

THE CONTINUITY OF DEEP CULTURAL PATTERNS: A CASE STUDY OF
THREE MARSHALLESE COMMUNITIES

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DISSERTATION ABSTRACT

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In the era of Global Climate Change, forced displacement and resettlement will affect coastal communities around the world. Through resettlement, the local production of culturally supportive environments can mitigate culture-loss. While previous vernacular architecture studies suggest that the influence of imported architecture leads to culture change, this study investigates the continuity of generative structures in the production of culturally supportive built-environments, demonstrating resilience. In addition, this study expands the discourse on the dialectic relationship between culture and the environment by investigating the role of Indigenous Design Knowledge in the production of culturally supportive space.

The dissertation investigates the dialectic relationship between Marshallese culture and the built-environment and uncovers the continuity of deep cultural patterns (DCP) in the production of the Marshallese built-environment. These DCPs are forms of local knowledge production that generate culturally supportive environments¹. The study takes a theoretical position that persistent DCPs are resilient and provide cultural capital.

¹ A deep cultural pattern is a habit or ritual that has persisted through the long evolution of the culture-environment relationship that manifests in built form and in support of everyday culture. Deep cultural

A multi-sited case study was conducted across rural and urban communities in the Marshall Islands. Historical ethnographies and archaeological studies of the Marshall Islands were examined for cultural patterns present in the built-environment. Interviews, participant observation, site documentation, and a survey were assessed for persistent cultural patterns in the built-environment that supported everyday life. Qualitative analysis uncovered persistent patterns in everyday cultural behavior, such as the cookhouse, and quantitative analysis uncovered spatial and syntactic relationships that demonstrated persistent, underlying cultural structures, such as the shared genotype of urban and rural housing.

While outside influence has impacted the production of the Marshallese built-environment and the Marshallese cultural evolution, I argue that DCPs generate everyday cultural spaces and aid in the reproduction of Marshallese place-identity. DCPs represent Indigenous Knowledge and should be applied to design frameworks for climate forced displacement and resettlement.

patterns are generative in nature, and various physical manifestations may share the same deep cultural pattern, these represent Indigenous Design Knowledge.

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CHAPTER I

1.1 Preface

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, Laplante, Murray, & Wheeler, 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, & Hunter, 2006; Lilleør & Van den Broeck, 2011; McGranahan, Balk, & Anderson, 2007; Nunn & Mimura, 1997; Pelling & 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 fifty to one hundred years, which ranges from a 0.5 to 2 meters (National Research Council (U.S.), 2010) will leave atoll² nations – with peak elevations of 3-6 meters – almost entirely inundated by sea water (D. Spennemann, 2006; Webb & Kench, 2010). Historically, a resilience mechanism to climatic events for traditional small island populations was a temporary migration to nearby islands where family ties were held. Migration becomes a natural adaptive response. It could be argued that current migration of Marshallese into the United States and other Pacific Island

² An atoll is a ring-shaped coral reef or string of closely spaced small coral islands, enclosing or nearly enclosing a shallow lagoon.

nations demonstrates an extension of these traditional forms of resilience to climatic events; after all, Northwest Arkansas is often referred to as A New Island.

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. However, far before the islands disappear beneath the sea, these islands will be uninhabitable due to frequent storm surges and drought, which will leave the population little more than food aid to survive. 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 nation³. 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.

Climate-forced displacement has become an important subject within the discourse of global climate change and the Anthropocene. *Anthropology and Climate Change: From Encounters to Actions* (Crate & Nuttall, 2009) is one of several recent publications that discusses the broader impacts of forced displacement and the global ramifications of mass relocations. The legal ramifications, concerning the status of a climate refugee and the status of a relocated nation within another, have been widely discussed across conferences and publications (J. Barnett, 2001; Birk & Rasmussen, 2014; Campbell, 2010; Ferris, 2011; McAdam, 2012). Most recently, in light of the 2015 Paris Climate Conference (Twenty-first Conference of Parties United Nations Climate

³ This has been debated extensively across publications, conferences, and summits (Campbell, 2012; Dema, 2012; McAdam, 2012)

Conference (COP21 UNCC), the issue of forced displacement and the impacts of the world's energy demands on small island nations have been brought forth to a global audience. Led by the resoluteness of Tony Debrum, the recently deceased, minister of foreign affairs, the Marshall Islands have been making global news headlines. CNN (Sutter & CNN, n.d.), The New York Times (Davenport & Haner, 2015), Huffington Post, and other news outlets have all captured stories on the struggles faced by a remote atoll nation due to the impacts of global climate change, primarily caused by the dominant nations of the world, such as the United States. Stuart Kirsch (2018) even provided a thought piece drawing comparisons between the nuclear legacy of the Marshall Islands and global climate change in the *Architectural Review*. Our energy consumption is forcing small island communities to rethink their future and force them to become landless refugees.

Relocation has become a pressing issue for highly vulnerable atoll nations. One of the atoll nations, Kiribati, has purchased 5,000 acres of land on Fiji; many speculate the purchase is in preparation for resettlement (Caramel, 2014). For the Marshallese, relocation into the United States may be their only option, following the current chain migration into Springdale, Arkansas. The Bikinians of Bikini Atoll, RMI are trying to negotiate with the United States government to be resettled in the United States for nuclear reparations (Correspondence with Giff Johnson, *Journal of the Marshall Islands*; Morales, 2016). Nations such as Kiribati and the Marshall Islands represent communities that do not have the financial means to safeguard their livelihoods and will likely be forced to relocate as the sea inundates their lands. As Scott Fitzpatrick (2018) pointed out in a recent post on the *Georgetown Journal of International Affairs*, the complete loss of

cultural resources and ways of life are at risk for communities across the Pacific, requiring the funding of developed nations to assist in cultural preservation and mitigation of climate change impacts.

Pilot studies conducted within the Marshallese communities of Springdale, Arkansas, and Salem, Oregon have demonstrated a desire for many Marshallese to come to the United States for jobs and education. As Connell (2016), Farbotko and Lazrus (2012), and the work of Spenneman (2005) demonstrate, migration is a traditional form of climate adaptation and resilience. Perhaps to Western eyes, migration seems a last resort, for these low lying communities, migration has traditionally been a cyclical part of life.

The impetus for the dissertation was formed by climate change forced displacement and resettlement, to develop a culturally supportive framework to mitigate culture loss for Aelon Kein (The Republic of the Marshall Islands – refer to figure 1 for geography). Through the fieldwork and understanding of everyday life in the Marshall Islands, a keen awareness was drawn to the role cultural patterns play in the natural ebb and flow of responses to environmental issues and often in opposition to imported forms of architecture and western ideals of planning. In understanding how Indigenous Knowledge responds to change throughout the cultural evolution of the Marshallese culture in the production of culturally supportive space, one can better understand how similar structural mechanisms may assist communities in both resettlement and present-day adaptation strategies. Where a response to resettlement was intended to be the focus, the focus shifted to investigating the presence of deep cultural patterns that is the cultural structures that produce supportive built-environments. Building an understanding of these

continuous threads of cultural resilience provides a framework for understanding cultural resilience in resettlement planning, whether resettlement takes place within existing diasporic communities and chain migrations or in land purchases and large-scale village creation.



Figure 1: Map of the Marshall Islands (“Map of Marshall Islands,” n.d.)

1.2 Definitions

The *alap*: Typically the oldest uncle on the mother’s side of the family (Erdland, 1914). His capacity is as the head of the family and in charge of the *wēto*. The *alap* can also be the eldest woman in the family. The *alap* is responsible for managing the *wēto* and the family and ensuring that resources are distributed to sustain everyone on the *wēto*. Today the traditional value of the *alap* is fleeting; many *alaps* seldom live on their *wētos*, and

many have migrated to the United States. Now, the alap is mostly a title that provides the rightful landowner the authority to decide what can be done on the land. For example, land development laws in the Marshall Islands require that the alap be consulted before development on a *wēto*. Also, the alap has a right to payment for resources produced on her land.

Bwij: Extended family or clan.

Bwirak: Nobility

Deep Cultural Pattern: A deep cultural pattern is a habit or ritual that has persisted through the long evolution of the culture-environment relationship that manifests in built form and support of everyday culture. Deep cultural patterns are generative, and various physical manifestations may share the same deep cultural pattern.

Difference Factor: To measure this we have developed an entropy-based measure called the ‘difference factor,’ which quantifies the spread or degree of configurational differentiation among integration values

Drijerbal: Worker. The *drijerbal* is often equated with the land manager.

Emlapwoj: Traditionally the house of the alap. It houses the grandparents and the grandchildren. Today this is represented by the multi-generation family.

Genotype (Space Syntax): “Function thus acquired a spatial expression which could also be assigned a numerical value. Where these numerical differences were in a consistent order across a sample of plans from a region, society or ethnic grouping, then we could say that a cultural pattern existed, one which could be detected in the configuration itself rather than in the way in which it was interpreted by minds. We called

this particular type of numerical consistency in spatial patterning a housing ‘genotype’”
(Hanson, 1998, p. 32).

Getis Ord Gi*: The Hot Spot Analysis tool calculates the Getis-Ord Gi* statistic (pronounced G-i-star) for each feature in a dataset. The resultant z-scores and p-values tell you where features with either high or low values cluster spatially. This tool works by looking at each feature within the context of neighboring features. A feature with a high value is interesting but may not be a statistically significant hot spot.

The Gi* statistic returned for each feature in the dataset is a z-score. For statistically significant positive z-scores, the larger the z-score is, the more intense the clustering of high values (hotspot).

Ippan Doon: Togetherness. The concept of being close to each other, helping each other out, and sharing.

Iroj: chief.

Irojlaplap: is the high chief and Irojjerik is a lesser chief.

Jemdoon: Working together. Coming together to share work.

Jib: fringe nobility

jittak lok: Sleeping facing east

Juon Kijeek: One fire. Refers to the fire protected by the cookhouse, which is where a family traditionally prepares their meals.

Kajur: commoner

Kumit: Commit. To work together. To commit to one another.

Kakolle: Landmarks. Insignia. Symbols that identify a family's land boundaries.

Kotan wēto: Feud, land dispute

Lolon: a place where your head rests.

Mon Kijdik: Literal translation is the Rat House. This is referred to as the traditional Marshallese thatch house. It consists of a gable roof on four posts with attic space. Lattice is placed across the longitudinal beams to support people, and a hatch is built into the center to provide access.

Place-identity: The significance or meaning of a place to its inhabitants and how these meanings contribute to individual's conceptualization of their self.

Subsistence livelihoods: The means by which one maintains life by living off of the products of the natural environment.

Subsistence strategies: The method by which a society acquires its food resources. In the Marshall Islands, this is predominantly done by cultivating coconut trees, breadfruit trees, pandanus and taro, and fishing.

Transported landscape: Patrick Kirch (1984) coined the term, transported landscapes. In the literature of colonization in Oceania, this term refers to both the selection of habitable land based on the presence of food-producing resources that were familiar to sending communities and the active transportation of resources that could be cultivated on new lands. In Micronesia, early voyagers looked for islands with coconut trees,

breadfruit trees, and pandanus. These voyagers would bring with them taro, arrowroot, rats, and other resources they deemed necessary.

Wēto: The *wēto* is a land parcel. Based on the traditional land tenure system through matrilineal inheritance, the *wēto* provides for the division of land based on resource allocation to each family. The *wēto* allows for each family access to the lagoon resources, land resources, fresh water, and the ocean resources. For a comprehensive description of land tenure and the *wēto* in the Marshall Islands, refer to the work of Jack Tobin (1958), Leonard Mason (1947), and Tina Stege (2008). The *wēto* is at the center of one's cultural identity in the Marshall Islands.

1.3 Introduction

This study seeks to uncover the continuity of culture in the built environment of the Marshall Islands. It lays the groundwork for developing a framework for climate forced displacement and resettlement planning by introducing Indigenous Design Knowledge that aids in the production of culturally supportive environments. This diachronic study investigates the cultural patterns that continue to manifest within the dialectic relationship between culture and the built-environment of the Marshall Islands. 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. It is the intent to develop this theoretical understanding through the empirical research into the Marshall Islands and a Marshallese population that faces forced displacement due to rising sea levels. If cultural continuity is

manifest in the built environment, this manifestation demonstrates the resilience of cultural patterns and the power of cultural agency imbued in architecture⁴.

Change in the traditional Marshallese habitation slowly began as trade was established in the Pacific and European and American sailors, missionaries, and traders began to influence the built environment of the Marshall Islands. The traditional Marshallese habitation drastically changed during the 20th century due to Japanese occupation at the turn of the 20th century, the vast destruction of both landscape and buildings during the Battle of the Pacific during World War II, the United States occupation following the war, and the replacement of traditional and vernacular building types with imported architectures following natural disasters. The massive disruption to daily life over the past century has led to a weak continuity of culture, especially as it relates to the built-environment and its ecological integration. By focusing on the vernacular habitat of the Marshall Islands, this study uncovers the continuity of deep-cultural patterns manifest in the built-environment. I argue that these patterns are necessary to enhance both cultural continuity and cultural capital in resettlement programs⁵. A deep cultural pattern is a habit or ritual that has persisted through the long evolution of the culture-environment relationship that manifests in built form and support of everyday culture⁶. They are generative, and various physical manifestations may share the same deep cultural pattern.

⁴ Bourdieu argued that architecture represents a structuring structure, it has the agency to influence its inhabitants/ occupants. If a cultural patterns persists in a-cultural architecture, it demonstrates the agency of the cultural pattern. If cultural patterns are resilient, then a high value of cultural capital is demonstrated and thus hold power

⁵ On a theoretical level, the enhancement of cultural capital within a minority population provides agency for the marginalized to leverage their net capital and develop an equitable power position.

⁶ Geertz (1973, p. 92) defines cultural patterns as “systems or complexes of symbols, are concerned, the generic trait which is of first importance for us here is that they are extrinsic sources of information;” they

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 conjectures that a solution can be found within the existing built-environment of a population facing climate- forced displacement and resettlement. By understanding the Indigenous mechanisms that have created culturally supportive spaces, even in the face of imperial and western influence, one may understand how a framework of such mechanisms can benefit cultural continuity through resettlement and migration. Cultural patterns rooted in the culture-environment knowledge of Austronesians aided in their colonization of Pacific Islands. This is evident in the concept of transported landscapes (Patrick Vinton Kirch, 1996).

1.3.1 Sustainability

Placing the study within the sustainability discourse in architecture demonstrates a need to change the current frame of sustainability. Within this discourse, the dissertation presents Indigenous Knowledge at the forefront of resilient solutions for adaptation in the Republic of the Marshall Islands. Guy and Farmer (2001) provide a succinct synopsis of the discourse of sustainability within architecture. The overarching approach to sustainability within the architectural discipline tends to be technologically driven, rarely taking into consideration the latent effects of a technological solution. Sustainability needs to be viewed within the parameters of a complex system, taking into consideration latent potentials and their impacts on society. In considering resilience, the architectural

“provide a blueprint or template in terms of which processes external to themselves can be given a definite form...so cultural patterns provide such programs for the institution of the social and psychological processes which shape public behavior.”

discourse should be more inclusive of non-technological viewpoints, such as non-expert local knowledge. Sustainability is, in fact, a cultural and a societal issue in need of approaches from both science and society. If we take into consideration Ulrich Beck's description of the "Risk Society," the technological solutions produced by scientists leave the power in the hands of a few. Arguably, power and the reproduction of that power have led to the current crisis of global climate change. As Ulrich Beck (1992) demonstrates, technological advances have inherent risks that require technical knowledge to interpret – thus perpetuating the cycle of the risk society. Through interpreting Bourdieu's theory of practice together with Beck's theory of the risk society, it is apparent that the discourse of sustainability is promoted by the very power structures that have led to global climate change⁷. The very definition of sustainability, as promulgated through the Brundtland report, demonstrates the extent of these power relations, and the reliance on a mostly western, scientific approach. The World Commission on Environment and Development was commissioned by the United Nations to seek solutions that would reduce the negative impacts of industrialization in developing nations. The commission mainly consisted of Western European delegates, who were still rooted in an epistemology that saw the world as them and us (the developed and the undeveloped world). Thus the solution to unsustainable practices became reliant on technocratic solutions, such as green technology. The post-

⁷ The following is an example based on a synthesis of arguments developed in Ulrich Beck's discussion of the dark side of technological advancement that gives rise to wicked problems, such as global climate change, and Bourdieu's theory of practice. The elite industrialists held the power at the turn of the 20th century and reproduced this power through capital gain, which put a tremendous tax on the environment. These power positions largely remain as privileged decedents hold onto the accrued capital, but rather than industrialists, they have taken on new vocations of power, such as a politician, who might lobby for continued resource exploitation. Here, this decedent might directly affect global climate change through petroleum extraction, release latent implications of drilling technology, and hold the knowledge to understand the negative consequences of such practice, thus truly holding onto the power.

development discourse provides an extensive critique of issues inherent to sustainable development (refer to James Ferguson and Gupta (1997) and Arturo Escobar (2008)). Also, Jacka argues that development fails in its bureaucratic processes – it simplifies complex local practices and ignores the contribution of local knowledge (Jacka, 2015). Development practices concerned with rendering technical problems separate the expert scientists from the non-expert (local) knowledge. Within the overarching field of global climate change, the appropriation of sustainable development should be seen as a contentious matter, if we are to approach the discourse through a critical lens. It is especially important to utilize and develop this critical lens in undertaking urban and rural development projects that are in response to the outcomes of global climate change, such as rising sea levels, drought, and receding snowpack. Perhaps, utilizing the term resilience rather than sustainability allows for a more productive method for continuing the development discourse. The dissertation adds to this discourse by introducing deep-cultural patterns as forms of Indigenous Knowledge that provide solutions for development issues through an iterative process that has proven effective over the long evolution of a culture.

1.3.2 Resilience

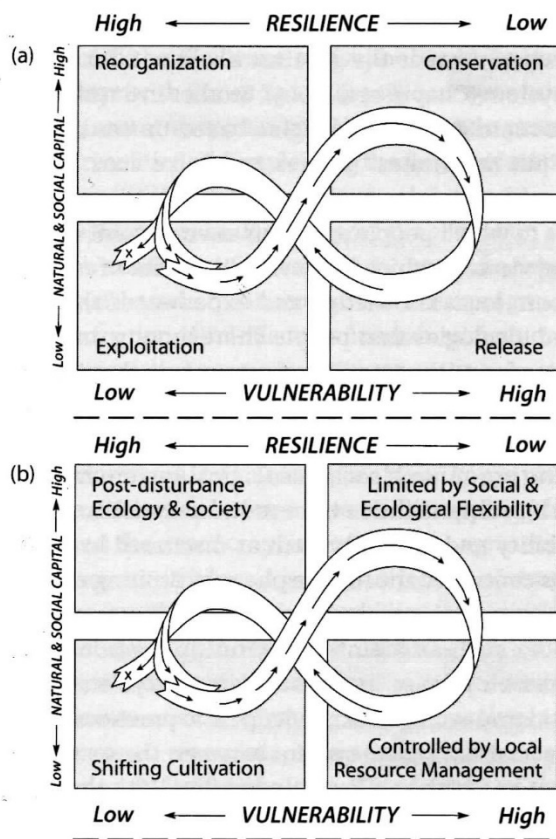
The concept of resilience is most commonly associated with the study of ecological systems; Holling (1973) famously blended systems theory and ecology in the development of ecological resilience theory. Resilience can be loosely defined as the ability of a system to recover from a disturbance. The frequency of disturbance affects a species' adaptive capabilities and ability to recover; diversity helps to build resilience to disturbance (Barbour, 1996; Jacka, 2015; Pulliam & Johnson, 2002). The diagram below

provides a visual for understanding this theoretical understanding. “There are four phases that describe different aspects of the cycle: exploitation, conservation, release, and reorganization...A critical property of the adaptive cycle is resilience, which fluctuates through the different phases. The reorganization and exploitation phases exhibit high resilience, while the conservation and release phases are periods of low resilience” (Jacka, 2015, p. 158).

Within the social-ecological model, Berkes and Jolly (Berkes & Jolly, 2001) provide three characteristics to assess change in terms of resilience: “1) the amount of change the system can undergo and still retain the same controls on function and structure; 2) the degree to which the system is capable of self-organization, and 3) the system’s ability to build and increase its capacity for learning and adaptation” (18). Folke et al. (2002) assess change within a socio-ecological system based on these three characteristics and demonstrate the need to approach sustainable development from a systems approach by utilizing collaborative processes. They propose implementing synergies between elements within systems to build resilience: e.g., economic development, technological change, and endogenous knowledge. The assessment based on the concept of resilience helps us to understand the dynamic processes within a system and understand that reaching a state similar to pre-development/ pre-resettlement/ and pre-disaster is not possible because the system is always in flux. Cultural patterns based on social capital provide resilience mechanisms with the capacity to mitigate vulnerability to system change and maintain core-cultural attributes. In this study, the six deep cultural patterns present examples; the embedded cultural knowledge demonstrated

in a deep-cultural pattern helps mitigate transformative change. This will be discussed in the results, discussion, and conclusion.

Ecological resilience allows us to understand the relationship between humans and the environment, and from this understanding, it helps us to understand the relationships between components within a system. In addition, Jerry Jacka's research on traditional ecological knowledge and resilience demonstrates the importance of social memory in socio-ecological resilience. The adaptive cycle (Figure 2) is managed via social memory and traditional ecological knowledge. Social memory together with traditional ecological knowledge helps to prevent transformative changes during release phases; when small-scale disturbances are created, people and the environment can adapt. The application of Jacka's model to deep-cultural patterns in the Marshall Islands is presented in Figure 3. Beyond ecological resilience, resilience theory has also been applied to the study of social systems (Adger, 2000), social-ecological systems (Berkes & Folke, 1994), and cultural and ecological systems (Jacka, 2015; Throsby, 2014; Wesson, 2013).



(a.) Length of the arrows indicates the speed of change from one phase to another. X represents the point at which elements are lost or incorporated into the cycle. (Jacka, 2015, p. 159).

Figure 2: The adaptive cycle

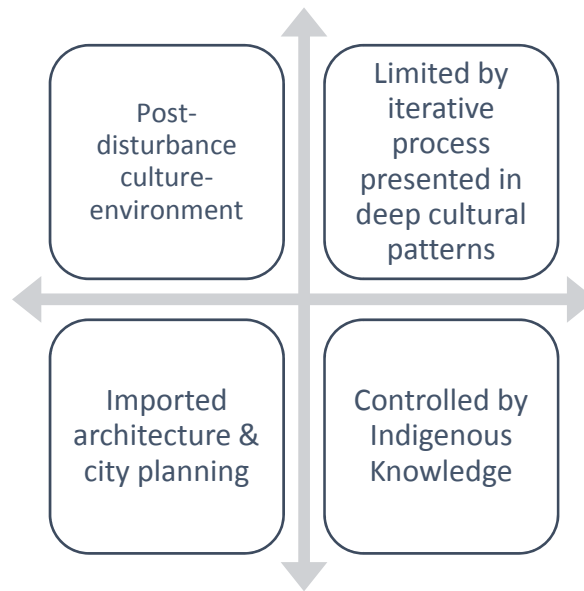


Figure 3: Adaptation of Resilience Matrix for representing Deep-Cultural Patterns

It should be asked whether or not all resilient systems are sound. Jacka's (2015) analysis of the political ecology surrounding the Porgera gold mine demonstrates that social transformation amongst highway peoples can be seen as resilience, but not necessarily a healthy adaptation to globalization. He demonstrates that it is necessary to consider both positive and negative resilient patterns; both he and other disaster scientists call into question the legitimacy of traditional ecological knowledge as resilient (Lewis & Kelman, 2010; Mercer, Kelman, Taranis, & Suchet-Pearson, 2010; Sudmeier-Riieux, 2014). We need to consider how social transformations are affecting local knowledge and how replacement has increased or decreased vulnerability. In the case of the Marshall Islands, the continuity of traditional land-tenure controls, which have proven resilient over time, could arguably be increasing vulnerability. For example, the resource extraction of coral reefs leads to increased vulnerability to sea surges for adjacent properties.

1.3.3 Problem Statement

Indigenous scholars, proponents of decolonizing methodologies, and transformative theorists, amongst others, have demonstrated the need to address the power struggle taking place within the discourse of sustainable development. It has become apparent that a mode of reflexivity must be utilized to develop equitable approaches to fight global climate change and its many facets. Indigenous Ecological Knowledge has been a keen focus of social science researchers focusing on community adaptation to climate change. The work of Jessica Mercer and Ilan Kelman are especially pertinent to research in Oceanian communities (see Mercer et al. (2010). Surprisingly, little attention has been drawn to Indigenous production of the built-environment. More specifically, little

research has been conducted to understand the continuity of Indigenous Design Knowledge in the production of culturally supportive environments throughout periods of intense social change.

Amongst architectural theorists, Christopher Alexander (2006a) has promoted the need for reflexivity in creating a life-affirming built-environment, and Kim Dovey (1999), Daniel Maudlin and Marcel Vellinga (2014) have demonstrated the need to develop an understanding of the dialectic relationship between architecture and culture. Altogether, little empirical research has been conducted to demonstrate the cultural agency within the dialectic relationship between culture and architecture in the discourse of sustainable development, and little work has been completed that demonstrates the reproduction of the Indigenous reproduction of culturally supportive architecture. Focusing on a small atoll nation, the Republic of the Marshall Islands, this study produces evidence that supports the vital role that architecture holds as an agent, which perpetuates the dominant culture's norms and demonstrates the role Indigenous Knowledge plays in the creation of culturally supportive space. The study uncovers deep-cultural patterns that demonstrate important processes that assist cultural sustainability. Furthermore, by demonstrating cultural patterns that are in theory, most resilient, this evidence could provide useful in understanding how to increase cultural resilience in the face of climate change, and climate forced displacement and resettlement. For example, the importance placed on the continuity of land tenure for cultural identity would suggest that resettlement planning should provide for maintenance of matrilineal inheritance patterns, albeit transported. As we move across time and space, we see significant differences in the evolution of housing. Why is this? What effect does it have? How does

it happen? What are the real differences between habitation in Outer Island RMI, Semi-Rural RMI, and Urban RMI? What about migratory populations abroad?

Five overarching research questions capture the theoretical inquiry of this study.

- a. Do deep cultural patterns manifest themselves in built form?
 - a. What are the most fundamental representations of culture – or deep cultural patterns – manifest in built-form, and what type of power do they hold?
 - b. What are the temporally constructed meanings and interpretations of these fundamental patterns?
 - c. Which patterns change the least throughout cultural evolution, persisting across space and time?
- b. Does a deep cultural pattern define a pattern of cultural resilience? Are deep-time patterns the most resilient?
- c. Does the built form reproduce *habitus*? Does this demonstrate the built-forms capacity to pass down cultural elements to its inhabitants creating a recursive relationship? Dependent on the answer, a building may have the ability to either reinforce the inhabitant's culture or undermine it.

Amongst these lines of inquiry, (a) and (b) appear to have the least amount of evidence in support, demonstrating a need for empirical studies. The question is: what are the most fundamental representations of culture – or deep cultural patterns – manifest in built-form, and what type of power do they hold? What are the temporally constructed meanings and interpretations of those deep cultural patterns? In particular, the focus is placed on elements of cultural production, associated with the dwelling and the context of

habitation, which have been maintained through the long duration of cultural evolution, thus demonstrating a high cultural value. To uncover these deep cultural patterns, a diachronic study of the culture-environment relationship of the Marshall Islands is conducted.

CHAPTER II: LITERATURE REVIEW

2.1 Vernacular Architecture Perspective

The field of vernacular architecture provides a theoretical frame and body of literature for developing a study of deep cultural patterns manifest in the relationship between culture and the built environment, given the vast body of works dedicated to understanding this relationship. The works of Paul Oliver, Marcel Vellinga, Amos Rapoport, Howard Davis, and Nezar AlSayyad, among others, provide different approaches to understand the relationship between culture and the built-environment. In addition, the work of the Center for Environmental Structure and Christopher Alexander provide comparative explorations into the cultural production of the built-environment. At the core of these studies, tends to be the dwelling because it is closely tied to culture and is a fundamental unit of the built-environment;

Housing has traditionally been the most typical product of vernacular design and, therefore, most directly related to culture... Vernacular environment, and spontaneous settlements in developing countries, i.e., most housing, is the result of selectionism, and evolutionary process whereby environments gradually become congruent with activity systems, lifestyles, meanings, etc. (Rapoport, 2000, p. 148).

Marcel Vellinga (2005, 2007) has called for more studies that investigate the dialectic relationship between culture and the built-environment in order to understand how the cultural production of space evolves based on cultural and environmental changes, and his work demonstrates the value of vernacular architecture and Indigenous design within the discourse of sustainability in environmental design. This study adds to

both the discourse of sustainability in architecture by introducing deep cultural patterns as mechanisms that enable cultural sustainability and to the body of knowledge on the dialectic relationship of culture and the built-environment. Little research investigates the dialectic relationship between culture change and the built-environment within the context of Micronesia especially as habitation relates to resource management and land use, which are core components in understanding the contribution of vernacular architecture to sustainability. In addition, there is little to no research that places the systems of culture-built environment relations within the framework of global climate change and population displacement. Furthermore, while the majority of these studies tend to examine the vernacular architecture of a specific place at a specific time, this study examines the vernacular architecture of a specific place across time to understand constants in the cultural production of space. Moreover, while many of these studies tend to focus on the dwelling, this study uses the system of land tenure as the fundamental unit for exploring the cultural production of space. The dissertation adds to the literature of vernacular architecture in Micronesia and expands the literature into the application of Indigenous Design Knowledge within the climate diaspora.

The literature on the built-environment in the Marshall Islands provides a basis for understanding cultural patterns that generate supportive space. One author who has carefully investigated the traditional architecture of the Marshall Islands is Dirk Spenneman. Spenneman (1996) provides a robust study on traditional settlement patterns of the Marshallese that correlates their relationship to vulnerability reduction during tropical storms and provides an overview of the traditional architecture of the Marshall Islands (Spenneman in Oliver, 1997). His work additionally includes predictive models

for the original land tenure systems of the *wētos*, which could prove useful as a basis for developing predictive models of land tenure patterns for future resettlement (Spennemann, 1992). Stephen Royle also discusses the vernacular architecture on Majuro. He provides an overview of the urban development in the Marshall Islands and Kiribati through which he develops a striking comparative study between Tarawa and Majuro that demonstrates the implications of colonial influence on traditional land use and traditional architecture. The literature on the built environment of the Marshalls Islands discusses issues related to colonial influence and change over time, but does not develop a deep understanding of the culture – built-environment relationship or look in-depth to the persistence of everyday cultural patterns, especially as they relate to the production of culturally supportive space. Taking a broader view of the vernacular built-environment, such as Howard Davis (2006), one must include the current housing, albeit imported, and current adaptations to habitation.

Critical to developing the field of sustainable architecture, this study provides insight into the implications of deep cultural patterns to climate forced displacement and resettlement by demonstrating their generative capacity to produce a culturally supportive built-environment. This study seeks to address the gap of knowledge present in the discourse of culture-environment relations and vernacular architecture studies as applied to climate change forced displacement and resettlement. It provides a case study of the Marshall Islands and seeks to address the gap of knowledge in understanding the resilience of generative structures in the production of culturally supportive space. The issue of cultural resilience, as seen through the persistence of deep cultural patterns, needs to be addressed. It is not to assume a desire for or maintenance of ‘traditional’

architecture, but the evolution of the vernacular. Borrowing from Jerry Jacka's (2015) analysis of ecological resilience in Porgera, these concepts are an ever-changing flexible and adaptive set of ideas that shape how Marshallese engage with their built-environment. Indigenous Design Knowledge provides iterative responses to change in a manner that ensures cultural continuity. The understanding of culturally supportive principles within the settlement design of Marshallese is essential for both developing more sustainable communities today, enhancing place attachment and hopefully retaining population, as well as developing resettlement plans when the islands become uninhabitable. For example, appropriating space for the maintenance of culturally supportive spatial arrangements, such as the outdoor cookhouse, in new urban development can help create more comfortable and culturally appropriate housing. These principles may also include constructing housing from local materials, similar to the traditional thatched houses, rather than concrete, which is the current day practice.

Diachronic studies that examine the culture-built-environment relationship have been relatively sparse, and mostly through post-processualist archaeologists (Borić, 2003; Hodder & Cessford, 2004; Lewis-Williams, 2004). These studies rely on historical data, ethnographic accounts, and modern interpretations. A significant gap exists within the architectural research of traditional environments, and that is the failure to complete diachronic studies of cultural continuity – including the archeological records and traditional, Indigenous, and local knowledge. Furthermore, these studies tend to focus on the house, rather than the ecological (urban ecology or environmental ecology) system that habitation occurs within. This study frames a well-supported model of deep cultural

patterns through the review of prehistoric archeological data in conjunction with the aforementioned historical data and primary research.

Furthermore, studies of architectural anthropology and culturally supportive environments tend to take place within the parameters of a western modernity focusing on cultural elements that have been studied since first contact. Western academics predominately conduct these studies and only recently have such studies reflexively addressed a bi-cultural sensitivity (Smith, 2012). Goankar (2001) and Smith (2012) suggests that alternate modernities should be paid attention to, such as the Indigenous modernity. The research will be framed within decolonizing methodologies.

2.2 Resettlement Literature

A common problem with resettlement programs is the tendency to dismantle the process into digestible components, disregarding the complexity of the system that these mechanisms operate within. Often operating on an outdated model that utilizes principles of scientific management, governments, and multi-national aid organizations tend to dismantle resettlement programs, focusing primarily on the one issue, such as the economic problem and disregarding the inherent place-based, social and cultural issues (Oliver-Smith & de Sherbinin, 2014; Scott, 1998). This compounded by the notion that sustainable development means returning to a pre-resettlement state causes many of the issues apparent in resettlement programs. As outlined in the Brundtland report⁸,

⁸ The World Commission on Environment and Development (Brundtland, 1987) defines sustainable development as “development that meets the needs of the present without compromising the ability of the future to meet its own needs” (pg. 42). Development is inferred to be progress that enhances the health, well-being, and security of humanity. However, this definition does not take into account what all facets of sustainability are and what it means to meet the needs of today without compromising the future. Are we to limit our consumption now, or maintain it? Is cultural sustainability as important as economic sustainability or environmental sustainability?

sustainable development is ill-defined (Brundtland, 1987). By analyzing components in isolation, it is not possible to observe their behavior in relation to the whole. In order to approach a wicked problem⁹ such as resettlement, we must think in systems and move away from an object-oriented view of systems with a process-based perspective (Meadows, 2008). To develop sustainable resettlement programs, we must consider resilience and a regenerative¹⁰ process.

Combined with an understanding of regenerative processes, Berkes and Jolly's (2001) approach to social-ecological resilience in a Canadian Arctic community facing the detrimental effects of global climate change helps us develop systems thinking for sustainable approaches to resettlement. Berkes and Jolly (2001) demonstrate that the Inuvialuit developed short term and long term strategies of adaptation to climate change. Short term: Switching species and adjusting the "where, when, and how" of hunting, and Long-term: Developing flexibility in seasonal hunting patterns, traditional knowledge

⁹ "A wicked problem is a problem that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize" (Levin, Cashore, Bernstein, & Auld, 2012). Rittel and Webber provide ten characteristics of 'wicked problems'. They are: 1.) There is no definitive formulation of a wicked problem; 2. Wicked problems have no stopping rule; 3. Solutions to wicked problems are not true-or-false, but good or bad; 4. There is no immediate and no ultimate test of a solution to a wicked problem; 5. Every solution to a wicked problem is a "one-shot operation", because there is no opportunity to learn by trial and error, every attempt counts significantly; 6. Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan; 7. Every wicked problem is essentially unique; 8. Every wicked problem can be considered to be a symptom of another problem; 9. The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution; 10. The social planner has no right to be wrong.

¹⁰ "Regenerative systems provide for continuous replacement, through its own functional processes, of the energy and materials used in its operation" (Lyle, 1994, p. 10). "The regenerative paradigm provides an alternative that is explicitly designed to engage with a living world through its emphasis on a co-creative partnership with nature based on strategies of adaptation, resilience and regeneration" (du Plessis, 2012, p. 7). Considering regeneration within systems thinking, regeneration cannot reproduce a previous state because the system is constantly changing, therefore a regenerative process would simply mitigate 'negative' changes responses within the system – enhancing the ability to rebound quickly – increasing resilience.

that allows for the community to diversity hunting activities, networks for sharing food and other resources, and intercommunity trade. The community as a whole provided feedback in response to changes to develop improved adaptations. This knowledge can be extrapolated to build similar resilience strategies in other locals. In the Inuvialuit case, the community was facing glacial melt, which parallels the implications of sea inundation. Their adaptive strategy required social network shifts, demonstrating a process that will most likely need to be accommodated in a resettlement program.

Through a synthesis on the discourse of ecological and generative design, Du Plessis (2012) demonstrates that “ecological design and planning processes have four main characteristics: they are responsive to local conditions, adapt to changing conditions, employ decentralized approaches, and are developed through the contribution and collaboration of many simple entities through processes of bottom-up self-organization that follow certain generative rules¹¹” (p.16). These processes are inherently linked within social and cultural capital. Based on this systems approach to resettlement as regenerative development, social and cultural components may prove to be the most important factors in success. Additionally, Julian Innes (2010) and Christopher Alexander (2003, 2004, 2006b; 2005) provide us methods by which to achieve life-affirming processes in complexity that protect the health, safety, and welfare of populations facing development in *Planning for Complexity* and *The Nature of Order* respectively.

¹¹ Alexander et al. propose a new theory of urban design that attempts to capture the process of organic development. They argue that “towns grew as a whole, under its own laws of wholeness (p. 1). Alexander and co-authors attempt to capture this process of creating wholeness and life-enriching environments throughout their subsequent works (*The Nature of Order*) and develop a process that deals with the complexity of the urban system through collaborative strategies.

2.3 Cultural Sustainability

To break down the cultural component of resilience building and enhancing resilience in post-resettlement, let us examine a brief overview of the discourse on cultural sustainability and its approach within systems thinking. The discussion on cultural sustainability within the sustainable development discourse is quite broad (WCCD (1995); UNESCO (2011; 2009); Axelsson et al.(2013); UN-HABITAT (2012; 2012); etc.); rather than attempting to synthesize the breadth of literature, I will focus on the perspective of cultural resilience and sustainability, in order to demonstrate the value of culture in sustainable development.

Throsby (2014) utilizes Bourdieu's theory of cultural capital. Throsby defines cultural capital as "an asset that embodies a store of cultural value, separable from whatever economic value it might possess; the asset gives rise to a flow of goods and services over time which may also have cultural value (i.e., which are themselves cultural goods and services)" (91). Cultural capital includes tangible items, such as monuments, architecture, sculptures, paintings, and human-made landscapes, as well as intangible items, such as ideas, traditions, beliefs, and customs shared by a group of people who share intellectual capital that creates the tangible elements. By not sustaining cultural values that provide people with a sense of identity or invest 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). Cultural sustainability necessitates the long-term maintenance of cultural resources such that intergenerational and intra-generational equity are appropriately served. However, there is an inherent problem of operationalizing culture into economic terms in order to demonstrate its value in

sustainable development.

Wesson (2013) demonstrates that “culture is a dynamic, interactive network of contingencies and possibilities...culture offers innumerable opportunities for variation, creativity, dialectical self-evaluation, and alteration (p. 101). In considering cultural resilience as an approach to sustainability, 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 in the dynamism that exists in cross-cultural engagement” (Wesson, 2013, p. 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 vulnerability¹² to greater stochastic events in the post-resettlement system. Cultural sustainability, therefore, does not maintain culture in the sense of static motion, but rather provides 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.

Ultimately, the most fundamental impetus for the protection and maintenance of bio-cultural diversity can come, nor from top-down

¹² The characteristics of a person or group in terms of their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard. It involves a combination of factors that determine the degree to which someone’s life and livelihood is put at risk by a discrete and identifiable event in nature or society (Wisner et al 2004).

efforts, but only from ground-up action of Indigenous and other societies worldwide whose languages, cultural identities, and lands are being threatened by global forces. (Maffi, 2007, p. 274)

Embedded within the cultural patterns of a community are two response mechanisms: adaptive strategies and coping mechanisms. Berkes and Jolly (2001) contribute adaptive strategies to mechanisms related to core cultural values of a group that are slow to change and contributes coping mechanisms to the individual/ household and small spatial scape. Since these mechanisms are culturally embedded, it would be logical that a sustainable approach must invest in whatever possible models contribute to the mitigation of any possible vulnerabilities to cultural lifeways – such as ensuring that bottom-up processes are not inhibited. In theory, processes that build resilience provide for sustainability as long as the system maintains the ability to adjust, reorganize, and rebound. Figure 4 provides a conceptual diagram of cultural resilience.

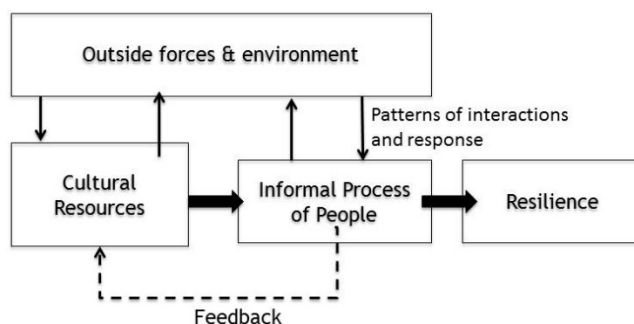


Figure 4: Conceptual diagram of cultural resilience.

2.4 Resettlement Models

Resettlement should be seen as a development project, and therefore sustainability is a necessity in its approach (Oliver-Smith, 2010). Displacement and resettlement come

in three forms and is a result of different drivers: conflict, disaster (both natural and technological), and development. As scholars of resettlement programs have demonstrated, lessons from the body of knowledge developed on development forced displacement and resettlement offers vital lessons 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 of the role of sustainability in resettlement programs and how culturally supportive mechanisms might be seen as a necessity for sustainable solutions. 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).

2.4.1 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 & McDowell, 2000; Oliver-Smith & de Sherbinin, 2014).

2.4.2 Involuntary Resettlement and Sustainable Livelihoods

McDowell (2002) combined Cernea's IRR approach with Sustainable Livelihoods research to develop the Involuntary Resettlement and Sustainable Livelihoods (IRSL) 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 a 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 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. It is apparent that McDowell's methodology must be influenced by Friedman's (1987) description of transformative theory in radical planning. 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 predominately rural agricultural settings (McDowell 2002).

2.4.3 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 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 the resettlement program, negatively impacting the health, wellness, and security of the displaced population.

2.4.4 Critique of Resettlement Models

From these models, it is evident that establishing ‘success’ requires understanding the inherent complexities of 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; here is where deep cultural patterns provide a useful mechanism in resettlement planning. Interlocking Wesson’s concerns with those of De Wet would require building an understanding of the

cultural dynamics within a displaced population before 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) explains that “[Internally displaced peoples] are frequently active subjects that make significant contributions to the reconstruction of livelihoods and communities, building on existing experience and networks” (p. 200). 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 to their pre-resettlement state. Downing and Garcia-Downing (2009) argue that it is highly improbable that the everyday cultural patterns of a pre-displacement population may ever be recovered, let alone restored. The implied question becomes then, “What can be done to facilitate the new routine culture so that it adequately addresses the primary cultural questions faced by displaced peoples?” (Oliver-Smith & de Sherbinin, 2014, p. 248). 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 sustainable social and cultural processes over time (Oliver-Smith, 2009; De Wet, 2006).

2.5 Conclusions

2.5.1 A Synthesized Definition of Sustainability

The term ‘sustainable development’ has an inherent bias; the terminology is rooted in a western epistemology and could be construed to have a hidden agenda. There is an unconsciousness amongst those educated within a western epistemology that

sustainable development implies progress. However, this bias is based on a worldview of the dominant, global, largely westernized culture. When translated cross-culturally, sustainability does not hold the same meaning within different epistemologies, as demonstrated by Peter Rudiak-Gould (2013) in the Marshall Islands). Additionally, the use of terminology such as ‘sustainable development,’ or just ‘development,’ has a marginalizing effect – us versus them. Even within the context of urban renewal projects in the United States, development holds connotations of ‘minoritization’ (Laguerre, 1999), gentrification, and whitewashing. Furthermore, the use of sustainability does not capture the complexity that is inherent in creating sustainable development. Perhaps if development is thought of regarding the inherent risks associated with ‘progress,’ then we could achieve more regenerative processes.

Christopher Alexander’s *A Pattern Language* provides a framework for analyzing everyday spaces in the built-environment and the supportive nature of these organic designs. This framework is used in application to analyzing the built-environment of the Marshallese to understand the organic creation of everyday supportive spaces that have persisted throughout the long evolution of the Marshallese culture. These cultural patterns represent Indigenous Knowledge in the design of the built-environment, expanding beyond material culture to the landscape design of an entire atoll. While Alexander sought universal design guidelines through his structuralist paradigm, the significance of the ‘local’¹³ was overlooked, especially in assessing the built-environment and the forces that are in a constant struggle to form it – as is the case in the Marshall Islands.

¹³ In reference to the local and global binary often referenced in the discourse on globalization and transnationalism, the ‘local’ references the city or village scale, focusing on the everyday lives and vernacular of communities. In this context local refers to the communities in the Marshall Islands that were part of the study.

Investigations of Indigenous Design Knowledge are essential in demonstrating the importance of the ‘local,’ as well as the implications learning from Indigenous Design Knowledge, may have in the global community for climate change adaptation and resilience.

2.5.2 A Decolonizing Approach to Research

It is in the creation of architecture from the bottom-up, that is to say – the local that we can begin to both respect Indigenous or endogenous design knowledge and decolonize the production of space. The argument that this dissertation takes is that the Indigenous Knowledge – folk knowledge, traditional knowledge, or local knowledge, depending on the perspective – is far more important to the lives of local communities than the global.

Assessing power relations is a difficult task, as power relations exist among members, organizations, and institutions within the locale of a community in addition to the power struggle between colonized and colonizer. For this study, the relationships of power are considered at the colony level. Graham Smith perceives that a decolonizing approach “provides hope for transformation; that there is a role for both structural change and personal agency in resistance; and that Habermas’ notion of finding victories in small struggles resists a purist tendency towards an all-or-nothing approach to social transformation” (Kovach, 2009, p. 80). Tuhiwai Smith calls for decolonizing research to construct new representations of knowledge, theory, and action that are mutually beneficial. “The infusion of Indigenous Knowledge systems and research frameworks informed by the distinctiveness of cultural epistemologies transforms homogeneity” (Smith, 2012, p. 12).

CHAPTER III: RESEARCH SETTING

The Republic of the Marshall Islands (RMI) is a low-lying atoll nation located near the equator in the Pacific Ocean, approximately halfway between Hawaii and Australia (4,000km southwest of Hawai'i). The Marshallese lay claim to thirty-two atolls and five small coral islands spread across one thousand miles of sea, consisting of 1,225 individual islets. The islets and islands make up a total land area of 69.84 square miles (180.88 square kilometers) spread across an ocean area of 750,000 square miles (1,900,000 square kilometers). The islands form two, roughly parallel, chains oriented northwest to southeast with Kwajalein Atoll located near the center of the Ralik Chain (Sunset, west) and Majuro located near the center of the Ratak Chain (Sunrise, east). The average elevation of the Marshall Islands is just over 2 meters (7 feet) above sea level, but where most of the inhabitants live – along the coast – the average elevation is less than one meter. The RMI is part of Micronesia and has a population of 53,158 people according to the 2011 Census (Economic Policy, Planning and Statistics Office, 2012). 52% of the population lives on Majuro atoll, the capital. The climate of the Marshall Islands ranges as the islands spread from 4° latitude north of the equator to 12°-north latitude. From north to south, the marked rainfall gradient is from 50 mm in the dry north to 3,000 mm in the wet south. In 2016, during the El Niño cycle, almost the entire country was under a severe drought except for Ebon and Namdrik atolls, at the southernmost end of the country. This climatic variance in the atoll groups of the Marshall Islands influenced prehistoric economics and reflected in settlement patterns and subsistence practices.

3.1 Time Periods

Archaeological investigations of human settlement on the Marshall Islands demonstrate relatively rapid colonization right about 2000 BP (Kayanne, Yasukochi, Yamaguchi, Yamano, & Yoneda, 2011; Lambrides & Weisler, 2017; M. I. Weisler, Yamano, & Hua, 2012; Marshall Weisler, 1999b). The development of habitable conditions on the coral atolls for human habitation likely began around 2500 years ago (Curry, Shepard, & Veeh, 1970). Additionally, the linguistic evidence demonstrates settlement of the Marshall Islands likely occurred from the south, which coincides with atolls that benefited from greater annual rainfall (Intoh 1997). Riley (1987) completed transect investigations of Laura Village and established the initial occupation of Majuro atoll at 1970 +/- 110 BP. Weisler's (1999, 2001) investigations of Maloelap and Utrök established a similar timeline about 2000 BP (1910 +/- 70 BP on Maloelap and 1880 +/- 60 BP on Utrök). See Figure 5 for a map of the Marshall Islands.

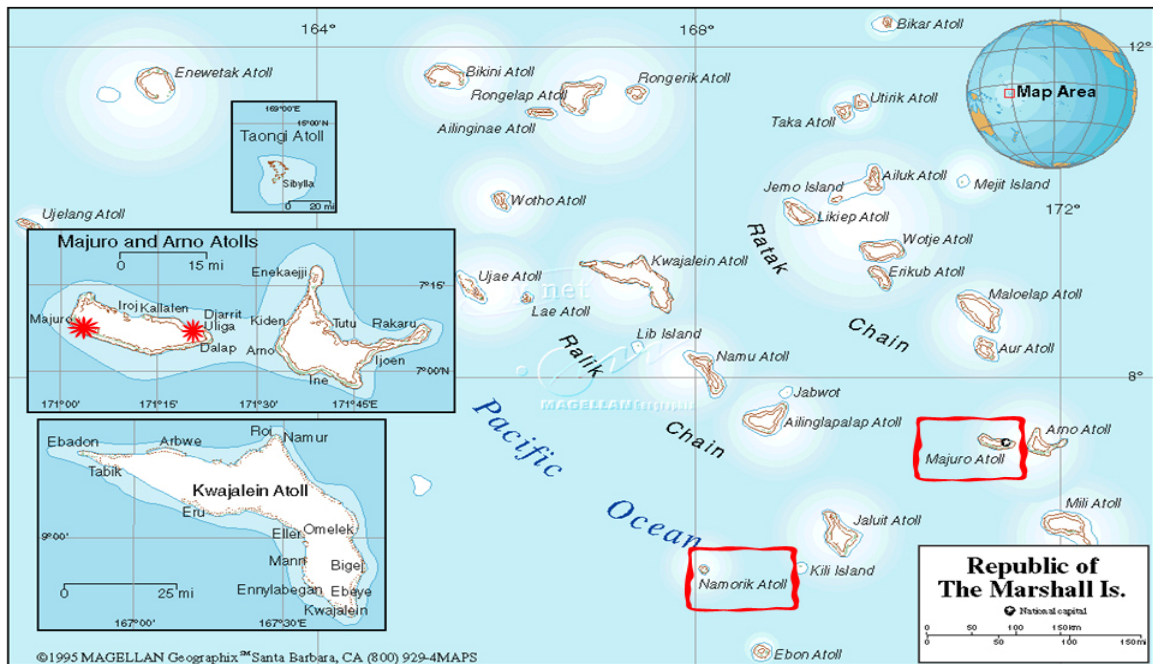


Figure 5. Map of the Marshall Islands, highlighting Majuro and Namdrik (“Republic of the Marshall Islands,” 1995)

Riley (1987) completed transect investigations of Laura Village and established the initial occupation of Majuro atoll at 1970 +/- 110 BP. Dye (1987) surveyed Arno Atoll. Weisler (1999b) established a date of 1910 +/- 70 BP through investigations of aroid pit agriculture on Maloelap. While no carbon dates have been established for initial human settlement on Namdrik, Ebon, one of Namdrik's closets neighbors, demonstrate dates about 2000 BP (Lambrides & Weisler, 2017). The three sites that are the focus of the dissertation, Namdrik, Laura Village, and Djarrit Uliga Delap provide three time periods of human settlement, ranging from 2000 BP – Present. Figure 5 provides a visual timeline of important periods in the Marshallese cultural evolution.

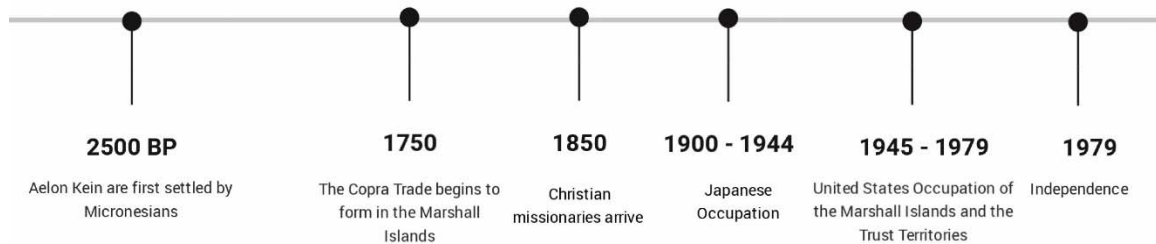


Figure 6. Timeline of significant periods in the cultural evolution of the Marshallese.

3.1.1 Prehistoric Period

Archaeological studies conducted assume the vast majority of material culture in the Marshall Islands before Western contact consisted of perishable materials, such as pandanus, bones, and wood. The small fraction of material culture that has been identified consists of shells used in adzes, fishhooks, and jewelry. The ethnographic record and oral histories are primarily relied on for identifying the greater assemblage of material culture. In regards to human settlement, the study of settlement patterns has been a focus of archaeological research.

Initial habitation of the atolls relied on the ecological base to support human habitation. Much like all atolls in the world, the settlement patterns of the Marshall Islands followed similar patterns. Rosenthal (1977, 1978) and Athens (1984) defined the pattern of prehistoric settlement on atolls. Initial settlement is dependent on the size of the islet, with larger islets being occupied first due to the availability of freshwater based on the Ghyben-Herzberg lens. Settlements in the Marshall Islands are generally on the lagoon side of the islet because it is protected from the prevailing winds. In addition, the lagoon provides easy transportation between habitations with calmer waters than the ocean side. Other, more variable factors that influence settlement include environmental, social, and ideological factors predicated on individual atoll culture.

The ethnographic report from Kramer and Nevermann provides a glimpse at early contact/ pre-contact settlement patterns in the Marshall Islands.

...the rank of the individual kin groups, as well as of the different lineages within the same kin group is indicated by where they live on the island, whether on the lagoon side, farther from the interior of the island, or not far from the outer shore. The soil on the lagoon side of an island is the most fertile. Besides, canoe traffic on the lagoon starts from the lagoon shore, and all the traffic can be observed from there. Because of all these advantages, settling closest to the lagoon is a birthright of the families of high chiefs. The lower the rank, the farther interior is the place of residence. The lowest families live closest to the outer shore, there where the ground is covered with stony debris, where shrubs that require the least to grow, like the salt-water bush are neighbors of equal status, where the surf breaking on the outer reef pounds loudly, and where, finally the outer reef as the place where everybody, rich and poor alike, relieves himself, does not exactly smell like narcissuses and rose, particularly at ebb tide. The low families are therefore likened to wild pandanus trees, which likewise thrive on the outer shore. When the word *lik* (outer shore) occurs in the name of a kin group, it is evident that this group is an inferior one, usually the lowest lineage of a kin group or set of kin groups. (Krämer and Nevermann p. 342)

3.1.2 Historical Period

The Spanish were the first to make contact with the Marshall Islands, with writings dating back to the 16th century that documented the island groups. The earliest contact between the Marshall Islands and the Spanish dates to 1526 (Hezel 1983: 14-15). The second known contact was by Alvaro de Saavedra Ceron a year later on his return to Mexico from the Philippines. He and his crew had a hostile encounter with the inhabitants of Ujelang (Hezel 1983). On the same voyage, he most likely came into contact with Enewetak and Bikini Atolls. Although the Marshall Islands were at the time claimed by the Spanish, the Spanish had very little interest in the area. It was not until the late 18th and early 19th century that interest in the Pacific region was rekindled. The English encountered the Marshall Islands in 1788, when a fleet leaving Australia, captained by William Marshall and Thomas Gilbert, sailed through the Gilberts and northward along the Ratak Chain, stopping at Milie. The British had a friendly encounter there and decided to seek out other atolls following their discovery, including Arno, Majuro, Aur, Maloelap, Wotje, and Ailuk (Hezel 1983: 64-65). In 1815, a Russian explorer, Otto von Kotzebue along with scholars, Adelbert von Chamisso and botanist, Louis Choris, visited the Marshall Islands to document the islands. Their writings provide the earliest ethnographic data on the Marshall Islands. Following the exploration of the Russians, the Marshalls experienced more frequent encounters with whalers and traders. The arrival of the copra trade and the Missionaries sparked drastic changes in the Marshallese way of life.

At the end of the 19th century, the Spanish released control of the Marshall Islands to the Germans, who would maintain and grow their Copra investments in the nation. The

Germans also sent ethnographers to the Islands to document the traditional Marshallese religion, politics, and social structure. Kramer and Nevermann and Erdland Augustine provide two of the most thorough and early ethnographies for the Marshall Islands. Their work provides a basis for understanding traditional environments and human behavior in the Marshall Islands.

By the start of World War I, in 1914, the Germans left the Marshall Islands, which were shortly taken over by the Japanese. The Japanese trading company, Nan'yo Boeki Kabushikigaisha (NBK) had a keen interest in the Marshall Islands. The Japanese introduced Japanese schools and implemented administrative changes that undermined the traditional Marshallese social structure and politics.

Following World War II and the United States invasion of the Marshall Islands, the Marshalls fell under the new American Trust Territory. The United States built up settlements on Kwajalein Atoll and Majuro Atoll to preside over the Marshall Islands. While the mandate was to help develop the country, little was accomplished by the dissolution of the Trust Territories. By the end of the 1970s, the Marshall Islands had begun to set up their governance as the US was set to relinquish control. On January 14, 1986, the newly formed Republic of the Marshall Islands signed the Compact of Free Association with the United States.

3.2 Traditional Environment

The traditional built environment of the Marshallese could be described as temporary and renewable, as the traditional built-environment consisted of woven, thatched dwellings and canoes (Royle, 1999; Spennemann, Dirk, 1996). The pre-colonial Marshallese did not produce substantial or long-lasting buildings until the arrival of the

missionaries. This material culture allowed the Marshallese to be fluidly mobile; however, since colonization, a permanent built environment has been established. Figure 6 depicts a traditional thatch house on Majuro, circa 1900. This built-environment has undergone many changes since German colonization in the 19th century with the most rapid changes to the built environment taking place since the United States occupation ended, as described by Connell and Lea's (1998) analysis of urbanization in Micronesia. From the viewpoint of historical architectural importance, little attention is paid to the current building stock except for the DeBrum house on Likiep Island and the remains of Japanese fortifications.

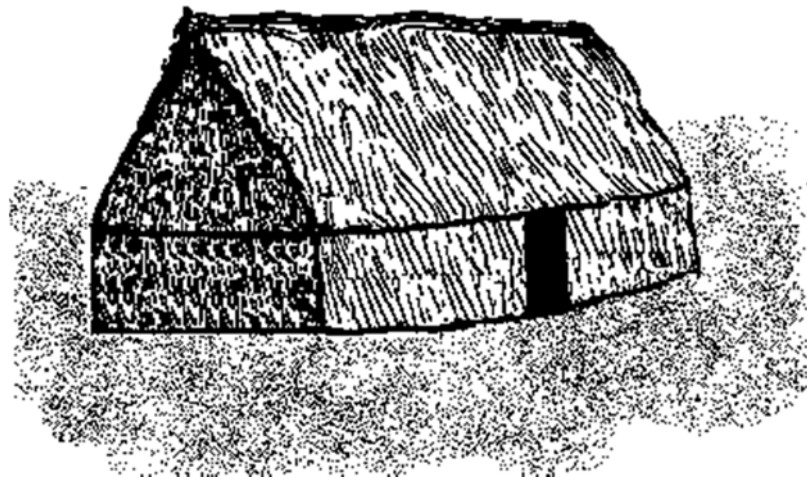


Figure 7. Traditional thatched housing that was typical on Majuro, circa 1910. Drawing produced by Dirk Spennemann (2000).

Change in the traditional Marshallese habitation slowly began as the trade was established in the Pacific and European and American sailors, missionaries, and traders began to influence the built environment of the Marshall Islands. The traditional Marshallese habitation drastically changed during the 20th century due to Japanese occupation at the turn of the 20th century, the Battle of the Pacific during World War II, the United States occupation following the war, and the replacement of traditional and

vernacular building types with imported architectures following natural disasters. The massive disruption to daily life over the past century has led to a weak continuity of culture, especially as it relates to the built-environment and its ecological integration. This study focuses on the vernacular habitat of the Marshall Islands in hopes of uncovering the continuity of deep cultural patterns manifest in the built-environment to demonstrate that these patterns are necessary in order to enhance both cultural continuity and cultural capital in resettlement programs¹⁴.

The pre-colonial Marshallese did not produce substantial or long-lasting buildings until the arrival of the missionaries. This material culture allowed the Marshallese to be fluidly mobile; however, since colonization, a permanent built environment was established. This built-environment has undergone many changes since German colonization in the 19th century with the most rapid changes to the built environment taking place since the United States occupation ended, as described by Connell and Lea's (1998) analysis of urbanization in Micronesia. From the viewpoint of historical architectural importance, little attention is paid to the current building stock except the DeBrum house on Likiep Island and the remains of Japanese fortifications.

The capital of the Marshall Islands, Majuro, and its urban core, Delap-Uliga-Djarrit (D-U-D), has undergone intensive urbanization since the post-war era, with significant growth between 1991 and today. Before United States occupation, Jaluit atoll was the capital under Japanese rule, and the primary settlement on Majuro was Laura in the west. It was the USA that relocated the capital to Majuro after Jaluit was heavily

¹⁴ On a theoretical level, the enhancement of cultural capital within a minority population provides agency for the marginalized to leverage their net capital and develop an equitable power position.

damaged during bombing raids, and the DUD became the center of government control and economic development. Following Marshallese independence, the Compact of Free Association (COFA) was signed between the United State Government and the Marshall Islands in 1986. Through the agreement, the United States guaranteed economic development grants, including grants that lead to the development of schools and housing, and it allowed for Marshallese to freely come and go into the United States, with non-immigrant status.

The COFA has had significant impacts on the urbanization of Majuro, and little if any studies have been conducted to understand the impacts the changes to the built environment, since COFA, have had on the cultural identity of its occupants. For example, the period between 1981 and 1993 increased intensification of residential housing in the D-U-D urban core of Majuro with the exception of the old Delap airstrip, where commercial buildings, the hospital, and Capitol Building have been erected (Spennemann, Dirk, 1996). This modern, and uncontrolled, settlement pattern – opposite to the traditional and more resilient settlement pattern (figure 7) on the western, protected side of the atoll -- exposes the urban fabric to adverse environmental conditions that affect the eastern side (Spennemann 1996). Other programs under the COFA agreement, such as the USDA Rural Development Mutual Self Help Housing Program¹⁵, have had further unstudied impacts on the built environment in the Marshall Islands.

¹⁵ The USDA Rural Development grants have helped build housing for 82 first-time homeowners since 2006 (as of 2012) (USDA Rural Development 2012 Report).

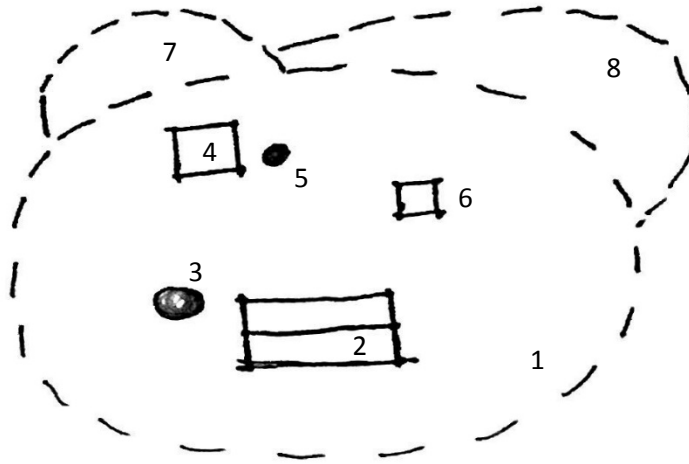


Figure 8. A traditional housing pattern of the Marshall Islands. 1. Coral Gravel; 2. Living/Sleeping House; 3. Water Cistern; 4. Cooking House; 5. Open Fireplace; 6. Outhouse; 7. Taro; 8. Banana patch

According to Connell and Lea (2002), there is very little information presently available to describe the processes involved or to assist in analyzing the effects of urbanization and current housing policy measures, and in the past 12 years, little has changed. By and large, the neglect of housing issues is the legacy of a widespread perception that housing provision is primarily a private activity undertaken by households (Connell and Lea 2002, p. 161).

The land use pattern on Majuro can best be described as a mosaic of spontaneously grown clusters with different types and sizes of shelter occupied by households of different income groups and rural origin, interspaced with an uncontrolled spread of low-key commercial development and a few light industries, government offices and other public institutions such as schools and churches. As could be expected from such a development, there are extensive planning issues that need to be addressed in order to make the growth sustainable (UNCHS and UNDP 1994, 129).

Based on Connell and Lea's report, the factors constraining the success of government measures for urban revitalization are the large extent of rehabilitation required (42.7% of housing), the high cost of construction, the low income levels of those who need assistance, the inhibiting effects of land tenure systems on construction and improvement of low-income housing, and the high densities in the D-U-D area¹⁶. High unit costs of housing construction require domestic housing loans of up to \$50,000 via agencies such as the FmHA (USDA Rural Development housing grants).

Within the urban environment, the Marshallese maintain little if any form of traditional building culture as the majority of buildings consist of western styles, concrete walls, and outside funding. Royle remarks: "the traditional vernacular architecture has largely been abandoned upon urbanization" in Majuro, while South Tarawa has maintained its vernacular architecture (Royle 1999, p. 214). Most buildings, except a few churches and the capital building, are devoid of any architectural effort and represent a-cultural boxes for occupation. The Republic of the Marshall Islands building construction industry relies heavily on input and grants through United States organizations such as USAID and USDA Rural Agriculture, in agreement with the Compact of Free Association.

Since COFA allows freedom of travel into the United States, emigration has increased, further adding a layer of complexity to the relationship of clans and building landscape as populations are in flux and remittances are sent home. The highest densities of Marshallese abroad are in Hawaii and NW Arkansas. Ocean View, Hawaii (and

¹⁶ By 2023 85% of population will live between Majuro and Kwajalein (Connell 2011).

arguably Waipahu, Hawaii), demonstrates a unique presence of Marshallese immigrants in the United States for a couple of reasons: First, the spatial organization of the immigrant housing demonstrates replication of their insularity and protection from outside forces all around (Carucci, 2012). Secondly, the Marshallese populations further express their identity through the self-production of dwellings, cookhouses, and gardens. The structuring of their built-environment abroad demonstrates the emergence of more traditional Marshallese settlement patterns and housing organization within an immigrant milieu. This is significant because the majority of the Marshallese population in Ocean View came through Majuro¹⁷, which lacked the remnants of more traditional spatial organization except the appearance of outdoor fire pits within the slum, Jenrok Village, Majuro.

3.3 Namdrik Atoll

Namdrik is often referred to as *Alele Eo* or the basket of culture. This reference is drawn to the material culture of the chief drawn to the flower, *wut kajdo*, which grows on Namdrik.

Namdrik provides a basis for understanding deep cultural patterns manifest in a supportive built-environment; it has had less outside influence than Majuro and continues to support traditional settlement patterns along with some traditional thatched housing. Based on Rapoport's (2006) theory of syncretism Namdrik would represent a model system from which the other cases can be evaluated; it represents a basis to understand levels of culture change within the Marshallese place settings. Namdrik Atoll is an outlier

¹⁷ Marshallese immigrating to the United States has to come through Majuro in order to travel into Hawaii or the continental USA. Many of these families internally migrate to Majuro from outer islands, seeking economic opportunity, prior to emigrating.

atoll of the Ralik Chain and known for the maintenance of traditional ways of living. Recently research and development of sustainable technologies have begun on parts of the Namdrik in order to utilize Indigenous Ecological Knowledge to build resilience and mitigate the impacts of climate change. Although Namdrik represents an environment supportive of traditional ways of life, it is not definitive of deep cultural patterns, uncovering these requires the comparative analysis across all cultural variances of Marshallese lifeways.

Namdrik is one of the southernmost atolls in the Republic of the Marshall Islands and on the Ratak Chain (Figure 9 provides a satellite image of the atoll). Namdrik Atoll consists of two islands and one of the smallest lagoons in the Marshall Islands. The small island to the northwest is Madmad, and it is uninhabited. The main island of the atoll, Namdrik is approximately 5.2 miles long with a maximum width of .46 miles. Namdrik was first settled approximately 2000 years ago based on the theory of Southern colonization of the Marshall Islands (M. I. Weisler, 2001b). The main village on Namdrik is at the southwest portion of the island, at which point the island is the widest. Today Namdrik hosts a population of approximately 500 people (EPPSO 2011 Census) with 100% of the population residing on Namdrik Islet. It is rare if ever that all Namdrik families are present on the atoll at any given time¹⁸. Madmad islet is uninhabited. There are a total of 97 households on Namdrik, and the average household size is five. 67% of the population is under the age of 15, and there is a net migration rate of -26 (5% population loss over a five year period (EPPSO 2011). It is apparent from the vacant housing all along the island, that global shifts have had a significant impact on

¹⁸ . Many families live on both Namdrik and Majuro or Jaluit

Namdrikese as families seek jobs on Majuro or the United States. The population of Namdrik is primarily strung along the lagoon side of the island. Roughly eight inhabited houses are on the ocean side, all toward the center of the island. Although the main village on Namdrik is located at Elmon, housing continues all the way from one end of the island to the other. The housing patterns follow the traditional land tenure system, with families constructing their homes on individual *wētōs* across the whole island. Historically, Madmad was also inhabited, which was confirmed through interviews but is no longer.

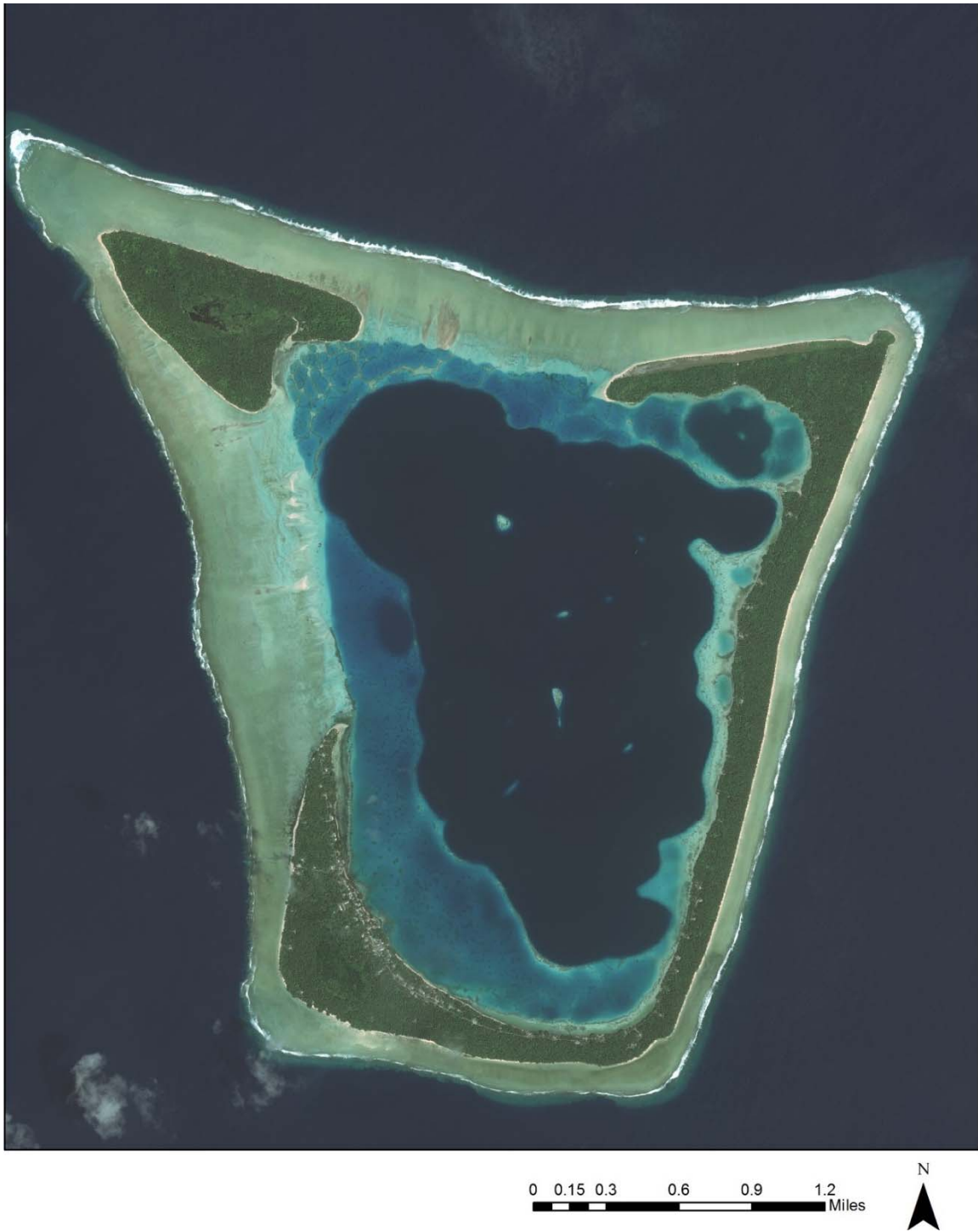


Figure 9. Aerial photo of Namdrik Atoll. Base map from USGS and Digital Globe

The written record does not establish outside contact with Namdrik until the 19th century; the earliest image of the atoll comes from Hensheim (1883) (See Figure 10). Elmon, Namdrik has most likely been the primary human settlement since prehistoric

times given the size and shape of the islet. To this day, Namdrik is known for maintaining many of the traditional ways of life despite modernization, including the maintenance of traditional thatched housing.



Figure 10. Namdrik Atoll, 1883. From Hearnheim (1883: Plate 4).

If we follow Spennemann's theory of traditional settlement in the Marshalls, which aligns with traditional settlement on atolls in the Pacific, then pre-historic and historic settlement was primarily on Elmon. Peripheral land parcels to the north would have been used primarily for resource use, but not habitation. This is reinforced by the fact that most families living in the main village today also have *wētos* at the further extents of the island and use these areas for recreation. Some have houses in both areas.

3.3.1 Prehistoric Context

To a large extent, archaeological research is in its infancy in the Marshall Islands, with the most contemporary research done by Marshall Weisler in specific locations across the country (Weisler 2002, Riley 1989). The work of Rosenthal, Riley, and Dye;

Spennemann; and Weisler are examined in the next section to draw inference to prehistoric life on Majuro. However, no archaeological work has been done on Namdrik. The youth of scholarship in atoll prehistory has led to knowledge gaps in the long evolution of the Marshallese culture. Leslie Mead (2003) conducted the most comprehensive report on the cultural resources of Namdrik under the direction of the RMI HPO.

Settlement on Namdrik most likely first occurred on Namdrik and Madmad due to the size of the islets and their freshwater lenses. Elmon would have provided the best resource base as it is at the widest part of the islet. However, social factors could drive settlement in other less ecologically inviting areas just as well. From the ethnographic records, taboos, family disputes, and need for maintaining land holdings has driven settlement to smaller islets.

Ethnographic data suggest that chiefs and families of high status were probably clustered along the lagoon in Elmon, Namdrik. Lower status families would have been clustered in peripheral areas. As the population grew, settlement would have spread to less desirable locations, such as the ocean side and further along the narrowing islet. Most interviews regarding the history of Namdrik alluded to the atoll as a special place in the cultural development of the Marshallese. Mead suggests that the significance is drawn to the atoll, especially as *Alele Eo*, could place it as the first populated island in the Marshall Islands and the home of the highest status families (Mead 2003, p 26). Members of the Namdrik community also spoke to the significance that no Chiefs presided over the atoll. Chiefs had land rights going back to Kabua and Loek, but the atoll was left to the care of its people rather than the rule of a chief. Based on Bwebwenato mythology, it is likely

that Madmad was considered a taboo place (*mo*) and only used for resources. We know that in recent history, several families did live on the island.

Swamp, marsh, former taro pit are located on the interior of Namdrik, House Site associated with the traditional story of Jedebno (Mead 2003). This is located by the Marshallese Full Gospel Church and by the ocean side thatch house; it is in a large inland swamp containing a Mangrove estuary. Locals consider this area the home of Ledebno, a lover of Lijobkonira¹⁹.

Coral in the tidal zone associated with the story of Lobejbejina²⁰. The site is important to the cultural identity of the people of Namdrik. It is an integral part of the landscape that is associated with fishing in the area and the loading and unloading of the field ship (Mead 45). “The site is representative of cultural values of sharing and inclusiveness. It is used nearly daily during fishing and regularly when the field trip boat arrives.”

3.3.2 Bwebwenato Stories

Two Bwebwenato stories of Namdrik speak directly to material culture on the atoll. The first story of Jodrikwod’s Daughters draws clear connections to the use of the attic space for children, the importance of the banana, and emphasizes that it is taboo to wash your hands under the roof of your house. The second story, the story of Litormalu,

¹⁹ Lijobkonira was a woman that lived on Madmad. She had many lovers on Namdrik that she had made special paths so that she could reach their homes without being seen by anyone. She would wade across the reef between Madmad and Ajeltoken, called Tokaen. One lover, Lotepiej was a famous navigator and weather forecaster. The second lover was Lomajtamij. The third lover was Ledebno, who soaked coconut husks and was famous for the sennit he made from them. Ledebno’s sennit was used in house construction and canoe construction (Mead 37-38).

²⁰ Refer to Tobin Marshallese Bwebwenato for the story of Lobejina.

is about the importance of navigation and canoe building, and how navigation began in the Marshall Islands (Loeak, Kiluwe, & Crowl, 2004, pp. 31–34)

3.3.3 Historical Context

Through the period of Spanish, English, and Russian explorers, Namdrik was only documented once. The first recorded record of Namdrik by western traders was on December 15, 1792, by the Royal Admiral (Hezel 1983:82). During the period of intense whaling in the Pacific during the early 19th century, Namdrik had little contact. In 1835, the captain and five crewmen of the *Awashonks* of Falmouth, MA were killed when the residents of Namdrik attempted to take that ship (Hezel 1983: 199-200). The Copra trade began to take hold on Namdrik after the mid-1860s. Arguably, this had the largest effect on the landscape of the atoll.

The Christian Missionaries from the United States arrived on Namdrik in 1857 with the arrival of the *Morning Star*. A Hawaiian missionary was in residence on Namdrik by 1865 (Hezel 1983: 209). The introduction of the Gospel to the islands had the longest lasting and most significant impact on cultural change – from material culture to social hierarchy.

German and Japanese presence on the atoll had a relatively little impact. During the German protectorate, little more than ongoing copra trade affected the day-to-day life on Namdrik. Japanese traders who arrived to establish a post on the atoll during the 1920s and 1930s were reportedly a benign presence and looked upon nicely on Namdrik (Mead 2003).

3.4 Majuro Atoll

Delap-Uliga-Djarrit (D-U-D), Majuro Atoll, Republic of the Marshall Islands

The capital of the Marshall Islands, Majuro, and its urban core, Delap-Uliga-Djarrit (D-U-D) has undergone intensive urbanization since the post-war era, with significant growth between 1991 and today. The United States relocated the capital to Majuro after Jaluit was heavily damaged during bombing raids, bulldozing the island to build an airport and establish the D-U-D as the center of government control and economic development. The colonial legacy of the USA on the Marshall Islands has had detrimental effects, such as the nuclear fallout of the Bravo Shot on Bikini Atoll, but little if any studies have been conducted to understand the impacts that changes to the built environment have had on the cultural identity of its inhabitants. For example, the period between 1981 and 1993 increased intensification of residential housing in the D-U-D urban core of Majuro, where commercial buildings, the hospital, and Capitol Building have been erected (Spennemann, Dirk, 1996). According to Connell and Lea (2002), there is very little information presently available to describe the processes involved or to assist in analyzing the effects of urbanization and current housing policy measures, and in the past 12 years, little has changed. By and large, the neglect of housing issues is the legacy of a widespread perception that housing provision is primarily a private activity undertaken by households (Connell and Lea 2002, p. 161).

3.4.1 Prehistoric Context

Prehistoric settlement on Majuro took place slightly later, with radiocarbon dates from sites on Laura dating back to roughly 2000 BP (Riley 1987). Both Namdrik and Laura islet have been continuously settled for the past 2000 years. Rita, or Djarrit, on the other hand, did not see significant settlement until after World War II as the United States

Military moved the capital to Majuro and began urban development in the 1950s (Spenneman 1996). Before the urbanization of D-U-D, Djarrit was most likely used for resources, but permanent settlement was unlikely (Spenneman 1996). These three sites provide three time periods of human settlement, ranging from 2250BC – Present). A longitudinal analysis across these three locations will provide relative information for core cultural patterns that transpire across time and space (Rapoport 1983), and comparing these findings with the archaeological and historical record will help both contextualize the diachronic nature of housing at each site as well as provide a deep time analysis across space and time of Marshallese settlement.

3.4.2 Historical Context

First discovered by the Spaniards in the 16th century, it was not until centuries later that the islands were documented by Marshall and Gilbert, while on a roundabout voyage from Australia to China. The first systematic written documentation of the Marshall Islands began after the expeditions of Otto von Kotzebue in 1829 and 1831-32. After Kotzebue, whalers, and traders intermittently made contact with the RiMajol. In the mid-19th century the copra trade finally came to the Marshall Islands. During this period (circa 1850), Protestant Missionaries began to come (Spoehr, 1949). A mission station was founded on Majuro in 1869 when a Native Hawaiian missionary and his wife took up residence on the atoll.

The Germans were particularly active in the Marshall Islands with their stations based on Ebon and Jaluit. In the latter half of the 19th century, Germany formally established a protectorate of the Marshalls in 1885, as traders desired the protections of their ports. The German flag was officially raised over Majuro on October 21, 1885

(Kramer and Nevermann, 1938). The Germans put a stop to interisland warfare, which froze the relative social positions of island chiefs (Mason et al., 1967). This peace allowed for more rapid culture change as it removed a check to increased trading activity on the islands and the influence of the missionaries could increase (Spoehr). By 1887 four white men were living on Majuro – two Germans, an Englishman, and a Scotchman. The first trading post and store on Majuro was established around 1888. In 1926 a Japanese sailor came to live at Laura village and started a store, NBK (Nanyo Boeki Kaneko) (Spoehr).

Majuro Village

Majuro village consists of four districts (Eolab, Lomar, Lobat, and Jeriok). These districts provide a numeric for distinguishing directions in everyday speech but also serve a role in the social division in ceremonial affairs. For example, every Christmas, each district puts on a pageant (Spoehr). Eolab is traditionally the home of the paramount chief. Eolab also happens to be the center of village life, which has been established through institutional activities since contact – the church, the general store, the place of governance, the hospital, etc. (Spoehr)

Laura is densely vegetated, with coconut palm being the predominant vegetation. Breadfruit, pandanus, lime, banana, and papaya provide the main food resources along with taro. Spoehr documented that most houses consist of two rooms with a lanai that may or may not be covered in. Outhouse (*benjo*), the shower house, and the cooking shed are separate structure form the house itself, but they lie at the edge of a coral yard that surrounds each house. Many houses also have an *atiti*, or copra drying shed within the

house area. It is typical for houses to be separated from one another by some considerable distance.

The road between Laura and the D-U-D was built in 1961. People do not commute daily to Rita, but a few persons have homes in Laura and spend the weekends there, but work in Rita during the week. Some do go back and forth almost daily.

In Laura land is held by one *iroij lablab* – one who lives in Rita but has representatives in Laura. The other group has no *iroij lablab* because the *iroij lablab* dies without a direct heir, so a number of *iroij erik* (lesser *iroij*) were appointed to control the land of that group. There are eight *iroij erik* in this group, only one of which lives in Laura. Must live where one has land rights. Commoners tended to have land at the interior of the island or along the ocean side, while the lands along the lagoon were reserved for *alaps*, *iroij erik*, and *iroij laplap*. (Hazel)

Japanese colonial influence

The Japanese took over the Marshall Islands during World War I. During World War II the Japanese began to fortify Majuro. Beginning in 1940 they built a base at the east end of Majuro in present-day Djarrit. Their main bases were on Wotje, Maloelap, and Mile. (Spoehr). During the Japanese occupation, the housing, water catchments, and baths were constructed in Djarrit and Uliga. In addition, the Japanese cleared a significant portion of Laura for an experimental farm and built several warehouses and stores. Also, the Oceanside road and the three secondary roads that transect the island were constructed during the Japanese period. Before that, the interior of the island and the ocean side were accessed through footpaths that transected the island. Most of these were still used during the observations of Spoehr (1950).

The occupation by the Japanese was one of assimilation and an attempt to social engineer the Marshallese to follow the Japanese emperor. During the 1930s, social engineering outweighed the welfare of the islanders to Japanese imperial interests, in effect reversing the priorities established in the original mandate agreement (Spoehr, 209). Japanese influence is apparent in the architecture of buildings constructed during the period; long horizontals with Dutch hip roofs and long verandas (Spoehr).

United States Occupation

The US wanted to bring Micronesia into the modern way of living (Hezel, 1995). “What was needed was an orderly development plan in the towns. Accordingly, the administration contracted with Hawaii Architects and Engineers, Inc. in 1967 to prepare a master plan for the use of all land on each of the major islands in the TT. Within two years, the consultants had produced a set of booklets sketching a futuristic design for island life” (Hezel, 1995, p. 324). Not so much a futuristic look at island life, but the application of expectations for island life based on the American experience in Honolulu and Guam (Hezel 195). To an extent, this lifestyle was achieved in Uliga, but only lasted up until the end of the Trust Territories.

“The plans were thorough and expensive, but not very useful, for they presumed a follow-through that was never carried out and development funding that never became available” (Hezel, 1995, p. 324). In actuality, planning and development difficulties were a result of land tenure in the RMI. Shows the real strength in that traditional system that can counter such a major regime as the USA (Hezel 1995).

3.5 Interpretations

Majuro, the capital of the Republic of the Marshall Islands, proposes a unique opportunity to understand the implications of cultural identity as it relates to shifting building landscapes due to its colonial past and migratory future. The traditional built environment of the Marshallese could be described as temporary and renewable, as the traditional built-environment consisted of woven, thatched dwellings and canoes (Royle, 1999; Spennemann, 1996).

Within the urban environment, the Marshallese maintain little, if any, form of traditional building culture as the majority of buildings consist of western styles, concrete walls, corrugated metal roofs, and outside funding. Royle remarks: “the traditional vernacular architecture has largely been abandoned upon urbanization” in Majuro (Royle 1999, p. 214). However, the building process was maintained. “The men build the houses. They fell the trees, cut the necessary beams, posts, and other structural members, and erect the framework, walls, floors, and roof. If the roofs or walls are thatch, the women make the thatch, but the men secure it in place. House building is primarily a man’s job” (Hezel, 1995, p. 139). The Republic of the Marshall Islands building construction industry relies heavily on input and grants through United States organizations such as USAID and USDA Rural Agriculture.

CHAPTER IV: METHODOLOGY

4.1 Research Design

The overwhelming majority of vernacular architecture studies are concerned with the investigation of buildings as they exist in one point in time, rather than the investigation of buildings across time. The architectural scholar can learn from the field of archaeology in developing a diachronic approach to the research design that explores deeper structures in environmental behavior studies. In addition, the diachronic approach develops a notion of deep cultural patterns manifest in the built-environment, investigating the presence of cultural constants that generate culturally supportive space across the long evolution of culture; these constants may be in the form of Indigenous Design Knowledge.

Furthermore, vernacular architecture studies tend to focus on the house, rather than the ecological (urban ecology or environmental ecology) system that habitation occurs within. The unit of analysis for this study is the *wēto* (traditional land tenure parcel) rather than solely the *em* (house); it is the proper unit of analysis in order to understand the system of habitation and the traditional Marshallese habitus²¹. The *wēto* is a land parcel (Figure 11); based on the traditional land tenure system the *wēto* provided for the division of land based on resource allocation to each family. As depicted in figure 12, the *wēto* allows for each family access to the lagoon resources, land resources, freshwater, and the ocean side resources. This study frames a well-supported model of deep cultural patterns through the primary research of multiple case studies across rural, semi-rural, and urban communities. This selection of sites across space and spatial

²¹ 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).

influence from globalization provides theoretical replication of a diachronic study examining points across time. A review of prehistoric archeological data in conjunction with the archival research supports the findings of deep-cultural patterns and interpretation in the analysis. The archaeological review will provide an understanding of prehistoric deep time patterns, as well as those that stem from the initial Austronesian expansion. Since this study is primarily concerned with the influence since colonial occupations, the date range of archival documents focuses on cultural accounts beginning with ethnographic accounts from the 19th century to the present day. The research is framed within decolonizing methodologies, which require bi-cultural sensitivity²² in order to develop a position within the dominant sustainable development discourse (Smith 2012). In dealing with such contentious topics, reflexivity must be implemented at all research phases.

²² The researcher must answer the following questions: Who defined the research problem? For whom is the study worth and relevant, and who says so? What knowledge will the community gain from this study? What knowledge will the researcher gain from this study? What are some likely positive outcomes? What are some likely negative outcomes? How can negative outcomes be eliminated or mitigated? To who is the research accountable? What processes are in place to support the research, researched, and the researcher? (Smith 2012, 175-176).



Figure 11: Diagram of land division into *wētos* (Spennemann 1990).

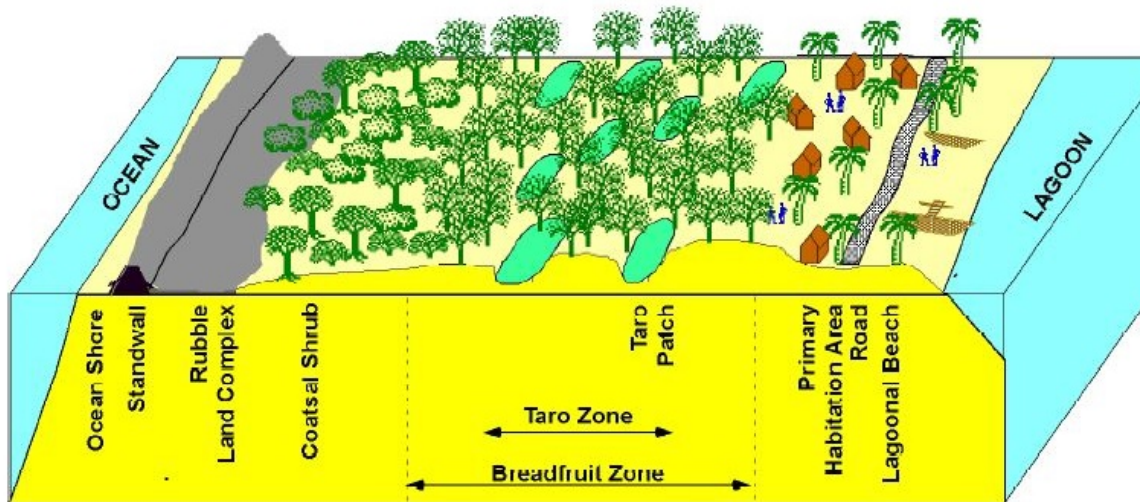


Figure 12. Ecological zones and settlement design of a traditional *wēto* (D. R. Spennemann, 1990).

4.2 Placing the Research within the Context

While I am not Marshallese, my shared experience as part Native Hawaiian places me in a position to better understand the relationship between the Marshallese culture and its built-environment and ascertain the sensitive and political nature of the research. In

addition, I have developed strong relationships with the Marshallese community in the Republic of the Marshall Islands and abroad and worked with a Marshallese non-profit.

Studying the relationship between the Marshallese and their built-environment is a sensitive endeavor. The Republic of the Marshall Islands has been occupied – and arguably still is – by outsiders (the United States, Japan, and Germany) for the past 150 years. These occupations and outside influence have had lasting impacts on Marshallese culture-change, resembling similarities to the experiences of other Indigenous peoples. As a study of Indigenous peoples, it is “deeply political” (Kovach, 2009, p. 29). Although it was not the intent at the onset of the dissertation to focus on the political nature of the research, a decolonizing perspective has been taken in the analysis and writing of the dissertation. The dissertation engages with decolonizing research through transformative action, placing knowledge creation in the hands of the communities involved and demonstrating the value of local knowledge in the creation of supportive space and cultural resilience.

In order to critically evaluate the researcher’s place of privilege in relation to the field of study and approach the study with sensitivity, reflexivity is required.

In anti-oppressive approaches, self-reflection is described as ‘critical reflexivity,’ which purposefully gives space for the political examination of location and privilege.... decolonizing methodologies demand a critical reflexive lens that acknowledges the politics of representation within Indigenous research (Kovach, 2009, pp. 32–33).

In addition to the above sensitivities, a decolonizing approach to research requires the study to give back to the community in a way that is useful for them; in doing so, this method promotes social justice. While the theoretical implications of this study are not directly beneficial to the communities that were involved in the study, I have taken efforts to align my research with projects through non-governmental organizations and local governments that directly benefit these communities. These are projects that will continue into the future, as praxis is a requirement of a decolonizing methodology.

4.3 Methodology

4.3.1 Case Study Method

The case study provides the ability to understand complex social phenomenon and the complex dynamics of their context; it enables the researcher to deal with a full variety of evidence (Yin 2009). By focusing on one or multiple cases, the case study allows the researcher to explain causal links by grounding theory throughout the research and using multiple sources of evidence in order triangulate validity and build upon the theory. This study is grounded within the theory that the dwelling is a manifestation of culture and a reproducer of culture. Thus, the methodological framework draws upon previous studies that study this culture - built-form relationship: how do people instill culture in the built environment, how does the built-environment reproduce and transmit habitus, how might the built-environment establish agency?

While decolonizing methodologies do not necessarily speak to the use of case study frameworks in Indigenous cultural studies, the iterative process involved in a case study provides a rigorous methodological process akin to the inductive processes in other forms of qualitative frameworks.

The use of multiple sources of evidence is essential in developing validity within the case study. I have proposed to implement a multiple-case study approach based on the need for replication in confirming outcomes across the diversity of contexts (rural, urban, and semi-urban). These cases provide the opportunity for confirming outcomes across varying situations in which cultural continuity is faced with outside influence and sea level rise. The study of each site provides a snapshot, and their comparative analysis provides a dynamic history, providing a more robust image of deep-time cultural patterns.

4.3.2 The Case Studies

In order to develop theoretical replication, three communities were chosen across rural, semi-rural, and urban contexts in the Republic of the Marshall Islands (RMI)²³. The Marshallese communities selected are as follows: Laura Village, Majuro, RMI; Djarrit and Uliga Villages, Majuro, RMI; and Namdrik Atoll, RMI. Laura Village is a rural/semi-rural village that is attached to the Urban Center of RMI by a 27 mile long road, Djarrit and Uliga are urban villages in the heart of Majuro, and Namdrik is a remote outer atoll; the locations were based on the different contexts demonstrating theoretical replication (refer to Figure 8 and 14 for map of locations)²⁴. Familial housing, consisting of traditional architecture, imported architecture, and self-produced architecture was analyzed to triangulate an understanding of cultural patterns present in adaptation as well as self-built housing.

The case study sites were selected based on the length of continuous human settlement as well as their relative global and urban influence. As a southern atoll and

²³ A preliminary field study in Majuro and initial look into the existing archival data, demonstrated that the best approach to the study was to conduct ethnographic studies and building surveys of three ‘villages’ in RMI, consisting of an urban village, a semi-rural village, and a remote, rural village.

resource-rich, Namdrik was likely one of the earliest populated atolls in the Marshall Islands.²⁵ Although there is no archaeological record to confirm this, both Namdrik and Laura islet has been continuously inhabited for the past 2000 years. Djarrit and Uliga on the other hand did not see significant settlement until after World War II as the United States Military moved the capital to Majuro and began urban development in the 1950s (Spenneman 1996). Before the urbanization of Djarrit – Uliga – Delap (D-U-D), Djarrit and Uliga were used mostly for resources, but permanent settlement was unlikely (Spenneman 1996). The chosen communities were also selected based on existing knowledge of the area and agreements with community leaders and government officials to conduct research there. Almost any other outer island would suffice as a rural context and Ebye, Kwajalein atoll could replace downtown Majuro as the urban context. Laura village represents a unique case given its connection to the capital and that it was the traditional settlement on Majuro. Other comparable communities based on the level of development would include Kili Island (where the Bikinians were resettled) and Jaluit (the old capital).

²⁵ Based on earlier radiocarbon dates found on Bikini atoll, it is suggested that prehistoric settlement was from the north; however, these dates are contested (Kirch and Weisler 1994). Weisler's (1999, 2017) chronology of the Marshall Islands is consistent with rapid colonization, likely, from the south.



Figure 13. Map of Majuro on the left, highlighted areas are Laura village and Djarrit. Map of Namdrik on the right, highlighted area is Elmon. Map of Majuro produced by MIVA; map of Namdrik produced by Ramsar.

The other factor for the selection of these sites is the level of syncretism or replacement that has taken place in the vernacular architecture due to outside influence over the course of history. The Spanish were the first to make contact with the Marshall Islands with writings dating back to the 16th century. However, a more established connection to the outside world was not established until the 19th century as trade began to take shape in the Pacific. During this period, syncretism and replacement of traditional material culture began to take place. The written record does not establish outside contact with Namdrik until the 19th century; the earliest image of the atoll comes from Hensheim (1883: Plate 4). Elmon, Namdrik has most likely been the primary human settlement since prehistoric times given the size and shape of the islet. To this day, Namdrik is known for maintaining many of the traditional ways of life despite modernization, including the maintenance of traditional thatched housing. Like Namdrik, Majuro also did not receive continued contact with the western world until the 19th century. However, the rate of change on Majuro has drastically shifted since World War II. Majuro became the capital following World War II, establishing the D-U-D as the urban center. With urbanization came more dependence on imported goods and imported culture. Thus

syncretism and replacement of traditional architecture took place more rapidly, leading to more drastic changes in the D-U-D than in a remote atoll like Namdrik. During the same time as initial urban development on Majuro, including the revamping of the airport, a ring road was constructed to connect Laura village to the urban center. Thus, residents of Laura could easily connect to the trade of the city, leading to further shifts in traditional patterns. In addition to changes from the course of colonialism, following devastating typhoons and severe floods, reconstruction of housing tended to replace the existing vernacular entirely, introducing a-cultural and ‘western’ tract architecture, rather than producing culturally supportive housing (analysis of reconstruction plans over the past 50 years). A longitudinal analysis across these three locations uncovers common core cultural patterns that transpire across time and space (for culture-core definition refer to Rapoport 1983). Comparing these findings with the archaeological and historical record contextualizes the diachronic nature of habitation at each site and provides a deep time analysis across space and time of Marshallese settlement. The following two chapters detail the deep cultural patterns that emerged from the research.

4.3.3 Sampling

Sampling consisted of two phases. The first phase was the primary field research conducted on *wētōs*. The second phase was a validation survey that tested emergent patterns across a larger population on Namdrik and Majuro.

A preliminary field study was conducted in September 2015 to set up contacts, meet with government officials and community leaders, and establish informants. These individuals aided greatly in the organization and logistics for field studies conducted between January and July 2016 and August to September 2017; they assisted in gaining

access to each case study site and introduced me to potential participants. The Republic of the Marshall Islands requires a research permit for anthropological and archaeological research, which is garnered through the Historic Preservation Office. Although this study is architectural, it was deemed relevant under the archaeological permit by the manager of the RMIHPO, and a permit was applied for and received. Also, this research was reviewed and approved by the University of Oregon Internal Review Board under protocol number 11232015.035.

The research population consists of Marshallese families who live in a family compound, or *wēto*, in Laura Village, Rita and Uliga Village, and Namdrik. Each site visit began with meetings with the mayor (or standing mayor in cases where the mayor was off island), local council members, and local *alaps* (landowners). Self-selected sampling was employed for the selection of *wētos* at each site. A family needed to both understand the extent of the data collection and agree to participate in the study.

Although the research was not necessarily invasive, it required participants to allow me to study their homes and, to an extent, participate in their daily lives for a short period. Of the self-selected families, interviews were conducted with the head of the household and other family members over the age of 18. Family members were included in a participatory mapping exercise of their *wēto* and in some cases family members aided in the building and site survey of the *wēto*. Self-produced housing, traditional dwellings, and ‘western’ housing were all present among the *wētos* studied.

In addition to the self-selected families, key community members, stakeholders in housing projects, and Marshallese officials were selected for interviews. These interviews provided information on macro-level implications of the culture-environment relationship

as well as understand government approaches to climate change adaptation and resilience strategies.

4.3.4 Data Collection

Multi-modal research methods were used within the case study for data collection. The relationship between culture and the built-environment is inherently complex, requiring an iterative approach in exploring relationships. Layering of multiple methods helps address this complex dynamic accompanied by exploratory data analysis. In order to understand the cultural patterns, a configuration of relationship must be mapped to assess patterns within networks of social processes. Through the layering of the data of multiple research tools, it may identify intensities which represent the characteristics constituted by the cultural system (R. Barnett, 2004). The following are the multiple tools of data collection.

- Participant observation: Provides an interpretation of the socially constructed meanings about the dwelling order for someone foreign to the cultural setting to understand them.
- Archival research: A rich body of literature consisting of ethnographic accounts, archaeological studies, journals, government reports, and archived images. A context of deep-time is developed for each site of the case studies. For example, Spoehr (1949), Poyer (1997) and Dye et al. (1987) provides documentation of Majuro, which includes a detailed description of households consisting of site plans and domestic settlement plans – including land tenure schemes. Marshall Weisler provides extensive archaeological accounts for

Ebon(1999b), Ujae (1999a), Utrok (2001a), and Majuro (2000). Also, Lawrence Carucci's (2004) work on the Enewetakese and Dirk Spennemann's (1995, 1996, 2006) and Leslie Mead (2003) work on the culture resource management are essential.

- Spatial analysis: The social logic of space can be studied in multiple ways, such as with Space Syntax. The Space Syntax method of spatial integration is used to understand the social logic of settlement patterns and the relationship between settlement patterns based on their shared genotype of social logic. Spatial analysis can build a bridge between the different forms of analysis, which inform spatial programming, representation, and lived experience (Dovey 1999). In addition to space syntax, point pattern analysis provides an avenue for exploratory data analysis to discern patterns based on distance and attributes of area and proximity; this was combined with Visual Graph Analysis (VGA) in order to demonstrate relationships between physical clustering and social activity centers.

Everyday behavior patterns were observed to document the supportive nature of housing and the relationship between social behavior and the *wēto*. Interviews were conducted with households to understand change over time and maintenance of traditional cultural patterns. Table 1 provides a synopsis of case study tactics used based on Yin (2009).

