "Conflict-Induced Displacement and Involuntary Resettlement in Colombia: Putting Cernea's IRLR Model to the Test." *Disasters* 24 (3): 198–216.

National Research Council (U.S.). 2010. "Sea Level Rise and the Coastal Environment." In *Advancing the Science of Climate Change*, 243–50. Washington D.C.: National Academies Press.

Nunn, Patrick, and Nobuo Mimura. 1997. "Vulnerability of South Pacific Island Nations to Sea-Level Rise." *Journal of Coastal Research*, 133–51.

Oliver-Smith, Anthony. 1990. "Post-Disaster Housing Reconstruction and Social Inequality: A Challenge to Policy and Practice." *Disasters* 14 (1): 7–19.

———. 2009. "Climate Change and Population Displacement: Disasters and Diasporas in the Twenty-First Century." In *Anthropology and Climate Change from Encounters to Actions*, edited by Susan A. Crate and Mark Nuttall, 116–38. Walnut Creek, CA: Left Coast Press.

———. 2010. *Defying Displacement: Grassroots Resistance and the Critique of Development*. 1st ed. Austin: University of Texas Press.

Oliver-Smith, Anthony, and Alex de Sherbinin. 2014. "Something Old and Something New: Resettlement in the Twenty-First Century." In *Humanitarian Crises and Migration*, edited by Susan F. Martin, Sanjula S. Weerasinghe, and Abbie Taylor. Hoboken: Taylor & Francis.

Pelling, Mark, and Juha I Uitto. 2001. "Small Island Developing States: Natural Disaster Vulnerability and Global Change." *Environmental Hazards* 3 (2): 49–62.

Rapoport, Amos. 1969. *House Form and Culture. Foundations of Cultural Geography*. Englewood Cliffs, NJ: Prentice-Hall Inc.

———. 1982. *The Meaning of the Built Environment: A Nonverbal Communication Approach*. Beverly Hills: Sage Publications.

———. 1983. "Development, Culture Change and Supportive Design." *Habitat International* 7 (5–6): 249–68.

———. 2006. "Traditional Environments, Culture and Preservation." *Open House International* 31 (4): 6–14.

Scott, James C. 1998. Seeing Like a State: *How Certain Schemes to Improve the Human Condition Have Failed.* Yale University Press.

Spennemann, Dirk. 2006. "Freshwater Lens, Settlement Patterns, Resource Use and Connectivity in the Marshall Islands." *Transforming Cultures EJournal* 1(2).

Throsby, David. 2014. "The Role of Culture in Sustainable Urban Development: Some Economic Issues." *International Journal of Global Environmental Issues* 13 (2): 89–99.

Webb, Arthur P., and Paul S. Kench. 2010. "The Dynamic Response of Reef Islands to Sea-Level Rise: Evidence from Multi-Decadal Analysis of Island Change in the Central Pacific." *Global and Planetary Change* 72 (3): 234–46.

Wesson, Cameron B. 2013. "Rumors of Our Demise Have Been Greatly Exaggerated: Archaeological Perspectives on Culture and." *Sustainability* 5 (1): 100–122.

Yin, Robert K. 2009. *Case Study Research: Design and Methods.* 4th ed. Applied Social Research Methods, v. 5. Los Angeles, Calif: Sage Publications.

ENDNOTES

1 This has been debated extensively across publications, conferences, and summits (Campbell 2012; Dema 2012; McAdam 2012)

2 The Sustainable Livelihoods framework was developed as a tool to guide research in Asia and Africa to explore routes for sustainable livelihoods for poor people in predominantly rural agricultural settings (McDowell 2002).

3 It is apparent that McDowell's methodology must be influenced by Friedman's (1987) description of transformative theory in radical planning.

4 See Rapoport's writing on 'systems of systems' as related to the culture-environment relationship for an explanation on the importance of looking beyond the dwelling (Rapoport 1990).