Table 1: Case study tactics and responses (Yin, 2009)

Tests	Case Study Tactic	Research Phase in which tactic occurs	Action taken in this research
Construct Validity	Use multiple sources of evidence	Data collection	Interviews, participant observation, building and site surveys, validation survey and participant mapping
	Establish chain of evidence	Data collection	Interview data both taped and transcribed; multiple evidence sources entered into customized object-oriented database
	Have key informants review draft case study report	Composition	Two conference papers and one journal article based on case studies reviewed by key informants before publication
Internal Validity	Do pattern matching	Data analysis	Patterns identified across cases
	Do explanation building	Data analysis	Some causal links identified
	Do time series analysis	Data analysis	A diachronic study using archival data and review of ethnographic and archaeological publications to support analysis
	Do logic models	Data analysis	Pattern origins and adaptations
External Validity	Use rival theories within single cases	Research design	Use of decolonizing theory, pattern theory, and social theory to discuss findings
	Use replication logic in multiple-case studies	Research design	Multiple cases investigated using theoretical replication. Validation survey
Reliability	Use case study protocol	Data collection	Same data collection procedure followed for each case

	Develop case study database	Data collection	Interview transcripts, other notes, and links to online and physical artifacts entered into the database.
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4.3.5 Procedures:

The research design consisted of four data collection phases: 1. Review of existing ethnographic and archaeological literature of the Marshall Islands. 2. An ethnographic field study of selected villages. 3. Archival research on each village selected, consisting of historical development, family lineage, oral histories, and present conditions. 4. Survey to validate findings from previous 3 phases. Synthesis of diachronic cultural patterns and case study analysis followed the data collection.

“One is trying to identify important social units (castes, kinship groups, families, social networks, etc.), the corresponding physical units (neighborhoods, compounds, house groups, villages – various systems of settings), the units of integration [i.e. where social interaction occurs and the corresponding institutions [e.g. recreation, fairs, rituals, shopping, eating, etc.]. Together, these may then begin to provide the appropriate relationships among activity systems (including their latent aspects), cognitive schemata expressed in domains and systems of settings (especially the house-settlement system).” (Rapoport 1983 p. 264-264)

Phase 1: Review of historical ethnographies and archaeological studies

Though everyday cultural behaviors are not always expressed in historical ethnographic accounts, and certainly not in connection to the built-environment, twenty-

five patterns emerged from literature. The early ethnographic reports written by Erdland (1938), Kotzebue (1821), Nevermann, and Kramer (1938) provide an early account of Marshallese material culture and cultural behaviors. One must recognize that these early accounts were often based on pure outsider observations and did not decipher the intricacies of Marshallese culture; these accounts are defined by the white researcher studying the exotic other. Later ethnographic accounts and cultural surveys conducted by the US government on the Marshall Islands following world war two document in greater detail the taxonomy of Marshallese culture. Of particular interest to this study are the works produced by Spoehr, Tobin and Leonard Mason. Collections of *bwebwenato* stories are also valuable in understanding relationships between mythical understandings of the environment and can be interpreted to understand meanings attached to the creation of the built-environment. Other everyday cultural patterns are also present in these ethnographies that allow for interpretation of daily use in pre-historic and historic sites. Reports conducted by the RMI Historic Preservation Office provide studies from 1990 to the present on cultural heritage and resource management in the RMI, with specific reports for each of the case study areas.

The data collected covers a period from 1850 to the present day provides a high resolution of everyday life in the Marshall Islands and allows one to more accurately interpret the relationship of the Marshallese with their built-environment across this period.

Phase 2: Field Study

An initial field study was conducted in Majuro, RMI over a three week period in order to establish affiliations with the RMI Historic Preservation Office, Faculty at the

College of the Marshall Islands, local land-owners, and government officials in the three selected case study sites: Majuro Village, Majuro RMI; Djarrit and Uliga, Majuro, RMI; and Namdrik, RMI.

The primary field study was conducted between January 2016 and July 2016, spending one month on Namdrik and the remaining time divided between Djarrit and Uliga, Majuro and Laura Village, Majuro. Open interviews, participant mapping, building surveys, site surveys and aerial mapping were conducted in each site.

The field study began in Namdrik followed by a simultaneous study in Laura, Djarrit, and Uliga. The reason for this order is for both logistics and theoretical basis. Moving from Namdrik, where traditional systems have been maintained, to Laura and then downtown Majuro allowed for initial comparative analysis to occur in the field as differences in habitation between settings alluded to the level of change and consistency. The goal was to uncover the changes through space and time of the social and cultural significance given to spatial arrangements, material use, building design, and the integration of resource management within the *wēto*.

On Namdrik, 11 *wētos* were selected with aid from local community leaders. The *alap*, or sitting *alap*, of each *wēto*, was interviewed to gain insight into everyday life on the *wēto* as well as the physical changes that have occurred over time. Each *wēto* was surveyed, creating measured drawings of buildings and conceptual drawings of the entire *wēto* with attention drawn to important features, such as cemeteries, favorite fishing locations, and significant trees. A large-scale participant mapping exercise was conducted with the families from the primary *wētos* under study.

Between Djarrit and Uliga, Majuro five *wētos* were selected to provide a good sample of the urban environment in the Marshall Islands. An additional set of *wētos* was mapped in Jenrok (Demon Town) and two *alaps* from this area were interviewed. However this area is an outlier to the typical urban development in Majuro. Jenrok provided some insight into the study but was not a focus. Remote sensory technology was used for aerial mapping, utilizing a DJI Phantom III drone in combination with Photoscan software for post-processing of orthomosaics. Select family housing was documented in measured drawings from these five *wētos*. The selection of these houses was based on self-selected sampling, as not everyone welcomed physical mapping of private property. Participatory mapping was attempted in Uliga and Djarrit, but families asked me to rely on the aerial images captured by the drone rather than participate in their mapping of the area. These five *wētos* represented three clans.

In Laura Village, three families were self-selected consisting of six to eight *wētos* (depending on how the *wēto* boundaries are determined). These fell into the districts of Jeroke, Eolab, and Lobat.

Observation and Interviews

The field study in each village consisted of participant observation, interviews, building level – *wēto* survey, and participatory mapping²⁶. Observations were of daily life on the *wēto*, mapping inhabitant behavior on the *wēto* and in and around dwellings. Observations developed an understanding of how the built-environment supports daily life, how materials are used in the construction of space, and how dwellings and ancillary buildings are produced. Informal interviews and open-ended interviews were conducted

²⁶ Chain validation – each subsequent field survey can validate or question findings from the previous.

with inhabitants of the *wēto* in order to draw an understanding of daily life on the *wēto* and ascertain change over time. Utilizing early site analysis, questions emerged regarding the importance and meaning of spatial relationships that were discussed with informants. These conversations developed spatial meaning of form, materials, and processes based on inhabitant experiences. Interviews were also conducted in order to understand how inhabitant's relationships to the land and dwellings have changed throughout their life. Sentiment toward climate change and current adaptations taking place with housing emerged from these questions.

Measured Drawings

Building and *wēto* surveys consisted of measured drawings of site plans and building plans. Aerial photography, utilizing the Phantom III drone, assisted with site and land survey of the *wēto* and digital photography documented buildings²⁷. These drawings were analyzed based on their components; the connections of spaces to one another were measured in terms of continuity and separation. This mapping allows for spatial patterning to be quantifiably analyzed. The interrelationships, measure of access, depth, and spatial permeability are calculated and used to bring interpretations of social meaning of space through space syntax analysis. This data layered with the historical and current patterns of human activity helps to contextualize the meaning of space. These methods provide us with information on systems of activities about space; this meaning is dependent on context. This context requires knowledge of what the house contains, what it is constructed from (and from where), and how it is ordered in three dimensions and

²⁷ Drone photography only worked on Majuro. Weather did not permit drone flights on Namdrik so analog field mapping was conducted utilizing a compass, walking measure, tape measure, and pencil and paper. These hand drawings were later entered into CAD and used based maps to ensure proper orientation.

how that ordering relates to other houses. Lastly, the continuity and repetition of the house form (or adaptation) are considered as well as the repetition and variations of spatial morphology. Essentially the combination of space syntax with the qualitative analysis of interviews and participant observations provide context to the more quantitative analysis of spatial meaning.

Participatory Mapping

Participatory mapping allowed inhabitants to demarcate importance and meaning directly to their *wētos* and dwellings²⁸. This process helped visualize resource use, rapid identification of social, economic, and environmental issues and the importance drawn to elements of habitation. The process builds common understanding of spatial distribution and status of resources, land use, and building use, allowing for collaborative feedback on important elements and generating accurate information.

Unfortunately, the participatory mapping was only successful on Namdrik. Participants in Laura and downtown Majuro did not want to recreate the ‘maps’ created by the drone images. Instead, participants pointed out important locations as part of a walking tour or when examining the aerial photographs. The participatory mapping on Namdrik took place in small groups with select inhabitants of the eleven *wētos* that were selected. Maps of each *wēto* were prepared including the basic location of dwellings and roads. The exercise began with a short introduction with sufficient information about the approach of participatory mapping, discussion of existing housing and building locations on base maps, and the mapping activity. During the mapping activity, individuals marked on copies of the *wēto* site plan important cultural and social elements associated to the

²⁸ Participatory mapping will be especially useful in uncovering the number of individuals occupying a dwelling/ *wēto* as well as how individuals move amongst familial houses.

use of space; they also added any missing pieces, which often included essential elements that no longer exist. A secondary layer of data included demarcation of pre-existing structures and spaces as well as notes on adaptations that they have created over time. This workshop also determined ownership of property and the management of land and dwellings.

Phase 3: Archival Data

Archival images from the DeBrum photo collection provide insight into daily life in the Marshall Islands from 1850 to 1920. These often depict the vernacular architecture of the Marshalls and the colonial influences of Germany, Japan, and the United States. In addition, images from the Trust Territory Archives, including aerial photography, portraits, cityscapes, and landscapes, provided a snapshot of the Marshall Islands' built-environment from the Post-world War II period into the 1970s. In addition, various archival data of news clippings and government reports provide information on drastic reconstruction following typhoons. Lastly, aerial images produced by the Asian Development Bank (ADB) were used to examine land use change between 1970 and 2000.

Phase 4: Validating results via Survey

A third field visit to the Marshall Islands took place over a four-week period between August and September 2017. During this third visit, a written survey was conducted on Namdrik and Majuro in order to draw a larger sample size of participants in the study to validate findings from the first phase. Survey questions asked participants to consider what cultural aspects of daily life, associated to habitation, are most important and which cultural elements if any they will be maintained if displaced abroad (to the United States).

One hundred surveys were distributed proportionally across Namdrik and Majuro. Seventeen were conducted in Namdrik, and 83 were conducted in Majuro. 75 responses were completed. The survey was conducted using Qualtrics software. The survey was coded in line with the interviews. Many questions were directed to provide more detail information to specific everyday spaces and processes, such as the types of wood used in the construction of buildings.

Questions involving Likert scales and census data provide descriptive statistics to ascertaining the relevance of more traditional cultural patterns in the present day as well as the importance in the continuity of patterns, passing on to future generations, etc. These questions are also tested against census data provided through the 2011 RMI Census (Economic Policy, Planning and Statistics Office, 2012).

4.3.6 Data Analysis:

In dismantling the dialectic relationship between culture and the built environment, there are reflexive relationships between people, spaces, and objects that are important to the analysis of human behavior within architecture: people – space, people – objects, objects – objects, objects – space, and space – space (Donley-Reid, 1993). Creating an analytical framework that borrows from pattern analysis (Alexander, Ishikawa, & Silverstein, 1977), systems of activities analysis (Rapoport, 1990), and space syntax (Hillier & Hanson, 1984), this study dismantles the culture-environment relationship to study the emergent patterns across the three sites of study. Implementing the theoretical framework of Bourdieu and Giddens's (1979) structuration, the social construction of patterns is examined to determine how deep-cultural patterns react throughout regimes of outside pressure, thus demonstrating levels of resilience. Lastly,

since space syntax does not consider the metrics of distance, exploratory analysis of the spatial data is conducted using the Euclidian metrics of GIS spatial pattern analysis.

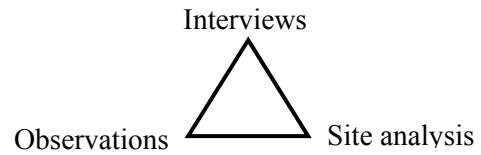
These explorations aid in determining the validity of a pattern.

The analysis of the building surveys, site mapping, and behavior mapping utilizes space syntax, pattern theory, and behavior mapping analysis. This analysis is both quantitative and qualitative. Space Syntax is used for the analysis of spatial relationships between space and buildings on the *wēto*. Observational studies of human spatial behavior demonstrate that such differences in accessibility to resources determine how people are likely to distribute themselves in space; these observations uncover frequency of activity patterns and visually demonstrate ‘hot’ spots of activity.

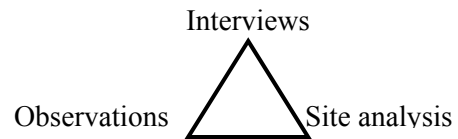
The qualitative data - interviews, ethnographic notes, archived reports, etc. – were entered into qualitative analysis software. For this study, the qualitative coding software, Atlasti was used. Utilizing the logic of grounded theory and analyzing the transcripts with the qualitative coding software aided in uncovering patterns in the data and emergent themes related to the deep- cultural patterns associated with dwelling on the *wēto*. The analysis of this data both develops cultural layers for the building survey analysis and builds correlations with spatial and material use through pattern matching. The triangulation of each deep-cultural pattern discovered through the methodology is depicted in Table 2.

Table 2: Evidence in support of the Deep Cultural Patterns (three primary data used)

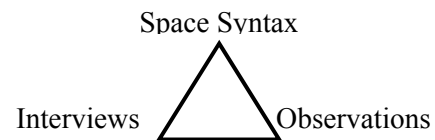
Land as Wealth



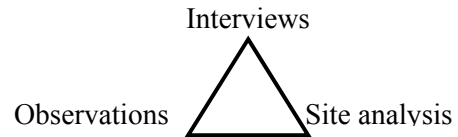
Land as Identity



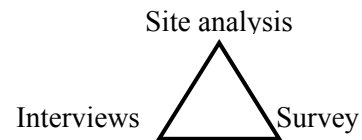
Ippan Doon (Togetherness)



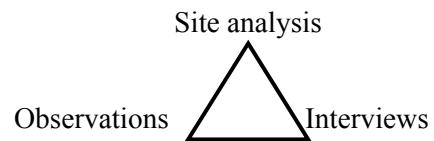
One Fire One Family



Emlapwoj (Family House)



Process-Built Housing



Units of analysis

At the *wēto* level, spatial configuration of dwellings on land and their relationship to each other were assessed along with the relationship to Communal spaces and resources (Table 3). In addition, the relationships between rooms were considered. All of these spaces were assessed in consideration of the centers of activities, social systems,

and the cultural production of space – including resource networks. Lastly, the production of space was considered from the cultural point of view of togetherness (Table 4).

Table 3

	Dwellings	Accessory buildings
Communal spaces	(main room)	(cookhouse)
Resources	(clustering)	(prepare food)

Table 4

	Activities	Social system	Cultural production
Dwellings	(sleep, work)	(gender separation, generation separation)	(Emlapwoj)
Communal Spaces	(Work, eat, play, socialize, <i>bwebwenato</i>)	(Togetherness, resource sharing, social capital)	(knowledge dissemination)
Resources	(cooking, maintenance)	(working together)	(place-based knowledge)
Networks		(multi-locality)	

Qualitative Analysis

Christopher Alexander's *A Pattern Language* provides a framework for analyzing everyday spaces in the built-environment and the supportive nature of these organic designs. This framework is used in application to analyzing the built-environment of the Marshallese in order to understand the organic creation of everyday supportive spaces that have persisted throughout the long evolution of the Marshallese culture. These cultural patterns represent Indigenous Knowledge in the design of the built-environment,

expanding beyond material culture to the landscape design of an entire atoll. While Alexander sought universal design guidelines through his structuralist paradigm, the significance of the ‘local’²⁹ was overlooked, especially in assessing the built-environment and the forces that are in a constant struggle to form it – as is the case in the Marshall Islands.

The survey of archaeological studies on the colonization of the Marshall Islands, human settlement on the Marshall Islands, and human settlement patterns of the early Austronesian Expansion was reviewed for spatial patterns that support everyday cultural behavior. These patterns provide a baseline for deep-cultural patterns and often represent universal patterns for Austronesian cultures (Fox & Australian National University, 1993).

Historic ethnographies, historical reports, archival photographs, and archival aerial imagery were analyzed for emergent themes of everyday behavior. The published accounts of early western explorers provide the first ethnographies of the Marshall Islands and have the most detailed information for uncovering everyday cultural spaces. This assessment agrees with Spennemann’s description of Marshallese material culture. Kramer and Nevermann (1938), Erdland (1914), and Kotzebue’s (1821) early accounts of the Marshall Islands were coded for emergent themes of everyday cultural practice and everyday cultural space. Historical aerial imagery was assessed for emergent patterns in settlement and resource basis and provide a visualization of historic changes over time to

²⁹ In reference to the local and global binary often referenced in the discourse on globalization and transnationalism, the ‘local’ references the city or village scale, focusing on the everyday lives and vernacular of communities. In this context local refers to the communities in the Marshall Islands that were part of the study.

settlement in the Marshall Islands. However, spatial analysis of these images in conjunction with present-day imagery was beyond the scope of the methodology and will be conducted for future publications.

In addition, traditional stories were assessed for emergent themes regarding the culture-environment relationship. Storytelling is an important component of Marshallese culture, and as is common among Pacific Islanders, represents the passing on of knowledge. In order to relate the analysis back to traditional knowledge, *Bwebwenatos*³⁰, are analyzed for themes that relate to the built-environment and the cultural significance of certain aspects. For example, orientation is often discussed in *bwebwenatos* and has a significant relationship with the use of sleeping areas, building orientation, and more.

The analysis of the archaeological review, historical ethnographies, archival data, and *bwebwenatos* created a codebook of baseline cultural patterns. Interviews were transcribed and coded in the qualitative analysis software Atlas ti. In addition to codes established in the codebook, codes were created that represented everyday cultural space not defined in the codebook.

Quantitative Analysis

“Every settlement is both a member of a broad equivalence class defined by elementary syntactic generators and a discrete entity with unique characteristics that differentiate it from other members of the same class”(Ferguson, 1996, p. 15).

³⁰ *Bwebwenatos* are an oral tradition of the Marshallese that include mythical stories, creation stories, and more. Storytelling is a significant component of the Marshallese culture.

The goal of the space syntax analysis of the *wēto s* is to uncover the similarities between the housing and building arrangements between urban, rural, and suburban *wētos*. If relationships are presently based on the syntactic analysis, then a core genotype is present, thus demonstrating a deep cultural pattern of spatial arrangement and integration. Some assumptions are taken in this approach, such as defining the insider and outsider boundaries in graphic representation and spaces that are governed by social practice, not by physical barriers.

To analyze the settlement pattern of the *wēto*, each *wēto* is considered a domestic zone with access at two to four points depending on the public right of way. The open space is public within the household domain, and each specific use area is designated as a rectangle. Convex articulation equals the number of convex spaces divided by the number of buildings in the settlement. Lower values of convex articulation indicate less break-up of y-spaces and therefore more synchrony and vice versa. Convex ringiness is determined by the distribution of spatial arrangement by measuring the number of rings in the spatial arrangement as a proportion of the maximum number of planar rings for the number of spaces. The goal of the quantitative analysis of the syntactic relations is to express the complex relationship of spaces regarding the whole form.

Contrary to Julianne Hanson's argument that the house cannot be treated the same as the village (Hanson, 1998, p. 36), I consider the house to be an extension of the village form in the case of urban Majuro. Qualitative analysis of observations and interviews demonstrated that many urban homes in Majuro represented microcosms of the larger *wēto* pattern found in rural areas. When tested for real relative asymmetry and

integration, the difference factor demonstrated consistency between the use of a house and the *wēto* use, thus showing consistency.

Spatial organization is a function of the form of social solidarity. Mechanical solidarity requires a dispersed space that separates the constituent social groups and helps maintain their identity as discrete social entities. Organic solidarity, in contrast, requires an integrated and dense space to facilitate the numerous social encounters needed for the exchange of information and material that ties together the mutually interdependent social entities. Asymmetry equates to social segregation and symmetry equates to social integration.

The intent here is to highlight similarities and differences between buildings and villages. According to Lawrence (1986) space syntax does not yield any information about the meaning and use of specific spaces. Here we rely on post-processualist methods of generating meaning based on the archaeological and ethnographic information. However, architecture provides one of the means by which society is continually recreated.

“By combining Gidden’s structuration theory with syntax theory, architecture can be viewed as the material by-product of the dynamic social processes that led to the recursive application of socio-spatial constructs by individuals...space syntax model offers archaeologists an opportunity to develop new concepts of social organization that transcend ethnographic conceptualization. Rather than being reduced to the paleo-ethnography, archaeology has the opportunity to use materially based

concepts of social organization that contribute new kinds of information.”

(Ferguson, 1996, p. 23)

Spatial Analysis

The final phase of the research is the spatial analysis of building and site documentation. Measured hand drawings of buildings and *wētos* were entered into AutoCAD for further analysis and aerial imagery produced through remote sensing with drones was processed in Photoscan software to produce orthomosaics. Remote sensing with drones was not possible on Namdrik due to inclement weather. Instead all site surveys of *wētos* were conducted using a compass, walking meter, and measuring tape.

AutoCAD drawings of houses were categorized by building type based on visual survey and analyzed via justification graphs (Hillier and Hanson). CAD drawings of *wētos* were converted into shapefiles for analysis in ArcGIS and into convex maps for space syntax analysis. Aerial images of *wētos* were traced in ArcGIS to create shapefiles and these shapefiles were also converted into convex maps for space syntax analysis.

Following the model used by Julienne Hanson (1999), the real relative asymmetry (RRA) of the convex analysis is used to calculate the difference factor in order to assess the presence of genotypes across familial settlement structures in the three selected communities. Using the software, JASS for spatial integration analysis, these calculations were assessed at the *wēto* level, and justification graphs demonstrated relative depth of space. It became evident that at the rural level, everyday cultural practice took place at the *wēto* scale, while in the suburban and urban environment, the cultural practice took place more at the household scale. Based on this assessment of cultural space, integration analysis was used to compare individual houses and *wētos* across the three spatial scales -

urban, suburban, and rural. The relationship between cultural practice and space in the urban house demonstrated typical cultural behavior in the urban *wēto*. Establishing the difference factor for each of these relationships, we can begin to infer whether or not a genotype exists that organizes the three spatial temporalities into a cultural pattern of human settlement.

Lastly, Esri ArcMap 10.5 was used to conduct Euclidian spatial analysis of settlement patterns. Dwellings were defined as points, and point pattern analysis was conducted. The hot spot analysis tool was used to assess statistical clustering of houses on Namdrik, Laura, and in Djarrit-Uliga-Delap. This method defined hot spots in Laura and Namdrik; however, results for the *wētos* in the D-U-D was inconclusive. To further understand clustering patterns in the D-U-D, point density analysis (Kernel Density) was used to explore emergent spatial patterns. This analysis noted clustering around housing units, and based on qualitative data from Mwinkut *wēto*, D-U-D, these clusterings appear to be based around family units, again demonstrating the difference in scales of analysis between the rural and urban setting.

The combination of point pattern analysis and Space Syntax analysis identified patterns of housing clusters and the related spatial integration of these spaces. The analysis in chapter 6 provides the results from this analysis. The combination of these two methods helps to interpret the relationship between clustering and resource control and clustering and social cohesion.

CHAPTER V: DEEP CULTURAL PATTERNS OF THE MARSHALL ISLANDS

5.1 Introduction

A deep cultural pattern is a habit or ritual that has persisted through the long evolution of the culture-environment relationship that manifests in built form and in support of everyday culture. Deep cultural patterns are generative in nature, and various physical manifestations may share the same deep cultural pattern. For example, agricultural subsistence patterns, such as the development of taro patches at the center of an islet over swampy lands, have been continually practiced since the Lapita expansion into Oceania³¹. These strategies are demonstrated in transported landscapes and reliance on three trees: breadfruit, pandanus, and coconuts (Rainbird, 2004). These examples of physical manifestations demonstrate the embedded nature of deep patterns within the culture-environment relationship of Marshallese and to an extent the decedents of the Austronesian expansion. As demonstrated throughout this chapter, deep cultural patterns do exist within the culture-environment relationship, and they do contribute to the reproduction of the Marshallese habitus. In each pattern, there are constants among the physical manifestations, and there is also rapid cultural evolution and change due to colonization. These two – change and constants – are often at odds with each other. These deep-cultural patterns are generative -- culture evolves so do the physical manifestations of each pattern.

³¹ The Lapita are thought to have been the early ancestors of the Micronesians (P. Kirch, 1997)

The study uncovered a range of socio-spatial manifestations of deep cultural patterns embedded in the culture-environment relationship of the Marshall Islands that are represented in built form. Six deep cultural patterns were identified with similar but varied manifestations in built-form across Namdrik Atoll, Laura Islet, and Djarrit-Uliga-Delap Islets (DUD). These patterns are:

- 1) *Land as Identity*,
- 2) *Land as Wealth*,
- 3) *Ippan doon* (Togetherness manifest in clustering),
- 4) *Juon Kijeek* (One Fire, One Family),
- 5) *Emlapwoj* (The Family House),
- 6) *Monkijdik* (The process-built house),

These patterns cannot be seen in isolation as they are all fundamentally connected to each other within the cultural system of the Marshall Islands. Table 5 provides a list of those deep cultural patterns uncovered with a short description and assess their persistence across time. The following sections will provide the evidence for each pattern, and the appendices provide select data that further support the patterns.

Table 5: List of Deep Cultural Patterns

Deep cultural Pattern	Description
Land as wealth	On Namdrik and Laura, land is the source of natural resources for subsistence strategies and trade. In the DUD and to an extent Laura, land has economic value in leasing to immigrants. In the DUD, land rights in the city give one a right to the city and access to the urban economy.
Land as identity	The <i>wēto</i> is the land parcel that is part of traditional land tenure in the Marshall Islands. On Namdrik, Laura, and the DUD, traditional land tenure was closely followed through matrilineal inheritance. As part of

one's heritage, the *wēto* holds the symbolic representation of one's identity.

Ippan Doon
(Togetherness)

Traditionally, housing was clustered on the largest islet of the atoll at the widest part of the islet on the lagoon side. Clustering conserved arable land and represented social stratification in space with the chief at the center, then nobility and commoners dispersed. Today, clustering establishes one's social network and social capital embedded in place. On Namdrik, clustering occurred near the Mayor's *wēto* and the school. On Laura, clustering shifted from the area of the chief toward areas of more affluent families. In the DUD, togetherness was identified within family groups sharing shared open space.

Juon Kijeek (One Fire,
One Family)

Historically, households were documented by the evidence of a shared cookhouse. Juon Kijeek is symbolic of the fire from which a family receives their nourishment. The sharing of Marshallese food signals the constitution of home sites. While it is common for nuclear families to each have a cookhouse today, it was evident that families gathered together for special meals cooked over the shared fire.

Emlapwoj (Multi-
generational housing)

Traditionally the *alap*'s house on the *wēto*. It was occupied by the elders and their grandchildren, representing a source of knowledge transmission from elders to the young. Today the pattern is less frequently associated with the *alap*, but the multi-generational living arrangement. In Namdrik, Laura, and the DUD the pattern has been established with different manifestations.

Process-Built Housing
(Mon Kijdik [literal:
rat house])

Traditionally, the house provided a place to sleep and a protected space to work in the shade or out of the rain. Today, the house maintains much the same function, while traditional separation has changed from vertical to horizontal. Every detail of the house serves a purpose. For example the addition of a wall bump-out for storage, the use of rebar to tie trusses to the bond beam, or the weather hood built over eastern windows as a passive ventilation strategy.

Figure 14 provides a diagram of the theoretical connections that link the complex system of these deep-cultural patterns. Within the diagram, all patterns are driven by the family-land relationship, and each of the six patterns is a subset of three factors that have driven the cultural evolution of the Marshallese: subsistence strategies, togetherness, and their Indigenous Knowledge. Survival underlies all of the patterns, and Family and Land provide the two major mechanisms that allow for survival. Next, togetherness,

subsistence, and knowledge provide three core strategies that assist the family in survival. Subsistence strategies are based on knowing the land and the climate; it is the relationship between people and the environment. Togetherness strategies create social capital and aid in survival through interpersonal relationships. Knowledge represents the mechanisms that disseminate knowledge and pass down traditional knowledge from generation to generation³². Each of the six deep cultural patterns³² provides local mechanisms in the Marshall Islands that assist in basic survival and cultural survival. The following Table 6 provides an example of the physical manifestation of each pattern in the built environment in each of the three sites.

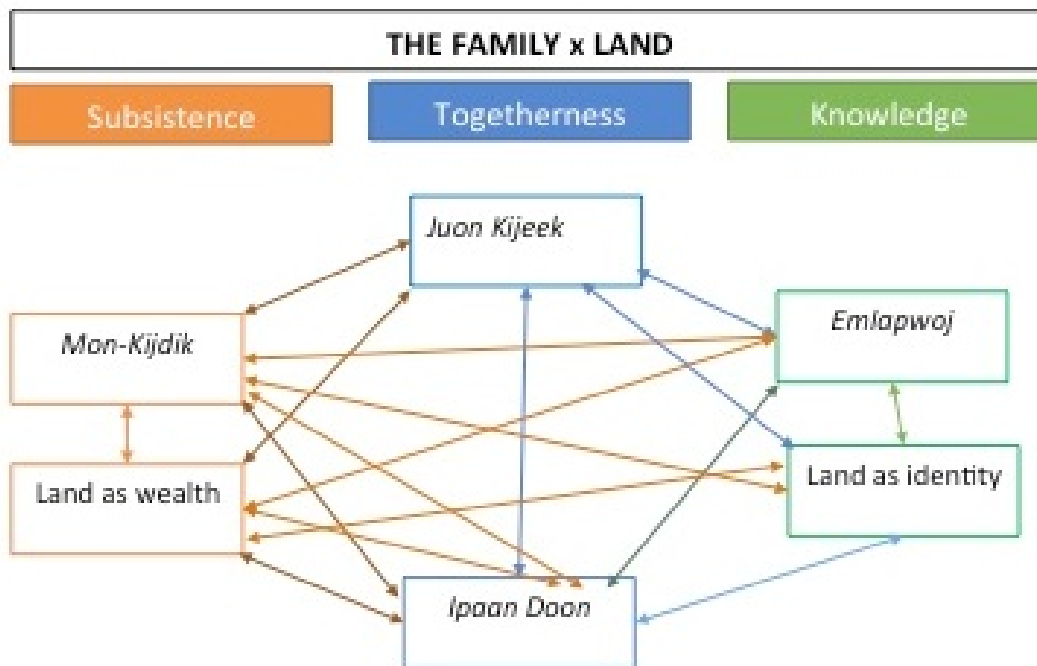


Figure 14. Theoretical diagram of interconnected deep cultural patterns of everyday cultural production of the built-environment. Each cultural pattern is color coordinated with the survival strategy (Subsistence, togetherness, knowledge) that it supports.

³² Indigenous Ecological Knowledge and traditional ecological knowledge are the two primary forms of local knowledge discussed in their relationship to sustainability.

Table 6: Deep Cultural Patterns

Pattern	Manifestation Namdrik	Manifestation Laura	Manifestation DUD (Majuro)
Land as wealth	Cultivation for sustenance; cultivation of cash crops	Cultivation of taro; land leasing; cultivation of cash crops	Cultivation of bananas; land leasing; access to the city
Land as identity	Traditional land tenure	Traditional land tenure	Traditional land tenure
Ippan Doon	Clustering of houses along the lagoon at the widest part of the island. Building houses near to one another.	Clustering of houses along the lagoon. Building houses near to one another.	Building houses near to one another to maintain family cohesion.
Juon Kijeek	Family shares meals from the central cookhouse for the family. Nuclear families have a cookhouse.	Family shares meals from a family cookhouse. Kitchen begins to replace the cookhouse.	Family shares meals from a family cookhouse. Kitchen has largely replaced the cookhouse.
Emlapwoj	Alap's house is the central structure of the <i>wēto</i> housing the grandparents and grandchildren.	The extended family lives under one roof. Parents, aunts, and uncles occupy individual bedrooms while children share main living space.	Alap's house is the central focus on the <i>wēto</i> housing the grandparents and grandchildren. Also, parents occupy bedrooms while children share main living space.
Process Built Housing	Community building process (<i>kumit</i>) is used in the construction of cookhouse.	Community building process (<i>kumit</i>) is used in the construction of a USDA house.	Community building process (<i>kumit</i>) is used in the roof replacement of a house.

5.2 A Pattern Language Primer

“Every society which is alive and whole, will have its own unique and distinct pattern language” (Alexander et al., 1979).

Those patterns that are the deepest – the most fundamental – to the culture-environment relationship are generative patterns with physical manifestation in built-form. Six deep cultural patterns are presented over the following pattern chapters. Each of these is presented as generative patterns that span the relationship between

fundamental aspects of Marshallese culture: togetherness (i.e., family), subsistence (environmental), and knowledge. All revolve around the identity of the family to the land.

Following the framework of Christopher Alexander et al. 's *A Pattern Language* (1977), these chapters intend to provide a framework for the production of a Marshallese built environment, an environment that is not only functional, but that also enhances culture. In addition, the final pattern chapter provides a process of building that is embedded in Marshallese culture.

Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice. (Alexander et al., 1977, p. x)

This chapter provides a summary of each deep cultural pattern. Each section follows the same structure to maintain clarity. First, a picture of the pattern is provided to show an archetypal example. Second, there is a short description of the deep cultural pattern. Third, an explanation of the deep cultural pattern is provided. Fourth, the persistence of the pattern is summarized for all three sites. Fifth, a diagram demonstrates the continuity of the deep cultural pattern; it expresses the traditional form of the deep cultural pattern and the alterations that take place in the three sites.

In the next chapter, each deep cultural pattern is presented as a section, and each follows the same structure for continuity. First, evidence from the literature, consisting of historical ethnographies, and archaeological reports are presented in support of the deep cultural pattern's continuity in time. Second, evidence from the three sites is presented in

order, beginning with Namdrik, then Laura, and ending with Djarrit – Uliga – Delap (DUD). Third, evidence from the survey results is presented in support of the deep cultural pattern. Fourth, a summary of the evidence is provided.

In Chapter 7, analysis of each deep cultural pattern is presented. Analysis of evidence from the three sites is presented to support the strength of the deep cultural patterns and assess their physical manifestations. The analysis synthesizes the evolving nature of the built-environment in relation to these deep cultural patterns, and the generative nature of each pattern is summarized. Lastly, the role these deep cultural patterns play within a system of cultural resilience and Indigenous Knowledge is discussed; all work within a complex and interconnected structure. Christopher Alexander et al. (1977) discuss the necessity to view the interconnectedness of patterns as essential to understand the whole.

No pattern is an isolated entity. Each pattern can exist in the world, only to the extent that is supported by other patterns: the larger patterns in which it is embedded, the patterns of the same size that surround it, and the smaller patterns which are embedded in it. This is a fundamental view of the world. It says that when you build a thing you cannot merely build that thing in isolation, but must also repair the world around it, and within it, so that the larger world at that one place becomes more coherent, and more whole; and the thing which you make takes its place in the web of nature, as you make it (p. xiii).

Therefore, it is important to understand how the deep cultural patterns are interconnected as well as how each relates to the physical manifestations. To understand how these deep

cultural patterns both support culture and assist in revitalizing culture, the system as a whole needs to be understood.

The rapid evolution of global economic forces on small island life makes the interpretation of a generative pattern's manifestation muddy. For example, the clustering of dwellings at the widest part of the islet has historically been a significant pattern and is part of the deep pattern, *Ippan Doon* (Togetherness). However, while contemporary evidence statistically demonstrates this pattern's persistence, the core principle of the clustering pattern based on natural resource preservation and the traditional manifestation of social stratification represented in spatial disbursement is not as evident. What has become more significant to the pattern is the identity of togetherness within its capacity for social capital. After all, even in following the formula of *A Pattern Language*, it is not a guarantee that function and form will unite in an environment supportive of wholeness.

5.3 Explanation of the Patterns

The following section explains each of the deep cultural patterns and defines their persistence across the three sites. A key image of a physical manifestation of the pattern in built form is provided to help visualize the nature of the pattern. Lastly, a diagram of the pattern is provided to show the different manifestations across the three sites demonstrating slight alterations to the pattern across geographies and time. The next chapter provides detailed evidence for each pattern in historical accounts, the data collected from the three sites, and the survey that was conducted. The last chapter of this section delves into the analysis of the patterns as the discursive narrative demonstrates the interconnectedness of the system of which these deep cultural patterns are apart.

5.3.1 Land as Wealth



Figure 15. Taro patch at the center of Laura islet.

The *wēto* provides the resources for a subsistence livelihood. It produces the bounty for a family’s sustenance; it holds economic value through land leasing, and it can provide families access to the economic opportunity in the city.

Explanation

“Because land, which is the source of their day-to-day existence, is considered by the Marshallese to be their most valuable asset, land disputes have been and still are the cause of almost all family and lineage schisms. People are always plotting to obtain more land. Today this takes the form of marriage negotiations. In the past, not only marriage was used but also the

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

means of warfare and black magic” (Jack A. Tobin, 1958, p. 3). The above quote draws significance to the intrinsic value of land in the Marshall Islands. The *wēto* provides wealth for the family through the means of agricultural production, the intrinsic value of the land, and space for one to construct their future.

Wētos are the resource base of the family, typically extending from the ocean to the lagoon and representing a “transported landscape.” Nearly every square meter of land in the Marshall Islands has been shaped by the cultivation of the land, and the concept of “transported landscapes” is visible through the shaping of the land for resource production (Rainbird, 2004). As part of the transported landscape, the *wēto* provides the soil to cultivate coconut trees (*ni*), pandanus (*bob*), and breadfruit (*mei*). Pandanus provides material for weaving goods and thatching roofs, and it produces fruit for sustenance. Coconut trees provide coconut milk and meat for nourishment, and the wainee (hardened coconuts) are collected for making copra. Lastly, the breadfruit provides a staple starch. Taro and arrowroot cultivation are other components of the transported landscape. In addition to the essential fruit-bearing plants that were transported, many other “cash crops” are grown for consumption, such as banana, papaya, lime, and Marshallese apples. Families typically have rights to multiple *wētos* to expand their resource base.

Beyond the production of food, the *wēto* holds economic and social capital. Through the traditional land tenure system of matrilineal inheritance, families may have land holdings across multiple *wētos* and across multiple atolls. These connections tied to the land provide redundancies in the resource base from which a family’s wealth derives. In times of famine, natural disaster, or war, families could move from *wēto* to *wēto*, often

across atolls. In addition to this example of social capital, the *wēto* provides land that can be leased to internal migrants or immigrants. For those with land rights in urban centers, the *wēto* provides access to the city and the economic advantages that come from living in the urban center.

Persistence

Land as Wealth has persisted across time and space in the Marshall Islands as is demonstrated through the evidence provided in the next chapter. In the past, the wealth derived from the *wēto* was in subsistence livelihood strategies. Today the value continues to be connected to subsistence strategies but also includes land leases and access to opportunities in the city.

Namdrik

On Namdrik, the wealth derived from the land manifests in three primary forms: 1) the production of copra, 2) agricultural production as part of subsistence livelihoods, and 3) agricultural production for sale of produce in Majuro. The production of copra is the primary focus of agricultural processes on Namdrik. There are a few land leases on Namdrik, such as the property for the elementary school and copra warehouse; however, little is known about the value derived from these.

Laura

On Laura, the wealth derived from the land manifests in primarily two forms: 1) land leasing; and 2) agricultural production of cash crops. While some families on Laura continue to practice semblances of subsistence livelihoods, this was not demonstrated on the *wētos* documented. Of the observed *wētos*, coconut, breadfruit, pandanus, and taro

were cultivated for consumption, but these products supplemented diets consisting of imported foods. Land leases were to both immigrants and internal migrants.

Djarrit-Uliga-Delap (DUD, Majuro)

In the DUD, the wealth derived from the land primarily manifests in access to the economic advantages of the city and the value of land leasing. When families did not have direct land rights in Majuro, many utilized ties within their *bwij* (extended family) to find housing in the capital. All of the *wētos* observed in the DUD rented dwelling units and leased land, primarily to immigrants and extended family members coming from outer atolls.

Diagrams:

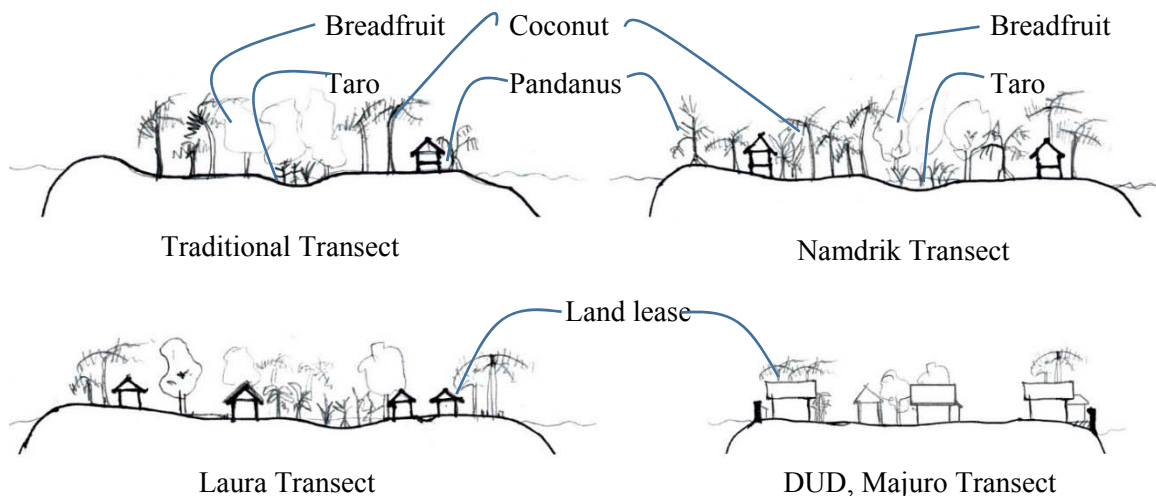


Figure 16. Diagrams of *wēto* transects.

5.3.2 Land as Identity



Figure 17. A family cemetery on Monwot *Wēto*, Namdrik.

The *wēto* is the symbol of one’s place on earth. It is the land inherited from one’s ancestors and is embedded within the memory of culture and family identity.

Explanation

“The *wēto* is completely your identity, or you cannot tell ... who you are and your place in the community. ... If you don’t have any *wētos*, that means you’re not part of this community. It is not just a piece of land, but it is where you get your shelter. It is where you get your income from...planting and selling, so it’s basically everything. Without it you are nothing” (Man from Laura).

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

As the representation of traditional land tenure, the *wēto* represents both a family's heritage as well as an individual's place in the world. As the quote from Laura depicts, one's identity is intrinsically tied to the land they have rights to through inheritance. The *bwij* of the *wēto* may remember how the land was first received. For example, some lands were given to warriors who won wars for a chief. Some lands were given to the master canoe builders. This knowledge was passed down generations through oral histories, often told in the form of *Bwebwenatos* (stories).

The social constructs that control the use of the land are part of the identity. Within the identity embedded in the land is a structure of control moving from the *Iroij* (chief) to the *alap* (landowner) to the *drijerbal* (land manager). Between the social structures and physical representations, one's identity is influenced by both the land and the traditional governance. In addition to these influences on identity, one often describes their attachment to their *wēto* and the *bwij*, their village and islet, and to a larger extent the atoll as a whole.

Through the system of inheritance and marriages across *wētos* and across atolls, many Marshallese share land rights across distant outer atolls and the capital. These expand the identity represented by land across geographies, a concept that is attached to resource structures. Often a person is not only from Djarrit, Majuro but also may be from an outer atoll.

Paying homage to the heritage of the land, a *wēto* tends to include a family cemetery. Traditionally cemeteries were for the remains of the chiefs and nobles. According to Erdland and Kramer and Nevermann, commoners were not typically buried in a cemetery. It has also been documented that the remains of ancestors were transported

with families as they migrated to different atolls. Today there are both private family cemeteries and larger, public cemeteries. Most of the *wētos* observed had a family cemetery.

Persistence

Land as identity is built into the system of matrilineal inheritance. From the first colonization of an atoll, a family was provided a land parcel. From there the family built an identity attached to that piece of land as well as the larger community they were part of. These memories, shared through oral histories were passed down to each subsequent generation, building the habitus of a *wēto*. Reminders in the physical and social structure of the *wēto* continually pay homage to this place identity. For example, the cemetery, the chief's lineage, and landmarks.

Namdrik

Participants who were from Namdrik, whether interviewed on Majuro or in Arkansas, held pride for the place of their birth and the land on which they were raised. Participants often referred to Namdrik as the chest of Marshallese culture, demonstrating their identification with the land and the culture.

More than half of the *wētos* that were documented on Namdrik held a family cemetery, demonstrating the continuation of connection to the ancestors. Participants often referred to how life was in the past and how this influenced current housing.

Laura

Laura has been continually inhabited for approximately two thousand years, and land has been passed on from generation to generation through matrilineal inheritance.

However, *wētos* have become increasingly smaller on Laura as land is divided for various reasons across time. For example, a family may have a schism, and the *alap* decides to divide the land among family members. Interviews with residents of Laura often drew significance to the concept of rootedness and the symbol of land as part of one's identity.

Djarrit-Uliga-Delap (DUD, Majuro)

While little is known of prehistoric habitation in the DUD, it is assumed that the *wētos* were owned by Majuro families, primarily in Laura, and the land was used for resource production. Knowledge of land ownership and attachment to these *wētos* was passed down through oral history. Toward the beginning of the twentieth century, the lands of the DUD were occupied by foreign powers. While families with ancestral rights inhabited Djarrit, it was not until the release of the lands at the end of the trust territory that families regained control of *wētos* on Uliga and Delap. Since regaining their lands, many residents of Uliga remarked that they were able to “return home, “emphasizing their ancestral rights and heritage.

Diagram

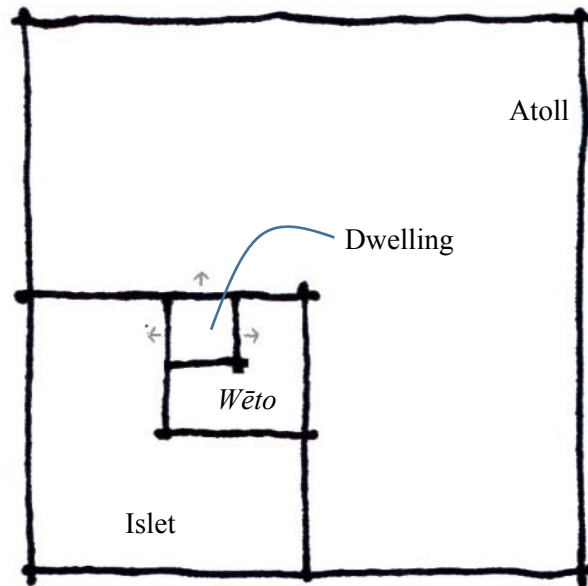


Figure 18. Spiral diagram connecting one's dwelling in relationship to the atoll.

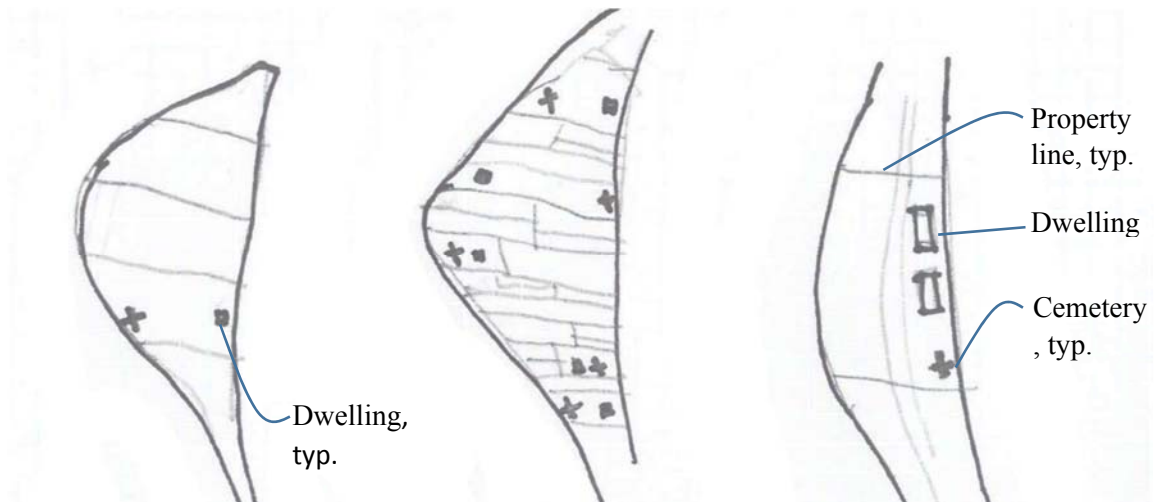


Figure 19. Diagram of place identity attached to the *wēto*.



Figure 20. Venn diagram depicting three cornerstones influencing identity.

5.3.3 Ippan Doon (Togetherness)



Figure 21. Aerial photograph of a housing cluster on Namdrik.

***Ippan Doon* (togetherness) is essentially embedded social capital within the Marshallese culture. It is the practice of working together, helping each other, and being near one another. In the built-form, togetherness manifests in the clustering of housing on the *wēto*. Traditionally, this clustering took place along the lagoon at the widest part of the largest islet of the atoll.**

Explanation

The concept of togetherness is a fundamental aspect of the Marshallese culture. The gathering of friends and family and the desire to be near one another is an essential social function. The social function manifests in the clustering of housing on the *wēto*.

Within the dialectic relationship of culture and the built environment, the act of clustering housing began as a form of resource conservation in support of subsistence livelihoods, and the social function within the physical form has reinforced itself over time. Housing was

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

clustered on the lagoon side at the widest part of the islet, thus preserving the arable land for cultivation. The chief’s house was at the center with direct access to the lagoon, as the most prominent position, and nobility surrounded the chief’s house. On the fringe of the cluster and dispersing outward were the houses of the commoners. Within these clustered arrangements, families became dependent on their social networks and proximity to one another for their livelihood. Over time, the importance of resource preservation has diminished because imported food is more common and the important role of the chief at the center of resource distribution has diminished. Even as the symbolic center of clustering changes, the social function remains. Figure 5.7 provides a diagram of the traditional spatial arrangement. Today clustering of dwellings continues to take place on islets and individual *wētos*. These clusters primarily consist of family members and establish one’s close-knit social support system.

Persistence

While traditionally the underlying reason for housing clusters was more in tune with subsistence strategies via resource conservation and resource distribution, today clustering is more directly connected with one’s social capital. The introduction of

imported foods and the influence of western ideals of family life have shifted the emphasis of clustering from resource conservation. Today the position of housing on a *wēto* is less dependent on preserving resources and more dependent on social interaction.

Namdrik

On Namdrik, the pattern of togetherness is similar to the traditional pattern. The densest arrangement of houses occurs along the lagoon at the broadest part of the islet. In general, housing is located along the lagoon within clusters on each *wēto* in order to preserve resources. The *wēto* of the mayor's family is located at the widest part of the islet along with the school. The second location of higher housing density occurs near the Catholic and Protestant churches. About the physical manifestation of the pattern, these major housing clusters continue to conserve resources as part of subsistence strategies. About the social structure of the traditional pattern, the traditional system of social hierarchy is not present. However, one could argue that it is replaced with an imported form of governance. For example, the church often serves the role of resource distribution to families in need of supplementary sustenance.

Laura

Spoehr (1949) observed that the settlement on Laura followed the traditional pattern of housing clusters for resource conservation, and he noted the spatial stratification of social hierarchy. Over the past seventy years, these patterns have evolved. A high density of housing continues to be present at the widest part of the islet along the lagoon as observed by Spoehr, but there has been a significant increase in housing clusters at the center of the islet and on the ocean side of the islet. These new housing clusters represent the rapid growth of family sizes across Laura and the need for

developing more land on the *wēto* for housing. In addition, a new hub of housing clusters has begun to form south of the traditional center, most likely driven by the influence of more affluent families that are leasing land to immigrants and internal migrants. On Laura, clustering for resource preservation continues, but new forms of housing clusters follow more in line with the social integration of families.

Djarrit-Uliga-Delap (DUD, Majuro)

Arguably, the traditional pattern of togetherness manifest in clustering never took place on Djarrit, Uliga, or Delap. Most likely these islets were lightly populated and used primarily for their resources. Since the installation of the Japanese base and the continued development under the United States occupation, these islets became the most densely developed land in the Marshall Islands outside of Ebye islet, Kwajalein. Clustering occurs amongst extended family on these islets. It was often remarked that families lived close in proximity to provide social support for one another. In addition, clusters become more intense for large families that invite relatives from outer islands to come to live with them on their urban *wēto*. The manifestation of clustering on DUD provides families with social capital and the support to survive in the urban environment.

Diagram

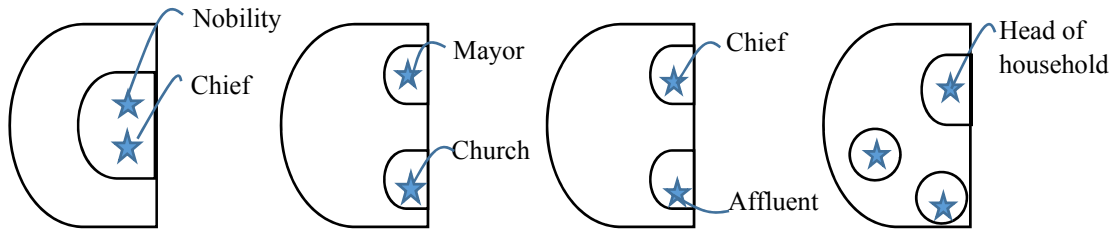
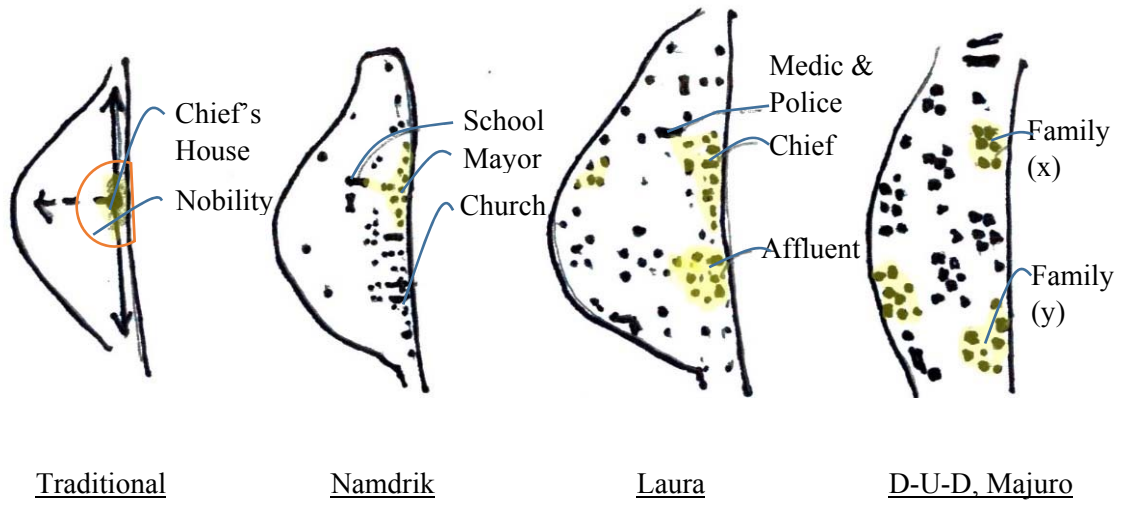


Figure 22. Diagram of settlement patterns on Namdrik, Laura, and the D-U-D compared to the traditional pattern.

5.3.4 Juon Kijeek (One Fire, One Family)



Figure 23. Interior of a cookhouse on Namdrik.

***Juon Kijeek (One Fire One Family)* represents the source from which sustenance is provided for the family. It is the cookhouse that shelters the fire used for cooking traditional Marshallese food, and it is the location where the family socializes, and stories are told.**

Explanation

One Fire, One Family, provides the social function of resource sharing and family gathering for storytelling and spending time together. The physical manifestation is the *im in kema* (cookhouse), which consists of the fire and the *um* (earth oven). The fire symbolically represents the communal aspect of the food prepared on it, and the cookhouse itself provides the shelter for those that prepare the food and a space to chat. A distinction is made by those interviewed between the food prepared in the cookhouse and

the food prepared in a kitchen. However, the line is blurred, as observations noted the social function of One Fire, One Family occurring in the American kitchen in addition to or in combination with the cookhouse.

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

The cookhouse represents a central piece of Marshallese culture, and its design reflects tradition. The cookhouse is typically a small roofed structure adjacent the house. This is a place for women to gather, chat and tell stories. This is the central mainstay of the *wēto*. Typically the cookhouse is constructed using local materials – thatched or tin roofs. Many families take pride in the construction and design of the cookhouse, which is often rebuilt every 3-4 years. Generally, the cookhouse has a space for the fire, space for kindling, a common space, and space for utensil storage. It is typically constructed with a combination of local materials and scraps of corrugated metal and timber products and built by the family members.

Kramer and Nevermann (1938) and Erdland (1914) refer to the cookhouse as the center of the *bwij*'s (clan's) life. One Fire, One Family, as manifest in the cookhouse is the space where the *alap* demonstrates her control over the *wēto* and space where the *alap* positioned herself as the director of welfare. Historically the fire and cookhouse represented a homestead as families shared the fire.

Persistence

Historical accounts (Kramer and Nevermann (1938); Erdland (1914); Spoehr (1949); Chave (1947)) discuss the fire as a central mainstay of the social function of the

bwij. Archaeologists tend to assess prehistoric sites based on abandoned coral spreads, and use the um (earth oven) as a key indicator for pre-historic settlement in a designated area. Drawing from the historical accounts, Riley draws reference to the social function in his analysis of early settlement in the Marshall Islands. Today, One Fire, One Family continues to manifest in the form of the cookhouse. With the introduction and dominance of the American kitchen, a new evolution of the manifestation in built form is taking place.

Namdrik

The traditional manifestation of One Fire, One Family, was evident on Namdrik. Within two of the *wētōs* observed, a central cookhouse served the food for the extended family for most meals during the week. It was apparent that the cookhouse was a primary meeting place for the women from the *wētō* together with others from the village, and it was typical to see the cookhouse in use through the afternoon and into the evening. Many individuals commented that the food prepared in the cookhouse was meant to be shared with others, even outside of the family.

On the other *wētōs* that were part of the study, each individual house had an adjacent cookhouse. The church houses also had their cookhouses, which served the congregation during special occasions. Cookhouses tended to be constructed of local materials in combination with leftover construction materials, such as corrugated metal sheeting and dimensional lumber. While the American kitchen was present in several of the houses observed, the preparation of food predominantly took place in the cookhouse. The cookhouses of Namdrik mainly reflected the traditional manifestation of One Fire, One Family.

Laura

In Laura, the manifestation of One Fire, One Family in built form is slightly altered. Not all of the houses on Laura have a cookhouse, which is a significant shift from the observations of Spoehr, seventy years ago, and most of the houses observed have an American-style kitchen. The construction of cookhouses on Laura varied. One cookhouse constructed of traditional thatch was observed, while most were constructed of leftover construction materials or reused materials from another building or structure. The houses that did have cookhouses tended to use them every day, and on occasion, meals were shared with the extended family. The cookhouse tended to be a place of social interaction with friends and family. On Laura, the cookhouse maintains a central role in the preparation of food and as a social space for the family. The cookhouse continues to be necessary for the preparation of Marshallese food.

Djarrit-Uliga-Delap (DUD, Majuro)

Like in Laura, the manifestation of One Fire, One Family is altered in the built environment of the urban center. The cookhouses documented in the urban center ranged from attached shed roof structures to detached cookhouses. All of the cookhouses were constructed with imported materials consisting of dimensional lumber, corrugated metal sheeting, and metal fasteners. In addition, food was not only cooked over a fire but also on imported burners.

All of the households that were observed in the urban center had a cookhouse. While most were only used on occasion, the times they were used were for large communal meals with friends and family. During these occasions or celebrations, local Marshallese food was served. In one household, the cookhouse was used on a daily basis.

Even in the urban center, the cookhouse plays an important role in the communal preparation and consumption of food and the socialization on the *wēto*.

Diagram

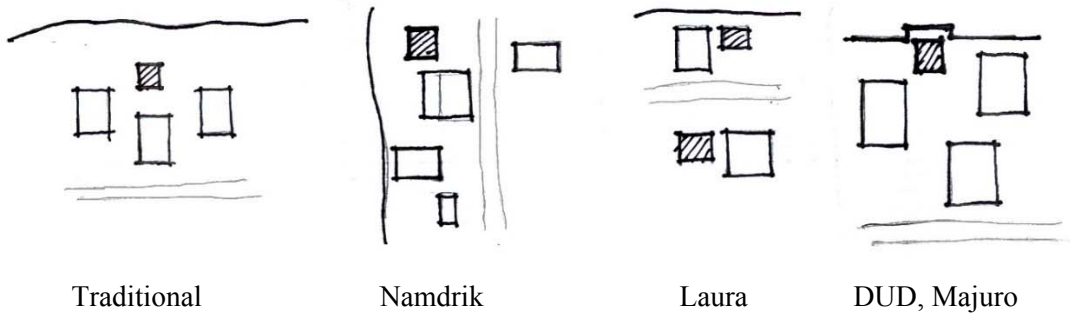


Figure 24. Diagram of One Fire One Family. The hatched box represents the cookhouse, and the rectangle represent the familial houses.

5.3.5 Emlapwoj (The Family House)



Figure 25: Depiction of the traditional house. From Kotzebue (1821, p. 62-63).

***Emlapwoj* (The Family House) represents the traditional family social structure and structure for knowledge dissemination. The physical manifestation is the house, which is separated into a sphere for the elders and a sphere for the children of a family. The elders impart their wisdom to the children.**

Explanation

The *Emlapwoj* or *Alap's House* represents a cultural institution.

Traditionally the *alap* of a *wēto* occupied the largest house on the *wēto* and under its roof lived the *alap* and his wife along with

their grandchildren and unwed children. Once children married, they would occupy their own house adjacent to the big house. It was important for the grandchildren to gain the wisdom from their elders. The traditional physical manifestation of the pattern was a

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

thatched house that consisted of two levels, an open-air ground level and an enclosed attic, upper level. The children slept in the attic space, while the grandparents slept on pandanus mats on the coral spread below. In addition to this vertical separation, some historical accounts described a horizontal separation in the attic space between genders (Erdland, 1914). Generally, the cookhouse is adjacent to the Emlapwoj house.

Today, the most common physical manifestation of the pattern is a one-story house separated horizontally between elders and children. In addition, it is common to have the entire family under one roof, including the married couples because the segmentation of imported western housing typologies provides the means for separated spaces. For example, in a three bedroom house, the grandparents occupy one room, the parents occupy the other two rooms, and the children occupy the main living room. As far as the social function of *Emlapwoj*, the traditional pattern is still found; however, the manifestation of the social function within multi-generational nuclear families is more common. It is also still common for married couples to move into their own house while their children continue to stay with the grandparents, or at least have the option to dwell with them. The *Emlapwoj* continues to be a space for elders to impart their wisdom to the grandchildren.

Persistence

The Emlapwoj was found to be present on Namdrik, Laura, and the urban center of Majuro. Although it is not directly referenced in historical accounts of the Marshall Islands, it was referred to often in oral histories provided by elders that participated in the study. Emlapwoj is closely associated with land tenure and the cookhouse, placed within the center of Marshallese family structure. Three primary typologies depict the built

form of Emlapwoj and the different forms of spatial separation between children, grandparents, and parents; Figure 27 depicts these typologies. The social function is also maintained as the closeness between children and elders is maintained.

Namdrik

On Namdrik, the traditional social function of the emlapwoj was apparent on one of the *wētos*. The alap's house was the largest on the *wēto* and was occupied by the alap, his wife, and their grandchildren. The social function was contained within a two bedroom, western-style home. The children slept in the main living room while the grandparents slept in one of the bedrooms. Other than this example, the social function was observed within multi-generational nuclear families on several of the other *wētos*. The most common housing typology that contained the multi-family structure was a simple one-room structure that typically had a small partitioned room. In these houses, the elders slept in the partitioned room while the children slept in the main room. On Namdrik, the Emlapwoj continues to play an essential role in the family structure and the raising of children.

Laura

Emlapwoj was present in two of the three family groups from Laura. In one example, the structure consisted of the three-generation family. The grandmother lived with her son, daughter-in-law, and grandchildren. The second occurrence consisted of the larger extended family occupying a three bedroom western-style home. The cases represent an alteration of the traditional alap's house, and the separation of space is horizontal rather than vertical.

Djarrit-Uliga-Delap (DUD, Majuro)

The Emlapwoj was manifest in four of the households that were observed in the urban center. One of the households matched closely to the social function of the traditional pattern with an altered physical manifestation. In this example, the alap, his wife, children, and grandchildren lived under one roof. Through participation in several households across the urban center of Majuro, Emlapwoj seemed commonplace. The separation of the dwelling to house the extended family is an important part of Marshallese life in the urban environment and continues to serve a structure for knowledge sharing and support for the family.

Diagram

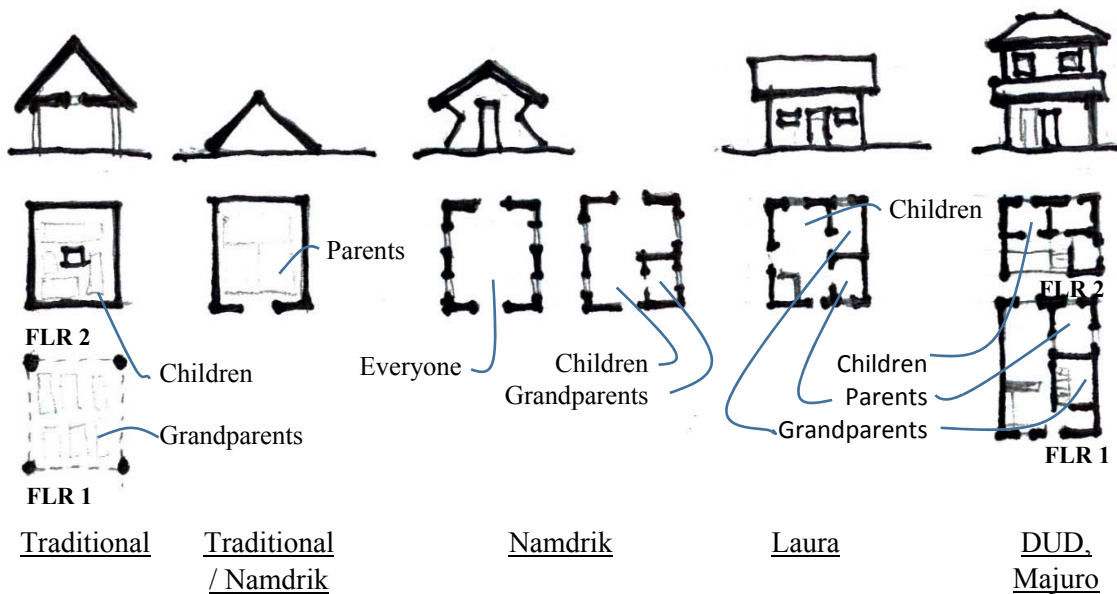


Figure 26: Diagram of the housing typologies that are manifestations of Emlapwoj.

5.3.6 Process Built Housing (Mon Kijdik)

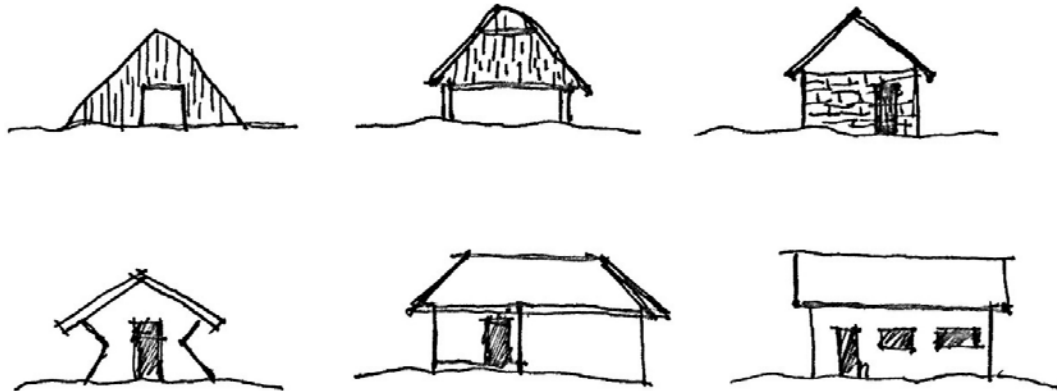


Figure 27: Top left, traditional thatch house built on the ground. Top middle: traditional Marshallese thatch house on posts. Top right: concrete block house, Bottom left, Typhoon mon found on Namdrik; bottom middle: concrete house with covered front entry, bottom, and right: Concrete house.

Process Built Housing: The *mon kijdik* represents the essence of purpose-built housing stemming from the pre-historic architecture of the Marshallese. The house was traditionally designed as a simple wood structure covered with thatch that provided a space to sleep and work protected from the sun and rain. The main posts that supported the roof structure and attic were designed to be smooth to keep the rats out, hence the traditional name. Today, the principle of the *mon kijdik* manifests in simple design moves that aid the use of the structure. It is a sense of knowing how the built form will respond to the environment based on the iterative process.

Explanation

Housing and ancillary buildings in the Marshall Islands have been constructed through an iterative process that demonstrates a deep sense of knowing how built-form responds to cultural, environmental, and economic constraints.

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

Figure 29 provides a diagram demonstrating the influence of these three constraints on the iterative response that produces physical manifestations of Process-Built Housing.

Physical representations of the pattern in built-form demonstrate the interchange between these various constraints. For example, the structural framework of a traditional house is durable, while the envelope consisting of thatching is renewable. This demonstrates the consideration of the economic and environmental constraints in the construction of the traditional house.

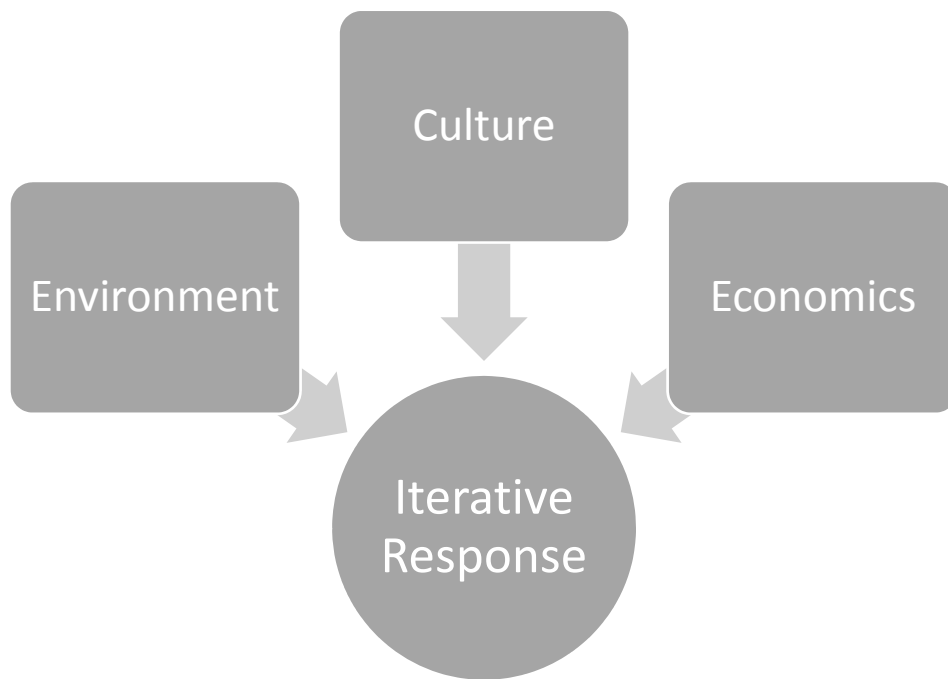


Figure 28: Relationship diagram demonstrating the influence of the environment, culture, and economics on the iterative response delivered through process-build housing.

Traditionally the house provided a place to sleep and work, shaded from the sun and protected from the rains. The design supported the function of the dwelling. Two forms of the traditional house were documented in historical accounts, the A-frame house that sat directly on the ground referred to as the sleeping house and the style depicted previously in Emlapwoj; this house was a roof supported on four smooth posts. As mentioned previously, the division of the house was traditionally a vertical separation between generations and between genders horizontally. The raised portion of the house

was for sleeping and safeguarding keepsakes while space below was open on four sides and provided an area for work and sleep. All of the houses were built on top of a coral spread that marked the site of a household. Moreover, the family sat and slept on woven pandanus mats. These functions of the house are driven by two factors: cultural customs and natural resources.

The materials used in the construction of the traditional house came from local hardwoods, such as the mangrove, and the thatch was created from dried pandanus leaves and coconut palm fronds. The frame of the house consisted of the post, beams, rafters, and purlins, and a large piece of coral limestone was placed in dug-out holes to support the posts. The envelope of the structure was pandanus thatching, which was readily renewable. The design was closely aligned with the climate, providing a ventilated space that allowed breezes to pass through without letting in the rain. Each element of the house was designed and created in a manner that was effective and efficient. The woven thatching ensured fewer leaks and a simple system for intertwining the various bundles; the posts were smoothed to deter rats. Just as each part of the house was a unique design, the craft and construction were done by different individuals in a communal ritual. Women wove the thatching together while men raised the mainframes and stitched the thatched bundles together on the roof.

Just as the construction of the buildings was driven by family rituals, cultural structures defined the way the house was used. In addition to the spatial separation based on gender and age, spatial arrangements were driven by cultural taboos. *Kwon jittak lok* (sleeping facing east) and *lolon* (the place where your head rests) are two rituals that affected the use of space in the house. The area to the east (and often lagoon side) of the

house is typically where the head would rest (Ralik and Ratak 361-362). This area of the house was protected to prevent people from walking past it. Protections were either physical barriers or social norms that prevented individuals from walking along the lagoon side of homes. Other cultural taboos around housing were driven by the chief. These affect the behavior around a dwelling. A chief's house is a taboo place in which commoners are not allowed to walk near, and when the chief dies, the site of his house cannot be built upon. Also, the height of houses on the islet (or atoll) is restricted by the height of the chief and the height of his house; a house may be taller than the chief.

The house is a purpose-built structure, designed and constructed to support cultural customs and rituals, and they drive the use of the house. In addition to the house, the purpose-built pattern also applies to other vernacular structures, such as the cookhouse, the drying shed, and other ancillary buildings.

Persistence

The underlying principle of the purpose-built pattern is the underlying principles of design driven by cultural practice. The physical manifestation and use is a result of these generative forces. Today very few thatch houses are found in the Marshall Islands, and the mon-kijdik no longer exists, but the same cultural practices continue to manifest in similar uses. Local materials used in the construction of housing has been replaced with more durable imported material, such as corrugated metal sheathing and concrete masonry units. The aesthetic form of the house has changed over time, but the purpose and behavioral structure have remained much the same.

Namdrik

Purpose-built housing was observed on Namdrik in the form of housing adaptation and self-built housing. Adaptations and self-built housing provided spaces and components in support of the social functions driven by cultural practice. Separations were often created in one-room houses in order to provide a private space for the grandparents or parents, while other houses were designed to provide separate rooms for the grandparents, parents, girls, and boys.

Housing typologies on Namdrik ranged from the “typhoon mon,” make-shift housing, concrete blockhouses, and wood-framed houses. The “typhoon mon” is a one-room structure imported from Saipan that was often adapted to partition off a separate room. Make-shift houses were self-built and constructed of local materials and recycled or imported building materials; these houses were always one room and included small alcoves and storage spaces. The wood-framed houses were generally also self-built and

consisted of one open room; they were constructed of imported and recycled building materials. The concrete block houses were often two-bedroom houses built of concrete masonry units and wood-framed interior walls; these were commonly adapted.

Adaptations to existing houses included simple interventions such as the construction of a weatherhood over a window in order to prevent sweeping rains from coming into the house or the addition of walls to provide a private room for the grandparents or parents. Some adaptations were created to provide climate controls while others were created to support cultural behaviors. For example, in one of the concrete block houses, a family located the bed to face east even though the room was not long enough to support the furnishing.

Laura

Similar to Namdrik, purpose-built housing was evident in the construction of self-built structures and the adaptation to existing houses. The separation evident in the Emlapwoj was observed as described previously, and western style homes were often modified to support the family organization. Laura had one primary housing typology, the concrete block house, and these ranged from two to three bedroom houses with an attached bathroom. Most provided the separation required by the family and social norms. The self-built homes observed provided a central living space and sleeping rooms; the living space provided an area to work in or socialize during heavy rains.

Djarrit-Uliga-Delap (DUD, Majuro)

Purpose built housing was less apparent in the DUD outside of the separation of spaces for gender and generation; although a few self-built houses were observed demonstrating design ingenuity. The American tract housing was often adapted to

support the cultural function of the dwelling. The self-built homes that were observed demonstrated the ingenuity of simple design solutions for responding to flooding, rain, and wind. Several of these also reused recycled materials from buildings developed or imported under the United States occupation.

Diagram



Weather-hood over window for ventilation



Post of a mon-kijdik



Storage bump-out in lieu of window opening

Figure 29: Diagram of process built house details.

CHAPTER VI: EVIDENCE OF DEEP CULTURAL PATTERNS

In the previous chapter, the overview of the deep cultural patterns uncovered through the study was presented, and the generative nature of these patterns was discussed. This chapter provides the evidence for each deep cultural pattern, demonstrating the persistence of the deep cultural patterns across time and geographies. The evidence provides descriptions of the deep cultural pattern’s manifestation in physical form. Each deep cultural pattern is supported by historical ethnographic accounts of the Marshall Islands, published archaeological analysis of early human settlement, data collected from each of the three sites, and survey results. The layering of the evidence both provides depth to the persistence of each pattern and demonstrates the emergent generative process underlying the physical manifestations. It becomes clear that these deep cultural patterns have persisted across time and space, in support of Rimajol; they are forms of Indigenous Design Knowledge and are themselves structures.

6.1 Land as Wealth

Legend			
	Patterns	Evidence	Analyses
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

As previously discussed in the presentation of the *wēto* in Chapter 4, the islets of an atoll were divided into strips of land, providing access to ocean resources, land resources, freshwater and lagoon resources. These parcels of land provide a family with their wealth in the form of resources providing sustenance and access

to resources through matrilineal inheritance. Each *wēto* became the homestead of individual families and eventually whole clans. In Chapter 5, diagrams of land use were presented to represent the altered form of Land as Wealth across the three sites. Figure 30 presents a transect of the *wēto* layout. As the following sections will demonstrate, if this diagram is overlaid on top of the *wēto* s, we would see close similarities.

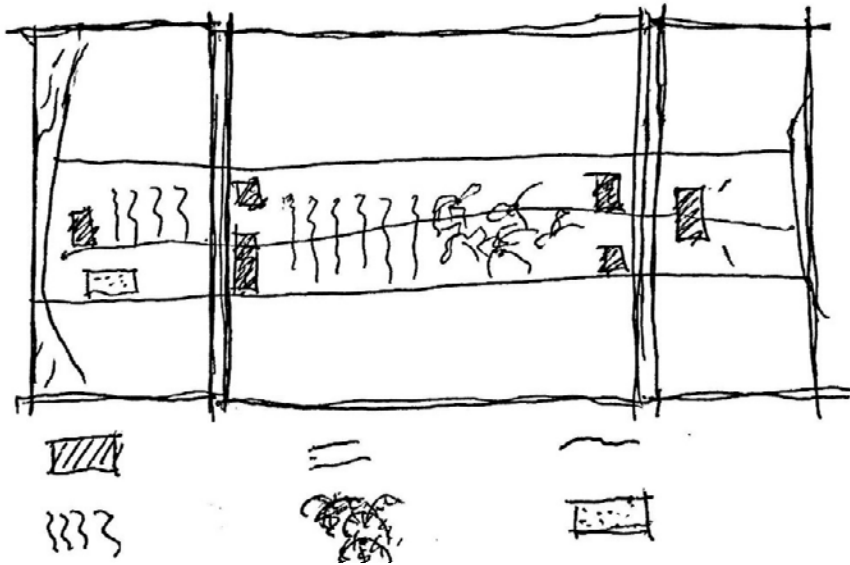


Figure 30: Diagram of the *wēto* representing resource transects. The ocean side provides land for real estate; the center of the island predominantly provides space for agriculture, and the lagoon side of the *wēto* provides space for real estate.

Human settlement of the land coincided with the value placed on its resources and the cultivation of produce. The pattern of settlement is discussed more in the deep cultural pattern, Togetherness, manifest in Clustering. The pattern is both a climatic response (Kramer and Nevermann (1938); Spennemann [1995]) and attributed to resource conservation (Riley, 1987). As time passed, land holdings of families spanned across atolls. *Wētos* also became subdivided over time into smaller strips in order to redistribute resources amongst heirs to resolve conflicts (D. R. Spennemann, 1990). For a

comprehensive description of land tenure and the *wēto* in the Marshall Islands, refer to the work of Jack Tobin (1958), Leonard Mason (1947), and Tina Stege (2008).

As explained in the previous chapter, Land as Wealth is the deep cultural pattern that manifests in agricultural production and the value of access to land. This section reviews the evidence that demonstrates the diachronic nature of the deep cultural pattern and expresses the various manifestation that takes place within the built environment. The following sections provide evidence from the literature, field studies, and survey in support of the two main themes of the deep cultural pattern, the wealth in the resource production and the value attributed to both access to land and its economic value.

6.1.1 Evidence from the Literature

6.1.1.1 Access to Natural Resources

Central tenets of early human settlement in the Marshall Islands included the need to conserve arable land for subsistence strategies and have access to fresh water. While land division provided family access to resources, it did not guarantee access to all resources for subsistence. Figure 31 demonstrates the resources available on the *wēto*. To ensure the survival of the first settlers, systems of governance developed to redistribute resources. Each *wēto* is administered by an *alap* under the control of an *iroijerik* (lesser chief) and finally under the authority of the *iroijlaplap* (high chief).

Social structures formed that also coincided with efforts to maintain the productivity of the land and to provide families access to more diverse resources. If they are well maintained, the *wēto* continues to provide sustenance for many generations. Most *bwij* have multiple *wēto* s that they can access for resources. Some areas of the land do not provide the necessary soils for certain plants, for example, one *wēto* may provide

the right soils and water levels for growing tarot, while another *wēto* may provide better soils for breadfruit. If a family's *wēto* (s) is unable to produce enough resources for them to subsist, they have to rely on other extended family or friends. Everybody needs something from some part of the island because different areas on the island support different resources.

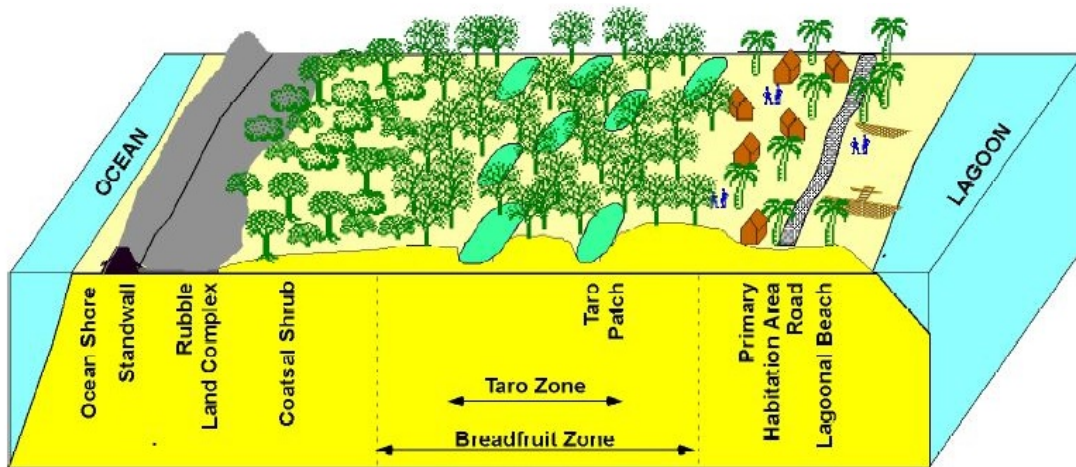


Figure 31. Ecological zones and settlement design of a traditional *wēto* (Spennemann 1990).

There is a replication of resource use and resources from dispersed settlements on the different parts of the atoll. Nucleated settlements of the Marshall Islands, particularly on Majuro, should be considered regarding the variables of land availability and resource complexity rather than in terms of sociopolitical units (Riley, 1987). The fact that the population of the first inhabitants was dependent on more diverse resources than available on any given *wēto* is the basis behind two arguments regarding early settlement in the Marshall Islands: 1) the clustering of houses, which is discussed in the deep cultural pattern Togetherness; and 2) the social structures formed to ensure resource distribution and working together, which is discussed in the deep cultural pattern Resource Sharing.

Riley (1987) and Weisler (2001a) argue that the clustering of settlements occurred at the widest part of the largest islet; a pattern in which some *wētōs* may not have been habituated but were used for resources only. The pattern of resource use was also identified by Spoehr (1949), in which families derived their food directly from the *wētōs* they held rights to. He noted that most households had bananas and papayas planted near the house, and others had small gardens at the rear of the house for sweet potatoes and other crops. The *iroij* would redistribute food to those of his people who did not have sufficient food for themselves³³.

The physical formation of the *wētō* was shaped through these processes of resource production and allocation. Nearly every square meter of a *wētō* was shaped by human hands over time, and the reshaping of the land to fit the needs of the people is often referred to as a transported landscape (P. V. Kirch, 1984). The introduction of the copra trade into the Marshall Islands once again changed the land from a diverse landscape of the three trees (coconut, breadfruit, and pandanus), which were at the core of the transported landscape in support of life on the atolls, to one dominated by the coconut tree (*wainee*).

6.1.1.2 Access to the value in land

The wealth provided through access to land and its economic value is related to the social and economic position in the community. Having land more centrally located along the lagoon or having several land holdings, demonstrated the wealth of an individual family or *bwij*. Phillip Kabua and Nancy Pollack (in Mason et al. 1967) noted

³³ The *iroij* influences the use of natural resources on the *wētō* and can be exploitative as people rely on these resources for sustenance. It was expected that all produce of the land was shared with the *iroij*.

that economic status was tied to the landholdings of *an alap*, *iroij erik*, and *iroij laplap*. The number of *wētos* on which one had land rights since land has traditionally been the basis of wealth, the level of wealth and status is also attributed to a person's land holdings.

As urbanization increased on Majuro, accelerating in the 1970s, new forms of land wealth were developed. Since the modernization of the D-U-D in the 1970s, a new land tenure pattern began to appear. Families have infilled areas of the coral shelf along the lagoon side and laid claims to the land. These pieces of human-made land are outside the constraints of traditional land tenure, yet the inheritance and rights follow very similar patterns to the traditional land tenure system. The major differences include: no oversight by a chief and the land does not have to follow matrilineal inheritance. In the urban centers, the value of land has shifted from one that provides natural resources for sustenance to a resource that can be commodified for real estate values driven by development. Land maintenance is not what it once was. As families rely more and more on the market economy and imported foods, they begin to see less value in the production of the land for resources, but instead see the economic value in the land. Arguably, the two practices have the same output – a means to survive.

6.1.2 Evidence from Namdrik

Eleven *wētos* were studied with particular attention on three specific familial kinship groups (*bwij*) on Monkonat, Monwat, and Moneibel (see Figure 32). The average size of the *wētos* studied on Namdrik is 6.2 acres with the maximum size being 12.5 acres and the minimum being 2.71 acres. The average number of houses present on a *wēto* is three; the survey depicted 3-5 houses per *wēto* as a good number before resources are

stretched. All eleven *wētos* spanned from the lagoon to the ocean, and all contained at least one homestead and a freshwater well. Figure 32 provides an overall site plan of the *wētos*; note that nearly all of the “white” space is covered in primarily coconut palms. The primary source for food was from coconut, breadfruit, pandanus, and banana grown on the *wētos* in addition to fish and livestock (pig and chicken). Rice, canned meats, and other imported foods supplemented local produce in meals. The following table (7) provides an overview of the *wētos* and the evidence in support of Land as Wealth. The following section expands upon the evidence. Appendix A provides further data on Namdrik that supports Land as Wealth.

Table 7: Manifestation of Land as Wealth on Namdrik *Wēto* s

<i>Wēto</i>	Resources
	Refer to Appendix A for drawings of each <i>wēto</i> , including a short narrative about the place.)
Jabunok	Cultivation of breadfruit and bananas present. Pandanus (<i>wiloman</i>) is used for weaving handicrafts (<i>omimono</i>). The <i>wēto</i> connects to the reef that stretches to Madmad, providing easy access to one of the best fishing locations for parrot, grouper, Moorish Idol, and more.
Wijlang	The <i>wēto</i> is laid out for maximizing corpa production. In addition, a banana grove, lemon tree, pandanus, and breadfruit are grown near the house; produce from these trees are used regularly. Local hardwoods are used in housing repair and the construction of ancillary buildings such as the cookhouse. <i>Wilomaan</i> is also grown on the <i>wēto</i> for use in weaving traditional Namdrik mats. Daily fishing along the ocean reef was observed.
Monjon & Monkonat	The size of the land is demonstrative of the family’s position on the atoll; the combined land area of about 7 hectares is the largest property in Elmon. Coconut palm is the primary crop grown for copra production, but the cultivation of taro, pandanus, a lime tree, breadfruit,

	and bananas also takes place. Kono ³⁴ is also present for use in building construction.
Monwot	Ancillary buildings are constructed in part with local materials. <i>Wilomaan</i> is grown for the use in weaving pandanus mats and omimono. Copra production is the predominant agricultural production.
Maaklon	The production of copra is evident. Pandanus, banana, and breadfruit are also cultivated on the <i>wēto</i> .
Maneibel	Copra production dominates the land use of the <i>wēto</i> , but banana, <i>ni</i> (coconut for eating), pandanus, and breadfruit are also cultivated. Part of the <i>wēto</i> is also leased to a family. Local wood is used in the construction of ancillary buildings.
Lotoean	Parts of the <i>wēto</i> are leased to the Copra Coop warehouse, and the Assembly of God church Bananas, breadfruit, pandanus, papaya, and mountain apple are among the produce cultivated on the <i>wēto</i> . In addition, there is a taro patch and coconut palm forests for copra. Local wood and <i>wilomaan</i> are used in the construction of several buildings on the <i>wēto</i> .
Monak & Leb	Banana, breadfruit, pandanus, and coconut are all cultivated on the <i>wētos</i> . Local woods were used in the construction of ancillary buildings.
Mojero	Cultivation of land for bananas, pandanus, coconut, and breadfruit is evident. Mangrove trees are also present at the center of the <i>wēto</i> in the swamp, which along with other local woods, are used in the construction of self-built structures. In addition, the land is leased to the government for the school.

6.1.2.1 Access to Natural Resources

Wēto s are important for the people because they can grow their own food on the land. If we take care of the land, they have everything they need on their land.

Live here, and it's free. (Man from Mojero *Wēto*, Namdrik).

Nearly the entire population of Namdrik utilizes subsistence strategies, raising their livestock and tending crops such as breadfruit, pandanus, coconut, banana, and tarot.

³⁴ Kono trees produce light, but hard, fine-grained wood. It is used in boat construction and in home construction. House poles made with Kono have been known to last up to 100 years. It is considered the best wood to make model canoes. The nut of the tree is edible and the flowers and leaves have medicinal uses.

Ninety-two percent (92%) of the households fish for sustenance in addition to their agricultural production (EPPSO 2011 Census). While almost all families live subsistence lifestyles, local food is supplemented by imports of canned meat, rice, and flour. However, these luxury items tend to be used primarily by more affluent families. Beyond farming for subsistence, some families send bundles of banana, taro, breadfruit, pandanus, pork, or fish to families on other atolls via Air Marshall Islands cargo and the Field Ship. Some of these items are even sold at the local markets on Majuro. Nineteen percent (19%) of families produce food (crops, livestock, and fishing) for both subsistence and sale (EPPSO 2011 Census). In addition to the selling of food, 70% of the households engage in copra (*wainee*) production, and 37% of households make *Omimono* for trade and sale (EPPSO 2011 Census). Copra is collected and sold to the copra Coop or Toblar. Copra and *omimono* are the primary forms of economic production for Namdrik families. Namdrik is famous for the woven pandanus mats, made from the *wilomaan*³⁵ that grows on almost every *wēto*. In addition to resources produced for the market economy, many *wēto* s have large mangrove forests and other hardwoods such as Kono and kememe. These woods are used in the construction and repair of cookhouses and dwellings. Other plants, such as *noni* are used for medicinal purposes. The production and use of resources on the *wēto* are integral to daily life on Namdrik.

³⁵ Wilomaan is a specific type of pandanus that grows low to the ground, almost like a grass, and is specifically used for weaving mats, purses, baskets, and other fine hand crafts. Namdrikese claim that it is specific to Namdrik and in part the reason Namdrik is referred to as the Basket of Culture and so well known for its woven works.

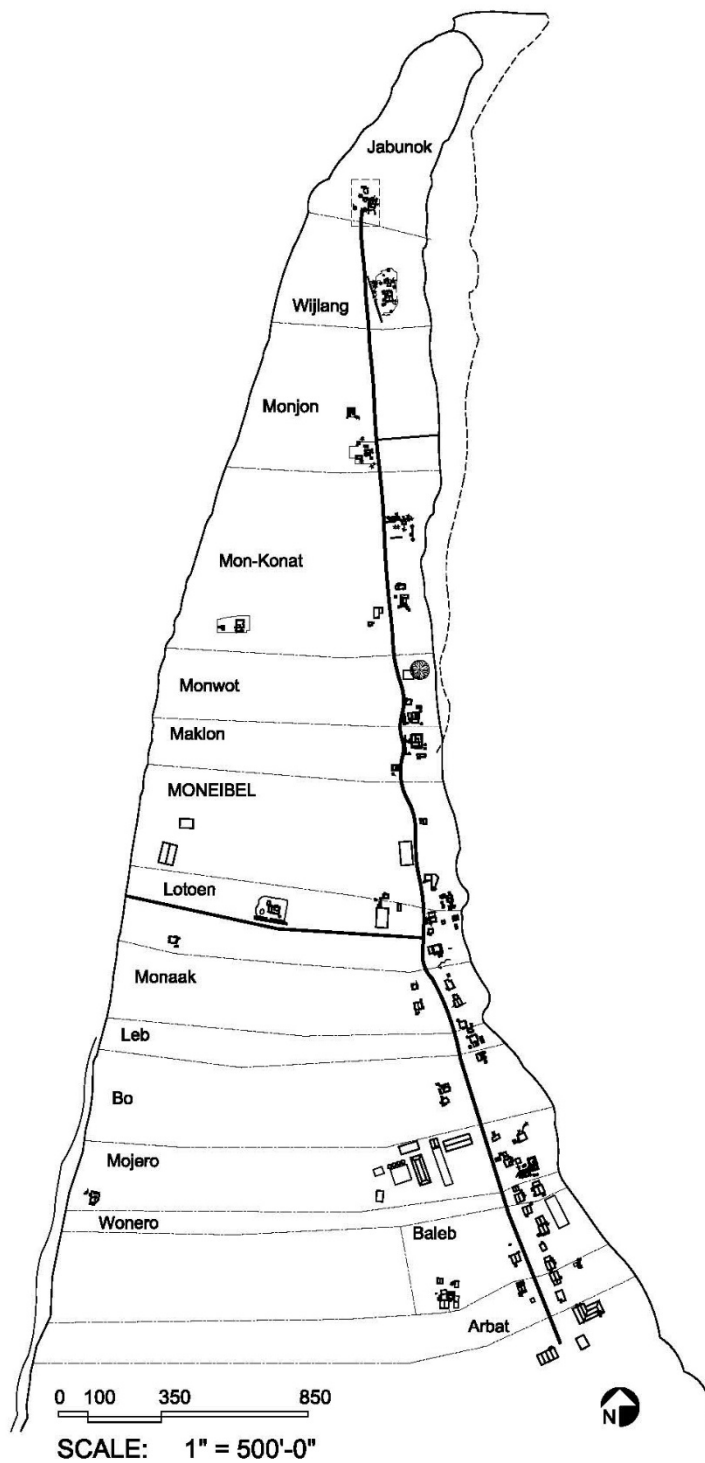


Figure 32. Site plan of the *wētō s* under investigation on Namdrik atoll.

Monkonat demonstrates the association between the size of land holdings and the social position of a family. The *wēto* is significantly larger than others, five hectares compared to an average of 2.5 hectares. In combination with the adjacent *wēto* that is owned by the same family, the size totals seven hectares. Monkonat and Monjon *wēto s* span from the lagoon to ocean and consist of fresh water wells and rich soils supporting the three trees, taro, crops, and hardwood trees, such as Kono. The family is well recognized on the island, and the *alap* has an important position in the community as the medic and prayer leader in the Catholic Church. Figure 33 depicts the mental map created by the *alap* of Monkonat. It depicts the location of key resources used every day, particularly breadfruit, coconut and the ocean and lagoon waters. This is a common depiction of the *wēto* by participants, emphasizing the important resources on the land.

Observations and interviews on Monwot uncovered the ownership of multiple *wēto s* by the family and the rotation of harvesting copra that took place among these *wēto s*, which were across the lagoon from each other. This fits with the argument presented by Riley (1987) that resource distribution from multiple *wēto s* would have been required because some *wēto s* are too small to sustain a family. Lotoean and

Moneibel are a prime example of this. Not only does an *alap* reside over multiple *wēto* s, but families and their everyday family activities stretched across *wēto* s.

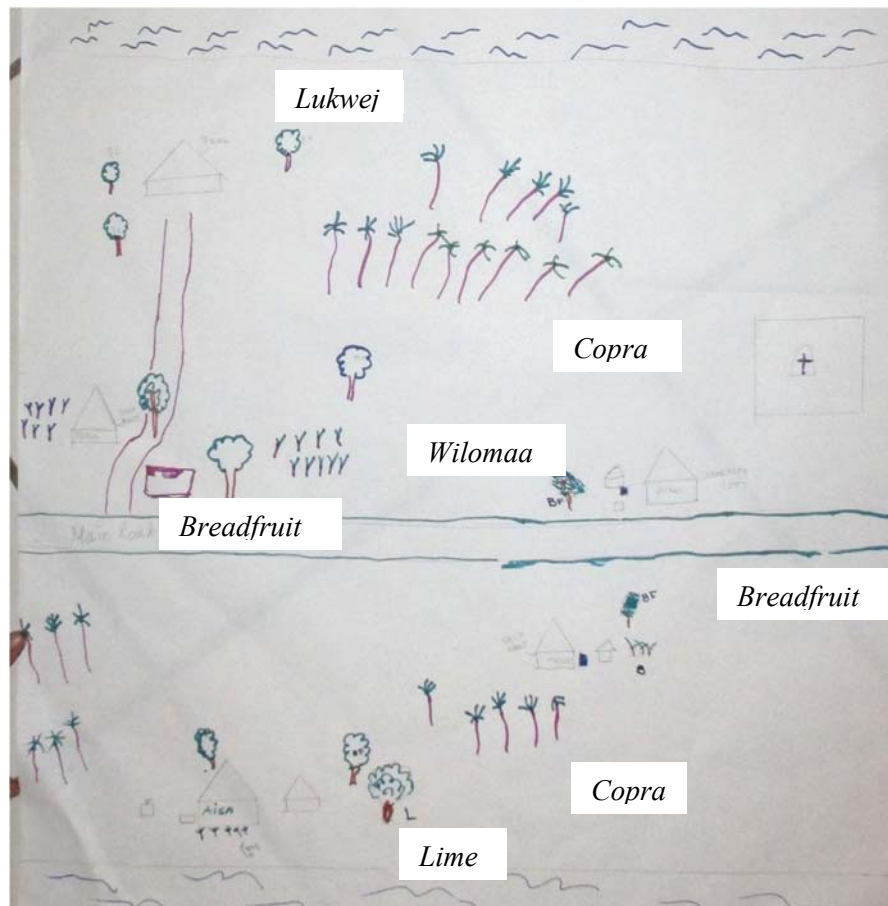


Figure 33. Mental map of development on Monkonat depicting important resources.

Monjon, Wijlang, and Jabunok may demonstrate increased land development over the past forty (40) years. A comparison between the 1971 aerial photograph of Namdrik (Figure 34) and the aerial from 2016 (Figure 35) shows the increase of housing sites toward the north of the islet. The shift in development demonstrates the value that land holds in providing families the right to dwell on the *wēto*.



Figure 34. 1971 aerial photograph of Namdrik before Typhoon Alice 1978-1979. Asian Development Bank.



Figure 35. 2016 Aerial photograph of Namdrik. GeoEye US

The conservation of resources is also important to the sustainability of the *wēto* as a resource for the family – to continue to produce sustenance and economies. The community of Namdrik is actively engaged in the conservation of resources on Namdrik, which was recently exemplified through the Ramsar protected site designated in 2013 (<https://www.ramsar.org/wetland/marshall-islands>). Besides larger efforts, families are also proficient in the management of their land(s). In the production of housing, it was often mentioned that the protected mangroves could be used in housing production, but one could only take what was needed (refer to Miller [2017] for a discussion of sustainability goals driven by western institutions versus those long established through Indigenous Knowledge).

6.1.2.2 Access to the value of land

Within this shifting interpretation of land's value is the rising trend of land leases to families that do not have land tenure on the atoll. Moneibel presents an interesting case; a large portion of land was leased by a man whose daughter and her family now reside. While the daughter has land rights on Namdrik through her mother, the father did not. The father could have built the house on his wife's land holdings but wanted to avoid potential conflict with the family; therefore, he leased land. The shop-house that was constructed is one of the largest buildings on the island (Figure 36). The site plan in Figure 37 depicts the areas that had land leases. In addition to land leasing on Maneibel, the government leased the property on Majero *wēto s* for the location of the primary school (see Figure 38).



Figure 36. Photograph of the shophouse built on leased land on Moneibel *wēto*.

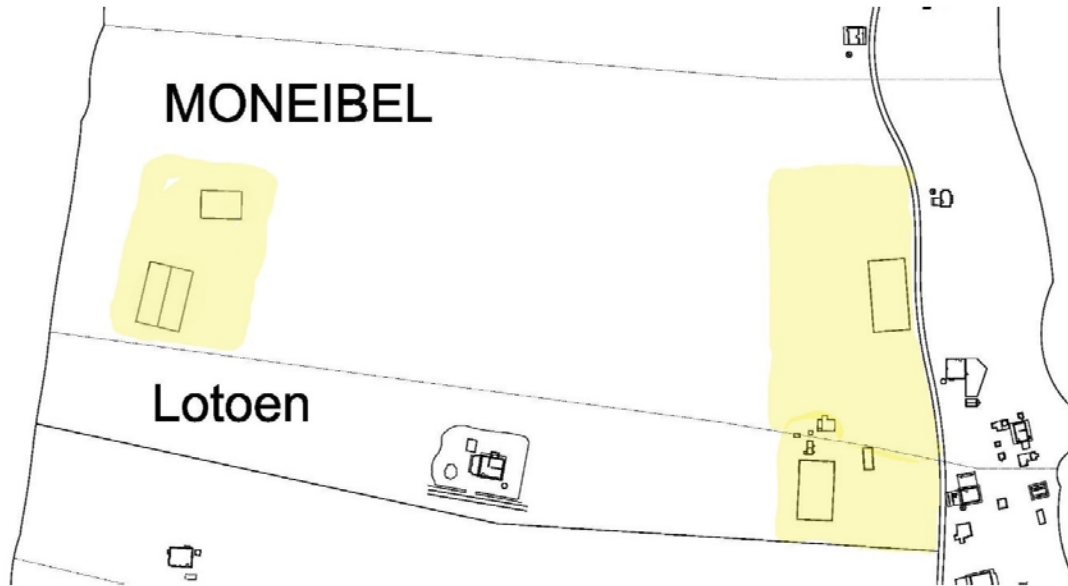


Figure 37. Highlighted areas are land leases on Moneibel.

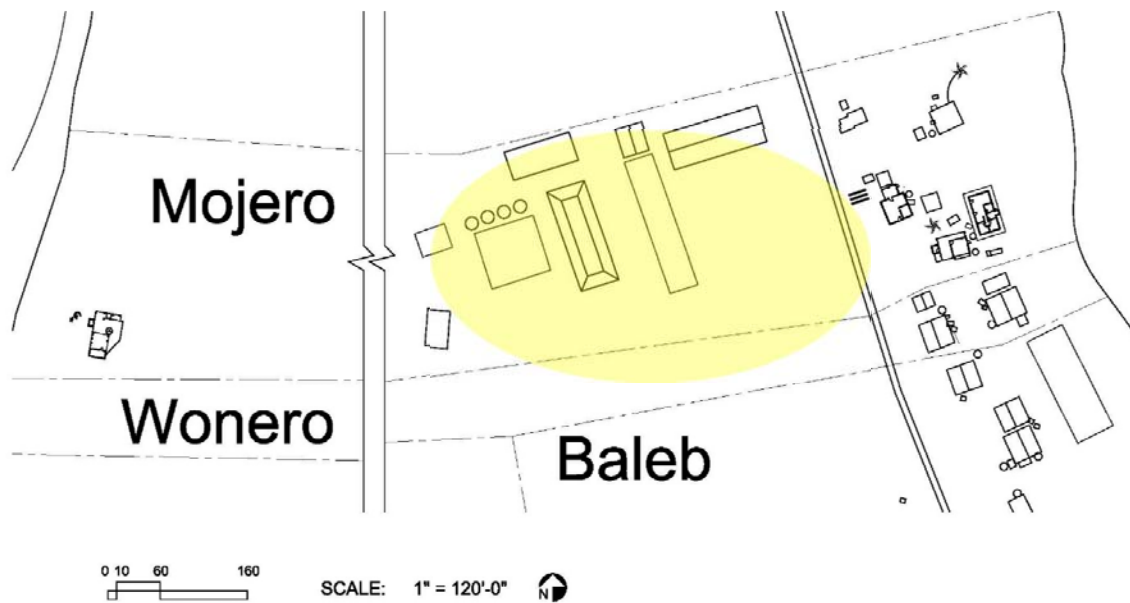


Figure 38. Site plan of Mojero *weto*. The highlighted area is a land lease.

Namdrik demonstrates strong continuity of Land as Wealth, which is evident from the examples in support of the access to resources and the access to money provided by the traditional land tenure system, the *weto*. The access to resources is the predominant value of the land on Namdrik, but a few cases do demonstrate the monetary value of land

through leasing. In many ways, the socio-economic value of the land on Namdrik has changed little in the past century. Appendix A provides a wealth of examples that support Land as Wealth, but those provided here provide a succinct summary of the supporting data.

6.1.3 Laura

The average *wēto* size of those documented on Laura is 5.62 acres with the maximum of the range being 9.6 acres and the minimum of the range being 3.47 acres. Three transects of Laura were chosen, two of which were based on the archaeological study conducted by Riley (1987)³⁶. Using the two transects that align with Riley's study was to draw more reference from the pre-historic analysis of the *wēto* s. Figure 39 is a map of Laura depicting the location of houses, buildings, roads, the boundaries of the *wēto* s observed, agricultural fields, and cemeteries. To reiterate from chapter 5, all of the *wēto* s that were observed on Laura represented Land as Wealth both in the access to resources and the access to the monetary value in land.

The *wēto* s that were included in the study are Aronan, Likin-Atbwe, Likin Kunu, Jonak, Mwinkidren, and Likin Kunen. Aronan and Likin Kunu are owned by the same family and share one *alap*. Jonak, Likin-Kunen, and Mwinkidren have one *alap* each. The family of Likin-Atbwe is intermarried with the family of Likin-Kunu and Aronan. The following table 8 summarizes the support of Land as Wealth provided in the study of each *wēto*. Of the *wēto* s included in the research, the average number of dwellings is 6. Likin-Atbwe is the densest with 11 dwellings, and Likin Kunen is the least dense with

³⁶ This provides a base for the diachronic analysis, comparing pre-historic settlement to contemporary settlement.

three dwellings. Only one of the *wēto s*, Likin-Kunen, stretches from the lagoon to the ocean. However, the families at the other two transects claim that their *wēto s* span between the lagoon and ocean. For example, the *alap* of Jonak claims that the *wēto* runs from Eolab to Lobat, but this is not confirmed by the map drawn by Mason in 1967. The ambiguous boundaries of *wēto s* demonstrate the evolving nature of *wēto s* over time as various divisions are created or released with the organization of the family. Appendix B provides further data on Laura.

Table 8: Support for Land as Wealth

<i>Wēto</i>	The manifestation of Land as Wealth
	Refer to Appendix B for documentation of each <i>wēto</i> , including a short narrative about the place.
Aronan	The land primarily provides wealth through land leases. The municipal basketball court for Jeirok district is located on Aronan. In addition, the land is leased to an American Missionary family for their house and store. Minor cultivation of cash crops was noted for household consumption.
Likin Kunu	A few agricultural fields are used for growing cash crops. Breadfruit, pandanus, and banana are also grown for consumption. A house on the ocean side is leased to an outer atoll family, related through marriage.
Likin Atbwe	Several houses are rented to immigrants. Cash cropping is evident. Livestock is raised on the land. Minor cultivation of food for household consumption.
Jonak	Large-scale cultivation of papaya, banana, and taro are located at the center of the <i>wēto</i> .
Mwinkidren	Land leases to the government are located toward the center of the <i>wēto</i> . Minor cultivation of produce for household consumption.
Likin Kunen	A large plot of land is leased for experimental farming. The land is also leased on the lagoon road to an immigrant family. Minor cultivation of bananas, breadfruit, and vegetables is present for household consumption.

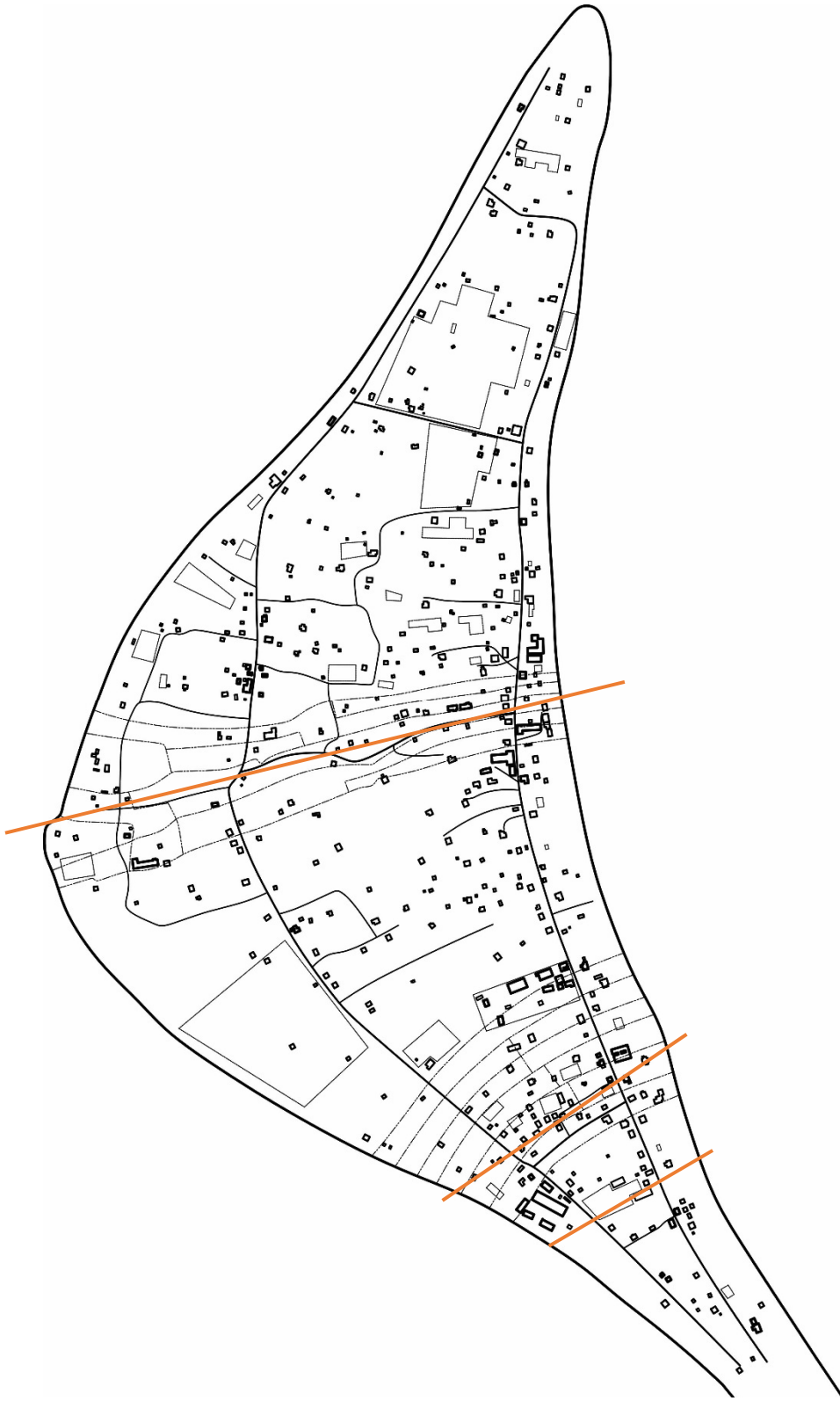


Figure 39. Map of Laura showing the main roads, buildings, and outlines of agricultural fields and cemeteries.

6.1.3.1 Access to Natural Resources

The population living on Laura today is 2,281. Based on a total number of 331 households, the average household size is seven persons. Agricultural production still maintains an important part of livelihoods on the islet. Twenty-seven households on Laura earn incomes through copra trade, and 56 households earn income through the production and sale of handicrafts; 202 of 331 households raise livestock, and 289 of 331 grow food crops. (RMI 2011 Census). Assessing the aerial imagery of Laura, much of the arable land is preserved for these purposes; however new patterns of development demonstrate that agricultural production is becoming less important.

Resource use was observed as a core part of life on the *wēto* in Laura. Activities included raising livestock, farming cash crops, gardening, and maintaining fruit-bearing trees like breadfruit and bananas. When asked about the importance of the *wēto*, one man drew emphasis to the resource production when asked how the *wēto* was important; he responded, “Looking after the livestock and garden.” The cultivation of food crops was part of daily life on the *wēto* s observed in Laura. On some *wēto* s farming for cash crops was predominant and on others, it was simply gathering breadfruit, bananas, or pandanus for family meals. The following three examples demonstrate the shift of land use over time, emphasizing the capacity of agricultural production.

Jonak *wēto* has maintained a strong connection to agricultural production. An aerial image from 1947 depicts the dense foliage from the main road all the way toward the ocean side of Laura. In line with the transect diagram presented in Figure 30, the main housing would have been located on the lagoon adjacent the main road. The center of the *wēto* continuing to the ocean side was used for agricultural production. The circled areas

in Figure 40 mark the presence of taro pits (left) and the location of houses (right). The aerial image in Figure 41 shows the present land use of the *wēto*. At the center of the *wēto*, a dense canopy persists, but large clearings have been created along the lagoon road and the more recent Oceanside road. Clearings have largely been created for new housing, while others have replaced the production of copra with the cultivation of cash crops, such as papaya or tomatoes. The transect diagram of the present condition of land use on the Jonak is more in line with the diagram in Figure 30. The economic production of land within the market economy has outpaced subsistence strategies.

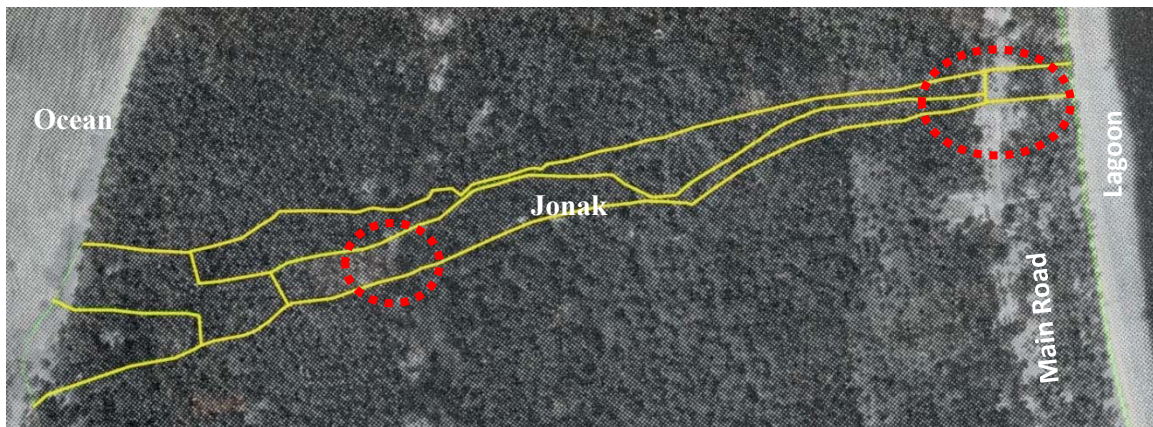


Figure 40. Historical aerial from 1947 (Spoehr, p. 21) with approximate *wēto* boundaries.



Figure 41. Overlay of the aerial image (by author) on Google Earth map of Eolab. With an outline of *wēto* *s*.

Likin Kunu, Likin Atbwe, and Aronan have also maintained agricultural production across time. Similar to Jonak, historical aerial images demonstrate a

predominance of agricultural production, likely connected to subsistence strategies and copra production. Recent aerial images demonstrate higher density development and less emphasis on copra and subsistence farming. The transect for these three *wētō s* in 1947 (Figure 42) is almost identical to Jonak. Housing is on the lagoon side, and agriculture is in the center, continuing to the ocean side. However, the transect of contemporary land use is somewhat different from Jonak. Housing and commercial development have intensified along the lagoon road, and housing has replaced much of the agricultural land at the center of the *wētō and* ocean side. Figure 43 highlights a few of the fields used for the cultivation of cash crops, but these make up a small percentage of the total area used for agricultural production in 1947. Farming is becoming supplemental to daily life.



Figure 42. Historic 1947 aerial of Laura (Spoehr, 1949, p. 22) with outline of Aronan & Likin Atbwe.



Figure 43. Aerial photo (by author) overlaid on Google Earth image.

The third example, represented by Likin Kunen, follows the same trend as the previous two. The transect of land use in 1947 (Figure 44) would show housing development on the lagoon side of the *wēto* with intense agriculture production from the lagoon road continuing to the ocean shore. The contemporary transect of land use is also very similar to the previous two examples, housing development has intensified along the lagoon road, and agricultural production has been altered in the center of the *wēto*. In the case of Likin Kunen, a ‘test farm’ has been developed at the center of the *wēto* to introduce new food crops to the island in order to test what plants may grow well on Laura. However, outside of this test farm (highlighted in Figure 45), there is no other agricultural production on the *wēto*.



Figure 44. 147 aerial image (Spoehr, 1949, p. 22) with outline of Likin-Kunen.

These three examples demonstrate consistency in land use at each time period. While the socio-economic factors requiring the production of wealth from the land has changed over time, the land continues to produce to meet the needs of the inhabitants. Albeit, rather than a purely subsistence livelihood, land's wealth lies in its ability to provide goods for the market economy. Coinciding with these factors is a change in the traditional governance of land use on the *wēto*.

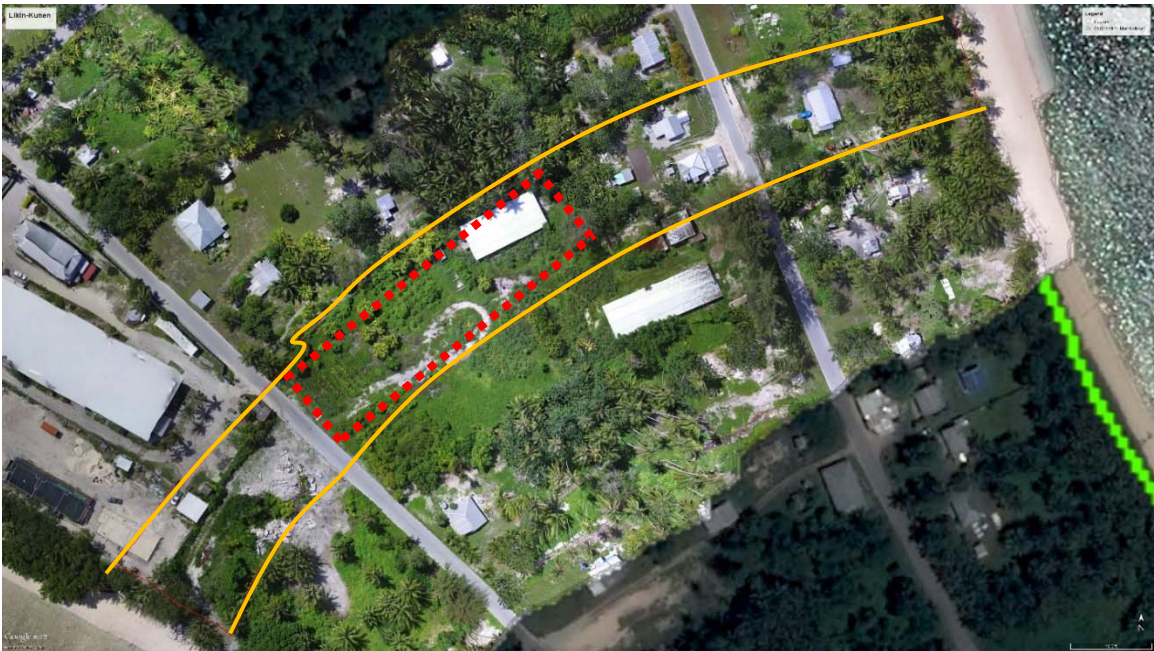


Figure 45. Aerial photo (by author) of Likin Kunen overlaid on Google Earth image.

The traditional process of gaining permission to develop remains intact. If an *iroij* still resides over a *wēto*, he must be approached first, and an offering is given to him

before the meeting. Next, the *alap* is presented with a gift, usually food, and met with to discuss the proposed development. Traditionally this process provided a mechanism for the *iroij* and *alap* to ensure natural resources were preserved. Today the process remains. One man from Likin Atbwe remarked that the process to build on the *wēto* could be frustrating as reaching a decisive answer with the *alap* was not straightforward. “We just figured we needed to put this place, this house somewhere else. Moreover, something else might be appropriate for this spot. So that is why we build, break, build, break.” In this particular case, inter-family rivalries played a role in the decision of the *alap* and his self-interest. Processes established for the conservation of resources are evolving, coinciding with the altered focus in resource production on the *wēto*.

6.1.3.2. Access to the Value of Land

Several development patterns have been reshaping the value of the land on Laura over the past few decades. Internal migration from outer atolls has intensified, increasing the number of agreements between families to allow for land leases and rentals. A second pattern that has begun to increase the demand for land on Laura is the immigration of individuals from other countries, who are leasing property or renting housing on Laura. In addition, some of these immigrants are leasing large plots of land for agriculture production. A third pattern that is causing shifts in the demand for land and housing is outmigration of local families, leaving houses and lands vacant. The *wēto s* included in the research contained rentals and land leases, demonstrating the monetary value of land.

The *alap* of Aronan and Likin Kunu leases land to a family of Bikinians who married into his family. To exemplify the instability of land leases, the *alap* joked that if his son and daughter-in-law file for divorce, he will evict the Bikinians. “We have a

Bikinian family that lives on the ocean side who are my son-in-laws' family. However, because they are not related by blood, if my son and their daughter get divorced, I'm going to kick them off." It is not uncommon for this to happen. Figures 46 and 47 provide examples from Likin Kunen and the family that controls Aronan and Likin Kunu. In figure 46, the highlighted houses are housing rentals for a mixture of families from outer atolls and immigrants from the Philippines and Fiji. Predominantly, these houses are rented to immigrant families; the house on the ocean side is related through marriage. Figure 47 highlights a large land lease for agricultural production and a house, rented by Filipino immigrants. Land leases were commonly observed on Laura, demonstrating a desire for families to increase their economic production through land leases.

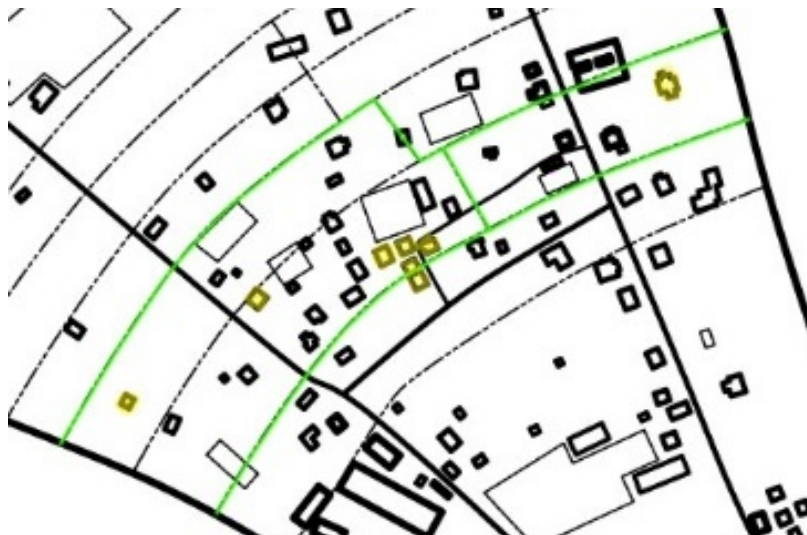


Figure 46. Map of land lease highlighted) on Likin Kunu, Likin Atbwe, and Aronan *wēto s*. The ocean is to the left, and the lagoon is to the right. North is up.



Figure 47. Aerial photograph of Likin Kunen with land leases highlighted. The large area is for agricultural production, and the smaller highlighted area is a house rental.

A more recent issue with land tenure on Laura has been the abandoning of land and housing. One of the participants remarked that there were several vacant houses on the ocean side of the *wēto*. Several of his uncles, aunts, and cousins had moved to the United States. In addition, his uncle and cousin were next in line to inherit a piece of land but decided to leave. Today, these houses and the land sit vacant because their rightful owners are no longer living in the Marshall Islands. When asked whether or not other family members would move in or care for the property, it was explained that it would not be appropriate in the case the rightful owner were to return. Or more accurately, one might put a large investment into a property that can inevitably be taken away from them. This has become a growing trend across the Marshall Islands.

Some of these people are thinking they just go and come back. But [what] they do is they go and they get into ... welfare and free money, free [food], so they ended up [thinking], 'Oh maybe I'll come back two years from now.' Then the

house is broken down and ... old and by the time they want to come back, they don't have money to come back.

Land use patterns are changing on Laura, but to a large extent, the *wētō s* follow the traditional patterns of land tenure, similar to Namdrik. The reliance on natural resources is less, but the reliance on the resource of the land itself has remained the same across time.

6.1.4 Djarrit-Uliga-Delap, Majuro

The urban center of Majuro represents a significantly altered manifestation of Land as Wealth in comparison to Namdrik and Laura. The basis on subsistence livelihoods is no longer present, and the value of land has largely shifted from food production to the real estate value of the land and the direct access to the opportunities in the city. Families continue to cultivate some food for consumption.

The average size of the *wētō s* studied in the D-U-D is 2.63 hectares with the maximum being 3.42 hectares (Lejolimen) and the minimum being 1 hectare (Renlik). The average number of dwellings on these *wētō s* is 60 with the high being 82, occurring on Teron, and the low being 44, occurring on Mwinkut. The area of the D-U-D was almost completely devoid of trees or buildings during the typhoon of 1908, and only historical development is evident on the islets, starting with the Japanese occupation of Majuro and accelerating under the United States occupation. Knowledge of prior land use and resource production is largely unknown. The following section will demonstrate the change of these *wētō s* over the past 50 years and the resource use directed by Land as Wealth. The most intense period of land change on these *wētō s* took place between 1967 and 1976 due to the infrastructure improvements of the Hawaii Architects and Engineers

and the beginning of commercial flight in the Marshall Islands (Hezel). The following Table 6.3 outlines each *wēto* from the D-U-D that was included in the study along with a summary of the manifestation of Land as Wealth.

Table 9: Support of Land as Wealth for the D-U-D

<i>Wēto</i>	Manifestation of Land as Wealth
	Refer to Appendix C for documentation of each <i>wēto</i> , including a short narrative about the place.
Renlik	Minor cultivation of produce for household consumption. House rentals and land leases are predominant.
Renar	Minor cultivation of produce for household consumption. Land leases are common. Land infill on the lagoon side was created with the construction of a sea wall.
Mwinkut	Minor cultivation of breadfruit, banana, and other produce for household consumption. Land leases to families from the outer islands were noted.
Teron	Minor cultivation of produce for household consumption. Land leases present to immigrant businesses.
Lejolimen	Minor cultivation of produce, including medicinal plants. Property rentals for foreigners and land leases to Chinese businesses.

6.1.4.1. Access to Natural Resources

According to an *alap* in Uliga, “Land is the most important part of the Culture.” This represents a common sentiment held by individuals and families in Majuro. In the urban center of Majuro, the importance of agricultural production has diminished, and the value of the land is dominated by real estate value and access to the city. However, it was evident that all of the families that participated in the study continued to use their *wēto* s for natural resources. All of the families that participated in the study still harvested produce from scattered breadfruit, banana, lime, and other trees; one family grew

medicinal plants used in traditional medicine. The following are examples that demonstrate the continuous connection between inhabitants in the land in the cultivation of natural resources, coinciding with the change in land use over time.

Lejolimēn *wēto* demonstrates the reconnection of the family to the land. The traditional use of land on Uliga is largely unknown before the Japanese occupation. Even during the Japanese and United States occupation of Uliga, it is unclear how the land was used besides housing. Historical photographs from the Trust Territory Archive present Uliga as an American suburban landscape. A common street corner in Lejolimēn would have resembled that depicted in Figure 48, a photograph of officer housing during the Trust Territory. Since regaining control of their land rights, Marshallese families began to reform the suburban landscape created during the United States occupation.



Figure 48. Photograph of Uliga circa 1960. Accessed in RMI Historic Preservation Office Archive.

On Lejolimēn, a reconnection to the production of local, Marshallese food was evident. A woman discussed the importance of local, Marshallese food in her diet, “It is better for your health.” She has been replacing imported foods in her family’s diet with

traditional Marshallese food. According to her, imported food such as white rice had negative effects on her health. While the woman purchases local produce grown in Laura, her family also cultivates pandanus, coconut, and banana and raises chickens and pigs. In addition, the woman grew medicinal plants used by the family and shared with friends and relatives (figure 49). While cultivating resources is supplemental to daily activities on the *wēto*, this family carries forward the inherited knowledge for cultivating traditional natural resources.



Figure 49. Image of medicinal plants grown in Uliga.

The *wēto s* in Djarrit demonstrate a continued but the diminished use of the land for the cultivation of produce. During the Japanese and United States occupation, Djarrit was a residential area that provided residents the capacity to grow food from the land and

supplement their diet with imported food. It was not until rapid development between 1967 and 1975 that the use of the land for sustenance was diminished. Small gardens of produce continue to dot the *wētō* s of Djarrit. The following figures will demonstrate this change over time and draw reference to the evolving transect diagram of the urban *wētō*.

The traditional transect of land use was apparent on Renlik, Renar, and Mwinkut up until 1967, as demonstrated in the diagram overlaid on the historical aerial photograph of the three *wētō* s (Figure 50). For the most part, housing was along the lagoon side of the *wētō*, and the center of the *wētō* continuing to the ocean side was used for agricultural production. Mwinkut demonstrated more substantial development into the center of the *wētō* but maintained some natural resources along the ocean side. In contrast, the aerial photograph from 2016 demonstrates the natural resources being overtaken by housing development and the presence of an oceanside road (Figure 51 for Renlik and Renar, Figure 52 for Mwinkut). Today banana groves, breadfruit, and a few other types of local produce are scattered across the *wētō* s.

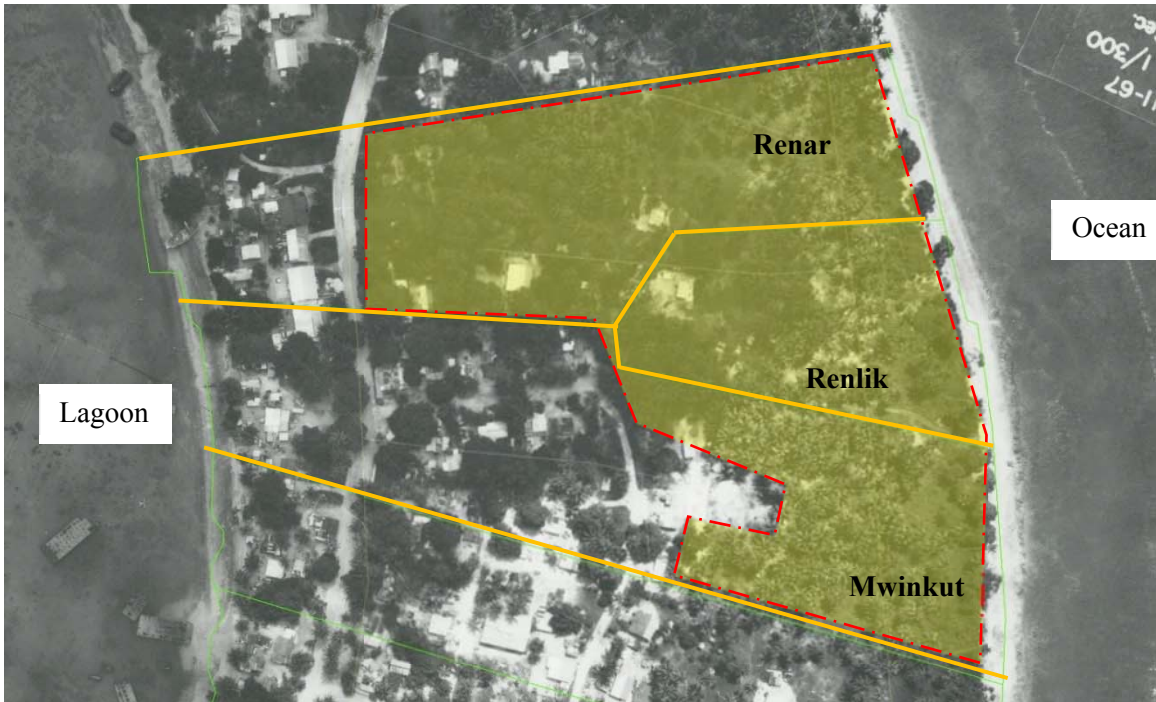


Figure 50. Historical aerial photograph (ADB 1967) with outlines of Renar (top), Renlik (right, center), and Mwinkut (bottom).



Figure 51. Aerial photograph was taken in 2016 (by author). Boundaries are diagrammatic only.



Figure 52. Aerial photograph of Mwinkut, 2016 by the author. Boundaries are diagrammatic only.

Teron *wēto*, Djarrit, follows a similar landscape morphology as Renlik, Renar, and Mwinkut. Teron was more densely developed than Renlik and Renar, but where possible, the land continues to be used for the production of resources used daily. In 1967, Teron continued to provide valuable natural resources such as breadfruit and coconut. Figure 53 depicts the large ocean side zone of fruit producing trees and other

natural resources that were available for families to use.

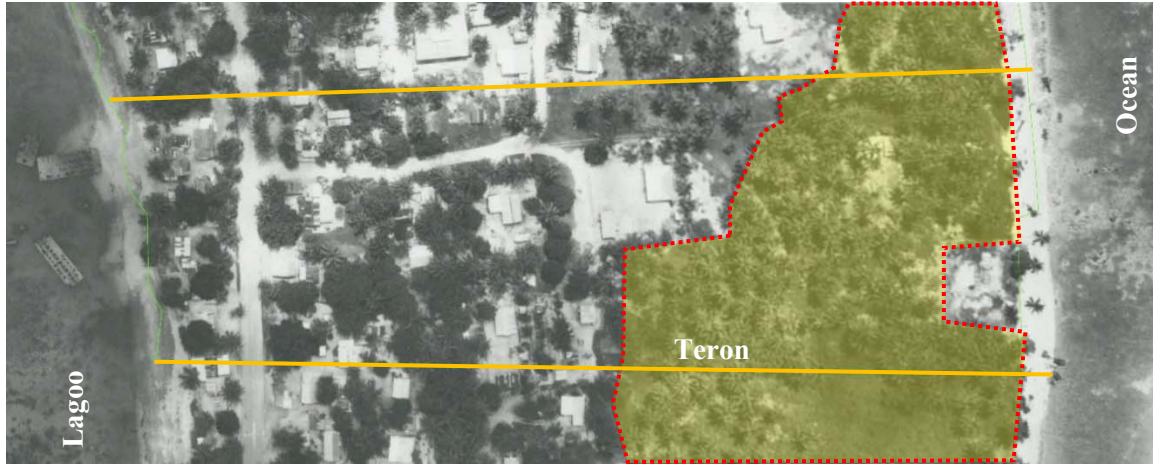


Figure 53. Historical aerial photo of Teron *wēto* (1967).

Today, Teron is densely populated, and little use of natural resources is evident from the aerial photograph (Figure 54). However, in daily observations, it was evident that small banana groves, lime trees, breadfruit trees, and other crops were present. Most of the tree canopies and green spaces that are evident in the aerial photograph are food-producing plants used in daily life. The following image (Figure 55 & 56) depicts a typical landscape pattern of fruit trees wedged in the available space between housing.



Figure 54. Aerial photograph (by author) of Teron in 2016.



Figure 55. Papaya tree in the space between houses.



Figure 56. Banana grove in the space between houses.

The cases presented from the five *wēto* s documented in the D-U-D demonstrate a continued connection between the family and the resource production of the *wēto* for sustenance. Although diminished, the value of the natural resources that comes from the land continues to contribute to daily life. Lejolimen even demonstrated a reconnection to the natural resource production of the land. As lands were returned to their rightful heirs, the use of the land for production of local foods continued. These cases also demonstrate that the use of the land is trending away from natural resource production and toward the development of the land for housing families moving to the city.

6.1.4.2. Access to the Value of Land

I think nowadays we could lease land. It may not be the *wēto*. You know that already, you know you gave the family the *wēto*. It's a family *wēto* that really connects you to your land, and so anybody in the family can come and put up their house, kind of continues the family.

(Alap from Uliga, Appendix D)

Land in the urban center has become increasingly valuable over the past half-century. As the capital of the Republic of the Marshall Islands, the urban center of Majuro is associated with the economic opportunity. Many families move from outer atolls and the other islets of Majuro into the urban center to have access to the city. As more people seek the urban opportunities, they drive the need for leasable land. Many families in the D-U-D lease land and housing to relatives, immigrants, and internal migrants. As the value of the land for natural resources diminished over the past 40 years, the economic value of the land increased. The following are examples that demonstrate these land leases.

A common land leasing pattern, which was demonstrated in Laura as well, is the land lease to extended family members. For family members that do not have land rights in the city, this type of lease provides them access to urban land. A family from the outer atolls established a land lease with distant family members living in Renar because they did not have land rights in the urban center. Figure 57 highlights the location of the land lease, which is prime real estate located on the lagoon.



Figure 57. Aerial photograph (by author) with outline of Renlik and Renar, 2016.

The contract allowed the family to stay as long as the property stayed in the family and remained residences for that family. However, the contract was based on the trust of the alap at the time of the original lease agreement and the grandparents of the family. Since that initial contract, the alap and the grandparents have passed away. Now this lease and the relationship are unstable, forcing the current family to seek residence elsewhere. One of the extended family members was already pushed out. While the leaser is at risk down the line, there is a risk for the property owner, as the lease gives away authority over the land for a certain period, in this example, 30 years. The example from Renar demonstrates the risk involved with a land lease, but at the same time, the family was able to gain access to the downtown center for approximately 30 years.

House rentals and real estate agreements are two other common forms of economic development that demonstrate the value of the land. On Lejolimen several rentals and real estate agreements were documented. The alap of Lejolimen has several housing units that are rented by immigrants and part-time contract workers in the city. These are highlighted in Figure 58 near the top of the image. All of these rental units were constructed by the owner. There is also a real estate agreement between the family that owns the *wēto* and a Chinese businessman who developed an apartment complex on the *wēto*. This is highlighted in the center of the image. Lastly, the family of Lejolimen has a plot of land that is leased to families from the outer atolls and represents a low-income entry point into the urban center.



Figure 58. Aerial photograph of Uliga (by the author, 2016) overlaid on Google Earth image.

Land in the Marshall Islands is clearly valuable, from the continued use of the land for the production of sustenance to the economic value in leasing land. The ownership and access to land through inheritance and the *bwij* provides for a family's survival. Across the urban center of Majuro, it is clear that land continues to hold its traditional value of wealth.

6.1.5 Survey Evidence

The survey results provide further evidence in support of Land as Wealth. They draw importance on the continued use of land for the cultivation of food, and also demonstrate the shifting value of land from natural resources to the monetary value of the land itself.

6.1.5.1 Access to Natural Resources

Today, many *wēto* s in the Marshall Islands do not span from the ocean to the lagoon. Of those surveyed, 70% live on *wēto* s that span from the lagoon to the ocean

while 30% live on *wēto* s that do not. It would have to be confirmed through family lineage to determine the relationship of *wēto* s that share the same transect to develop a better theory of this segmentation of traditional *wēto boundaries*. For *wēto* s that do not span all the way to the ocean, their resources are limited.

In the development of land on the *wēto*, the protection of resources is important. Of those who confirmed the *alap*'s involvement, 62% stated that the *alap* determined where a house could be built. Generally, this determination is based on space availability on the *wēto*. The location cannot be close to the family cemetery and needs to preserve natural resources. However if you offer more money, you can do what you want. One participant further clarified how the division of space on the *wēto* might be determined by the individual families in the larger clan: "There is a portion for every head of the clan in the family, the *alap* will see if there is space on your side of the family place, then he will decide."

The use of local resources has always been an integral part of life on the Marshall Islands. Ninety-three percent (93%) of participants use local resources in their daily life. While responses were often vague, it is clear that producing food for consumption is very important; the word 'food' appeared twenty times in responses. Based on observations and interviews on Majuro, there are several individuals who are actively trying to return their diet to consuming only locally grown, Marshallese food. One respondent commented that rice should be banned and replaced by breadfruit in everyone's diet. Coconut, breadfruit, and pandanus maintain an important role in Marshallese everyday resource use. In assessing statements in response to the types of resources that come from the *wēto*, food was the most common response. The infographic in Figure 59 provides a

Additionally, the chart in Figure 61 demonstrates the importance of resource use on the *wēto*. Breadfruit, panandus, and coconuts are very important resources produced from the land. These are staples in the Marshallese diet. Having a garden in order to produce one’s food was also important to more than 60% of the participants. These findings demonstrate that resource production from the land continues to be an important part of daily life.

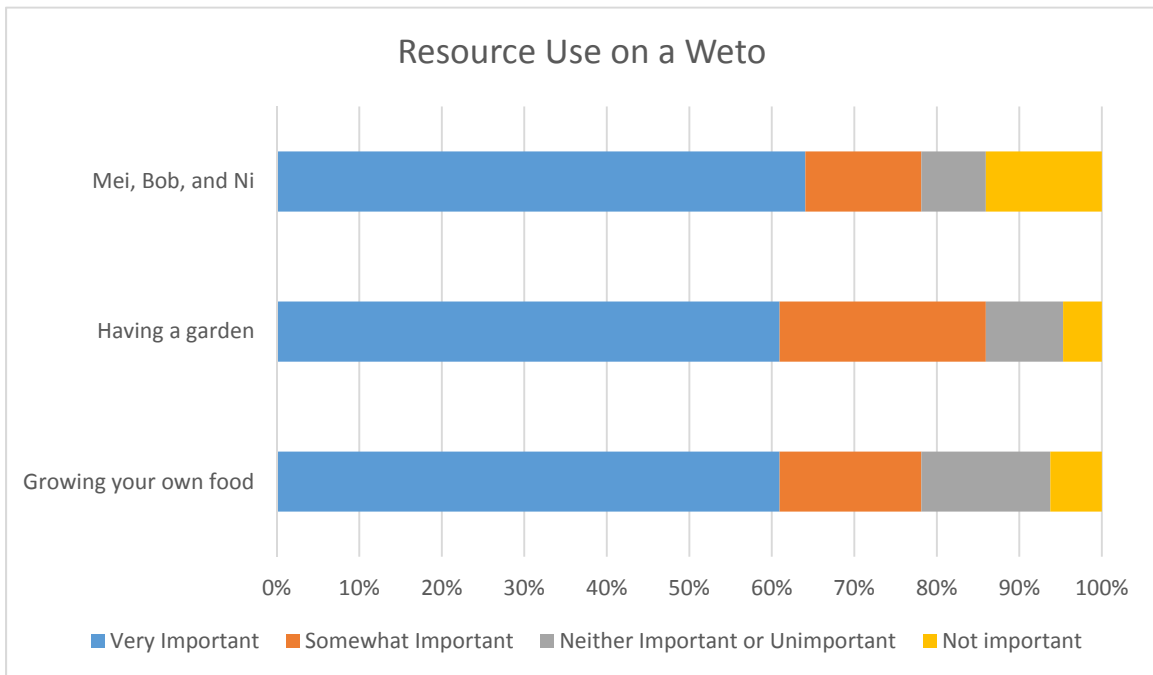


Figure 61. Bar chart demonstrating the level of importance placed on the use of resources on the *wēto*.

6.2 Land as Identity

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

The *wēto* is at the center of one's cultural identity in the Marshall Islands. Land and identity are intricately connected. The relationship with the land in the production of sustenance, the physical representation of a place on this earth, the connection to ancestors through the inheritance of land, and the memory of

their presence on the land in the cemetery are all foundations that set one's identity in the *wēto*. This section will provide examples from the literature, Namdrik, Laura, and the D-U-D that demonstrate Land as Identity.

6.2.1 Evidence from the Literature

From early settlement of the Marshall Islands, significance has been drawn to one's identity with the land. As islands were originally colonized, the chiefs would provide land stakes to the warriors, way finders, *wa* (outrigger canoe) builders, medicine women, and other servants. These individuals would form an attachment to the land that both provided their families sustenance and an important place within the social hierarchy of the community. The identity imbued with status and traditional knowledge was passed down from generation to generation. Even the demarcation of a family's domain drew reference to the symbolic importance of the place as part of family identity. *Kakolle* (landmarks) establish the boundaries of the land a family identifies with. The *kakolle* can be common across multiple *wēto s* under the control of the family (Tobin 1958), representing resource domains across the island. The family's place identity was built

upon the symbolic importance of the land within the system of social hierarchy and the traditional ecological knowledge passed down from generation-to-generation. One's place identity also stemmed from the system of traditional governance over the land and the system of matrilineal inheritance.³⁷

The *iroij laplap* (paramount chief) was the head of the senior lineage in the ruling *bwij* (clan) and the owner of all the land and everything the land held on it, including structures³⁸. Each *wēto* typically supported a homestead, which was identified by the white coral gravel strewn around it. Land inheritance is typically matrilineal. Members of the *bwij* trace their descent from a common ancestress for claiming land rights. After all of these siblings have been *alap*, the next generation, personified in the oldest child of the oldest female becomes *alap* and is in turn succeeded by his or her siblings in chronological order (Tobin 1958). This continues until the maternal line of descent becomes extinct. Not everyone had land rights; commoners were often relegated to living on the ocean side. Other cultural factors were involved as well (Jack A. Tobin, 1958; Mason, 1947; Spoehr, 1949). Based on inheritance, one is only able to build on the land which they have rights to. Spoehr (1949) noticed that some households with houses toward the interior of the island did not have land rights on the lagoon side. One's physical place on the atoll, on the islet, and on the *wēto* is dependent on their inheritance and in part on the identity one inherits.

³⁷ As Tobin and Mason explain, matrilineal inheritance is the typical form of land tenure; however, in some cases inheritance is through the father. Inheritance through adoption also complicates the lines of inheritance within a lineage.

³⁸ The traditional land tenure system in the Marshall Islands resembles that of the feudal system of medieval Western Europe (Tobin 1958).

While matrilineal inheritance is typical, patrilineal inheritance takes place on some *wēto s*. For example, in war, a man's bravery may have earned him a piece of land as a gift from a chief; some of these *wēto s* follow the patrilineal inheritance pattern rather than matrilineal. In other cases, the end of a matrilineal line may lead to patrilineal inheritance or leaving the inheritance of the land in limbo. Tobin (1958) discusses alternate land tenure patterns in depth. Many court cases are due to multiple family members claiming rights to land in these fuzzy cases. Further complicating the boundaries of place, many *wēto s* were segmented over time for a multitude of reasons (*kotan wēto*). Most commonly segmentation was caused by feuds and family disputes, leading to schisms.

Land as Identity attaches one to their ancestors, to the traditional system of governance that oversees the land, and to the traditional ecological knowledge that has been passed down to them. While these three anchors connect a family to the land they inherit, the extended *bwij* allows for the multi-local residence of individuals through inter-atoll family networks created by marriage. Therefore, place identity can be influenced by multiple *wēto s*, which is discussed further in the next chapter.

6.2.2 Evidence from Namdrik

Those from Namdrik often speak with pride about their home. As presented in Chapter 3, Namdrik is considered the *Aelon Eo*, or chest, of Marshallese culture. Locals often attribute the atoll to the birthplace of navigation and one of the earliest settled atolls of the Marshall Islands. Although these are unconfirmed notions, they do represent the importance developed in the mythology of the place; a common attribute to all atoll locals in the Marshall Islands. The identity attached to the land and its place within the

Marshallese ethos is important on Namdrik. Table 10 presents a summary of the manifestations of Land as Identity across the *wēto* s studied on Namdrik.

Table 10: Summary of manifestations of Land as Identity.

<i>Wēto</i>	Identity (Heritage, Bwij, Ancestors, traditional governance, place in this world)
Jabunok	A family tombstone is located adjacent to the house. The remnants of a house foundation draw reference to a larger family that inhabited the <i>wēto</i> .
Wijlang	The property boundaries of the <i>wēto</i> are marked with a hedge and line of coconut trees. The coral spread designates the main living area of the household.
Monjon & Monkonat	The two <i>wētos</i> are under the same <i>bwij</i> , representing one of the larger and more influential families on Namdrik. A family cemetery is located on Monjon. There are several foundation remnants that define the historic settlement of the <i>wētos</i> . The house located on Monjon is owned by a council member in the local government and the main house on Monkonat is the <i>alap</i> 's house.
Monwot	A family cemetery is located along the lagoon adjacent to the <i>alap</i> 's house. The foundations of houses on the <i>wēto</i> draw reference to the changes in the family structure over time. On the ocean side is a picnic location that is important to the family's identity and held as a special location. This picnic area is also adjacent the former sites of two thatch houses.
Maaklon	Demarcation of boundaries using flat coral stones.
Maneibel	The remnants of foundations along the lagoon reflect housing of family that has moved away from Namdrik.
Lotoean	The <i>wēto</i> is the site of the Assembly of God church, the Copra Warehouse, and a shop. Along the ocean reef touched by the <i>wēto</i> is the anchorage point for ships and the location of an important <i>bwebwenato</i> story. A family cemetery is located on the lagoon side, adjacent the <i>alap</i> 's house and the ocean side.
Monaak & Leb	A cemetery is located on Leb, adjacent the lagoon.
Mojero	A level of prestige is placed on the land by the location of the school, community pig pen, and the mayor's house. A family cemetery is located on the ocean side.

Evidence from Namdrik supports the major criteria that influence Land as Identity. Examples demonstrating the importance of place are presented, and examples demonstrating the importance of heritage are described.

6.2.2.1 *The importance of place*

The landscape of the *wēto* and the implications of its resources in everyday life are important to the families that live on the land. Many Namdrik families pride themselves on their mat weaving and handicrafts; others have an attachment to the location where their ancestors dwelled, and some share important spaces for picnics and relaxation.

On Monwot *wēto*, weaving is an important part of the family's identity, which is evident by the amount of *wilomaan* (a type of pandanus used for weaving) grown on the *wēto*, and the women are often found preparing and weaving pandanus leaves in and around the house. Their *omimono* (handicrafts) and woven mats are often sold in Majuro as part of the family income. During a mental mapping exercise, the family of Monwot identified specific areas where *wilomaan* grew, demonstrating the importance of the plant in their daily lives and the role it plays in forming their identities. Figure 62 highlights the areas of *wilomaan* grown toward the center of the *wēto*. In addition to the location of *wilomaan*, the family also identified several locations throughout the *wēto* that were important. During the mapping exercise, the family continued to draw importance to their favorite location for family picnics. The area is adjacent the historic site of an *alap*'s thatch house. The continued importance of the site within the family's everyday life draws connections to the historical context of the family's earlier settlement on the *wēto*.

The family's place identity is strongly connected to the historical context of places on the *wēto* and the resources specific to their *wēto*.

The definition of boundaries also developed place identity on many *wēto* s in Namdrik. Maaklon *wēto* had boundaries defined by vertical coral slates. Historically, it was common for elements like this to define the outline of the homestead. Riley (1987) recorded similar features that were used pre-historically as well. These features will often determine the continued use of a site for dwelling; however, in this case, the historical significance of the coral slates is unknown. Figure 63 depicts the use of the coral slates to outline the boundaries of the homestead. Several other *wēto* s, such as Maneibel had similar features. These landscape elements and *kakolle* add to the identity tied to the land.



Figure 63. Photograph showing vertical coral slates used to mark the boundaries of the homestead.

One last example that draws significance to the identity attached to place is a favorite picnic location at the end of the islet. During a participatory mapping exercise

that included at least one representative from each of the eleven *wēto* s, several participants recorded a site toward the end of Jabunok *wēto* that is used by the community for picnics and relaxation. Figure 64 depicts the map of the site that was created during the mapping exercise. This presents a unique case of place attachment that is drawn to a specific location on private land by the larger community.

Reference to the historical context of a site, the identification of a site based on the specific resources that it produces, and the community attachment to social spaces demonstrate manifestations of Land as Identity. The family identity is formed by the land that they inherit and by the context of the atoll.



Figure 64. A partial map of Jabunok depicting the community picnic area at the end of the islet (highlighted in purple).

6.2.2.2 Ancestry & Heritage

The historical context surrounding the inheritance of land has an important role in the construction of Land as Identity. This construction takes place in the form of mythology, the presence of the family cemetery, and family status attributed to land holdings. The mythology behind the inheritance of land plays an important role in the construction of a family's place attachment to the *wēto*. The presence of the family cemetery on the *wēto* creates a daily reminder of one's ancestry. Lastly, the size and location of a *bwij*'s land holdings attribute to the family's social status in the community. The mayor of Namdrik drew importance to the history of his *wēto*'s heritage in explaining that all *wēto*s have a story and mythology stemming from their original settlement. The mayor explained that his great-great-grandfather was not from Namdrik but the iroij in that time gave him and all of his family land. He explained that it was common in that time for people to move from one atoll to another, and through the good graces of Iroij, one might receive land. While the Mayor was not certain what drove the iroij to gift land to his ancestors, he explained the origin story of other *wētos* on Namdrik began with the gifting of land from the iroij to canoe builders and warriors. In addition to the origin story of the *wēto*, the inheritance of land also adds to the construction of identity through traditional social structures embedded in the heritage of the land.

Our customs are formed by our site. That's why they say that the Marshall Islands are owned by women, because of every alap. You become an alap because your mother's the alap or in the line of the iroij, not your father but your mother. All of the sons, a man's son cannot become the alap because their father was an alap.

(Woman from Namdrik)

The inheritance of land from one's ancestors is essential to their identity in place. Within traditional land tenure, one's inheritance is embedded with the social status imparted through the traditional semi-feudal system. The above quotation draws importance to not only the inheritance of land to one's identity but also the social position that inheritance places an individual and family within the power structures of the *wēto*. To an extent, these traditional power structures determine one's social, political and economic position in their association with the land.

There is a sense of status applied to the family of Monkonat given both the size of the land holdings and the position of the *alap* within the community. Figure 65 provides a site plan of Monkonat, showing part of Monjon.

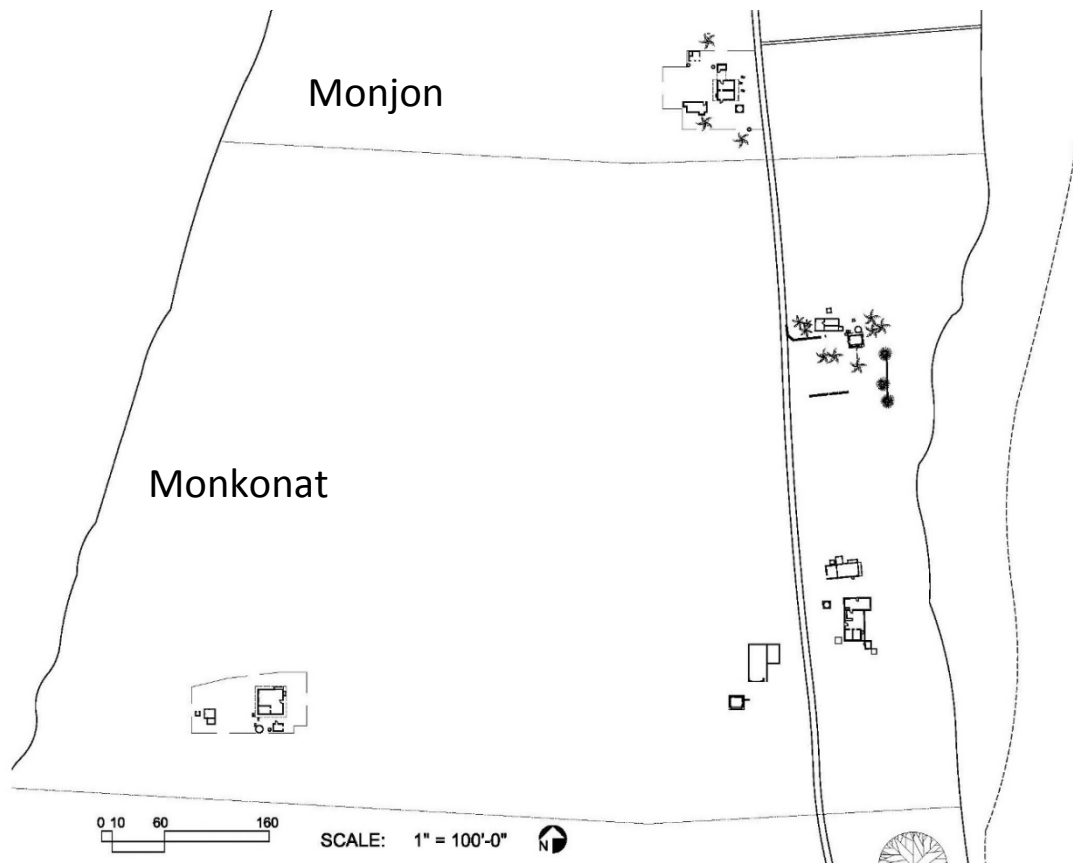


Figure 65. Site plan of Monkonat, showing part of Monjon.

Over time the size of *wēto* s has diminished. At some point in time, the family segmented land holdings to settle inheritance disputes or due to family schisms. The alap of Monkonat is also the alap of Monjon, demonstrating that one *bwij* controls both *wēto* s. While the reasons for the land division on Monkonat and Monjon is fuzzy, the combined property controlled by the alap is among the largest land holdings on the island. The family benefits from the embedded status inherited from the land.

Lastly, the cemetery provides a direct connection to one's ancestors and a daily reminder. Every *bwij* has a cemetery on their land, although not every *wēto* has a cemetery. A common pattern in the landscape of the *wēto* s of Namdrik is the family cemetery. Generally placed adjacent to the cluster of houses, one is reminded of their ancestry on a daily basis. Six of the eleven *wētos* on Namdrik had a cemetery for the family, and two were located on the ocean side.

It was explained by a few community members that a long time ago when Marshallese moved from island to island, they would dig up the bones of their chiefs and ancestors to transport them to their new lands. Families will bring back the ashes or bodies of loved ones who passed away while abroad to be buried on the land from which they came. Some believe this is what would likely be done if resettlement occurred. The graves would not come, but the bones would. For some, proximity to the cemetery is important as a way to pay respect to the ancestors. On Monwot the family chose the current location of the house in order to be near the grave of their great-grandfather. The ocean side of the *wēto* remains important to the family. Figure 66 provides a site plan of Monwot with the cemetery highlighted. While the old thatch houses (4) were on the

ocean side, the location of the cemetery adjacent to the house and cookhouse is a clear sign that this part of the *wēto* has been at the center of the *bwij*.

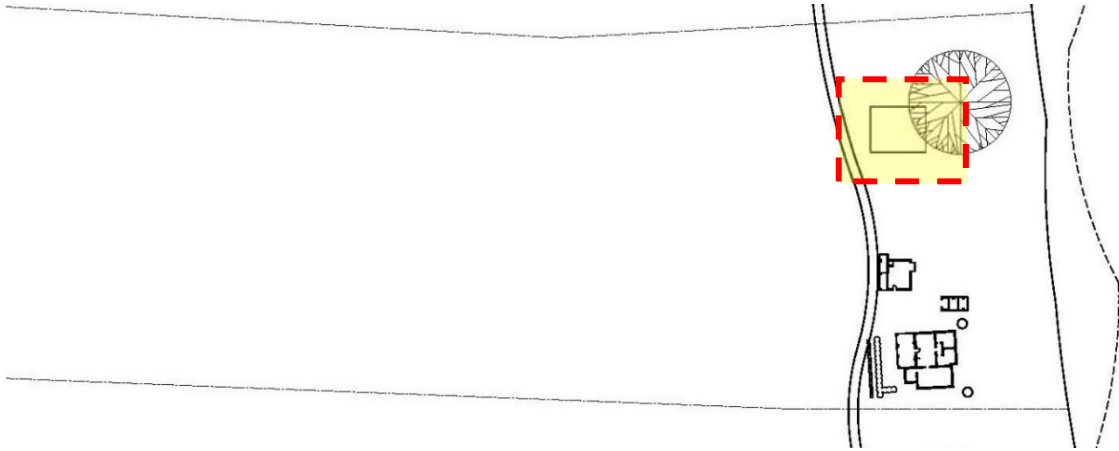


Figure 66. Partial site plan of Monwot *wēto*. The cemetery is highlighted.

6.2.3 Evidence from Laura

“You are nothing without land.” This statement made by a man from Laura emphasizes the importance of Land as Identity. Land tenure provides one a place to live, to make a livelihood, and to know one’s heritage. As the original settlement of Majuro, Laura holds a deep historical context that contributes to the construction of place identity. The historical documentation of land tenure on Laura completed by Mason (1967), Chave (1949), and Tobin (1956) demonstrates the complexity behind one’s land inheritance, adding to the identity of a *wēto*. In addition to the boundaries of the *wēto* s, Laura is divided into four districts, each with their own identity that stems from the early settlement of the islet. Jeirok is toward the southern end of the islet, Lamar is at the far north of the islet, and Eolab and Lobat make up the center of the islet. Eolab is along the lagoon and was the seat of traditional power. Lobat is along the ocean side of the islet. This section provides examples that support the formation of Land as Identity on Laura: the presence of cemeteries on the *wēto*s, the inheritance of land from the ancestors, and

the deep connection that individuals have to their *wēto*(s). Table 11 provides a summary of manifestation found on the *wētos* studied.

Table 11: Summary of Manifestations

<i>Wēto</i>	Manifestation of Land as Identity
Mwinkidren	The historical location of the Japanese store, NBK, creates a connection between the family’s place-identity and its historical context. Located in the central district of Laura, Eolab, the <i>wēto</i> is at the center of traditional power on the islet.
Jonak	The lineage attached to the inheritance of the <i>wēto</i> is important to the family. Part of the family’s identity is connected to the first ancestor to receive the land from the <i>iroij laplap</i> . The <i>wēto</i> is also located adjacent the site of an important battle between the <i>iroij</i> of Majuro as commemorated by the “Road to Death” that splits Mwinkidren and Jonak.
Likin-Kunu	One of multiple <i>wētos</i> controlled by one <i>alap</i> and one <i>bwij</i> . The identity of the family reaches beyond the borders of the <i>wēto</i> .
Aronan	One of multiple <i>wētos</i> controlled by one <i>alap</i> . Aronan also hosts the basketball court for Jeirok District and a popular restaurant. These features make up part of the identity attributed to the <i>wēto</i> and the family that owns it.
Likin-Atbwe	One of multiple <i>wētos</i> controlled by one <i>alap</i> and <i>bwij</i> . The family cemetery is located on the ocean side of the <i>wēto</i> .
Likin-Kunen	Not enough information to draw reference to Land as Identity.

6.2.3.1 Place

One’s identity is constructed by their *wēto*, the district, the islet, and the atoll from which their ancestors lived. On Laura, importance is drawn to the *wētos* located along the lagoon at the center of the islet where the seat of traditional power was (site of *iroij laplap* Langlan). Thus, Eolab has historically been an important district as it hosted the center of village life on Laura. On the other hand, Lobat draws significance from hosting the last war of Majuro between Kaibuki and Jebrik (Spoehr 1949). The historical context of a district contributes to one’s place identity. Spoehr (1949, p. 65) drew reference to the district identity represented during community events demonstrating the distinctions

between the four areas. Figure 67 provides a map of Laura with the four districts diagrammed. The following examples provide insight into the connection between identity and place.

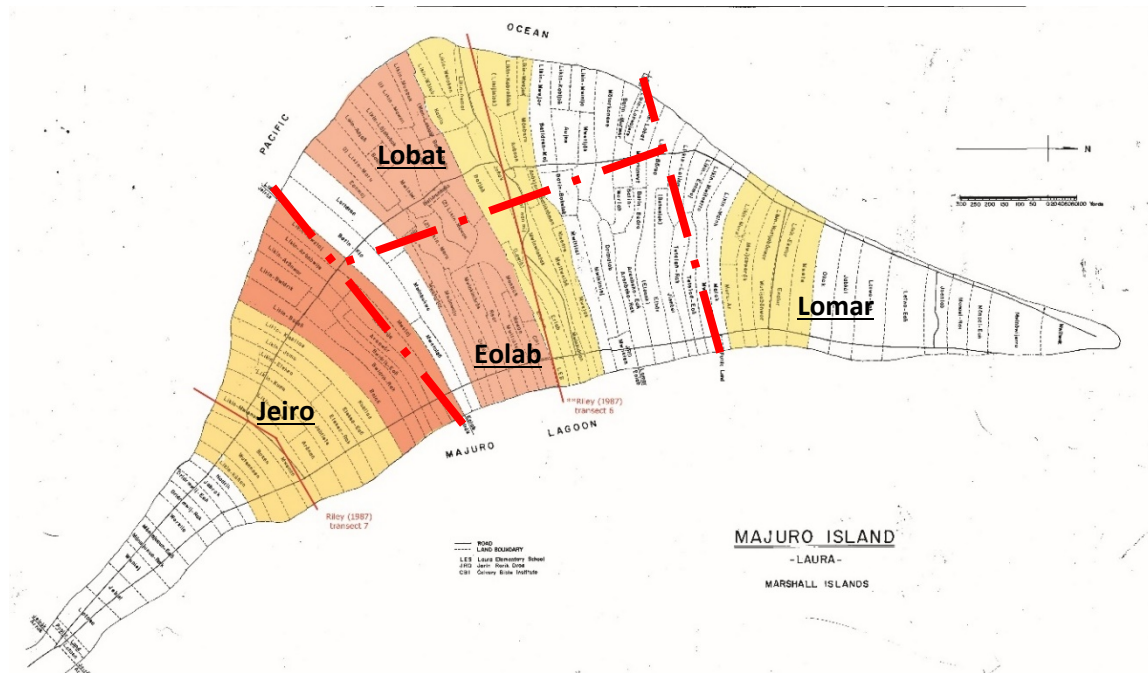


Figure 67. Map of Laura Village with *wēto* boundaries. Mason (1967). The lines transecting the highlighted regions are the areas that were included in the study. These transects were based on Riley’s archaeological record for Laura.

When asked about the importance of the *wēto* to one’s identity, one of the participants from Laura defined what it means to be rooted in place and have your identity based on the land from which you come.

The *wēto* is completely your identity, or you cannot tell ... who you are and your place in the community. ... If you don’t have any *wētos* that means you are not part of this community. It is not just a piece of land, but it is where you get your shelter. It is where you get your income, in terms of planting and selling. So it’s basically everything. Without it you are nothing. ... There is a saying: If you don’t have land, that means you are nobody. Our lands are more precious than gold.

That's our local motto. ... If you lose your land, it's like you lose your identity.
... So if we lose our land, that means we lose who we are. We're lost. We don't know if we are Marshallese ... we don't know who we are.

The quotation demonstrates how essential land is to one's identity and alludes to how this identity is also influenced by the place in which the land is located, and the community one is a part of. The connection of one's identity to land was also expressed by others who were interviewed, but this man's statement summarizes these sentiments well. In the era of climate change, the attachment to land becomes even more important because the risk of losing one's land is also the risk of losing one's identity.

Land tenure also provides a level of autonomy to the family and the individual. The freedom to construct one's meaning of the *wēto* and establish their identity through this relationship is an important function of traditional land tenure. One man from Eolab remarked, "It is where you live. What belongs to us? You can do whatever you want on the land that belongs to you, or is given to you; you're free to do what you want to do." This statement speaks to the importance of freedom in the creation of one's place. While place identity is influenced by the larger community and the historical context of place, one has the freedom to establish their own identity.

6.2.3.2 Ancestry/ Heritage

As discussed, the role inheritance plays in the construction of place identity is important to Laura. The *wētos* studied follow the traditional pattern of land tenure, and most *wētos* have an iroij and alap overseeing them. In the case of Jonak, the alap can trace her *wēto*'s origins back to Iroij laplap Lerok, the chief of the Ratak Chain, and in the case of Likin-Atbwe, the inheritance of land through adoption is present. Family

feuds also play a part in shaping the Land as identity in Laura. The land divisions have complex origins as families decide to segment their land or as iroij have decided to gift lands. For example, the boundaries of Likin Atbwe and Likin Kunu *wētos* often contend as different family members make different claims based on these fuzzy land divisions. The historical context of a *wēto* adds to the construction of place identity.

The family from Likin-Atbwe that participated in the study provides an example of inheritance through adoption. While the family is related by blood to the alap of Likin Kunu and Aronan, the mother was adopted by the alap of Likin Atbwe, giving access across *wētos*. (Refer to Tobin (1952)) For an in-depth explanation of inheritance patterns). The son explained that he and his family were allowed to build on Likin Atbwe while his cousins could not. “For me, I just chose the site because it is only my mom’s side that can use that piece of land. ... Her sisters, they are not allowed, because she was adopted.” Through land rights on his mother’s adopted side of the family, this man and his family had more options for locating a house than others from the extended family. For this family, place identity becomes multi-local and has a unique historical context due to the adoption.

In addition to the inheritance of land, the cemeteries on the *wēto* s provide a daily reminder of one’s heritage. One of the five *wēto* s that were documented contained a family cemetery. Likin Atbwe has a family cemetery located on the ocean side of the *wēto*. Figure 68 highlights the location of the cemetery in relation to the *wēto*’s approximate boundaries. Based on the site documentation completed by Leonard Mason (1967) and Spoehr’s (1947) field studies of Majuro, this cemetery is likely one of the

oldest on the islet.



Figure 68. Aerial photograph of Likin Atbwe, Aronan, and Likin-Kunu highlighting the location of the family cemetery.

Land plays an important role in constructing the identities of families on Laura and the historical context of the *wēto* contributes to the place identity. Through the context of inheritance, the significance drawn by traditional power structures and events, and the daily reminder of the family cemetery, Land as Identity is formed on Laura.

6.2.4 Evidence from Djarrit, Uliga, Delap, Majuro

The urban center of Majuro presents an altered manifestation of Land as Identity. This altered form of the deep cultural pattern occurs through a process of reconstructing identities with the land as traditional landowners returned to their inherited lands following the Japanese and United States occupations. As explained before, the D-U-D was not continuously occupied, and little is known before the Japanese occupation. Even though there are not a deep-history connecting families to their *wēto* s in the urban center, they have constructed place identities attached to their land rights over the past few

generations. Today, as urbanization increases, these identities are continuing to evolve. Similar to Laura and Namdrik, in the D-U-D, we see the presence of cemeteries that remind people of their ancestors; the reclamation of land rights has constructed a new narrative or mythology of the land inheritance, and the identity attached to place is very strong. The following Table 12 provides a summary of the manifestations of Land as Identity on each *wēto*, and a few examples are provided to support the notions of place and ancestry further.

Table 12: Summary of manifestations of Land as Identity in the D-U-D

<i>Wēto</i>	Manifestation of Land as Identity
Lejolimen	The <i>wēto</i> hosted officer housing and ancillary facilities during the United States occupation. The area continues to be referred to as Americatown by the families that regained their <i>wēto</i> s.
Teron	A family cemetery is located on the ocean side of the <i>wēto</i> , reminding the families of their ancestors. There is a strong connection to the knowledge gained through living on the land and the role it plays in forming one’s place identity.
Mwinkut	The historical context of Japanese bathhouses on the <i>wēto</i> is important to the family in forming their place attachment. Land feuds are a constant struggle for the family, distancing some from the <i>wēto</i> .
Renar	An example of eroding place attachment due to family tensions.
Renlik	No supporting evidence.

6.2.4.1 Place

Marshallese often refer to the land as part of their being, “I am rooted in the land.” In Marshallese culture, land transcends its physical nature and is embedded in the very being of the Marshallese people. Identity in the land is connected to the *wēto* from which one’s ancestors came. A councilman from Teron expressed the manner in which his identity is tied to place.

To be rooted in a place you have to be ... happy being there. You get to do whatever you want. You get to live. ... You have freedom on your own. You get

to do a lot more. You get to be an active member of the community. ... land is really important here.

The familiarity one has with their land identifies the *wēto* as a “comfort zone,” it provides security as described before and it provides autonomy. It is where one can roam freely. A woman from Uliga also expresses these ideas.

It's ours, and we can do whatever we want. ... If you want to grow some stuff, grow some food. What's important, I think because it is family owned and you are not afraid to roam around, go from place to place.

The *wēto* provides a place one can always return to, engrained in one's origins. The land allows a person to establish their own identity through the autonomy created in ownership, and the shared inheritance of the land with extended family provides a safe place that provides support and comfort for the individual.

Another aspect of identity in the land is the basis of traditional knowledge associated with the *wēto*. The following quotation speaks to the importance of land and the knowledge that comes from living on the *wēto*. One's identity comes from the land that he and his family were raised, and part of that is through the knowledge it bears.

Certainly, I could say this is the place where I started, learning to fish, [the] local way of doing things, skills... knowledge. The soil, when I look around, I see my dad. However, I always come back home. Come back to my roots. When I went off to school, it made me, but I did not' find myself. What's important? I have everything on this soil.

The sentiment in this quotation demonstrates the importance of the land in forming not only one's identity but also their way of knowing and seeing the world. Knowledge is gained through the relationship one has with the land and the heritage that connects them to it.

6.2.4.2 Ancestry/Heritage

The *wētos* in Uliga were taken from their traditional landowners during the United States occupation and Trust Territory administration; they were returned to the traditional landowners after independence. During the process of land reclamation, Marshallese families reestablished their identities to place; though, now identities were influenced by American tract housing and the American subdivision landscape (Hirshberg 2012).

Several of the families did not return to their lands until the late 1980s and early 1990s.

One of the inhabitants of Lejolimien recalled:

When my dad was young, they relocated the family. ... So, the Americans lease this part of the land, and the family moved down to Rita. So, my dad grew up in that town. When the Americans left, some of the families came back, and my grandma was another that came back and asked if I wanted the houses. So, it was a few years back when my dad moved down here. ... They still have their houses there, the family houses. So, we still have the houses, but ... we have two houses, Makiro and here.

His family was fortunate to have mutual land benefits in Djarrit through his grandmother. This land reclamation demonstrates a new formation of identities attached to the land of their ancestors. In addition to the identities that were reconnected to traditional land

rights, the iroij that claimed land rights for *wētos* in the central district profited greatly from the land leases (Hezel, 1995).

With the reclamation of the land and the reestablishment of traditional land tenure and governance, some became at ease developing the land. On Loljolimen, only the *alap* must be approached before developing the land. One of the participants believed that this simplified the complex process of land development in the Marshall Islands. Living in a tight-knit family-based community, asking for permission is easy. “I would just come on shore and say, ‘Eh, Uncle, can I build my home.’ ‘OK, Yeah you can, where do you want to build?’ ‘Right there in the bush over there.’ It is that easy.” It becomes easier for one to make a place their own when they hold land rights and benefit from close family ties.

The *wētos* of Djarrit (Mwinkut, Teron, Renlik, and Renar) have provided residential housing since the Japanese occupation. It is unknown whether or not traditional land holdings were maintained during the Japanese occupations, but generally, those families in the line of inheritance held ownership during the US occupation. Thus, the identity connected to land on Djarrit has had more continuity than Uliga (Lejolimen *wēto*) or Delap. Today, the majority of the residents in Lejolimen, Mwinkut, Teron, Renlik, and Renar are kinship members. However, a growing presence of both foreign immigrants and internal migrants from outer islands is felt in the D-U-D. This shift is changing the fabric of the neighborhoods and affecting the identity of families and their *wētos*. One of the *alaps* commented, “Extended family is ok here in Majuro, but getting farther and farther. I would say in fifty years from now it will be totally different. Maybe other islands still have more of the family together.” There is a concern that the family

land holdings may be lost due to the influx of ‘outsiders,’ and the comfort and safety they feel in their *wētos* may dissipate.

Even with the increase of non-familial residents on *wētos*, many still maintain a strong kinship group. The closeness to each other contributes to one’s identity and provides a place of comfort. A man from Teron remarked that every house was a member of the family, and the *wēto* provided a point of return for family members that had left. “From the lagoon to the Oceanside, one big family.” While the family housing provides a point of return, Teron is suffering from the same issue taking place on Laura; many families are moving, leaving their houses vacant.

Lastly, as the place of ancestors, the cemetery of the *wēto* becomes another location that a family tends to identify with. In the D-U-D many families have issues with their family cemeteries eroding into the sea. As coastal zones are eroding due to climate change, the cemetery often becomes a key symbol used to legitimize a neighborhood’s need for reconstruction. Figure 69 highlights the cemetery on Lejolimen that is facing erosion. The family is trying to develop a plan to safeguard the resting place of their ancestors.



Figure 69. Aerial photograph of Lejolimēn wētō with the cemetery highlighted.

6.2.5 Evidence from the Survey

6.2.5.1 Place

No supporting evidence provided through the survey results.

6.2.5.2 Ancestry/ Heritage

The survey results provide evidence of cemeteries as a part of place-identity and insight into the construction of identities attached to in-fill land.

A recent trend in the urban center of Majuro is to create in-fill land between the existing shoreline and a newly constructed seawall. This non-traditional land allows

autonomy from the control of an alap and iroij; however, it is costly. Survey responses demonstrated that in-fill land did not require consultation with a chief: “The land is owned by my family so essentially our grandmother is the alap. It is a land filled area my grandfather built, so we don’t need to go to the Iroij of Majuro to ask for permission to build in our family area.” It is unclear how the inheritance of in-fill land will take place because it is such a new phenomenon, but it does present a new form of identity attached to land.

The distribution of cemeteries on Namdrik was nearly one-to-one. However, in Laura and Djaritt-Uliga-Delap only a few *wēto* s held a cemetery. Sixty-five percent (65%) of the respondents stated that a cemetery was present on their *wēto* while 35% did not have one. Survey responses also reiterated the traditional practice of bringing the bones of ancestors with you as a family moved from one atoll to another.

6.2.6 Summary

Across the three sites and supported by the literature, Land as Identity continues to manifest in the built environment of the Marshall Islands. Families continue to develop their identities on the land inherited from their ancestors. The historical context of the atoll, the islet, and the district all play a role in the construction of place identities that play out on the *wēto*. Family heritage is another factor in the attachment to place, creating a mythology of the origin story of a family. Lastly, the physical form provides a constant reminder of a family’s identity in place, such as the presence of cemeteries or in the case of human-made in-filled land. It is clear that Land as Identity continues to be important to the foundation of Marshallese culture on the Marshall Islands and aids in the creation of

culturally supportive environments. It provides the fertile soil for individual identity, family identity, and culture to grow.

6.3 *Ippan Doon*: Togetherness Manifest in Clustering

Enra bwe jen lala ra-ra.

(Relationships are the bread and butter of Marshallese life)

The concept of togetherness is a fundamental aspect of the Marshallese culture. Through the literature, interviews, and participant observation, the coming together of friends and family and the desire to be near one another is evident. Togetherness in the form of clustering, supports the contemporary argument for settlement on the Marshall Islands, in the preservation of resources. The dialectic relationship between the Marshallese and their land explains the social function that has evolved with the basic subsistence strategies that had been fundamental to Marshallese survival.

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

6.3.1 Evidence in the Literature

The overarching pattern of togetherness as manifest in clustering has been an essential part of life on a *wēto*. As described by Riley (1987) and Weisler (2001b) and others (Spenneman, Spoehr, Mason), clustered human settlement along the lagoon at the widest part of the island preserves the resource base for subsistence. However, modern development following World War II, and accelerated after 1967, has started to alter the pattern. Regardless of the evolution in development, the individuals interviewed and surveyed desired proximity to friends and family, stating that it was a significant part of

their culture. The pattern of togetherness is even identifiable in Marshallese immigrant communities within the Pacific Northwest, Hawaii, and Northwest Arkansas.

6.3.1.1 Clustering for Resource Conservation

Human settlement of atolls typically takes place on the widest islet, which supports the richest soils for agricultural production and the freshwater lens (Riley, 1987; D. Spennemann, 1995; M. I. Weisler, 2001a). On Majuro, Laura Village provides the greatest environmental complexity, landmass, and variety of resources. The thin occupation layers of the islets of the northern periphery of the atoll and the sparse settlement on the remainder of Majuro islet on the south shore are related to the lack of resources on those parts of the atoll. The massive typhoons that struck Majuro in 1905 and 1918 decimated the part of the Majuro from Rita to Reirok, destroying the remains of any traditional settlement (Kramer and Nevermann 1938: 63, 69). On Namdrik settlement would have been continuous at Elmon village for the same reasons as Laura, but no archaeological studies have been conducted on Namdrik to confirm.

Evidence suggests a nucleated settlement at Laura village and a dispersed pattern of settlement elsewhere on the atoll. When the Marshallese land tenure system is taken into account, nucleated settlement merely reflects an ideally dispersed settlement pattern. In *Ralik and Ratak*, Kramer and Nevermann (1938) also noted that settlements are located on the lagoon beach for climatic reasons; the lagoon side of the island provides breezes from the trade-winds and protects the settlement from storms. This agrees with the analysis of settlements on various atolls in Micronesia (Rainbird, 2004).

Erdland (1914) documented the clustered settlement that took place on the widest part of the largest islet, along the lagoon.

The chief's hut is usually on a wide part of the island and near a good landing place that permits the landing of canoes from both the lagoon and the seashores. ... The more distinguished families settle near the chief's hut, and on both sides of them and somewhat more inland are the ordinary subjects. Consequently, the huts form a long row along the lagoon. The piece of land that belongs to each hut runs from shore to shore in strips varying in width. On each piece, a narrow path runs between the outer shore and the lagoon shore, to the latter for bathing and washing the food, to the former to attend to natural needs on the open reef (Erdland, 1914, pp. 28–29)

Erdland's description of the social structure of settlement on the atoll is confirmed in Spoehr's (1949) observations on Majuro. The clustered settlement patterns are logical, as they preserve the land best suited for agricultural production.

While Erdland's explanation for the clustered settlement on atolls is based on social constructs, Mason's (1947: 62-68) argues that the term 'village' is inappropriate for this settlement pattern because the clustering has to do with environmental complexity and land mass availability rather than social or political configurations. Riley's (1987) analysis of the archaeological record agrees with Mason. He argues that the analysis of settlement patterns in the Marshall Islands should be based on land availability and resource complexity rather than a social organization.

Climatic reasons for settlement location continued historically. Settlement concentrated along the lagoon of Laura village and Namdrik Islet. Over time housing began to disperse outward from the central cluster as the population grew. Generally, the lagoon side of the islet protected from storms and mosquitoes, while providing a breeze.

Eventually, as population increased, families dispersed into the center of the islet, to the ocean side and along the smaller islets. Spenneman (1995) discusses the increase in vulnerability as the traditional settlement pattern shifted. To provide access to dwellings throughout the islet, movement across the island took place on the main path that parallels the lagoon. Narrow paths carried people from the main path to their dwellings and to access the extents of the *wēto*.

Each homestead within the settlement cluster was designated by an area strewn with coral gravel on which a dwelling and an adjacent cookhouse were located (Kramer and Nevermann (1938)). Some homestead also had a guesthouse, and according to Kramer and Nevermann (1938), the cluster of dwellings around the chief's house typically had some guest housing for visitors from other islands. The clusters of buildings were often dispersed. It was also common for homesteads to be left vacant, which was attributed to families traveling to other atolls.

6.3.1.2 Organization of Social Space

Based on the theory of socio-spatial segmentation, clustering pattern, Spoehr (1949) surmised that the majority of households located toward the interior of the islet and on the ocean side of Laura did not have land rights on the lagoon side. Figure 70 shows the historical aerial from Spoehr (1949), who speculated:

I suspect other factors are involved. In the old days, commoners were often relegated to locations on the ocean side, and the present pattern of settlement may be related to this early practice. Other cultural factors that I did not unearth may also be involved (p 68).

The aerial photograph provided in *Majuro Village* (1949) provides evidence of a few

settlements along the interior of the islet and along the ocean side. There is a historic cemetery on the ocean side in Jeirok that would suggest lengthy habitation on the ocean side (D. R. Spennemann, 1990). It is also likely that families would have lived near the arid taro pits at the center of the island in order to maintain them. Spoehr (1949) noted that elders had said the following:

Many houses were built nearer the taro patches in the interior of the island. This statement is borne out by the relatively large number of coral areas marking old house yards that are scattered about a hundred yards back on the road in the central district. Some old house yards are also to be found along the ocean side in the Lomar district, accompanied by a number of old, long unused cemeteries. It is probably, therefore, that the pattern of house distribution was formerly slightly different than it is now (p 51).

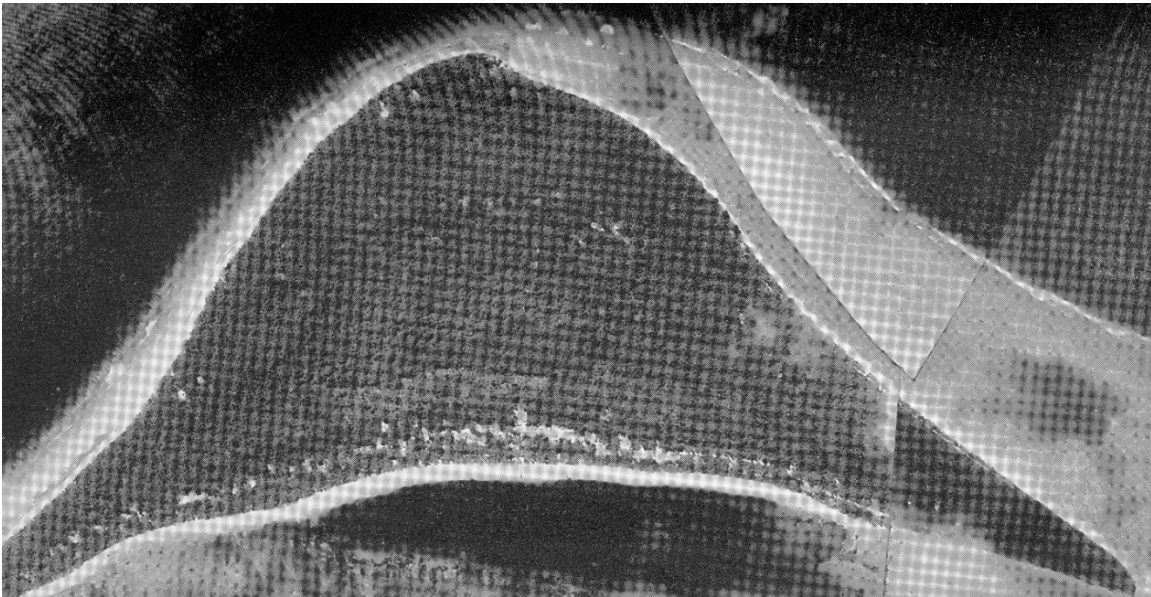


Figure 70. Map of settlement on Majuro (Spoehr, 1949, p. 54).

The historical morphology of Laura seems to counter Riley and Mason's argument because the center of Laura became the social hub of the village. On Laura, the

main road parallel to the lagoon has been the main mean of circulation on the islet and across *wētōs*. The “Road to Death,” providing circulation from Eolab to Lobat was constructed under the supervision of the Japanese government, and the other roads were completed after. Eolab was the center of social life in Laura and at the center of the islet on the lagoon side. Similar to Laura, Namdrik has a central district that creates the social hub of the community.

One last consideration of clustering for social cohesion became important during the Japanese and United States occupations. As urbanization took hold of the Marshall Islands due to the formation of district centers for the foreign outpost that controlled the islands, families from outer atolls formed housing clusters in the urban centers.

Those who did not have land or relatives in Jaluit were forced to live in large “guest houses” each of which accommodated as many as sixty people. These houses bore the names of the atoll of origin of their dweller, i.e., Arno house, Wotje house, etc. These were of wooden construction and about 40 feet wide by 60 feet long. ... The traditional pattern of living was changed by this congregation of people from different atolls in large population centers. ... A small quasi-“shanty town” has arisen on [Majuro], perpetuating the Japanese acculturative influence of Jabwor. (Tobin in Micronesian Reporter, 1970, p. 28).

6.3.2 Evidence from Namdrik

The physical manifestation of Ippan Doon in the form of clustering assists in resource conservation on Namdrik and the physical closeness of dwelling lead to social closeness. The relationship between togetherness and physical proximity reinforce each other. Togetherness is embedded in everyday life on Namdrik. Whether it is collecting

copra with your family or preparing food over the *um* and chatting with friends in the cookhouse, the concept of “everybody together” is an essential part of life on the atoll. On Namdrik, closeness is also identified in patterns of dwelling; the majority of dwellings are organized along the lagoon, strewn across the length of the island with family members living near to each other. While the pattern of clustering is strongest along the lagoon, there are several families that developed residences on the ocean shore at various points in time. On *wētōs* with an oceanside house, the majority of the *bwij* (extended family) is generally clustered on the lagoon side with just one family living on the ocean side. For example, the family of Mon-Konat has historically had housing on the ocean side; the *alap* and the majority of the family live on the lagoon side while one of his daughters lives with her family on the ocean side. Today there are also several houses at the interior of the island, such as the shopkeeper’s house on the road to the ocean side.

While oceanside development may not have been the norm on Majuro or other atolls based on archaeological records, development on the ocean side and interisland has occurred historically on Namdrik. Locals often referred to old thatch houses located on the ocean shore. In addition, the construction of new housing on the island follows the traditional pattern documented by Erdland (1914) and Kramer and Nevermann (1938) in which the family builds a new house for newly married couples. For example, on Mon-Konat, the family helped build a house for one of the grandchildren that was recently married. Lastly, to reinforce the continuity of settlement patterns on Namdrik, following Typhoon Alice, 1979 housing was built over existing foundations. This tragic event is often referred to as a paradigm shift on the atoll, but it did not affect the clustering of dwellings as much as it changed the materiality of housing and the diet of the inhabitants.

6.3.2.1 Clustering for Resource Conservation:

The traditional settlement pattern described by the archaeological and historical record is confirmed on Namdrik. Dwellings are clustered along the lagoon at the widest part of the island. Using Hot Spot Analysis in Esri ArcMap 10.5 to analyze the clustering of dwellings, Getis Ord G_i^* demonstrated significant clustering of dwellings along the lagoon at the widest part of the island (Figure 71). The pattern of settlement along the lagoon is also a distinct pattern observed from historical and contemporary aerial photographs. In addition, dispersed settlement along the ocean side is present in the aerial image from 1971 and today (see Figure 72). As is evident in both the historical and contemporary aerial photographs, the area between the building clusters and the ocean shore is covered in forest. This forest consists of the coconut palms used for copra production, breadfruit trees, and pandanus trees.

In addition to the patterns of clustering based on resource conservation, other environmental concerns are also considered on Namdrik. The lagoon side of the island is “the windy place,” benefiting from the trade winds most of the year. Granted, these winds are harsh during the rainy months in the winter, but they keep the mosquitoes at bay and provide more comfortable sleeping quarters. Sometimes this pattern is counterintuitive to king tides and flooding because most severe inundation comes from the lagoon side, but being comfortable on a daily basis was more important to inhabitants. Additionally, it has only been a recent occurrence that king tides are more frequent and more severe. Time has not allowed for the incremental, local response to adapt.

With the onset of climate change and more frequent inundation events, drought, and tropical storms, new settlement patterns may arise on Namdrik. Some *wētos* are at a

higher elevation than others, some are more protected from high winds, and some are better suited for conserving fresh water. One of the participants noted that land elevations change across different *wētos*. “If you are from a *wēto* that is going to flood due to sea level rise, what happens when you are not able to move to a higher *wēto*? If you do not have land rights, you may be at a loss.” What this man introduces is the concept that spatial organization on the island will be altered due to climate change and it will require a renegotiation of familial ties to establish land rights. “Maybe we have to come with some policies or some way to adapt. How are we going to? Other than relocate, I could think about migrating.” Shifting housing clusters on the island in response to environmental concerns demonstrates the evolution of traditional settlement patterns on Namdrik and would follow Riley’s (1987) argument for a settlement based on resource conservation as opposed to social order.



0 0.075 0.15 0.3 0.45 0.6 Miles

Figure 71. Optimized Getis Ord G_i^* analysis of dwelling clusters on Namdrik atoll using Esri ArcMap 10.5. The red squares indicate the areas with the highest value of clustering.



Figure 72: January 27, 1971, aerial image of Namdrik, Historic Preservation Office Maps.

While spatial analysis confirms the theory of clustering along the lagoon, it does not provide insight into the social order of the clusters, defining the concept of togetherness. The following analysis assesses the social logic of spatial relationships on *wētos* using Space Syntax (Hillier & Hanson, 1984) analysis of spatial integration. The primary objective of the analysis is to discern if a similar spatial order persists across *wētos* and to demonstrate that a common genotype is present for the organization of housing on the *wēto*. Table 13 provides justification graphs for nine of the *wētos* in the study. Monjon and Mon-Konat were combined because they are recognized as the same *wēto* by the family that inhabits them. Leb and Monaak were similarly combined for the analysis because they operate as one family unit as well. The first level of space is always taken from the main road along the lagoon. The second level of space is always taken from the yard represented by the coral spread. Generally, the third level of space is the

main living areas and cookhouse, and generally, the fourth level of space is made up of the bedrooms and storage. A clear tree-like structure is created as one progresses from the main road into the housing clusters.

Using the program JASS to analyze the justification graphs of each *wēto* the difference-factor (DF)³⁹ was calculated per Julianne Hansons' (1998, p. 31) formula:

$$DF = [(a/t)\ln((a/t))] + [(b/t)\ln((b/t))] + [(c/t)\ln((c/t))]$$

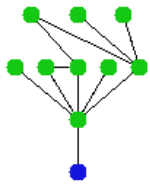
Where (a) = Max RRA; (t) = Max RRA+Mean RRA + Min RRA; (b) = Mean RRA; and (c) = Min RRA

The resulting mean of the difference factors is 0.751, and the variance is 0.033. To determine whether or not the mean difference factor values of the *wētos* are statistically different, a student's T-test was conducted. The T-test determined that the means were not statistically different. Based on Hanson's (1998) determination of the genotype⁴⁰, the closeness of the difference-factor values demonstrates that all of the *wētos* share the same genotype; this is also apparent graphically.

³⁹ An entropy-based measure, the 'difference factor' quantifies the spread or degree of configurational differentiation among integration values (Hanson 1998).

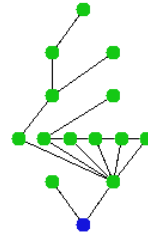
⁴⁰ "Function thus acquired a spatial expression which could also be assigned a numerical value. Where these numerical differences were in a consistent order across a sample of plans from a region, society or ethnic grouping, then we could say that a cultural pattern existed, one which could be detected in the configuration itself rather than in the way in which it was interpreted by minds. We called this particular type of numerical consistency in spatial patterning a housing 'genotype'" (Hanson 1998, p. 32).

Table 13: Justification graphs of *wētos* in Namdrik



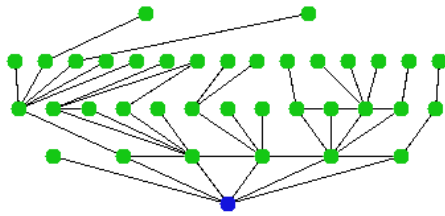
DF= 0.665

Figure 73: Justification graph of Jabonuk *wēto*.



DF = 0.655

Figure 74: Justification graph of wijlang *wēto*.



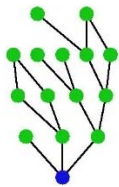
DF = 0.773

Figure 75: Justification graph of Monjon and Monkonat *wētos* (same alap).



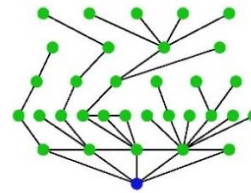
DF = 0.753

Figure 76: Justification graph of Monwot.



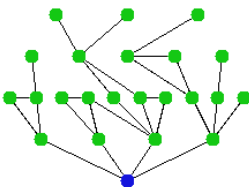
DF = 0.799

Figure 77: Justification graph of Maklon *wēto*.



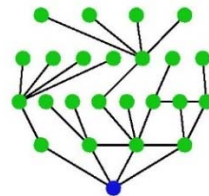
DF = 0.757

Figure 78: Justification graph of Moneibel *wēto*.



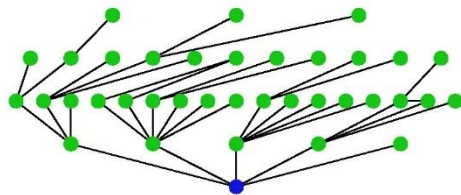
DF = 0.773

Figure 79: Justification graph of Monaak *wēto*.



DF = 0.829

Figure 80: Justification graph of Mojero *wēto*.



DF = 0.756

Figure 81: Justification Graph of Lotoean *wēto*.

In comparing the real relative asymmetry (RRA) values of the *wētos* on Namdrik, we see more similarities in ranges of spatial integration values across the *wētos*, and we can identify outliers. Figure 82 provides a boxplot of the mean real relative asymmetry values of each *wēto*. Using ANOVA to analyze the variance for statistical significance of mean RRA values, a P-Value of 0.07 is achieved. Since the p-value is greater than 0.05, we cannot reject the null hypothesis that the means are similar. The p-value for the homogeneity of variance test is 0.1672; this means that there is no evidence to suggest that the variance across groups is statistically significantly different. Therefore, we can assume the homogeneity of variances in the different groups. This analysis demonstrates a close similarity between the social integration of spaces across the *wētos*. A further pairwise T-Test of the values demonstrates that the mean values are similar, except the paired test between Mon-Konat and Moneibel, Monwat and Moneibel, Moneibel and Jabonuk, Lotoean and Maaklan, Maaklon and Monwat, Maaklon and Mon-Konat. This tells us that spatial integration is different between these couples.

The qualitative data provide insight into the differences between these pairs. Moneibel could be considered an outlier because the largest house on the *wēto* was built by a man who is not from Namdrik and it was a shophouse. Jabonuk could also be considered an outlier because it only has one dwelling on the *wēto*, which was recently constructed. Taking Jabonuk and Moneibel out of the analysis, only three pairs remain. A difference between Lotoean and Maaklan may be expected because Lotoean has

dwellings on the ocean shore and at the interisland, while Maaklan has two dwelling clustered on the lagoon side of the *wēto*. In addition, Lotoean hosts the Assembly of God church and the pastor’s house. Even though Lotoean demonstrates geographical distance, the family is often seen together by the dwellings on the lagoon side. Mon-Konat has a dwelling on the ocean side and four dwellings on the lagoon side that are not clustered on a shared coral spread, suggesting the social distance between dwellings. However, observations demonstrate the family is often gathered at the *alap*’s house. The difference between Maaklon and Monwat is uncertain but could be because Monwat has only one dwelling on the *wēto* while Maaklon has two. Both of these *wētos* operate in much the same way socially, with gathering occurring at the dwelling on the lagoon shore.

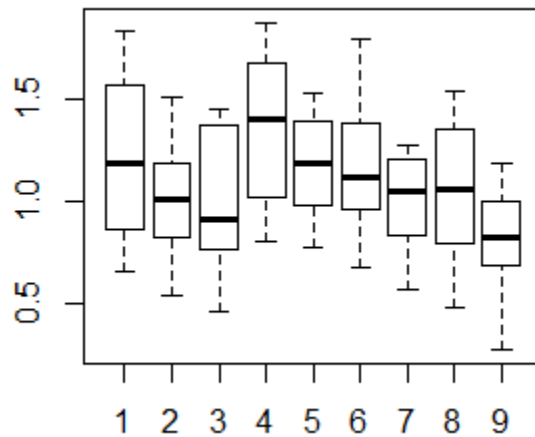


Figure 82. Boxplot of mean RRA values for each *wēto*. 1) Moneibel, 2) Lotoean, 3) Monwat, 4) Maaklon, 5) Mojero, 6) Monaak, 7) Mon-konat, 8) Wijlang, 9) Jabonuk.

Assessing the individual sites for their coefficient of variance (CV), we can evaluate the integration values by variance to see where differences lie. Table 14 provides the values for standard deviation, mean, and the coefficient of variance. The greater the variance demonstrates greater differences in spatial separation within a site. Mean

integration values show some sites are considerably more integrated than others, for example, Jabonuk and Monwat. These mean integration values, further demonstrate Maaklon and Moneibel as outliers; both demonstrate less integration than the other *wētos*.

Table 14: Standard deviation, mean, and coefficient of variance (CV) values for RRA vales of *wētos*.

Site	Moneibel	Lotoean	Monwat	Maaklon	Mojero
SD	0.38347	0.25244	0.33151	0.38227	0.32239
Mean	1.32393	1.06591	1.05750	1.41052	1.19918
CV	28.9648	23.6833	31.3485	27.1017	26.8842
Site	Monaak	Monkonat	Wijlang	Jabonuk	
SD	0.33984	0.25716	0.38911	0.28226	
Mean	1.22465	1.065909	1.15326	0.85454	
CV	27.7479	24.12592	33.7401	33.0302	

A genotypic pattern is established through the analysis of difference factors for the *wētos*. The ANOVA test of mean RRA values appears to confirm the strength of the difference factor analysis and is further supported by the pairwise T-Test. The Pairwise test and coefficient of variance provide more information to evaluate differences in a few of the sites, namely: Mon-Konat, Moneibel, Monwat, Jabonuk, Lotoean, and Maaklon. As presented before, these issues make sense as more complex sites are being compared to less complex sites. Jabonuk only has one house consisting of three interior spaces while Moneibel consists of three houses and one contains a shophouse.

In summary, the syntax analysis demonstrates that the social logic of space across *wētos* is similar. The networks of family houses on the *wēto* may be dispersed, yet social closeness is present. Furthermore, the qualitative data do not always agree with the syntax analysis, demonstrating some *wētos* are more integrated than the syntax shows.

6.3.3 Evidence from Laura

Much of the historical documentation of settlement on the Marshall Islands depicts island life on Laura. As described before, Laura was the primary settlement on Majuro atoll and has been continuously occupied for at least 2000 years. Based on historical accounts and historic aerial photographs, we know that Laura has had clustered settlement in Eolab, the district at the center of the island, on the lagoon side of the widest part of the island (refer to Figure 83). Today, the clustering at Eolab is maintained, but new groupings have formed along the lagoon, and more housing has dispersed to the island interior and along the ocean side (refer to Figure 84). While Laura has had a population increase in the past decade, there is a new pattern of outward migration that is leaving many vacant homesteads. Assessing the aerial imagery of Laura, much of the arable land is preserved for these purposes; however new patterns of development demonstrate that agricultural production is becoming less important.

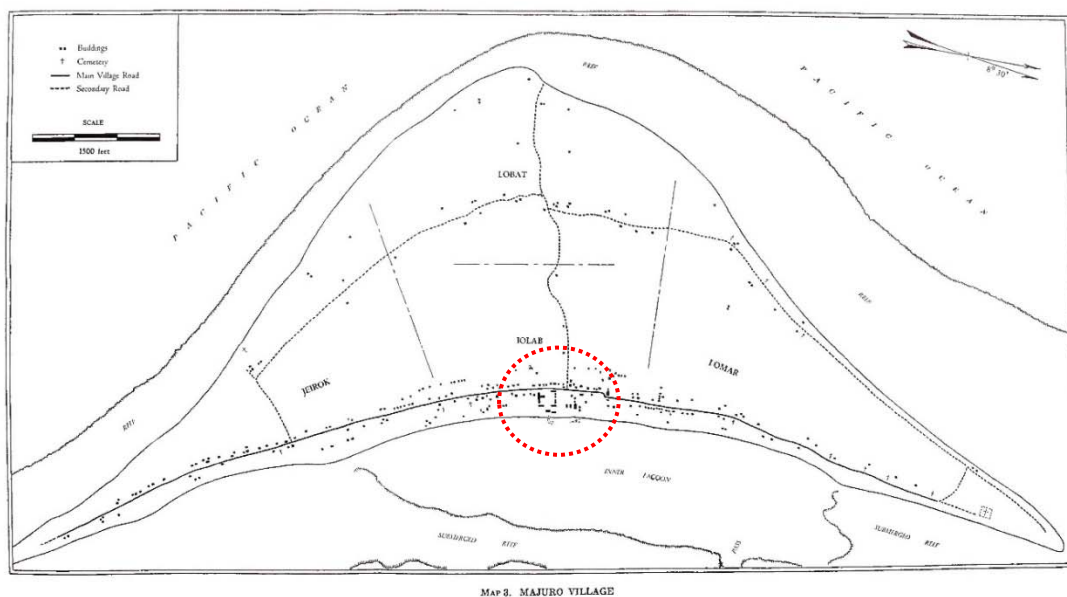


Figure 83. Survey of buildings and roads on Laura (Spoehr 1947). The central district is circled.

There appears to be a connection between the dispersion of development across *wētos* and the movement away from Eolab as the central district for social activity. Observations on Laura did not document a hub of social activity on Eolab, demonstrating a shift from the historical accounts of the NBK store at the center of social life on Laura. Today the main activity centers for the islet appeared to occur at the beach park at the northern tip of the island and the multi-use sports parks dispersed across the islet. One of the most active areas was the intersection of the lagoon road and the transect road heading toward Laura high school. At this intersection is located the Jeirok basketball court and Island Radio, a restaurant owned by American missionaries. The point pattern analysis also demonstrates that this specific location is a ‘hot spot’ in Laura, demonstrating a shift from Eolab.



Figure 84: Survey of Laura showing roads, buildings, cemeteries, and the outline of agricultural fields. The two areas of significant clustering are circled.

6.3.3.1 *Clustering for Resource Conservation:*

Based on interviews, access to income through non-agricultural based jobs has led to both dispersed settlement and clustering that is counterintuitive to the ecological reasons proposed by Mason and Riley. One of the elders from Eolab discusses the issues with housing dispersed across the *wētō* s; he saw the change as a loss of ecological knowledge driven by imported goods.

The way of the Marshallese life has a very sustainable reliance on resources here. Heavily relying now on imports, people don't practice what they used to practice. Living has kind of seized to a point where they are losing so much of their knowledge... Following World War II there were very few houses down the center road and on the ocean side. Once the country grows into an independent state, people started getting their own houses, that's when the housing began to develop.

The following provides analysis of the changing settlement patterns on Laura through spatial analysis. While the patterns of settlement are shifting, the clustering of dwellings remains strong, the coral spread is still frequently used, the *bwij* maintains control of the land, and primary settlement is along the lagoon.

As families grow, more houses are being built. As explained earlier, this is not unlike the pattern of the building process that took place traditionally. As sons and daughters married, the family built them an individual house. These houses disperse across the available land on the *wētō*s, but there is still a significant amount of clustering that takes place, granted today this clustering is no longer only at the lagoon side of the island. Using Esri ArcMap 10.5, Kernel clustering and Hot Spot analysis were used to

analyze spatial patterns of dwellings on Laura. Figure 85 depicts both Kernel clustering and Hot Spot analysis of dwellings on Laura. While the settlement at the widest part of the island along the lagoon is still significant, it is clear that this pattern has expanded to two significant groupings both to the south in Jeirok district. However, these spatial analysis tools only demonstrate the relationships between the buildings. Qualitative data also demonstrated that many families are departing from Laura for the United States, leaving many dwellings vacant. One man remarked: “On the adjacent *wēto* they have a lot more houses that are newer. On this *wēto*, many families have left.”

One of the elders from Eolab commented that families use to live close together, but as they started to have their own families, “they tended to move out and build their own houses scattered around.” Others demonstrate a desire to avoid the clustering of dwellings.

I choose that place because there's not too many houses there, so not like this place with lots of houses, but there will be maybe two, so that's why I like that spot.

Although interviews demonstrated a desire to move away from clustered housing and others observed the movement away from ‘togetherness’ the spatial analysis of Laura largely demonstrates that housing clustering is still significant. Moreover, participant observation documented the closeness demonstrated by many of the families, drawing importance to the fundamental concept of togetherness.

Laura Kernel Density Raster

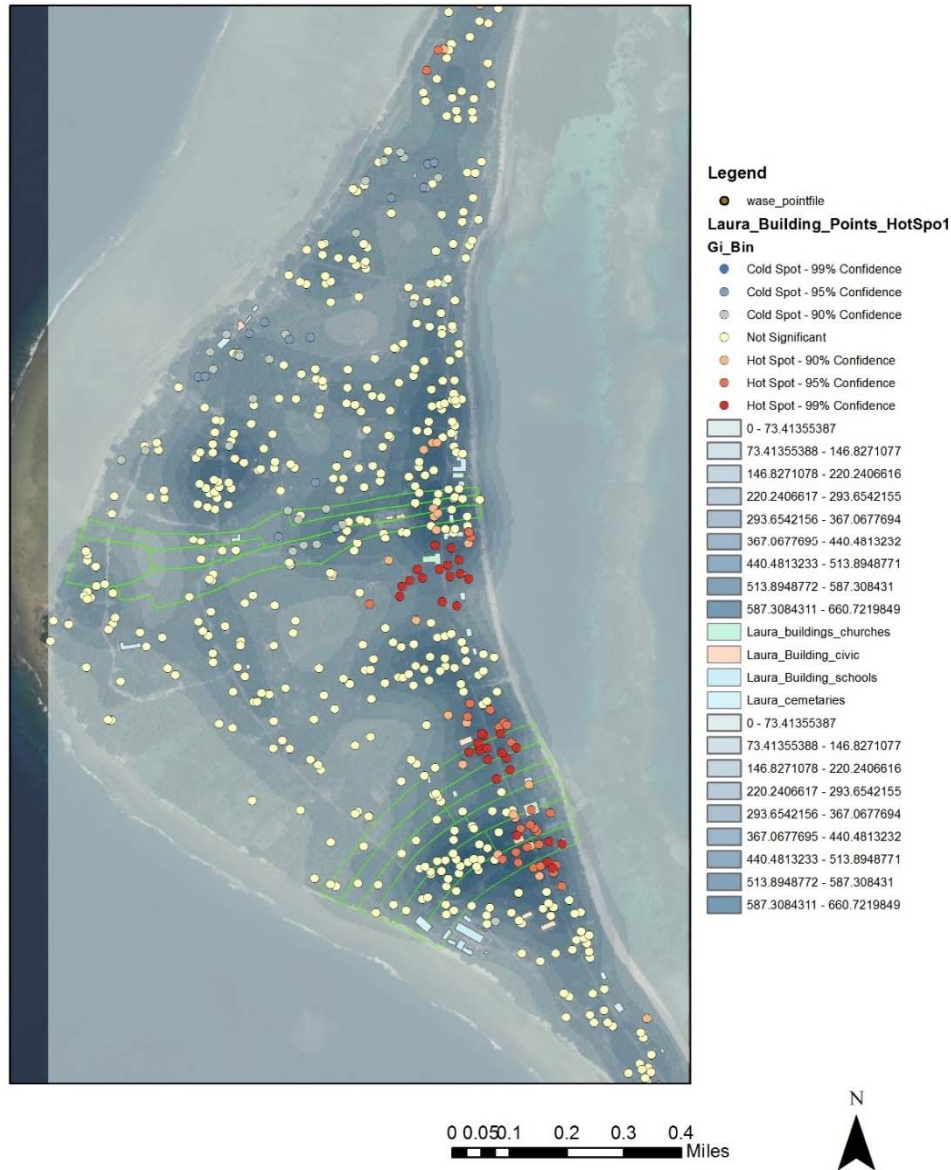


Figure 85. Getis Ord G_i^* analysis of point pattern analysis of dwelling on Laura overlaid on a Kernel density raster image of clustering. The red areas indicate statistically significant clustering based on the distance to neighbors. The dark blue areas represent

6.3.3.2 Organization of Social Space

The spatial integration analysis across the five *wētos* that were included in the study provides a more in-depth look at the social logic of development on the *wēto*. This analysis also provides more insight into the recent pattern of clustering at Jeirok and the

activity hub adjacent the basketball court at the intersection of the lagoon road and the transect road leading to the high school on the ocean side. In the analysis, Likin Atbwe, Aronan, and Likin-Kinu were combined because the *wētos* are controlled by the same alap and family, Jonak and Likin-Kunen were assessed separately. Likin Atbwe, Aronan, and Likin-Kinu are much more developed and populated than Likin-Kunen and Jonak.

The same method applied in the analysis of Namdrik was applied to Laura. The *wētos* of Laura demonstrate close similarities to each other even though their sizes are quite different. The RRA values are available in Appendix C under Laura for each of the *wētos*. Using Hanson's method for the determination of genotypes described in the previous section, the difference factors of the *wētos* on Laura, 0.790, 0.741, and 0.766 have a variance of 0.001, demonstrating very close similarities. The treelike structures in Figures 86, 87 and 88 demonstrate the close similarity in the spatial organization with four primary levels of depth for living space: the yard, the cookhouse, living spaces, and the kitchen; bedrooms tend to occur at the fifth level of depth with storage at the furthest depth.

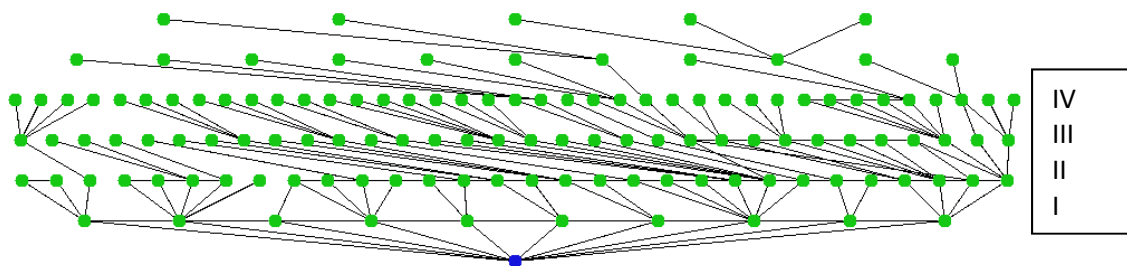


Figure 86. Justification graph of Aronan, Likin-Atbwe and Likin-Kinu *wētos*.

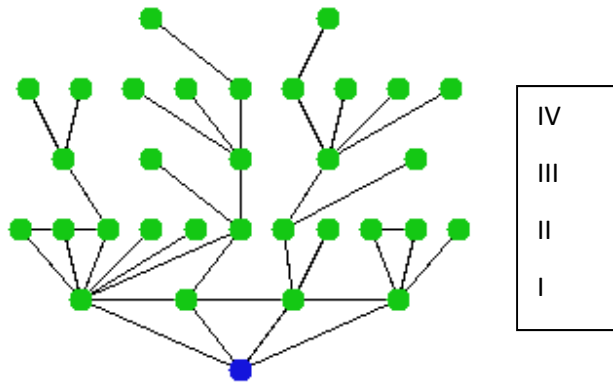


Figure 87. Justification graph of Likin-Kunen *wēto*, Laura.

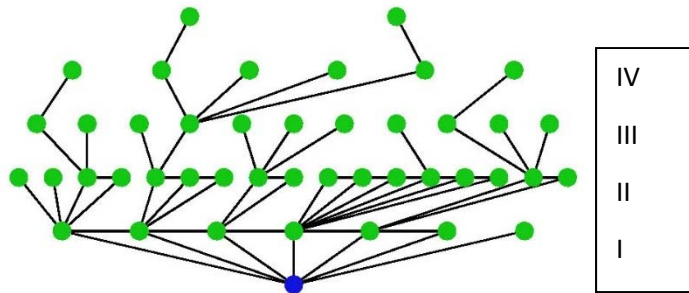


Figure 88. Justification graph of Jonak *wēto*, Laura.

It is evident that the combination of Likin Atbwe, Likin Kunu, and Aronan produces a more complex justification graph. These *wēto* s are more populated than both Jonak and Likin-Kunen. However, all three justification graphs demonstrate four primary levels as mentioned previously. In Figure 86, the spaces occurring at the fifth and sixth levels are primarily for storage.

In drawing further comparisons between the three sets of real relative asymmetry values (RRA), the pairwise t-test demonstrated significant difference between all means. Assessing the boxplot of mean RRA values for the sites on Laura, it seems clear that the means are different, but the ranges seem similar (Figure 89). ANOVA analysis of mean

RRA values for the three sites provides a p-value of 0.11, which is not substantial enough to reject the null hypothesis of similarity in variance, and the Bartlett test for homogeneity confirms the validity of the ANOVA test. This statistical measure tends to agree with the analysis of difference factors.

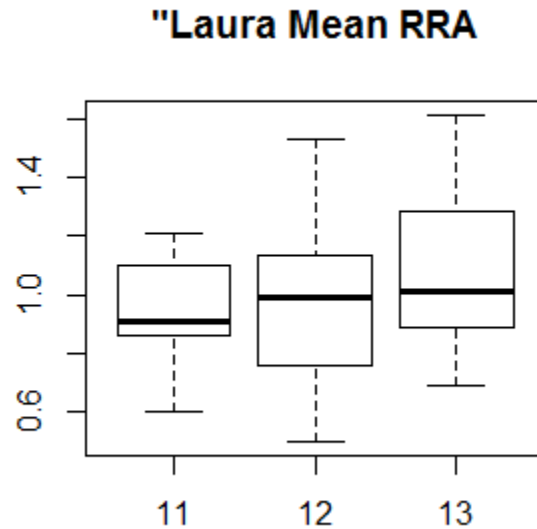


Figure 89. Boxplot of mean RRA values for the three sites. Likin-Atbwe, Likin-Kinu, Aronan (11); Jonak (12); Likin-Kunen (13).

Comparing Laura to Namdrik, the Student's T-test produces a p-value = 3.383e-05, rejecting the null hypothesis that means are similar. The boxplot of mean RRA values for Namdrik and Laura graphically demonstrates the lack of congruence across *wētos*. Figure 90 provides a comparison of boxplots across the *wētos* from Namdrik and Laura. Once again, we see a similarity in ranges, but the mean values are not consistent. When the data from Laura and Namdrik is compressed for overall mean RRA values, we notice a close similarity in both means and ranges. Figure 91 displays the boxplots for mean RRA values for Laura and Namdrik. The ranges and means appear similar. ANOVA analysis of mean RRA values across the *wētos* on Namdrik and Laura produces a p-value

of 0.942, which is not significant enough to reject the null hypothesis that the means are similar. Thus, variances are similar. The genotype for the social order of space is strong across Laura and Namdrik based on this analysis.

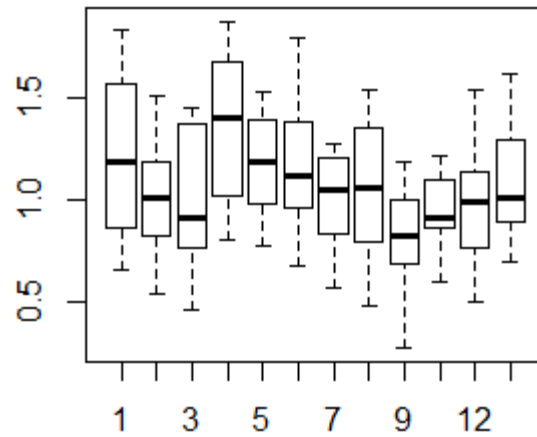


Figure 90. Boxplot of RRA values for Namdrik and Laura *wētos*.

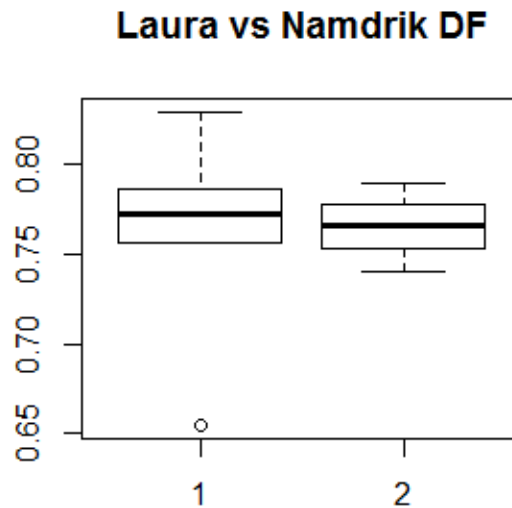


Figure 91. : Boxplot comparison of mean RRA values for Laura and Namdrik.

While the number of dwellings and the population on Laura is greater than Namdrik, the organization of space is similar to its rural counterpart, Namdrik. Similar to Namdrik, dwellings on the *wēto* that are physically distant from one another are not socially distant from one another. Observations noted family members from housing on the ocean side of Likin-Atbwe are often spending time with family members on the

lagoon side of Aronan and vice versa. Similarly, on Jonak, the dwellings of the alap and her son are half a kilometer apart, but they often spend time in each other's yard. Social closeness is apparent on Laura, demonstrating the importance of togetherness. The distance can be defined by the need to conserve resources.

6.3.4 Evidence from Djarrit-Uliga-Delap

The urban center of Majuro demonstrates a significant deviation from the traditional settlement pattern. Both prehistoric and historical records are unavailable for Djarrit, Uliga, and Delap before 1908 due to the typhoon that decimated the area, and little is known from the Japanese period beside the building remnants and water catchments left behind. What can be deduced is that prehistorically, the area was lightly inhabited and used primarily for resource extraction from *bwij* in Laura (D. Spennemann, 2005; D. R. Spennemann, 1990), and settlement following World War II largely reflects settlement in the area during the Japanese occupation. Aerial photographs from *Land as Wealth* and *Land as Identity* demonstrated the shifting pattern of settlement in the D-U-D across the *wētos*. Before 1970, the settlement was clustered along the lagoon and the lagoon road; it was not until the 1970s that development started to expand toward the ocean side.

Settlement in the urban center is based around the concept of togetherness rather than conservation of natural resources. Land in the D-U-D has value derived by location rather than natural resources. Even with the rapid urbanization of the area, the concept of togetherness is strong; perhaps this makes sense as necessary social capital for survival in

the urban jungle. When someone is seen alone, it is customary for another person to join them. One woman from Djarrit expressed the commonplace of this attitude.

I don't think Marshallese really know, I think they have a hard time being by themselves, alone. ... I don't think there is such thing as, 'I want to be by myself.'

The physical manifestation of social closeness in the urban center is the physical closeness of dwellings.

The settlement of Uliga and Delap present unique cases, as Delap was once an airstrip and Uliga was once the headquarters of the United Nations Trust Territory, representing a typical American suburb (see Hirshberg (2012) for a contemporary case on Kwajalein Naval Base). As explained earlier, as the Trust Territory came to a close and lands were handed back to their rightful owners along with the housing that occupied the *wētōs*, rapid development began to occur to house family members. Uliga presents an excellent example for the strength of both physical and social closeness represented by Ippan Doon. The alap's house on Lejolimen, which is often referred to as Icedonia, is a prime example of the multi-generational housing pattern and the family speaks to the importance of togetherness. The alap of Lejolimen speaks to the social closeness of the family on the *wētō*.

It was the unity. ... You can see how people work together. The community was down there. When there were parties, everybody contributes. You see that kind of culture there, always helping out ... Back then, you know, you have your relative, you ask them, and you're welcome, and they open to the family. The family has been here ever since. Actually, the whole compound, this one (Uliga alap).

A woman from the same *wēto* on Uliga spoke regarding the social capital embedded in their family cluster.

Here, it is mostly family. We have to look after each other. You can find a babysitter ... in an hour. Everybody helps out. It's easier. Things are easier. You get security. ... I let my kids play everywhere. I don't have to worry.

Within Lejolimen several rentals are available for travelers and other friends and families (in-laws). From observations, the residents of these rentals were often invited to eat with the family and seemed to be treated as part of the larger family group.

A more recent pattern that has occurred over the past fifty years coincides with the clustering based on social need. As discussed in the previous chapter, more recently families have begun to lease land from friends or distant relatives, and some families have begun to create in-fill land by building sea walls. The common settlement pattern that coincides with this phenomenon is a clustering of familial houses within a pocket of the *wēto*. For example, a family living in Djarrit, consisting of three generations, has developed a close-knit clustering of the family housing along the seawall on the lagoon side of the *wēto* (Figure 92). Between the road and the lagoon, seven houses are occupied by the extended family. This housing cluster has maintained the grouping for several decades. Another house adjacent the cluster, which is now fenced off, use to be part of the family, but they were recently evicted due to disagreements with the alap. This example demonstrates a more recent phenomenon of housing clustering for social closeness and resource conservation in the form of land. Most land leases in the capital demonstrate this pattern of clustering.



Figure 92. Aerial photograph highlighting a family compound in Djarrit.

6.3.4.1 Organization of Social Space

Spatial integration analysis of Lejolimen and Mwinkut *wētos* demonstrates similarities to their rural counterparts in Namdrik and Laura⁴¹. In addition, participatory observation demonstrated togetherness as an essential part of everyday life on these *wētos*, as discussed previously. In assessing the difference factors of Lejolimen (0.772) and Mwinkut (0.756), there are close similarities to the difference factors of *wētos* on Laura and Namdrik. The mean difference factor of all sites is 0.706, and the variance of the values is 0.040. This demonstrates that the three sites are similar in structure. The justification graphs of Mwinkut (Figure 93) and Lejolimen (Figure 94) have a similar

⁴¹ Teron, Renlik, and Renar were not included in the syntax analysis because not enough information was available to conduct the analysis.

structure to those of Namrik and Laura, granted there is overall greater depth and the connection of spaces is more complex. The urban *wētos* are much more densely developed and populated in comparison to Namdrik and Laura.

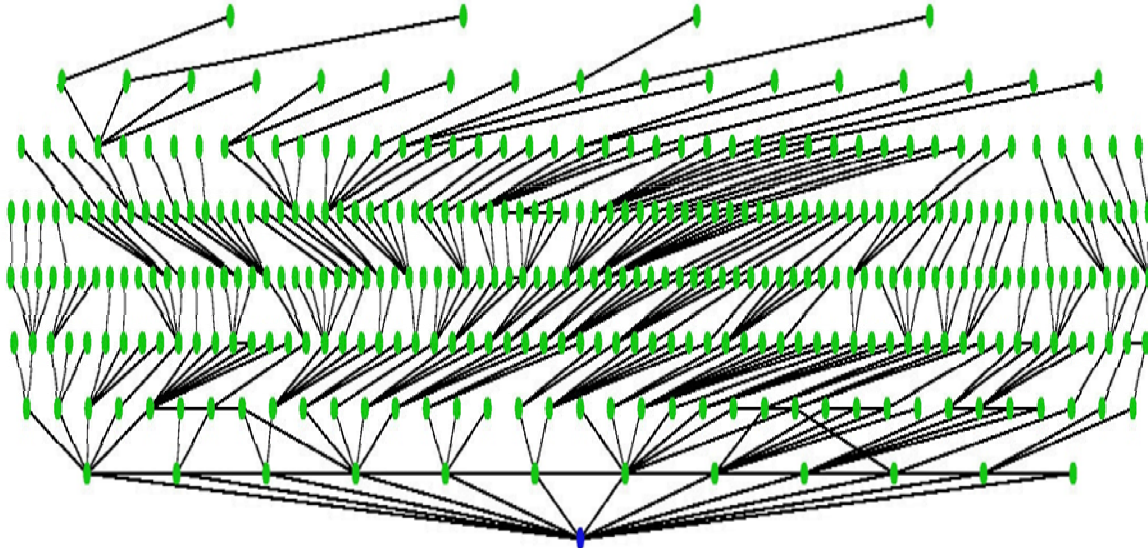


Figure 93. Justification graph of Mwinkut *wēto*, Rita, Majuro.

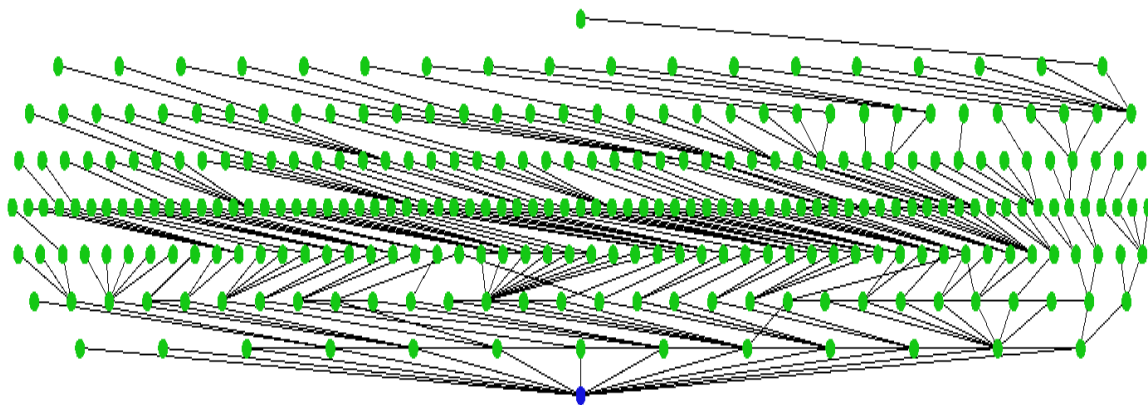


Figure 94. Justification graph of Lejolimēn *wēto*, Uliga, Majuro.

In addition, ANOVA analysis was conducted to discern similarities in variances between the mean difference factors of the three sites. The p-value from the ANOVA

analysis was 0.962. Since the p-value is greater than 0.05, the null hypothesis that the means are similar cannot be rejected. Thus, the mean difference factors across the three sites are similar. This demonstrates that Namdrik, Laura, and the D-U-D share a genotype for the spatial order of the *wēto*. The boxplot in Figure 95 illustrates the closeness in both range and mean. Integration of space follows a similar principle to what is found on Namdrik. The coral spread or yard provides a buffer between the main path and the dwelling; the cookhouse is in the yard along with the main living space, and each sleeping quarter is attached to the main living space. The difference in these *wētos* is that space becomes more segmented in part due to the importation of American tract housing; however, this is countered by the social formation that takes place within typical houses as explained in Emlapwoj⁴².

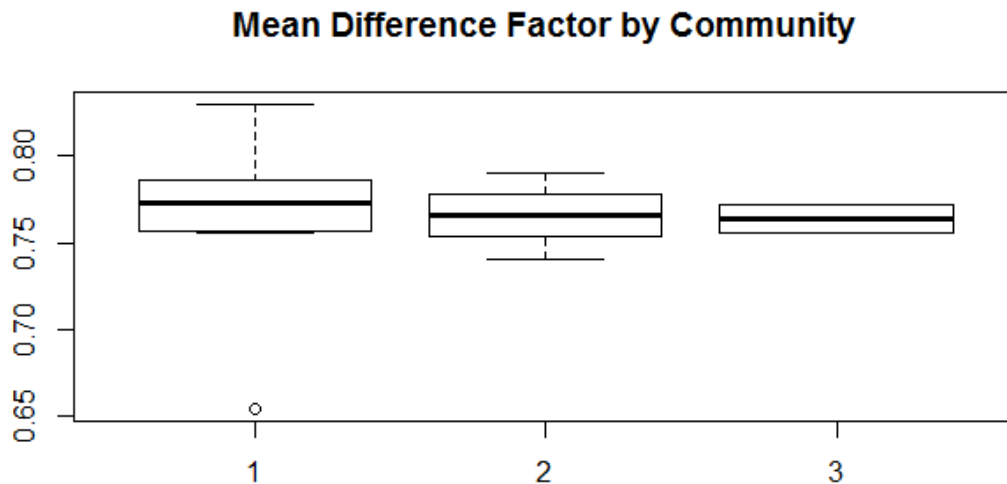


Figure 95. Boxplot of difference factors across Namdrik (1), Laura (2), and the D-U-D (3).

In addition to the analysis of the difference factors and observations, statistical analysis of the real relative asymmetry values of Mwinkut and Lejolimen appear closely

⁴² Rather than creating new sleeping quarters on or near to the alap's house, married couples in many of the houses in the D-U-D occupy one of the rooms in a western tract house.

related to their rural counterparts; this supports the argument that all of these settlements share the same genotype. The boxplot in Figure 96 demonstrates how close the mean RRA values and ranges of values are in Namdrik, Laura, and the D-U-D. ANOVA was used to analyze the variance of the three data sets for overall mean RRA values. The ANOVA test produced a p-value of 0.125, which is greater than 0.05. Thus, the null hypothesis that states the variances are similar cannot be rejected. The boxplot demonstrates that the mean RRA values of Laura and the D-U-D demonstrate greater social integration, ranging from a value around 0.8 to 1.1, while Namdrik has a range between 1 and 1.2. Values closer to 0 demonstrate greater social integration, while values above 1 demonstrate less integration and more segregation. The fact that level of social integration increases from the rural setting to the urban make sense given the density of houses and the number of dwellings that share the same activity centers, such as a yard or cookhouse.



Figure 96. Mean RRA values for Namdrik (1), Laura (2), and the D-U-D (3).

However, if we look at the range of RRA values across all of the *wētos* in ANOVA, more variation is evident. The boxplot in Figure 97 demonstrates the difference in mean RRA values and ranges. The ANOVA test rejects the null hypothesis that mean values are similar and demonstrates difference (p-value = 0.0126 > 0.05). The physical differences between individual *wētos* are quite varied, and it is logical that differences in spatial integration would be apparent. This analysis demonstrates that evaluating the overall means of RRA values is a more effective value to analyze across the sites because it normalizes the data sets.

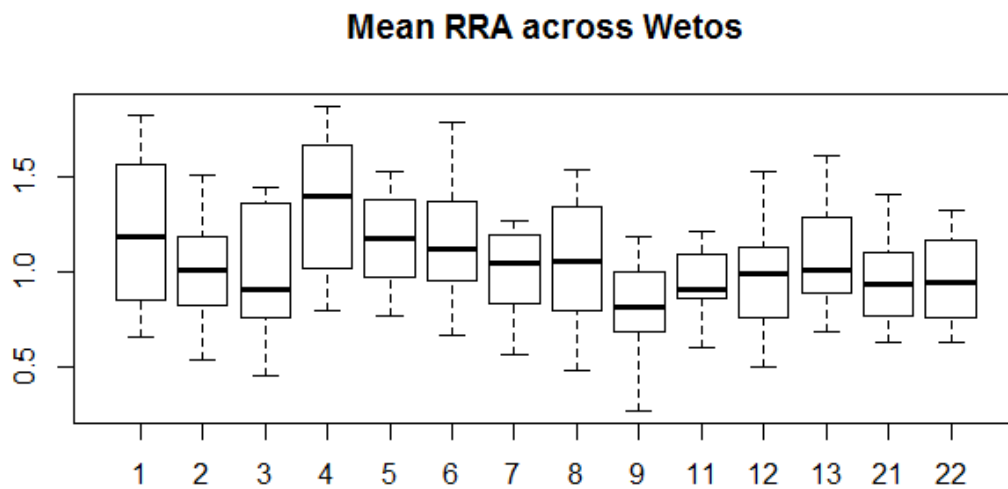


Figure 97. Boxplot of mean RRA values across all *wētos* in the study.

Lastly, axial analysis of the three *wētos* in the D-U-D was conducted and cross-referenced with kernel density analysis of dwellings on each *weto*. Kernel Density analyzes the density of points on the map, demonstrating clusters visually. This exploratory analysis of spatial relationships does not provide deep insight into the social logic of space, but it does demonstrate that significant housing clusters appear to occur

around shared yards. Figure 98 is a visual graph analysis (VGA) map of Mwinkut *wēto*. Based on the assumption that all spaces between the houses and buildings can provide access, the VGA map analyzes the locations for spatial integration. Red spots demonstrate the most integrated spaces, which would be the most active while blue spots are the least integrated and would show less activity. Figure 99 is a Kernel Density analysis map of Mwinkut *wēto*. The darker blue areas on the kernel density map demonstrate areas with higher clustering of dwellings. Based on observations from one of these clusters on Mwinkut, which is outlined in Figures 98 and 99, the clusters define close-knit family groups. As far as the visual graph analysis, it generally follows the main mode of access from the main roads. What is interesting is that on Mwinkut, the most integrated location is at the intersection of the ocean side road and the main transect road. This location is adjacent the cemetery and near to the alap's house.

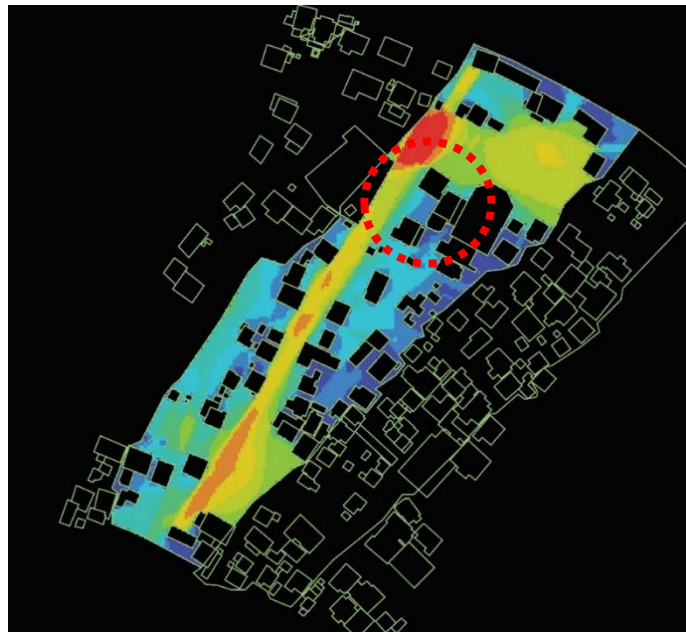


Figure 98. Visual Graph Analysis of Mwinkut. Area of observation outlined.

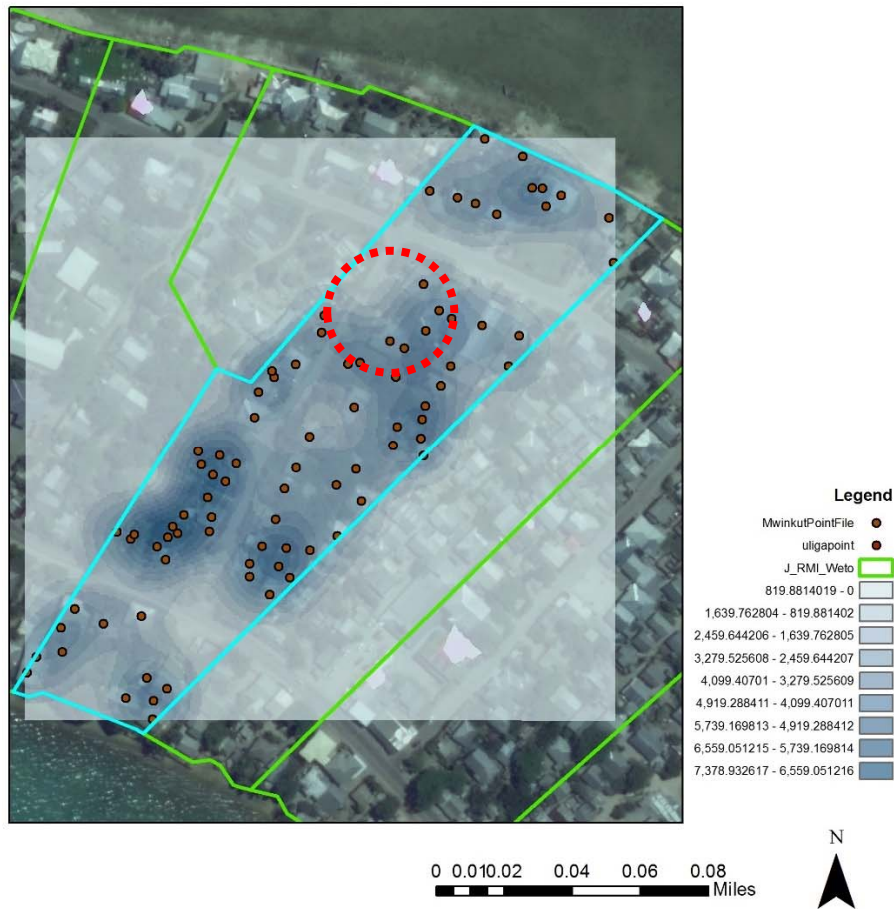


Figure 99. Kernel density raster image of dwellings on Mwinkut *wēto*. Area of observation is outlined.

On Lejolimen, the emphasis is drawn to the *alap's* house in the visual graph analysis with higher than average integration values at the interior courtyard reaching toward the ocean seawall. Figure 100 provides the VGA map of Lejolimen. Note the intense red spot at the intersection of the two roads, this terminates into the basketball court and Icedonia shop front located in front of the *alap's* house, and it demonstrates integration into the interior courtyard. Figure 101 visualizes the kernel density of Lejolimen; the dark blue areas designate higher density areas of housing. There appears to be a relationship between the kernel density and VGA map of Lejolimen. Further ethnographic observations would be required to draw out the social relationships taking

place within these clusters and along these integrated spaces, but the analysis of these maps does provide us evidence that social cohesion is likely to present in these locations that have nearly inverse relationships between the visual graph analysis of integration and the spatial analysis of kernel density.

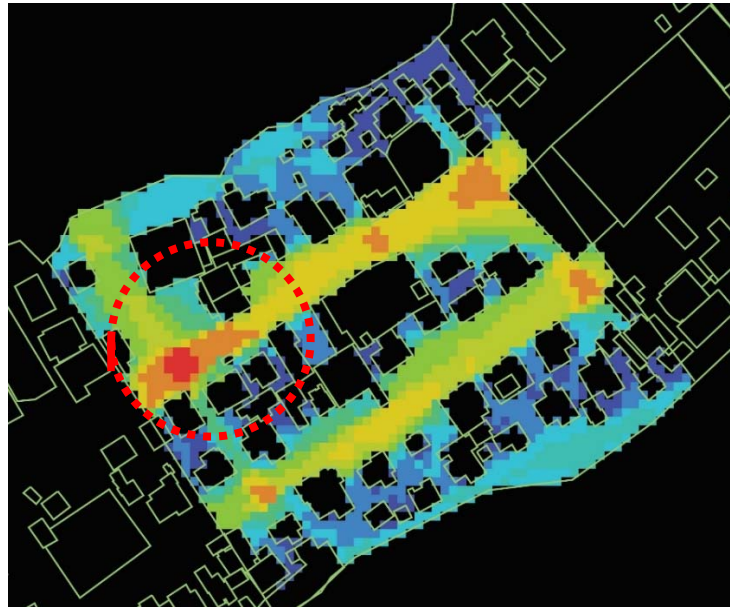


Figure 100. Visual Graph Analysis of Lejolimen.

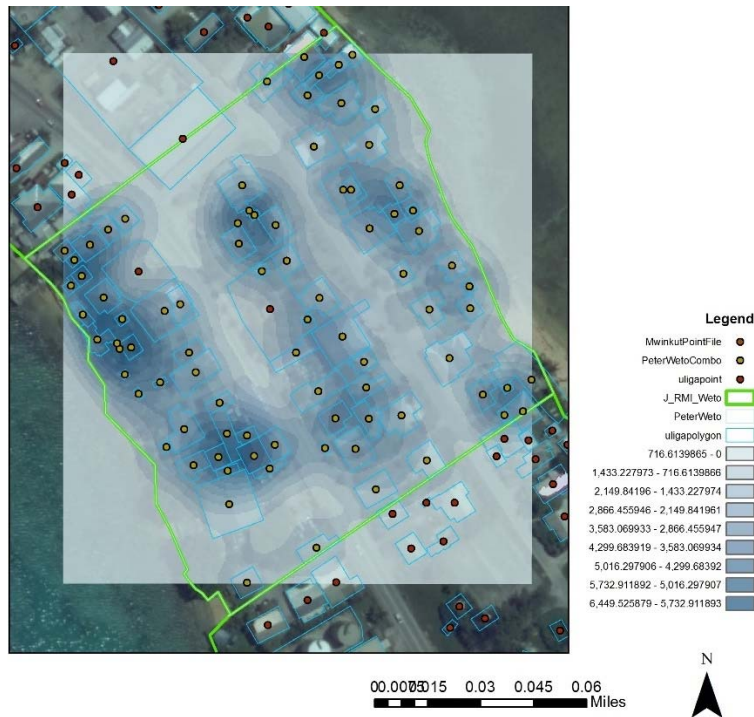


Figure 101. Kernel density raster image of Lejolimen *wēto*.

In summary, the pattern of clustering on *wētos* in the D-U-D is different from the *wētos* on Laura and Namdrik, but the social relationship between social closeness and physical closeness is similar. The social significance of togetherness and the proximity of dwellings reinforce each other in support of Ippan Doon.

6.3.5 Evidence from the Survey

Togetherness is fundamental to Marshallese identity, and this provides a social safety net, security, safety, and sustenance for the family. This was determined through the qualitative analysis and the survey. The survey responses spoke to two areas regarding Ippan Doon. First, the results determined the importance of social closeness to families, and second, the results determined where on the *wēto* families prefer to dwell, emphasizing the placement on the lagoon shore.

When asking about individual perceptions, 44% of the respondents felt that it was important to have housing clustered together with family members and 56% felt that it was not important. For those respondents who felt clustering was still important, the overarching reason was to maintain social cohesion and have social capital integral to life on the *wēto*. When asked why clustering was not important privacy and resource conservation were the primary concerns. The most common words used in support of living near family were ‘together’ and ‘help’; Figure 103 visualizes the words commonly used about clustering. These represent the fundamental Marshallese custom, *Enra bwe jen lala ra-ra*, which translated means “Relationships are the bread and butter of Marshallese life.”



Figure 102. A visualization of common words used in response to survey question 149 and 150.

Regarding the placement of dwellings on the *wēto*, participants were asked to give their opinion on a bad location for a house on the *wēto*. The majority of responses determined the shoreline as a poor location (52%), 24% determined building a house along the road was also a bad location. The remainder was split between along the lagoon and the middle of the island, demonstrating these as the more likely locations for a house. Fifty-one percent (51%) of respondents felt the house should be oriented along the lagoon while 35% felt houses should be oriented along the road. Six participants preferred the

ocean. Clustering along the lagoon made more sense given the resource base of a *wēto* . Development along the lagoon preserved the maximum amount of arable land.

The survey results reinforced the importance of dwelling along the lagoon and the importance of social cohesion present in housing clusters. Living close together in proximity both preserves the land, and it enhances social capital among the family and inhabitants in the cluster.

6.4 Juon Kijeek: One Fire, One Family

One Fire, One Family, consists of the cookhouse, fire, and the um. The *kijeek* is the fire from which sustenance is prepared for the family. Typically, the *kijeek* is located within the *im in kemat* (cookhouse). The fire represents the center of the traditional subsistence livelihoods in the Marshall Islands. The symbolism of One Fire, One Family reifies *Ippan Doon* and the reliance on others for survival.

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

Krämer and Nevermann (1938) and Erdland (1914) refer to the cookhouse as the center of the *bwij's* (clan's) life. It is the space where the *alap* demonstrates her control of the *wēto* and space where the *alap* positioned herself as the director of welfare. Historically the fire and cookhouse represented a homestead as families shared the fire. More and more today, the cookhouse coincides with the rise of the nuclear family. It represents a central piece of Marshallese culture, and its design reflects tradition. Many families take pride in the construction and design of the cookhouse, which is often rebuilt every 3-4 years. The structure provides shelter for the people cooking over the fire and provides a social space.

In the following sections, evidence from the literature, the three sites, and the survey is presented in support of the Juon Kijeek as a deep cultural pattern. The literature demonstrates a basis for the cookhouse in Marshallese culture stemming to pre-historic life on the islands and connects it to the broader concept of the 'wet kitchen,' as similar

structures are referred to elsewhere in the Pacific. The evidence from the sites demonstrates the strength of the deep cultural pattern in contemporary life, and the survey results reify the importance of the cookhouse in everyday life.

6.4.1 Evidence from the Literature

Archaeologists tend to assess prehistoric sites based on abandoned coral spreads. Once located, the *um* (earth oven) is a key indicator of pre-historic settlement in a designated area, providing material for carbon dating. The social significance of the archaeological record on the cookhouse, *um*, and *Kijeeek* is not discussed, but the record does demonstrate that most coral spreads contained an *um*, which would agree with the historical record.

Spoehr (1949), Mason (1947), and Chave (1947) describe the basic family unit as the group that cooks together in one cookhouse, although it may be made up of groups occupying more than one dwelling house. The cookhouse was always described as a separate building behind the house. In the earlier documentation of Marshallese settlement, Kramer and Nevermann also described the cookhouse as a central piece to the homestead. The consumption of food together is an important symbol of unity (Spoehr, 1949). Within large households, “several elementary families were represented. (The term "elementary family" as used here means the small biological unit of parents and children)” (Spoehr, 1949, p. 103). The families generally had separate sleeping houses that were adjacent to one another and prepared food from in a common cookhouse. Spoehr described the cookhouse as a symbol of the household unity.

Krämer and Nevermann documented that every wealthier family had a special cookhouse behind the main dwelling that consisted of a small saddle roof without walls,

resting on four posts. The purpose of the cookhouse was to protect the fire and the women cooking from the winds and the rain. It was seen as a symbol of family unity and the point of resource distribution. The cookhouse was typically of simple construction implementing local materials. The cooking was done in the *um*. The simplest designs of cookhouses were lean-tos or a shed roof supported by four posts. Spoehr (1949) documented larger cookhouses with gabled roofs and open sides large enough to store coconut husks and wood. Those of more prestigious families had walls, and part of the space was used for dining. Generally, the cookhouse was seen as the women's space. Women's job was to prepare food and collect fuel for the *um*; this included the preservation of foods such as breadfruit, pandanus, and arrowroot.

The ground oven is often contained within the cookhouse and is used for cooking food. Erdland (1914) Assessed that the presence of the *um* within a cookhouse was more refined, designating the cookhouse as a status symbol. The *um* traditionally consisted of a pit about one foot deep and two to three feet in diameter. Rocks from the outer beach are heated with a fire of wood, coconut husks, coconut shells, and occasionally scraped out pandanus fruit and dry pandanus leaves. The fibrous husk of coconuts is stored along with wood kindling in a designated area beside the *um*. When the rocks are glowing hot, they are spread out, and coral gravel is strewn over the rocks until the smoke ceases to rise. Then the food is placed on top of the gravel and covered with breadfruit leaves (or other), and old pandanus mats are laid on top. Sometimes the food is covered with hot stones as well. Food was often wrapped in leaves before placing it in the fire. Erdland noted that banana, crinium, and breadfruit leaves were commonly used for this. The *um* is similar to many types of earth ovens in the Pacific, such as the Hawaiian *imu*. The

process of cooking underground is also very similar, and the leaves used are also commonly used in the Hawaiian *imu*. The use of the *um* made cooking utensils unnecessary.

Several families within the same *bwij* usually cook together, and women and men eat together (Erdland, 1914). There were no set meal times, but usually, meals were consumed for breakfast and supper. When fish were caught, they were cooked and eaten immediately. Leftovers are customarily eaten the following morning. Food was used to establish relationships, and visitors would be invited to dine with a family to initiate these relationships.

6.4.2 Evidence from Namdrik

“We call it fire. Fire is ... where you cook your food. Only one pot. One fire. You cook everything in [the] same house, joint kitchen. Everything cook[s] on the same fire and everything that comes out of that, everybody shares it” (Man from Namdrik).

An essential part of *Ippan Doon* (togetherness) is sharing – sharing food, sharing your home, sharing everything; the fire becomes the point from which sustenance is shared among the *bwij*. “Come and wait for the fire to be started so we can eat together,” is a sentiment shared by an elder from Namdrik. When people are cooking in the cookhouse, others are welcome to join. Everything that comes off of the fire is for everyone. The cookhouse is at the center of resource distribution on the *wēto*. While today, most families have their cookhouse (one per nuclear family), shared meals remain common, and these are prepared in a cookhouse central to the family. As more families on Namdrik

have their cookhouses, extended families often worked together in the cookhouse and prepared meals to eat together. As expressed in the chapter on Emlapwoj, the multi-generational house typically hosts communal meals together with the larger extended family. These meals are generally prepared in the cookhouse adjacent the grandparent's house. While a cookhouse was documented on every *wēto* that was included in the study, there was not a one-to-one ratio between dwellings and cookhouses. This would suggest that some cookhouses were shared.

The cookhouses on Namdrik were constructed from a mixture of local materials and recycled imported materials. The cookhouse requires frequent maintenance and is rebuilt every three to four years. Roofs tended to be thatched, while walls were constructed of corrugated sheet metal and vertical slats of local wood branches (*kimeme*, *kino*, *lā*, etc). It is also important for the cookhouse to be sized for the occupants and their users, as a man from Wijlang pointed out that the cookhouse was designed for his wife, who is particularly short (Figure 103). The designs of the cookhouses on Namdrik vary slightly; some were simple shed roof structures while others had gabled roofs.



Figure 103. Photograph of the cookhouse on Wijlang.

The design of the typical cookhouse begins with a gable or shed roof and rectangular space from which protrusions are created for different uses – root storage, a place for washing, and a place for storing copra, workspace, and the fire. The central area of the cookhouse is where bwebwenato (storytelling) and occasional dining take place, and it provides a place for men to hide their smoking habit. Figure 104 provides an annotated plan of a cookhouse to demonstrate some of these areas.

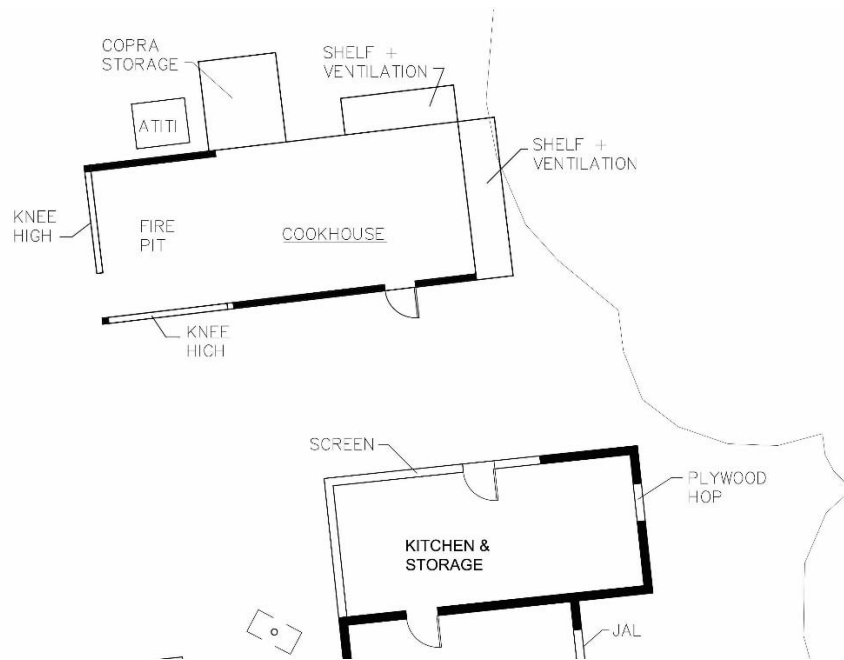


Figure 104. Floor plan of the cookhouse on Mon-Konat demonstrating the relationship to the house kitchen. People either stand or sit on pandanus mats as space is typically devoid of western furniture. Most of the households stored their rice along with other imported staples in the cookhouse. Keeping the food items in the cookhouse keeps the ants and rodents out of the house. In addition to a shelter for cooks and stored supplies, the cookhouse is also used as a place to sleep when the house becomes crowded or unbearable due to the heat.

In addition to the cookhouse, many houses on Namdrik have an indoor kitchen in conjunction with the cookhouse. However, the indoor kitchen is not used often for food preparation. The indoor kitchen typically has a standard basin sink, a small propane burner, cabinets, and tableware; much what you would expect in an American home. The sink drains directly out of the house and water is brought in from the well or water catchment basin. The survey section below provides more detail regarding the food preparation that takes place in the kitchen versus the cookhouse.

The cookhouse, maintaining much of its traditional characteristics, provides a direct connection to the deep pattern connected to Marshallese food, resource sharing, and togetherness. The following provides examples of Juon Kijeek manifest on Namdrik in the form of cookhouses that support the central notions of resource distribution, family welfare, and knowledge dissemination.

The *alap*'s cookhouse on Mon-Konat was a central activity hub on the *wēto*. Located adjacent to the *alap*'s house on the lagoon side of the *wēto*, the cookhouse was a central meeting point for the family and sheltered the fire and the women that prepared communal meals. Women were often observed preparing food and chatting in and around the cookhouse. Figure 105 depicts the site plan of Mon-Konat and Monjon. At least once a week, the extended family shared a meal at the *alap*'s house that was prepared on the fire under the cookhouse. Family members from the ocean side, Monjon, and the other lagoon side dwellings would join together on the coral spread of the *alap*'s house. Figure 106 is a photograph taken during a large family event.

Monjon *Wēto*

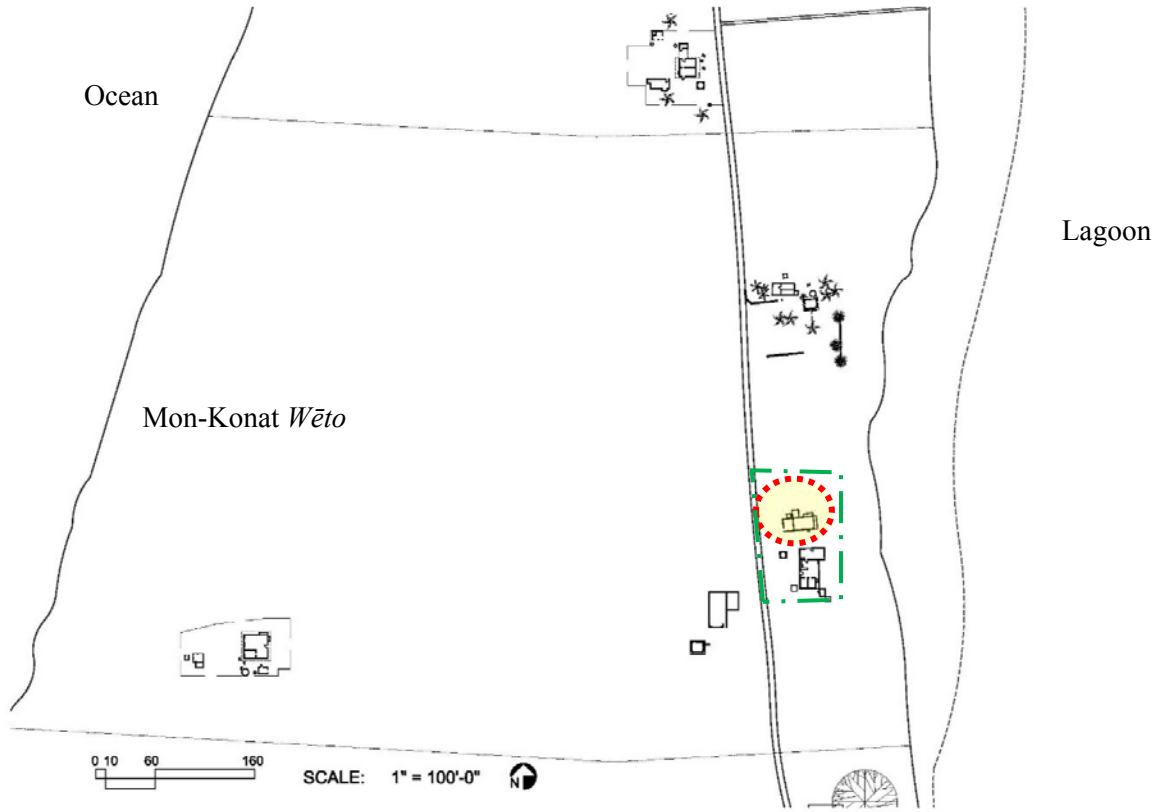


Figure 105. Sitemap of Mon-Konat is demonstrating the location of the cookhouse in comparison to the other houses.

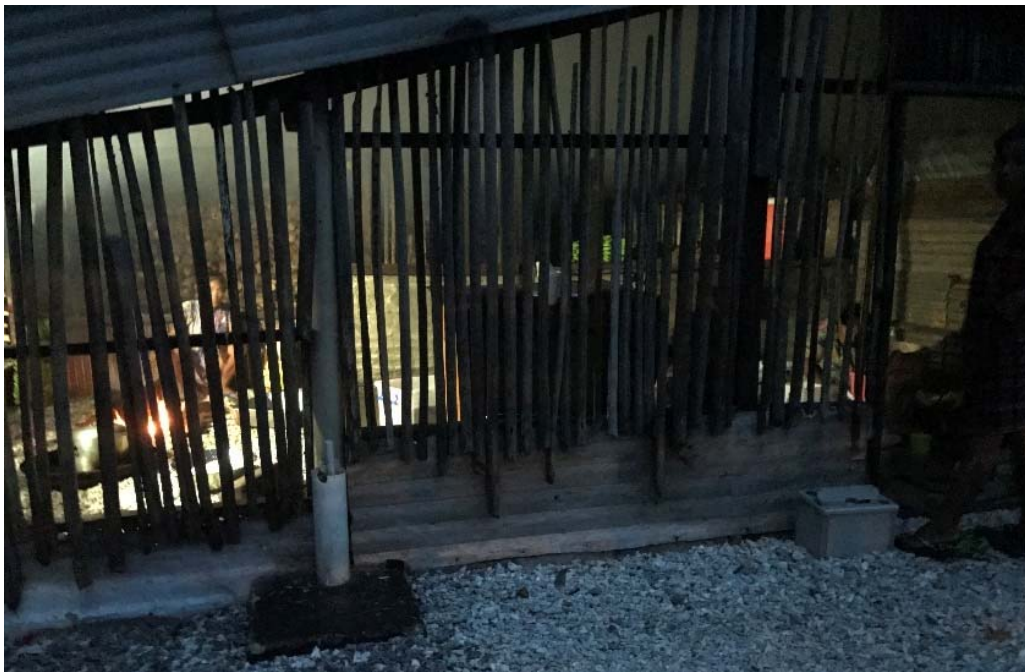


Figure 106: Photograph of Mon-Konat cookhouse. Women are preparing a meal over the fire.

The cookhouse of Mon-Konat was constructed of local and imported wood and imported corrugated metal roofing and sheathing. The structure provided sufficient room for several people to work inside and prepare meals. Figure 104 provides the interior layout demonstrating ample space for working and a large counter space that has been created by the rear bump out and a designated space for the fire. In addition, the kitchen on the side of the alap's house was often used in tandem with the cookhouse.

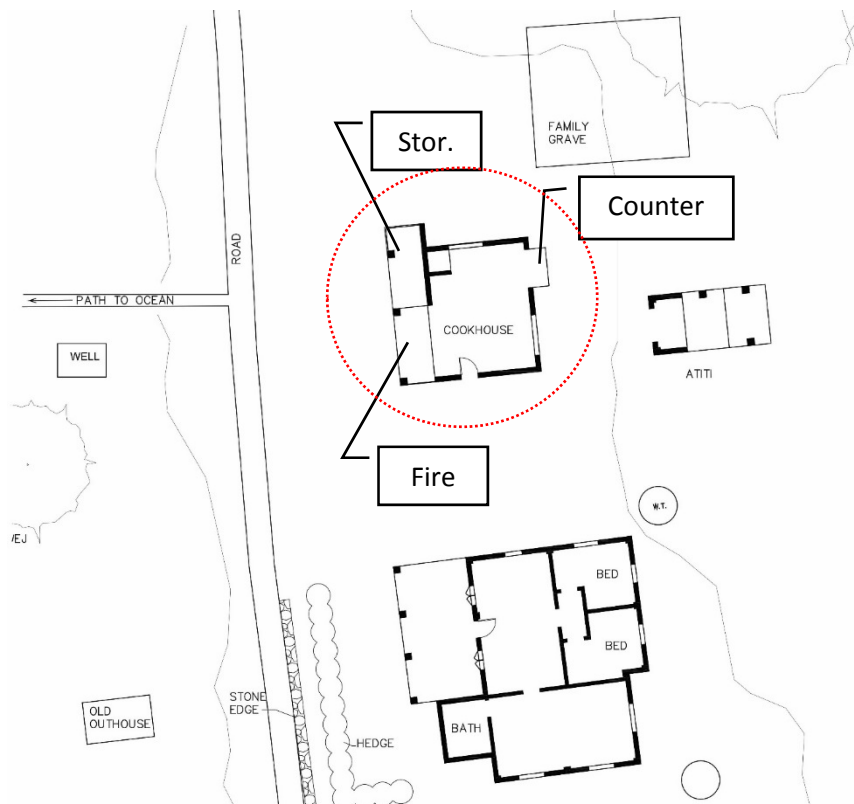


Figure 107: Site plan of the homestead on Monwat, located adjacent to the lagoon shore.

The cookhouse on Monwat is another representation of Juon Kijeek; it is central to everyday life on the *wēto*. All of the family meals were prepared in the cookhouse, and the fire was used on a daily basis. On occasion, extended family from across the lagoon came to the cookhouse on Monwat to share family meals. Women were often seen preparing food in the cookhouse and chatting, and occasionally men from the family

helped in the preparation of meals in the cookhouse and assisted in preparing kindling for the fire. Figure 107 provides a site plan of the homestead on Monwat and Figure 108 depicts the exterior of the cookhouse. The cookhouse is in a central location, adjacent the house. Similar to the cookhouse on Mon-Konat, this cookhouse has a central space for socializing, the alcove for the fire(s), spaces for storage, and a counter space placed in a wall bump-out. All of these areas support the preparation of food for the family.

The cookhouse is constructed of reused plywood and corrugated metal sheathing that was taken from a vacant house. Some local wood was used in the construction of the vertical slats, the posts and beams, and the rafters. The construction and materials of the structure are common across Namdrik.



Figure 108. Photograph of the cookhouse on Monwat.

There are many other examples of cookhouses on Namdrik that range from use within the nuclear family or among the extended family. Based on observations, at least one cookhouse from a *wēto* was used for communal meals with both extended family and

the larger community. For example, the cookhouse adjacent the shophouse on Moneibel was often a central activity hub for telling stories, gossiping, and sharing food from the fire. Events such as Kamems (first-birthday party) or christenings were other typical events in which the central cookhouse was used in the preparation of food for the larger community. In addition to the cookhouse of the family, the cookhouse of a church was also a representation of Juon Kijeek. Following services, on several occasions, the cookhouse adjacent the protestant church was used to prepare food for the entire community. On Namdrik, Juon Kijeek continues to manifest in the traditional form of the cookhouse adjacent the alap's house and the altered forms of the cookhouse on leased land and the cookhouse of the church. All of these spaces provide a place for resource distribution, sharing stories and knowledge, and welfare of the family or community.

6.4.3 Evidence from Laura:

Of the *wēto* s observed in Laura, not all households had a cookhouse, and of households that had a cookhouse, it was observed as a central feature of social activity, reflecting the social nature of sharing food prepared over the fire. The absence of a cookhouse for each household demonstrates a possible change from the settlement patterns observed in the 1950s and 1960s by Spoehr, Chave, and Mason. This is further discussed in the next chapter, but the examples presented here demonstrate the continuity of Juon Kijeek on Laura.

Of the six (6) *wēto* s, at least one cookhouse was observed except Mwinkidren. On Likin-Atbwe, two of the three houses had a cookhouse adjacent to them. On Aronan, two of the three houses had a cookhouse adjacent to them. On Likin-Kunu, which housed the most houses (10) only three houses had adjacent cookhouses. Only one cookhouse

was present on Likin-Kunen. The house along the ocean side road of Likin Atbwe was the most closely observed cookhouse followed by the cookhouse adjacent to the alap's house on Jonak. The cookhouse on Likin-Kunen was discussed in detail by the owner during interviews.

Cookhouses on Laura tended to be primarily constructed of imported materials that were often recycled from another building. For example, one of the families in Jeirok district had constructed a stage for the *Kamem* (first-birthday) of their son and afterward reused the materials from the stage in the construction of their cookhouse. In some cases, the cookhouse was attached to the house by a simple breezeway or as a lean-to.

The outdoor areas created by the cookhouse demonstrated significant social spaces on the *wētos*. This social space generally reinforced the social nature of receiving food from the fire in the cookhouse and the core principle of togetherness. In an instance from Likin-Atbwe, the in-between space created a dining area and an extension of the cookhouse (see Figure 109 for the plan and Figure 110 for the elevation). The function of the cookhouse bleeds out into the breezeway, where the cooktop and oven are located. The son of the homeowner commented about the space between the cookhouse and the house,

This is where the life happens, around this table. Make jokes, tell stories, rumors, you know, then morning comes. We don't usually eat breakfast. We just go straight out to work. And the only time we meet is here in the evening. We share a cookhouse.

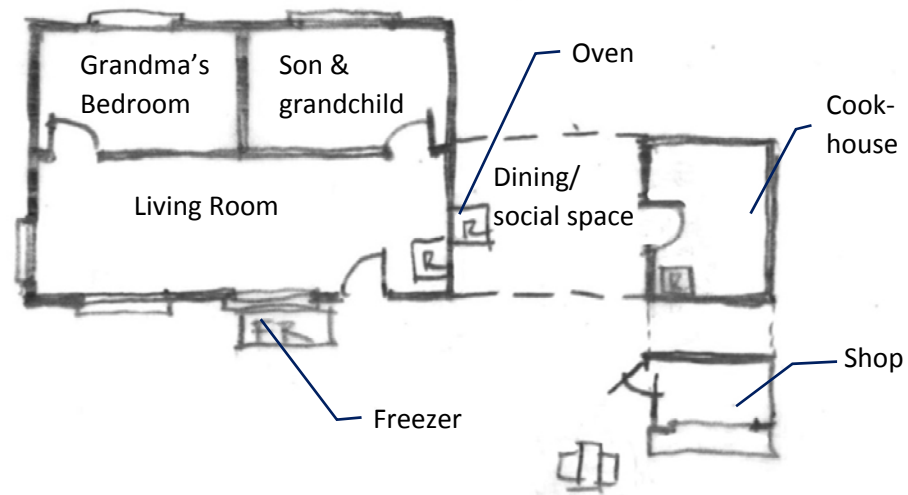


Figure 109. Floor plan of the house and cookhouse connected by a breezeway. The shop was a new addition between July 2016 and September 2017.



Figure 110. Photograph of the front of the house and cookhouse, showing the breezeway created between the two. The breezeway is the most used space.

The cookhouse, the breezeway, and the addition of a shop in front of the cookhouse became a central social hub along the ocean side road of Likin-Atbwe. Food prepared on the fire in the cookhouse was not only shared among the family, but it was also prepared for others. It was observed that the Fijian woman who lived in the rental unit adjacent to this house on Likin-Atbwe also partook in meals with the family. Figure 111 is a site plan of the house, cookhouse, and rental unit demonstrating their proximity

to each other. This example demonstrates a commonality with other cookhouses on *wētos* with rental units or land leases, the system of sharing across the *wētō* seems to be continued and is now inclusive of non-family members.

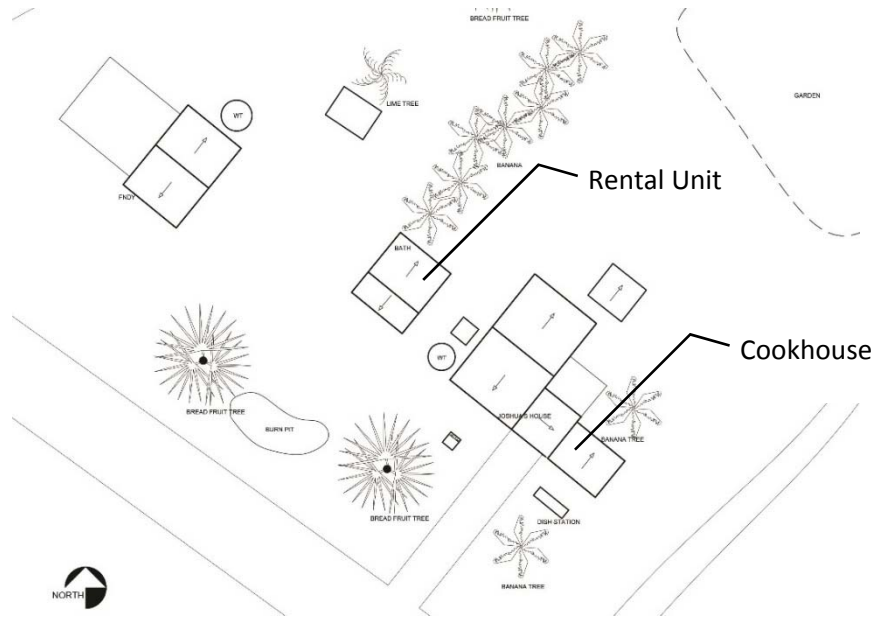


Figure 111: Site plan of houses on Likin-Atbwe along the ocean side road.

On Jonak, the cookhouse adjacent to the alap’s house was very similar to those documented on Namdrik. The design of the cookhouse was based on the need for storage, and an open area for the fire and *um*, a counter, and a large open space for preparing food. Mats were strewn across the floor to provide places to sit and to help keep the floor clean. Figure 112 is the floor plan of the cookhouse, demonstrating the location of these areas. The framework of the cookhouse was constructed with local wood, and the roof and knee walls consisted of corrugated metal sheathing. A netting was stretched across the post and beam frame of the walls to provide a barrier from animals. It is a simple but

effective design. Figure 113 is a photograph demonstrating the aesthetic of the cookhouse.

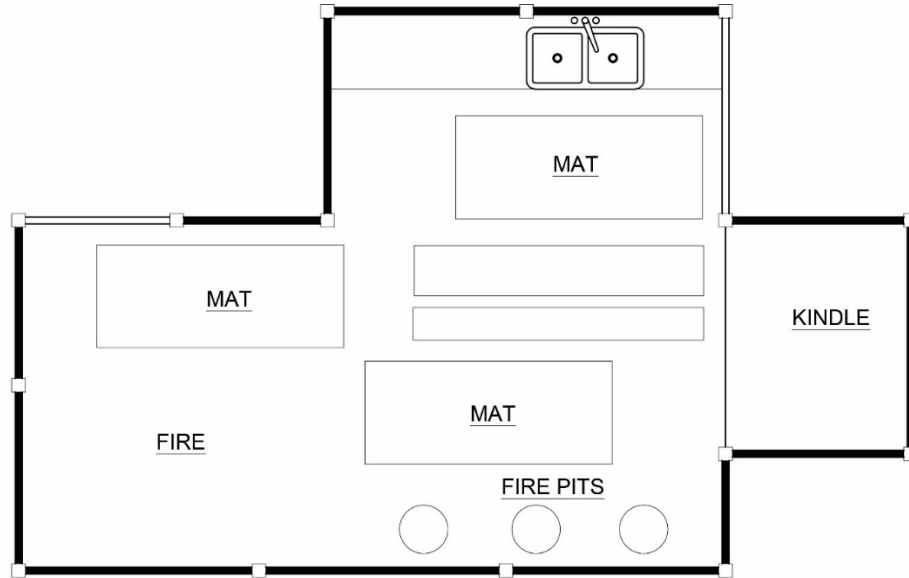


Figure 112: Floor plan of the alap's cookhouse on Jonak *wēto*.



Figure 113: Photograph of the alap's cookhouse on Jonak depicting the type of construction and materials used.

The alap's cookhouse on Jonak also represented a shift in the use of the cookhouse. While the cookhouse continued to be a place where food was prepared for the family and provided a space for the women to chat and spend time together, the cookhouse was also used for the preparation of food for sale. The alap of Jonak also had a shop along the "Road to Death" at the intersection with the ocean side road. Figure 114

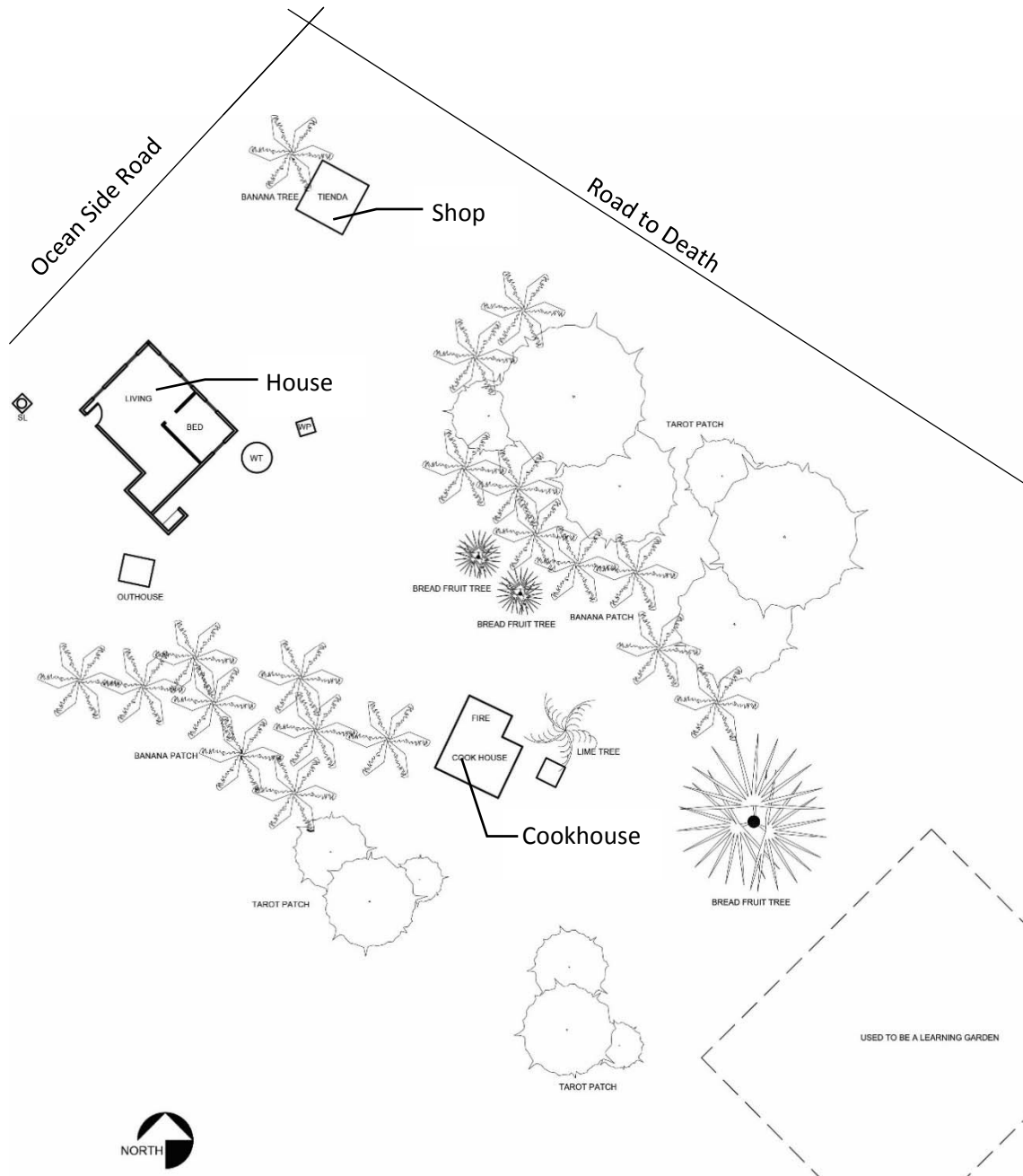


Figure 114. Site plan of the alap's property on Jonak wēto.

provides a site plan of the alap's house, cookhouse, and shop. This example demonstrates an emergent use of the cookhouse on Laura; food is prepared for sharing amongst the family and also prepared for sale.

On Laura, several individuals mentioned that the cookhouse was occasionally used for sleeping in addition to preparing food for the family. On Likin-Kunen, the cookhouse shelters the fire that food is prepared on, and it shelters sleeping family members. The councilman from Jirok mentioned that the cookhouse provides a much more comfortable atmosphere for sleep than the house. "The cookhouse is more open, and the wind comes in from different directions." In addition, he mentioned that the cookhouse provides extra space to sleep for family members when the house is full. To him, the cookhouse is not only important for the preparation of shared meals, but it is also important as an extra shelter that is often more comfortable than the air-conditioned, American style house. He goes on to discuss the finer points of spending time in the cookhouse and an affinity for its more traditional appeal. "You can wear your shoes in it. You can move around easily. However, in the room of the house, you have to take off your shoes. You have to clean your feet. ... However, when in the cookhouse you just go lay down, sleep, rest, get-up in the morning and work." The cookhouse provides many uses, central to daily life on the *wēto*.

Nearly every house on Laura that was documented had an indoor kitchen in addition to the cookhouse. As one man stated, "The house plan is not complete without the kitchen." However, these spaces were seldom used on a regular basis. Cooking outdoors continued to be a more predominant pattern of food preparation. The cookhouse also provides ample space for cooking without the added cost of a larger kitchen. It was

reiterated in Laura that the cookhouse was necessary for the preparation of Marshallese food. For example, one of the family members on Likin Atbwe *wēto* in Jeirok said, “In the cookhouse, we cook the food like breadfruit with the fire.” In addition, cooking inside the house took place on an electric or gas burner rather than the *um* or *kijeeek*.

6.4.4 Evidence from Djarrit-Uliga-Delap

All of the *wēto* s in Djarrit-Uliga-Delap that were observed had a cookhouse in one form or another. In some cases, the cookhouse was attached to the rear of the house under a shed roof, and in other cases, it was a well-constructed independent structure. The cookhouses were all constructed with imported materials, generally consisting of a corrugated metal roof and vertical slat walls consisting of dimensional lumber; components are fastened together with metal nails or screws. With the need for frequent repair or replacement, people commented that the cookhouse is often reconstructed in-situ.

Not all of the cookhouses observed were used daily but maintained an important role in preparing local foods or cooking for larger gatherings. A cookhouse is often a place that people gather around to eat during shared meals. In interviews, some stated that dinner was usually eaten outside of the cookhouse, while others bring the food from the cookhouse into the house to eat at the dining table. As one man from Djarrit stated, “The cookhouse is an important outdoor element to have.” Examples from the D-U-D demonstrate the importance of the cookhouse in daily life, drawing significance to the symbol of family unity provided by the fire.

Even in the urban center of Majuro, the cookhouse draws deep connections to family ties. In one instance, the space for mourning a family member was turned into the cookhouse after the burial. A man from the family explained:

We had a funeral at the house because my wife's grandma passed away and that is where her body was. That's where they laid the body, and the same outside patio was used for cooking. That is where they cooked and prepared the food. Now that patio is our cookhouse.

While practical, the connection between the place of mourning and the preparation of food draws importance to the central role the fire has in the *bwij*. Figure 115 demonstrates the connection of the cookhouse to the house with the fire to the side of the house. This space continues to be central to everyday life in the household.

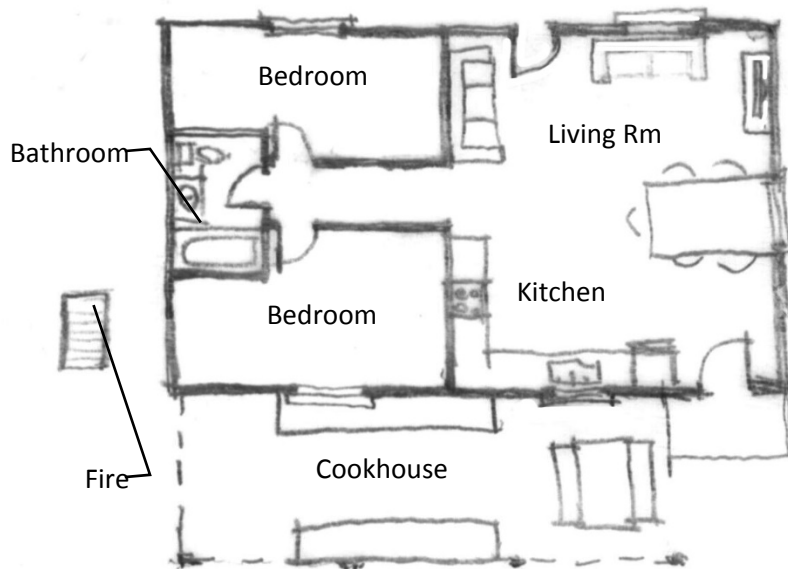


Figure 115. Floorplan of the house with the cookhouse attached to the rear exterior wall. The area was previously used for the wake of a loved one.

The cookhouse associated with the alap's house on Lejolimen represents the continuity of Juon Kijeeek in everyday life on the *wēto*, and it demonstrates the extension of food sharing to non-family members. Figure 116 provides a floor plan of the house on Lejolimen, including adjacent structures. The cookhouse protecting the fire is located along the seaway, but there is also a small rear patio adjacent the interior kitchen that is always used in tandem with the cookhouse. These spaces are used daily, and the food preparation is shared regularly. Individuals and families renting units owned by the alap are often invited to dine with the family and food is usually offered to individuals who come off of the street.

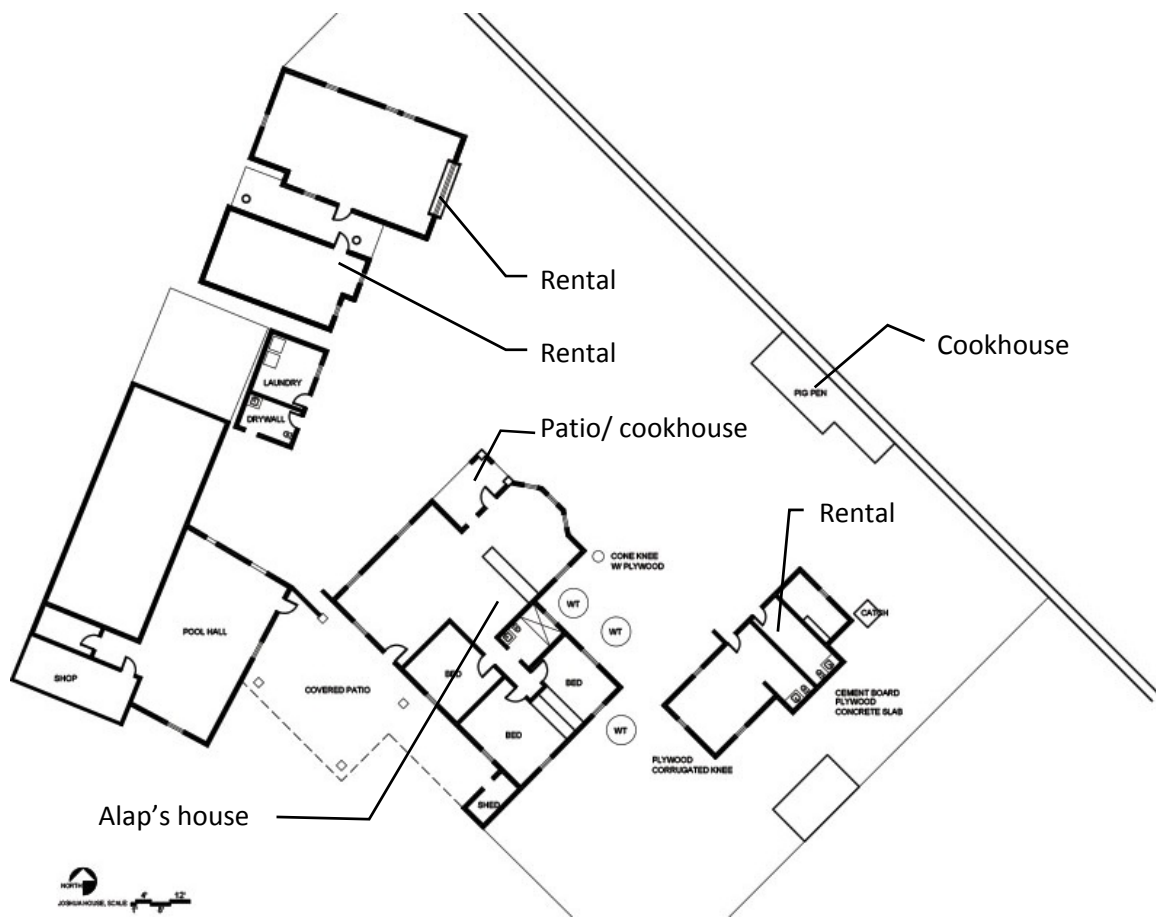


Figure 116. Lejolimen alap's house (aka Icedonia).

Beyond the physical representation of Juon Kijeek, the councilman from Teron *wēto* Djarrit stated that the fire represents the bonds of the family and a moral obligation of togetherness. Whether there is food to share or not, the family works together in a spirit of sharing. Whenever the family cooks together, they share food, going house to house with plates of food. When there is fish, the fish is shared with everyone. Within the family compound, everything is shared. Sharing creates a stronger and more unified village. Even though a cookhouse is not present on the councilman's homestead, a temporary canopy is erected to protect the fire and prepare food for family and community events. On several occasions, this was observed, and the councilman and his family prepared food for family and friends on Teron *wēto*.

While families in the urban center of the capital recognize the traditional role of the cookhouse at the center of the family as the one fire, the central role in the household has largely been replaced by the kitchen. Of households observed, the cookhouse held a more ceremonial role as it was typically used during large gatherings or other events. Figure 117 shows a cookhouse sitting idle with canopies left over from a previous family gathering. Spending time quite often at this location in Djarrit, the cookhouse was never used.

As families tend to have their own nuclear houses, the use of the cookhouse did coincide with larger family gatherings. This demonstrates that through moments of change, the fire maintains a centering element for the family in the preparation of shared food. Even in the urbanized center, some of the participants remarked that the family continues to share food from the cookhouse, placing the cookhouse at the center of their daily life. One man stated, "You work for yourself, but we share our food together."



Figure 117. Photograph of the cookhouse shared by an extended family on Djarrit.

In summary, the Juon Kijeeek remains an integral part of everyday life in the urban center of Majuro. For some families, it is essential to daily life, while for others it maintains a more symbolic representation of family unity and sharing with the broader community. The example from Lejolimien demonstrates the more inclusive nature of One Fire, One Family, drawing in foreign renters to family meals and sharing with people coming off of the street. Juon Kijeeek is a symbol of social capital in Majuro.

6.4.5 Evidence from Survey Results

The survey provides further evidence in support of the cookhouse's presence in everyday life. Sixty-four percent (64%) of respondents believe that the cookhouse is extremely important and 20% of respondents believe it is essential. None of the participants felt that the cookhouse was unimportant. Having a kitchen was also viewed as necessary, 58% believed that having a kitchen is extremely important and 28%

believed it to be essential. Three percent (3%) viewed the kitchen as not important at all. The next set of questions regarding the cookhouse demonstrated the vital role it plays in the preparation of local foods as opposed to imported foods and alludes to the cultural importance of the cookhouse.

Food preparation in the cookhouse differs from that in the indoor kitchen. Observations in Namdrik noticed that most indoor kitchens were not used as kitchens in the American sense but were typically extra storage areas. Where kitchens were used inside the house, it was typically where flatware, cups, and utensils were stored to keep them clean from dust, such as kitchenware for infants and children. These kitchens also tended to have a small one burner propane stoves and ingredients such as Crisco, flour, sugar, and instant coffee. Seventy-nine percent (79%) of survey responses verified that cooking in the cookhouse was different from that in the kitchen. Typically, what is cooked in the cookhouse is Marshallese food, prepared in the earth oven (*um*). Imported foods are cooked in the kitchen, such as rice and canned meats. Of the most common types of imported food cooked in the kitchen, *rice* appeared the most in responses (7 times), *cake* and *ramen* were next (6 times), and *pancakes* were third (4 times). The words *imported* and *western* appeared a combined 6 times, demonstrating their importance as well. There appears to be a direct relationship between the imported kitchen in housing layouts and the imported food that is prepared in it. Figure 118 visualizes the results associated with food prepared in the kitchen. In the cookhouse, predominantly local food is prepared, and the most common type of food is breadfruit (*ma kwanjin*), which appears 17 times in responses. The next most common responses were *local food* (8 times), *cooking pig* (6), *meats* (6), *rice* (6), *fish* (5), and *pandanus* (5),

6.5 *Emlapwoj*: The Family House

The Family House represents the familial, social organization as well as a method for disseminating knowledge to the young. As mentioned in the previous chapter, it is a cultural institution.

Traditionally, the multi-generational living arrangement took place within the *alap*'s house, but today it more broadly occurs

without association to the *alap* of a *wēto*. In the traditional thatch house, the grandparents and elders slept on mats spread over the coral gravel under cover of the roof and rafters while the children slept above on wood lattice over the rafters.

The Family House was found to be present on Namdrik, Laura, and the D-U-D. Although it is not directly referenced in early accounts of life on the Marshall Islands, its close association with land tenure, the *wēto*, and the cookhouse place it within the system of Marshallese family structures. Figure 119 depicts three commonly found typologies in which the pattern is manifest along with the traditional manifestation (left). All three typologies were found in Namdrik and Laura, and the first two (center left and center right) were found in all three sites. Similar to the traditional typology of the *mon kijdik*, the other manifestations share a similar depth and method of spatial separation; instead of vertical separation, horizontal separation has become the norm.

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

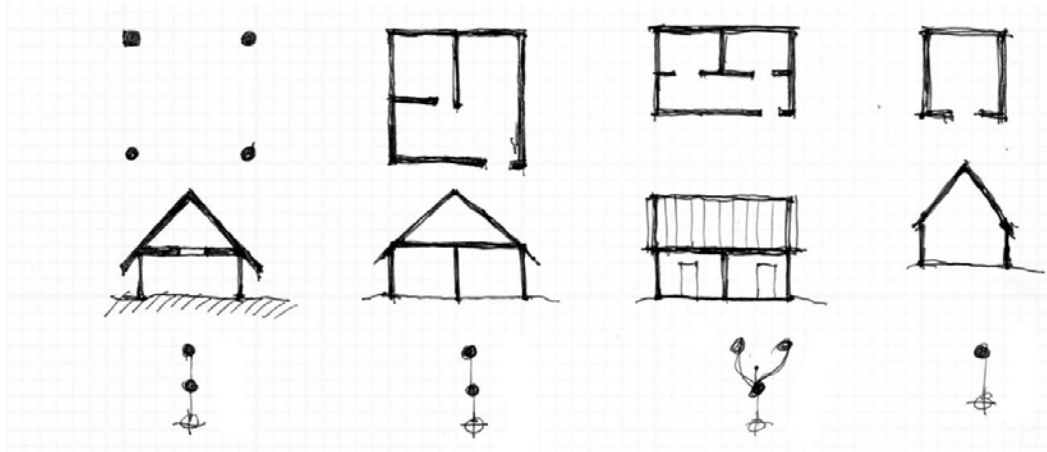


Figure 119. Diagrams of housing typologies in which the deep cultural pattern, Emlapwoj manifests. From left to right: the traditional two-story thatch house; a typical one-room house with a partitioned room; a typical two-room concrete block house; and a typical

6.5.1 Evidence From the Literature

The archaeological record refers to the coral gravel spread as the marker for inhabited sites on the *wēto*s, as discussed previously. Presumably, the family house would be manifest at these sites.

The early ethnographic accounts of the Marshall Islands (Chamisso, 1986; Erdland, 1914; Kotzebue, 1821; Kramer & Nevermann, 1938) do not speak directly to the concept of the multi-generational dwelling. Even the ethnographic accounts of Spoehr (1949), Chave (1947), Mason (1947), and Tobin (Jack A. Tobin, 1958) do not directly mention the family formation within the housing typologies. The historical context of the pattern emerged through interviews conducted on Namdrik, which are provided in the evidence. Spoehr (1949) references the house group in his explanation of the household in Laura village, typically demarcated by the cookhouse. His account takes into account the whole clustering of houses on the *wēto* but does not consider the family structure within individual dwellings. He does tangentially mention that if there is not an increase of dwellings on a *wēto*, then the dwellings are larger and more spacious, generally

alluding toward multi-generational housing. The house group is the place where the family eats and sleeps, the place women and men maintain and work, and the place that children are raised and play.

Chamisso and Kotzebue likely experienced the pattern of the Alap's house in their description of the traditional mon kijdik (rat house), which is depicted in Figure 26.

At night, I slept at Rarik's side on the platform of his large house. Men and women lay above us and below us, and often conversation alternated with sleep. (Chamisso, 1986, p. 144)

The houses of the Radakians consist merely of a roof and a kind of attic freely borne by four low posts. One can do no more than sit under it. You clamber through a square opening into the upper room where the family's small possessions are stored. You sleep on this floor or below in the open hall, and a few tent like open huts serve as detached sleeping chambers. ... A bare, coarse mat serves as bed and a log as a pillow. At first, we did not consider these houses, which we often found abandoned, to be the permanent habitations of the people. (Chamisso, 1986, p. 276)

The accounts from Namdrik are likely the first comprehensive explanation of the social structure represented by the multi-generational housing framework depicted here. Mason et al. (1967) do note the pattern of one house per *wēto*, which consisted of 10-12 persons, and that three generations were present on each *wēto*.

6.5.2 Evidence from Namdrik

Nearly everyone interviewed on Namdrik referred to the structure of the multi-generational house. It is generally agreed that it was the predominant housing pattern on Namdrik until Typhoon Alice forever changed the building typologies on the atoll. One of the greatest changes was the disappearance of the large family thatch houses. The alap from Mon-Konat *wēto* recalled:

There used to be a big hut house where all of the family members would go to eat and tell stories ... On this *wēto*, on any *wēto* here ... the alap's place would be the biggest house on the *wēto*. That is where all of the grandchildren lived with their grandparents. Whenever they want to stay with their parents, they would go to their hut house. However, back then, children went to live with their grandparents because the grandparents would tell stories. The grandparents told stories more than the parents. It is one of the only reasons that kids went to live with their grandparents, to tell Marshallese stories and gain knowledge from their elders. Back then, *wēto* s had a major building or hut house; it was the village base for everybody. Some other little buildings were around the *wēto*, but there was one major, huge hut house for everybody. There used to be multiple stories, rooms up above. The elders lived down below but made a lattice for the kids to sleep above and place a ladder for them to go up and sleep above. Elders sleep below, that's how it used to be. ... Once you get married and have a family, you go off and live on the same *wēto* but in a different house. The family would build you a house. Once you have a family, they build the house. The grandparents slept on mats strewn over the coral spread while the children slept above on the rafters.

Based on the disappearance of the large thatched family houses following the 1979 typhoon, one may assume that the replacement of the vernacular housing with introduced housing typologies, such as the post-disaster FEMA house, referred to as the ‘Typhoon Mon’, or the concrete USDA housing, would lead to the end of this pattern. However, the pattern persists. The same informant continued, “My grandchildren live with me for this very reason.” He has intentionally recreated the social framework for dispensing knowledge to children within a newly constructed house from the USDA program (Figure 120). The layout of the house, as depicted in Figure 121, resembles a typical two-bedroom house with a living room and kitchen. However, a kitchen or extension of the cookhouse has been added onto the side of the house, and a bathroom has been built as a separate outhouse. The interior kitchen is not used for cooking, the living room is primarily used for working, and the bedrooms are for sleeping. The grandparents (alap and wife) sleep in one room while the grandchildren sleep in the other bedroom and occasionally in the living room.



Figure 120. : Image of the alap's house on Mon Konat.

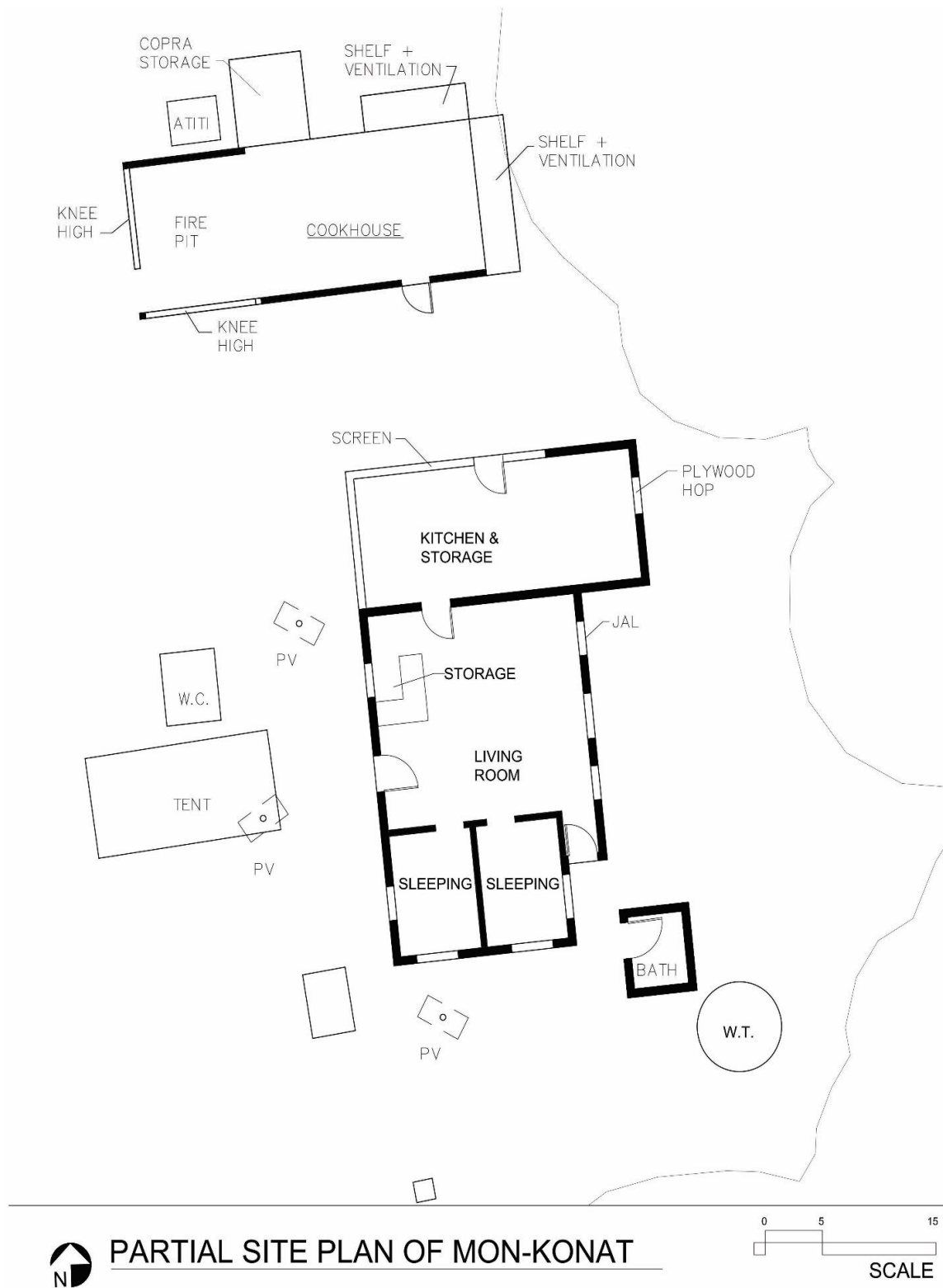


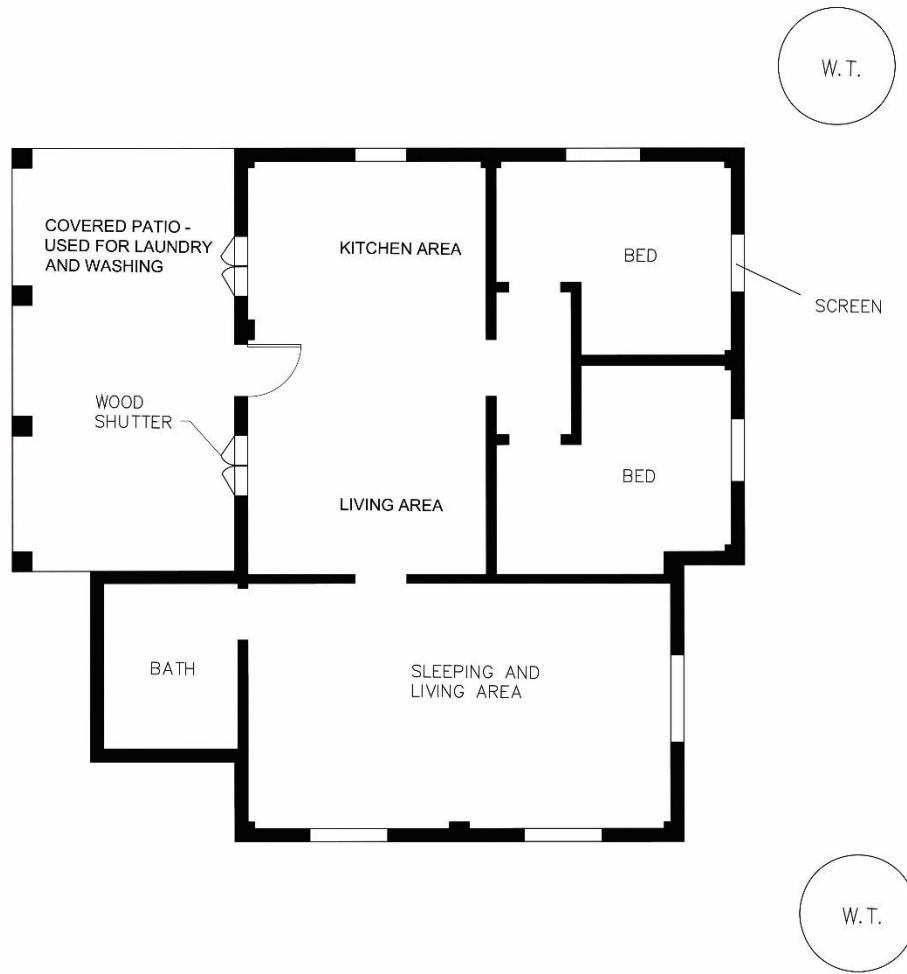
Figure 121. Floor plan of the alap's house on Mon-Konat and the adjacent cookhouse. The elders sleep in one bedroom while grandchildren sleep in both the other sleeping room and the living room.

Dinner with the family from Monwat brought to mind the accounts of Kotzebue and Chamisso when they were invited into the house of one of the chiefs. The host compared our experience coming together to dine to that which took place in the traditional family house:

It is like how it used to be in the big hut house. The whole family coming together to eat. Bubu [grandma] is sitting here weaving and telling stories. My brother-in-law and sister-in-law are here with their children, and my wife and children are all here together.

We all sat on mats laid out over the floor of the main living room eating dinner and telling stories. Within this house on Monwat lives the grandmother, the grandson and his wife, and the grandchildren. Figure 122 provides a floorplan of the house. Adjacent the house is the cookhouse as described in Figure 107. One of the women from Monwat spoke about the importance of Juon Kijeek within the Family House.

You cook everything in [the] same household, joint kitchen. Everything [is cooked] on the same fire and everything that come out of that, everybody share[s] it. Parents, son, daughter, grandson, granddaughter... [For instance] this house is for my father and my sister, and we stay in one house [because] we have only one house.



MONEIBEL USDA HOUSE - CIRCA 1967

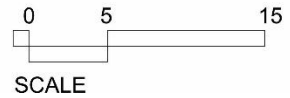


Figure 122. Floor plan of the Family House on Monwat. Three generations live under one roof.

The mayor of Namdrik established the concept of togetherness as the fundamental way of life that generates the deep cultural pattern of the family house and its sister-pattern, One Fire, One Family. He explained the importance of the two deep cultural patterns and their interrelation.

Before we had only one house. Parents, children, grandsons, granddaughters – they all lived together. We had only one; we call it fire. Fire is where you cook your food. Only one pot. One fire. You cook everything in [the] same household, joint kitchen. Everything [is cooked] on the same fire and everything that come out of that, everybody shares [s] it. Parents, son, daughter, grandson, granddaughter... [For instance] this house is for my father and my sister, and we stay in one house [because] we have only one house. You cannot build your own house or own anything by yourself.

While this pattern of housing has lost its significance on his *wēto*, the mayor takes care of his grandchildren and lives with them and his wife, demonstrating the continuity of Emlapwoj.

The introduction of western housing and ideology has seemed to lessen the significance of the family house on Namdrik more broadly. As livelihoods become less and less reliant on local resources and social capital, individuality manifests itself more readily. However, on some *wēto* s, like Monkonat, the pattern still maintains its strength as a fundamental component of the family's spatial organization on the *wēto*. Even on those *wēto* s where daughters and sons have constructed their concrete housing for their nuclear families, the intangible aspects of togetherness still draw them together with their multi-generational family and typically under one roof.

6.5.3 Evidence from Laura

The multi-generational house was present in two of the three family groups from Laura that participated in the study. In one of the examples, the structure was a typical three-generation family, with the mother living with her son, daughter-in-law, and

grandchildren. The other example in Laura demonstrated a more extended family living under one roof.

The family living along the ocean side road on Likin-Atbwe represents the multi-generational Family House. Figure 123 is a photograph of the house, which was also used about Juon Kijeek. The grandparent(s) live in one room, the parent(s) live in a separate room with their son, and the main living room is often used as necessary by the family. Figure 124 shows the floor plan of the house. In this example, one room is occupied by the mother, and the other room is occupied by her son, daughter-in-law, and grandchild. The son intends to build a house for his family eventually but is content living in the family house.



Figure 123. Image of a multi-generational house in Likin Atbwe.

The informant explained how this pattern shifted from his multi-generational family to his nuclear family. He grew up in a house with his grandparents until his parents could afford a house, which they built across the street. This is the house he now lives in with his wife, child, and his mother. His aunts and uncles still live in the house he grew up in with his extended family, but his grandparents are no longer living. Before the

whole family shared one cookhouse, but today each family has their own. He thinks the reason for this change has to do with individual family finances.

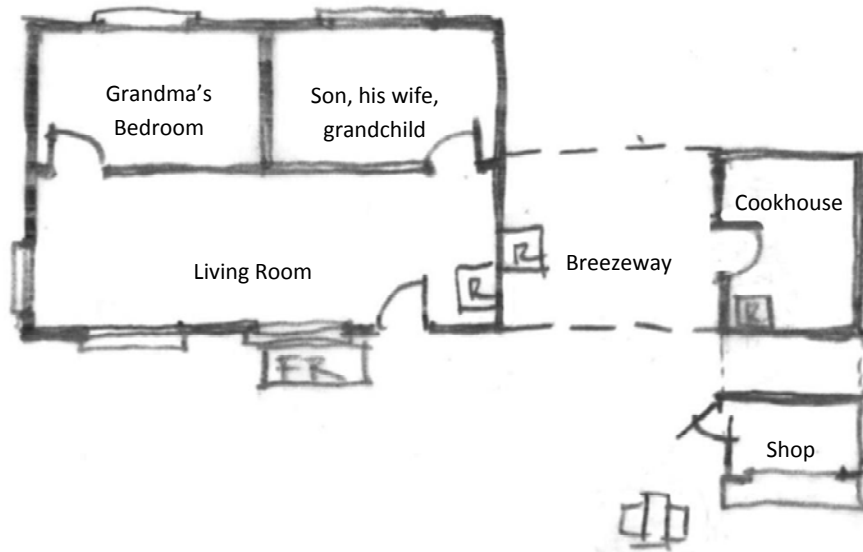


Figure 124. House plan of a three-generation family. The layout of the house consists of the main living space, two bedrooms, a breezeway, and a cookhouse.

The second example of the Emlapwoj was present on Likin Kunen *wēto*, which consists of one family with two family dwellings on the *wēto*. A councilman from this *wēto* was interviewed, but it is his wife that has the land rights. The councilman strongly believed in the importance of supporting the extended family under one roof. Ten family members live under one roof, including his wife's parents, his mother, his son, three nieces, one nephew, and his brother. In addition to the permanent inhabitants of the house, other family members come to visit and stay with the family. When the house is full, the councilman and his wife sleep in the cookhouse. The councilman remarked,

Long ago people just stayed in one house. Moreover, you will see in most of these households there is an extended family within one house. This is what we

pick up from our elders. People stay with each other. We take care of each other, to share with each other and to look after each other.

The councilman commented on the importance of sharing as part of the reason for the family to live under one roof. Sharing resources with one's family was a cultural pattern instilled in him by his father, growing up on Ebye. Today, he finds himself sharing less natural resources with family, but more often sending money to assist family members abroad in need of help to pay for bills. The councilman has noticed that more recently, the willingness to share has changed. "People are getting greedy and all, they want to move out because they do not want to share. They do not want to feed others that are not working."

The dispersion of housing on Laura, which is connected to the increased importance placed on individuality and the nuclear family, is noticeable. However, even within the dispersed housing, the persistence of the family group is noticeable, and the presence of the three-generation family house is common.

6.5.4 Djarrit-Uliga-Delap

The multi-generational family house was manifest in four of the households that participated in the study from the downtown center of Majuro. One of these households is a close representation of the traditional alap's house, which was reiterated in an anonymous survey response.

The alap's house on Lejolimen referred to as 'Icedonia' is a manifestation of Emlapwoj. The households consist of the grandparents, the grandchildren, and some of the parents. There is also often a flux of family visitors and friends present at the house.

Figure 125 provides a floor plan of the house. It is a typical three-bedroom American tract house that was built during the United States occupation as officer housing. Several buildings have been constructed since the family regained control of the *wēto*, and most of these are rentals. Today the tract house shelters the family of the alap. The bedrooms are occupied by the grandparents and the parents, while the children generally sleep in the living room area.

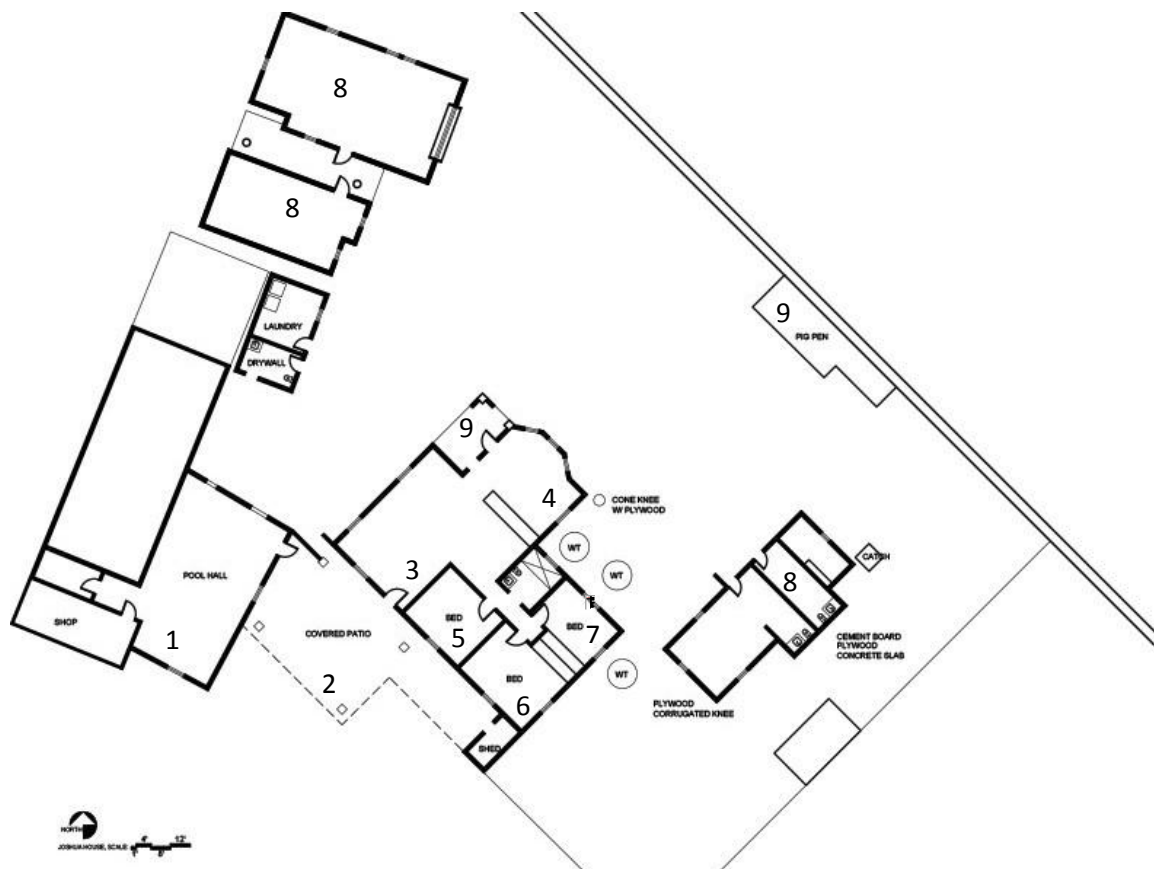


Figure 125. Floor plan of a housing compound in Uliga that is representative of the multi-generational family house. 1.) Pool hall; 2.) Covered Porch; 3.) Living room with beds; 4.) Kitchen; 5.) Bedroom for a married couple; 6.) Bedroom for single mother with kids; 7.) Bedroom for grandparents; 8.) Rental/ Guest-house; 9.) Cookhouse

The custom of togetherness and sharing has always been important to this family. “We all share the house, the one family. All my uncles and my mom’s sisters and brothers. All of this area are all families.” They live together because they are family.

In addition to the layout of the house and the spatial segmentation based on generations, the house also represents the passing down of knowledge. As apparent in the photograph from Figure 126, weaving pandanus mats is important within the household as a form of material culture. This demonstrates another form of passing on knowledge to the younger generations in the family, by introducing them to the fabrication of material culture.



Figure 126. Image of Icedonia, an Emlapwoj.

Two of the participants from Djarrit also live in multi-generational houses. Both represent the Emlapwoj. Both consist of two-bedroom houses with a kitchen, living room, and bathroom. One of the participants explained how he learned the importance of

togetherness from time spent with his family on Jaluit. On Jaluit, three families lived in one thatch house. “Everybody gets inside. They share everything they have together.” In addition to the main thatch house, there was also a smaller thatch house for visitors. His father originally built the house he currently lives in, and it also housed multiple generations of the family when it was first built just as it does now. Today the house is occupied by the man’s mother-in-law, his wife, his children, and his nephews. Figure 127 depicts the floor plan of the housing compound.



Figure 127. Site plan of homestead on Teron *wēto*, Djarrit.

The councilman and his wife stay in the bedroom on the right with their child, while his mother-in-law stays in the bedroom on the left with her grandchild. The living room is

often commonly used for sleeping. The councilman's sibling and their children occupy the smaller two-bedroom house.

The man also remarked on the passing on of knowledge to the next generation. Just as his father shared this knowledge of caring for him, the man also wants to instill the same values in his children. "The way that my dad taught me to care for everything. Things, everything [is] gone one day. The thing I want them to live, to remember, is to care for everything. That is basically what my dad wanted me to do." For him, this includes instilling the same values as his nephews, who also lives with his family.

The other participant from Rita, a woman, lives with her husband, son, and her grandchildren (Figure 128). She recalled life when she was younger, reinforcing the spatial patterns of the family that are still present in her family's housing.

Usually, we have a sleeping house and then a cookhouse... Sometimes, we all sleep in one room. The other house, we had two bedrooms and a living room. Most of the time everybody would be sleeping in the common area, and we would just put our mat out. In the morning, just fold it up and put it away... We lived with my grandmother.

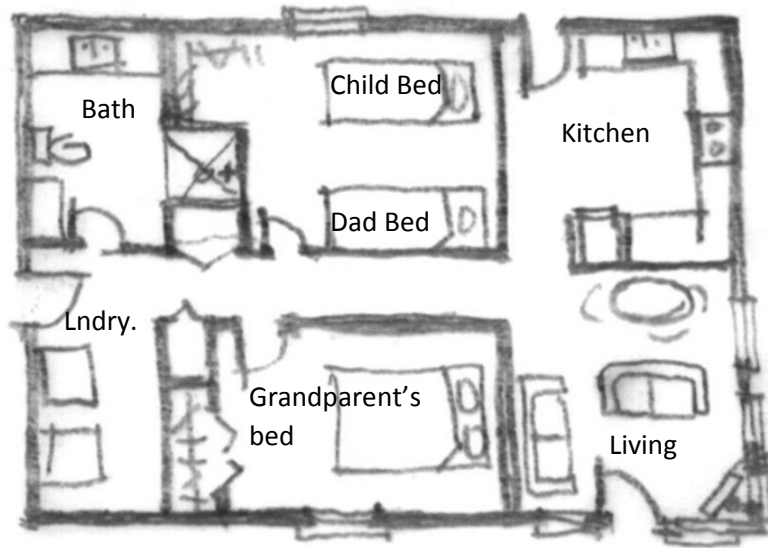


Figure 128. The layout of a three-generation house from Rita.

The woman interviewed sleeps in the grandparent's bedroom with her husband while her son and grandson share the bedroom across the hallway. Other than the multi-generational segmentation of space, the house resembles a typical two-bedroom Western-style house.

Through participation in several households across the downtown of Majuro, the multi-generational home seemed commonplace. Interviews often tied the spatial patterns of the family back to past experiences, reinforcing the continuity of the pattern. Similar to the comment under Laura, it could be argued that the pattern is one of socio-economics; however, the consistent reference between past and present within the continuum of this pattern makes it hard to discredit its relevance today as an everyday cultural pattern.

6.5.5 Evidence from the Survey Results

In the survey, participants were asked if they were familiar with the pattern of the alap's house specifically rather than the multi-generational housing arrangement as it was

the known traditional pattern. Only 35% of respondents were familiar with the pattern. Of those who were familiar with it, 50% responded that it was essential (Figure 129). When asked where the pattern still existed or why it is no longer present, three themes emerged: cultural change, cultural maintenance, and the absence of ownership. Aspects of the Family House did appear in the open answer asking participants to draw a plan of their family house.

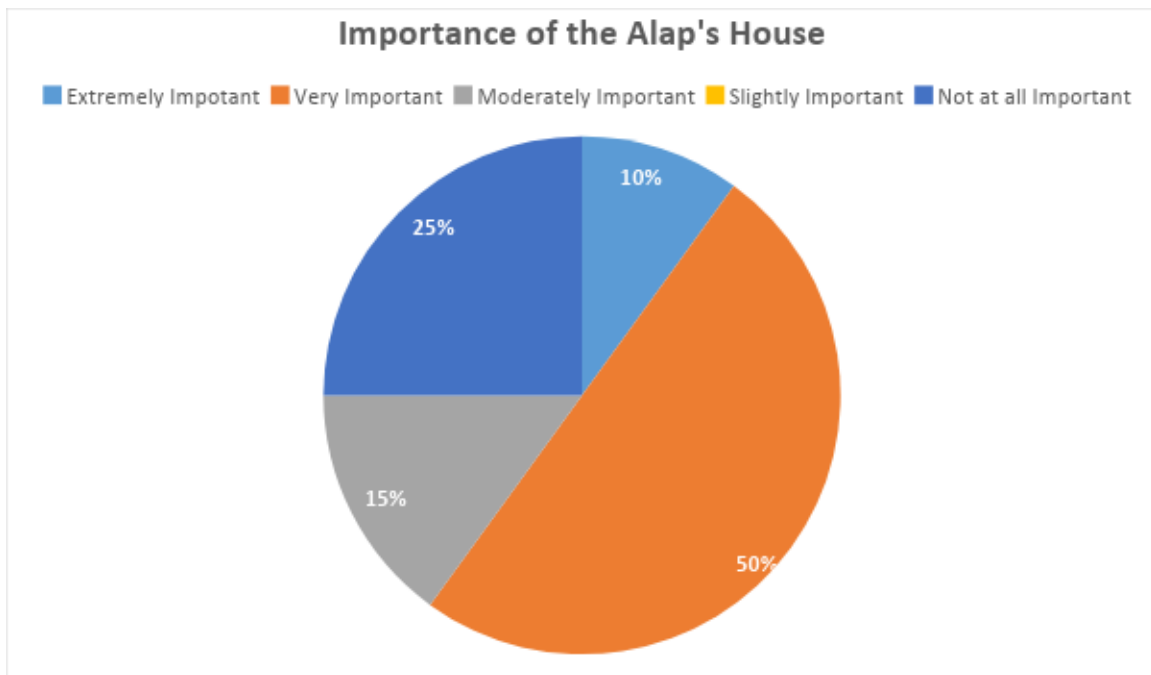


Figure 129. Pie chart showing the results from the survey on the importance of the alap's house.

A drawing exercise that was included in the survey asked participants to draw a representation of their home. This exercise brought to light the commonality of the Emlapwoj across a larger population of participants. Figure 130 shows a drawing by one of the participants. It depicts the grandma's room within their house.

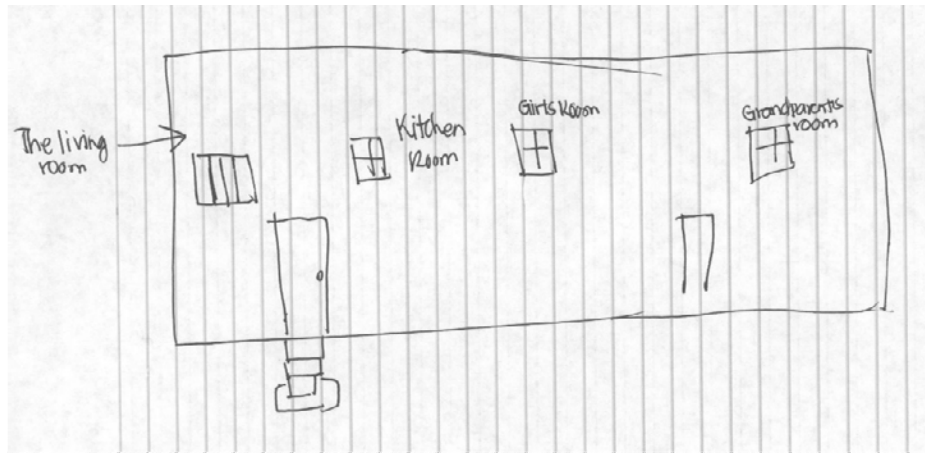


Figure 130. Participant drawing of their house, depicting the three generations under one roof. The house is occupied by 12 people consisting of the grandmother, children, and grandchildren.

Culture change was generally associated with aspects of the financial ability of others in the family to construct houses larger than that of the *alap*'s on the *wēto*. Others commented, "We live in modern times now, doing the modern life," and that the tradition of respect for the *alap* no longer exists. Another common perception of the *alap* was that they no longer cared for everybody on the *wēto* and only looked out for their financial gains. While culture change is noticeable, we should not overlook the persistence of the pattern in other forms. Even within *wēto* s where the *alap*'s house is no longer the center of attention (in size or symbol) the concept of the 'Family House' still exists. Perhaps, we are seeing an evolution of a deep cultural pattern away from one of power embedded in the *alap* and toward the more fundamental social-psychological need for kinship and social capital.

6.5.6 Summary

Observations, interviews, and survey responses demonstrated that the pattern of the *alap*'s house is still present throughout both rural and urban settings in the Marshall Islands. There are two documented *wēto* s from Namdrik that demonstrate the pattern,

one from Laura, and one from Djarrit-Uliga-Delap. Survey respondents identified that the pattern existed on outer islands, in Majuro, in Djarrit, or at their place of residence. One survey response confirmed the presence of the pattern at the documented house at Lejolimen. Of those who recognized that this pattern persisted, two felt that it was extremely important (likely participants that are the alap), ten felt that it is very important (need for allocation of resources), two responded it is moderately important, and five responded that it is not important at all.

6.6 Process-Built Housing (Mon Kijdik)

Continuing from the theme of land and the family that was presented in the previous section, the construction of dwellings and ancillary structures such as the cookhouse is considered. The vernacular architecture is driven by a sense of knowing how the built form will

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

be responsive to the environment and needs of the family. Housing and ancillary buildings in the Marshall Islands have been constructed through an iterative process that demonstrates a deep sense of knowing how built form responds to cultural, environmental, and economic constraints. This process is ever evolving in its response to the various interchanges of these three constraints with environment and culture at the core of the deep cultural pattern. It is present in all forms of the built-environment. The process manifests in many ways, ranging from a weather-hood vent in lieu of an eastern window to the smooth posts of a Mon Kijdik designed to keep the rats out. As another example, renewable resources are used in the construction of the thatch roof while more durable resources are used for the structure of the house.

Evidence in support of Process-built housing is presented from the literature, the three sites, and the survey. The evidence relates to the three themes that support the iterative response represented in built form. To begin, the basic unit of the house is presented.

6.6.1 Evidence from the Literature

The literature from early western explorers of Micronesia provide the first written accounts on the architecture of the Marshall Islands. The following quotation from the journal of Otto Von Kotzebue (1821) provides descriptions of the house design and settlement pattern; he notes the ingenuity of the design to keep the inhabitants and goods safe from the rats.

In the middle of the island stood a house, which entirely resembled that on Goat Island, except that it was considerably larger: it had the form of a Chinese temple; a square roof, very neatly made of rushes, pointed at the top, rested on four pillars, five feet above the ground, which protected it against the scorching rays of the sun, and the wind blew cool between the posts: the floor was paved with coral stones. The interior, from the top of the roof down to the posts, was divided by handsomely worked lattice, in the middle of which there was a square opening, large enough conveniently to admit a man [see Figure 6.88]. The rats have certainly given the Islanders the idea of building their huts on posts, for I observed that they had their storeroom in the inside of the lattice, to which the rats could not get up the smooth pillars. Their sleeping houses are built on the ground, and consist of a roof, with two entrances. The habitations for the day are so large that from twenty to thirty people have room in them. The house which we visited was filled with utensils of all kinds; fishing-nets, fish-hooks, lines, vessels of cocoa shells, and the like, lay all in confusion. Its situation made it a pleasant retreat, as it stood in the middle of a small grass-plot, surrounded and shaded by bread-fruit trees, which stood so close together that there was no approach to the house but by a narrow footpath” (p. 44–45).

The rat house, Mon Kijdik, is often what the traditional thatch houses of the RMI are referred to (Figure 131). Erdland (1914) and Kramer and Nevermann (1938) also documented similar houses and noted renewable resources used for the roof thatch and ironwood being used for the post-and-beam construction. Most recently, the traditional Mon-Kijdik was documented on Lae atoll by Carol Curtis during the 1970s (Correspondence with Carol, 2016). In addition to the mon kijdik, Kotzebue also refers to the sleeping houses that are built on the ground (similar to Figure 133) and the number of

inhabitants within a mon kijdik. Likely, the mon kijdik is the Emlapwoj, and the sleeping houses are designated for married couples.

In addition to the general structure of the Mon Kijdik, Kramer and Nevermann provide detailed notes of its construction. Notably, the roofing consisted of tile-like roof mats lashed onto the rafters with the aid of needles and packthread. Women would weave the pandanus mats, and the men would lash them to the roof purlins. The thatch roof was replaced about every two years. The authors also distinguish the beams, *moe*, and *moerik*, in which the hatch is located (Krämer & Nevermann, 1938, pp. 231–237); these beams are symbolically important for gender separation. Krämer and Nevermann (1938) also discuss the presence of alternate housing typologies (Figure 132 and Figure 133); one consists of the roof framework of the mon kijdik located directly on the ground (a second variation of which has a curved projecting structure at the gable end), and another consists of a rectangular house with walls that are lashed together and covered with roofing mats.

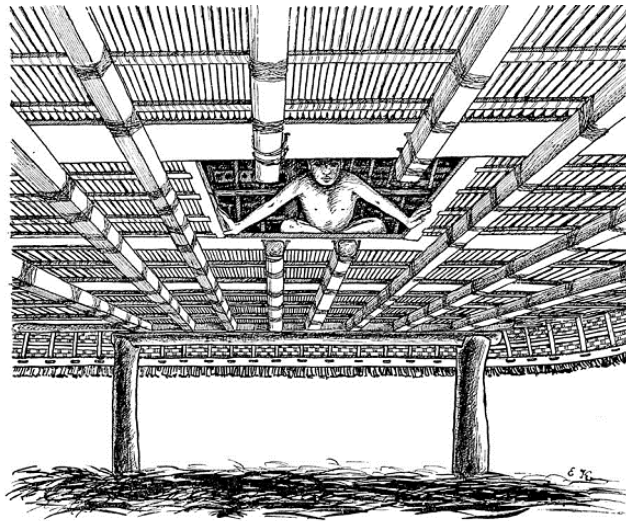


Figure 131. The loft of a house. After a sketch by Elizabeth Kramer- Bannow (Kramer & Nevermann, 1938, p. 234) (Ralik and Ratak p. 53).

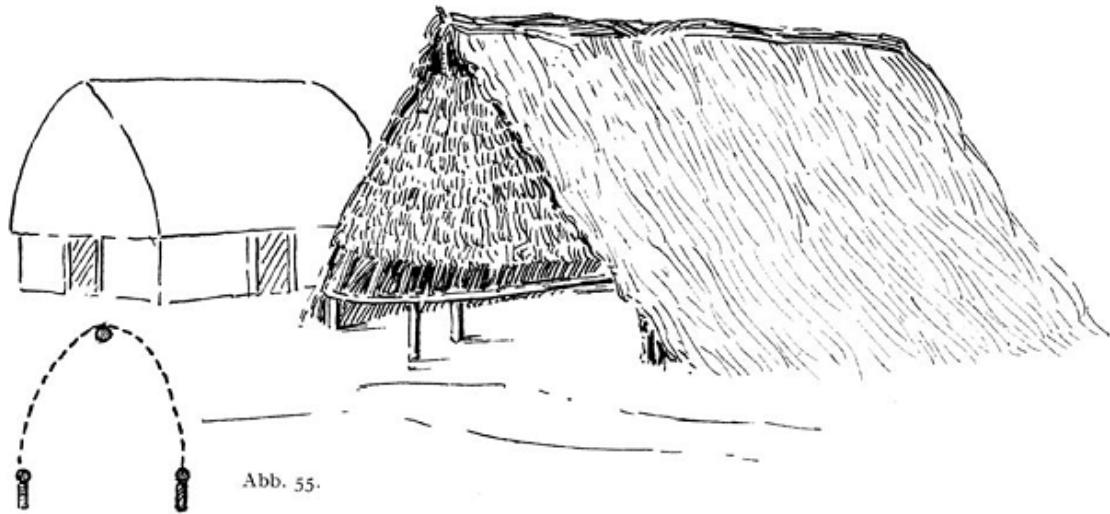


Figure 132. Houses on Majuro in various styles of construction. After a sketch by Paul Hambruch (Kramer & Nevermann, 1938, p. 235).

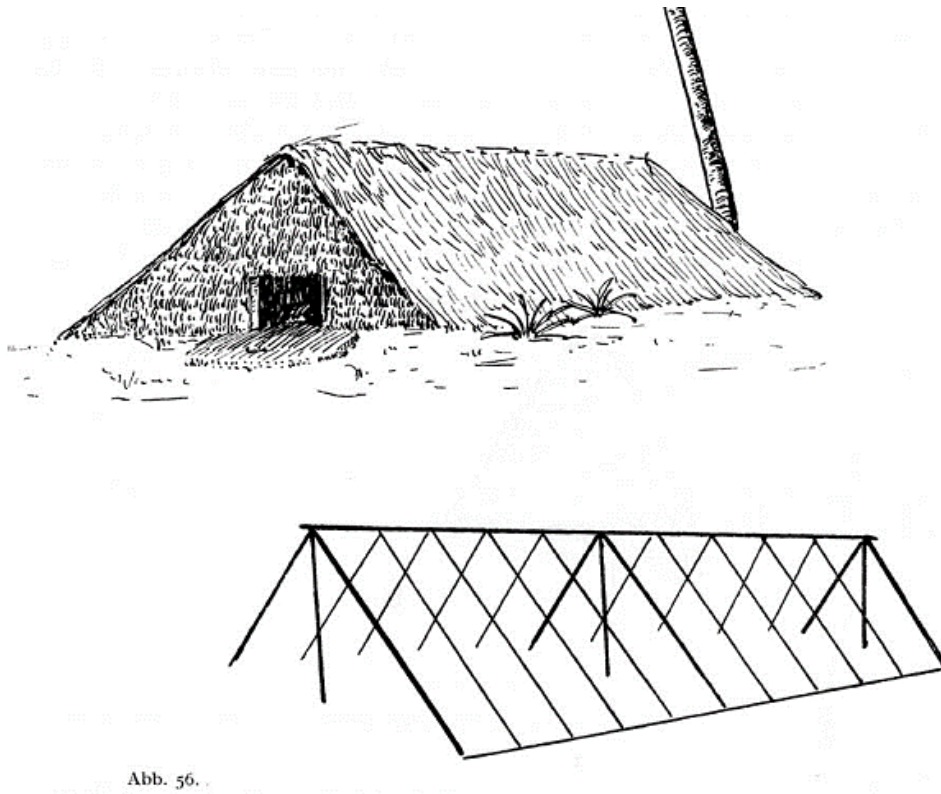


Figure 133. Majuro House. After a sketch by Paul Hambruch. (Kramer & Nevermann, 1938, p. 236).

In these housing typologies, most people sleep on mats that are unrolled at night and rolled up and put away during the day. This was documented by Kotzebue, Erdland, Kramer and Nevermann, and Spoehr.

Based on the literature, these were the three most common houses constructed in the Marshall Islands; however, the evidence is not available to distinguish housing types across different atolls or across the Ralik and Ratak chains. When individual sleeping houses are referred to, they are generally in the style of the Majuro House or the roof on rectangular walls. The design and construction of the traditional houses of the Marshall Islands demonstrate architecture of the earth. Spoehr (1949) also noticed the presence of these housing forms on Laura. These are typologies that demonstrate an economy of resources, support of cultural practice, and environmental response.

Cultural Responsiveness

A few key themes appeared in the literature that connected Process-Based Housing to the cultural response of built form. These are the segmentation of space based on gender norms, cultural taboos, and symbolism. These are presented in order.

While Emlapwoj speaks to the separation of space vertically in the traditional Mon Kijdik, Krämer and Nevermann present another spatial arrangement within the attic space of the thatched house. The loft (see Figure 134 for diagram) of the Mon Kijdik is divided into three parts based on the position of the central hatch to the main longitudinal eave beams (*kaelep*), and two centered longitudinal beams that support the hatch (*moe* and *moerik*). Between the *moe* and *kaelep* beams are the sleeping area of the head of the family, children between the beams *moe* and *moerik*, and the women between the *moerik* and *kaelep* (Krämer and Nevermann 1938).

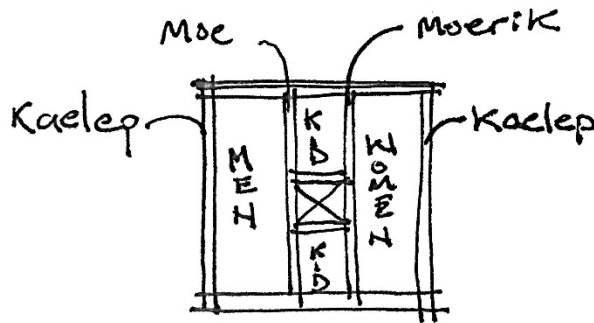


Figure 134. Diagrammatic framing plan of the mon kijdik loft, labeled.

Aside from sleeping, the loft is also intended for storage of sleeping mats, spear weapons, and fishing tackle. In addition to the separation of space in the loft (or attic space), Spoehr (1949)

documented that the lower, ground floor, space was spread with mats and used as a workspace by women or as a sleeping quarters. The mats inside the house were differentiated by the design of patterns; there were mats for sleeping, decoration, wall coverings, etc. While the spatial layout of the family inside the house was determined by customs, customs also determined access to the house.

The ordinal direction, East, is an important direction in Marshallese culture. The east is where the sun comes from. A taboo practice that reinforces housing arrangements and interior design is *Kwon jittak lok* (sleeping facing east) which draws importance to *lolon* (the place where your head rests). Related to this socio-spatial pattern, the rear side of the thatched house should not be entered or crossed because this is the place that the headrests. This taboo is closely practiced in the case of the chief's house.

Furthermore, Erdland discusses that the first concern of finding a good sleeping place is considering the prevailing wind. Because the prevailing winds come from the north-northeast, the best place for sleeping is on the east side. The chiefs codified this rule by claiming that the family spirits dwelled on the eastern side of the dwelling. Traditionally, the chief's house was distinguished by the quality of construction and its size. The site that a chief's house was built upon could not be used by future generations.

One other cultural custom that constrains the built environment is the property boundary (*kakolle*). Kotzebue (1821, p. 72) documented the use of symbolic features to mark property boundaries. For example, a specific type of knot of pandanus leaves was used to signify one particular family. This was also referred to earlier as a form of identity attached to Land as identity. The design of the house, the *wēto*, and ancillary buildings intertwine these cultural customs, integrating the built form with the symbolic representation.

Environmental Responsiveness

The environmental response of the traditional built environment is also evident in the design of housing, and this response appears to evolve through history. Environmental responses included the use of renewable resources, the storage of potable water, and climatic response. Historical accounts discuss the addition of screens to protect the windward side of the *mon kijdik*, the collection of rainwater for drinking, and renewable resources used in the construction of the roofing.

Erdland (1914) documented the use of split pandanus roots, roof mats, and *lo* (hibiscus stalks) used as a screen along the northeastern side of houses on Majuro. The sides of the house were originally open, but these screens protected the occupants from the harsh winds and rains. Similarly, flaps were added to the gable end of the *mon kijdik*'s attic space to provide additional ventilation. These adaptations in response to the climate have taken different shapes over time. Spoehr (1949) documented similar features on Majuro in the 1940s as houses began to demonstrate more influence of Japanese and American housing typologies (figure 135).



Figure 135. Photography by Spoehr of an old-style thatch house on Majuro (Spoehr, 1949, p. 105).

The design of the thatched house provided a cool and comfortable interior in a hot and humid climate. However, as corrugated roofing began to replace the thatch roof, the interior environment became uncomfortable.

Another response to the environment was the use of the available resource for collecting and storing rainwater. Harvesting rainwater has been essential to life on the atolls. Kramer and Nevermann (1938) documented that rainwater was collected on trees and pandanus leaf roofs with gutters made of palm stalks and in holes carved in the trunks and stumps of coconut palms for that purpose. Seashells, the bract of the coconut palm, or coconut shells were used for drinking and storing potable water.

Lastly, the use of renewable resources was necessary given the limited resources available on the islands. Traditionally, this was evident in the hardwood used in the

construction of the building framework and the pandanus and coconut frond thatching used for the roofing. Historically, this pattern of reuse continued; however naturally occurring renewable resources began to be replaced by recycled, imported goods. Spoehr (1949) noted the use of salvaged United States Navy lumber in the construction of housing on Laura and the use of salvaged canvases for walls and roofs. The design of structures continues to respond to the environment through the use of screens, the recycling of materials, and the integration of rainwater harvesting into the house.

Economic Responsiveness

The traditional housing of the Marshall Islands used resources efficiently in the construction of the house, demonstrating the economy of the design. More elaborate homes were generally those of the chiefs and nobility (Erdland, 1914; Kramer & Nevermann, 1938). As the typologies of the traditional dwellings were influenced by Western and Eastern forms, synchronism began. The replacement of natural features for imported features was based on the economy of the design. For example, a corrugated metal roof required less time and labor to maintain, allowing the owner more time to harvest copra. Economic responsiveness is evident in the efficient use of resources, time and labor in the design and construction of built form.

6.6.2 Evidence from Namdrik

The design and construction of housing on Namdrik demonstrated a close continuity of Process built Housing. The use of renewable resources, attentiveness to climatic conditions, harvesting of rainwater, and response to cultural customs were evident. The following provides evidence in support of the pattern as well as contrary evidence to provide insight into the evolution of housing on Namdrik.

Cultural Responsiveness

The interviews with residents of Namdrik uncovered various cultural customs that have influenced the design of housing over time. While these were often discussed in past tense, some continue to be relevant today. Additionally, change is considered in relation to housing stock; the change of use, and consideration of constraints in light of climate change.

Traditionally physical barriers, such as walls and doors, were not required because cultural taboo practices ensured the privacy of the dwellings. Access to the *wētos* is conducted through a main path or road along the lagoon side. This is a public path that allows travel throughout the islet. Historically, one would have to be granted permission to leave the path and approach a dwelling or other resources on the land, but today access is generally unrestricted. Transect paths across the *wētos* are also common on every *wēto*, allowing for access to resources and housing across the *wēto*. A man from Namdrik recollected, “We walk on the road only. You cannot walk behind houses... They always told us: ‘Don’t go near the house.’” While these traditional rules of access are no longer practiced or taught, it is generally agreed upon that it is disrespectful to cross one’s *wēto*. For example, when going fishing out along the reef between Namdrik and Madmad, you cannot walk through the *wēto* at the end of the islet. Rather, one walks from their own *wēto* s along the shoreline or takes a canoe from their *wēto* out along the lagoon. Elders acknowledged that privacy remains important, but now that solid walls and doors have replaced the *mon kijdik*, people are less worried about strangers approaching their house. One man discussed the matter, “Maybe they had these rules because it was easy to break in the house. Nowadays, the rules are not as important. Solid walls exist now... [You]

feel more secure inside a cement house.” Customary barriers to access have lost their importance today, but privacy remains important.

A unique shift in the housing of Namdrik took place following Typhoon Alice in 1979. Nearly the entire housing stock of the atoll was decimated by the typhoon, and rather than rebuilding with traditional thatch houses as the residents had done following Typhoon Ophelia in 1958, the houses were replaced by the ‘typhoon mon.’ The typhoon mon was a house designed by FEMA as a typhoon-proof transitional dwelling; it was originally introduced to Saipan and then imported to Namdrik. The replacement of the local housing with these plywood structures shifted the perceptions of the residents. One of the elders on Namdrik recalled the post-disaster reconstruction in 1980:

They thought the plywood houses were better than hut houses. Better materials that do not require frequent repair. ... Nowadays people think that plywood houses are better than hut houses. ... Now, these hut houses are used for storage.

These houses replaced the mon kijdik that were present on the island and only provided one large room for the family. Over time, residents, adapted these single room structures to create separations – between generations, genders, or other uses. Figure 136 provides an example of one of the typhoon mon. Note a cookhouse is attached to the front of the house and the door is decorated.



Figure 136. Photograph of a Typhoon Mon on Monak *wēto*, Namdrik. Note the cookhouse is attached to the front entry gable. Also, note the battered walls.

Lastly, the height of the house was traditionally restricted by the height of the chief (or the height of the chief's house). This was a common topic of conversation when discussing sea level rise and inundation events. While a chief is not generally recognized on Namdrik, several of the residents suggested this constraint still exists. This constraint brings to question the issue of raising a house above ground to raise it above sea swells during inundation events.

Environmental Responsiveness

The environmental response is apparent throughout the structures on Namdrik. Cookhouses are light and airy, providing necessary ventilation for the fires and a comfortable atmosphere for the women and men preparing food over the fire, and houses

demonstrate adaptive features that respond to the climate. The sun, wind, and rain are addressed in various forms.

Siting the house in a location that takes advantage of the prevailing winds for ventilation has been an essential component to housing on Namdrik. Even with the construction of typhoon mon, they were generally built in-situ of existing foundations of previous thatch housing. Generally, the houses are sited along the lagoon to take advantage of the north-northeasterly prevailing wind; however, with the increase of recent king tides (cyclical inundation events) siting based on wind access causes other problems. One of the men from Mojero *wēto* talked about the issues his house had during the flooding of the area in 2014.

My older brother liked the windy place because it was cooler. We didn't expect sea levels to rise. ... We didn't know about global warming, so we didn't care; we just wanted the wind to cool the place. ... We never knew at the time, but now, wow!

Their house was situated at a low elevation and flooded. Before the main concern was for a cool and windy location, today the elevation of the land becomes equally important. Others on Namdrik have begun to respond to these issues by building up berms along the shoreline and planting coconut trees and pandanus trees as barriers. Figure 137 provides an example of this strategy on Wijlang *wēto*. A series of pandanus trees were planted on a berm to reduce the impact of flooding on the house.

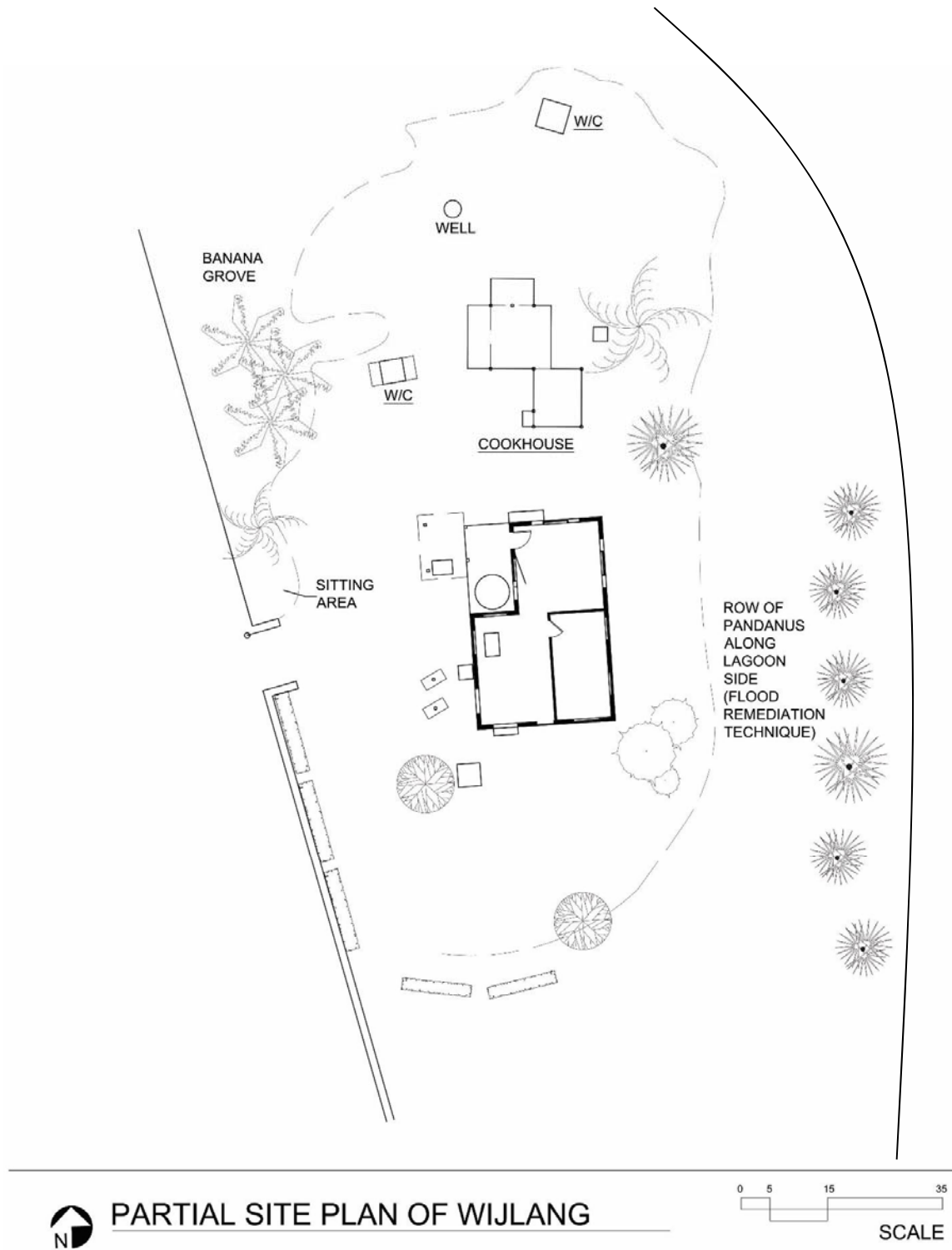


Figure 137. Site plan of Wijlang *wēto* demonstrating the use of pandanus trees to create a berm and barrier that protects from flooding.

In addition to siting the house, several design details are used to adapt imported housing typologies to the harsh weather. For example, the USDA-funded houses were not

designed for the climate on Namdrik. Their exposed openings on the windward side of the house became a problem over time due to the harsh winds and rain. Responses included placing heavy coral slabs or logs on top of roofs to hold the corrugated sheathing down during heavy winds, placing weather hoods over openings on the windward side of the house, and raising the house above sea level. Figure 138 provides a common detail found along the windward side of many houses on Namdrik. An existing window is in-filled with a simple weather hood constructed of corrugated metal or plywood attached to a wood frame. This design provides ventilation to the house while protecting the opening from driving rain and wind that could flood the floor. In many cases, these are installed to replace windows that have been damaged.



Figure 138. Photograph of a weather hood vent constructed in place of a window on the lagoon side of a house on Moneibel *wēto*, Namdrik.

Lastly, the importance of local or Indigenous Knowledge is important in the implementation of environmental responses. The height of a house is a cultural constraint, but raising the house above sea level may be seen as an environmental response. However, raising the house is not necessarily beneficial. When discussing the recent king tide that flooded parts of Namdrik, a man provided an argument against raising the house: “If you raise the house and the water comes in, everything will die. Your house is up, but what are you going to do?” His points resonated well with locals. Spending the time and energy into raising a house is only a temporary solution and not an effective one. The Indigenous Knowledge takes into account sustainability at its root.

Ingenuity is apparent in the adaptive design responses to the environmental constraints of Namdrik. Building adaptations, landscaping, and proper siting are evident in the vernacular housing and also rain harvesting. The importance of Indigenous Knowledge is demonstrated in the ways inhabitants respond to the place in built form.

Economic Responsiveness

The economy of design and construction was evident throughout housing on Namdrik. The need to maintain natural resources plays an important role in the design and construction of housing, and resourcefulness assists in the efficient construction of affordable housing. Two primary examples of economic responsiveness were observed on Namdrik. The first is the use of recycled materials in the construction of sleeping houses and the second is the management of hardwood resources.

Several examples of self-built, single-room sleeping houses exist on Namdrik, three of which are constructed of thatch and local woods. The others are constructed from a mixture of local resources and recycled materials from other houses. Both of these

material types provide economically accessible housing. In addition, these sleeping units tend to be constructed by the occupant and their extended family. Figures 139 and 140 provide examples of two common forms of this housing typology. This typology also demonstrates a continuation in the use of the ‘Majuro House,’ or old style sleeping house.



Figure 139. Photograph of a house constructed from recycled corrugated metal and plywood. The framing is a mix of dimensional lumber and local wood.



Figure 140. Photograph of a thatch house. The house has a mixture of materials used in its construction including traditional thatch, plywood, and canvas.

The residents of Namdrik are conscious of the local hardwoods used in the construction of housing and ancillary buildings such as the cookhouse. For example, the mangrove forests on Namdrik are designated Ramsar sites by the United Nations Development Program. The reason behind the conservation of these hardwood trees is due to their ability to mitigate the impact of sea inundation and tropical storms. The mayor of Namdrik remarked on the use of local wood in the construction of housing: “You cannot just cut it down. For the house, you have to manage how you collect wood and take only what you need.” With the protection of many of the hardwood species on the atoll, coconut lumber is becoming a new viable resource for construction. Resource conservation has two sides, one protects long-term sustainability, and the other side considers the sustainability in the local production of housing. It is clear that economy is important to the function of architectural responses on Namdrik.

6.6.3 Evidence from Laura

“We build, break, build, break.”

The iterative process at the core of Process Built Housing is evident on Laura. A man made the statement above in response to the design of his current cookhouse. He was making constant readjustments in order to ensure he had space for his garden and to appease the alap.

Cultural Responsiveness

On Laura, the cultural responsiveness of design is often discussed in terms of change and influence. All of the housing observed on Laura was either imported or heavily influenced by imported styles. The American housing typologies have been adapted to support the Marshallese culture. As expressed in Emlapwoj, the traditional

model of the family house adapts to the Western-style home, and in some cases, partitions are created in order to create spatial separation.

In addition to the spatial adaptation of the house, some are concerned about the cultural role in building the house. An elder from Laura spoke about the change in housing that took place primarily under the United States occupation. He discussed how the Indigenous Knowledge in the design and construction of the house is being lost.

Building a traditional thatch house used to be a common thing. Now you have to look for an elder to replicate the design. People don't know how to build a thatch house. Instead, people use nails with thatches.

The traditional methods are being replaced by new technologies. A woman from Laura questioned, "How do we get back to the way life was?" Both this woman and the elder speak to the issue of detachment from the environment and detachment from cultural tradition. They both argue that life is not sustainable as cultural practices are lost. Heavily influenced by European traders, Japanese, and Americans, Laura has had imported forms of architecture influence the vernacular. Even in these mostly imported styles and materials, cultural patterns tend to prevail in the adaptation of space and reinterpretation of meaning.

Environmental Responsiveness

The thoughtful response to the environment is evident in Laura; however, many residents speak to the disconnection that modern amenities, such as air conditioning, have created. Two primary environmental responses were documented: the creation of natural seawalls and the siting of housing based on resources. In addition to these considerations, rainwater harvesting is another essential aspect of housing.

With imported housing typologies comes imported mechanical systems. The passive ventilation strategies that were core to the traditional thatch house have been replaced by the air conditioning unit. Figure 141 shows an air-conditioned house on Laura. One of the councilmen from Laura often commented on the difference between sleeping with the air conditioner running and sleeping in the ventilated cookhouse. “I really don’t like to stay in air conditioning. ... In the wind, I really like it. ... I don’t know why we need all of these fancy things. The only thing we need is sleep. But when in the cookhouse, you just lay down and fall asleep.” The cookhouse resembles the traditional function for environmental controls that the *mon kijdik* had, but the imported housing typologies and materials are not suited for the environment. Rather than use air conditioning, it becomes more intuitive to reconnect with the natural environment and take advantage of the breeze.



Figure 141. Photograph of concrete blockhouse with air conditioning. The house was not designed with the climate in mind.

Similar to the juxtaposition of mechanical means to cool the house versus passive strategies, families are grappling with their approach to mitigating the amount of damage created by inundation events. Concrete sea walls are common in the urban center of

Majuro, but on Laura, the construction of berms was common. These were often created with built-up land, rocks, and trees. The example in Figure 142 depicts a berm created from coconut trees and rocks. An entire forested area was cut down in order to construct the berm.

Lastly, siting the house remains important to resource conservation on Laura. As discussed to an extent in *Land as Wealth*, the production of the land is of value on Laura. A man from Likin Atbwe *Wēto* discussed the process of working with the alap and his knowledge of the land in order to best situate his house in order that it does not negatively impact resource production. He recalled, “I tried to ask him if I could build a house, and then he told me he's going to have his garden set up here. So those kind[s] of things can stop you from building.” In this case, the response to the environment is also a response to cultural constraints.



Figure 142. Photograph of a large berm created in Laura using coconut trees and rocks.

Economic Responsiveness

Resourcefulness is evident in the construction of housing on Laura. Ancillary buildings continue to be constructed of recycled materials, and most houses demonstrate the efficient use of imported materials to minimize cost. Figure 143 depicts a shop and cookhouse built on Likin Kunu. These structures were built from a combination of recycled materials from housing construction and local ironwood. For example, slats from a shipping pallet create a vented wall bump-out on the cookhouse and purlins are made from local ironwood.

While modern construction methods are not directly linked to traditional methods, the process of approaching the design and construction remains similar. Kunit, or working together is the traditional communal building process. Secondly, hybrid solutions tend to be created that reflect traditional construction. For example, Figure 144 depicts two foundation details. The first provides the traditional method in which coral slabs were buried, and the posts were placed directly on top of them, then the coral spread was laid out, and the house framing would follow. In the construction of a typical concrete slab house, the detail is similar. Concrete strip footings are poured, concrete masonry unit stem walls are constructed, and coral gravel is filled into the area between the stem walls and the footings. Finally a slab is poured on-top of the gravel fill. Both details are functional and efficient, demonstrating an understanding of the local environment, building knowledge, and economy. Granted, the concrete slab performs differently than the coral spread with regard to permeability, but both provide clean surfaces for sleeping.



Figure 143. Photograph of a shop and cookhouse. Both are constructed from recycled material.

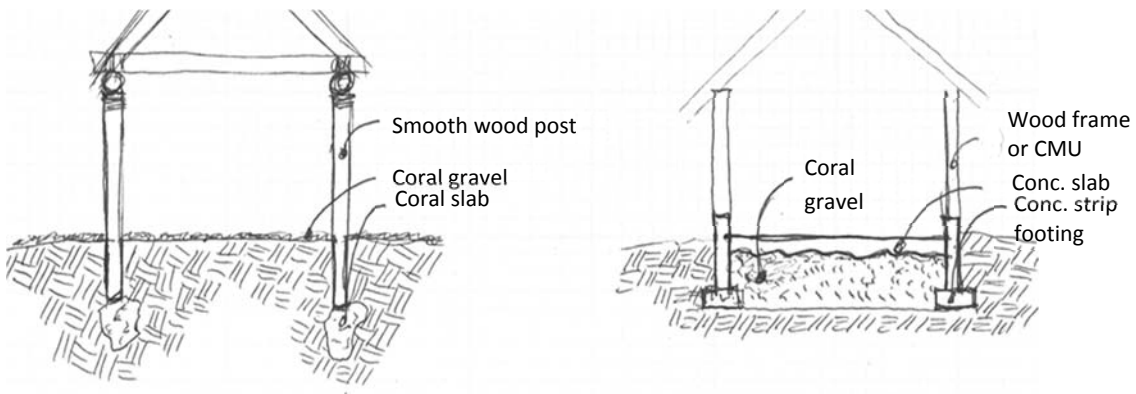


Figure 144: Comparison of foundation details between traditional mon kijdik and typical modern house with a concrete slab.

6.6.4 Evidence from Djarrit-Uliga-Delap

Similar to Laura, the introduction of imported housing and building styles has affected the responsiveness of Process Built Housing in the D-U-D. Adaptation to Western housing styles to support the Marshallese way of life is common, and the environmental response tends to demonstrate differences between local and imported knowledge. The evidence from the D-U-D does demonstrate the importance of the

iterative approach taken in housing construction, adaptation, and repair over time. Within this iterative process, local knowledge reappears in the creation of built form in the urban center. An alap from Uliga reiterated the iterative process in housing construction on his *wēto*, “Here, I look at this place and think maybe I can build here, it's OK. First, I make the wall, then I make a room, and at last, I make a rental. Like that. I plan like that.” Over several years, he built multiple rental units on his property.

Cultural Responsiveness

The influence of the American-style house on Marshallese culture was a common theme in the interviews from the D-U-D. Between adaptation and Western influence, a clash is apparent between Marshallese culture and the American housing influence. In Uliga, which is also referred to as Americatown, adaptation is apparent as the American tract housing is adapted in order to support the Marshallese way of life. On Djarrit, the influence of the Western kitchen was noted, and the desire for privacy was apparent.

As discussed earlier, Uliga was reclaimed by the rightful landowners as the Trust Territory ceased. As families moved back onto their *wētos*, they moved into the American tract houses that were used for the Navy officers. Over the past few decades, these houses have been adapted to meet the needs of the owners and more buildings have been constructed. A man from Lejolimen remarked, “Families just want to make extra houses for their relatives or their wife’s family,” in a discussion about the newer housing development on the *wēto*. Under Emlapwoj, the spatial adaptation to the housing stock was discussed as the family house structure adapted to the tract house. In addition to this general reorganization of use, porches, cookhouses, and other ancillary buildings were added onto or adjacent to the original tract house. Porches were one particular feature that

was important to have for several of the families interviewed. As Uliga has developed over the years, a new neighborhood identity has formed around the hybrid environment of Marshallese and American housing created through the gradual process of adaptation.

While Uliga demonstrated adaptation, Djarrit revealed more conflict between culture change and cultural continuity in light of Western architectural influence. This is apparent in the change of spatial arrangement in housing and through the introduction of the kitchen. A woman from Djarrit described the change in the spatial organization of the house from her childhood memory to the present. During her childhood, she recalled: “The house we lived in had two rooms. Most of the time everybody would sleep in the common area, and we would just put our mat out at night, and in the morning just fold it up and put it away.” Her current house was built in place of her childhood home. It is a two-bedroom house in which she and her husband occupy one room, and her son and grandson occupy the other. In comparing the two living arrangements, she remarked that privacy has become more important. Another person from Djarrit reinforced this notion: “My room is my favorite space because no one can bother me. ... I’m not joking about my room ... you want privacy.” As the process of adaptation to new forms of housing is influenced, the cultural responses appear to change as well.

Lastly, the introduction of the Western kitchen has affected the cultural response and continuity of some cultural norms. While discussing the difference between the cookhouse and the Western kitchen, a woman from Djarrit explained how the Western kitchen might have influenced cultural behavior.

There's no more outdoor cooking where people come together and cook together and obviously have to share the food. Now ... everything is done inside your

house. You don't feel obligated. You don't have to share something with your neighbors. It's, really ... the style of American construction.

We discussed how cooking in the cookhouse was communal because one could see the smoke and fire. If the fire was burning, it was evident that a meal was being prepared to share. The woman went on to explain how the introduction of the indoor kitchen ceased the visual symbol of the fire. As more families began to purchase imported food and cook them on the stove top, the preparation of food was hidden indoors. In her opinion, the introduction of the Western kitchen has reshaped the social importance of meals. Where the cookhouse would have been traditionally constructed, it is being replaced by a new cultural process.

Whether it was an adaptation to American tract homes in Uliga, the influence of the Western style kitchen, or the need for privacy, the influence of Western housing is at odds with the persistence of Marshallese culture. To some degree, cultural change is evident, such as the case of the kitchen, and to some degree the Western housing changes, such as in the case of the Emlapwoj.

Environmental Responsiveness

Through the interviews in the urban center, one environmental response was evident in the process of building. The preferred siting of the housing along the shoreline is drastically shifting due to the increased seriousness of inundation events and tropical storms.

While seawalls become more common in the urban center to protect from inundation events, they create a double-edged sword. For many families, building along

the shoreline is preferred, and the construction of seawalls provides more opportunity to accomplish this. However, the risk of severe storms and flooding impacting a shoreline house is increasing. A man from Uliga explained that his family had preferred to build a house on the shore because it provided a breeze and was not developed at the time, but now, he somewhat regrets it because of the risk that his house will be damaged during a storm or flood. Climate change is impacting the way residents view environmental response in their building practices, similar to what was found on Namdrik.

Environmental responsiveness is different in the urban center given the density of housing and value of real estate. Siting housing in a manner that takes advantage of the trade winds remains important, but new concerns from climate change are affecting these decisions. As housing density increases in the urban center, responses to these climatic issues will become more pressing, especially as families are extending their space to the seawalls.

Economic Responsiveness

Increasing urban housing density was the most evident economic response. The spatial constraints present in the urban center has led several families to build larger houses for their growing family in-situ of previous housing or in addition to existing housing. Two examples of adaptation in Djarrit demonstrates this process of accretion.

Two families in Djarrit discussed the process of increasing housing density on their *wēto* as their families grew. In the first example, the family added on to their existing house, and in the second example, the family built a new house in-situ their grandmother's house. One of the men from Teron *Wēto* explained how his family lived in the house his dad built, but because the house was too small, they added more rooms to

house his growing family and mother-in-law. “This house was a one-room house when my wife and I moved back in 1982. We just extended the house. This house is an extension of the original house that was built.” Adding on to existing houses was commonly observed in the D-U-D. Another man from Djarrit explained how they had built in-situ of his grandmother’s house.

They ... built over the existing ... For my grandmother’s old house, I think it was totally rebuilt ... totally different walls because it was wooden before. The materials changed. Then the sea wall. I remember the sea wall used to be further from the house, and we had a bigger yard, but then we extended the house to the seawall.

Similar to this example, seawalls have been widely used in the urban center to provide extra space for housing construction, especially as the urban population increases.

6.6.5 Evidence from Survey Results

The survey asked a series of questions dealing with the process of housing design and construction. The responses provide evidence of the continuity of Process-built housing.

Cultural Responsiveness

Three primary areas of inquiry provided evidence for the cultural responsiveness of the building process. These are traditional access controls, height limitations, and the sacredness of land occupied by the chief. Traditionally, cultural customs and taboos controlled access on the *wēto*. Today rigid walls and dogs provide access controls for the property. This transition demonstrates the cultural response to urbanization and the

increased percentage of non-family members living near to each other. The following chart, Figure 145 provides the frequency of various methods implemented to control access. Thirty-eight percent (38%) of respondents have a barrier to control access. Thirty of these respondents (40%) use a dog to control access, fourteen (18%) rely on neighbors to keep an eye on their property, thirteen (17%) have a fence or gate, and twelve (16%) use landscape to create barriers. Thirty-four (80%) of the respondents who have a control system believe it is effective.

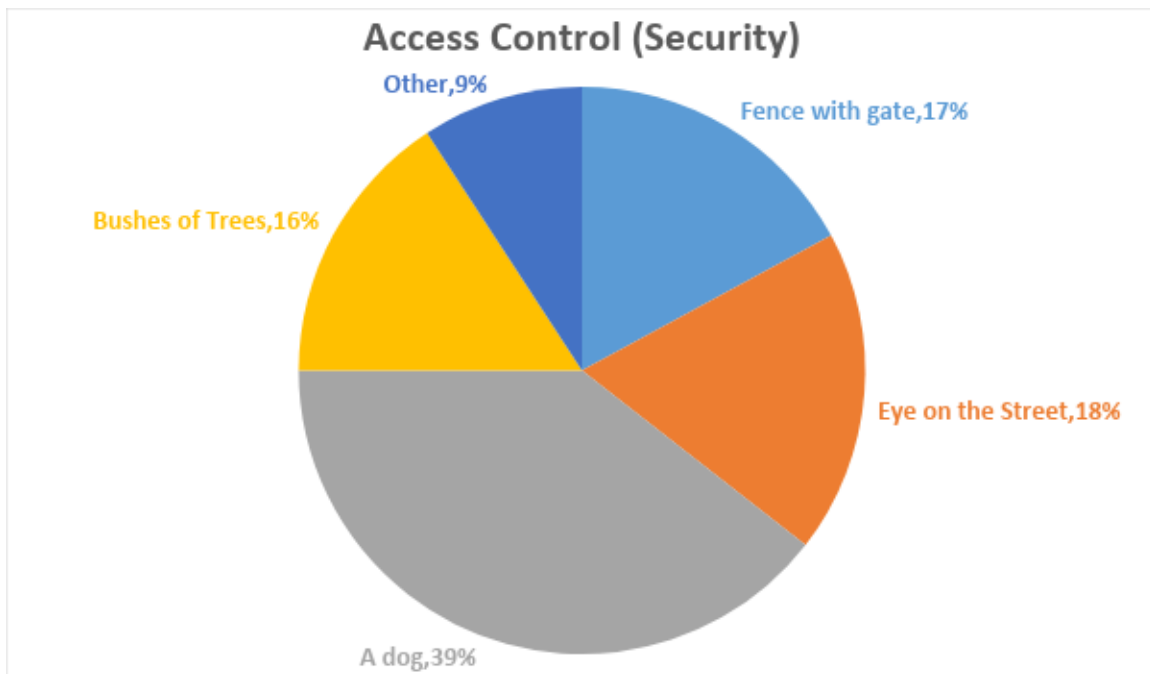


Figure 145. Pie chart depicting the use of various methods for controlling access.

The eastern end taboo (*jittak lok* and *lolon*) is another traditional mechanism that controlled access. Cultural customs determined that people should not walk along the eastern side of a house, which based on the tradition of *lolon* was where the head rested. When asked if participants were familiar with this cultural practice the results were nearly split. Thirty-one (31) out of 63 participants were familiar with it, and 32 were not. Of those that were familiar with the cultural custom, 22 believe that it is still taught to

children or teach it to their children. Twenty-eight of the respondents believed that the cultural practice changed the pattern of walking across *wētos*, while 21 did not feel it made a difference. Twenty-three of those who were familiar with the custom think that it changed how individual houses were oriented.

Further investigation into the topic uncovered contemporary perceptions of privacy based on the material construction of the dwellings. Residents felt that the transition away from unsecured thatch walls made the traditional practice of the eastern taboo less important. While traditional taboos and customs are no longer widely practiced, many elders noted that they continue to sleep facing east.

The former site of a chief's house produces another cultural constraint. It is well known that the house of the chief was a sacred location, noted by Erdland (1914) and Kramer and Nevermann (1938). For example, one could not cross the site of a chief's house without fear that something would happen to them by an act of a demon or a chief's guard. The survey response determined that 73% of respondents believe that the ground where a former chief lived is sacred. When asked if the land where a former chief's house could be developed, 21 respondents believed it could, but only by a family member.

Traditionally, the height of dwellings was also regulated by the chief. When asked about height limitations for housing, many individuals responded, "One could not build their house higher than the chief." When asked to explain this further, some agreed with the literal interpretation that the height of the house from the ground to the ridge could not be taller than the chief is from head to foot. One elder responded, "That is why the traditional Marshallese thatch houses were right on the ground." Others commented on

the height as limited by the height and size of the chief's house, which is likely more realistic. "If a chief builds a house, no one else can build their house as tall as his." Outside of reasons for the height of the house being determined by the chief, others remarked that houses should fit within the context of the neighborhood.

Environmental Responsiveness

The survey responses primarily provided insight into the use of imported versus local resources in the construction of buildings. While most of the dimensional lumber, plywood, corrugated roofing, and other manufactured goods come from the hardware stores on Majuro, which stock imported goods from Portland, Oregon, New Zealand, Australia, and Taiwan primarily, many families use local wood in the construction and repair of housing and ancillary buildings. Seventy-two percent (72%) of respondents noted that they had used local wood for building. The chart in Figure 146 identifies 21 types of wood used in construction, indicating which are used most often. They are listed by frequency of reference. Based on these findings, ni, ma, and kimeme maintain an important role in everyday construction material in the Marshall Islands.

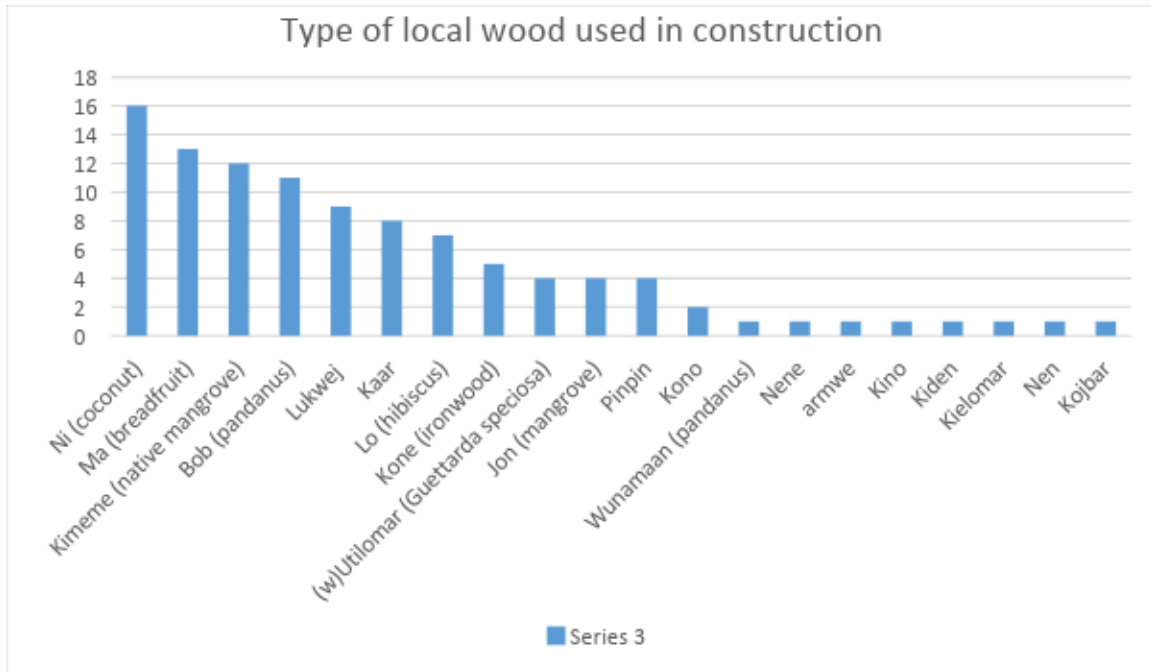


Figure 146. Chart indicating the types of local wood used in construction and their frequency.

Economic Responsiveness

A few questions in the survey dealt with the economy of building processes. Responses regarding the type of building construction provide insight into the shift from the efficient use of local resources to the replacement of renewable resources for more durable and long-lasting materials. The most common type of housing construction is concrete block (71.88%) followed by plywood and wood framing (21.88%), and a small percentage (6.25%) marked other, which would likely entail thatching or make-shift construction.

CHAPTER VII: ANALYSIS OF DEEP CULTURAL PATTERNS

7.1 Land as Wealth

On Namdrik and Laura the population is decreasing and resources are becoming less important for the viability of a family. Furthermore, as families leave their *wētos* for opportunities in the city or abroad, less invested interests in the *wēto* remain. Meaning that eventually, as outward migration increases, land holdings will be

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

forgotten. On Namdrik, decedents who fall in line to become *alap* are taking control of larger land holdings, because as extended family leave the atoll, they leave their stakes in land. Or, land is left unregulated by absente *alaps* who live abroad. To an extent this phenomenon on Namdrik demonstrates a reversal of land segmentation described by Spennemann (1990) and requires further investigation. On the other hand, discussion on Laura demonstrated an alternate version of the phenomenon on Namdrik. While on Namdrik, some families and individuals extended their resource base through gaining land from or house sitting for relatives that left. On Laura, many residents feel that vacant land left by relatives migrating abroad cannot be used or occupied.

In light of absente *alaps* and the ability to regulate depopulated *wētos*, the use of the *wēto* by either non-family members or extended members of the *bwij* is brought into

question. On Laura, it was often discussed that one is not allowed to use buildings or resources on vacant *wētos*. As property is privately owned, it is assumed the rightful owner may return at any time. Adding additional complications to this issue, it was brought up that if you were to occupy a vacant house or vacant *wēto* and the family of the *alap* was apprised of the situation, you would be evicted. For example, if an individual decided to build a house on a vacant *wēto* and the *alap's* family became aware, not only would the individual be evicted from the land, they would also lose the house they invested in. For the most part, these abandoned *wētos* and houses on Laura are left untouched. The phenomenon on Laura could be due to the fact that *wētos* left vacant by *alaps* are still controlled by an *iroij*. Increased chain migrations are changing the value of land.

Depending on how much outward migration affects net population growth, continued development of the *wēto* is in question. For example, a comparison of the 1971 aerial photograph of Namdrik (Figure 6.5) and the 2016 aerial photograph (Figure 6.6) demonstrate increased development at the northern end of the islet. This is likely due to the increase of family sizes on these *wētos*. While the timeline is too broad to provide strong evidence of growth at this end of Namdrik, it is in contrast to present day accounts of outward migrations, which has rapidly increased since the early 1990s. Livelihoods still rely on the land for resources and economy. As a man from Namdrik stated, “Passing down the land to the next generation provides them with everything they need.”

Even though some *wētos* demonstrate the decline in the value of land, others demonstrate the prosperity that comes from land holdings. The diversity of resources available to a family appears to have a correlation with their position or status in the

community. For example, the location of the mayor of Namdrik's house and *wēto* in relationship to the community and the atoll places him and his family in a prominent location; his *wēto* is at the widest part of the islet, and his house is located on the lagoon shoreline. This demonstrates a continuity of the settlement pattern defined by Mason and Riley in which the chief and nobility dwell at the widest part of the islet along the lagoon. Another example demonstrates the importance of overall land holdings as opposed to spatial hierarchy. The town medic and Catholic church leader has one of the largest *wētos* in area on Namdrik. Additionally, his family controls several other *wētos* strung along the islet. The diversity of resources that this family controls appears to place them in a prominent role in the community, even though they are not located near the center of the islet.

The value of land derived from land leases and rentals is a relatively recent occurrence, and Namdrik has a few. The shop house on Moneibel is built on leased land, but the family is related to the bwij of Monwat through marriage. Another consideration for the influence on cultural continuity of land on Namdrik is the presence of other Micronesians that have intermarried with families there. A clear influence from Pohnpeians is evident in housing styles on Namdrik, which utilize coral rock in masonry construction.

7.1.1 Property Conflicts

While not a major issue on Namdrik, property conflicts are of major concern in Laura and the D-U-D. Arguments consistently arise regarding recorded property boundaries and land rights. Perhaps this is a reason *kakolle* (boundary markers) are important for families to maintain. The courts in Majuro are over-taxed by land tenure

cases (Johnson & Pacific Institute of Public Policy, 2015). Part of the issue revolving around these land tenure disputes is that *wēto* boundaries had not been recorded until recently. For example, Leonard Mason's (1967) map of *wētos* on Laura was one of the first recorded documents of *wēto* boundaries. Today this has become part of legal documents in court cases, but Mason only considered them approximate when he created the map because they were determined largely from oral accounts. For instance, the alap of Jonak *wēto* considered her *wēto* to extend from lagoon to ocean, but based on Mason's map of Laura, it ends at the ocean road and at the lagoon road. Likely the alap has this perception because her family controls the *wētos* between the ocean road and the ocean shore, and between the lagoon road and the lagoon shore, and she may have gained control as the only remaining heir to the land. The accuracy of property boundaries is further complicated by land leases, land gifting, adoption cases, and etcetera.

Beyond land tenure cases, new development patterns on Laura have begun reshaping the value of land. Internal migration from outer atolls to Laura (and Majuro) has intensified due to financial opportunities. Generally, these families gain permission to build on borrowed or leased land or rent existing housing on the *wētos* of in-laws or extended family. This pattern of internal migration has occurred for a very long time, often referred to as "guest housing" (refer to Erdland 1938, Kramer and Nevermann, and Spoehr 1949). A second pattern that has begun to reshape land values on Laura is the immigration of individuals from other countries who are leasing property or renting housing on Laura. Some of these individuals marry into Marshallese families, thus gaining land rights. A third pattern that causes shifts in land value is out-migration of local families, leaving houses and lands vacant.

Land in the urban center is becoming invaluable, but to whom? Land tenure cases become quite heated as land is highly valued. A common theme regarding land leases is the control the alap and chief have over the land. The alap and the chief are the primary benefactors from the lease, not the whole family. Giff Johnson (2015) makes the argument that chiefs have profited greatly through their control of large land holdings, which they lease to the government, developers, and the United States. For example, the Kabua family controlled much of the land on Delap, which is used by the government for parliament as well as administrative and office buildings. In some ways the traditional system of land controls allows for some individuals to profiteer. Several participants complained that this was not good for the overall development. It is likely that some decisions are based on self-interest or the monetary value that can be derived from the land parcel one may want to build on.

In addition to the concept of gaining some at the expense of others, as well as the conversion of land values from resources-based to market economy-based, it appears the maintenance of the land has declined. The decline in land maintenance could be driven by two factors: Firstly, the importance directed toward monetary income generation, which no longer requires the maintenance of agriculture for subsistence livelihoods, renders the resource base unimportant. Secondly, the disconnect between humans and nature in the urban center and the lack of direct need for resource maintenance is apparent. A man from Namdrik spoke to the phenomenon of money and the market economy reshaping the perspective of the natural environment:

Nowadays, I can cut everything on the land but still I can eat - because I have money. I can buy food. But before, when money was not important, oh you can

have that one breadfruit that is really bad. But that's what we have around.

Everything from that place. Money - that is what really changed things.

As the value of land continues to be driven by capitalism, maintenance will cease, and communities will become more disconnected from the natural ecology of the land.

While subsistence strategies were still the norm on Namdrik, subsistence lifestyles are no longer the norm on Laura. That said, resource production on the *wētōs* of Laura is a part of everyday life in the village. Today, living off the land is supplemented with the purchase of imported good or produce from other *wētōs* and outer atolls. One man remarked that the Marshallese life is very sustainable because it is based on local resources. However, he commented that, “people heavily rely now on imports, and they do not practice what they used to practice. Living has kind of seized to a point where they are losing so much of their knowledge” (Elder of Laura). Even though the value of land in the D-U-D is primarily created through its location in the capital, families and individuals continue to garden and cultivate certain crops, such as bananas, in order to supplement the household diet. Some families also sell their produce to supplement their income.

Compounding shifts in agricultural production on Laura, the cultivation of produce and livestock is evident on the *wētōs*; some argue that the introduction of imported food has drastically reduced the consumption of local produce. An elder from Eolab discussed the change in agricultural practices over the years, reflecting on the introduction of imported food and the replacement of family cultivation with mechanized agricultural production.

Now you just put something on the stove, put batteries into, gather wood or whatever they used for the fire. They used to gather breadfruit. Now they just put in the rice and cook it. Life got way too simple and easy for them to live the same life where they would work (Elder from Eolab, Laura).

The sentiment shared by the elder in conjunction with the resource production taking place on the *wētōs* demonstrates the shift from subsistence strategies toward commercial agriculture production. Now land has partially reformed for these economic pursuits.

In assessing the historic aerial images of Laura to those created in 2016, noticeable changes has impacted the available resources on the *wētō*. To summarize, the combination of a decrease in infant mortality rate, the increase in life expectancy, introduction of durable construction materials, the financial capacity to pay for labor and imported materials, and a shift towards the nuclear family have all contributed to more dispersion across the *wētō*, leaving less land “untouched” by development. The introduction of western building practices may have had a larger impact on the reshaping of the *wētō*, as opposed to the typical assessment of social change driven by money and individuality.

Lastly, in regards to resettlement, the importance of land raises a significant issue for Marshallese communities. A man from Majuro considered the option of resettlement, “If we have to move due to climate change, I would like the government to purchase land somewhere in the Pacific, such as Fiji, where we as Marshallese could settle and maintain some of our language and culture and still be partially together as a people, instead of spread out across the United States.” Even in the case of Bikini and Rongelap - accepting

government money as restitution for their lost land - the communities have a strong desire to return to their homelands, and no amount of money will suffice.

Traditional livelihoods in the Marshall Islands relied on subsistence strategies, which were met through the sustainable cultivation of the land. Historically, land provided the necessary resources for survival. Today, land continues to provide the necessary resources for survival, but the resources have expanded beyond sustenance.

7.2 Land as Identity

Land tenure provides one of their livelihood, a place on this earth, and a direct connection to their heritage. Bounded by the *wēto*, the meaning is attributed to place through the traditional system of governance, the collective lives of the ancestors that lived and worked on the land, and the role of the land in everyday life.

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

Heritage, traditional systems of governance, and place-based knowledge influence the identity attached to the *wēto*. Families inherit land through their ancestors, and thus heritage is identifiable in the land. The system of traditional governance is also attached to the traditional system of land tenure. Often, the alap and the chief are from the same line of ancestry. Place-based knowledge roots individuals and families to the land through an intricate relationship with the land to understand its production of resources (wealth). As diagrammed in Figure 147, the three of these work together in a continuous network, building the web of the culture-environment relationship that builds place-

identity. The identity a family establishes through land holdings produce social status and enable multi-locality within a system of resilience to drought and tropical storms (Spennemann 2005). Lastly, land identity faces the issue of immigration and outward migration.



Figure 147. Venn diagram of pillars of place-identity.

By examining the historical aerial from 1971, which was before the Typhoon Alice, the end of Namdrik appears to be uninhabited. This could mean that a larger family group occupied this area with the main settlement of the *wēto(s)* near Monkonat. Since the typhoon of 1979, this area most likely began to be settled as families had the opportunity to build (acquire) their housing through aid. It is likely that the *wēto* is part of an extended *bwij* and was used primarily for resources up until the family built a house there (pretty recently).

Land is the lifeblood of the Marshallese culture, and in the face of rising sea levels, it is something that the Marshallese will fight for. Families and individuals still

identify with the *wētos* they come from, which is the home of their ancestors. With land also comes one's importance in the larger society. Clear divides in social status were noticeable through observations of *wētos* in the D-U-D. It appeared as though land holdings along the lagoon were occupied by more well-known families, compared to those on the ocean side.

Over time the size of *wētos* has diminished to family-segmented land holdings as a means to settle inheritance disputes or due to schisms. Based on this theory, multiple adjacent *wētos* most likely belong to a larger extended family, such as Lotoean and Moneibel. The ownership of multiple *wētos* by the *bwij* was also observed. Two adjacent *wētos* near the road to the ocean were controlled by one *alap*, showing control by the extended family. Another family from one of the smaller *wētos* in the sample was often observed spending time with their uncles and aunts on a *wēto* toward the north, approximately two miles distance.

Multi-locality is created through the multiple land holdings that a family holds across the islets of an atoll and multiple atolls. This system of familial networks created opportunities for families to escape drought or post-disaster devastation and stay with relatives on atolls that were not as severely affected. Additionally, a common practice amongst Marshallese families is the freedom to stay with other family members for extended periods of time. This primarily occurs during childhood. 60% of survey respondents have lived with another family member for an extended time. The system of multi-locality demonstrates continuity today. Multiple land holdings on multiple *wētos* and across multiple atolls is apparent, primarily through marriage. In addition, this network system has expanded to include transnational communities living in the United

States. For example, Springdale, Arkansas, which hosts approximately 10,000 Marshallese, is known as A New Island by sending communities in the RMI, and by the receiving community in Arkansas. Even though the land is invaluable to many in the Marshall Islands, others find the opportunities abroad more enticing to establish a living. People are leaving their *wētos* and abandoning their place-attachment.

Lastly, families are concerned that the safety and comfort they identify with their *wētos* will dissipate with the increase of foreigners and non-family members taking residence on the land. Several people commented that they feared losing the autonomy on their land and feared it becoming a foreign place. In Uliga, the influx of Taiwanese and Chinese immigrants is altering the socio-cultural formation of the district, and residents have mixed feelings about the changes. To some, the district has become less safe, while others enjoy the diversity provided through immigrant communities.

Traditionally livelihoods in the Marshall Islands relied on subsistence strategies, which were met through the sustainable cultivation of the land. Historically, land provided the necessary resources for survival. Today, land continues to provide the necessary resources for survival, but the resources have expanded beyond sustenance.

7.3 Ippan Doon: Togetherness

The physical manifestation of Ippan Doon in the form of clustering assists in resource conservation on Namdrik, and to an extent, Laura, and the physical closeness of dwelling leads to social closeness. The relationship between togetherness and physical proximity reinforce each other, which was

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

evident in Djarrit-Uliga-Delap. While the social pattern of togetherness is changing as the single-family residence becomes more common, the social cohesion of the larger family is still evident. Observations and syntax analysis demonstrated consistency.

Elmon is the village center of Namdrik, where the Catholic and Protestant churches, the school, and the community center are all located. Optimized Hot Spot analysis, using ArcMap 10.5, demonstrated the highest probability of clustering to be located between the school and the community center. This analysis correlates with the width of the islet at that point, as would be expected based on traditional settlement patterns of atolls (Spennemann, 1995). In addition, the mayor's *wēto*, Mojero, is located at the center of Elmon village and has historically hosted the school, drawing importance to the area. These findings contradict Mead's (2004) theory that the churches are at the center of development on Namdrik and provides support to traditional atoll land use. The population disperses along the long northern stretch of Namdrik islet with habitations all along the lagoon toward the airstrip at the end of the islet. Most families who live in the main village of Elmon have land holdings on other parts of the atoll, such as Madmad, or

further northeast along the thin strip of land toward the airstrip. These land holdings provide additional agricultural resources, which are mostly used in the production of copra. This was also discussed under Land as Wealth.

In addition, historical development on Namdrik has demonstrated continuity in the pattern of clustering, which is demonstrable of Ippan Doon. For example, post-disaster reconstruction following Typhoon Alice may have replaced the housing typology on the island, but it kept intact the settlement patterns. Interviews with elders confirm that housing was built on the foundations of previous homes. In addition, housing on the ocean side from the 1930s was documented by elders, dating much earlier than the patterns of dispersed housing that typically led to more inter-island and oceanside development on other atolls, such as Laura village, Majuro. Between the rebuilding in-situ following the disaster and the pre-existence of dispersed housing, Namdrik appears to maintain continuity within Ippan Doon. While some argue that the social significance of togetherness is changing, the spatial analysis of Namdrik's settlement does not confirm it.

Today a pattern that is sweeping across Namdrik and Majuro is outward migration. As families seek economic, educational, and medical opportunities abroad, they abandon their *wētos* and dwellings. Namdrik has several *wētos* that are now vacant due to the economic pressure leading to out-migration. The population has dropped about 50% since 1980. Most people move to the USA. As families migrate to the United States, they take the way of living of the Marshallese and adapt it. A Marshallese woman from Majuro, who now lives in Springdale, Arkansas stated: "Bring the Marshallese way of living - how you live, the way you live - bring from the Marshall Islands." The

integration analysis combined with participant observations provide insight into the social status of individuals and families based on both segmentation of space and materiality.

Moneibel and Mojero are unique in their order.

Access to income through non-agricultural based jobs has led to both dispersed settlement and a shift in clustering. This transformation of the settlement pattern on Laura is becoming counter-intuitive to the ecological principles behind Riley's argument. For example, more housing dispersion is occurring in the inter-islet area, placing priority on individual housing over natural resource conservation. Secondly, a noticeable shift has taken place from the original clustering at the center of Laura. Eolab district remains an important node on the islet, but the area near the intersection of the main lagoon road at Jeirok basketball court is demonstrating more importance. This shift is identified in the hot spot analysis. The reason behind the change in clustering at this location seems to be driven by the economic prosperity of the families on the adjacent *wētos*: Likin Atbwe, Aronan, and Mwennen. This intersection of roads also hosts a shop, restaurant, basketball court, and access to Laura High School. The shift in clustering patterns is demonstrating that the natural resources that support subsistence livelihoods are no longer seen as valuable. Rather, families place more value on land and privacy.

With the onset of climate change and more frequent inundation events, drought, and tropical storms, new settlement patterns may arise on Namdrik, Laura, and the D-U-D. Some *wētos* are at a higher elevation than others, some are more protected from high winds, and some are better suited for conserving fresh water. One of the participants noted that land elevations change across different *wētos*. "If you are from a *wēto* that is going to flood due to sea level rise, what happens when you are not able to move to a

higher *wēto*? If you do not have land rights, you may be at a loss.” What this man introduces is the concept that spatial organization on the island will be altered due to climate change, and it will require a renegotiation of familial ties to establish land rights. “Maybe we have to come with some policies or some way to adapt. How are we going to? Other than relocate, I could think about migrating.” Shifting housing clusters on the island in response to environmental concerns demonstrates the evolution of traditional settlement patterns on Namdrik and would follow Riley’s (1987) argument for a settlement based on resource conservation as opposed to social order.

As discussed earlier, outward migration of families is also impacting the pattern of togetherness on Laura. One man stated, “On the adjacent *wēto* they have a lot more houses that are newer. On this *wēto*, many families have left.” As patterns of clustering change and more dispersed development occurs, the concept of togetherness may be losing its importance.

The discussion of settlement patterns in the D-U-D has mostly focused on the comparison of contemporary, spontaneous settlement to traditional patterns common in rural areas. A more recent pattern that has occurred over the past fifty years coincides with the clustering based on social need. As discussed in the previous chapter, more recently, families have begun to lease land from friends or distant relatives, and some families have begun to create land through the construction of seawalls – land that did not previously exist. One of the families in Rita that has a long-term land lease on a *wēto* has increased the buildable land size through the construction of a seawall. This family, consisting of three generations, including cousins of the first generation, has developed a close-knit clustering of family housing. Between the road and the lagoon, around seven

houses are occupied by the extended family. There is a cluster along the road that has maintained the grouping for several decades. Another house adjacent the cluster, now fenced off, used to be part of the family, but they were recently evicted due to disagreements. An additional cluster of houses is on the lagoon and is occupied by the participant's immediate family. This clustering of the family demonstrates the manifestation of togetherness.

Stepping beyond the Marshall Islands, the concept of togetherness and the pattern of clustering is evident in immigrant communities in the United States. A pilot study conducted in Springdale, Arkansas noted this. Marshallese families followed a relatively typical pattern of labor/chain-migration and had formed enclaves in the city. This coincides with the nature of togetherness as a major source of social capital represented in support systems.

I guess, the mentality is like, you know, whatever he has you have to share it. That's how we have a lot of people in their 20's, 10 -15 in one house, is like, you share it. We tried to save money, but it's hard when you have families around - when they need it. I mean, you can do it, but it's just, your extended family, when they have something as something unexpected happens, or they have something, you know, you open your hand. So, it's just part of it. You will ask them, they will say we want to have a land, but it is so hard because we have so many families that needed help and cannot just close the door. Your conscience is there. Think that is another thing about us. We want to be independent, but we cannot.

It is clear that the pressures of urbanization created in the economic center of the country have led to stark differences in urban development from its rural counterparts. The social and cultural changes associated with this development have been well documented by Spennemann (2005), Hazel (1995), and Royle (1999). While change has been the overall consensus in urban settlement behavior, this section argues that consistency with tradition is present.

The formation of the Emlapwoj in the D-U-D needs to be taken account of in the syntax analysis of Majuro. Some family houses consisted of large extended families, resembling the structure of a rural *wēto* within one house. The Emlapwoj referred to in Lejolimen *wēto* is an example of this. Segmentation of housing layouts is more apparent on Laura and D-U-D. However, the use of spaces is somewhat different between the three sites. For example, a three-bedroom house on Namdrik may only be occupied by the nuclear family, but in the D-U-D a three bedroom house is occupied by the extended family – each room housing a nuclear family or just the parents. These are discrepancies that are not well accounted for in the syntax analysis. Therefore, the apparent depth of justification graphs for Laura and Majuro may be reduced once each house is taken into consideration.

Riley and Mason's argument for human settlement in the Marshall Islands based on environmental constraints is well supported through contemporary analysis of land tenure and resource use. Adding to the complexity of settlement choices by Marshallese, a settlement on the ocean side of Namdrik has historically taken place and has been documented on other atolls as well. Likely these dispersed settlements existed for two main reasons: 1) the families did not have land rights on the lagoon side and 2) the

settlements were for land management of the areas. Additionally, families on smaller *wētos* typically require additional resources beyond those on their *wēto* for living. Today, this is accomplished through families having multiple land holdings - in the case of Namdrik - and through supplemental imported resources.

However, there are strong arguments that are contrary to the pattern of clustering based on resource conservation, both historically and presented in the contemporary analysis. The analysis demonstrates a shift away from the value of land in its agricultural production to its value in real estate value - a shift that coincides with rapid modernization. Secondly, the importance of social cohesion attached to the pattern of clustering appears to have become stronger. The social logic of Erdland's (1914) explanation of socio-political structures on the islet makes sense from the standpoint of social cohesion.

Togetherness is strong on Majuro largely due to the embedded social capital. As more and more immigrants share space with residents, Ippan Doon demonstrates inclusivity of immigrant families. In light of inclusivity, the guest-house is an important part of togetherness. The guest-house manifests in two forms across most of the *wētos* studies: 1) as a spare bedroom that receives the hospitality of the host, or 2) as a small guest house adjacent to the main family house.

Lastly, a new pattern is arising and changing the deep pattern of clustering. The production of seawalls for coastal protection is leading to the evolution of both rural and urban settlement patterns. In some cases, seawall construction can have negative consequences for families down-current from the seawall, as explained in the report created for landowners by Murray Ford (2013). The pattern of coastal erosion is a

concern for social and environmental justice as seawalls are typically built by wealthy families, leaving low-income families in more vulnerable positions. This is a shifting development pattern along the coast, negatively impacting the togetherness of some families. On the other hand, seawall construction has led to the creation of new land plots, allowing families to create new homesteads outside of the traditional land tenure system. This is further discussed in the *wēto* Pattern chapter.

The pattern of settlement observed in this study adds to the discussion started by Mason and Riley. Settlement on the largest islets of the atoll remains a consistent pattern across time and space. More recently, the settlement has shifted as the population has increased and subsistence livelihoods have changed. Today, the densest population centers are on some of the smaller islets of the atoll, as seen on Ebye and Djarrit-Uliga-Delap. This shift is largely due to the influence of outside powers, such as Japan and the United States, and is caused by the increased scarcity of land.

7.3.1 Support in Migration

Through inter-island migration or emigration to the United States, benefits are seen in the living close together with one's family. One man commented:

They would resettle them close to one another. Relatives with relatives, living the same way they are living right now. Close to one another. They'd live just the same like we live here. They would go from place to place if they needed help, house to house, share everything with each other. Similar to how they are living here. They would resettle them close to one another.

This demonstrates the importance of living together, as it provides the means for the family to watch out for each other and ensure their livelihoods are maintained.

When asked about emigration into the United States and resettlement, there was mixed sentiment. Some agreed that living near to or with families and friends was an essential part of Marshallese enclaves in the United States. Likely families would follow the current chain migration into the United States before climate forced resettlement was required. Others felt that chain migration was not acceptable, as assimilation would inevitably occur. One woman stated: “If we have to move, the government should purchase land somewhere in the Pacific, Fiji, Hawaii, where we as Marshallese could settle and maintain some of our language and culture and still be partially together as a people, instead of spreading out across the US.” Either way, togetherness remains important to social cohesion, as observed in Springdale, Arkansas. This typically manifests in the clustering of Marshallese dwellings and the increase in the presence of multi-generational housing.

7.4 Juon Kijeek: One Fire One Family

The cookhouse is a central piece of the Marshallese vernacular architecture and remains at the heart of family life. On Namdrik, Laura village, Djarrit-Uliga-Delap, and other areas, nearly every family has a cookhouse. Today, the cookhouse is controlled more by the nuclear family. For larger families such as one on Namdrik and one in Uliga, the cookhouse remains central to the extended family. With the global influence of imported food, the introduction of rice has shifted more focus to the western-

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

style kitchen. In addition, the introduction of electricity and gas power reduced the need to cook over the fire. Even with these shifts in technology and influences of imported food, the cookhouse maintains its role in the daily lives of Marshallese families and as a symbol of social cohesion.

Additionally, the cookhouse has been identified as a safe space for women and as the center of news on the islands. The cookhouse is where family members and friends chat, share stories, and gossip. Following the 2016 drought, the International Organization of Migration (IOM) began a program that utilized the cookhouse for the dissemination of knowledge concerning disaster preparedness, and they utilized the symbolism of the cookhouse as a safe space for women to promote women's rights (IOM 2016).

While the importance of Juon Kijeeek has shifted on Majuro, its symbolism carries on. In the memories of today's inhabitants is the symbolic importance of the cookhouse and the basis of the fire as the root of the subsistence diet. The introduction of the kitchen and imported foods has shifted the diets of many Marshallese families and changed the way the family cooks together and shares their resources. In this shift in diet, the cookhouse has become more a symbol of Marshallese culture through its deep connection with the preparation of Marshallese food. A man from Djarrit Majuro stated, "There are one land and one fire; one *wēto*, one fire. That changed."

Local foods are the primary meals prepared over the fire, demonstrating a close connection between the food and the land that provides the bounty for the family's survival. Since this food is free, it is easily shared without financial recourse. However, there is a distinction made between local Marshallese food and imported food. A man

from Namdrik remarked, “When family members are making Marshallese food in their house, they call me to join. If they are preparing imported food, they don’t call.”

The influence of Western individualism and capital has shifted the acceptable use and sharing of the traditional resource base. In addition to the changes within the process of food preparation, some on Namdrik have noticed a shift in the harvesting of breadfruit. Before, breadfruit was seen as more or less communal within the *wēto*, but today, ownership of breadfruit trees limits access, even to other family members within the same *wēto*. Many contribute these changes to the introduction of money, and others attribute the changes to the reliance on imported food following Typhoon Alice in 1979-1980. Ways of thinking are shifting. This began with the United States occupation; however, it does not define the replacement of traditional cultural norms regarding the sharing of food. It only demonstrates occasional breaks from the important social norms surrounding resource sharing. For example, the preparation of *biru* from breadfruit still takes place as a communal process on Namdrik, and many families continue to cultivate the land communally. Following the typhoon, another man remarked:

In 1980 there was a typhoon that came here and wiped out everything. People here had USDA supplying food for several years. Maybe at the time, it changed them. And, when small kids grow up on the imported food, they don't know how to taste the breadfruit. They taste flour and rice and have all those things. They don't like eating breadfruit.

The imported food was generally cooked on a gas powered stove top inside the house, as opposed to over the fire. Similar to the changes seen on Namdrik, changes have happened at a more accelerated rate on Laura. As technology and kitchens became more common,

the work required to prepare local produce for consumption became less attractive. Today, a family can just place rice in the rice cooker. With the market economy, people have their own rights to space, their own money to buy food. One of the elders in Elmon commented that “Life got way too simple and easy for them to live the same life where they would work.” In addition to these changes, a shift has occurred in what is shared amongst the family; in the past, food was shared for sustenance, but within the Marshallese diaspora of today, money is shared with family members to help with school and medical bills.

Namdrik had three stores open that sold imported food items, which provided staple food in the local diets. These included rice, canned meat, and flour. In addition to the imported food provided at a premium price through these shops, families purchased large stocks of food in Majuro and have them shipped to Namdrik on the Field Ships or have them flown in on the bi-monthly Air Marshall Islands flight. On Namdrik, imported foods tend to only make up a small portion of the local diet while families still rely primarily on local produce. This leads to the cookhouse playing more of a central role. Laura has many shops where imported food can conveniently be purchased, but most families drive over to the urban center of Djarrit Uliga Delap or take a bus to shop at the many large grocery stores and food suppliers. Within the families that participated in the study, local food continued to make up a significant portion of the daily diet, but imported foods, such as rice and flour, were daily staples. Even with the shift in diet, the cookhouse was still prominent on Laura.

As mentioned, a duality exists between food preparation on the fire and food preparation in the kitchen. Traditionally, when food was prepared, it was meant to be

shared, but the ability to prepare food behind closed walls in the privacy of one's kitchen has removed this requirement. A woman from Djarrit commented that the introduction of the western kitchen into the Marshallese household has changed the way families relate. She stated, "You don't feel obligated. You don't have to share something with your neighbors. It's really, yeah, the style of American construction." Again, the preparation of food in the cookhouse is very visually apparent, while cooking in the kitchen is hidden. Coinciding with the preparation of food inside the kitchen, it is food that is purchased with money, removing the connection to the land that the Marshallese food prepared over the fire holds. At the same time, even with the shift toward cooking for oneself, when this woman's family comes together for an event, they cook together and share food together.

The act of sharing food is tied to its production. When prepared in the cookhouse, it is symbolically communal, but when food is prepared in the kitchen, it is hidden for private consumption. Local produce cultivated from the land is not directly associated with monetary value. However, monetary value is automatically attached to the preparation of imported foods. Since the act of sharing is meant to be reciprocal, two things should be considered when sharing imported foods prepared in the kitchen: 1) the family preparing the food only has enough money to purchase enough food to support their family members, and 2) those receiving a share of the food may not have the means to reciprocate the act. To avoid tensions created in social relationships, imported food with monetary value is prepared privately inside, in the kitchen, out of sight. On the other hand, cooking in the cookhouse is very visible; the fire produces smoke and light, and people gather around to socialize. The Kijeek (fire) is also how Marshallese foods are

traditionally cooked, forever tying the two together and, symbolically, as a symbol of togetherness.

A new phenomenon revolving around the cookhouse was apparent on Laura. The cookhouse produced both foods for the family and their guests/renters, and the cookhouse produced food for sale. This demonstrates two things: 1) a more inclusive notion of the cookhouse for immigrants living on the *wēto*, and 2) the influence of money on the cookhouse.

Lastly, the role of resource distribution through the church demonstrates both the symbolic representation of the church as *alap* and the church's fire as the one fire from which the family is fed. This draws reference between sending and receiving communities as well. The church plays a central role in Marshallese communities. Figure 148 depicts a congregation in Namdrik being served from the cookhouse of the church. On Namdrik and in Springdale, Arkansas, the church was often seen to symbolically represent the *alap's* house (*Emlapwoj*) and the manager of the one fire from which sustenance came for the Church community. Families in the Marshallese diaspora miss living together with their families, and they miss having their cookhouses within this system of sharing. Missing the cookhouse can be interpreted as missing the traditional Marshallese food that is prepared over the fire. The Marshallese Churches of Springdale, AR provide this support for the community.



Figure 148. Photograph of a church in Namdrik distributing food to the congregation and community. A couple from Arkansas believes that the cookhouse is not brought to Arkansas because it is a different climate with different soil. Yet at the same time, they complain of the smells that permeate the house when they prepare Marshallese food in their kitchen. Their viewpoint on the construction of the cookhouse demonstrates its attachment to place, yet the practical use of the cookhouse is apparent. Perhaps a new typology of it will be recreated in Arkansas.

“We still have cookhouse. We share the fire with the family, share the knowledge.

7.5 Emlapwoj: Family House

“The house is an institution, not just a structure, created for a complex set of purposes. Because building a house is a cultural phenomenon, its form and organization are greatly influenced by the cultural milieu to which it belongs”

(Rapoport, 1969, p. 47).

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

Based on analysis of observations and building documentation, the social structure of the Emlapwoj appeared in a one bedroom house and a three-room American tract house. In the one-room house, children slept in one area, parents slept along one side, and grandparents slept along the other side. Occasionally, the larger one-room houses, such as the typhoon mon of Namdrik, became divided by walls. In the three-room house, each room housed a married couple; one bedroom houses, the grandparents, and the children generally slept in the main room or with their parents. Figure 149 provides a diagram of Emlapwoj’s manifestation in different housing typologies.

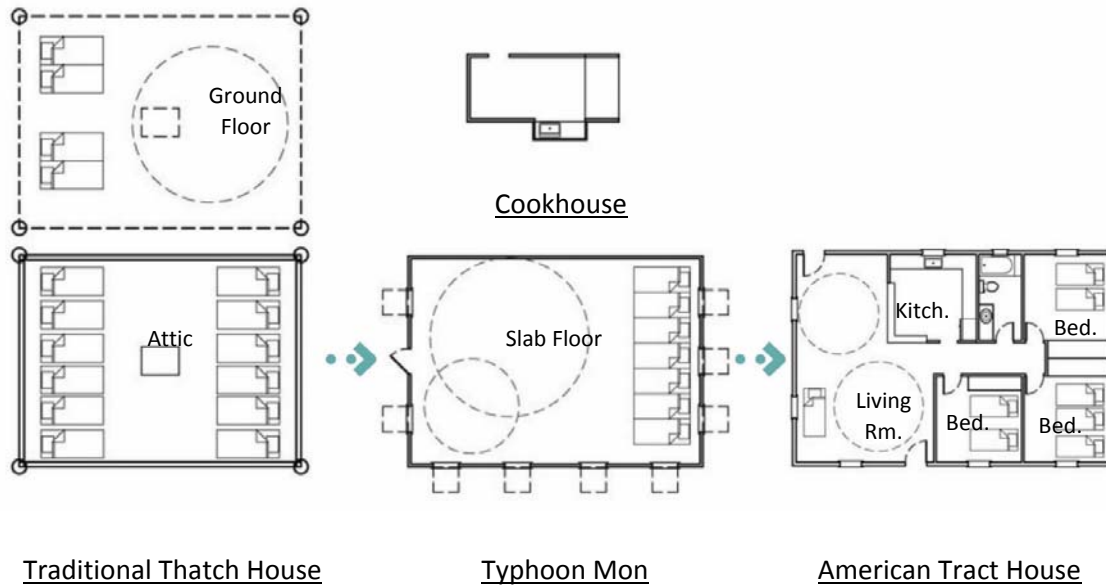


Figure 149. The evolution of the Family House. The circled areas represent activity centers for socialization and work.

The introduction of western housing and ideology has seemed to lessen the significance of the family house on Namdrik more broadly. As livelihoods become less and less reliant on local resources and social capital, individuality manifests itself more readily. However, on some *wētos*, like Monkonat, the pattern still maintains its strength as a fundamental component of the family’s spatial organization on the *wēto*. Even on those *wētos* where daughters and sons have constructed their concrete housing for their nuclear families, the intangible aspects of togetherness still draw them together with their multi-generational family. This may happen under one roof from time to time or permanently. For example, when the alap of Monkonat’s grandson partnered with a woman and had a child, he had a separate one-room sleeping house, but his partner, he, and their child often stayed with the alap and his wife in the Emlapwoj.

Culture change was generally associated with aspects of the financial ability of others in the family to construct houses larger than that of the alap’s on the *wēto*. Others commented that, “We live in modern times now, doing the modern life,” and that the

tradition of respect for the *alap* no longer exists. Another common perception of the *alap* was that they no longer cared for everybody on the *wēto* and only looked out for their financial gains. The elements of culture changes based on responses to the survey, interviews, and observations demonstrate the impact that the market economy and capitalism have had on Marshallese families (refer to [Hezel, 1994, 1995] and [Rudiak-Gould, 2013] for an in-depth discussion on the topic). An alteration of fundamental cultural customs for the respect of elders and ensuring the survival of the clan has taken place. An alteration of fundamental cultural customs for the respect of elders and ensuring the survival of the clan has taken place. One could also argue that it is due to the economic necessity of a family living under one roof or the spatial requirements for density. However, I argue that it persists because it is simply the way everyday life takes place. As many participants commented: "It's just the way it is." They do not even question the pattern because it is fundamental to the way of life, beyond those restraints of economic pressures.

It could be argued that the persistence of the pattern today is due to the economic advantage of multiple generations of a family living under one roof. In the cases from Majuro, this is likely a strong reason for maintaining a multi-generational housing structure. However, the survey results demonstrate that the pattern maintains importance within the Marshallese culture, making it difficult to disprove the aspects of cultural maintenance embedded in the pattern. On Namdrik it is clear that the pattern persists in its original form, as one of the participants spoke directly to the concept of instilling his grandchildren with knowledge (both the *alap* of Monkonat *wēto* and the Mayor of Namdrik spoke in regards to knowledge dissemination). In addition, observations on

Majuro noted that the grandchildren at some houses tended to stay with their grandparents, even though their parents were in separate dwellings.

Another argument against the persistence of the pattern is the dispersion of housing across the *wēto* as the nuclear family begins to dominate. A man from Eolab in Laura stated:

The family used to live close together. They all used to live close together, but once they all started getting their own families, they all moved out and built their own houses. They scattered around. Once the country gained its independence, people started getting their own homes. That's when the housing began to develop on Laura. Before, everybody would eat in their house, so they would all share the same food, the same table - and now it's just not the same.

As the population density increases and property values increase, the spatial form of the family appears to condense. While on a rural *wēto*, the Emlapwoj may consist of a large main house with a central cookhouse and sleeping houses for married couples. As the pattern moves into the city where population density is high and land value high, the rural pattern fits within a three bedroom house. As explained previously, each room is occupied by a married couple. Figure 150 provides a diagram of this notion.

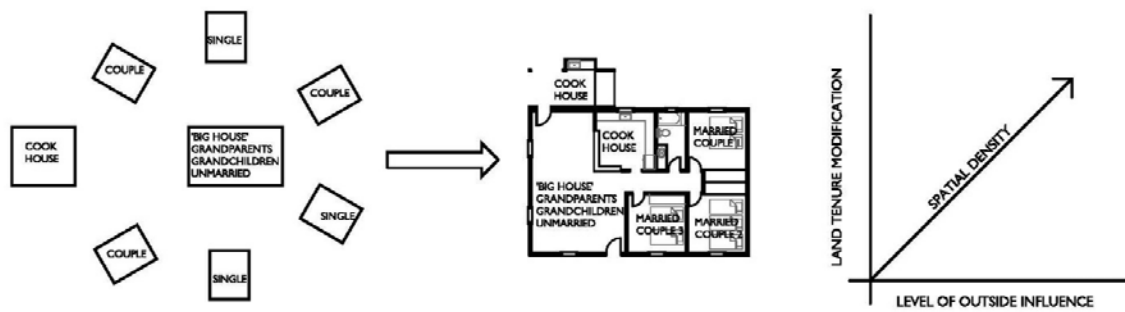


Figure 150. Diagram depicting the socio-spatial transformation of the Marshallese family as manifest in rural and urban housing.

While not part of this study, research conducted in 2014 in the Marshallese diaspora of Northwest Arkansas noted the presence of the multi-generational family house. At first, it was considered to be purely for economic reasons, but after observing the pattern in the Marshall Islands, it became evident that what is happening in Arkansas is the continuity of a resilient pattern. Combining this knowledge of the emergent pattern, a transformation of the pattern through space could be conjectured.

The pattern also appears to be generative as it is manifest in multiple spatial arrangements, including the post-disaster FEMA housing on Namdrik, the USDA housing, the western tract housing of Uliga, and in multi-family housing developments of Springdale, Arkansas. The level of capital embedded in this familial spatial pattern assists not only cultural continuity of Marshallese families but also their social welfare. The fundamental concept of togetherness becomes strong for the establishment of enclaves, rather than dispersed migration.

Relatives with relatives, living the same way they do now - close to one another.

They would just live the same, like here. They would go from place to place if they needed help, house to house, share everything with each other. Similar to

how they are living here. They would resettle close to one another to ensure family continuity.

While the pattern presents a strong positive in the current patterns of migration, there is also a downside. One participant commented on a problem that two migration patterns have on the dissemination of traditional knowledge through the multi-generational house: “Most of us have grandparents who are not with us. They are the ones with the traditional knowledge.” As grandparents immigrate to the United States to take advantage of medical care, they are no longer able to teach their grandchildren traditional knowledge. Moreover, for those children and parents that immigrate to the United States for the labor markets, their grandparents are not present to share the Marshallese customs. The framework of the Family House is broken at both ends of the transnational network.

To conclude, the pattern of the multi-generation family house is a generative pattern that will be fundamental within the resettlement of Marshallese as it carries with it the fundamental concepts of togetherness, resource sharing, and the dissemination of traditional knowledge.

7.6 Process-Built Housing

Process-built housing responds to culture, environment, and economy in a manner that demonstrates a deep place-based sense of knowing. As Marshallese culture changes through outside influence, the design of the built-environment begins to change with it, and, as explained, these two evolving forces influence each other. The introduction of durable goods, the fading of cultural taboo practices, and changes in housing preference are all factors adding to the changes in the built-environment

Legend			
	Patterns	Evidence	Analysis
Land as Wealth			
Land as Identity			
<i>Ippan doon</i>			
<i>Juon Kijeek</i>			
<i>Emlapwoj</i>			
<i>Process-built housing</i>			

Two things are happening within the built-environment of the Marshall Islands that are affecting process-built housing. First, taboo practices that once provided more security for dwellings are no longer kept. Now that these practices are gone, people find ways to provide more privacy, security, and protection through durable materials. Materials such as concrete provide solid protection. Secondly, the introduction of imported housing typologies is changing the way buildings are used.

It was mentioned on several occasions that the taboo practices used to keep houses safe and secure. Some elders remembered being taught that demons roamed the *wētos* and would hurt a disobedient child. Others were simply taught to only stay on the paths. These cultural practices used to keep people from walking directly up to a house unannounced. It was often discussed that the introduction of concrete walls and plywood

walls made these customs obsolete. People felt more secure with the introduction of durable good, and now they had doors and windows that could be locked.

The design of the thatched house provided a cool and comfortable interior in a hot and humid climate. However, as corrugated roofing began to replace the thatch roof and concrete or plywood walls were added, taboo practices shifted. The newly imported durable materials not only shifted the cultural norms surrounding housing that were present in construction processes, taboos, and cyclical maintenance, but they also reduced the comfort of the indoor environment. New patterns have unfolded in response to the disjointed relationship between the building and the climate. In the urban center, where modern infrastructure is available and western housing styles dominate, air conditioning is ubiquitous. The western style homes are not responsive to the environment and do not ventilate well enough to cool down during the day. With the convenience of electricity and the affordability of the mini-split air conditioner, many households have air conditioning often running to keep their houses cool. The influence of the western housing style has also changed how individuals identify with housing.

When asked to determine which housing typology represented a traditional house, the majority of respondents selected the traditional Marshallese house built on posts, which is commonly noted as the predominant traditional housing typology by Kotzebue, Kabua and Kramer, Erdland and Nevermann, and is represented through images in the Alele Museum. It is also occasionally replicated as a model-size traditional house. It is likely that this style was that built for the *iroij laplap*, *iroij erik*, and the *alaps*. Figure 151 depicts the common housing types found in the Marshall Islands along with two traditional houses. Figure 152 depicts the selections participants made. It is interesting to

note that the second most common selection was the housing style of contemporary concrete houses found on Majuro. This could demonstrate a shifting identity and knowledge of Marshallese traditional material culture.

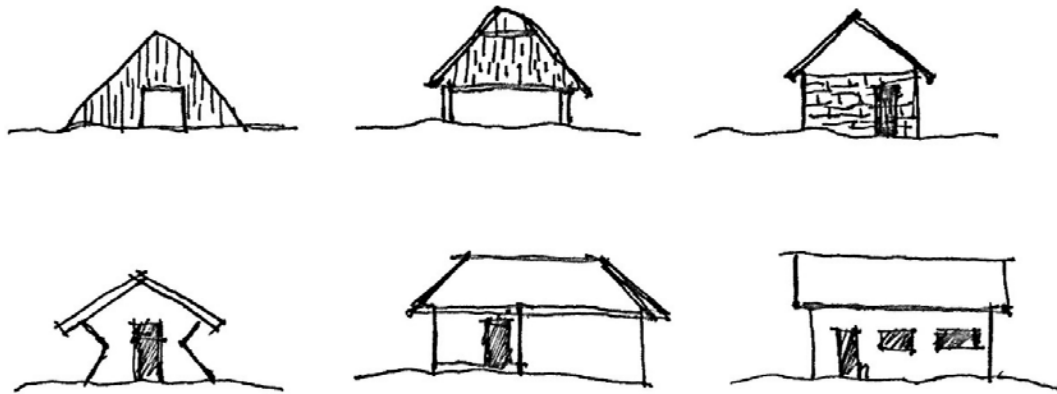


Figure 151: Top left, traditional thatch house built on the ground. Top middle: Traditional Marshallese thatch house on posts. Top right: concrete block house, Bottom left, Typhoon mon found on Namdrik, Bottom middle: concrete house with covered front entry (USDA)

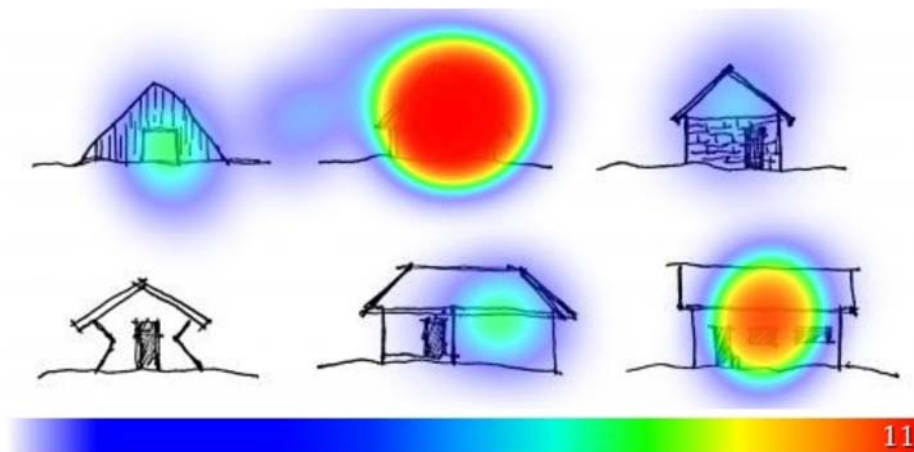


Figure 152. Selection of traditional Marshallese house.

Cultural constraints such as the height of the house being determined by the chief are in conflict with adaptive environmental responses that would require the raising of the house to protect from inundation events. There seems to be little resolve as to why the

cultural constraints continue. It could be that the ease of constructing a single story house on concrete slab outweighs the apparent benefit of raising a house.

Whether it was adaptation to American tract homes in Uliga, the influence of the western style kitchen, or the need for privacy, the influence of western housing is at odds with the persistence of Marshallese culture. To some degree, cultural change is evident, such as the case of the kitchen, and to some degree, the imported architecture of western housing is adapted to, such as the case of the Emlapwoj. Imported architecture does not demonstrate responsiveness to the environment or culture, but benefits are seen in its economy. The durability of construction materials and the reduction in maintenance enables residents to spend more time on other tasks, such as collecting copra for sale. However, as imported architecture itself is not responsive, the embedded processes within Process-built Housing adapt imported architecture to become both more responsive to the environment and more responsive to the culture.

CHAPTER VIII: CONCLUSION AND DISCUSSION

“Given the extreme diversity of human societies, defining a common denominator – or ‘deep structure’ – has appeared unrealistic. The problem lies in cumulative cultural evolution. Culture has generated so many elaborations of that deep structure that, now, it is hardly discernible, as if heavily embellished versions of the same alphabet letter now mask the letter itself.”

(Chapais, 2011).

8.1 Introduction

Contrary to assumptions that traditional cultural patterns had been erased by urbanization and modernization, the study demonstrates that core cultural patterns persist in the construction of the Indigenous habitus and often in opposition to outside influence. While it is difficult to quantify the validity of each pattern, the methods triangulated results for each pattern. For example, whether or not the narrative provided by a participant in support of gendered space may have been anecdotal, observations and the survey reinforced the presence of the pattern. The multi-modal methodology proved robust in coming to similar conclusions for each of the six patterns.

Five overarching research questions captured the theoretical inquiry of this study:

- 1.) Do deep cultural patterns manifest themselves in built form?
- 2) Does a deep cultural pattern define a pattern of cultural resilience?
- 3.) Does the built form in fact reproduce habitus? Does this demonstrate the built-form’s capacity to pass down cultural elements to its inhabitants, creating a recursive relationship?
- 4.) Does self-produced housing ensure more culturally supportive habitation?
- 5.) Does imported housing undermine the inhabitant’s culture?

The evidence in response to the first question, which is the primary

hypothesis of the dissertation, was covered in the previous section. This section is in two parts: one provides a discussion of cultural reproduction and the habitus, responding to questions 3, 4, and 5; the second part analyzes the patterns presented in this section for their overall contribution to cultural resilience in response to question 2.

In seeking to uncover deep cultural patterns in the culture-environment relationship, this study begins to build theory around the notion that cultures create underlying generative socio-spatial frameworks that produce the built form around them, which provide reciprocal support of cultural evolution. While this theory building is in its infancy and requires more longitudinal research, the work has demonstrated that such frameworks exist. These frameworks provide evidence in two areas: 1) deep cultural patterns provide frameworks for built environments that support cultural resilience, and 2) deep cultural patterns demonstrate the significance of Indigenous Knowledge in the creation of vernacular built-environments.

The previous section presented six deep patterns representative of the Marshallese Knowledge that produces the built-environment. These deep cultural patterns manifest in different forms in each setting. Fundamental cultural concepts underline these deep cultural patterns, and when assessed provide insight into how culture change impacts physical representation. The base of the cultural framework consists of the family and the land; from these, knowledge is created, and the natural resources provide for livelihoods. Through the strength of family, the most fundamental of these cultural concepts is the Marshallese sense of togetherness. The term *jouj*, which has a double meaning of grace and the bottom piece to the hull of a canoe, is commonly referenced in conjunction with the concept of togetherness. Based on this meaning, *jouj* is the capacity of the community

to keep itself “afloat” through an attitude of benevolence. Through the production of land, a second fundamental cultural concept is the *wēto*, which represents both one’s identity and literal place on this earth, as well as the resource base that sustains a subsistence lifestyle. A third fundamental cultural concept is the dissemination of knowledge. Knowledge provides the means for the next generation to carry forward the Marshallese culture and reap the benefits from the land and the ocean. The question at large remains: to what extent do these cultural concepts remain intact in the face of massive disruption?

8.2 Change

Change is inevitable in the long evolution of a culture. Six cycles of rapid change have impacted the Marshall Islands: the introduction of the market economy through the copra change, the introduction of Christianity, the Japanese Occupation, the United States Occupation, infrastructure improvements, and globalization. The last three have been interconnected, leading the most rapid change and the creation of urbanization on Majuro and Kwajalein atolls. Culture change rapidly occurs when new norms are established based on supplementing traditional practices with what is available.

The reliance on money rather than custom has led to a deterioration of sustainable livelihoods in the Marshall Islands. The introduction of the copra trade disjoined the preservation of land for subsistence livelihood strategies with strategies to maximize profits. Copra has been a mainstay since the German protectorate, but the deterioration of traditional land management rapidly took place during and after the United States occupation as the reliance on the market economy became a means toward personal independence (Hezel 1995). A growing reliance/accustom towards rice, canned meat, and

other American goods, and the ease at which they are prepared, demonstrates the importance of money over local produce. “Provide for yourself, but not the village and certainly not the *alap*,” became a sentiment of many who did not appreciate the power abuse of *alaps* and *iroij*. The United States occupation also brought in the USAID food rations, and, to a larger extent, reliance on these imports has grown since post-disaster aid following the typhoons of the 1950's and 1970's. As local crops regained prosperity in the years following, new generations became more accustomed to foodstuffs being imported. On outer islands, this means that populations are spending larger percentages of their income on rice and canned meats as their prices are hiked 200 to 300 percent of their prices on Majuro. At the present time, only a few families on Namdrik still live solely off the land. This shift in livelihoods and reliance on copra places the RMI in a perilous position, perhaps surmounting a level of vulnerability to which there will be no coming back from after the next typhoon.

While change has been a significant part of the Marshallese cultural evolution, it demonstrates adaptability as a fundamental element of the culture. Chave (1947) wrote:

“Even in 1890 - Marshallese culture was referred to as adaptable. Without great pressure and cultural disintegration, in those forty years (1850 - 1890), to say nothing of the next fifty, many basic changes were made in the culture. It changed from a prestige, class system based on land control and war to a peaceful class system based on the same land control and on copra trade with the traders. It changed from a society based on and supported by a Marshallese religion and cosmology to one at least partly based in a way difficult to understand on the missionary teaching of the Boston Victorian missionaries. It changed from one based on the material products of

three trees and the sea to one based on three trees and the sea importantly supplemented by trade goods from the western world or the Orient. It changed from one with a faith in medicine concocted from three pairs of leaves picked from the top of a special bush, mashed, mixed with a little salt water and applied to the sore with the accompaniment of magic, to one with a goring faith in western medicine. One feels in looking at one of the central patterns of this culture is its adaptability. This will be considered later.” (Chave 15)

As is expressed in the remainder of this chapter, the deep cultural patterns represent constants in the Marshallese culture that are adaptable to influences – either climactic or social.

Change is an elusive process. Actions often trump words. When asked about changes to building construction, changes to the environment, and changes to everyday life in general, participants often acknowledge the drastic change that has occurred in the Marshall Islands over the past thirty years. (Thirty years, because that is generally how far back the collective memory of participants goes). However, digging deeper into understanding the relationship between these participants and their local environment, both built and natural (even nature on the Marshall Islands has been shaped by millennia of human design), it is clear that patterns of behavior have not changed as much as individuals perceive it. The elaboration on the rate of change could very well be in anxious anticipation of the next big change: sea level rise. While interviews with inhabitants on Majuro and Namdrik often spoke of rapid changes in the environment, observations and spatial analysis tell a different story. One of the clergymen from Namdrik who is in his sixties referred to improvements in building materials,

improvements in concrete construction, the addition of solar electricity, etc. as having drastic changes on social life in the Marshall Islands - in particular, Namdrik. Taking heed of his remorse for the rate of change, it is clear that drastic social change and cultural change has taken place during his lifetime alone. Family members have left the island to seek economic opportunity (Peter Rudiak-Gould 2013) in Majuro and the United States; youth do not respect their elders as much as they were once taught; families no longer rely on the land or respect it to the same degree as their ancestors (for example - the men that chop down all of the breadfruit to build their racing canoes). However, by only focusing on the change, the constant is overlooked.

The study of traditional environments tends to examine processes of social and cultural change due to outside forces such as colonization and globalization and their impacts on the design of vernacular architecture and their impact on cultural identity. Modernization and the western influence of settlement design, housing design, and vernacular architecture lead to both the replacement of traditional environments and syncretism⁴³. The replication of western or “modern” style homes demonstrates wealth and thus power in the market economy, which is evident among the social elite. However, studies of traditional environments - or any vernacular environment - tend to overlook constants: constant patterns of cultural identity, constant social patterns of network support, constant spatial patterns in settlements that support culture or provide a non-monetary economy/materiality in housing that hold on to more traditional identities, etc.; that is to say, the processes that make-up everyday life.

⁴³ Syncretism as defined by Amos Rapoport in Culture-Environment Studies.

This research has shown that rapid changes have taken place, but the evidence demonstrates that in the face of rapid change and outside pressures, the Marshallese culture has persisted to create a built-environment that supports their culture, and these organic adaptations to the built-environment carry culture throughout time. Behavior observation and analysis of space show a different story than speech. Assessing actions (which can be linked directly to the organization of settlement spaces) in conjunction with an assessment of elements of material culture show an objective view of the built-world less prejudice to subjective anecdotes. True, the analysis of this spatial and architectural and material data requires interpretation, but it provides a different point of view.

8.3 Habitus

A dynamic system of dispositions that interact with one another, it has, as such a generative capacity, a structured principle of invention, similar to a generative grammar able to produce an infinite number of new sentences according to determinate patterns and within determinate limits. The *habitus* is a generative grammar, but it is not an inborn generative grammar... It is a principle of invention, a principle of improvisation. The *habitus* generates inventions and improvisations but within limits. (Bourdieu, 2005a, p. 46)

8.3.1 The Dwelling and the Habitus:

“...There are others way better than where I live, I know. But, I always came back home. Came back to my roots. When I [went] to school [in the USA]...I didn’t find myself. What’s important? I have everything on this soil.” (Councilman from Rita)

The statement above acknowledges the connection between existence and land, between experience and becoming. Ontology is place-based. Where it is influenced from new centers of activities in a transnational experience; the knowledge of place and sense of being rooted to the *wēto* overcomes the influences of outside forces.

Context defines a situation and reminds the user of the appropriate rules and sense of ongoing behavior respective to the situation defined by the setting (Rapoport, 1990). Therefore, the building is linked through an interconnected web of the activity systems of its occupants to the socio-cultural context, which exists beyond the building's boundaries. Just as the house reflects the social structure and supports the activities, it plays an equal role in determining the structure and activity (a structuring structure). Thus, the house plays an active role in the creation and maintenance of social reality and of culture, demonstrating a dialectic relationship. The built-environment produces habitus, which influences the development of its user's habitus. Seeing the built-environment as a structuring structure, it is possible to consider the ability for the house to hold agency. In the case of the RMI, the system of the *wēto* represents the house in this case. The system of habitation holds agency.

The fracture of social processes through the replacement of housing materials and housing typologies is common throughout the world⁴⁴. These changes have implications on social organization, symbolic systems, individual identity, power, and social practice (Lawrence & Low, 1990). People are able to make choices in shaping their built-environment. What is interesting in the Marshall Islands, and is central to the core

⁴⁴ *Home in the Islands* discusses at length several case studies in the Pacific that demonstrate the dynamics of social change and imported architecture (Rensel & Rodman, 1997).

argument of this dissertation, is that some patterns change very little or refuse to change. A couple of examples are provided.

The *Emlapwoj* is a fundamental pattern to traditional Marshallese culture, and it represents the center of resource distribution and sustenance on the islands. It was a familial, social organization as well as a method for disseminating knowledge to the young. It provided a symbol for the heart of the clan. While today's families tend to be ever more interconnected, although often dispersed, the concept of the *alap's* house remains. However, the symbolism has re-centered around the concept of *jouj* and togetherness rather than around the symbol of the *alap*. The symbol has moved from one of hierarchy in the clan's social structure to one of unity amongst the family. Today's *Emlapwoj* is a multi-generational housing arrangement that represents the family. While it was clear that this pattern persists through observations, interviews, and surveys, the reason for the patterns persistence was not brought up in interviews or surveys. One could argue that it is due to the economic necessity of a family living under one roof or the spatial requirements for density. Moreover, it is simply the way everyday life takes place. As many participants commented: "It's just the way it is." They do not even question the pattern because it is fundamental to the way of life, beyond those restraints of economic pressures.

The houses of Uliga, in what is known as Americatown, record the interaction changing personal, cultural, environmental, and socioeconomic circumstances. The ways in which people make changes to the Western tract housing over time provides a record of coinciding redefinition of the habitus. The multi-generational family is maintained. Rather than separate huts, the members have separate rooms. Rather than sleeping in the

open attic, the children sleep in the large space of the living room or common room. The cultural adaptation is on par with expected patterns in rural Namdrik. This is demonstrable of families seeking out and remaking spaces to reflect both cultural significance and significant places of the past, places through which their identities were formed. In a way, these everyday practices of reshaping imposed building typologies demonstrate forms of everyday resistance.

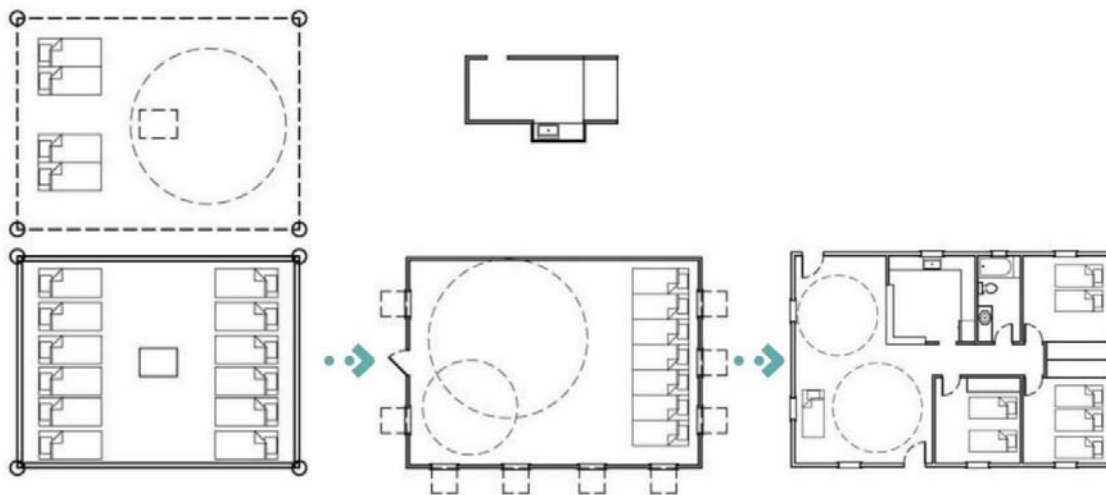


Figure 153. Diagram depicting the evolution of Marshallese housing from traditional to rural to urban arrangements.

While the evolution of the *Emlapwoj* demonstrates a more direct path from traditional environments into the urban environments, it is not to say that western architecture has not had its influence on cultural evolution. (Or at the very least, it has complicated the cultural response to outside pressure.) The introduction of the kitchen has begun to alter the significance of the cookhouse and resource sharing, as described by a woman from Rita:

“Whenever we cook food, we take plates; we share food from this house to their house. If there's fish, give you fish. Anything, which is always, so I guess that

living as a family, a compound or whatever you want to call it, things were always shared. Not so much anymore those things, but back then - always. Not just the American style or housing. I think it's also the money kind - you don't share too much anymore. Before, you could never walk away with somebody else's food without sharing. It was unthinkable. So, you would never take something, but now, people go to the grocery store and buy your food and somebody, but before you could never take anything without sharing. There is a Marshallese phrase: "*Emmanlok ajej jan kuboon (It's better to be sharing than to be selfish)*". I think it's mainly when the money come. The style now people cook inside their houses - there's no more outdoor cooking where people come together and cook and cook together and obviously have to share the food. But now, you just - everything is done inside your house. You don't feel obligated. You don't have to share something with your neighbors. It's really, yeah, the style of American construction."

She describes the influence that the introduction of the western kitchen has had on everyday Marshallese life. Since food could be cooked indoors, the act of cooking was not obvious to the rest of the family or *bwij*. The separation from the cookhouse and its obvious sign of smoke coming from the fire separated sustenance from the concept of "One fire one family" and placed it in the confines of the nuclear family and inside the western kitchen. Combining this transition from outdoors and open to indoors and closed with the possession of money⁴⁵ demonstrates a significant break in traditional culture.

⁴⁵ Peter Rudiak Gould provides an in depth analysis of the market economy and the cultural changes driven by money.

Families are able to purchase food from the grocery store, which does not require the sweat efforts of others or the land of their ancestors to produce. This process of purchasing food and preparing it in the kitchen is often referred to as “secretive” rather than open, demonstrating an uncomfortableness with the idea of breaking away from food/produce as a central piece of togetherness and the Marshallese way of life.

Of course, it is not as simple as the change may seem. Most families have both a kitchen and a cookhouse and typically use the cookhouse at least a few times per month, if not more. In the survey responses and interviews, there was always this dichotomy between imported food and locally produced food: imported food is cooked in the kitchen, and local food is cooked in the fire. One was purchased with money, and the other was the product of the family’s land. One was held for oneself, representing individuality and the nuclear family, while the other was shared, representing the continuation of tradition.

If this is evidence of both the cultural agency of occupants and the agency of the house itself, two considerations need to be taken: 1) the design of the house was imported and in many cases imposed. It continues to reproduce the cultural norms of the former and arguably current dominant western culture. 2) If the inhabitants of this house are not of the dominant cultural group, then their cultural norms will only be reinforced through inheritance, and their habitus is more quickly subject to change due to not only influence from the social context, but also through the influence of the building they inhabit. In the example presented we see this happening, but there is a hesitancy to be fully influenced by the imported, western norm. The cookhouse remains important, and the family connection remains important; some fundamentals seem to outweigh the influence. For

example, in the dispersed pattern of Laura *wētōs*, we would expect the nucleation, and therefore individualization, of families on the *wētō*. The pattern is against the traditional clustering. However, the reliance on one's social network and the deeper Marshallese concepts of family and togetherness draws families close to the extent that distance across a *wētō* has less or little implication on the social integration of the family. This is why the socio-spatial structure is so closely related between Namdrik, Laura, and D-U-D, which was evident in the shared genotype of spatial integration.

Social change in Marshallese housing and habitation is complicated, but the constants that are evident demonstrate the agency of culture to transpire in the face of outside pressures.

8.4 Theory Building

The habitus consists of the deeply buried schemes that constitute a culture, transforming collective heritage into an individual and collective subconscious (Bourdieu, 1990). The deep cultural patterns presented in the previous chapters represent elements within the dynamic system of the Marshallese habitus. The Marshallese habitus is more evident in Namdrik and Laura but muddled in the urban center of Majuro. Downtown Majuro is highly influenced by the United States hegemony and globalization. In addition, within the three environments, the Marshallese habitus influences and is influenced by immigrants, adding to the dynamism. As these external and internal relationships evolve, the deeply buried schemes are evident in the deep cultural patterns.

Indigenous Knowledge plays an important role in shaping culturally supportive physical space. Traditional settlement patterns, as established in *Togetherness Manifest in Clustering*, were recreated amidst modern urbanization in the capital, Majuro. The

reproduction of familial organization in space demonstrates the agency of spatial knowledge in the cultural production of space. While colonization and globalization (aka neo-colonialism) have had major impacts on the built form of the Marshall Islands and the Marshallese cultural evolution, everyday cultural spaces demonstrate the persistence of deep cultural patterns that aid in the reproduction of the Marshallese place-identity. As alluded to, the active creation of these cultural spaces in the Marshallese vernacular architecture represents Indigenous Design Knowledge.⁴⁶

The reproduction of these cultural spaces within the built-environment of the Marshall Islands demonstrates the agency of deep cultural patterns and the adaptability of Indigenous Knowledge. In design, Indigenous Knowledge should not be restricted to a time period or ecology, but rather it should be considered as an operative that supports cultural evolution across time and space. As knowledge that assists Indigenous peoples in their adaptation to change, knowledge provides agency. In contemporary society, Indigenous Design Knowledge may be considered a performative action that legitimizes an Indigenous person's place in a neocolonial urban environment. It may also be considered the deep culturally based knowledge that assists an Indigenous person's survival through adaptation to the market economy. The reduction of cultural knowledge in the production of the built-environment to replacement and syncretism is an oversimplification of adaptive processes.

⁴⁶ Paul Oliver (2003) refers to the Indigenous Knowledge represented in vernacular architecture. What I argued here is that the adaptation to and morphology of imported architecture is a part of the Marshallese vernacular architecture. These adaptations and morphologies are generated by deep cultural patterns, which represent the Indigenous Knowledge in creating culturally supportive spatial order.

To rule out Indigenous Knowledge in the adaptation to globalization and urbanization is to rule out indigeneity. One has to deconstruct the assumptions and knowledge systems that produce the illusion of a singular meaning - rather; one must work to uncover the forces inherent in the interaction process (Bourdieu, 2005b). Bourdieu argues culture is an arbitrarily constructed notion that changes temporally. Social groups construct their notions of culture and systems of knowledge. The dominant power regimes use particular definitions of culture as control mechanisms to “establish, maintain, and reproduce their ruling position” (Webster, 2011, p. 7). The point when someone develops agency is the point at which she can put into question the structures and challenge the structure, sometimes remaking it (Bourdieu, 2005b).

What happens to the habitus and Indigenous Knowledge as a culture moves away from the place from which they were conceived? Amongst immigrants, the maintenance of the habitus between the first and second generation is precarious, because the habitus of the second generation has expanded beyond the hereditary culture of the parent, and therefore is more subject to change. In theory, elements of habitus that prove beneficial within the field would be maintained between generations – contained within the cultural capital of their local knowledge. However, manifestations of culture that prove less useful, for example, traditional clothing, will be replaced with what benefits the net worth of the individual. Rather than seeing this as assimilation, it may be the result of a deeper cultural pattern that is driving adaptive strategies for survival. Leveraging the Indigenous Design Knowledge in an immigrant community can assist in increasing cultural capital and establishing identity.

“The ‘complicit silence’ of architecture is the source of its deepest power, in both the worst and the best sense of the term ‘power’ – oppression and empowerment; privilege and resistance. If social responsibilities were taken more seriously by profession, then it would gain legitimacy for the production of both symbolic and social capital (Dovey, 2002, pp. 291–292).”

Bridging the concept of habitus with urban revitalization and resilience, empowering marginalized populations may be possible by leveraging their cultural capital. The ability of a group’s cultural norms to be resilient is important to their wellbeing, health, and security. To rebound and reorganize in reaction to a dominant culture, a disaster, or to climate change requires cultural resilience. The implications for the enhancement of deep cultural patterns within the discussion of immigration are equally valuable for building resilience in sending communities.

8.5 Transformative Action within Climate Change Adaptation

In the *Production of Houses*, Alexander et al. (1985) call for a transformative approach to architecture - to reset the existing system and throw out the old power regime.

[The production of housing] requires a different set of assumptions, institutions, and laws...it defines a new deep structure, which cannot coexist with the old one, and which will, therefore, have to replace it if it is ever to succeed on a larger scale (Alexander et al., 1985, p 354).

Within resettlement, generative patterns only have as much viability as a minority has within an oppressive hegemonic state.

To protect or maintain a minority culture within the social field of a dominant culture, agency within the minority culture needs support. I propose that this can be done in two ways in relation to the built-environment: 1) Leverage the cultural capital apparent in adaptive strategies within the built-environment. The cultural capital may be demonstrated as a hidden resistance and thus requires collaborative participation to discover (Scott, 1998). For example, small everyday actions were observed in Uliga that demonstrated a rejection of colonial influence and a return to traditional habits. One example was the holistic replacement of imported food with local produce. In addition, the transformation of western tract housing is evident of spatial adaptation that reinforces the cultural role of space. 2) Ensure the ability of a culture to construct their built-environment by means of their own. Sustainable development requires equity between social structures, and to do so requires leveraging the capital of those without power. By leveraging the cultural capital inherent in the structuring systems of the built-environment, it may be possible to spur sustainable development that is representative of Alexander's notion of wholeness. Taking the Marshallese placemaking in Northwest Arkansas as an example, modifications to municipal ordinance and land use codes restricting the use of commercial spaces, churches, and living density would benefit immigrant communities.

“Our positions within buildings lend us our dispositions in social life. The spatial division of our world becomes a vision of our world. The buildings we inhabit, our habitat, and our spatial habits all reproduce our social world... Syntactic analysis opens up questions – what kinds of agency are enabled and constrained by the particular building genotype within which it is structured? And whose

interests are served? How is everyday life bracketed and punctuated into socio-spatially framed situations and locales?” (Dovey, 1999, p. 30).

How can we intensify the production of culture with relationship to the built-environment and leverage the agency of the marginalized? What forms does agency take within the built-environment, and which are those of the powerless, and which are those of the powerful? Transformative action is needed – requiring the dismantling of the inherent structures that maintain the current power regimes that control the maintenance of racism, patriarchy, class domination, resource degradation, impoverishment, exploitation, and alienation (Friedman 1987).

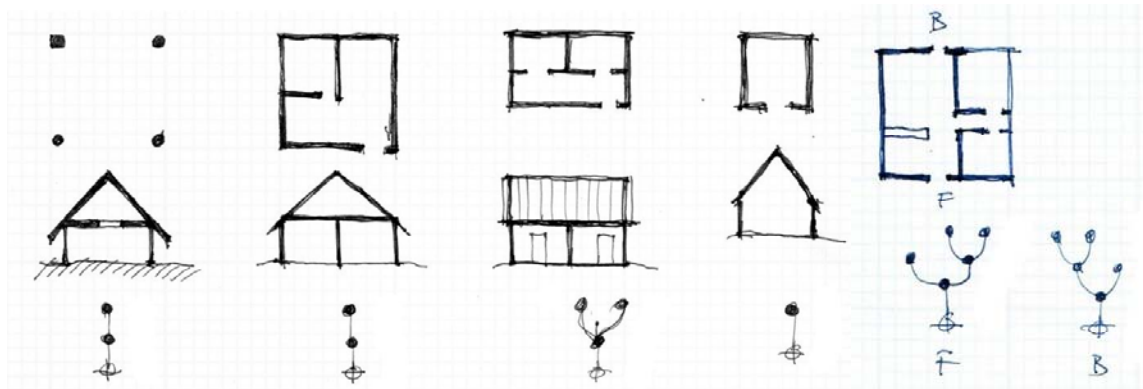


Figure 154. Diagram of housing typologies present in the RMI.

8.6 Resilience of Patterns

Berkes and Jolly (2001, p. 18) provide three characteristics to assess change in terms of resilience: 1) The amount of change the system can undergo and still retain the same controls on function and structure; 2) the degree to which the system is capable of self-organization; and 3) the system’s ability to build and increase its capacity for learning and adaptation. Folke et al. (2002) recommend utilizing collaborative processes to produce synergies between elements within systems in order to build resilience.

Ecological design and planning processes have four main characteristics: 1) responsive to local conditions; 2) adaptive to changing conditions; 3) employ decentralized approaches; and 4) are developed through the contribution and collaboration of many simple entities through processes of bottom-up self-organization that follow certain generative rules (16). To operationalize these four approaches in the architecture of deep cultural patterns of the Marshall Islands, the historical context is considered as intertwined with the ecological context. 1) Each pattern responds to both the historical and environmental conditions of place in a manner that both de-colonizes space and recreates Marshallese place-identity. 2) Deep cultural patterns represent frameworks that provide for cultural continuity as families adapt to colonialism, globalization, and climate change. 3) Deep cultural patterns are representative of a generative framework. 4) Decentralized approaches are inherent to the everyday cultural production of the Marshallese habitus as each pattern is developed from the bottom up. The generative nature of the patterns was expressed in the previous section. The knowledge embedded within deep cultural patterns can aid cultural continuity in planning and design for climate-forced displacement and resettlement and assist in the marriage of the regenerative paradigm and the decolonizing paradigm of architecture.

How does a deep cultural pattern decolonize space? Using “America Town” in Uliga as an example, the land and its buildings were quickly reclaimed as Marshallese spaces. Traditional land tenure rapidly reclaimed the land and its content after the United States turned over control and remains to the rightful heirs. As expressed in the example of Icedonia in Chapter 6, *Emlapwoj*, tract housing has been adapted to in a manner that reflects traditional housing arrangements. Granted, it has been expressed above that

elements of the western housing have influenced Marshallese behavior, but these spaces have been reclaimed to express Marshallese place-identities, albeit modified. In addition to housing, family cemeteries have been erected and the *wētos* are identifiable by the *bwij* that controls them.

The regenerative paradigm provides an alternative that is explicitly designed to engage with a living world through its emphasis on a co-creative partnership with nature based on strategies of adaptation, resilience, and regeneration (du Plessis, 2012, p 7). The problem with the regenerative paradigm on its own is that it overlooks the social inequalities created through hegemonies and uses ecology to legitimize itself. On the other hand, there is a tendency in the paradigm of decolonizing architecture to overlook nature. In forming a marriage between ecological resilience and cultural resilience between these two paradigms, a role for deep cultural patterns comes forth for the reclamation of land, identity, and rights in the Marshall Islands. Fanon (1963) wrote, “Decolonization is always a violent phenomenon.” To take an extremist view, rather than repair, deconstruction may be required to create a truly life-affirming and equitable built-environment. To be more pragmatic, the cultural capital embedded within the framework of deep culture as generative can legitimize the marginal within the dominant culture.

Cultural capital is an “asset that embodies a store of cultural value, separable from whatever economic value it might possess; the asset gives rise to a flow of goods, and services over time which may also have cultural value” (Throsby 2014, 91). Cultural capital includes tangible items: monuments, architecture, and human-made landscapes. It also includes intangibles: ideas, traditions, beliefs, knowledge, and customs shared by groups of people who share intellectual capital that create the tangible elements. By not

sustaining cultural values that provide people with a sense of identity or invest in the enhancement of both tangible and intangible cultural capital, cultural systems may break down and lead to loss of welfare and economic output. How is this done in a manner that legitimizes the colonized, and legitimizes the Indigenous within an urban environment? Cultural sustainability necessitates the long-term maintenance of cultural resources, such that intergenerational and intragenerational equity are appropriately served. Wesson (2013) demonstrates that culture is a dynamic, interactive network of contingencies and possibilities: “Culture offers innumerable opportunities for variation, creativity, dialectical self-evaluation, and alteration” (p. 101). The enhancement of deep cultural patterns through the allowance of informalities will assist these groups of Indigenous people within the built-environment. Deregulation of codified regulations that have been systematically used for oppression needs to be eliminated. Within this process, change needs to be expected and accepted as inherent in adaptive strategies 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 in the dynamism that exists in cross-cultural engagement” (Wesson 2013, p. 108).

Investing in efforts to maintain deep cultural patterns to reduce the stress on the health, wellbeing, and security of the displaced populations will provide a mechanism for mitigating further vulnerability to greater stochastic events in the post-settlement system. Cultural sustainability, therefore, does not maintain culture in the sense of static motion, but rather provides 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. The deep patterns presented in the previous section demonstrate

mechanisms that will work for this endeavor. These support the continuity and enhancement of cultural capital; it is clear that ensuring the continuity is a necessity to create sustainable development and resettlement schemes. To a further extent, transformative action is needed within a decolonizing paradigm in order to transform the entirety of the built-environment into one of inclusivity and equity.

“Ultimately, the most fundamental impetus for the protection and maintenance of bio-cultural diversity can come, not from top-down efforts, but only from ground-up action of Indigenous and other societies worldwide whose languages, cultural identities, and lands are being threatened by global forces” (Maffi, 2007, p. 274).

Adaptive strategies and coping mechanisms related to core cultural values are slow to change and contribute to the resilience of the family and community. The pattern of *Ippan Doon* provides social capital through both spatial and social closeness. One Fire One Family provides a resource base for the family that provides sustenance, emotional support, economic support and general social support.⁴⁷ *Emlapwoj* provides a structure of security with economic benefits present in immigration and unites *Ippan Doon*. These three deep structures provide constants with capacity for assisting climate change adaptation and cultural resilience in the Marshall Islands and within the Marshallese Diaspora.

The Process of Building continues to provide resilience through the communal processes embedded within the Indigenous construction of the built-environment.

⁴⁷ “Cookhouse Confidential” was a strategy by the IOM to leverage the role of the cookhouse as a women’s safe space in everyday Marshallese life within a framework of women’s support. In addition, the role of the identified Marshallese churches in Northwest Arkansas is symbolic of the cookhouse as a support system for immigrants.

However, rapid replacement with western building cultures, such as contractors and housing programs, is gradually fracturing the deep pattern. The utility of the house is threatened by the introduction of durable materials, causing the patterns of traditional maintenance to cease and their associated communal and social processes to disappear, similar to those in the production of housing. The core utilitarian purpose of the house persists as an outcome of life being lived on the land. In regards to the house as a symbol of self, the houses of chiefs and nobles continue to be those of more refined nature with more aesthetic qualities than utilitarian. However, capitalist society allows for those outside of traditional nobility to access the same place in social hierarchy. In fact, some of the smallest houses observed in Laura were those of *alaps* as opposed to the mansions of individuals who found success in business. Within immigrant communities, the persistence of these two patterns is in peril. To an extent, the production of Marshallese place within Springdale, Arkansas is representative of the building process. The development of Marshallese stores and the social creation of space for cultural events and Marshallese celebrations demonstrate the communal aspects present in the production of housing. Combined with *Ippan Doon*, the mechanisms within the Marshallese chain migration, such as familial hospitality present in the “guest house” and the assistance in finding housing are present through migration. As these patterns persist, they require strengthening to enhance the immigrant experience in a manner that enhances cultural resilience. The introduction of permanent Marshallese places, such as the community cookhouse could be productive. In understanding the enhancement of cultural resilience in the Marshallese diaspora through the implementation of deep cultural patterns will provide more clarity in planning for any potential resettlement.

The *wēto* presents a more difficult issue within the enhancement of cultural resilience and in its regenerative and decolonizing role. The *wēto* maintains its strength in the Marshalls as the core of social and individual identities; however, urbanization creates non-positive relationships with the land by internal immigrants. The forces of globalization and climate change are forcing families to leave their land rights in the outer atolls and move into the capital, where they lose part of themselves in the transition. Equitable land distribution becomes difficult when all land is privately owned through traditional land rights. Urban land holdings within the paradigm of decolonization are complex, as the creation of a commons in and of themselves would be seen as a colonial ploy to “create equity” in the guise of a “neocolonial agenda.” Land leases provide an option but are not highly effective to date due to family conflict, and they do not replace permanent land tenure. The creation of new land through seawalls may be the best option for securing land tenure rights for families without land rights. Through migration, the *wēto* becomes entirely replaced in the assimilation of real estate mortgages. However, as argued in “Marshallese Placemaking in Middle America,” I argued that the Marshallese churches have begun to acquire land in Springdale, AR, and are becoming a symbol of both the alap and one fire one family. In addition to the church, the temporary creation of Marshallese space in Springdale is evident at the Tyson Park baseball fields and the Rodeo during Marshallese celebrations like May Day.

The resilience of the deep patterns lies in their ability to ensure the continuity of Marshallese culture at a basic level. Through the cultural adaptation to pressures, the patterns may generate new outward manifestations of culture that appear to demonstrate rapid change. These changes will have to be evaluated based on the core purpose of their

manifestation. For example, traditionally the communal building process provided labor to assist in the construction of a thatched house, but today the same communal process provides labor in concrete block housing. Similar, if not the same, social processes are present in both cases. Similarly, togetherness manifest in clustering was traditionally a method of resource preservation. In rural areas, this pattern more closely represents the traditional manifestation, but in urban environments, the resource being preserved is social capital. In essence, the pattern is ensuring the viability of Marshallese livelihoods in both geographies.

Strategies for mitigation and resettlement processes need to take on a community-based collaborative approach. At a higher level, this should manifest in the form of actions such as land use ordinances as well as incentive programs that aim to primarily benefit the most vulnerable populations. Such ordinances and programs should be developed and passed using a collaborative approach that avoids top-down strategies, and instead seeks public and grassroots involvement, such as through the use of steering committees composed of community leaders.

8.7 Contribution of the Patterns to Resettlement

“Jouj is what protects you.”

What will protect the Marshallese in the face of impending disaster? As climate scientists in the Marshall Islands argue, habitability is the real issue, not sunken islands. Presently, habitability is threatened most by a one hundred year typhoon and, to a lesser extent, extended sea inundation that decreases the productivity of the land. In the face of a typhoon, the urban centers of the Marshall Islands are left entirely exposed and defenseless (Spennemann 2005); the outcome will be devastating. A combination of mass

destruction and the increase of both climatic events and sea level rise will bring to question two things: 1) the aid response that will be received for post-disaster reconstruction of Majuro and Ebye, and 2) a rapid shift in migration patterns.

Some simplistic responses have been presented in response to impending disaster, such as Rockwood et al. (2016) “Climate adaptive and Resilient Housing” prototype. However, they do not provide solutions to the socio-economic issues that will be created. Is it worth the cost to raise a house and construct it from rigid materials able to withstand a typhoon? Raising your house may provide the insurance that your valuables are safe from floods, and constructing it in a robust manner will keep its inhabitants safe and secure, but it does not protect your livelihood. What good does that protection provide if you lose your economy and main source of sustenance? Even a minor flood, like the one Namdrik experienced in February 2015, means loss of productive breadfruit, taro, and sweet potatoes, leaving the community reliant on imported foods.⁴⁸ It takes a minimum of a year for the salinity of the taro patches to decrease to a level in which taro can grow again. Consider a major flood that washes across all of the land and lasts a week, or even to an extent - the increase of underground channels carrying salt water. This could lead to a collapse of even the salt-resistant plants like pandanus that also provide protection from strong winds. A raised house is a temporary solution and the benefits most likely do not outweigh the cost. At the rate the shipping lines drop off supply to outer atolls combined with the cost of chartered flights, there is little chance a population, such as that on Namdrik can survive a rising sea, not at least without total reliance on foreign aid. In an

⁴⁸ Kiste describes the negative consequences that the reliance of food aid had on the health of Bikinians after the resettlement program.

impoverished country, migration will inevitably become the norm far before finances are spent on the reconstruction of a nation.

An economic hierarchy exists within the response to vulnerability that benefits families with the economic means to easily migrate within their diaspora. Those with money are able to build sea walls, which tend to add to environment injustice, negatively impacting adjacent families without the means to construct their own walls. The elite can raise their houses and survive off imports - the poor cannot. Sea level rise seems as though vulnerability is felt equally across the country, but the reality is that the elite has the ability to migrate easily, and are able to more readily adapt to new communities – albeit most will enter their pre-existing diaspora. The poor will feel the full impact of the disaster; many of these families will either feel the urgency of government led migration and resettlement, or they will stay close to their land, their only possession. To create a more equitable adaptation strategy, land use needs to mitigate existing vulnerabilities to the poor while providing the poor opportunities to enhance their capital.

8.7.1 Resilience & Livelihoods: Evaluation for Resettlement.

The deep patterns present a promising framework for both disaster preparation and vulnerability mitigation. When paired with a participatory planning process such as the Reimanlok plan, communities can help identify how to utilize these patterns in adaptive strategies. For example, the Process of Building can be implemented to assist in building repair and implementation of adaptive strategies. In addition, when combined with strategic resource use of coconut lumber, the building process can be adapted to rapidly produce post-disaster housing. Joun Kijeek (one fire one family) provides a basis for disseminating knowledge and distributing resources to assist families with disaster preparedness. The patterns of land tenure have historically provided families with a

mechanism to ensure livelihoods are not entirely lost, providing the possibility of inter-island migration (Spennemann 2005). Based on the case of internal resettlement in Argentina (Corra, 2011) - the focus of cultural patterns within the housing development - it could be correlated that the enhancement of socio-cultural capacities is associated with the maintenance of cultural patterns. Within rural and urban communities, discussions of clustering's social properties could enhance planning goals and policies around the construction of new sea walls. The creation of infill land can be seen as an acceptable method for providing land tenure to families without land claims in the area, but who are in dire need of the economic benefits of the urban center.

In the case of habitability loss, the patterns provide a generative framework for establishing Marshallese place-identity in a new land. Deep cultural patterns provide a basis for providing a basic continuity of culture and assist in the production of place for Marshallese through the process of migration. While the psychological attachment to place has been uprooted, these cultural systems provide a basis to rebuild the Marshallese habitus and secure psychosocial development of Marshallese. The mechanisms within these systems also provide strategies for securing livelihoods. Rather than agricultural production, families work in Tyson chicken factories to provide the means to sustain the family. As identified through observations and interactions with the Springdale, AR community, social stratification is evident as a continuation of privilege that was present in the Marshall Islands. One change has been the role that Marshallese churches play in the community.

8.7.2 A Framework for Community Development.

A key component to building community resilience and mitigating vulnerability in the Marshall Islands is gaining the support of wealthy property owners as key stakeholders. It needs to be acknowledged that climatic events, such as inundation events, exacerbate the dichotomy between the rich and the poor. Sea level rise is not a social equalizer. Since land in the RMI is all privately owned, collaborative planning with landowners is required to develop shared and actionable visions for creating a sustainable built-environment. Implementing grassroots strategies for mobilizing communities will assist in planning and policy implementation. In addition to the participatory process, public education programs need to be implemented at a *wēto* level to help families understand how they can assist in hazard mitigation and disaster response. Building this into the existing Reimanlok plan would be effective. Public forums and community meetings will assist in building community and institutional buy-in within the collaborative process.

One example of implementation based on the principles present in the deep cultural patterns is the preservation of resources, such as implementing a land use ordinance requiring landowners who build new sea walls to mitigate the impacts on resources “downstream.” This would ensure that families without the economic means are not made more vulnerable by their economic disposition. In implementing resource preservation with the concepts of One Fire One Family and Togetherness, low-income residents should be targeted for capacity building through a redistribution of resources that can assist in their resilience. Redistribution may be in the form of financial aid or directed government assist in housing programs. Worker groups could also be implemented to assist in building repairs and strategies to protect the health and wellness

of these residents. A second example of strategic planning would utilize the principles of the *wēto* pattern to ensure tenants are protected within disaster mitigation plans.

As much as effective strategies can be presented, their enactment relies on competent and effective planners and policymakers at the traditional leadership and government level. Effective implementation faces general corruption in both traditional and government leadership. This is a major challenge to overcome in order to develop collaborative modes. In addition, professional Marshallese urban planners need to become an active piece of government strategy for climate change adaptation. While climate scientists, engineers, and community leaders are essential to successful strategies, planners are necessary to ensure their implementation at the *wēto* level.

In the case of resettlement, based on the utilization of the presented patterns, plans need to be addressed at the community level, per atoll, per islet, to ensure cohesion of communities. While directed from a government level, decision-making needs to take place at an atoll level. It is possible that resettlement could be dispersed based on atoll-level decisions. For example, the existing transnational relationship between Namdrik and Springdale, Arkansas could lead to an atoll-wide decision to resettle in Northwest Arkansas. The national as a whole has to develop a resettlement plan, but communities need to have their plan with a structure in place to inform migration. In some cases, an atoll may be required to appoint community members as point-people/families to develop new diasporas.

The assessment of existing transnational relationships will provide valuable information for how deep cultural patterns assist in the creation of Marshallese place in immigrant communities. Analyzing this information for effective strategies in cultural

maintenance will be invaluable for any future resettlement plans that provide for cultural resilience. The closing door diaspora presents a unique phenomenon. Communities establish a diaspora with the conception from the beginning that the door will permanently close on one end. Drawing on ancient voyagers in the Pacific, it is not a new phenomenon for Pacific islanders.

8.7.3 Decolonizing Resettlement

While utilizing the Indigenous Knowledge present in deep cultural patterns will assist in re-establishing a basic Marshallese identity through resettlement, the hegemonic agenda needs to be avoided. For example: using resettlement as an economic development strategy. In the case of Turkish refugees that resettled in Greece following World War I (Voutira and Harrell-Bond 2000), the primary objective of Greece and the Refugee Settlement Commission was to spur rural development in northern Greece through the resettlement process. Loans and compensation for land loss were used for investment in home-based enterprises and agricultural production. While touted as widely successful, the agenda of the hegemonic order, in this case, controlled the outcome, which likely led to more rapid assimilation into the Greek way of life.

Climate-forced displacement is the new era of the colonial hand directing the futures of small island nations and Indigenous peoples. As Leonie Pihama wrote: “Colonization is colonization, whatever new name we may like to give to it. Globalization, free market, neoliberalism, profitability, capitalism, it is all fundamentally about colonization. (Leonie Pihama [Te Atiawa, Ngati Mahanga], cited in Choudry, 2003). As climate resettlement becomes a realization for many peoples across the world, globalization will exacerbate the loss of cultural identity, further threatening to erase the

sovereignty of these nations. Wealthy nations will benefit from the loss of entire cultural groups, absorbing them into their industrial machine – not unlike the resettlement of Turks into Greece.

What is needed in reaction to global climate displacement is action. As Manulani Aluli Meyer wrote: “It’s not about how well you can quote theory; it’s whether those ideas affect how you act” (Manulani Aluli Meyer in Denzin, Lincoln, & Smith, 2008, p. 221). Decolonization only has power if individuals, communities, governments, and movements are willing to act. Within the project of decolonization, collaboration across groups should enact common goals that reflect anti-colonial sentiments. Decolonization is enmeshed in activism. As a strategy to resettlement or adaptation, it works within the belief that non-western knowledge forms are legitimate in the production of new or improved built-environments and it recognizes the role of colonization in scripting an inconsequential Indigenous subject. The activism needs to be used to delegitimize oppression and re-legitimize informalities that assist generative processes of Indigenous peoples. For example, in the Marshall Islands, the processes of building codes and government land use planning are demonstrable of the tendency to ignore traditional controls.

Decolonizing acts framed variously as activism, advocacy, or cultural reclamation assist in the creation of space for the representation of Indigenous epistemologies that are performative in style and reflect Indigenous expressions. Collaborative and participatory processes can be implemented to conduct authentic dialogue amongst receiving communities and immigrants to assist in stitching cultural spaces within the larger context.

8.8 Limitations

The dissertation began as a project to assist marginalized coastal communities mitigate culture loss through climate forced displacement and resettlement. While the impetus for the research was climate forced resettlement, the study evolved to focus primarily on existing cultural patterns in the Marshall Islands to form a deeper understanding of everyday Marshallese culture and establish a relationship with the community. Prior to field research, I began relationship building with nonprofits and Marshallese families in the United States and the Marshall Islands, and have made return trips every other year to maintain these relationships. It has been important to become embedded in the community as much as possible, a mission that will continue into the future. However, as an outsider who does not permanently reside in the Marshall Islands nor speak Marshallese, there is a disconnect, and the network of relationships that have been built are primarily with upper-class Marshallese families, government entities, and nonprofits. It is difficult as a western academic to truly embed within a foreign community, let alone with low-income families. Furthermore, as travel back to the Marshall Islands becomes less frequent, the trust and bonds established within communities such as Namdrik will begin to erode. Where relationship building attempted to be unbiased, there is a sense of economic elitism that impacts the study. Mitigating this issue of bias will be my charge moving forward with future work in these communities and others.

Furthermore, the Marshallese culture is intricately intertwined with the ocean; the outrigger canoe is the symbol of Marshallese material culture. This topic, which has been well covered by many, such as Joseph Genz (2009) was not covered as part of this

dissertation, nor were important aspects of ocean life such as fishing and marine resource management. Ocean-based deep cultural patterns in the Marshall Islands certainly exist, and these certainly impact the culture-environment relationship. However, within the time frame to complete a dissertation it was not possible to be inclusive of all aspects of Marshallese culture. My time was primarily spent land-based, with the focus of data collection on systems of habitation on land; the physical research focused on the land and built structures.

Several factors limited the scope of work in the dissertation. Time was always a force to be reckoned with. Financial hardship and family responsibilities made it difficult to expand the field studies beyond that which was completed. Between difficulties scheduling site documentation and interviews with families, transportation issues, and the lack of financial resources, the work was hindered to a degree. However, this did not impact the validity of the findings nor the committee and my confidence in the results.

The multi-modal methodology allowed for the investigation of these deep-cultural patterns from different perspectives. If only one interview commented on the pattern, it was noted. As observations, site analysis, and other methods uncovered the same results; findings were reinforced through triangulation.

Lastly, early on, I assumed that resettlement would happen on nationally acquired lands that would allow for nations to continue to exist within the bounds of another country. These assumptions faded as the understanding of chain migrations took hold, and a realistic outcome for populations like the Marshallese will be a rapid increase in existing migration patterns, leading to larger Marshallese enclaves in the United States. Acknowledging these issues, the dissertation concentrated on the cultural patterns that

generate culturally supportive space and place identity. Future research will continue to investigate Marshallese diasporic communities to understand how place identity and cultural resilience is apparent within the climate diaspora.

8.9 Conclusion

Looking at consistency across time is a phenomenon often overlooked in the study of traditional environments and architectural research. In the consistent patterns of everyday life - and perhaps to a larger extent in symbolic or larger event patterns - we begin to see acts of cultural identity resisting outward pressures. In the urban center of Majuro, families continued the traditional uses of the cookhouse - using traditional foods that are locally grown. One respondent even referred to it as an active decision to return to her cultural roots. When we consider the renaissance of indigeneity that is taking hold across the globe, including the Marshall Islands, new modes of reproduction of identity and resistance to western or global impositions are springing up. The constants may provide more insight into the resilient structures of culture and the built-environment relationships. Just as constants shape the built-environment at the local, Indigenous level, these constants are carried over to the global transnational level. It is also important to assess how immigrants actively resist assimilation to American culture by attempting to maintain cultural and social patterns in receiving communities that can be identified in adaptations to space - at both the domestic and urban scale. In a world of rapid environmental change, the global can learn from resilience of these Indigenous communities. Moving forward, the research will continue to follow the diaspora of Marshallese communities in the search for understanding place identity is established within the Climate Diaspora.

APPENDIX A: NAMDRIK VERNACULAR ENVIRONMENT

A.I Introduction:

Namdrik maintains its designation as the chest for *manit* (culture). Today Namdrik hosts a population of approximately 500 people (EPPSO 2011 Census) with 100% of the population residing on Namdrik Islet. It is rare if ever that all Namdrik families are present on the atoll at any given time⁴⁹. Madmad islet is uninhabited. There are a total of 97 households on Namdrik and the average household size is 5. 67% of the population are under the age of 15 and there is a net migration rate of -26 (5% population loss over a five year period (EPPSO 2011)). It is apparent from the vacant housing all along the island, that global shifts have had a major impact on Namdrikese as families seek jobs on Majuro or the United States.

The most common form of energy found on the island for lighting and electricity is solar. Generators are used by those families that can afford to import a generator and fuel; these are primarily used for running a small clothes washing machine and televisions. The most common fuel for cooking is wood and coconut husks. Most families use small butane tanks for running table top stoves. Drinking water is collected into plastic water catchment tanks and some families treat the water with chlorine. 60% of households have a toilet with septic system, while the other 40% either use a neighbor's toilet, use a pit toilet, or defecate in the woods or on the ocean reef. The majority of households burn or bury non-compostable waste.

⁴⁹ . Many families live on both Namdrik and Majuro or Jaluit

Nearly the entire population of Namdrik utilizes subsistence strategies, raising their own livestock and tending crops such as breadfruit, pandanus, coconut, banana, and tarot. 92% of the households fish for sustenance in addition to their agricultural production. While almost all families live subsistence lifestyles, local food is supplemented by imports of canned meat, rice, and flour. However, these luxury items tend to be used primarily by more affluent families. In addition to local food and imported staples, instant coffee, soda pop, cigarettes, and Kool-Aid are popular luxury items consumed by all – all available at one of the three stores on Namdrik. Alcoholic beverages are strictly prohibited on islands with the exception of New Year’s Day.

Beyond farming for subsistence, some families send bundles of banana, tarot, breadfruit, pandanus, pork, or fish to families on other atolls via Air Marshall Islands cargo and the Field Ship. Some of these items are even sold at the local markets on Majuro. 19% of families produce food (crops, livestock, and fishing) for both subsistence and sale. In addition to the sending of food, 70% of the households engage in copra production and 37% of households make *Omimono* for trade and sale. Copra and *omimono* are the primary forms of economic production inside the market economy for Namdrik families. Namdrik is famous for the woven pandanus mats, made from the *wilomaan* that grows on almost every *wēto*.

At the school building, satellite phones are available for making calls to other atolls and internationally. In addition, the same SAT line provides an intermittent internet connection for basic e-mail and web browsing. However these systems are unreliable, and 2-way radio connections are relied upon for communication with family on Jaluit, Majuro or other atolls.

Prior to 1958, nearly 100% of buildings on Namdrik were thatch with the exception of the Copra trading warehouse, the Japanese store, the school building, and the catholic and protestant churches (the church roofs were thatch). Housing, for the most part, were thatch. The large thatch houses were approximately 35 feet long by 20 - 30 feet wide, raised 3 to 5 feet off the ground, supported on post and beam foundations, and the upper floor provided sleeping space and storage. The smaller houses were approximately 20 feet by 10 feet or smaller and tended not to be raised; rather a simple a-frame structure directly on the ground. The larger houses were the dwellings for the head of the *bwij* and the children; the elders slept on woven pandanus mats over the coral spread under the house structure. The smaller houses were for the married couples, who slept on woven mats under the protection of the roof. Following Typhoon Ophelia, that hit Namdrik and Jaluit in 1958, no foreign or governmental aid was provided to Namdrik. With the exception of a few concrete houses provided to a few families through funding under the United States Department of Agriculture and new tin provided to replace the roofs on the churches and school, the people of Namdrik built back in the ways they knew how, using thatch. Through the 1960's education programs through the United States built some housing and a school on Namdrik.

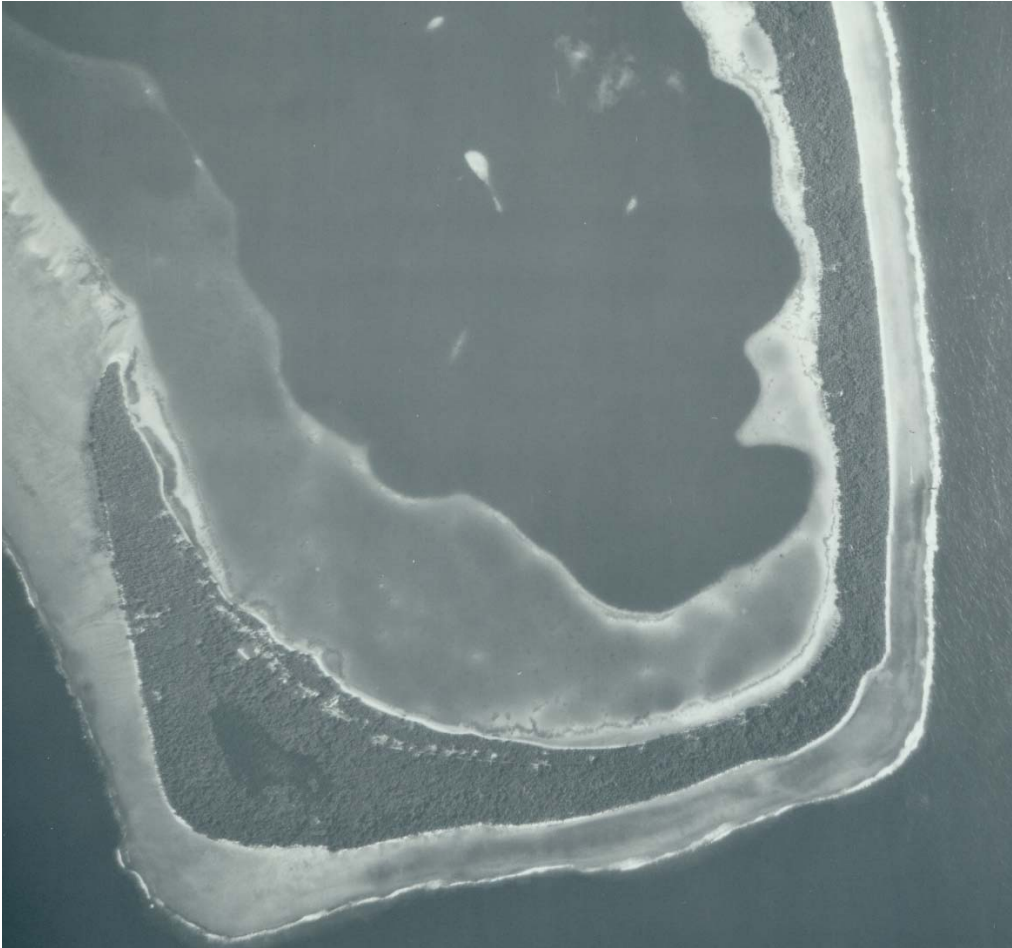


Figure 155. 27 January 1971 aerial image of Namdrik (USGS Pacific).

Between December 31, 1978 – January 15, 1979, typhoon Alice struck the Marshall Islands (Center, 1979, p. 91) struck Namdrik. Almost all of the houses on the island, including several houses that were made of more sturdy material such as wood and concrete, were destroyed. In addition to the housing, the forests of coconut trees were also flattened, leaving a stark flat outcrop on the ocean. Aid was immediately sent from Majuro through the United States Federal Emergency Management Agency (FEMA). Brining in a new typhoon proof housing design from Saipan, FEMA provided new temporary shelter for every household on Namdrik. The onset of foreign aid forever changed the vernacular housing of Namdrik. Since 1979, further aid through the USDA

has provided for the construction of several concrete houses as part of the Rural Agriculture development program. Today, approximately 50% of the population still resides in the typhoon housing provided in 1979.

Before Typhoon Alice, life was different on Namdrik. The people lived by culture. “We walked on the road only. Road only. You cannot walk behind houses because it was really dangerous to. I don’t know why. They always tell use: “Don’t go near house.” Also, people really helped each other in the construction of the house. When we made the thatch, everyone from the island came here to make the thatch, all the people. If somebody made another house, everybody would go there to help. During this building process people made food for all the people who work. If somebody comes here to work with me, I will make food here for them. I make some kind of food everybody comes and the family helps me by preparing additional food and brining it with them. There is a difference in the way of life from that time and now. I think people helped each other more than now (Man from Mojero *wēto*).

Three major housing types are present on Namdrik determined by material: concrete houses (38%), plywood houses (55%), thatch houses (4%), and houses made of whatever material is available (3%). The three primary housing typologies: the typhoon mon, the USDA house, and the informal vernacular house. These are further discussed in the following analysis of the data.

Elmon is the village center. This is where the Catholic and Protestant churches, the school, and the community center are located. Optimized Hot Spot analysis, using ArcMap 10.5 demonstrates the highest probability of clustering is located between the school and the community center. This analysis correlates with the width of the islet at that point, as would be expected based on traditional settlement patterns of atolls (D. Spennemann, 1995). This finding, contradicts Mead's (2004) theory that the churches are at the center of development on Namdrik, and provides support to traditional atoll land use⁵⁰. The population disperses along the long northern stretch of Namdrik islet with habitations all along the lagoon toward the air strip at the end of the islet. Most families who live in the main village of Elmon have land holdings on other parts of the atoll, such as Madmad or further northeast along the thin strip of land toward the airstrip. These land holdings provide additional agricultural resources, which are mostly used in the production of copra.

The social structure based on traditional land ownership is very much intact on Namdrik. This class based semi-feudal structure determines one's position in the social, political, and economic structure based on one's association to the land. Each *bwij* (clan) is part of a *wēto*. *Wētos* have three owners, the Iroij, *alap*, and *drijerbal*. Each party must be consulted regarding any decisions to alter the land. The head of each clan (*bwij*) is the *alap*. All Marshallese retain some right to land and its resources. These rights are derived

⁵⁰ I am making the first known attempt to analyze development on Namdrik from a point of view of spatial statistics. While it is clear that spatial clustering is not statistically significant around the churches, it does not mean that the churches don't represent a metaphysical centering of the island. Resource and development wise, my analysis demonstrates a significant finding for contemporary development patterns on Namdrik.

from an individual's matrilineal ties. Land rights can also be drawn from patrimony, marriage, rights of adoption, and royal gift.



Figure 156. Optimized Hot Spot Analysis of Buildings on Namdrik. (ArcMap 10.5 (USGS, 2018)).

On Namdrik eleven *wētos* were studied with particular attention on three specific familial kinship groups (*bwij*) on Monkonat, Monwat, and Moneibel. The following detail these *wētos* along with documentation of each *wēto*, its landscape, and its buildings. These *wētos* were selected partially out of practicality in order to more easily map eleven continuous *wētos* and through self-selection. Due to the intrusive nature of field mapping a land parcel and its buildings, the family had to be open to the idea of having me on their property for extended periods of time. The families of Monkonat, Moneibel, and Monwat were especially supportive of the research and we enjoyed our time together. Justification graphs are provided for each *wēto*, including a table of the Real Relative Asymmetry and Difference Factors.

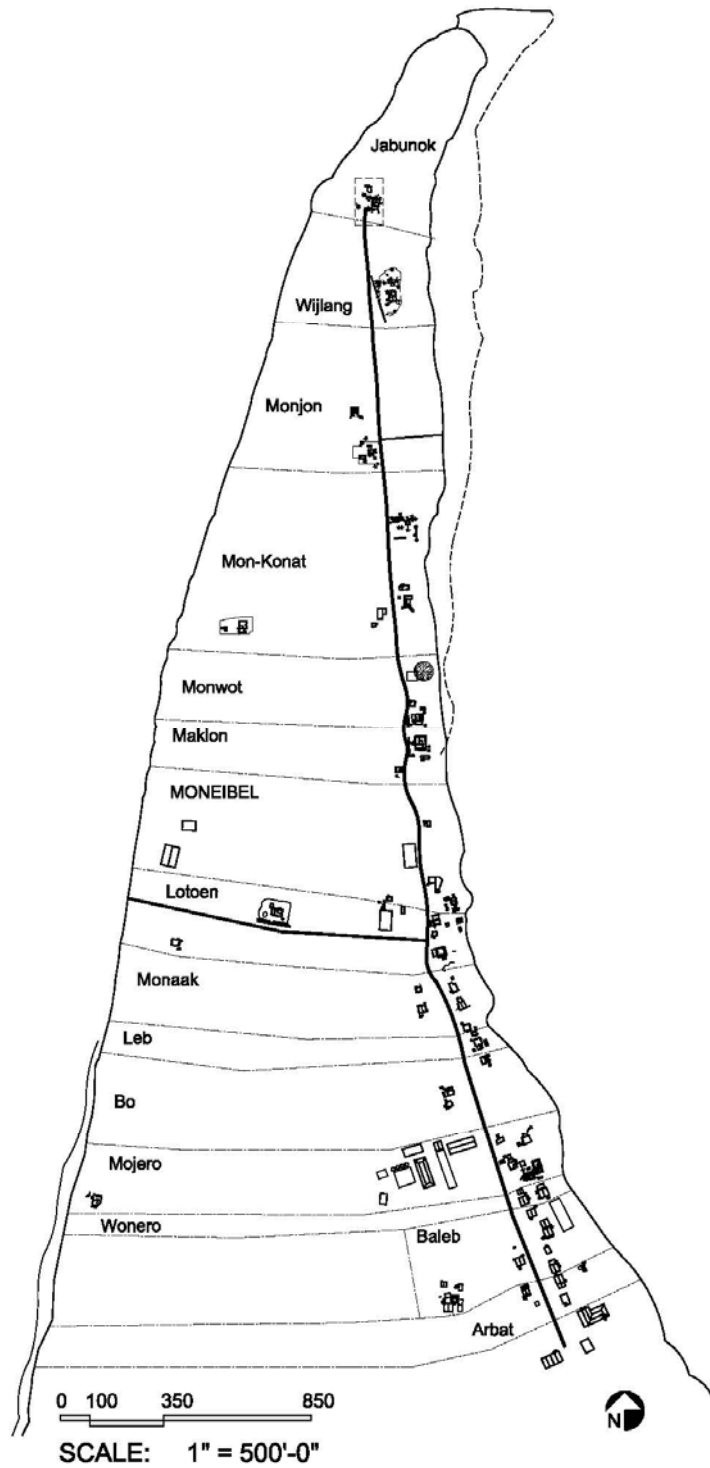


Figure 157. Site plan of wētos under study on Namdrik.

A.2: Jabunok *Wēto*

The main road that runs parallel to the lagoon ends at Jabunok. Jabonuk is the *wēto* at the northernmost tip of Namdrik islet. The termination of the road provides a nice private piece of land for the family. A reef connects this *wēto* to Madmad. The *wēto* is approximately 4 acres in area and consists of one household. It appears as though the majority of the family on Jabonuk are no longer living on Namdrik. It is inhabited by an old woman and her son, the remnants of a larger family that has since moved away to Majuro or the United States. The woman's husband passed away recently (in the past year or two) and his tomb stone lays at the eastern (lagoon side) of the house. The woman's son is older but unmarried. While conducting observations, the woman was generally out in the yard conducting maintenance – picking weeds, gathering and disposing trash, sweeping, and replenishing coral. The *wēto* has the remnants of foundations for other buildings, likely one other house and its accessory buildings, but the location of the standing house appears to be the main settled location based on the coral spread and clearing.

The house is newer, built by her husband through a USDA rural agriculture self-help building program grant and it sits on a spread of white corals. The house has electricity provided by the two photovoltaic (P.V.) panels and an inverter. Drinking water is provided by the water catchment (W.C.) at the front of the house, and water for the bathroom is pumped from the underground well. The cook house is in disrepair as the woman does not have a person in the family able to rebuild it. She hopes her children in Majuro or the USA will visit and help her maintain the land. There is a makeshift kitchen

adjacent the side entry of the house under the shade of a breadfruit tree where a stack of dishes sits.

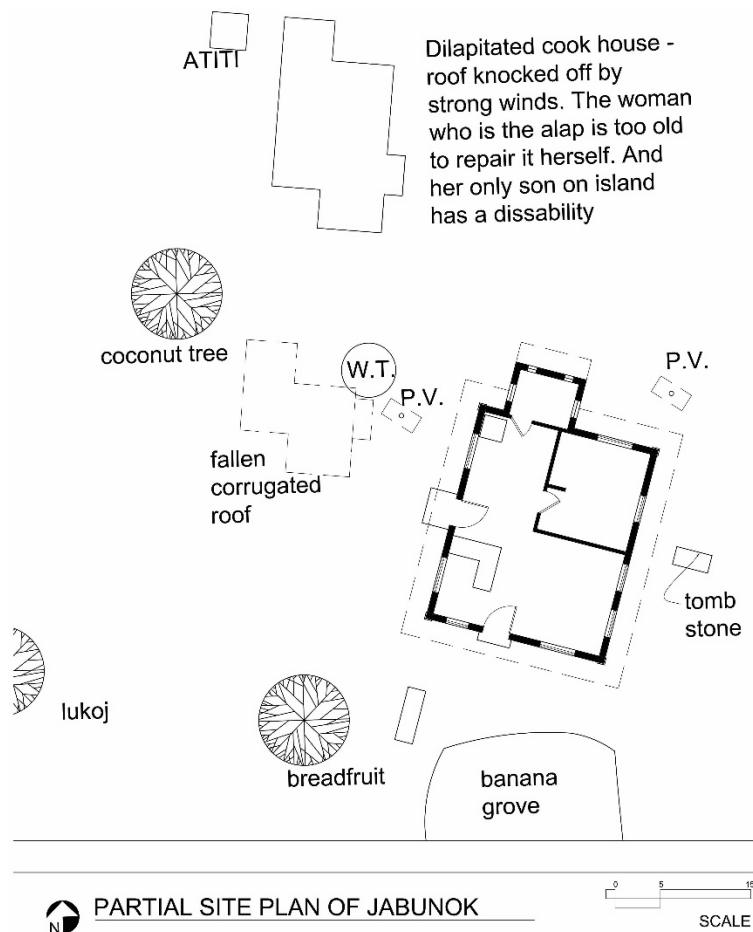
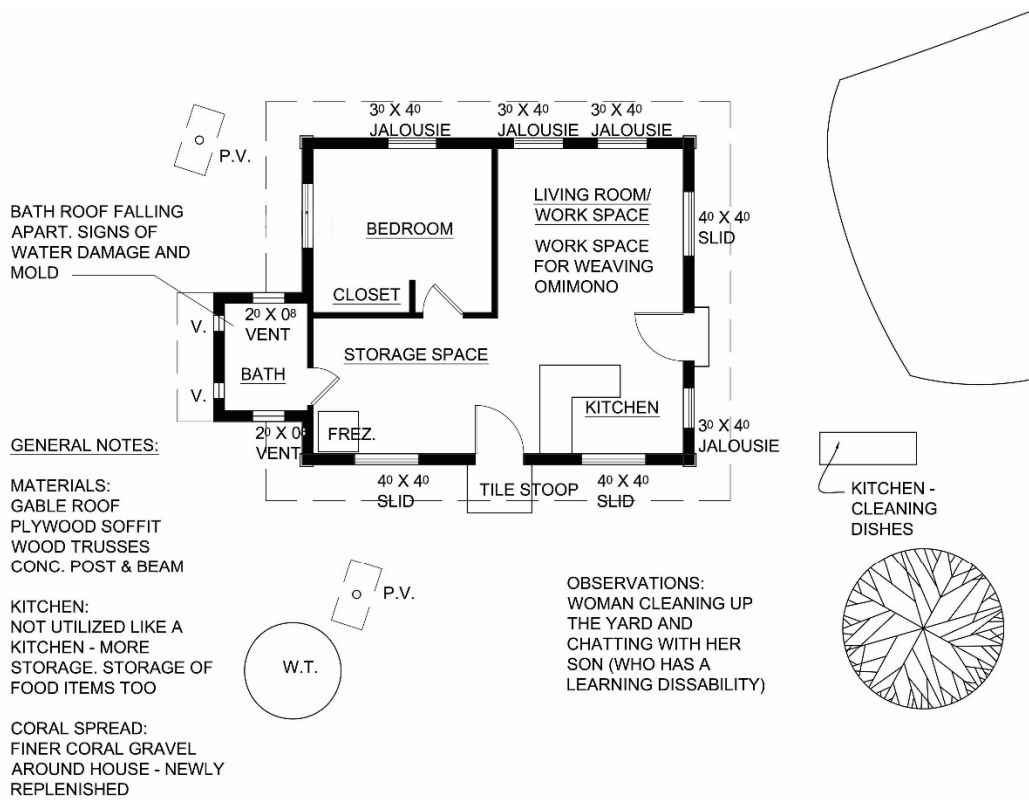


Figure 158. Site plan of Jabunok.

The house consists of four main areas, a kitchen, a living area, a bedroom, and a bathroom (Figure. The USDA rural agriculture program provides only a few plans, so this house is nearly identical to other USDA Rural Agriculture houses on the island. While the layout represents a typical western house, the uses of the identified spaces differ. The

kitchen is seldom used for cooking, with the exception of imported rice or canned meat cooked over a table top stove. It is a relatively bare space, used more for storage of goods than active use. The living area is primarily used for weaving omimono and the bedroom is used solely for sleeping. All of the material for the house is imported from Majuro and wood materials (plywood and dimensional lumber) are sourced from Portland, Oregon. The concrete masonry units are typically imported from Taiwan, though Pacific Inc. International does manufacture some block on Majuro.

The house is oriented to take advantage of the easterly winds coming from the lagoon while blocking harsh north-north easterly that come during the winter. According to the woman, her husband chose the site for the house as he liked it. The wife placed the tombstone of her husband along the lagoon side of the house, facing east as is tradition. The absence of a cemetery on the *wēto* is surprising; although, a tomb stone for her husband is on the lagoon side of the house.



JABUNOK HOUSE - USDA 2010

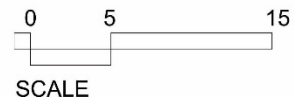


Figure 159. Annotated floor plan of the house on Jabonuk.



Figure 160. Photograph of coral spread in front of the house (left) and a makeshift kitchen (right).

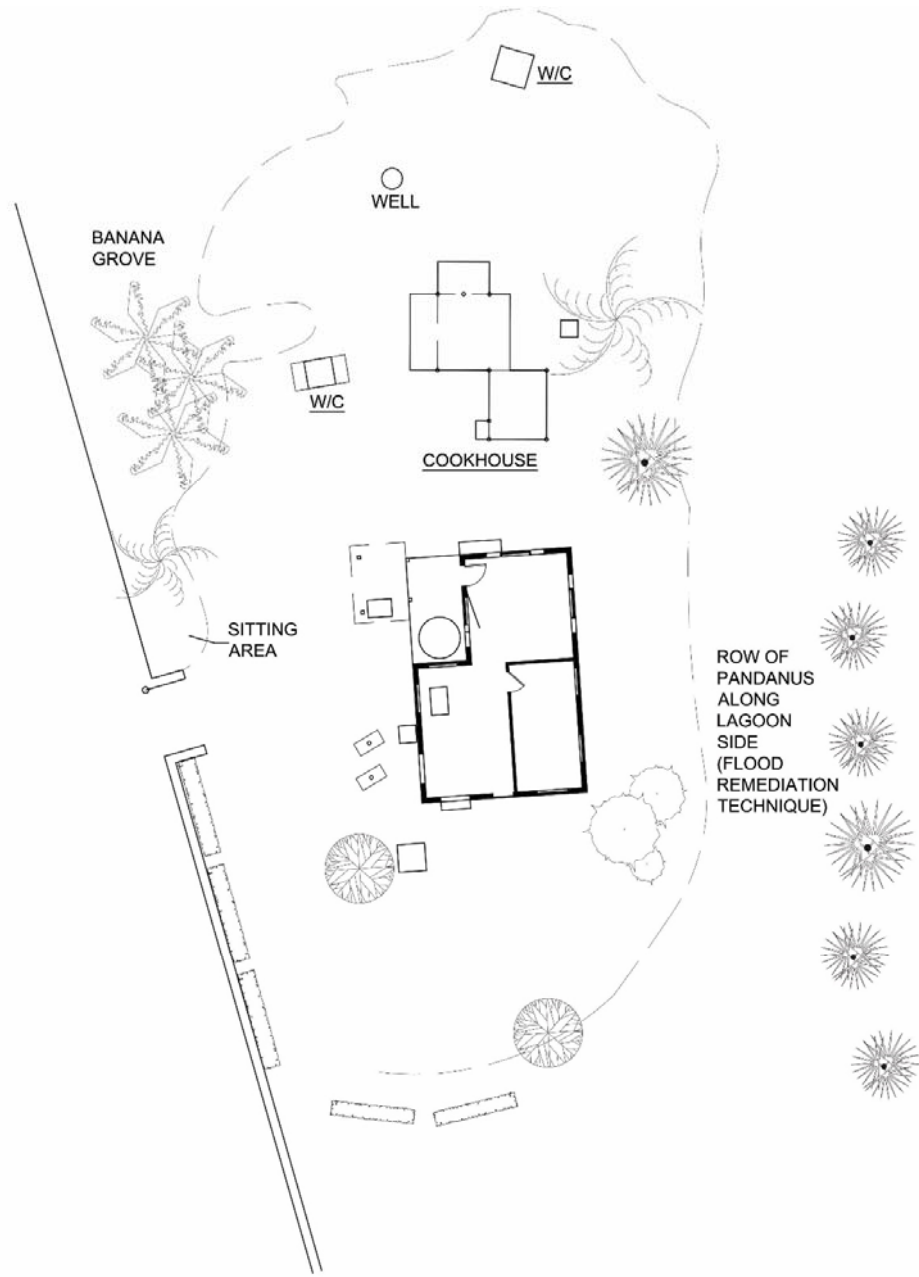
Communal or Private?

Although the *wēto* is considered private, the end of the island is a favored relaxation space for many of the families that live on this end of Namdrik. Either this is because these families are part of the same extended *bwij* or it is because the tip of the island is considered communal to the community. Further investigation is required to determine this. The location along the reef just north of Jabunok is also a favored fishing location for many of the fisherman on Namdrik and has been for time in memorial. The way the current fluctuates between tides make it an ideal location for catching: parrot, snapper, grouper, Moorish idol, and more. However, most who go fishing out along the reef between Namdrik and Madmad walk from their *wētos* out along the ocean side beach or take a canoe from their *wēto* out along the lagoon. In examining the historic aerial from 1971, which was prior to the big typhoon, the end of Namdrik appears to be uninhabited. This could mean that a larger family group occupied this area with the main settlement of the *wēto(s)* near Monkonat. Since the typhoon of 1979 this area most likely began to be settled as families had the opportunity to build (acquire) their own housing through US aid.

A.3: Wijlang *Wēto*

Wijlang is accessed from the main road with the primary dwelling along the lagoon side of the road and forest to the ocean side of the road. The *wēto* is approximately five acres and hosts one dwelling inhabited by a family of seven with ages ranging from seven to fifty. The *wēto* represents a typical development pattern of Namdrik. The majority of the land is left undeveloped in order to maximize the use of available resources for copra and agricultural production and the dwelling is situated along the lagoon with an east west orientation to take advantage of the breeze coming off the lagoon. According to inhabitants, it is one of the highest in elevation on Namdrik.

The family on Wijlang clearly marks their property boundaries with a hedge forming an entrance to the house, and a line of coconut trees marks the north and south boundaries of the *wēto*. A coral spread covers the yard around the house all the way to the far bathing facility, with a bright white perimeter immediately surrounding the house. There are two bathroom facilities, a cookhouse, water catchments, a well, a banana grove, lime tree, a line of pandanus, and a clearly marked sitting area near the main road. The property is also scattered with a few decaying vehicles. There are three well locations, because the wells have dried up overtime, requiring new wells to be dug.



PARTIAL SITE PLAN OF WIJLANG

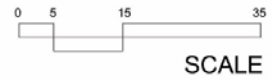
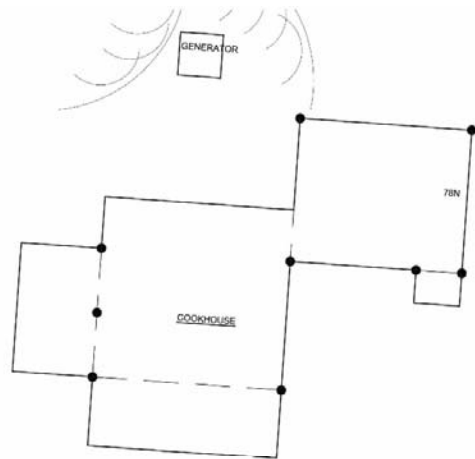


Figure 161. Partial site plan of Wijlang.



HOME MATERIALS & CONDITION

2X1 PURLINS HOLD OVERHANG
 LADDER FRAMING
 20" BASE @ REAR
 32" SILL HEIGHT TYP.
 TRIM AND FRAMING ARE ROTTEN WITH TERMITE DAMAGE
 CRACKING AT CONCRETE WALL

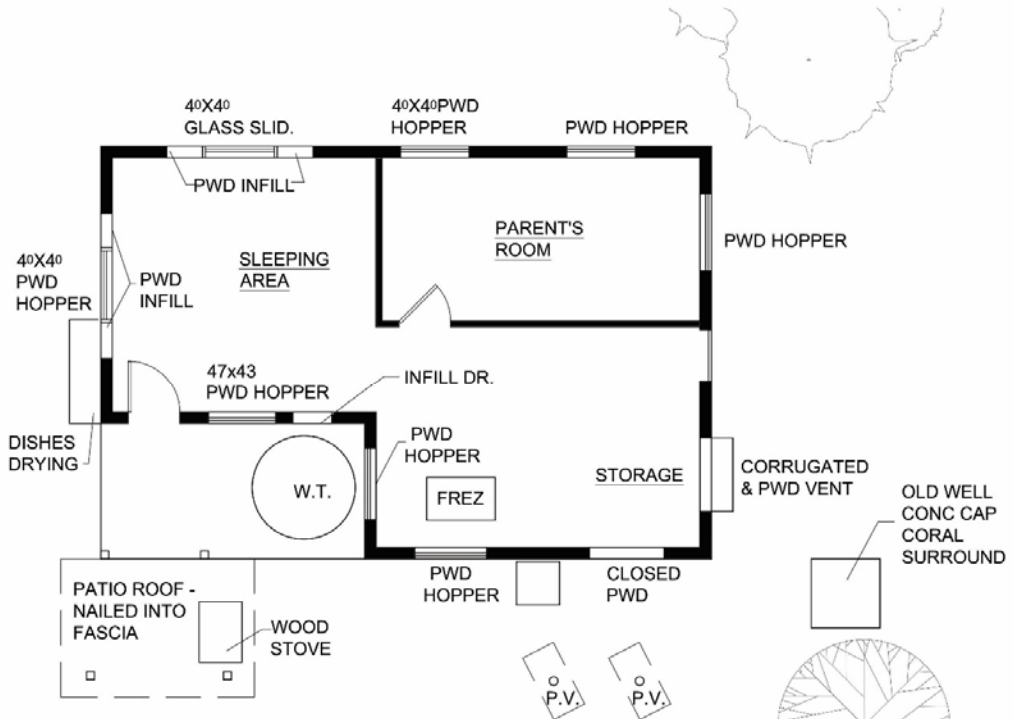
NO HURRICANE CLIPS -
 CONC. POST AND BEAM
 REBAR BENT TO SECURE TRUSSES

OBSERVATIONS

A SCHOOL TEACHER WITH WIFE, THREE DAUGHTERS AND A COUPLE SONS. THE REMAINS OF A FEW 'TOYS' LIE AROUND THE WETO.

SISTER WAS VISITING FROM ARKANSAS WHILE I SPENT TIME ON THE WETO.

FAMILY WERE WORKING AROUND THE HOUSE. THE WOMEN WERE IN THE COOKHOUSE OR BY THE WELL, PREPARING FOOD AND DOING LAUNDRY. CHATTING BESIDE THE ENTRANCE AT THE ROAD WHERE CHAIRS ARE SET UP. SOMETIMES WOULD BE ON THE OCEAN SIDE FISHING.



WIJLANG HOUSE - CONCRETE

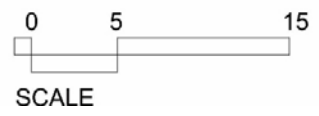


Figure 162. Floor plan of house on Wijlang.

I interviewed the son-in-law of the *alap* of the *wēto*⁵¹. The *alap*'s husband built the house after the 1979 typhoon, around 1988. He invited a chief from Pohnpei to Namdrik, who helped in the construction of the house. The house has unique characteristics that are similar to a few other houses on Namdrik, built by families with ties to Pohnpei⁵². When asked about the height of the house, the man reiterated the traditional Marshallese custom that the house could not be taller than the *iroij*. According to him, you cannot raise the level of the house because of this custom, even if it means protecting your property from flooding. A man around the age of fifty is the head of the household, but his wife is the standing *alap* of the *wēto*. The man enjoys fishing along the ocean side reefs and often takes his canoe out or goes out with a long net. Fishing gear is seen strewn out around the property.



Figure 163. Photograph of house on Wijlang that was constructed in a Pohnpeian style. Notice the striked lines to resemble brick.

⁵¹ It was his grandmother's *wēto*, but it is unclear if she is still living or not. Based on the conversation, his mother was the acting *alap* because she is the only living woman on the matrilineal line of inheritance. She lives on Majuro most of the time.

⁵² Based on conversations with several families on Namdrik, there have been long lasting ties to Pohnpei stretching generations back.

The house is constructed of concrete block walls with a stucco finish that is struck with lines to replicate bricks. At one time it had glass louvered jalousie window, but nearly all of them have been damaged or removed. Plywood borders up some of the windows, while plywood hoppers have been constructed to replace broken windows and allow for the breeze to pass through and provide privacy as needed. A covered patio area has been constructed with local lumber and a corrugated tin roof; underneath the cover is the wood powered oven. Photovoltaic panels provide electricity for lighting and the solar ice box. One window has been converted into a vent that provides additional storage space and blocks the harsh rains from whipping into the house. The house is segmented into three primary spaces, a sleeping area for the husband and wife that provides privacy, a multi-use storage and work area, and a living/ sleeping area. The bathrooms are pit toilets with septic tanks that were recently constructed⁵³. The sleeping room is the most important space in the house, and importance is drawn to having lived previously in a “Majuro House” which consists of a window, door, roof, and main room. The owners wish to conduct improvements for house maintenance, focusing on the replacement of the roof. The man has already gone through the regulatory channels of gaining permission from the chief and the *alap*, but unless the Marshall Islands Development Bank can supply a matching grant for \$1000, the family cannot afford the improvement.

The cookhouse is low lying, one of the shortest constructed on Namdrik. The man interviewed mentioned that it was in part built that way because his wife is short and because it provides more protection from the strong winds. The cookhouse has a place to

⁵³ The septic is constructed from reeds and loose coral gravel. Water is flushed into it and more coral gravel is placed.

store materials for making a fire (coconut husk, wood, etc.), a place to store cookware (often a raised shelf that protrudes through the wall with a shed roof), and a place to store rice sacks. There are three primary reasons for the cookhouse: cooking, storing dry goods, and *bwebwenato*. Eating supper is often a fourth activity that the cookhouse is designed to support, but eating more often than not takes place around the yard and under open shade. The cookhouse also serves as the storage space for copra and its proximity to the well provides a backdrop for doing laundry. While observing, the women were running a generator to use the powered wash machine; they were also preparing food.



Figure 164. Photograph of cookhouse (left) and copra storage (right).

For the most part the man interviewed maintains the resources on the *wēto*. He has planted the pandanus, the bananas, many of the coconut trees, a lemons tree, and a few lime trees. In addition, there is *wilomaan*⁵⁴ growing on the *wēto* that his wife uses for weaving the traditional Namdrik mats.

⁵⁴ Wilomaan is a specific type of pandanus that grows low to the ground, almost like a grass, and is specifically used for weaving mats, purses, baskets, and other fine hand crafts. Namdrikese claim that it is specific to Namdrik and in part the reason Namdrik is referred to the Basket of Culture and so well known for its woven works.

Beyond the structure and life on his *wēto*, the interviewee provided information on more intangible changes that have taken place over the years on Namdrik. When he first came back to Namdrik after the typhoon of 1979, he recalls that people could not walk along the side of a house, but had to remain on the path and only approach a house when invited. This was a traditional custom that he believes has faded as today you can walk along the sides and backs of houses. Since his family was related to the chief, Kabua, his property would not have been treaded upon by non-family members. One would have to ask permission to come across the land.

Through actions, the family on Wijlang demonstrates many of the traditional customs, especially those around food. The family shared food with visitors and chatted around the cookhouse and under the shade of the trees. Subsistence practices were noticeable with banana, breadfruit, pandanus, and coconut all a central part of the diets and daily lives of the inhabitants. Fishing was an everyday activity and a clear path was cut through the forest going to the ocean reefs.

A.4: Monon & Monkonat *Wētos*

Monjon and Monkonat are two *wētos* under the same *bwij* and represent one of the largest and most influential families on Namdrik. The size of their lands are demonstrative of the family's position on the atoll. Monjon is approximately 5.4 acres and Monkonat is approximately 12.5 acres, both spanning from ocean to lagoon. As one of my host families on the island, they became one of the three primary informants on Namdrik. The *alap* is also the prayer leader of the Catholic parish on Namdrik, further centering the family's importance on the island; although, the Catholic parish has a smaller parishioner base in comparison to the adjacent Protestant Church. In the area

between the main road going to the ocean side, where the field ships anchor, and Jabunok, Monkonat is a center of social life. Monjon hosts the family cemetery and one house containing a nuclear family. Monkonat hosts the *alap*'s house, two dwellings of single men, and one dwelling of a nuclear family.

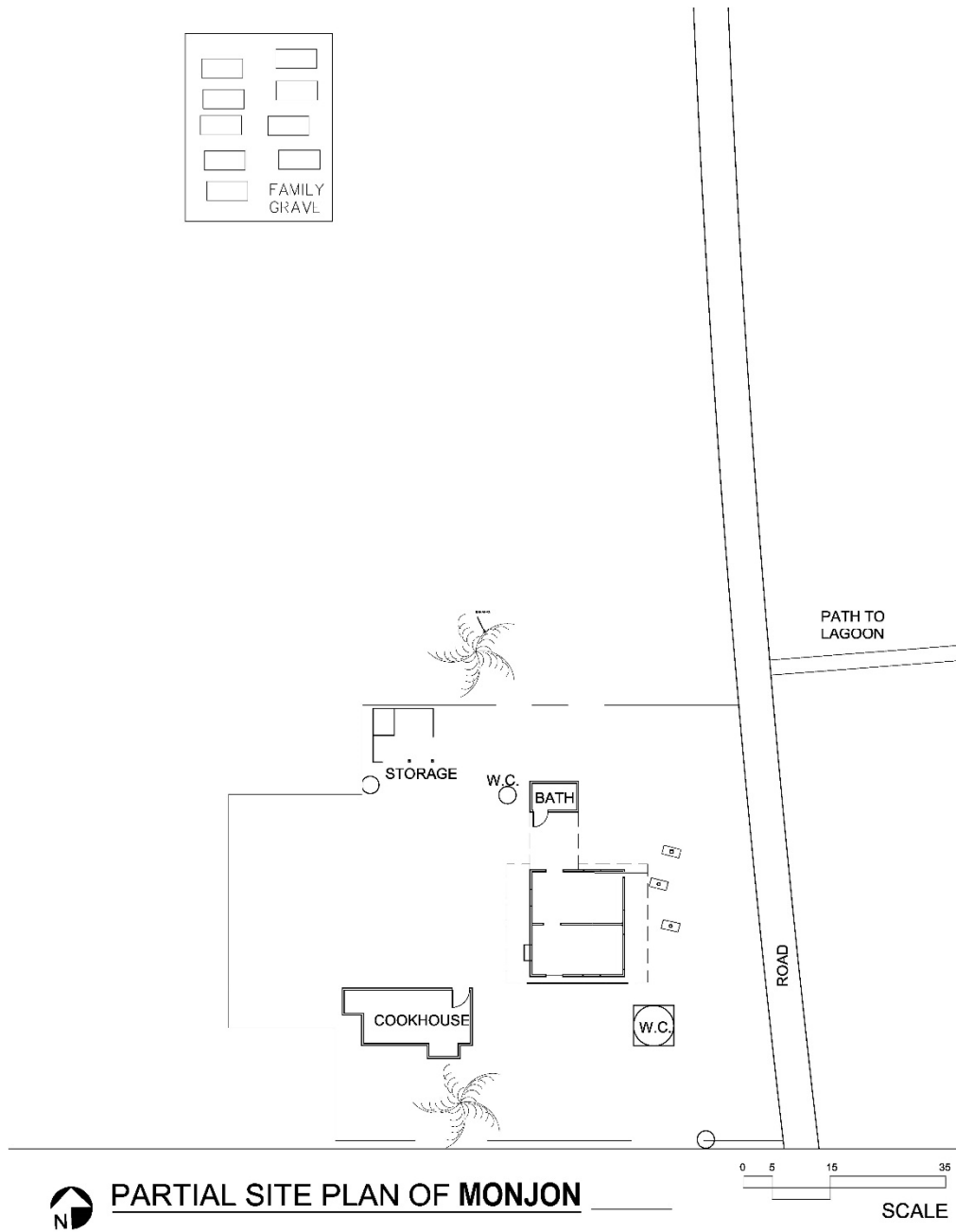


Figure 165. Partial site plan of Monjon wēto.

The dwelling on Monjon is on the ocean side of the road with an east west orientation toward the lagoon. The cemetery is also on the ocean side of the road, with tomb stones facing the lagoon – a pattern that is typical for cemeteries in the Marshall Islands. On the lagoon side of the road are the foundations of a house and ancillary buildings that were left abandoned. Since priority dwelling sites are typically along the lagoon, the decaying house foundation could have been owned by a more important member in the family lineage who moved away from Namdrik⁵⁵. The importance of this foundation's location is further demonstrated by the location an arid tarot pit just north of it along the main road. While the ocean side settlement is important, the male owner of the dwelling on Monjon is a council member, drawing importance to his houses position on the *wēto* as well. Other than the buildings, cemetery, and taro pit, the *wēto* hosts coconut trees, several breadfruit trees, a lime tree, pandanus, and Kono trees⁵⁶. Either side of the main road is landscaped with a small hedge.

The dwelling is constructed of concrete post and beam with a roof structure consisting of in-situ trusses with plywood gussets, dimensional lumber purlins, and corrugated tin roofing. The house was built prior to the 1979 typhoon through a USDA program. The house is divided into two main rooms, a sleeping room and a living room. Approximately five people live in the house, two adults and three children. Solar power provides lighting and refrigeration and a plastic water catchment provides drinking water.

⁵⁵ The dwellings and land of families that move away from their lands are typically not maintained by anyone else in the family due to the complex rules of inheritance and property ownership in the Marshall Islands. On Namdrik there are nearly a dozen vacant properties that have been abandoned for many years and whose lands have not been maintained (perhaps with the exception of collecting copra).

⁵⁶ Kono trees produce light, but hard, fine-grained wood. It is used in boat construction and in home construction. House poles made with Kono have been known to last up to 100 years. It is considered the best wood to make model canoes. The nut of the tree is edible and the flowers and leaves have medicinal uses.

The house is sited on a well maintained coral spread that goes from the road to the rear yard. At some point in time a bathroom was added to the house with a simple flat roof covering the space between the house and the bathroom. The cookhouse is to the rear of the house facing inward to the rear yard. There is also a small shed structure that provides copra storage and cover for another earth oven. Both the cookhouse and the storage structure are built of local wood, reused plywood, and corrugated metal. Similar to other houses, windows have been replaced with operating plywood contraptions and a plywood box containing a shelf and vent has been built at one window opening, providing storage.

The family of Monjon was often found chatting around the cookhouse, working inside the house, or working in the yard. Copra was often being prepared. Music powered through solar energy often filled the atmosphere around the house and people went about their daily routines.

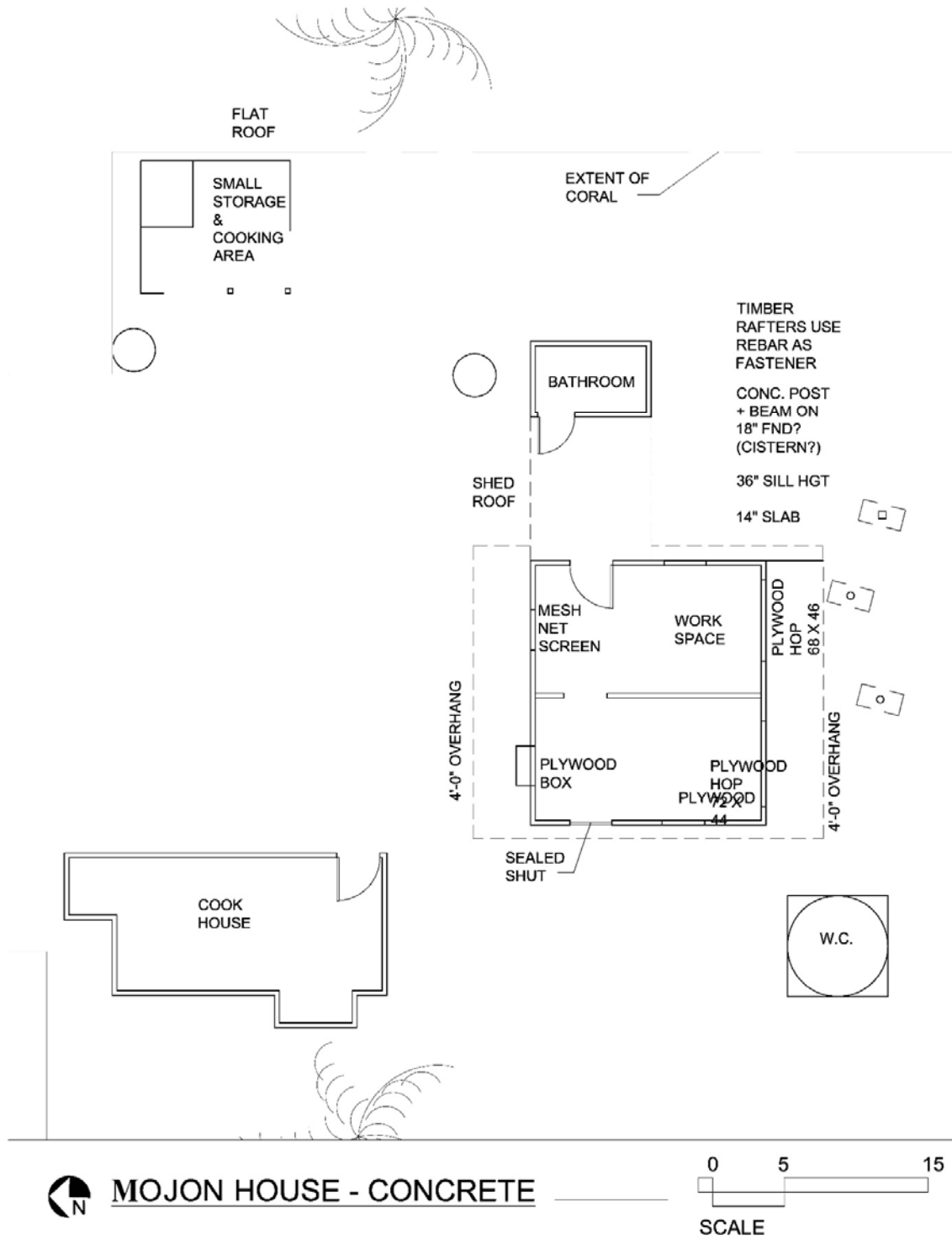


Figure 166. Floor plan of house on Monjon.



Figure 167. Photograph of dwelling along the main road on Monjon.



Figure 168. Photograph of cookhouse on Monjon.

A.5: Monkonat *Wēto*

The *alap* of Monkonat is a figure head in the village of Namdrik; he is the Catholic prayer leader and the town medic. The *alap* has a family of eleven, four have moved to the United States, while some of the boys are in school on Jaluit and Majuro and will be back during the summer. The *wēto* is separated into three parts because it is a big family. There are five families living between Monjon and Monkonat. The age ranges from 82 to a newborn. The baby lives in the main house (‘A’ on figure X). After the houses were built following Typhoon Alice, FEMA houses were built for everyone. The current *alap*, started to build on the spot where the hut houses use to be and his father built a USDA house there as well. Hut houses were never rebuilt because the family felt that plywood houses were stronger than hut houses and the materials did not require as much repair. Today the hut houses you see around are used for storage. The entire *bwij* works together to clean the area. They keep a schedule to organize chores, which include copra collection and cleaning. For copra collection, the schedule includes a division of areas where the copra will be collected during that period of time⁵⁷.

After Typhoon Ophelia in 1958, the *alap*’s family rebuilt with leftover materials. Over the years, the community has moved away from the hut house as the family grows and has their own nuclear families, they start new houses. But the houses are different now from houses back them, now they are concrete or plywood. It was after the typhoon of 1979 that all of the hut houses were replaced by concrete and plywood. The typhoon mon became the primary housing typology after typhoon Alice and a few concrete houses were built. The *alap*’s family lived in a concrete house that was funded through the

⁵⁷ The *bwij* has land holdings at other locations of Namdrik where copra is collected.

USDA; they were a family of five. They had a cookhouse, outdoor toilet, and an adjacent house that was a typhoon mon (see the top of figure 16). The house was located across the road from the *alap*'s current house. His older brother enjoyed the windy place because it was cooler; the family also did not want to cut down the breadfruit, pandanus, and banana trees and that site was cleared.

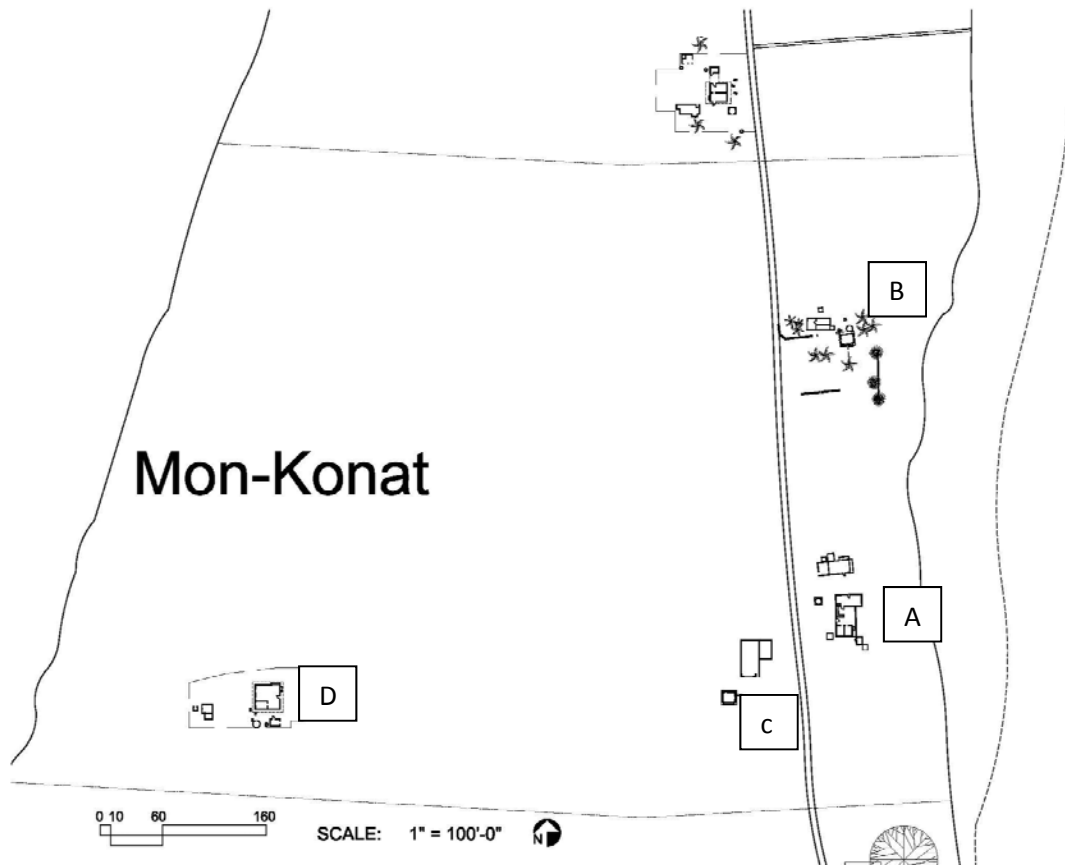


Figure 169. Site plan of Monkonat showing dwelling locations. A is a USDA Rural Agriculture Program house and the *alap*'s house, B is a local one room house, C is another local one room house, D is a FEMA typhoon mon, plywood house.

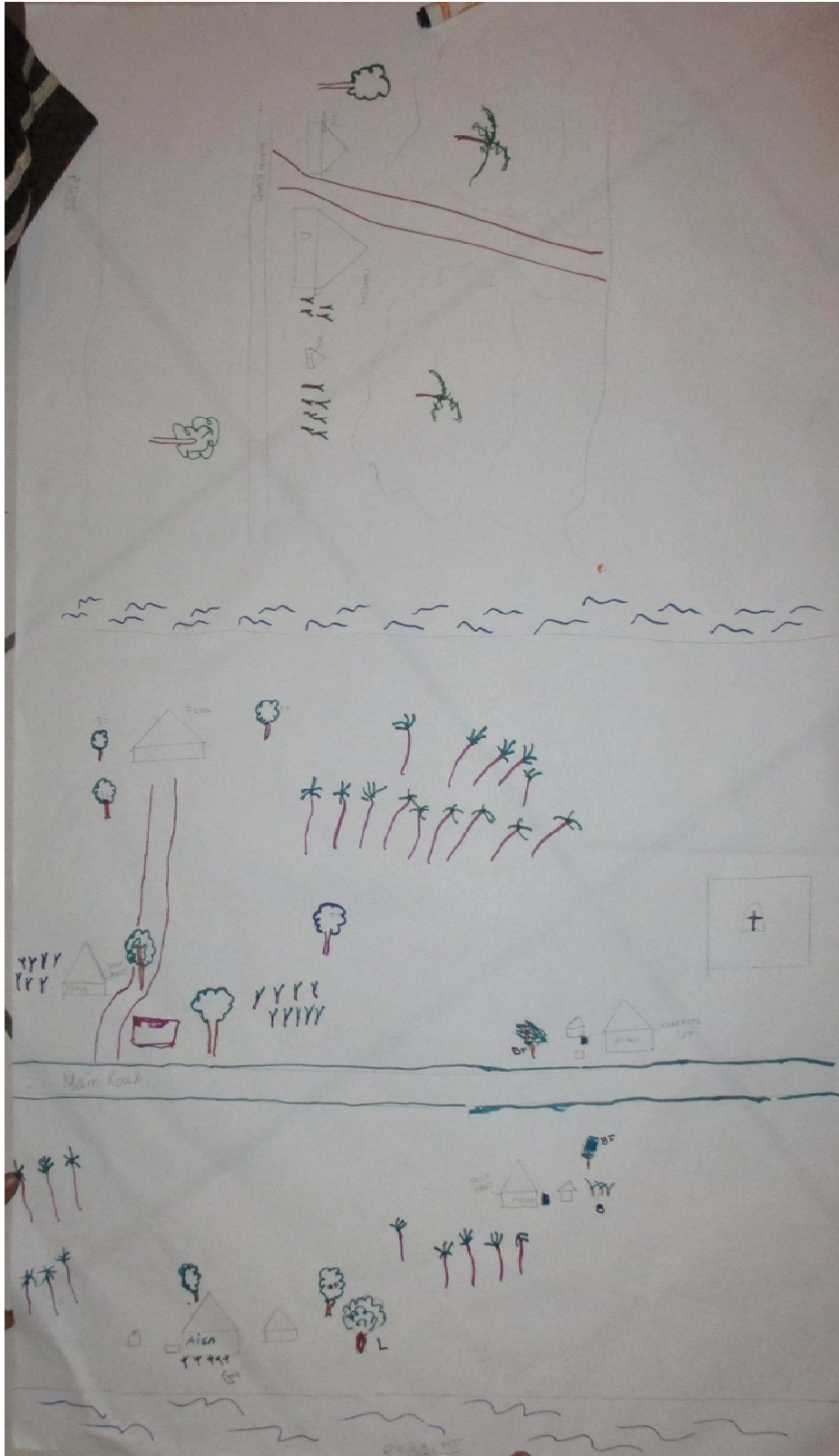


Figure 170. Mental map of past (top) and present (bottom) development on Monkonat and Monjon. Drawing the wētos together as one demonstrates that they are of the same bwij.

A.5.1: House ‘A’ (*Alap*)

The *alap* built his house a year ago through the USDA Rural Agriculture Self-Help Rural Housing program. He received a \$7,500 grant that he matched to purchase the materials and bring over a contractor from Majuro. The new house was built on the old foundation of a previous house, but made longer. Unlike the house he grew up in, which had one open room, his house has two rooms and a living room. The *alap* added a kitchen to the north of the house and a bathroom and shower room to the southeast of the house, which were not included in the USDA blueprints. In face of sea level rise threats, such as the king tide that flooded much of the island in 2015, the *alap* has planted some coconut trees along the lagoon side and places more sand on the east side of the house. The kitchen addition to the house, which was not part of the USDA blueprint is constructed with a concrete slab, leftover dimensional lumber and corrugated metal, and local wood. The space provides storage for household goods and a space for washing dishes and cooking on a propane stove top. The kitchen inside of the house itself is not used for cooking or eating; it is a storage location for plastic wares.

The cookhouse adjacent to the house was built for the house that was there in the 1980s. It has been rebuilt one time since 1980 and is approximately 20 years old. Form followed function in the design of the cookhouse. There needed to be a place for roots, a place for washing dishes and a place to cook. Sometimes copra needs to be stored, so it goes into the cookhouse. There is also a space he designed for smoking and chatting. The local food prepared in the cookhouse is central to the traditions the *alap* holds on to. The cookhouse is constructed of whatever materials were available; the predominant structure consists of local wood materials and corrugated metal. It is very similar in design to many

of the cookhouses on Namdrik. A unique aesthetic was designed in the construction of the entry side façade utilizing vertical pieces of *lo* (hibiscus) and imported bamboo.

The *alap*'s favorite place on the *wēto* is the area in and around his house. He enjoys how everyone congregates around him there. Everybody together is a mantra of the *bwij* on Monkonat. In a bleak outlook on climate change and sea level rise, the *alap*'s answer to impending disaster is that “everybody pulls in”.

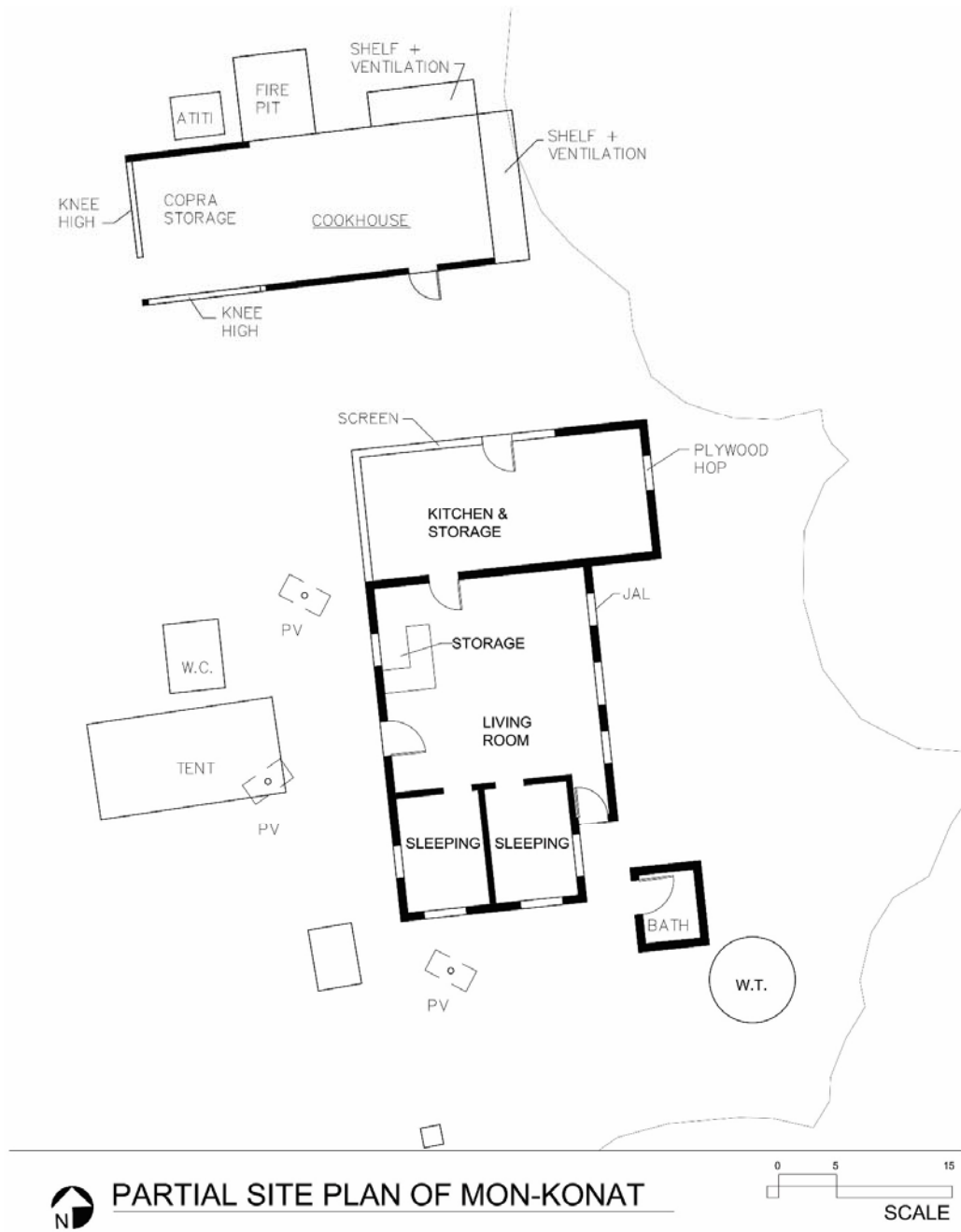


Figure 171. Floorplan of Emlapwoj on Monkonat.



Figure 172. Photograph of Emlapwoj depicting the temporary shaded work space in front of the house.



Figure 173. Photograph of the cookhouse entrance.



Figure 174. Photograph of the rear side of the cookhouse, showing the shelf and vent.

A.5.2: B House (Charlie)

The man living here is a nephew of the *alap* and has lived on the *wēto* for the past thirty years. He grew up in the family hut house, which was located on the other side of the road from house ‘A’. The man built the house with some help from his sons and anyone who came across and wanted to stop and help. It was built about twenty years ago. He used whatever material he could find available and purchased tin from a local man that imported construction materials. Most of the framing uses wood from mangroves. As far as the location, it was chosen because it seemed like a nice location due to the breeze off the lagoon. The man just came up with the design of the house on his own as he built it; one thing he considered was the location of the door “I thought it better that the door stay on this side so water won’t go in [from the winds whipping along the lagoon].” He has planted some coconut trees along the lagoon side of the house to protect from high tides and strong winds. Every six to seven months the house requires repair.

The cookhouse was built about a year after he finished construction of the main house. As is typical on Namdrik, the cookhouse was constructed of whatever materials were available, including left over dimensional lumber, tree branches, coconut lumber, and tin. The cookhouse is used for cooking and gathering while the house is only used for sleeping. In the cookhouse there is room for eating, cooking, storage, and even sleeping.

The man's favorite location for relaxing and chatting with friends and family is located under the shade of a palm on the coral gravel. He has a mat at this spot along with a small stool. Typically he is out preparing copra or cleaning up the *wēto*.

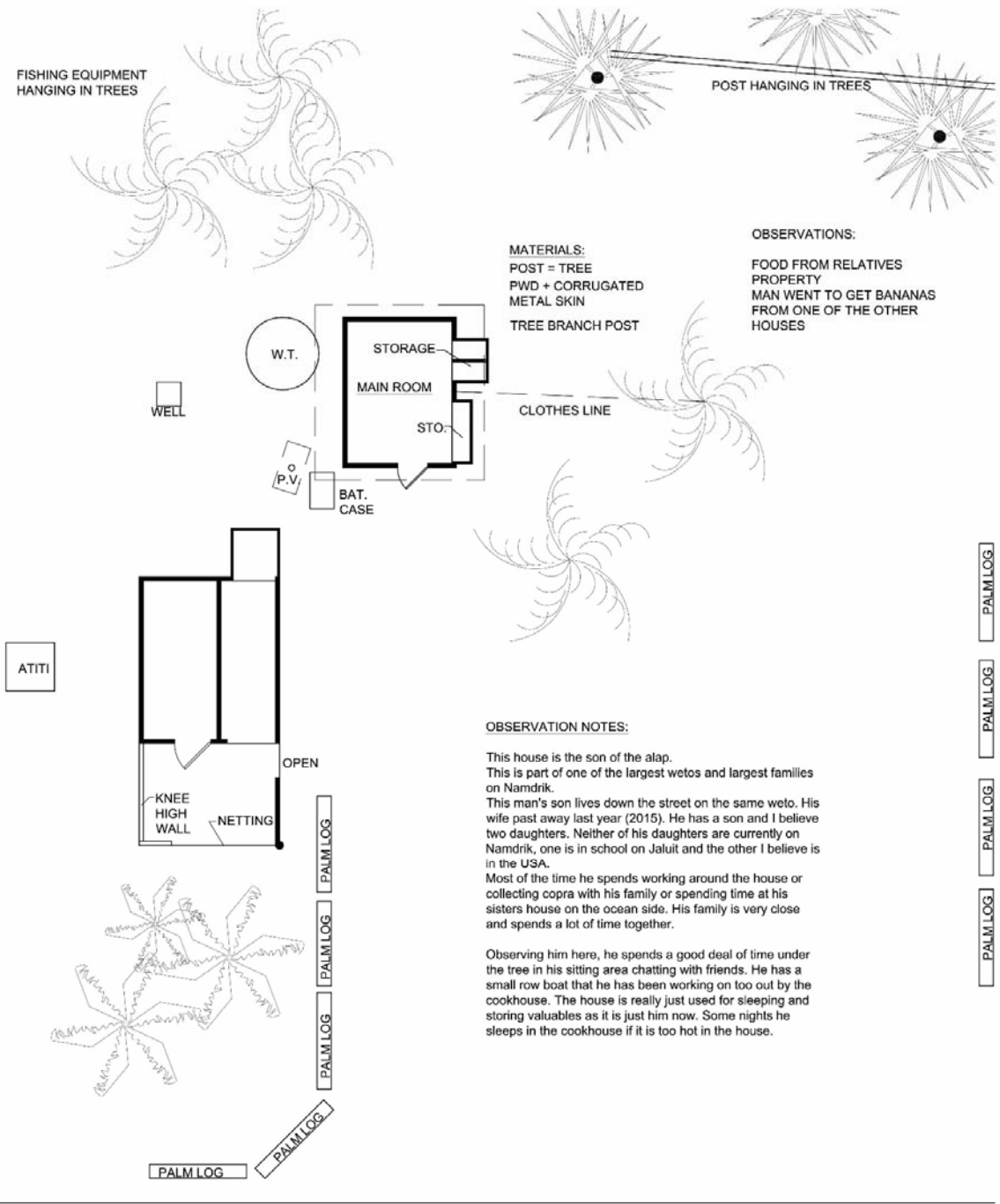
Passing on land to the next generation is an important feature of the Marshallese culture. But, he believes that as long as you have your Marshallese ways of living, how you live, the way you live, if you bring that from the Marshall Islands to anywhere, it will be similar to life here.



Figure 175. Photograph of the coral spread in front of house 'B' showing dwelling, cookhouse, and work area.



Figure 176. Photograph of the front facade of dwelling 'B'. Note the door is facing the road.



VERNACULAR HOUSE ON MONKONAT

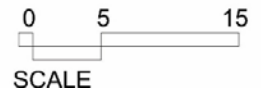


Figure 177. Site plan of dwelling on Monkonat.

A.5.3: House 'C'

This house was built for a nephew of the *alap*. He is the most recent member of the family to have had a child and married, and who stayed on Namdrik. He moved from his mother's house on the ocean side of the *wēto* (house 'D') and moved into this dwelling. The house is located adjacent to the foundation of the old USDA house built after Typhoon Alice. The house is constructed from left over corrugated metal, local wood, and plywood. It benefits from the same solar energy as the other houses on Namdrik and water catchments that were donated by the Japanese and Taiwanese. The coral spread is very well maintained. A cookhouse is not present because the man that lives in house 'C' and his family either have meals with the *alap* or his mother on the ocean side. The house is used primarily for sleeping and relaxation. The mother and baby were often at the *alap*'s house spending time with other family members.

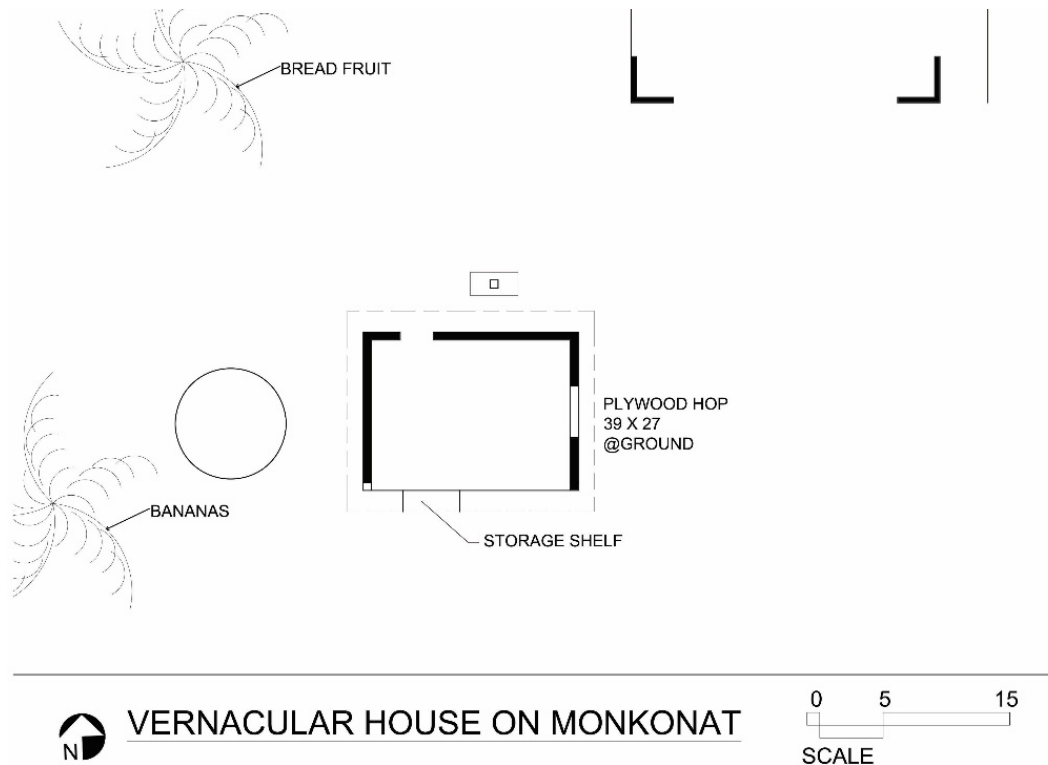


Figure 178. Floor plan of house 'C', a self-built vernacular dwelling.



Figure 179. Photograph of house 'C'.

A.5.4: House 'D'

House 'D' is a typhoon mon that was built after Typhoon Alice. A room has been added to the interior, providing a private sleeping area for the parents. In addition a bathing room has been added to the south side of the house. The house is sided on a large coral spread facing east/west. It is apparent through ware that the harsh winds have not been favorable to the east and west facades. Window vents have been constructed at these ends to allow for the wind to bass through while preventing the intrusion of rain. Some local wood is integrated into these ventilation adaptations.

The cookhouse is constructed of local wood and corrugated tin. It provides a main space for the earth oven and a small area for storing wood and coconut husks for making

fire. The cookhouse is not used very often as the *alap*'s cookhouse is primarily used by the families on Monkonat. Some food is stored under the shelter of the cookhouse.

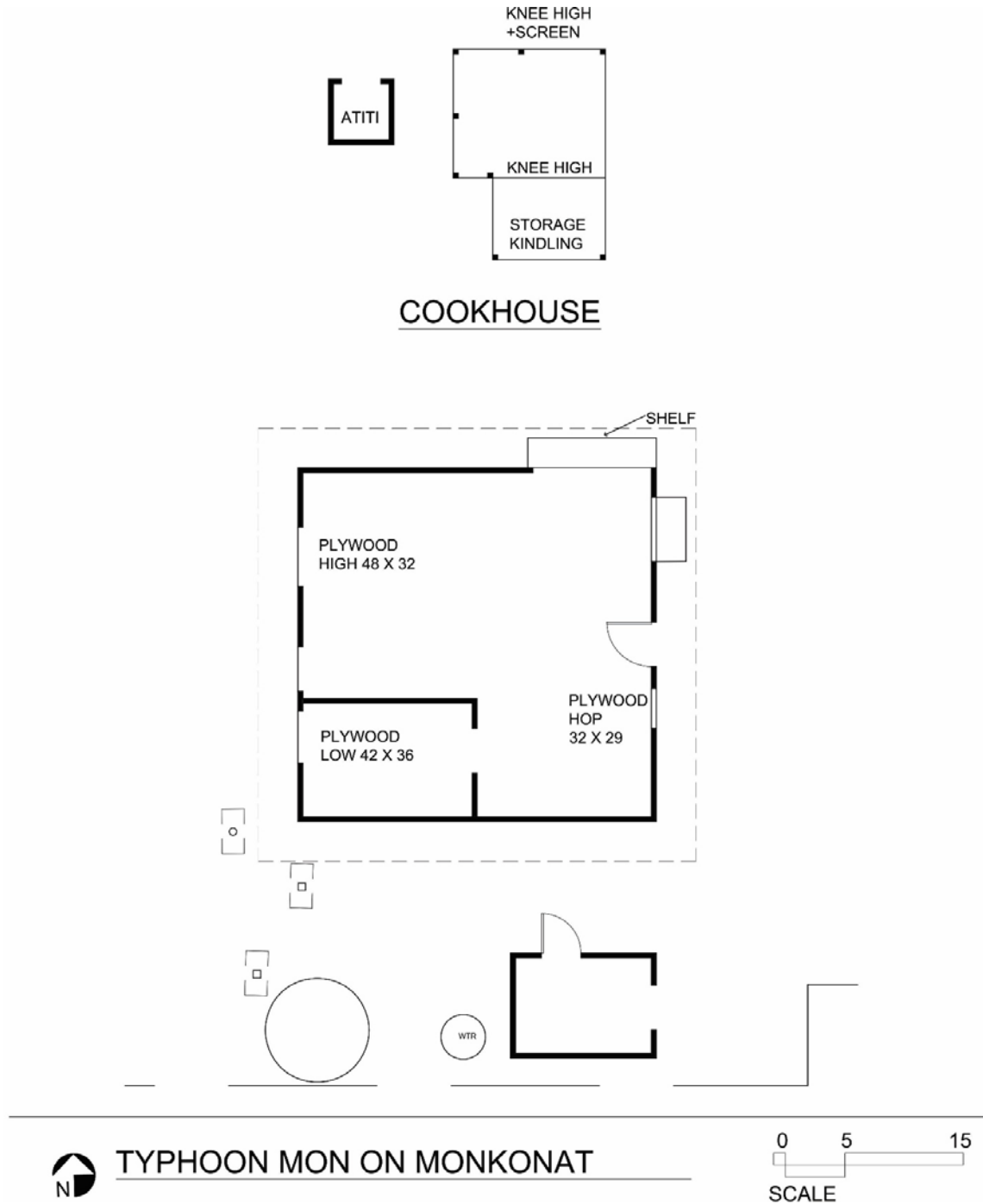


Figure 180. Floor plan of house 'D'.



Figure 181. Photograph of ocean facing facade of house 'D'.



Figure 182. Photograph of cookhouse of house 'D'.

A.6: Monwat

Monwat is approximately 3 acres in size and hosts on primary dwelling, a cookhouse, copra facilities, a picnic spot on the Oceanside and resources used daily. The grandmother of the *wēto* and the standing *alap* has lived on Namdrik her entire life, she was born in 1934 (84 years old). According to her the house was built after Typhoon Ophelia struck Namdrik, Jaluit, Kili and other southern atolls in December 1958. It was provided through United States Agriculture Department funding. There were two concrete buildings constructed through this fund after the typhoon, one house was for the Peace Corps, which is this house now. Peace Corps established their volunteers with this *bwij* while operating on Namdrik; this placement likely demonstrates that the *alap* of the *wēto* at the time held a position of importance in the community. In addition to the construction of the main house, the family aided in the construction of a hut house along the lagoon for the Peace Corps volunteers. Before the typhoon, everyone lived in hut houses that were higher from the ground⁵⁸. Other than houses, there were a few other buildings on the island made of plywood and tin, the old pilot buildings (Quonset huts), the shops, the copra warehouse, the school, and the churches.

Back then people knew how to look after each other, look after one another, to take part in the culture. Now people just don't get it. As far as the customs they change now.

After the typhoon, it was mostly the *bwij* that helped each other rebuild. The community helped a little bit. The people built back as they knew how with thatch

⁵⁸ While these raised hut houses could be reminiscent of the traditional 'big house', it is possible that it was a style influenced by the Japanese occupation. Based on other interviews and conversations with elders on Majuro, the raised houses in the Marshall Islands that were around in the 1950s were influenced by a Japanese post and beam style house raised on pilasters with tongue and groove floor sheathing.

housing as post-disaster aid was not distributed to Namdrik. The women interviewed knew of one family that built a concrete house in lieu of a thatch house; however it flooded easily. The biggest change on Namdrik after the typhoons was the loss of the hut houses.

Typically on the *wēto*, there are buildings for storage, copra press, a cookhouse, and the main house. The main house is made of wood, but all the other buildings are made of local materials and thatch. In the past, each *bwij* had around 8 families with 6 kids each – all living on the land. The families all had their own sleeping house, but on each *wēto* was a major hut house that represented the village base for everyone. It would have two stories, an open air ground floor with coral gravel as the floor and a second floor in the attic space. In the attic, you could sleep on the planks between the rafters. “The elders lived down, but made lattice for the kids and provide ladders for them so they can go up, sleep. Elders sleep down. That’s how it use to be.” When someone in the family got married, and stayed on the *wēto*, the family would build them a small hut house. The children would all stay with the grandparents in the large hut house. It was arranged this way so that the children would receive the wisdom from the elders. Today this pattern is still present, for example the *wēto* of Monkonat⁵⁹

The hut houses you see today are the same style as those that were around in the 1950s, but they are not as high. The large hut houses built before were high enough for a person to walk underneath them. Just like before, a coral spread covers the ground under the house and around it; woven pandanus mats are spread over the coral gravel and one

⁵⁹ It is also present on Majuro at “Icedonia” *wēto* (Lojolimen, Uliga) as discussed in chapter X.

sleeps on them. Although today, the gravel floor has been replaced with concrete⁶⁰. The housing styles that have been brought in from abroad, such as the USDA house, are built on the ground and not raised. Namdrikese attest to this difference because it is imported architecture, not aware of its new local.

The women reminisced about the thatch house, but the amount of repairs and maintenance required would hinder most individual's romantic view of the past. With modern housing styles repairs are only required every twenty to thirty years. The only benefit of the thatch houses was the cooler indoor temperature. As it is, the cookhouses need to be rebuilt every three to four years. The cookhouse is always rebuilt in the same location.

A mental mapping exercise conducted with the family shows that development on the *wēto* tended toward the ocean side, with the large hut house located on the ocean shoreline, prior to Typhoon Alice. While the old thatch houses (4) were on the ocean side, the location of the cemetery adjacent to the house and cookhouse is a clear sign that this part of the *wēto* has been at the center of the *bwij*. The family chosen the current location of the house in order to be near the grave of their great grandfather. The ocean side of the *wēto* remains important to the family as they have a picnic spot along the shoreline and often spend Sunday afternoons there as a family. The mapping exercise also demonstrated that the size of the family on Monwat has diminished over time as individuals and families have moved to Majuro or abroad to the United States. Today the three generations of family reside in the concrete house. Extended family of this *wēto*

⁶⁰ Today, only one example of a house with a coral gravel floor was observed on Namdrik.

also live on a *wēto* further north along the road to the airstrip. Family members are often observed spending time at both locations (approximately two miles apart), and on weekends the ocean side of the northern *wēto* often hosts large family picnics as well.

Weaving is an important part of the family's identity, which is evident by the amount of *wilomaan* (type of pandanus used for weaving) grown on the *wēto*, and the women are often found weaving pandanus in and around the house. Copra production is a large part of the men's daily activities on the *wēto*.

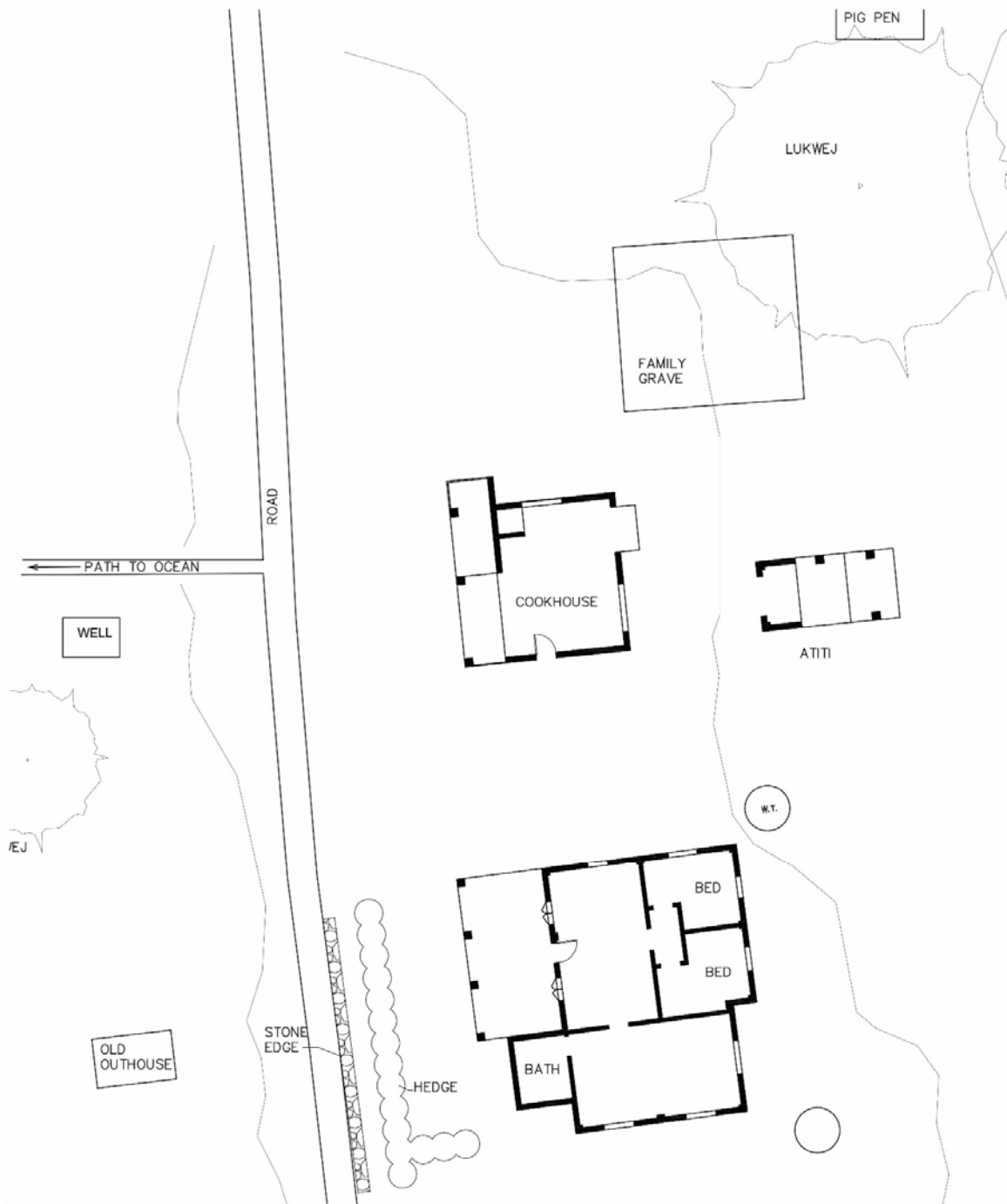
The house on Monkonat is one of the oldest standing houses on the island. It has five rooms and a covered porch at the front. The sleeping and living area and the bathroom were added onto the house after the initial construction. The house is inhabited by the extended family. Other than the main living space and the bathroom, each room is inhabited by a nuclear family and the grandmother. The sleeping and living area is used as a space for sleeping and a space for work and storage. The main living area (kitchen and living) is used throughout the day for weaving, cooking simple foods, chatting with family, studying, eating, and more. The covered patio at the front of the house is primarily used for bathing and laundry. While the front porch was clearly designed as the main entrance to the house, it is the side entry into the kitchen that is primarily used; the pile of *zoris* (slippers) on the porch step are a visual clue. The cookhouse adjacent the house is also a center of family activity, where the family is often found preparing meals and chatting.



Figure 183. Photograph of main dwelling on Monwat.



Figure 184. Photograph of covered space at the front porch of house on Monwat. Note the location for bathing and laundry occurs here.



PARTIAL SITE PLAN OF MONWOT

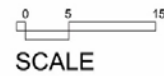


Figure 185. Partial site plan of Monwot showing the path to the ocean, the old well and outhouse locations, the cookhouse, the atiti, the cemetery, and the main house.

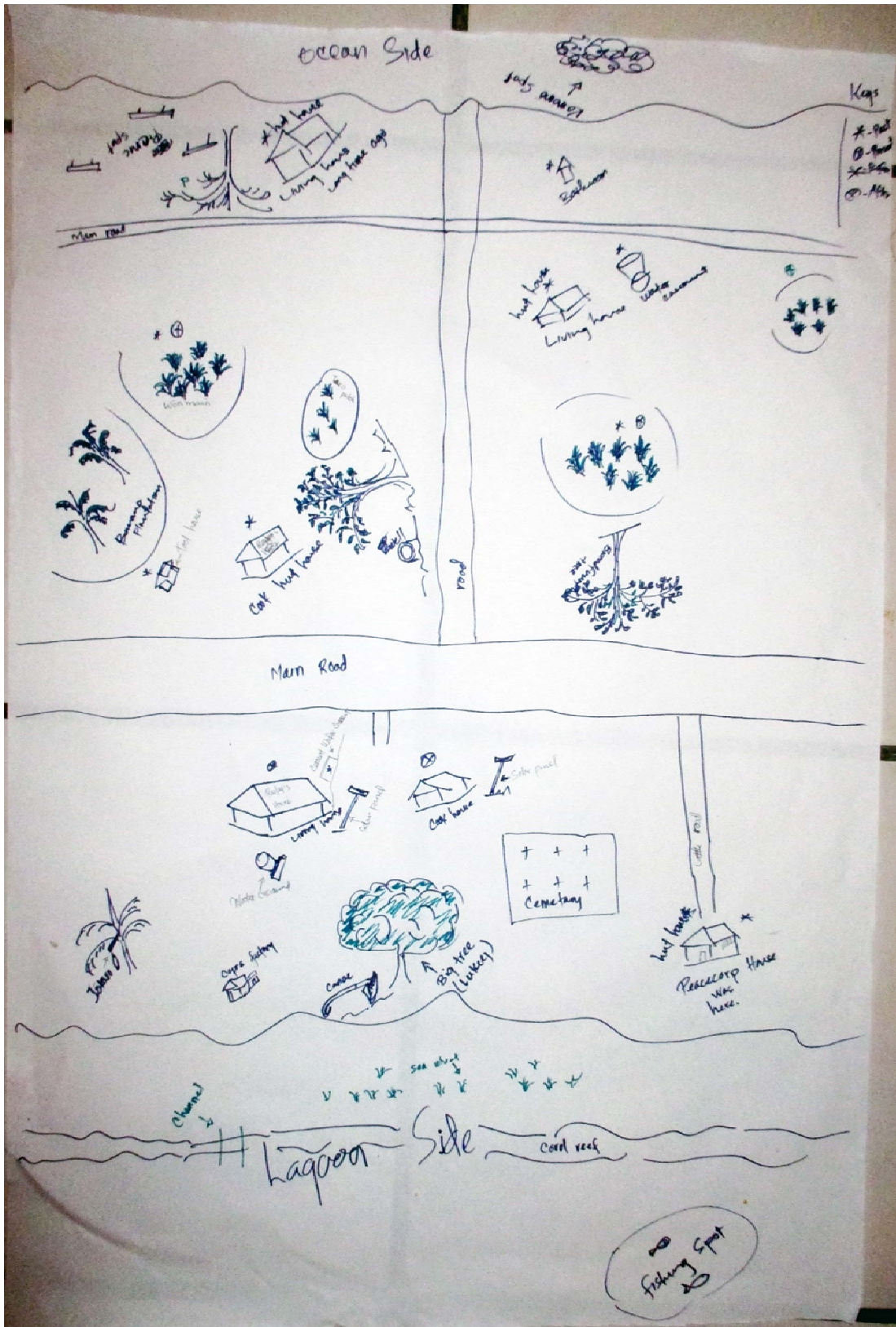
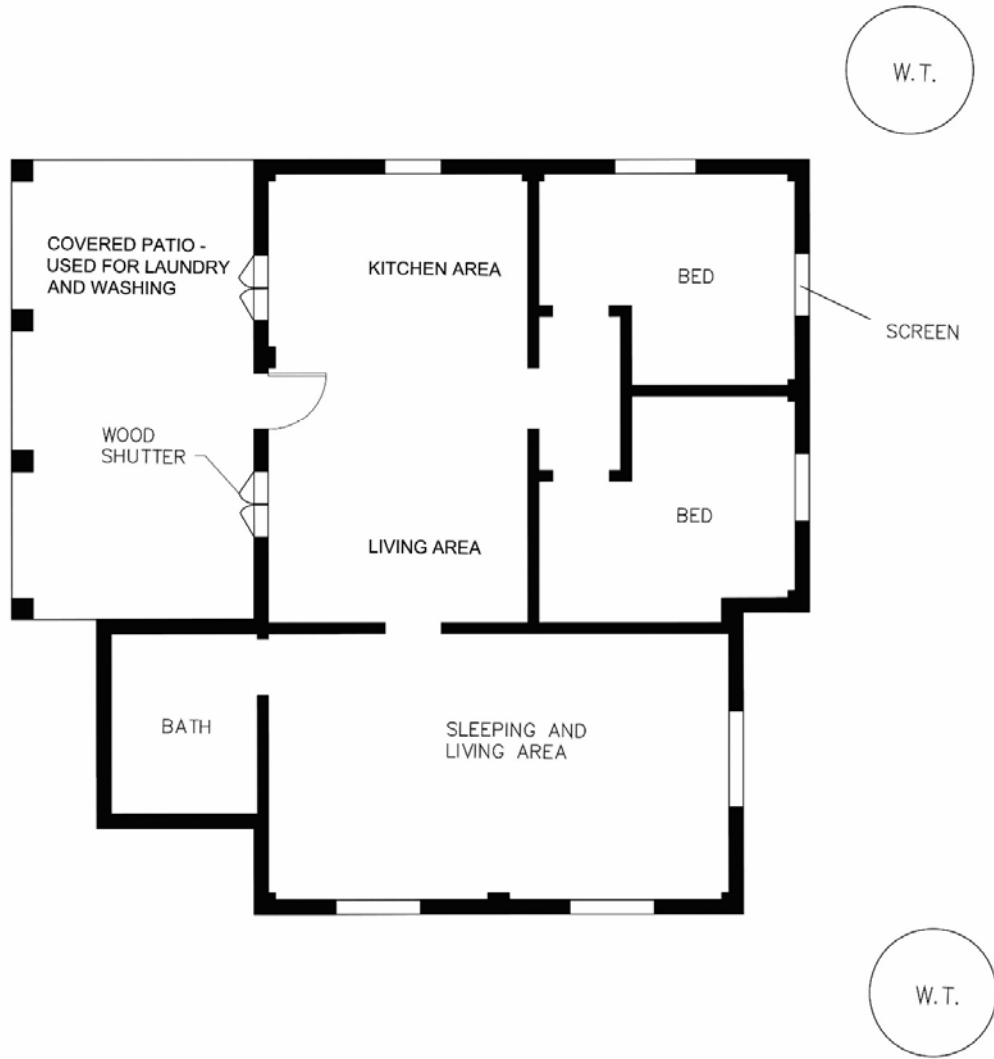


Figure 186. Mental map of Monwat showing changes over time and important resources.



MONEIBEL USDA HOUSE - CIRCA 1967

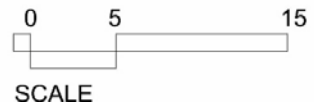


Figure 187. Floorplan of house at Monwat.



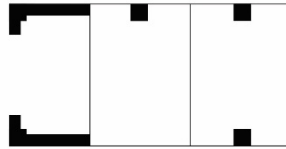
Figure 188. Photograph of cemetery on Monwat.



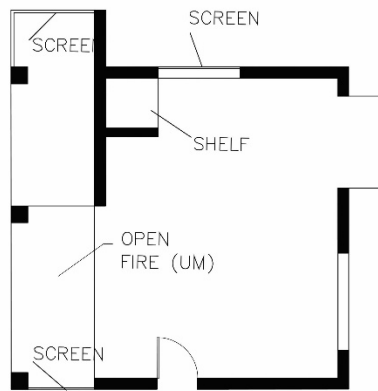
Figure 189. Photograph of entry facade to cookhouse on Monwat.



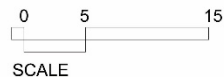
Figure 190. Photograph of interior of cookhouse.



ATITI



MONEIBEL COOKHOUSE



SCALE

Figure 191. Floorplan of cookhouse and atiti.

A.7: Maaklon *Wētō*

Maaklon is approximately 5 acres in size. Two dwellings and a cookhouse are located on Maaklon. The majority of the family was off island through the duration of the study, so little is known about the household's structure.

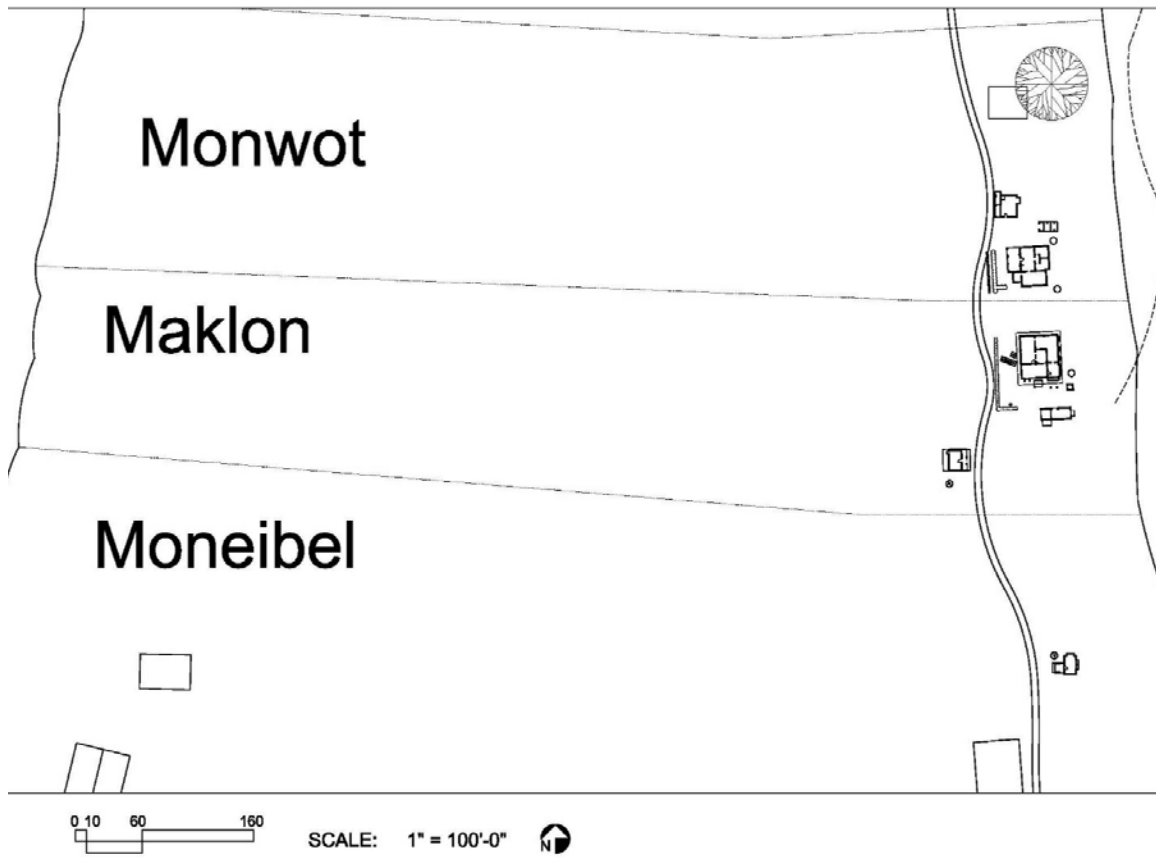


Figure 192. Site plan of Maaklon.



Figure 193. Photograph of concrete house on Maaklon.



Figure 194. Photograph of cookhouse on Maaklon.

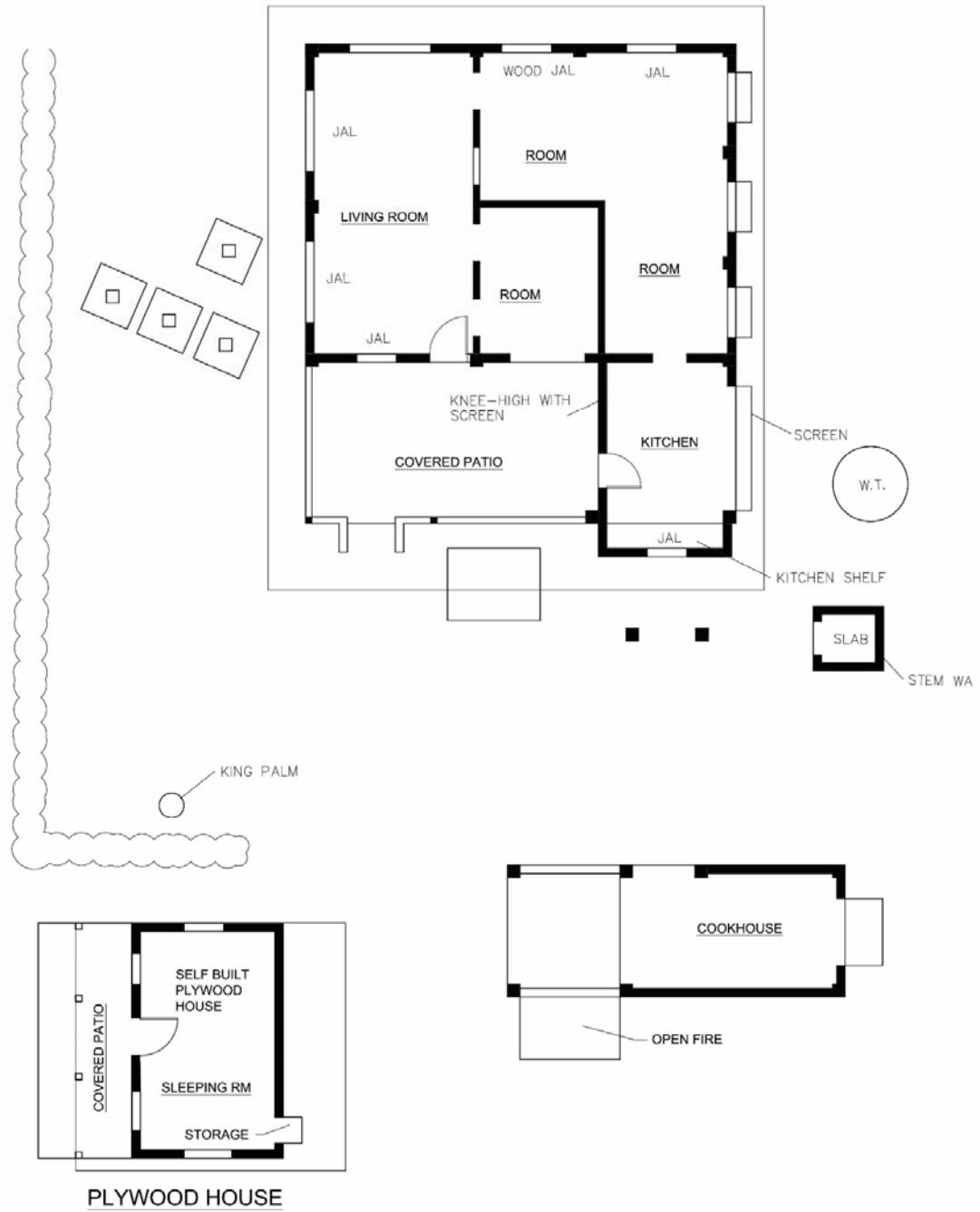


Figure 195. Floorplan of house on Maaklon.



Figure 196. Photograph of plywood house on Maaklon.

A.8: Maneibel *Wēto*

Maneibel is approximately 8 acres in size. It shares a *bwij* with Lotoean. The *alap* of the *wēto* lives on Lotoean at the intersection of the main road and the road to the ocean side. Given *alap* lives on Lotoean, it can be deduced that the *bwij* spans both *wētos*. The lagoon side hosts a large coral gravel spread where foundations of previous buildings can be seen. Within this area along the lagoon there are two dwellings, both occupied by families from the *bwij*. The family that built and lives in the house on the ocean side of the road ('C') leases the land. There are also two buildings on the ocean side of the *wēto*, the Copra COOP Warehouse ('D') and a shop ('E'). Building 'L' is part of Lotoean and attributes to the inaccuracies of the approximate *wēto* boundaries. Based on clustering and landscape features, it is clear that the dwelling and ancillary buildings labeled 'L' are part of the family cluster on Lotoean.

A.8.1: House B

House 'B' is a self-built vernacular house of Namdrik with six family members living there. The wife is related to the *alap* of the *wēto*. The husband followed his wife back to Namdrik but is from Majuro. He enjoys the simple life on Namdrik, where “everything is free”. The husband built the small house with help from friends. He received a grant from the Marshall Islands Development Bank to assist in the purchase of materials, such as corrugated metal, concrete, and plywood. In addition to the materials he purchased with the grant, he also used local materials for the structure. The total cost of the house was approximately \$700. The location was chosen because it is further from the water and it was built to face the road. Everything takes place in the house according to the husband. To protect the house from the harsh NNE winds that whip the rain, he planted a wind breaker consisting of coconut trees. A shed roof is built off of the front of the house toward the road in order to store copra and provide protection for the earth oven and fire. In addition to the area around the house, the owners have also planted banana groves. The primary occupations of the husband are copra production and fishing.

A.8.2: House C

If one looked at nothing but the hosing on Namdrik, they would likely assume this was the house of the chief. Built on the ocean side of the road is one of most (if not the most) unique structures on Namdrik. It was constructed in the 1980s as a shop house by a man that came from Wotje Atoll. The owner of the house was a business man, originally from Wotje, but born in Guam to a Marshallese woman that was “knocked-up” by a white man. The house is representative of a shop house that the owner knew back on Wotje. The shop house is laid out horizontally, with dry good storage at the northern most end of the house, the shop in the center, with a large pool hall on the north end and the goods

kept behind a security cage accessed through a hallway between the pool hall and living area, and the living area at the south end of the house. The living area consists of two sleeping rooms, a great room and a bathroom. Today the shop is no longer running and the pool tables collect dust. In the 1980s and 1990s the shop was a hub of activity as generators ran televisions, including a big screen, refrigerators, music, and water.

The floor is concrete with tile, which is similar to the newer USDA Rural Agriculture Program houses on Namdrik. The structure is concrete post and beam with a concrete roof that also stores water. The interior height of the house is approximately 12 feet. A water cistern is built underneath the front porch, which has a ramp for transporting goods. Horizontal wood slats cover the front façade of the shop area, allowing the breeze to easily flow through the space (making it a much more comfortable space than the living area). The bathroom has a vanity sink, shower, and flush toilet, but they are no longer functional. It is likely these required an electric pump to run the water through.

The cookhouse sits on a concrete slab with tile and is well kept. Vertical slats of imported bamboo and hibiscus provide added privacy while allowing for the breeze to pass through and light to trickle in. The fire pits and an earth oven are at the ocean side of the cookhouse where a nook is created with a lower shed roof. A wood oven box is adjacent. On the north side of the cookhouse is a counter top and wash basin. A hose bib is provided adjacent the basin from the plastic water catchment on the north side of the house, providing the cleanest water that is used for drinking. On the lagoon side of the cookhouse is a space for food prep and storage of cooking utensils. In addition to the cookhouse and house, a pig pen, atiti, and a large breadfruit are on the property.

One could argue that this house represents the transition in social status on Namdrik from one of lineage to one of capital. It is clear that the family inhabiting the house is one of the wealthiest on island, but I would argue that their position on Namdrik is not central to the community. The business man that built the house, whose wife is from Monwat, has left the island, and it would appear as though Monwat has retaken the social center of the family. Having supper on Monwat, the current man of the house remarked “It’s like how it used to be in the bug hut house. The whole family coming together to eat from one cookhouse. Grandma is sitting in the living room weaving, and the families with their kids are eating. There are twelve of us here right now, eating.”

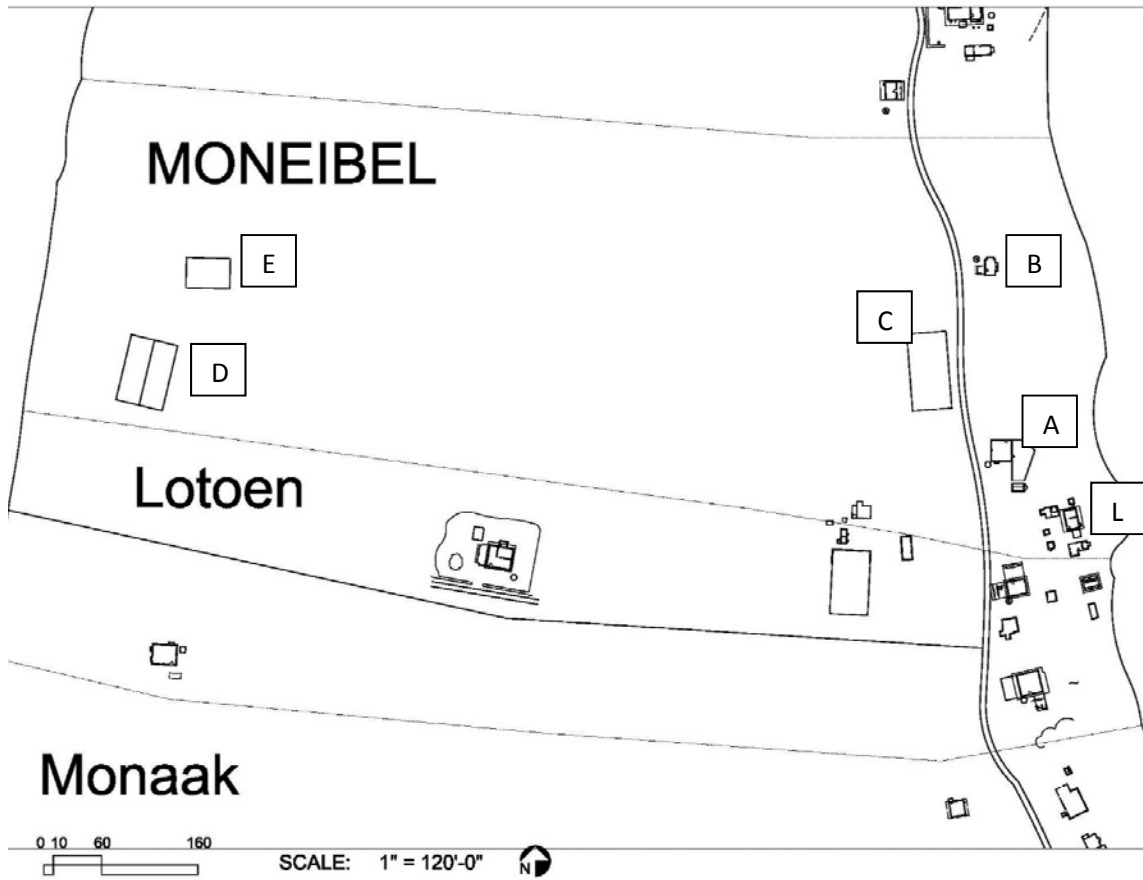


Figure 197. Site plan of Moneibel wēto. (A) is a concrete house built circa 1960, (B) is a self-built vernacular house, (C) is a large concrete house and shop, (D) is the Copra COOP Warehouse, (E) is a shop, (L) is part of Lotoean.

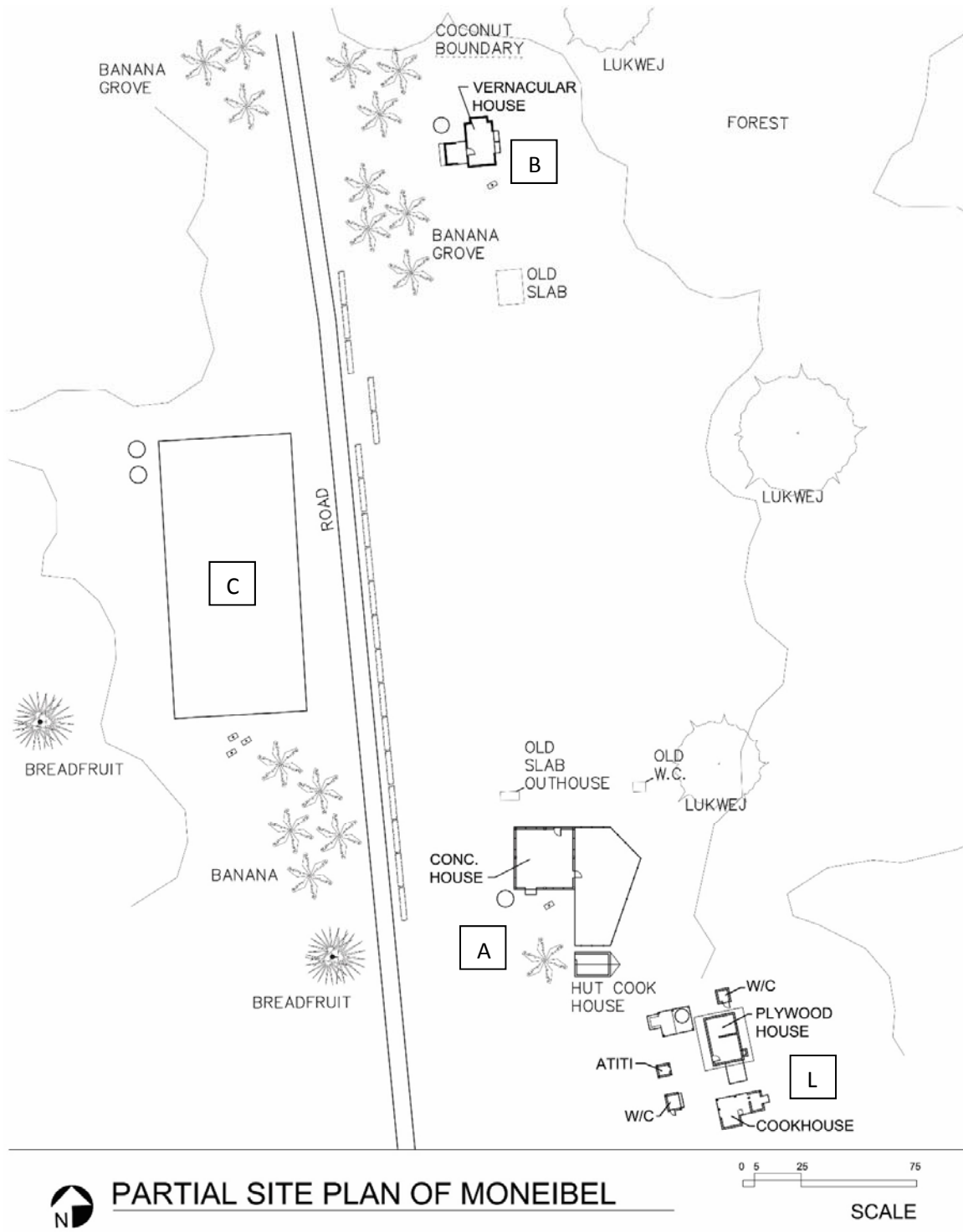


Figure 198. Partial site plan of Moneibel.



Figure 199. Photograph of house 'C' from the main road.



Figure 200. Photograph of the cookhouse of house 'C'.



Figure 201. Photographs of house 'B'. Notice the spaces for storage that are extrusions from the walls.

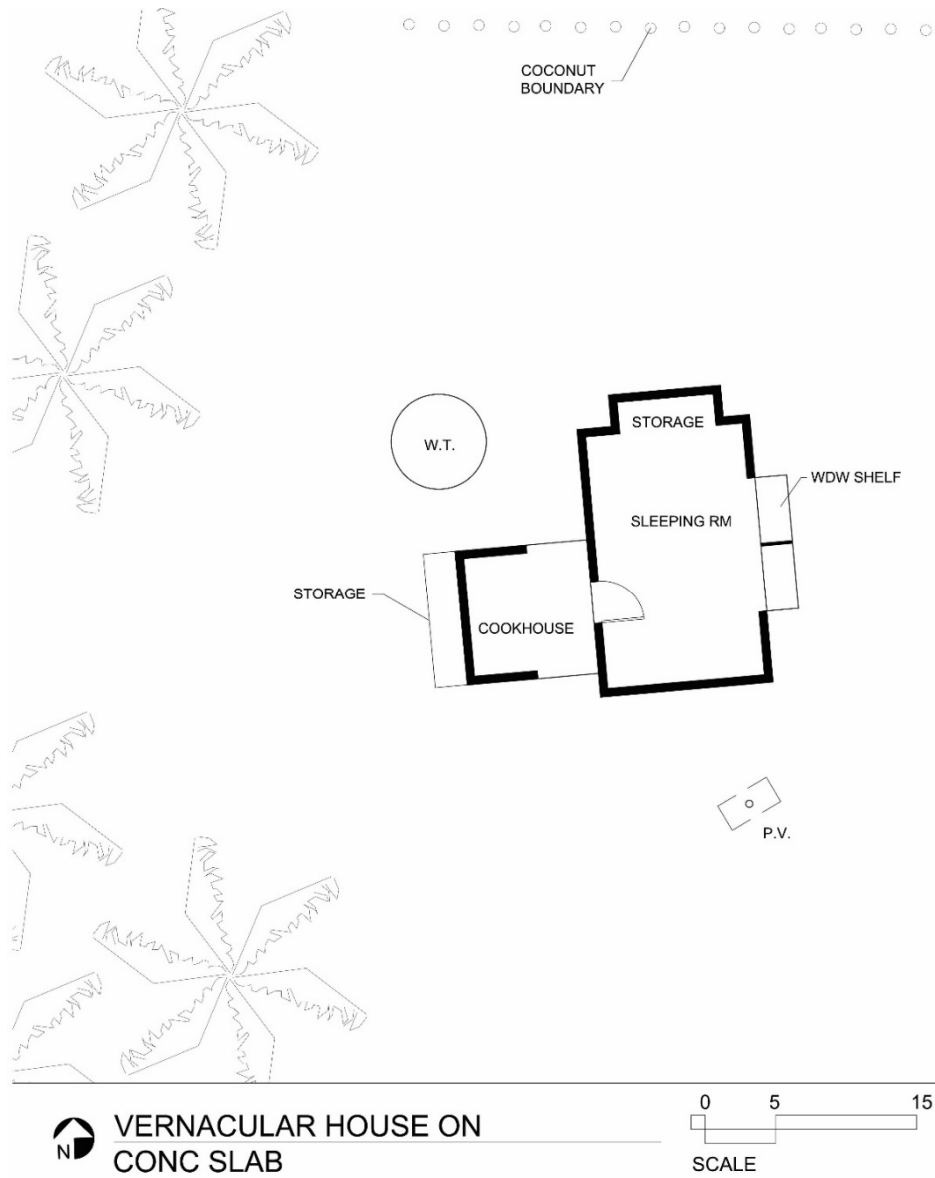


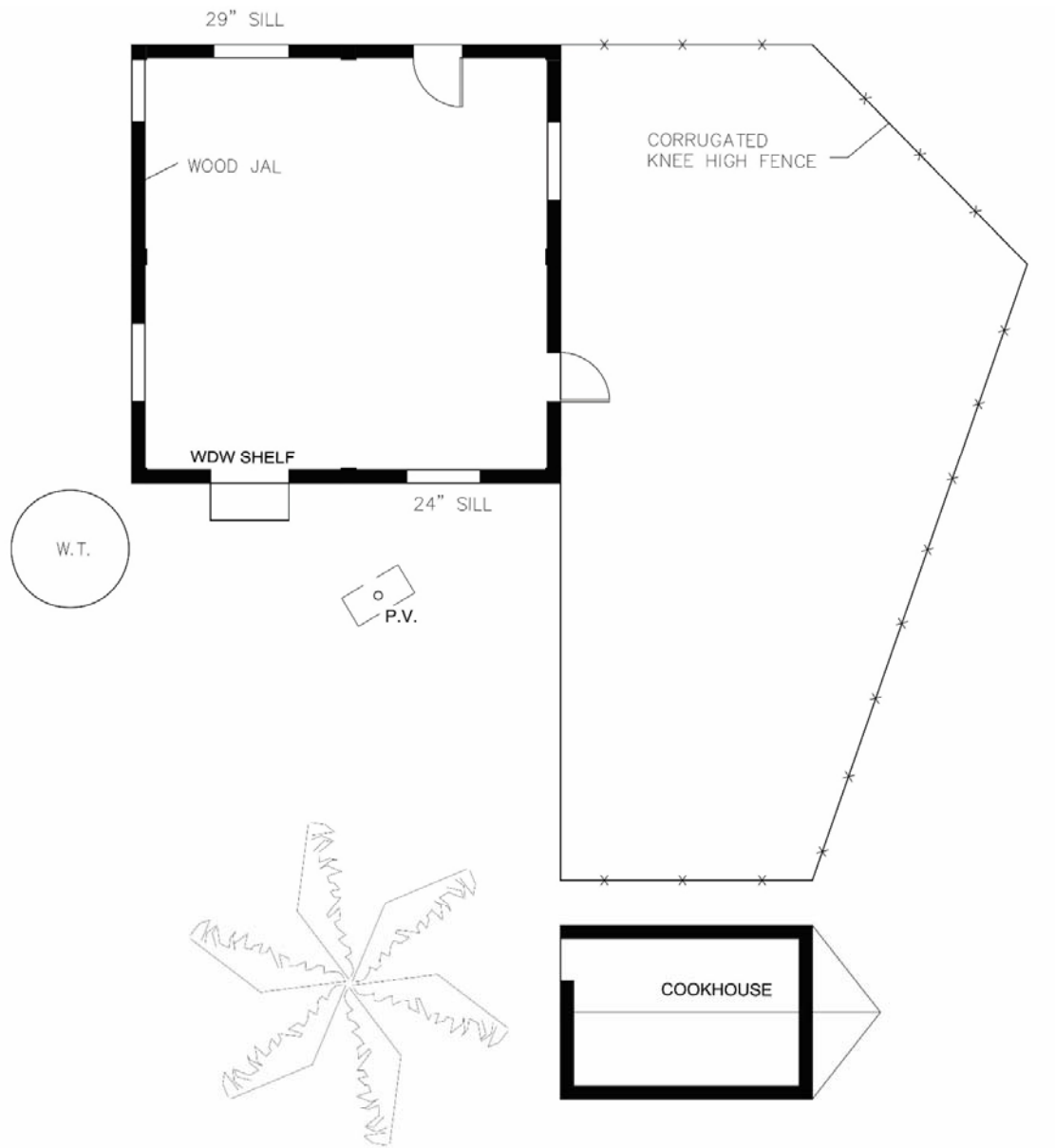
Figure 202. Floor plan of house 'B'.



Figure 203. Photograph of house 'A' showing the damage created overtime from the harsh winds whipping the lagoon side elevation.



Figure 204. Photographs of house 'A' that seconds as a place for resting.



**CONCRETE HOUSE CIRCA 1967 W/
THATCH COOKHOUSE**

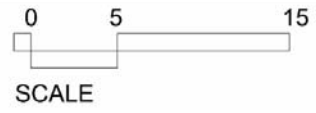


Figure 205. Floorplan of house 'A'.



Figure 206. Aerial image showing parts of Maneibel and Lotoean. Based on landscape features, there is a clear separation between the USDA concrete house on Maneibel and the adjacent plywood house. The adjacent plywood house ('L' on figure X) is clearly part of the housing cluster attributed to Lotoean.

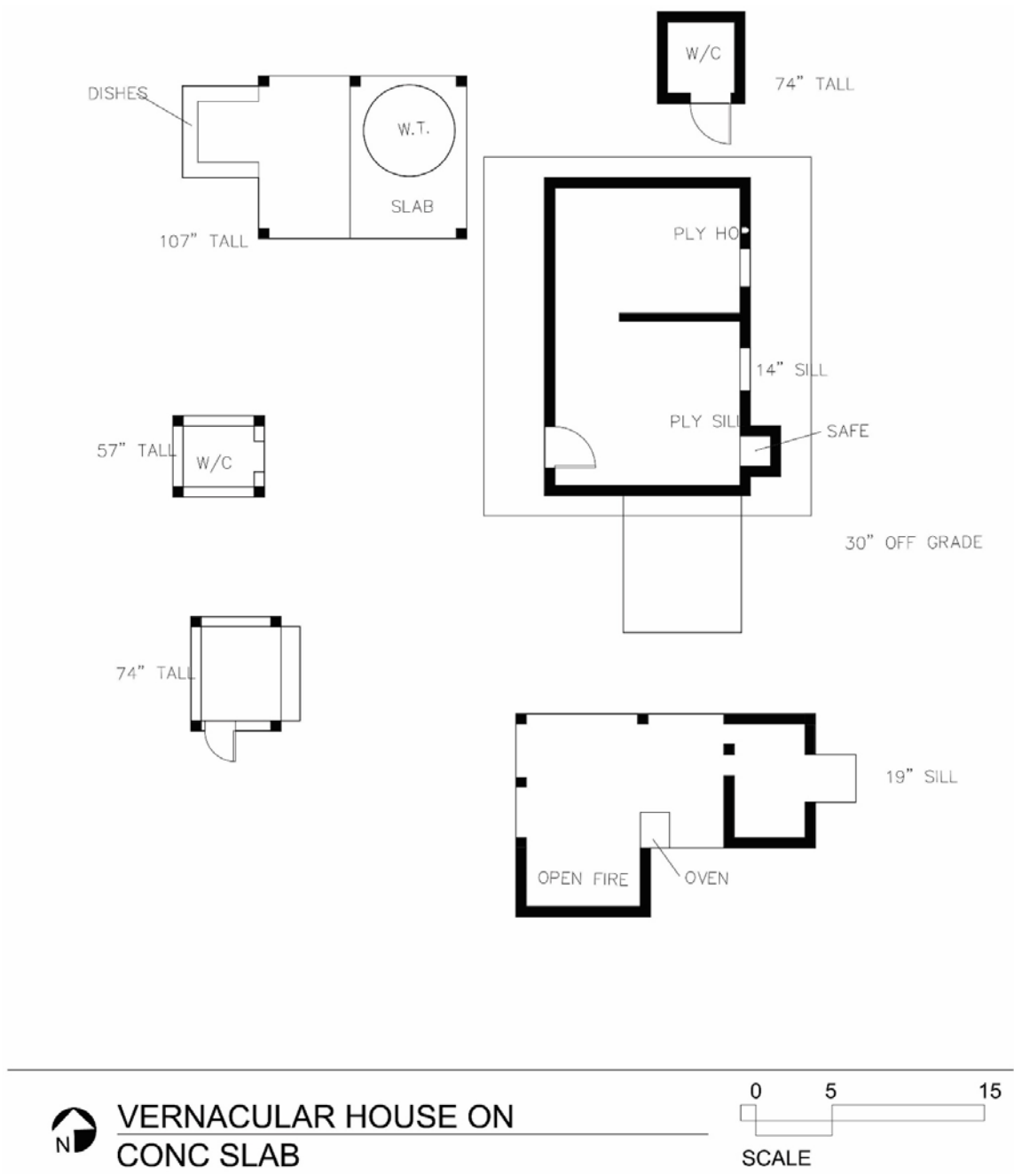


Figure 207. Floor plan of house 'L' and ancillary buildings.



Figure 208. Photograph of cookhouse of house 'L'.



Figure 209. Photograph of house 'L' from the road.

A.9: Lotoean *Wēto*

Lotoean *wēto* is approximately 6.5 acres in size, consisting of five dwellings and the Assembly of God church. The *alap* of Lotoean is also the *alap* of Moneibel, demonstrating that the *bwij* extends across both *wētos*⁶¹. It is likely that this *bwij* is one of the wealthier and higher status clans on Namdrik, given the presence of the copra warehouse, the Assembly of God church, one of the largest tarot pits, and the shop. Five families live on the *wēto*. Historically, Lotoean has already held an important place. It is the location of a *bwebwenato* story character, which is also where the ships lay anchor that come to deliver goods. When the Morning Star first came toward the end of the 19th century, Lotoean would have been the first *wēto* the missionaries stepped foot on. In addition, the copra facilities have almost always been on Lotoean, and the Japanese trading store was in the same ocean side vicinity of the copra warehouse.

⁶¹ It is typical for the *alap* of one *wēto* to live on another. This is likely due to the fact that at some point in time, the larger *wēto* was segmented.

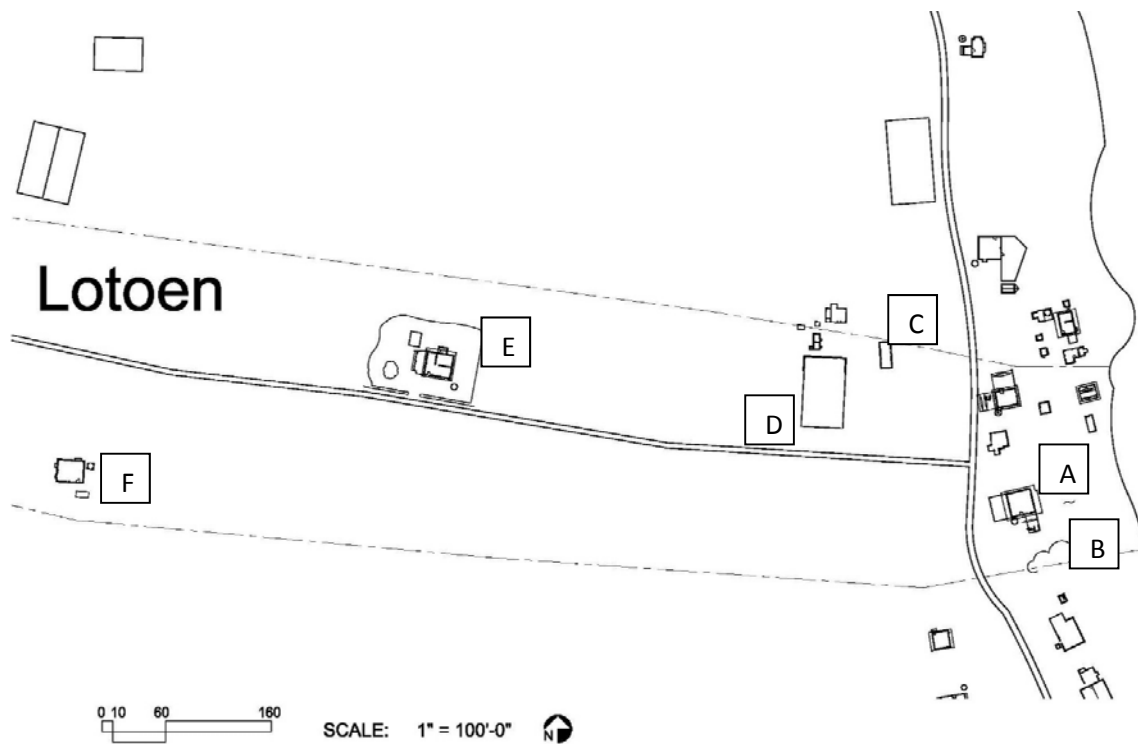


Figure 210. Site plan of Lotoen: (A) plywood house, (B), Typhoon mon & Alap's house, (C) concrete house, (D) Assembly of God Church, (E) Concrete house & shop keepers home, (F) concrete house



Figure 211. Image of cemetery on Lotoen (family members from Moneibel and Lotoean).

A.9.1: House Complex A

House A is a family complex consisting of the main house, a small thatch house, a canoe shelter, a cookhouse, atiti, and outhouse. The plywood for the house came from Pacific Inc. International when they constructed the new school building in 2006. This complex is one of the few that contains a thatch house used as a sleeping room.

A.9.2: House B (*Alap*)

House B is a typhoon mon with a shed roof to the house. Although it is the *alap*'s house, it is not obvious from an aesthetic point of view. As the market economy has taken hold of social status in the Marshall Islands, it is common for the *alap*'s house to no longer be considered one of the largest on the *wēto*.

A.9.3: House C

House C is a small self-built dwelling constructed with left over plywood and corrugated metal from the construction of the Assembly of God church. The cookhouse of house C is one of the most unique on Namdrik, utilizing old windows as the east and south walls.

A.9.4: Building D

The Assembly of God Church is one of the three primary churches on Namdrik.

A.9.5: House E (Shop Keeper)

House E, like house F was built through USDA funding after Typhoon Alice. This house was built by the brother of the women that built house F. Based on a conversation with the man of the house, there were five or so plywood houses on Lotoean before Typhoon Alice. Before the Typhoon there was a really large hut house on the *wēto*, which was located on the site where the *alap* lives now (House B). House E was built on the location of a previous thatch house.

House Description:

The concrete house shows the wear over the past thirty years. Since it was built after the typhoon, the shop keeper and his family have added on a bathroom to the rear of the house, installed a panel ceiling to help reduce the heat transfer from the tin roof, and replaced windows. When the house was first built, it was one open room. The family has built partition walls and a covered patio to create separate spaces in the house. The private room in the house is for the parents/ grandparents to sleep. There is a space for storing some items for the store and a main living area. The house is used for sleeping, working, relaxing, and eating. Cooking does not take place in the house, only outside. The patio area is used as a cookhouse and for laundry. A concrete slab lies to the rear of the house where a small thatch house used to be, which was used for bwebwenato and relaxing. To the ocean side of the house is a large space where trash is burned and later buried.

Food Resources

The family cultivates bananas, breadfruit, pandanus, papaya, and mountain apples. These trees and groves surround the house and the produce is used daily. The shop keeper enjoys the ability to live off the land and prefers it over the city life on Majuro.

Housing Change:

Before Typhoon Alice, there were only two concrete houses and less than five plywood houses. Mojero *wēto* had a strong plywood house, where the mayor lives now, and Moneibel had a strong concrete house. The concrete houses and some of the plywood houses survived Typhoon Alice, but the houses built in the Japanese style with a raised wood panel floor; those houses were taken by the typhoon. Also before the typhoon, there were more hut houses on Mojero *Wēto* and along the ocean side on Lotoean. After

typhoon Alice, contractors and construction workers came from Public works in Majuro to help with reconstruction and they taught the people of Namdrik how to build with concrete and wood framing.

An important house was on Lotoean before the typhoon. There was a really big hut house where all the family members of the *wēto* would go to eat and tell stories (*bwebwenato*). When the man of House E was a child, he lived in the large hut house with all the other grandchildren. The man also noted that if a child wanted to go stay with their parents in the little hut house, they were free to do so. In fact, if a child wanted to stay with an aunty or uncle, it was generally accepted. But, back then, children went to live with their grandparents to listen to stories and gain wisdom from the elders and learn the traditional Marshallese stories. The man claims that this was the only reason children went to live with their grandparents. The shopkeeper remarked that his grandchildren live with him, demonstrating that he is replicating the same social structure. However, children do not have the same freedom to stay with family members as they like, moving around the island; now-a-days they have to stay with their parents because relatives do not want to spend their money on someone else's children.

While the shopkeeper is not the *alap* of Lotoean, the recreation of the social structure from the traditional *alap*'s house demonstrates three important concepts: 1. The social pattern still persists, and 2. The role of the *alap* has diminished, and 3. The nuclear family has begun to reform its own *bwij*. The shop keeper stated that his relatives do not come to live with him, but rather stay in the areas they have close family (sons, daughters, and/or grandparents).

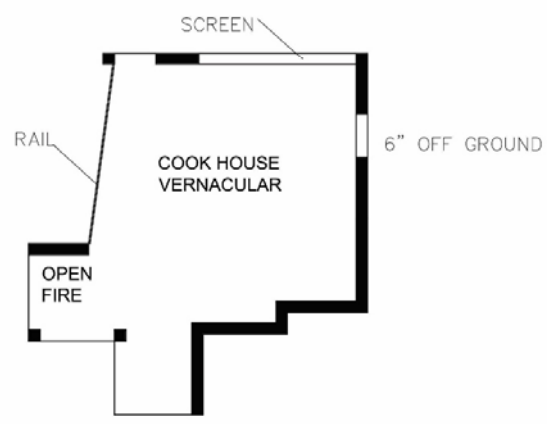
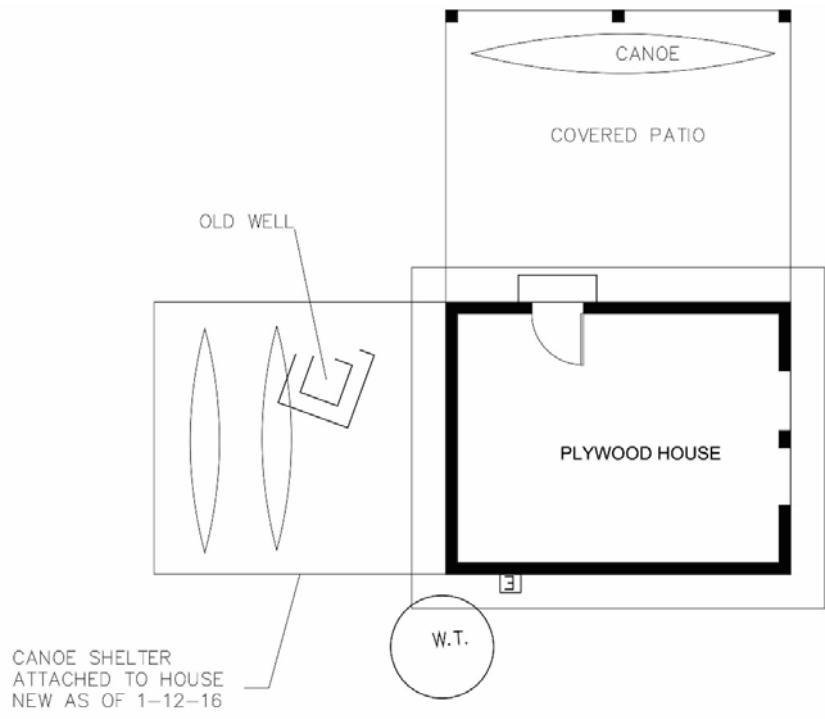
Life on the *wēto* is central to the family of House E. When asked what would be necessary if the family was forced to resettle, the shop keeper responded: “No *Wēto*, No Go!” The ability to sustain off of the land is very important to his family, especially as the foods they are able to cultivate are central to Marshallese style food; another vital aspect of their life. When asked what he would take with him, he responded: “The foods here, like some papaya, coconut trees, anything that we plant for food. Like breadfruit tree, take it, live there, if it could survive wherever they are going.” He also remarked that the tomb stones would have to be taken out of the ground and shipped along with the bones of their ancestors⁶². In addition, if they resettled, it would be important for relatives to live close to each other, living together as it is now. “We would live just the same like living here. We would go from place to place if we needed help, house to house, share everything with each other. Similar to how it is now.”

A.9.6: House F

House F is occupied by single men in their twenties. The house was originally owned by a woman whose nephew now lives there. He is from a *wēto* near the center of town by the Catholic Church. When the aunt moved to the United States, she asked him to come live at the house. Now he lives there with three other men. The house was originally built through USDA funding following Typhoon Alice. At first FEMA constructed a typhoon mon and it was soon replaced by the concrete house⁶³. Before the typhoon, the aunt and her family lived by the Catholic Church.

⁶² Taking the bones of ancestors was a common practice among Marshallese people as they migrated from one island to another.

⁶³ Based on this case and others, the Typhoon Mon were most likely temporary shelters meant to be replaced by more permanent concrete houses as funding allowed. Once again this is an example of the failures of post-disaster reconstruction to reach permanent shelter.



 **PLYWOOD HOUSE - LOTOEN (PII)**

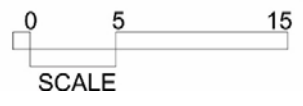
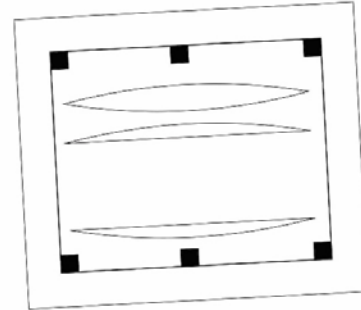
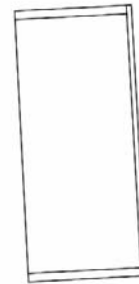


Figure 212. Floor plan of house 'A'.



CANOE SHELTER
RELOCATED TO
HOUSE (PLY HOP)
OBSERVATION
1-27-16



PLYWOOD HOUSE - LOTOEN (PII)
ACCESSORY BUILDINGS

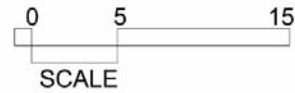


Figure 213. Site plan of buildings that are ancillary to house 'A'.



Figure 214. Photograph of house 'A'.



Figure 215. (Left) a canoe shelter along the lagoon. (Right) men working on a canoe under the covered patio.



Figure 216. Photograph of the front and side façade of a hut house adjacent to the main house.



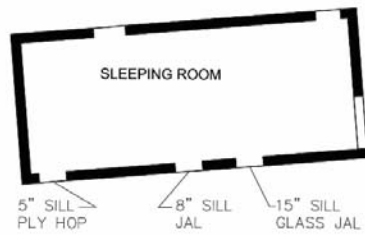
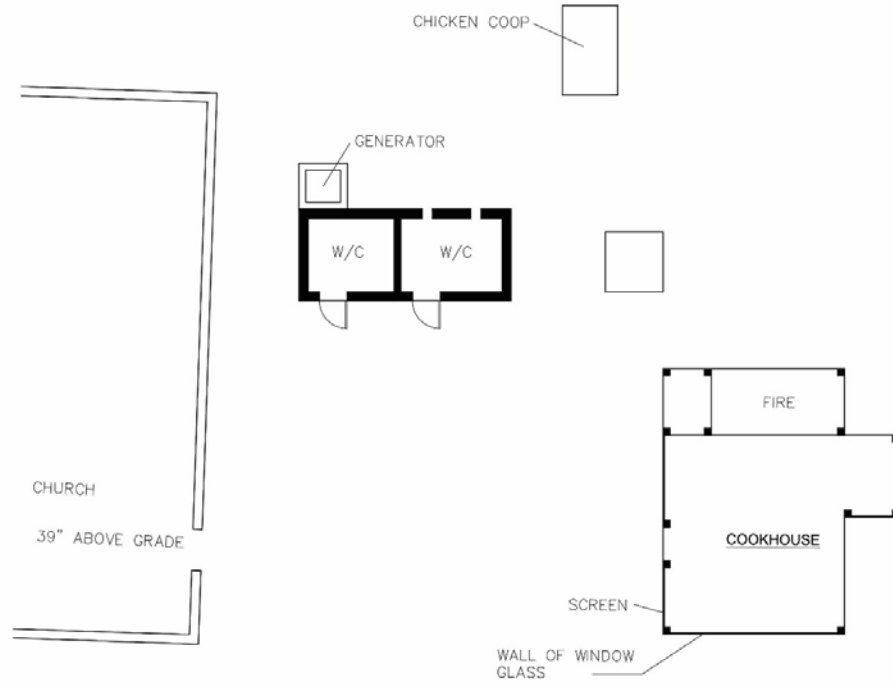
Figure 217. Photograph of cookhouse of house 'A' interior (Right), exterior (Left).



Figure 218. Aerial photograph of House B. 1. Family cemetery for Lotoean and Maneibel. 2. Footpaths connecting House B directly to house A



Figure 219. Photograph of house 'B'.



SLEEPING HOUSE AT AOG CHURCH

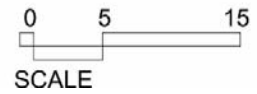


Figure 220. Site plan of house 'C'.



Figure 221. Photograph of house 'C'. Sleeping house at Assembly of God Church.



Figure 222. House C Cookhouse. Left, photograph of cookhouse facing road. Right, entrance side of cookhouse.

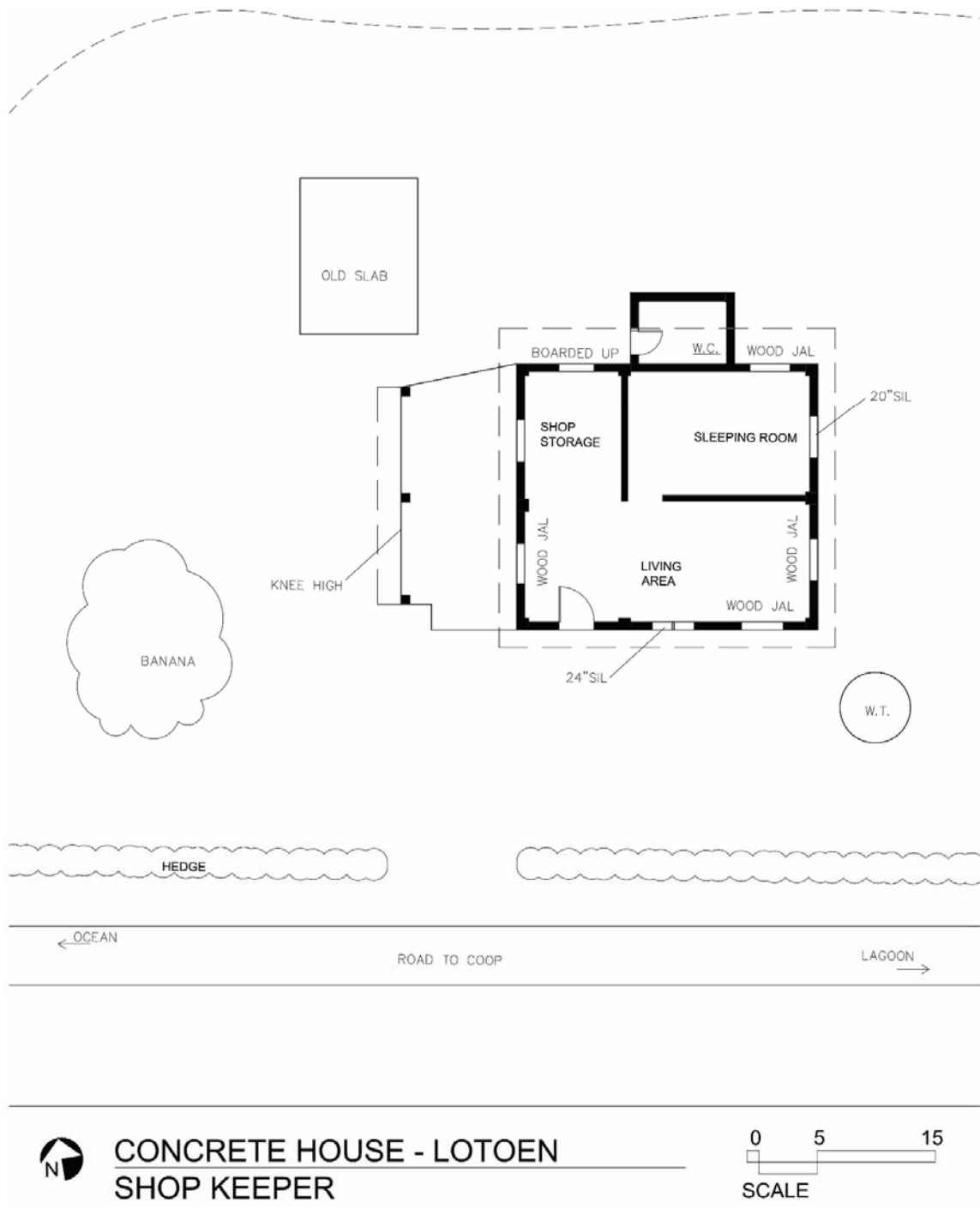


Figure 223. Floor plan of House 'E'.



Figure 224. Photograph of house 'E' from the road to the ocean.



Figure 225. Photograph of the covered patio on house 'E' that serves as the cookhouse.



Figure 226. Refuse area used for disposing of and burning garbage behind house 'E'.

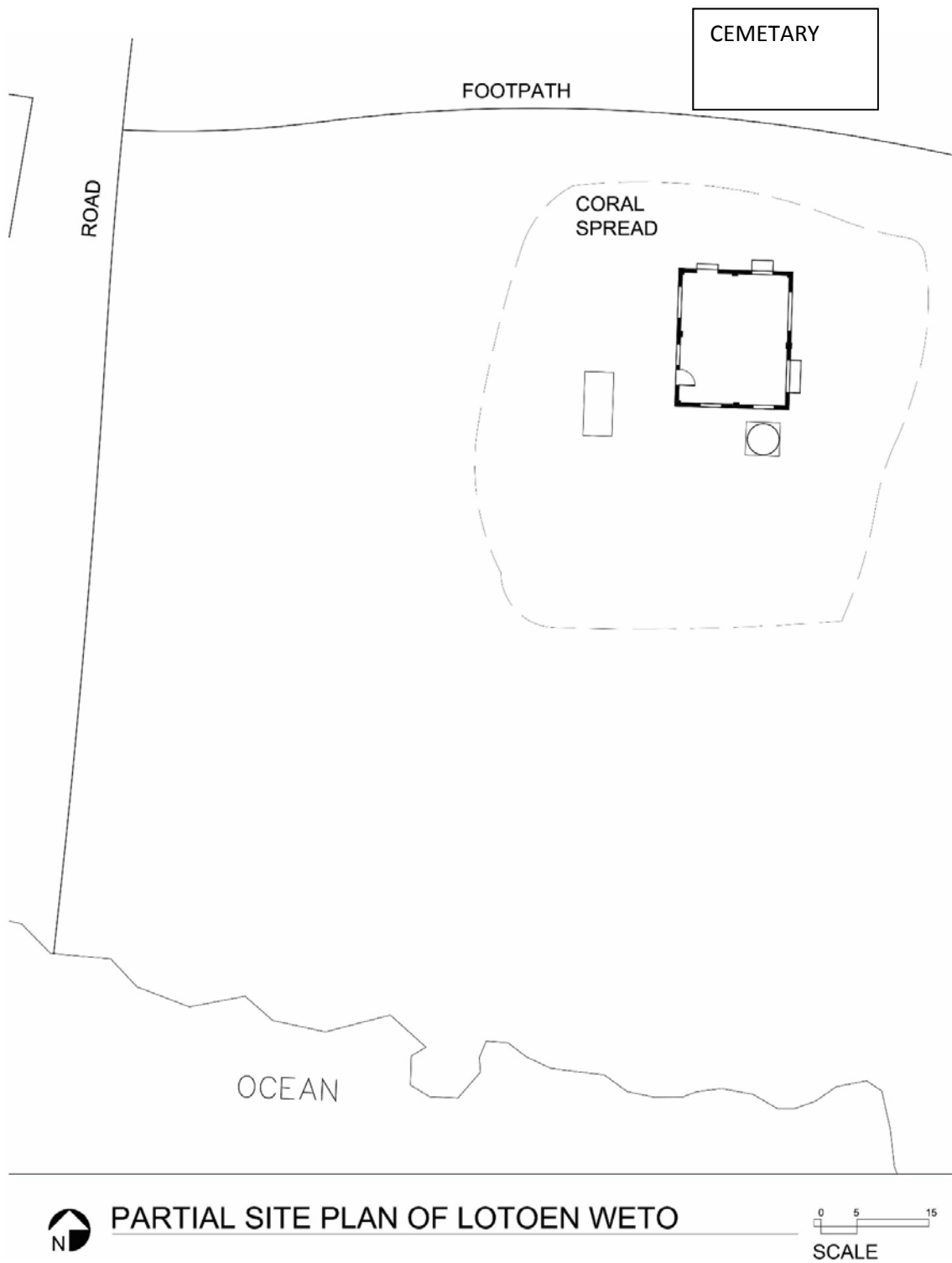


Figure 227. Floorplan of house 'F'.



Figure 228. Photograph of House F



Figure 229. Photograph of ocean side cemetery on Lotoean Wēto. Notice the same paint colors as the lagoon side cemetery.

A.10: Monaak & Leb Wētos

Monaak wēto is approximately 6.5 acres and Leb is approximately 2.71 acres.

Approximately 20 people live between the two wētos.

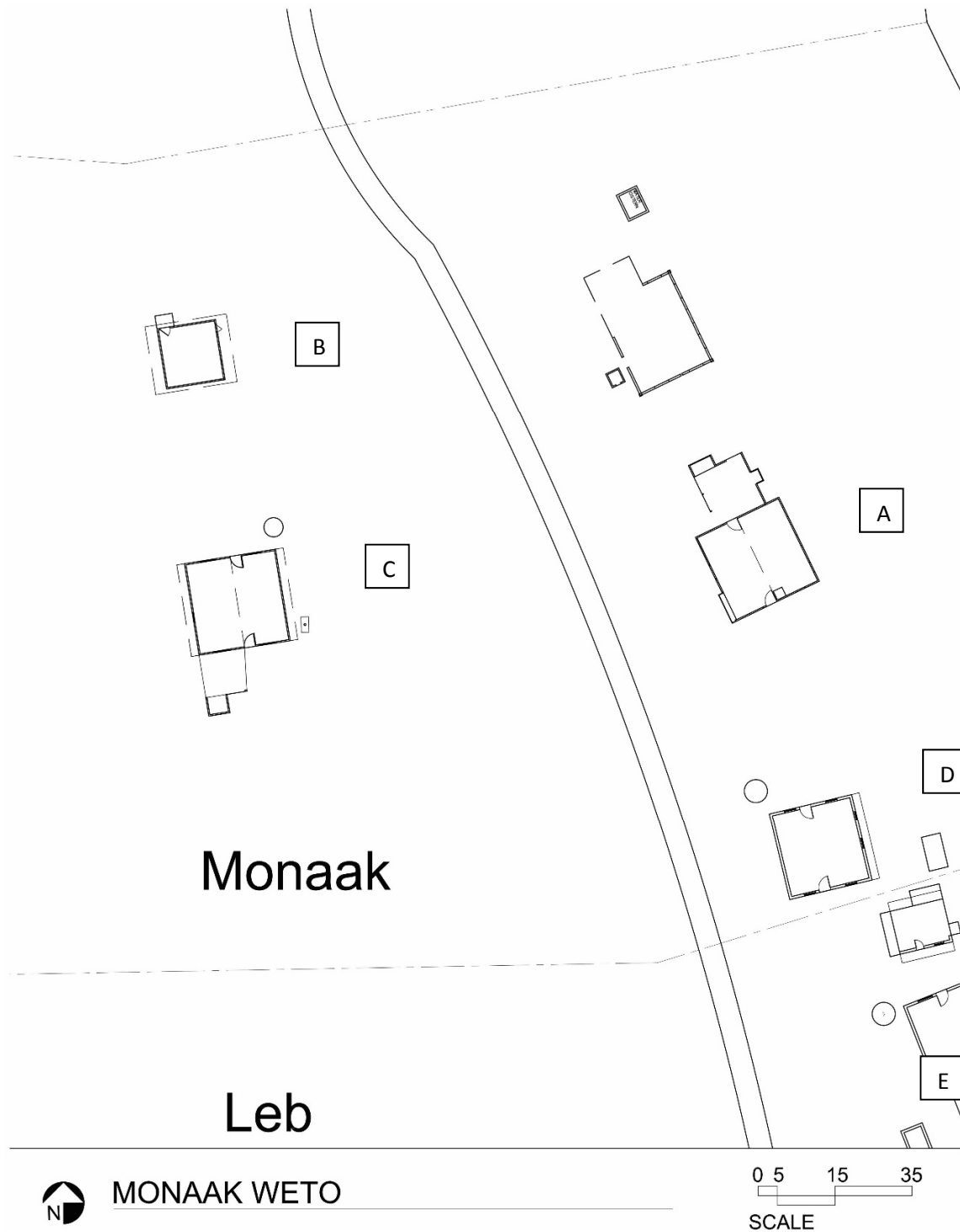
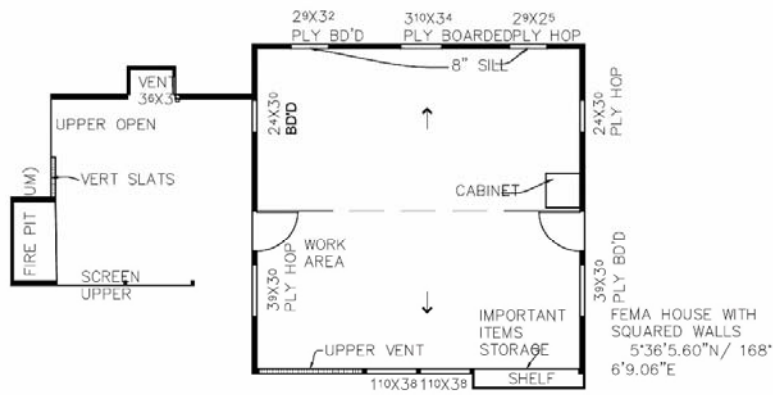
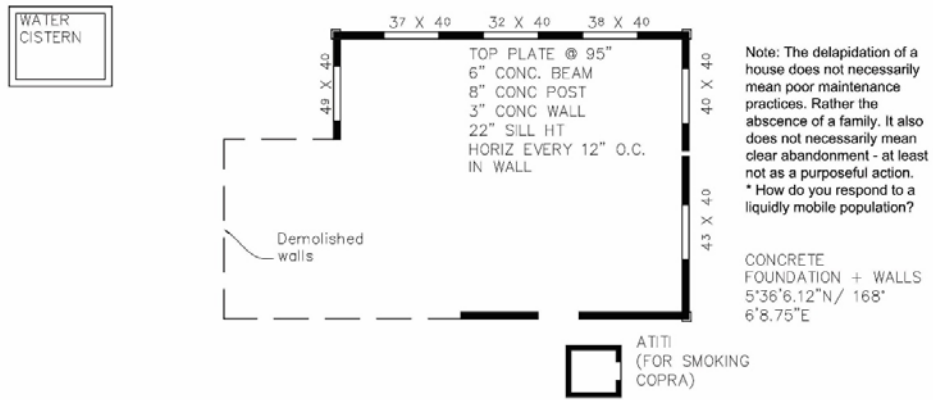


Figure 230. Partial site plan of Monaak wēto.

L



TYPHOON MON- MONAAK

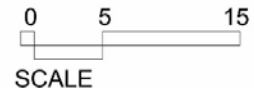


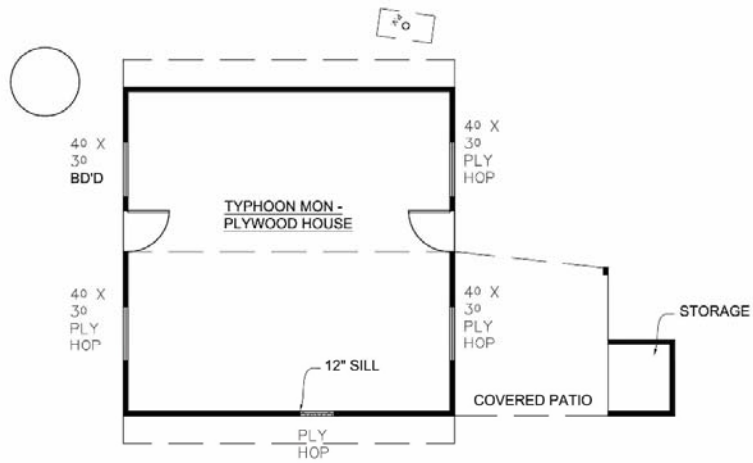
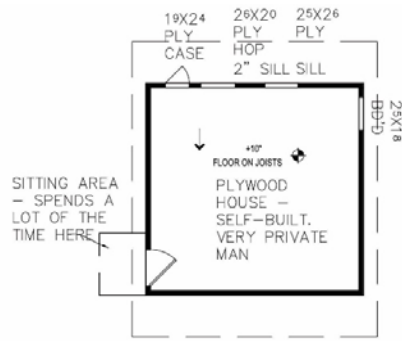
Figure 231. Floorplan of abandoned house (top) and house 'A' (bottom).



Figure 232. Photograph of House A, a typhoon mon.



Figure 233. Photograph of cookhouse added onto House A



**SELF-BUILT PLYWOOD HOUSE &
TYPHOON MON - MONAAK**

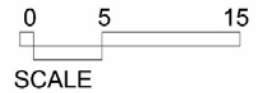


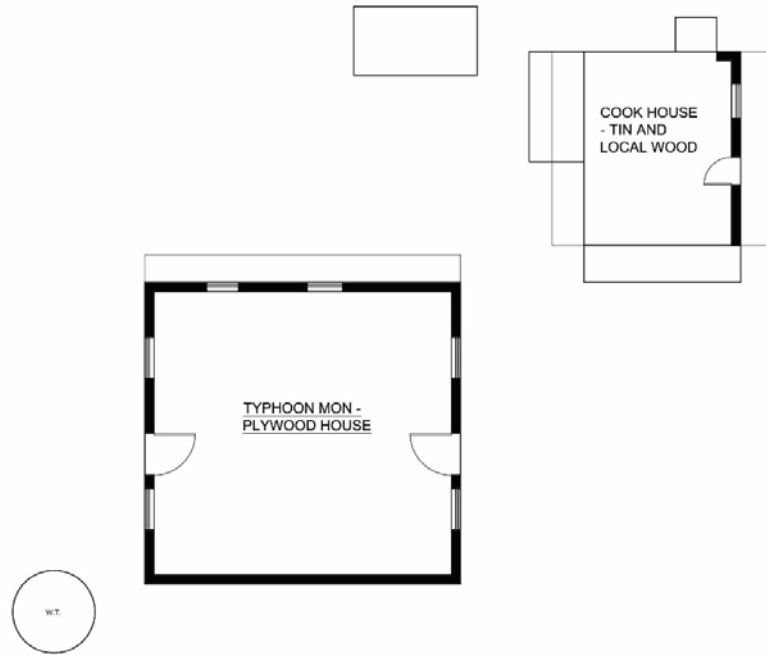
Figure 234. Floor plans of house B (Top) and house C (Bottom)



Figure 235. Photograph of house C showing decorative door



Figure 236. Photograph of house B



**TYPHOON MON & COOKHOUSE -
MONAAK**

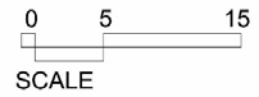


Figure 237. Floor plan of house D



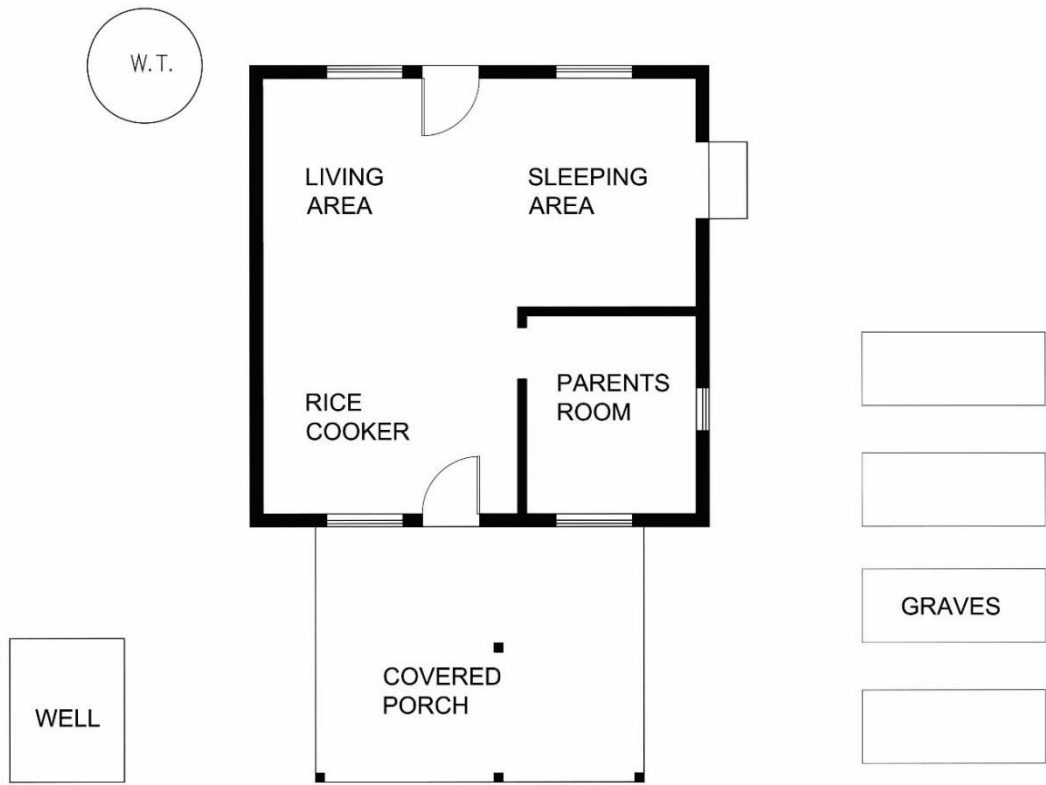
Figure 238. Photograph of north facade of house D



Figure 239. Photograph of cookhouse between houses 'D' and 'E'. (Left) facade facing the road, (right) facade facing the lagoon.



Figure 240. Photograph of an old well on Monaak still in use.



TYPHOON MON FROM LEB
WETO - FEMA 1979

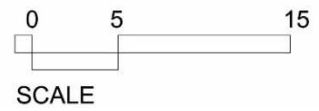


Figure 241. Floorplan of house 'E', showing adjacent cemetery.



Figure 242. Photograph of house 'E' showing south facade.



Figure 243. Photograph of cemetery on Leb wēto. Notice the tombs are facing the lagoon - facing east.

A.11: Mojero *Wēto*

Mojero *wēto* is approximate 7 acres in size and hosts four dwellings, the primary school, and the virgin coconut oil processing facility. The mayor of Namdrik is the *alap* of Mojero and lives in house A (Figure XX). The family cemetery for Mojero is located on the ocean side on the ocean side road across from House B. In addition to the school facilities, a community pig pen is at the center of the *wēto* and a community nursery garden is located adjacent the school for use by the community. While school is in session, Mojero *wēto* becomes the center of daily life on Namdrik.

Since the United States occupation of the RMI, Mojero has always hosted the primary school, placing the *wēto* in an important place within Namdrikese life. Mojero hosted the United States education program, People for America 8910 (citation of program) and the program constructed House A. Many remnants of the era following World War II are present, with the metal structures of Quonset huts being reused around Mojero.

Before Typhoon Alice, there were three houses and one small house for cooking on the ocean side of Mojero. A sleeping house for the current Mayor's family, a sleeping house for his aunt's family, and the third was for visitors, who were typically religious people from Majuro. The mayor's house (House A) was used by the American education program, 8910. After the 8910 program closed and they left, the house was returned to the man's father who was the *alap* of Mojero at the time. They left in 1974 and his family moved into the concrete house (House A).

A.11.1: House B

The Mayor's brother lives in House B. It is constructed from left over materials from the construction of the school buildings in 2006 by Pacific Inc. International (PII). The house was constructed on the location where the man's family had previously lived – before he had moved to Majuro in 1975. He likes this location because it is what he remembers from before leaving Namdrik for Majuro. The previous house was constructed of woven pandanus, a traditional Marshallese thatch house.

The man living here spoke about the place-attachment of his family and his own to this location on the *wēto* (ocean side, around house B). He heard from his mother that he should live here.

She told me how my father's grandmother, during the time of World War II, brought his great grandfather here and made a house to stay with him. They had to take care of him because he was really old. They bring him here and stay with him. They came because when they stopped here, he would help out with the crypt. Somebody died that was really important for the family, they came here and made the crypt and started to live near the crypt. That old man was my great grandfather. They say he helped out one lady, one girl and when she died, he put her there and started to make the graveyard and then start to move here. And when the war came, everyone came and took over. That visitor house is where a Japanese soldier staid.

While his family moved into the lagoon side house built by the Americans when he was young, when the man returned to Namdrik around 2005, he decided to build his

house on the site of his family's original compound, adjacent the cemetery. It is a quite location, but the breezes are not cool enough. His favorite location on the *wēto* is between his house and the school, where he has planted banana and breadfruit.

Often the house is left empty because the man house watches for relatives who are traveling to Majuro or to the United States. Most of the year, he finds himself watching over someone else's house.

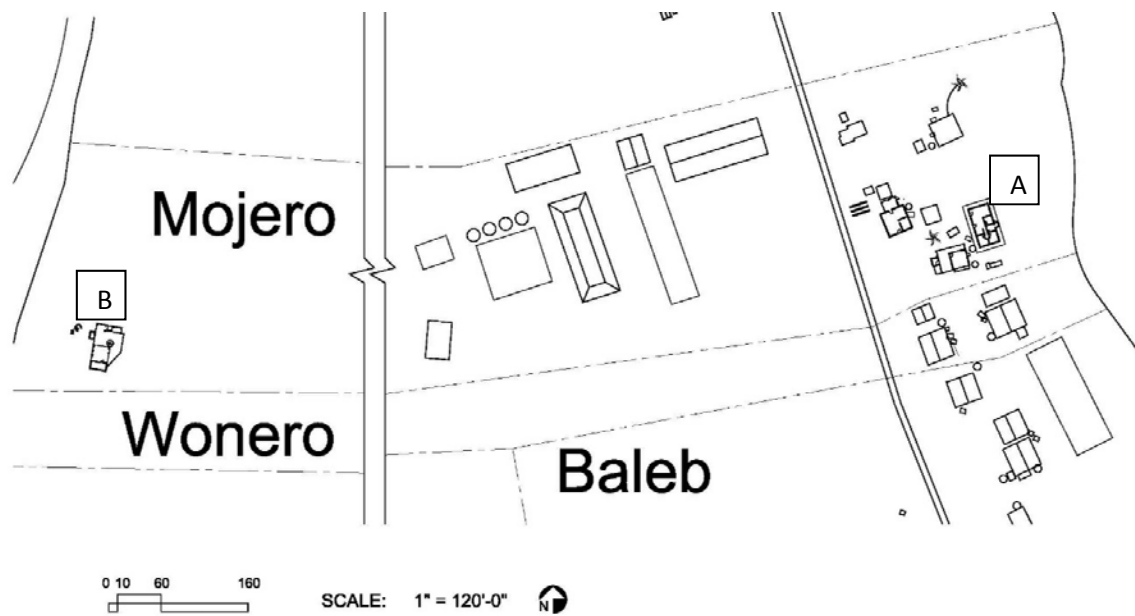


Figure 244. Site plan of Mojero wēto.

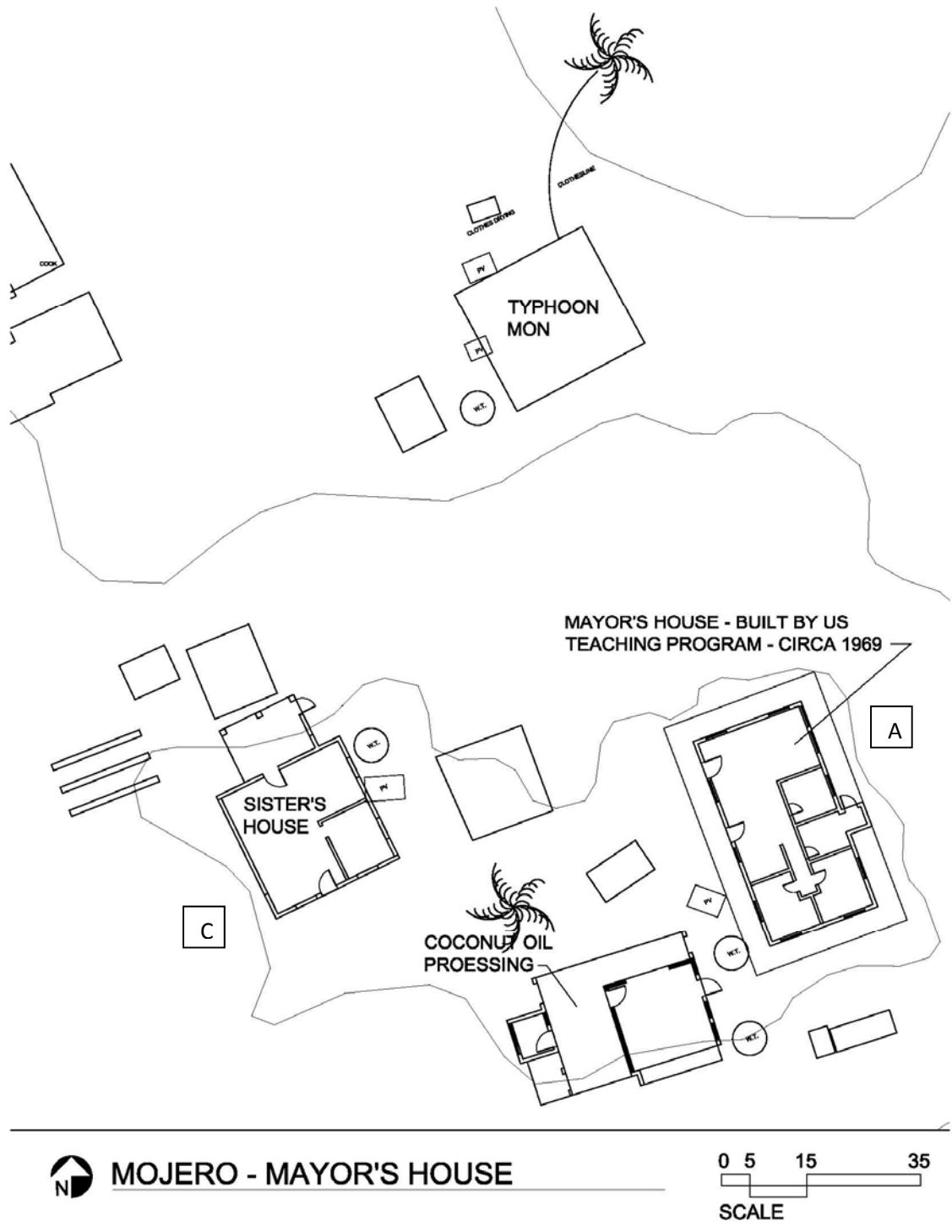
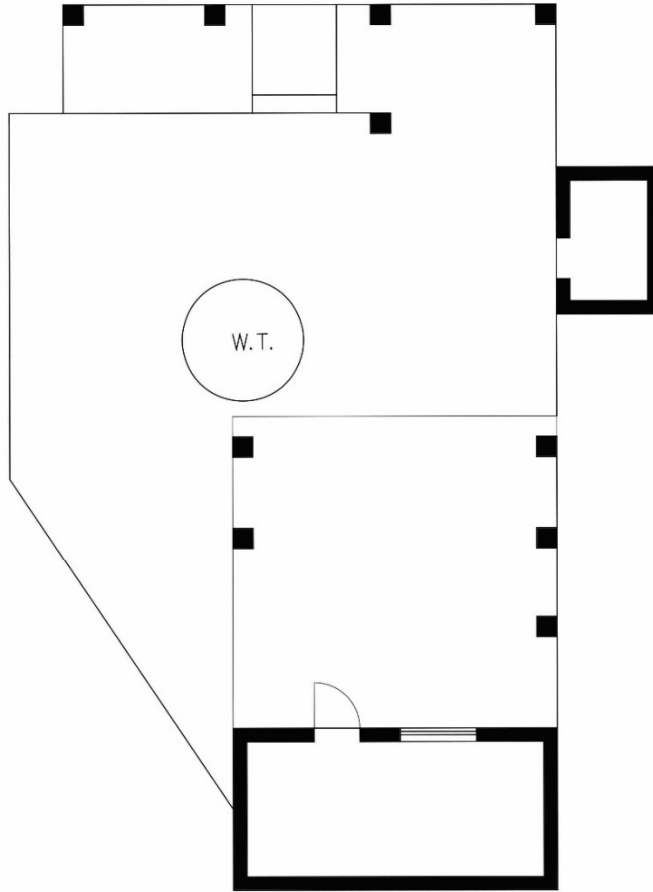


Figure 245. Partial site plan of Mojero wēto depicting the compound around the Mayor's house.



Figure 246. Aerial photograph of the Mayor's compound. The brown spots are copra drying under the sun.



VERNACULAR HOUSE - MOJERO

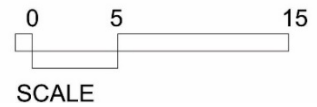


Figure 247. Floorplan of House B on the ocean side of the wēto.



Figure 248. Photograph of House B from the ocean side road.



Figure 249. Photograph of the atiti at house 'B'.

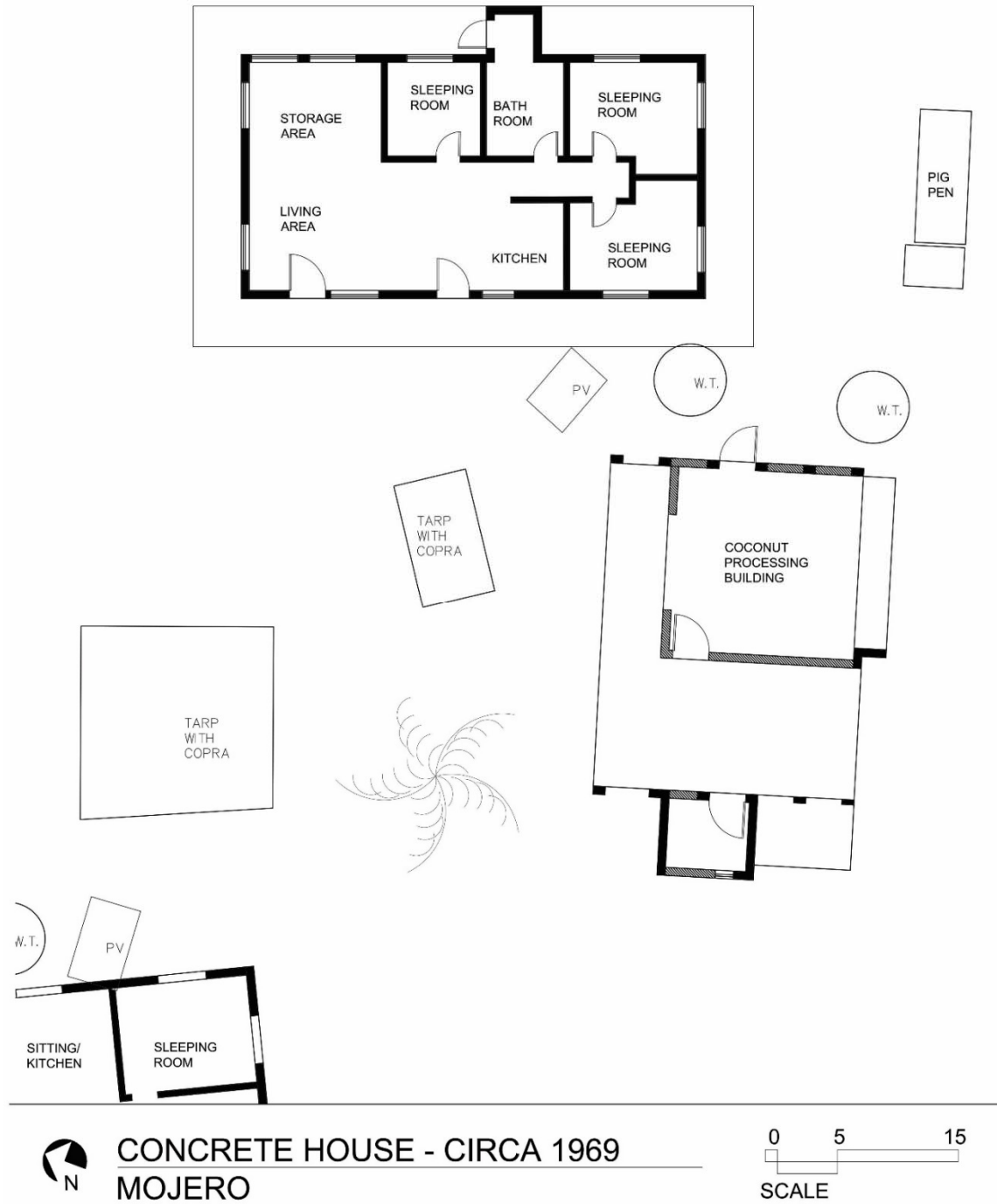


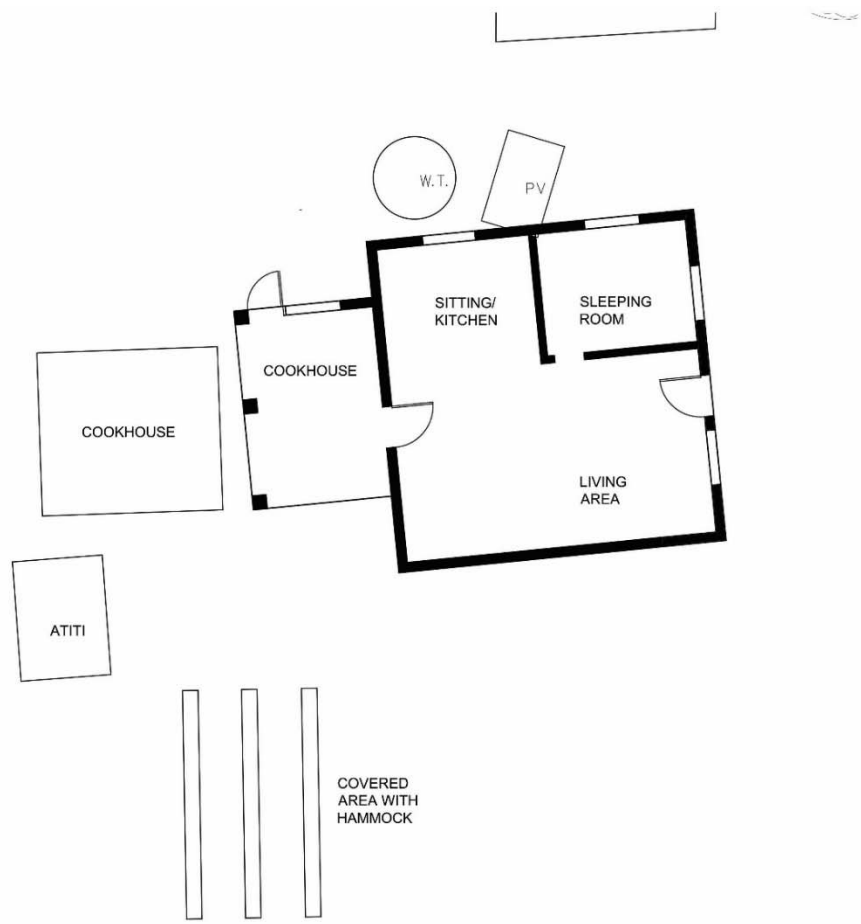
Figure 250. Floorplan of House A, the alap's house, and adjacent coconut oil facility.



Figure 251. Photograph of house of the mayor and alap of Mojero. The material from a former Quonset hut can be seen to the right, which houses the virgin coconut oil processing facility.



Figure 252. Photographs from the interior of house 'A'.



TYPHOON MON - MOJERO

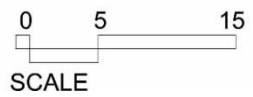


Figure 253. Floorplan of house 'C'.



Figure 254. Photograph of east facade of house 'C'.



Figure 255. Communal space in front of house 'C', along the main road.



Figure 256. Photograph of cookhouse attached to house 'C'.

A.12: Summary

There will be further discussion in chapter XX (patterns chapter) regarding the comparative analysis of common spatial patterns. The major themes of the dissertation are: adaptation as a form of continuity, adoption and replacement, and the role of indigenous knowledge in the creation of building patterns that support cultural behavior. Discussions, arguments, and interpretations are presented later in the dissertation. For example the role of capital, which is discussed throughout this chapter, in creating change and the role of tradition in mitigating this change.

A.13: Adaptations as a form of continuity

Following Typhoon Alice, the vernacular housing of Namdrik shifted to a vernacular of post-disaster shelters and more concrete houses. This study determined six primary

housing typologies on Namdrik, not including a few outliers. These six could be categorized into three areas by material: concrete houses, plywood houses, and self-built vernacular houses. And, they could be categorized into three areas by layout: one room, two room, and three or more rooms.

The self-built vernacular houses are either made of whatever materials are available (corrugated metal, dimensional lumber, plywood, local wood, and pandanus) or they are made of thatch. The major difference in the design, is the addition of a shelf for storage that protrudes from the exterior wall in the make-shift house (see figure xx). The thatch houses are very similar to traditional hut houses, constructed of woven pandanus and coconut fronds (see appendix). Those that are present today are much smaller than those that were around before the typhoon. The hut houses seen around Namdrik average around 15 feet by 8 feet, while thatch houses from before were on average 35 feet by 20 or 30 feet.

While the houses vary in their segmentation of use, they all share similar uses. The primary use for all houses is sleeping, which appeared five times as an important aspect of the house. Sleeping was followed by a living room space for working (typically weaving and making omimono) and socializing; an area for cooking simple foods, such as rice and canned meat; and an area for storage. The bathroom is the only additional use that was not common with the one room house. The similarity in uses, and focus on sleeping as a primary use, demonstrates a more universal structure to the house on Namdrik. While more affluent families may be able to afford better materials or to construct separations, the overall function does not change.

Prior to 1979, housing on Namdrik consisted of predominantly thatch houses that were raised above the ground, high enough to fit a canoe underneath. The description given to these house styles recall the styles documented by Kotzebue (1821) and Kramer and Nevermann (1938). According to some locals, these houses were influenced by the Germans and used 1x8 material for the flooring rather than the traditional Marshallese method. One man remarked that the German housing style came from Jaluit (the capital under the German Protectorate) and was brought to Namdrik and that the Marshallese style houses were lower. Most likely, the house form took the same shape as the traditional Marshallese house, but materials and construction methods began to be replaced by German, and later Japanese, influence.

The function of these houses remained the same, children slept in the ‘attic space’ and the elders slept underneath the structure on woven mats laid on top of the coral spread. In addition, primarily sleeping occurred in the attic space while work and socializing also took place in the space below. I argue that contemporary houses demonstrate the same basic separation of use; except rather than a vertical separation in space, it has been replaced by a horizontal separation in space.

A.14: Changes

Something drastic changed with the onset of Typhoon Alice. Between the replacement of the entire vernacular built environment of Namdrik and the rapid introduction of neoliberalism globally, money started to take a strangle hold on the Marshall Islands.

Money that most powerful agent of change, was doing much more than altering house designs and work patterns; it was transforming the very

organization of the family – the innermost core of society – by redefining the way family members related to one another. (Hezel, 1994, p. 361)

Hezel also noted similar material changes on the northern atolls following typhoons in the 1960s.

It took a disaster, but material change reaches the remote northern islands. The people of remote Ulithi who for years had scorned western clothes, were wearing sunglasses and shirts and zoris after the typhoon that devastated their atoll in 1960. (Hezel, 1994, p. 299).

One of the men interviewed believes the introduction of food stuffs provided as aid after Typhoon Alice may have led to a change in food habits. He remarked that “maybe 15 years of eating USDA food, maybe at the time, change them. And when small kids grow up until now, they don’t know how to taste the breadfruit. They taste flour and rice and have all those things. They don’t like to get breadfruit.” A change in reliance on sustenance could be a likely cause for the drastic shift on Namdrik, aside from the role of money. As local food and subsistence patterns were central to social relationships among *bwij*, this man’s argument could explain the drastic changes people noticed following the typhoon.

Money has become a dominant feature, even on outer atolls where it is not needed on a daily basis as it is on Majuro and Kwajalein. Peter Rudiak Gould (2013), Hezel (1994), Spennemann (1990), and nearly every researcher that has studied the Marshallese culture in the past several decades has remarked on impact of the market economy on Marshallese society. Participants on Namdrik reiterated the changes brought by the dominance of money in their everyday lives. Yet at the same time, others remarked an

escape to the outer atolls in order to live “free”. When asked about cultural change away from the traditional feature of resource sharing, one respondent stated:

I think people use money, this time and live by the money and it is difficult for them to receive. In that time they really don't need money. They have everything they need. They use those resources for themselves. Like now we don't drink coconut, these days, nobody make breadfruit. They always get rice and flour and they have to buy it. They need money for them to buy it... That time I remember that those women that time, they cook from morning to sunset. We can see them by the fire. They are cooking, mother is cooking. Take a long time to cook. Women that time, they like to cook. But the women now, they like to cook only rice. It will be really easy to prepare. I went there, ask them, and bring breadfruit. They say: What? That one is wasting time. I don't like to cook it. I don't know. They don't know how to cook. That's it. You cannot share because if they share, they don't have anything to give from the land. They would have to give rice which costs them money. I think that is the problem

My relatives, some of my relative, when they make Marshallese food they call me. Come. It's going to be very special. If they buy, they don't like to call.

Some individuals who had returned to Namdrik after many years commented on the change in resource exchange and sharing. Growing up, it is common to recall collecting resources from the land such as coconuts to share with everyone. But on their return, a difference climate took hold on Namdrik in which families shared less; they

were less likely to collect produce and provide for others outside of their nuclear family. They saw a replacement of local food with imported food among their *bwij* that led to a decrease in family bonds around the sharing of food.

House maintenance was a daily part of life on the island. Everyday people would be working on weaving pandanus and coconut for repairing the roof of the house, and men would be making rope from the coconut husks. With the arrival of corrugated metal, these daily patterns of maintenance started to disappear, leaving individuals more time for either collecting copra or relaxing. Along with house maintenance was also maintenance of the *wēto*, as daily practices of maintenance started to fade, families started to change long traditions of working on the *wēto*. *Alaps* used to set schedules for the family to collect copra, collect produce, clean the main roads, and replenish the coral spreads. They were tasked with ensuring everyone in the *bwij* had sustenance.

Here is breadfruit. My village food. The living is almost market economy every place. Here in Namdrik they use money. They not like to eat local food. I think they are not living by their working. The only thing they use from the island is from the cobra. Because changes to money and they can buy with it. They don't eat breadfruit. They don't eat banana. Only rice. Cooking. I don't see them make food so sometime I come with my bag and give me a price, because I know that they hold, they hold that they did not pay a lot of money. They don't pay in cash but they credit. Took \$1,000 and I told them to give Marshallese food. Why do you like to eat rice? There is no, you cannot sell your coconut. They don't listen to me sometimes. They like to use money (?). Since I came here, in Majuro

easier to live. I buy rice for a very cheap price but here you ... (?) Use the flour. If I live in Majuro I would spend \$200 longer than here. Maybe 3x. For eating, planting taro, sometimes I get also mint. Very expensive here. The problem is cost of the things. Really expensive. Tuna here is \$2.50 here and in Majuro not even \$1.

Canoes are made for racing, not utility anymore. It was observed that many breadfruit trees were cut down to build canoes. This alone is a sign that more value is put in competition and money than in the sustainability of fruit producing trees. (Granted many trees died from the flooding in 2015).

A.15: Climate:

Many believe they see signs that the climate is changing and are finding ways to adapt as best they can. Some commented that the currents are much stronger than during their childhood. The waves are increasing in size. For example the king tide that flooded much of Namdrik in 2015, the swells were much larger than normal, causing the high tide to flood the island. “The current is really high, maybe something is happening. Now every time the king tide comes, the locals are preparing for flooding.” When asked about raising up the houses to prevent the flooding from damaging belongings, most are in agreement that it would do little to mitigate vulnerability on Namdrik. As resources are still a fundamental part of daily life on the atoll, the loss of productive plants such as breadfruit, coconut, and banana would cause a major problem. The flooding from 2015 has taken a major toll on the tarot pits and the breadfruit on the island.

APPENDIX B : LAURA & DJARRIT – ULIGA – DELAP SITE DOCUMENTATION

B.1. Laura



Figure 257: Map of Laura showing the main roads, buildings, and outlines of agricultural fields and cemeteries. The orange lines mark the transects used in Riley's (1987) study of Majuro.

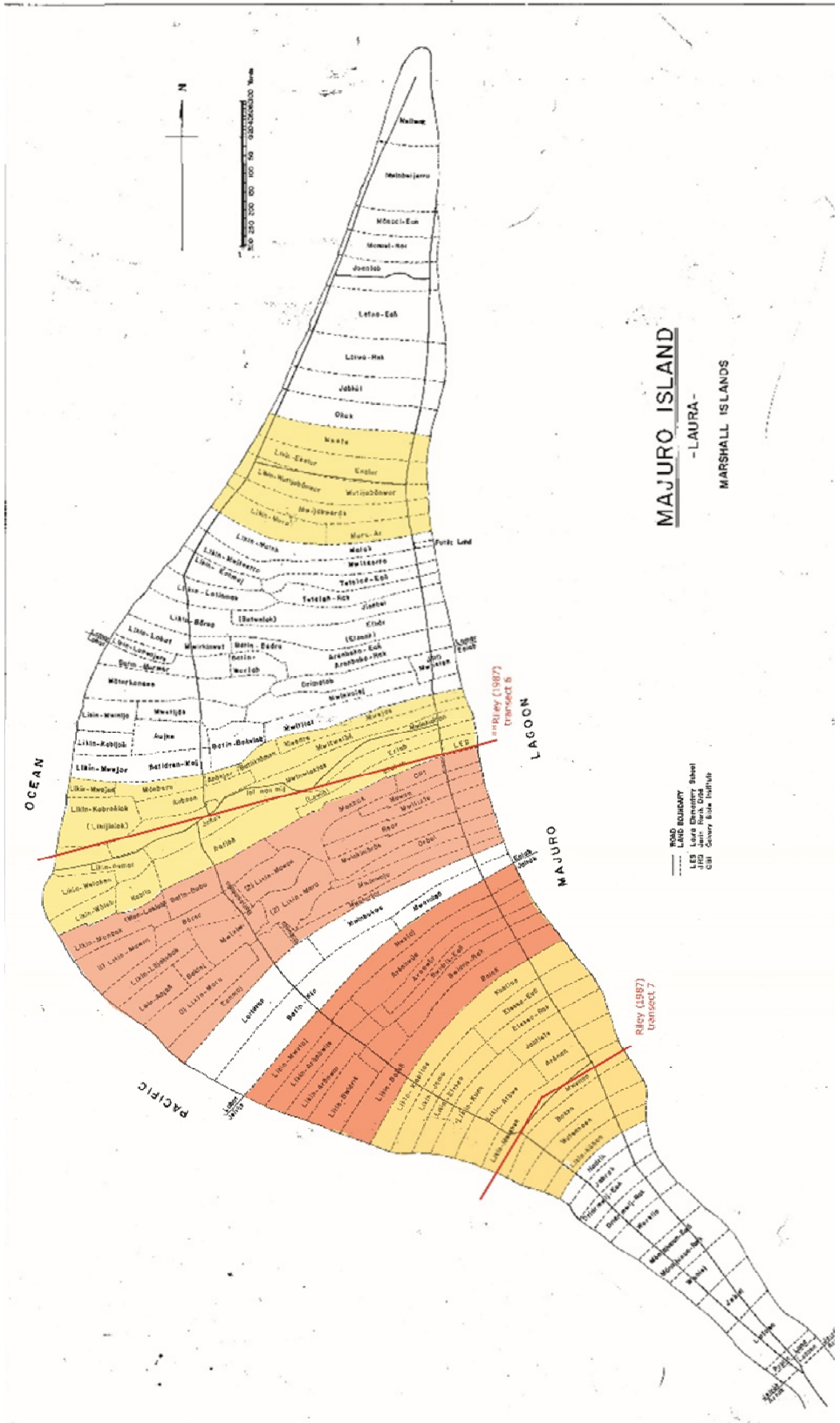


Figure 258. Map of wētos on Laura by Leonard Mason(1967). Highlighted areas mark areas observed in this study.

B.1.1. Jonak and Mwinkidren wētos

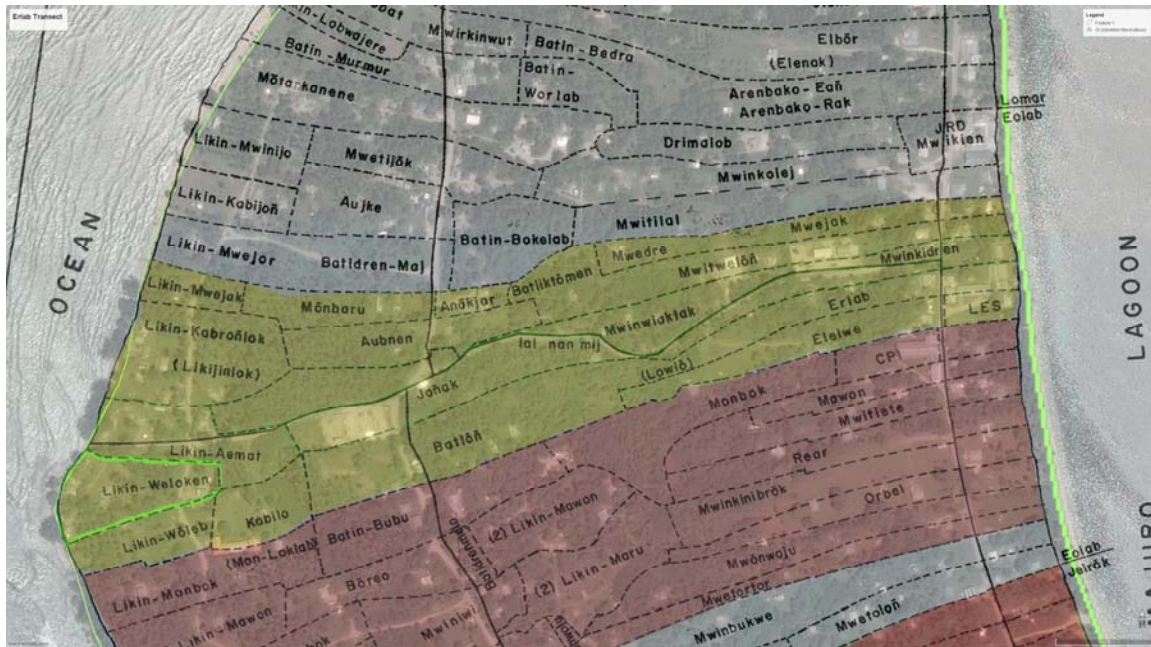


Figure 259. Enlarged image of Mason's (1967) wēto map of Laura, focusing on Eolab. Jonak wēto and Mwinkidren wēto were documented in this study.



Figure 260:: Historic aerial (Spoehr, 1949, p. 21) with Jonak and Mwinkidren wētos outlined in green.

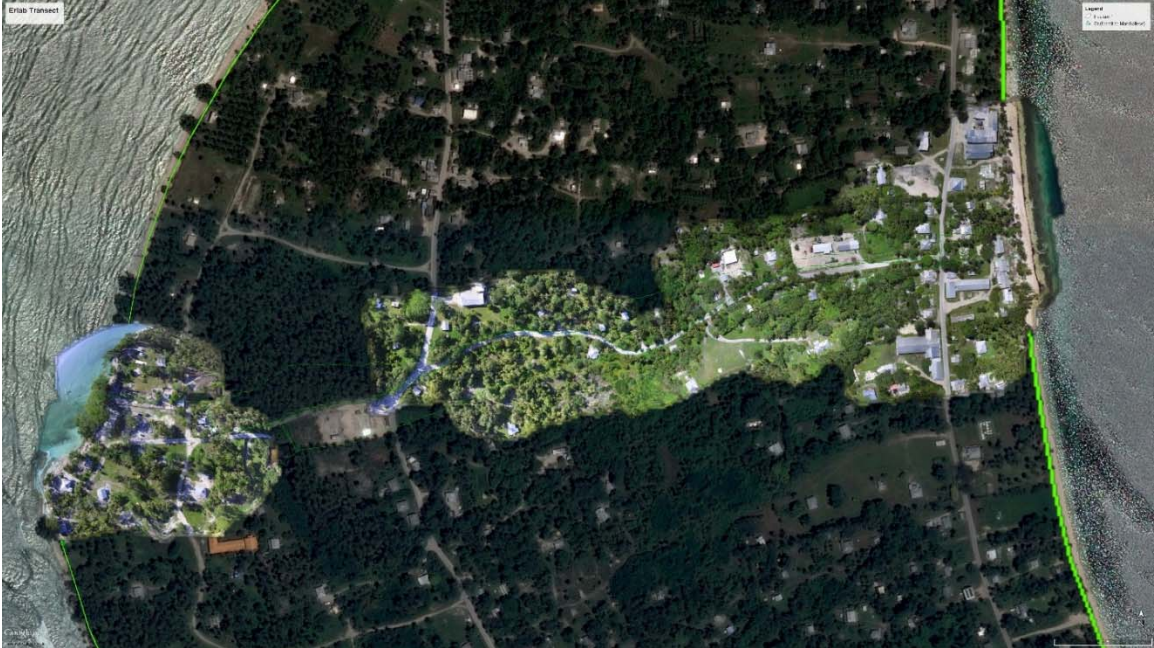


Figure 260. Aerial photograph of Jonak and Mwinkidren wētos. High definition aerial by author overlaid on Google Earth Image.

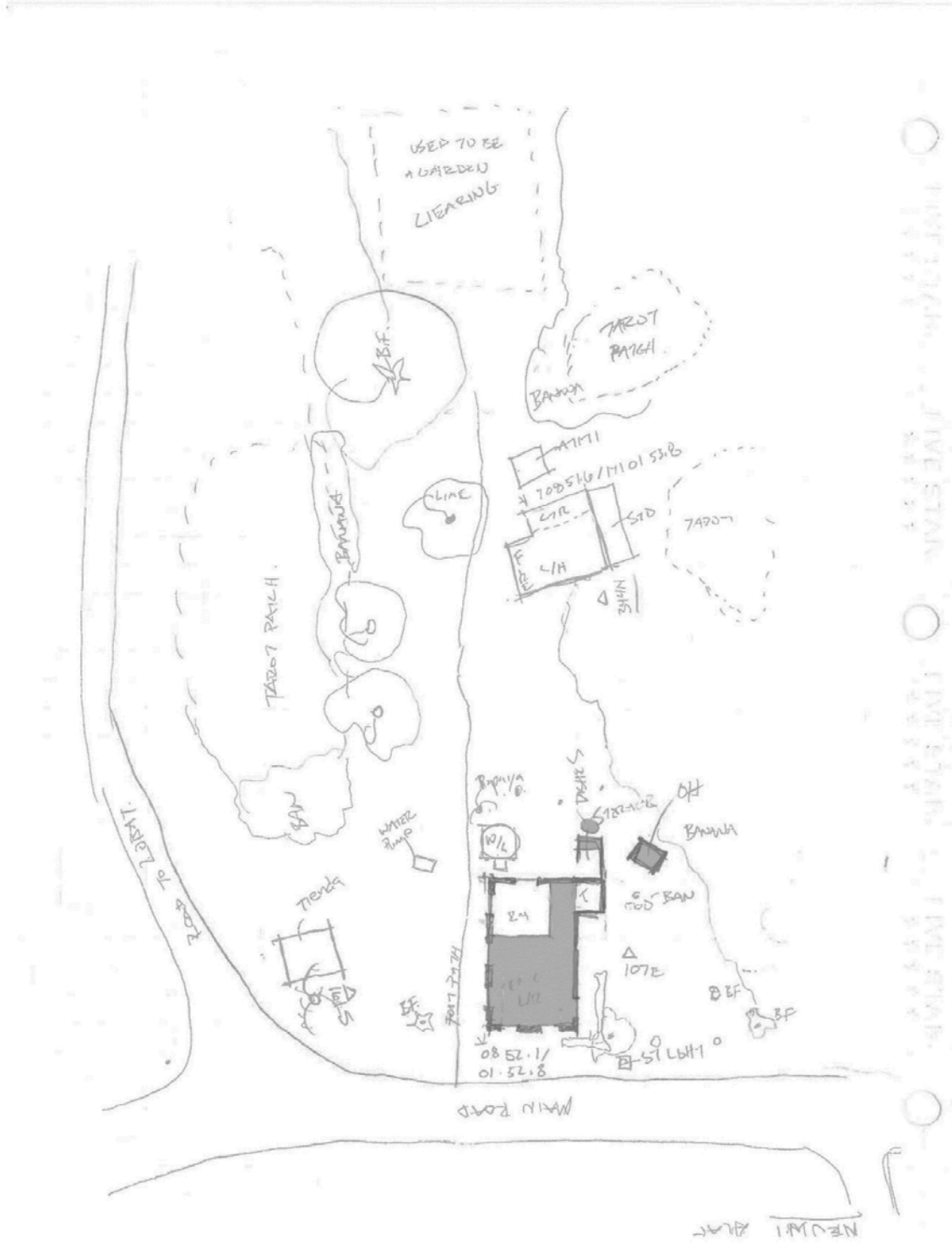


Figure 261. Site plan of alap's house on Jonak.

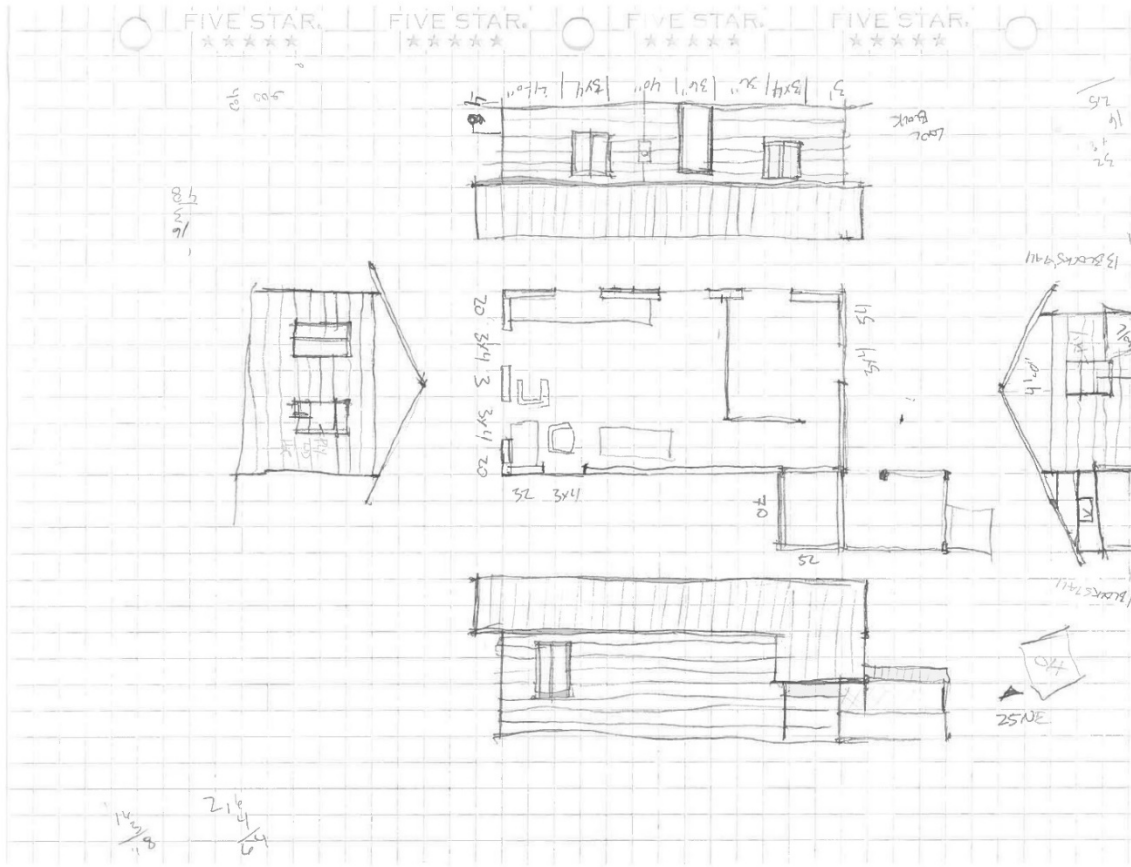


Figure 262. Drawing of alap's house on Jonak.

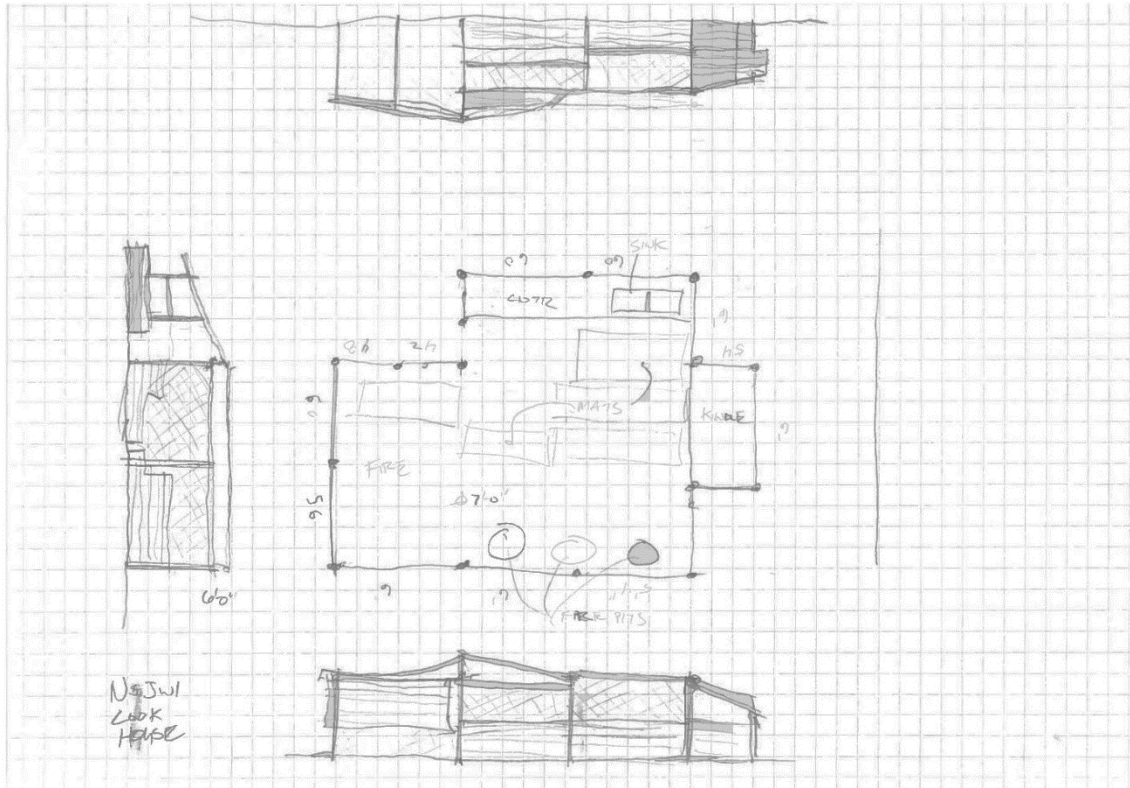


Figure 263. Drawing of cookhouse on Jonak wēto.

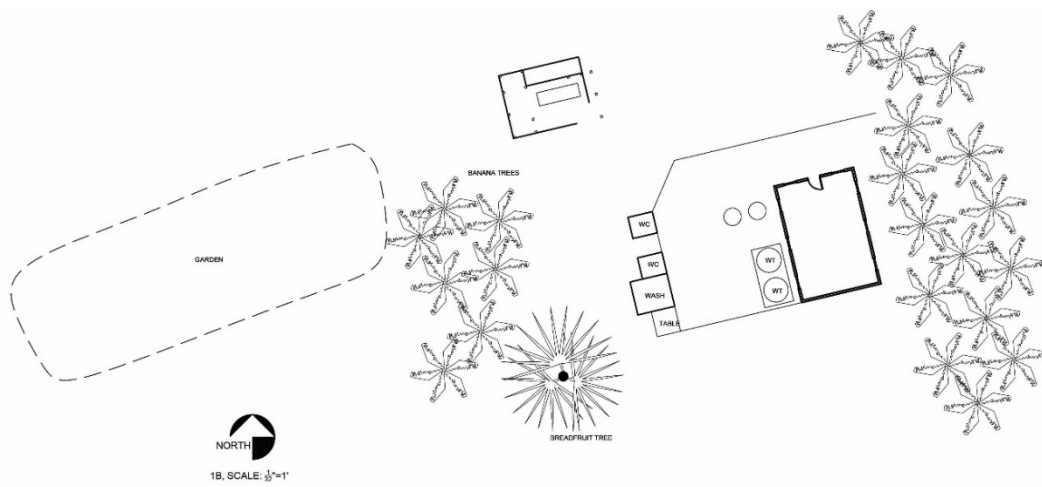


Figure 264. Site plan of house and agriculture field on Jonak wēto.

B.1.2. Likin Atbwe, Aronan, and Likin Kunu wētos.



Figure 265. Overlay of Mason's (1967) survey onto Google Earth, enlarged to show wētos under study.



Figure 266. Historic 1947 aerial of Laura enlarged to show outline of Aronan and Likin Atbwe (Spoehr 1949, p. 21).



Figure 267. Aerial photo by author overlaid on Google Earth image. Red outlines depict Likin Kunu, Likin Atbwe, and Aronan.

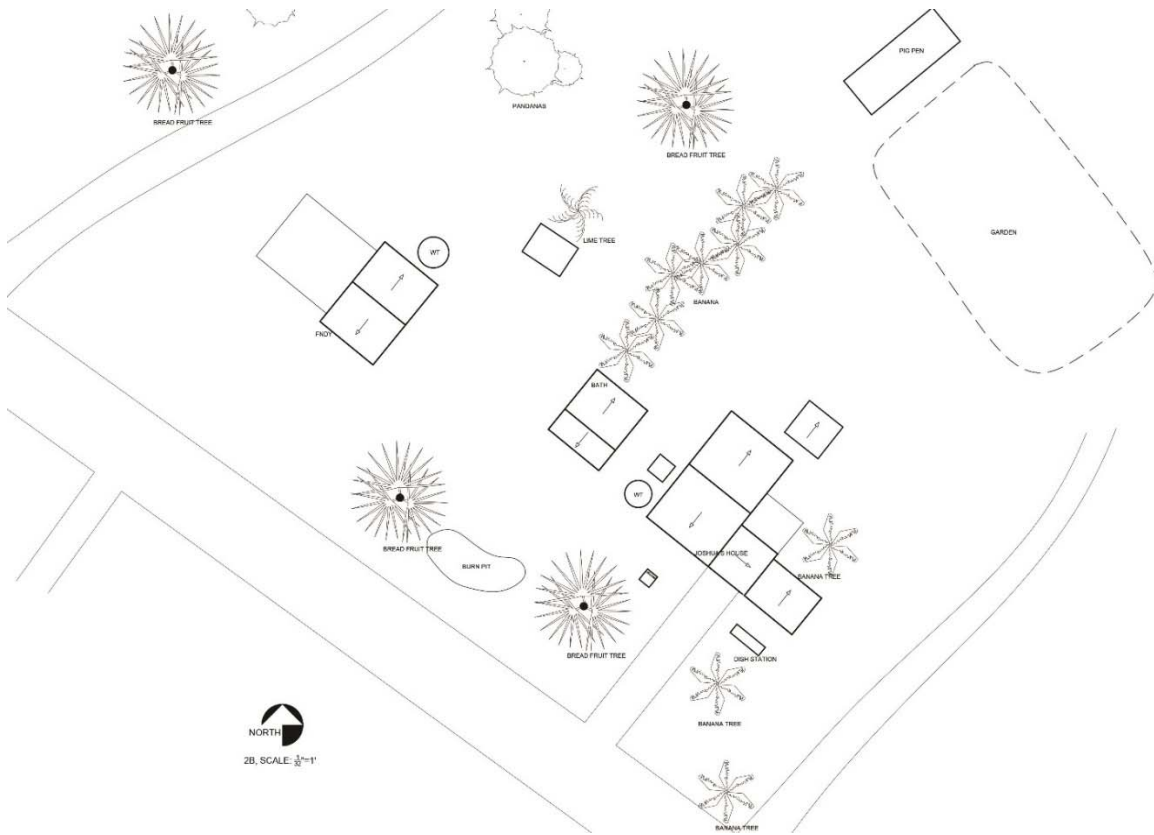


Figure 268. Site plan of house along ocean road on Likin Atbwe.



Figure 269. Site plan of houses on Likin Atbwe.



Figure 270. Site plan of rental houses on Likin Atbwe near the center of the transect.

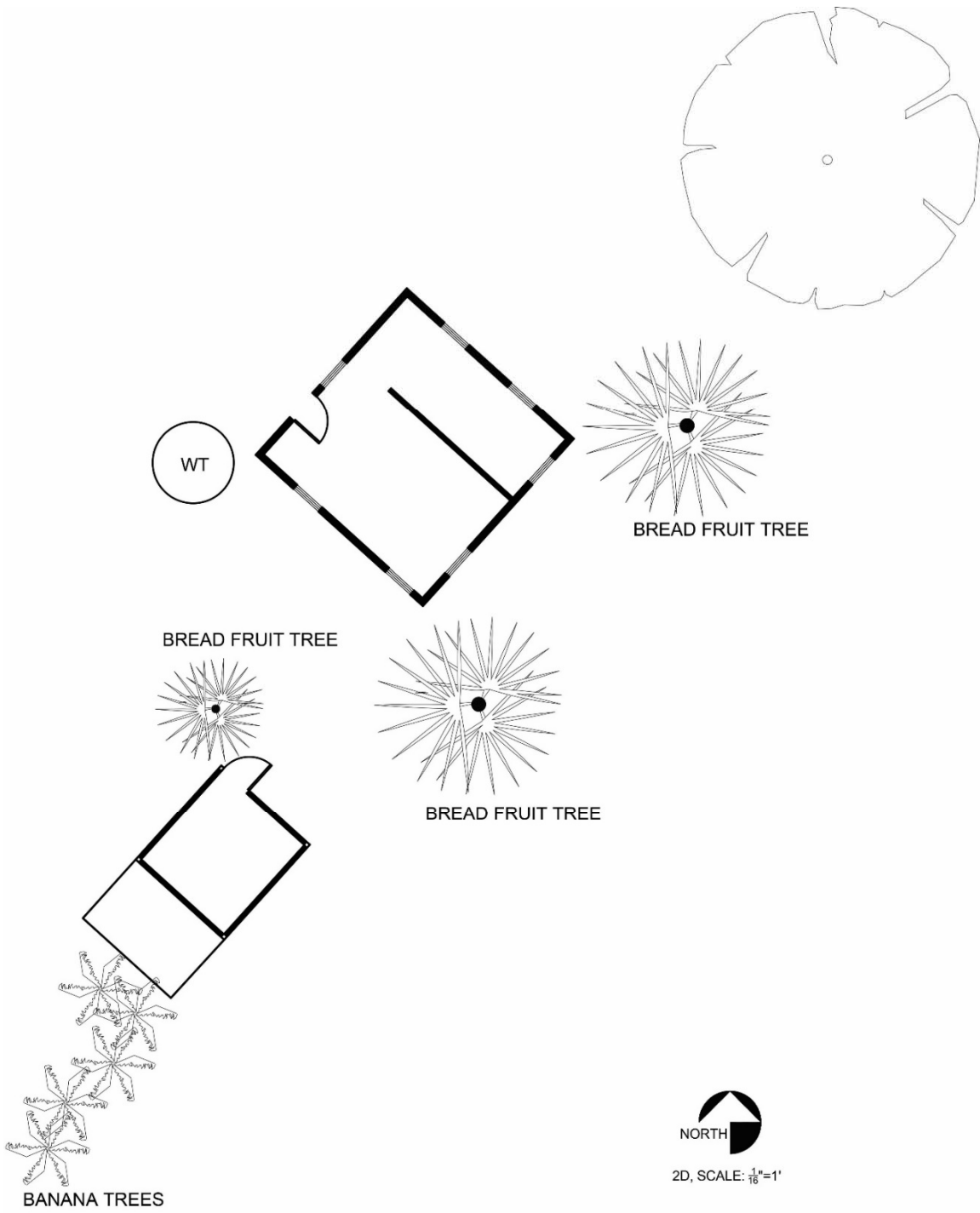


Figure 271. Plan of house and adjacent cookhouse on the ocean side of Likin Atbwe.

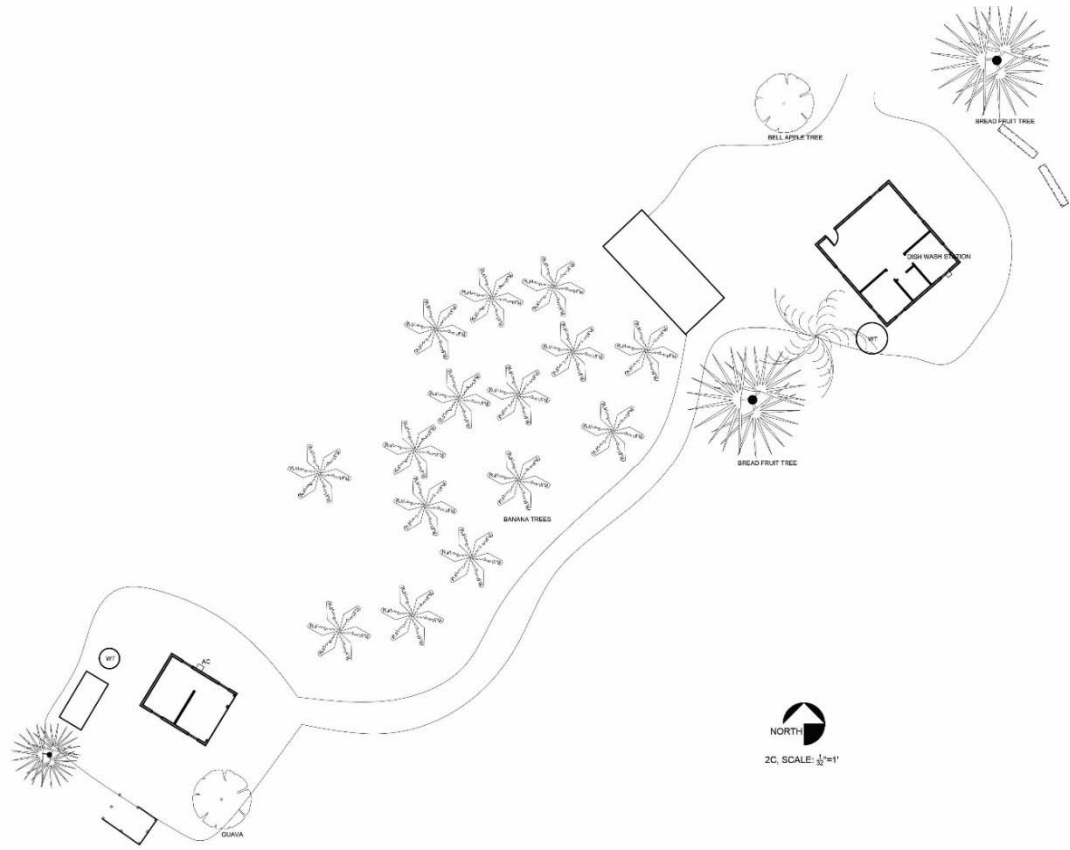


Figure 272. Site plan of ocean side houses on Likin Atbwe.

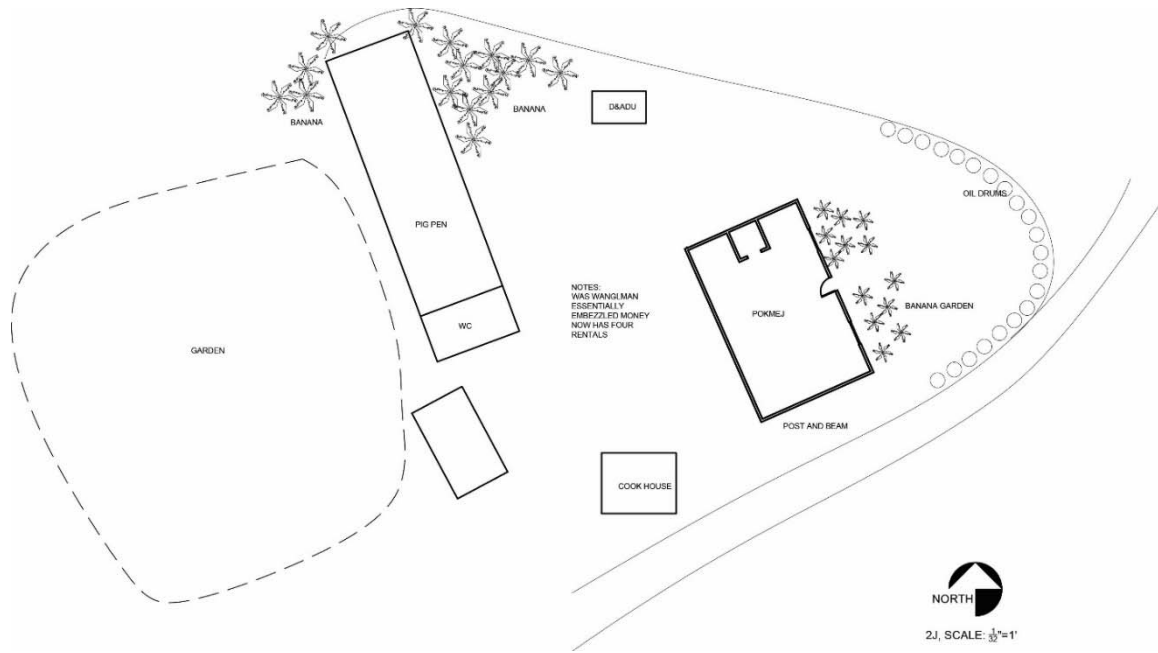


Figure 273. Site plan of house at the center of the transect of Likin Atbwe, on the border with Aronan.

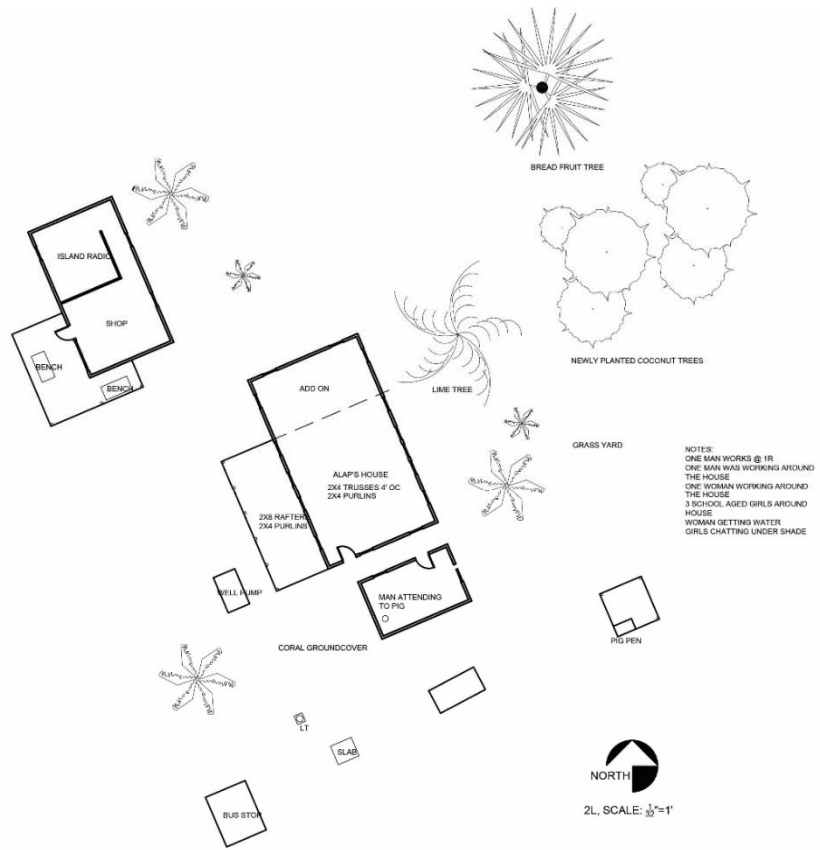


Figure 274. Site plan of a lagoon side house on Aronan wētō.

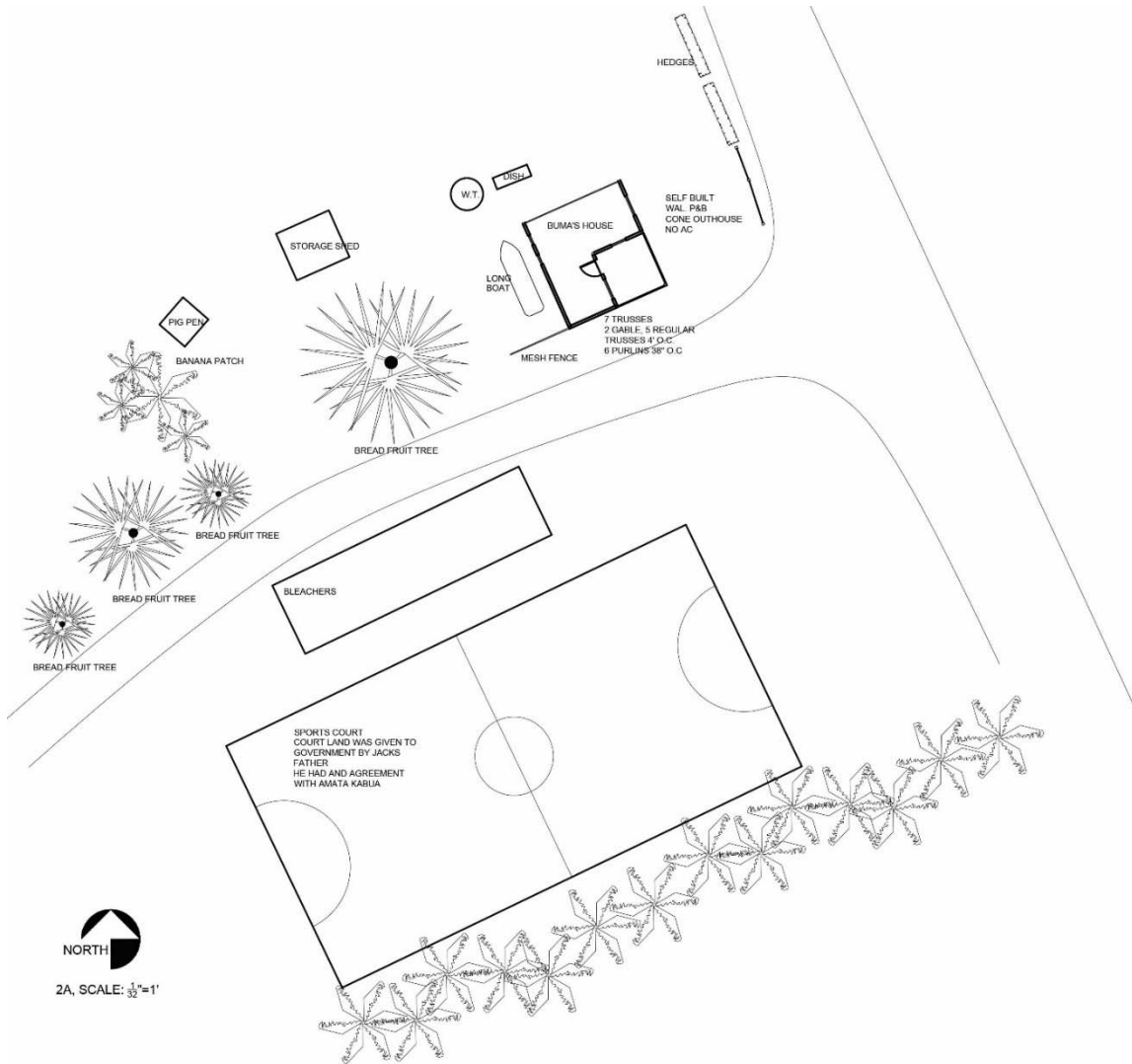


Figure 275. Site plan of house adjacent sports park on Aronan wētō.

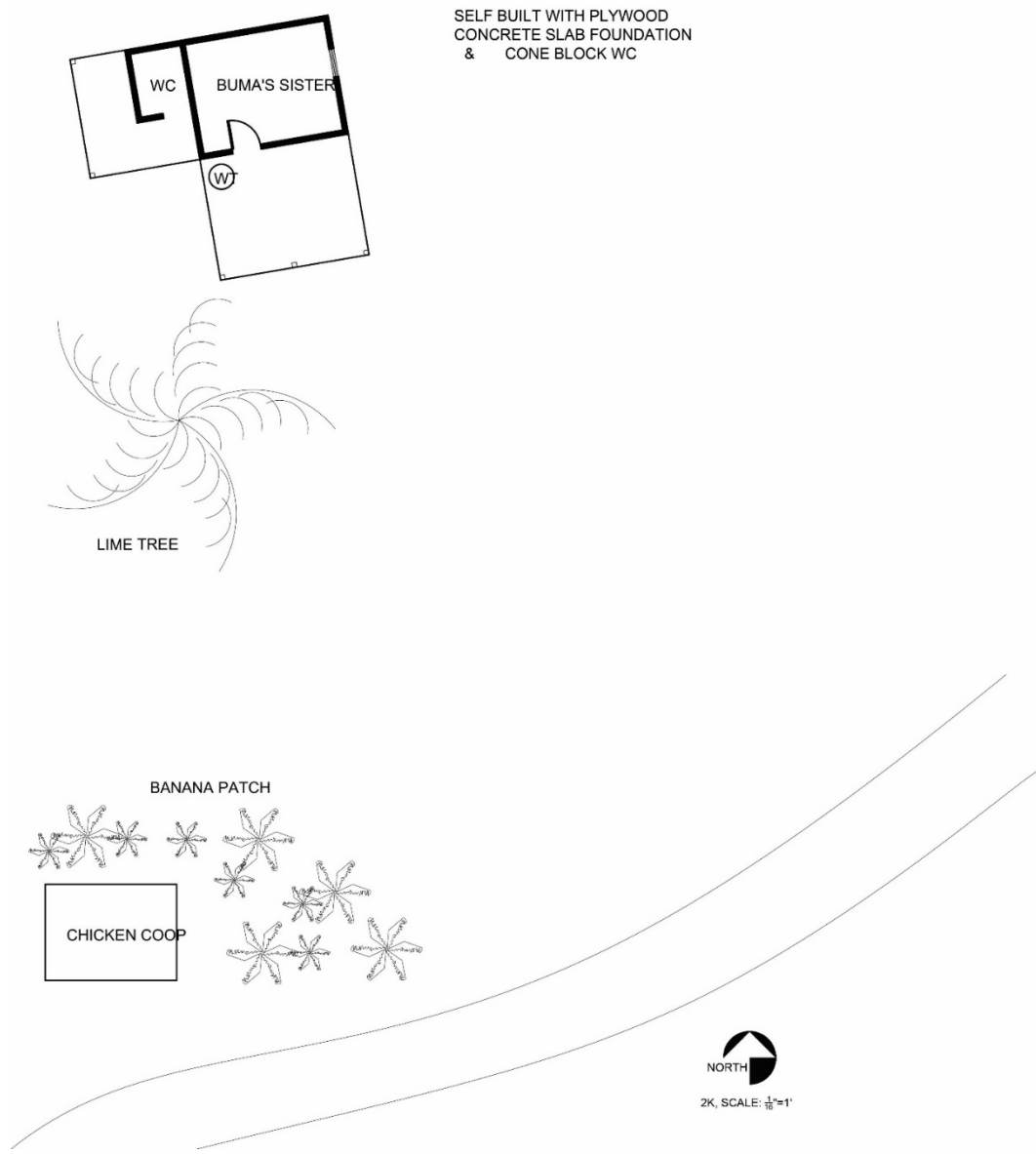


Figure 276. Site plan of house on Aronan wētō at the center of the transect.

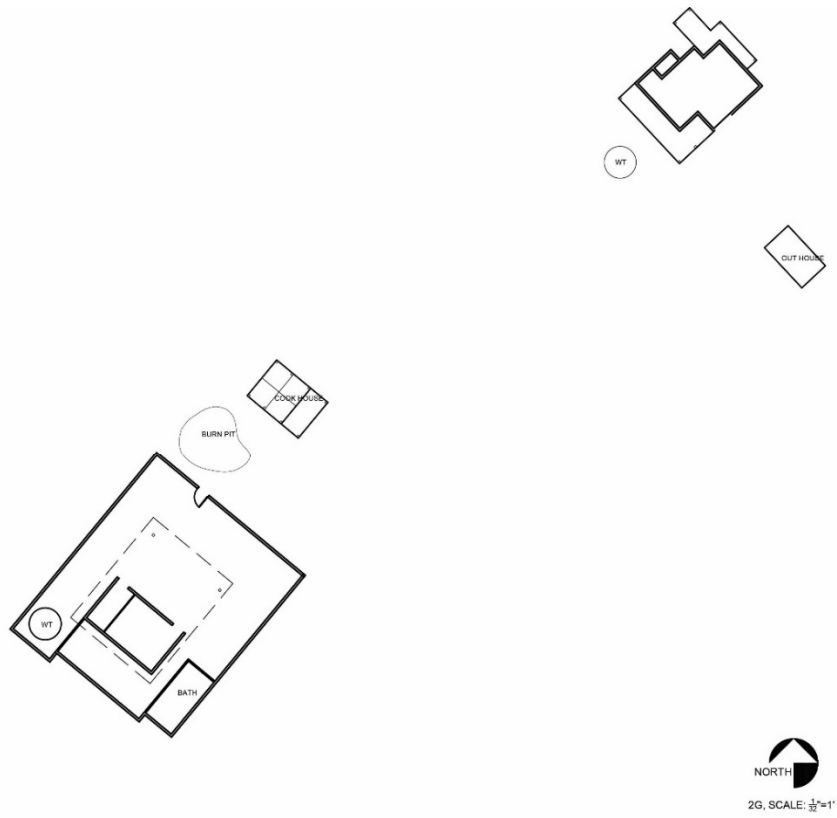


Figure 277. Plan of house and shop on Likin Kunu.

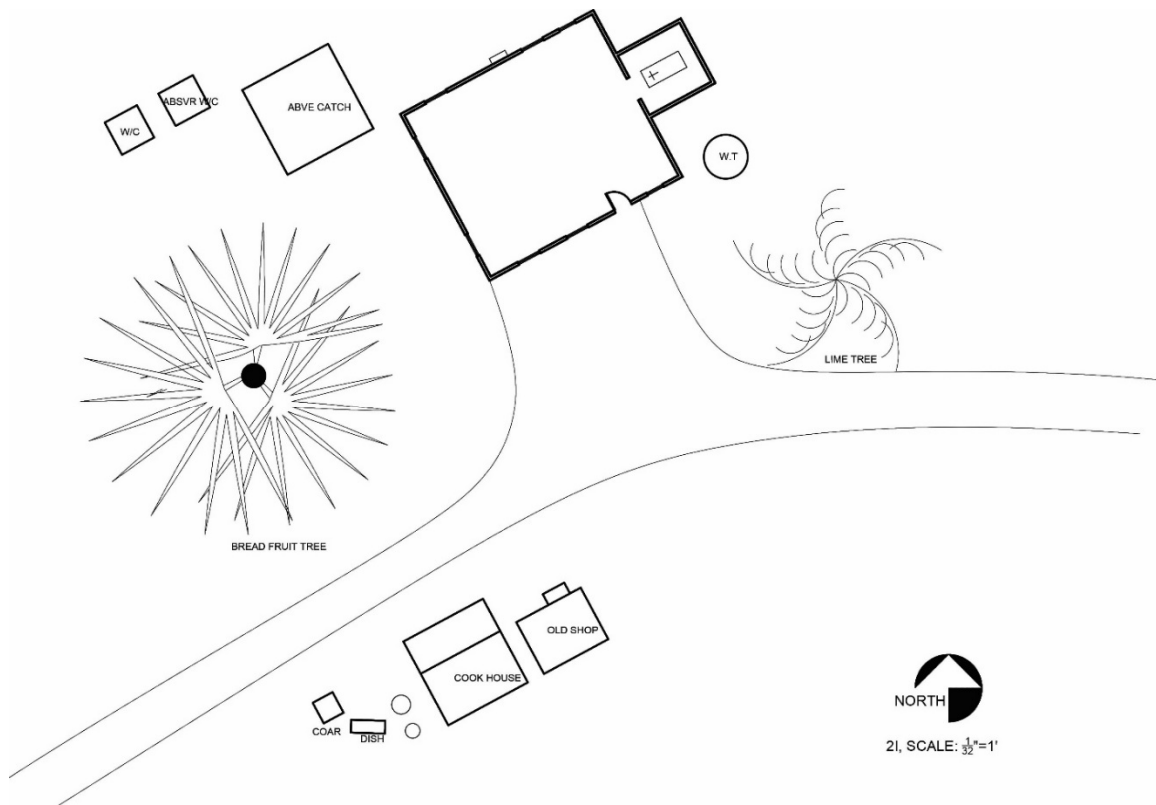


Figure 278. Site plan of house and cookhouse on Likin Kunu at the center of the transect.

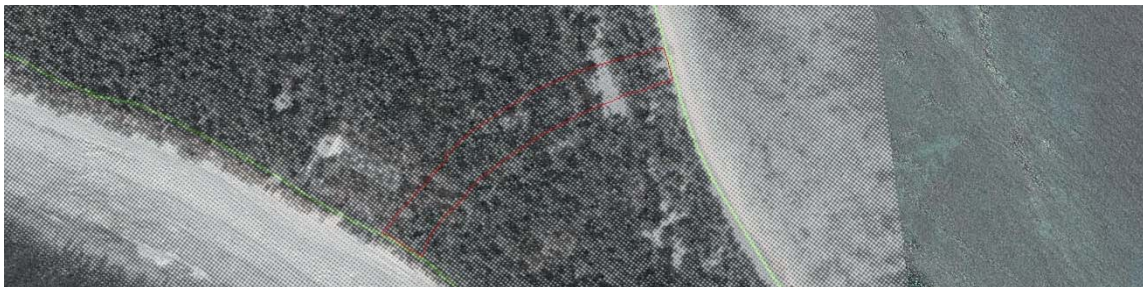


Figure 279. Enlarged 1947 aerial image of Jeirok district, Laura with an outline of Likin Kunen wēto (Spoehr 1949, p. 21).



Figure 280. Aerial photo of Likin Kunen by author overlaid on Google Earth image.

B.2. Djarrit – Uliga – Delap



Figure 281. Historic aerial photo (USGS and US Navy 1967) with outlines of Renar (top), Renlik (right, center), and Mwinkut (bottom).



Figure 282. Historic aerial photo (USGS and US Navy 1976) with outlines of Renar, Renlik, Mwinkut and Kenan



Figure 283. Aerial photo (by author) with outline of Renlik and Renar, 2016.



Figure 284. Plan of house on lagoon side of Renlik wēto.



Figure 285. Aerial photograph (by author) of Mwinkut 2016.

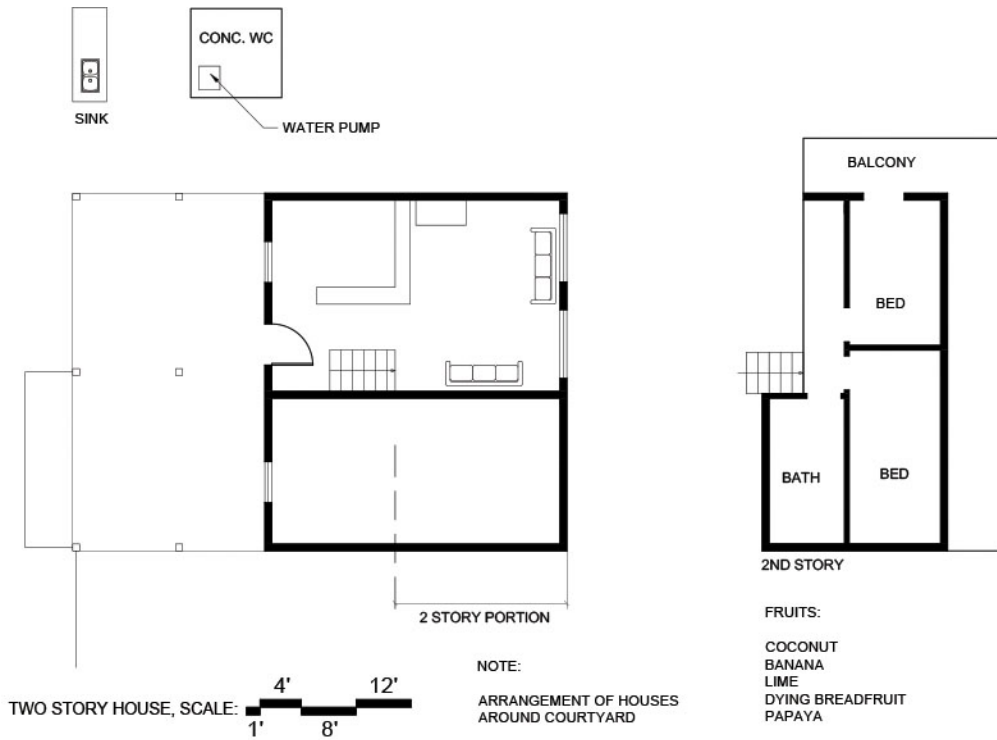


Figure 286. Plan of house near the center of Mwinkut wēto.



Figure 287. Historic aerial photo of Teron wēto (USGS and US Navy 1967).

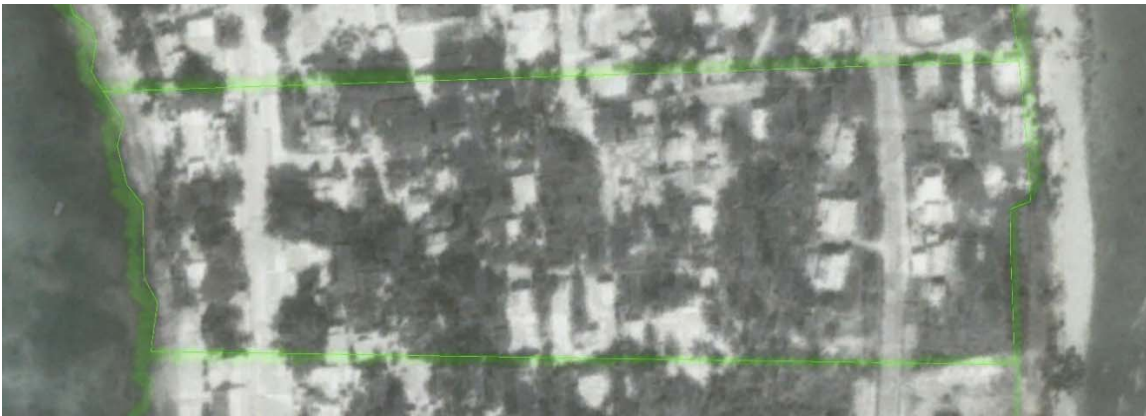


Figure 288. Historic aerial of Teron wēto (1976) by USGS and US Navy.



Figure 289. Aerial photo of Teron in 2016 by author.

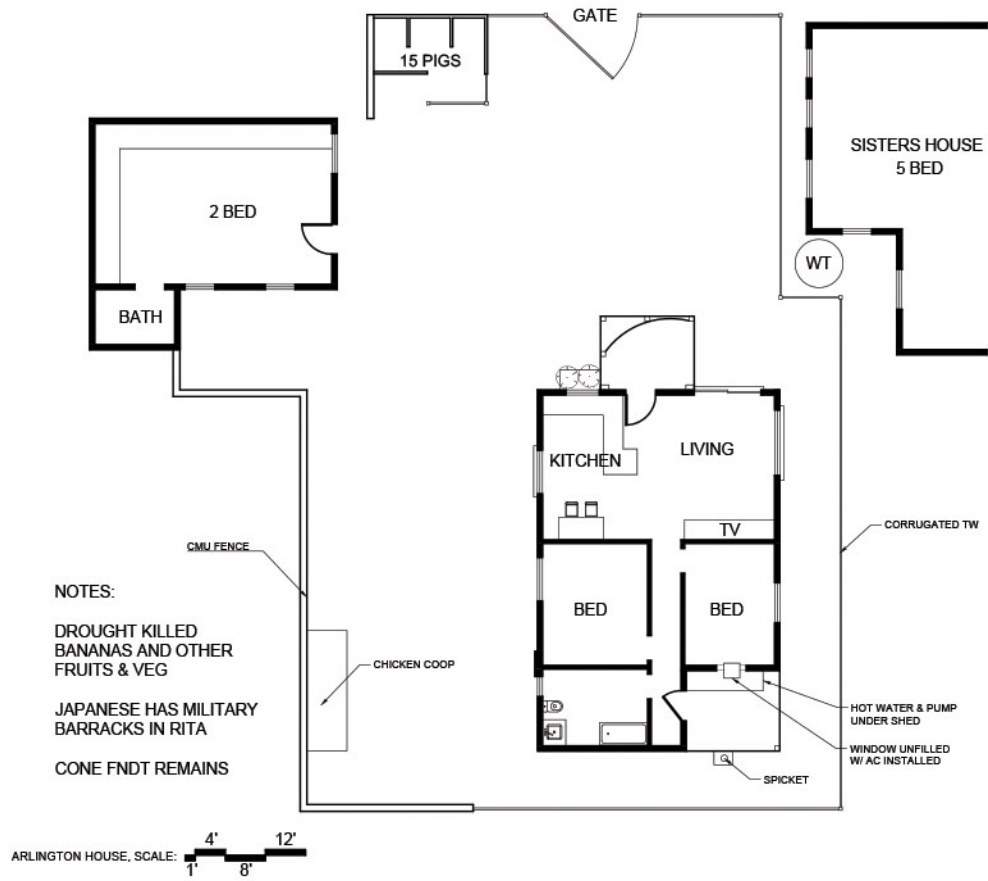


Figure 290. Site plan of house on Teron wēto.



Figure 291. 1967 aerial photograph of Uliga by USGS and US Navy.



Figure 292. 1976 aerial photograph of Uliga by USGS and US Navy...



Figure 293. 2016 aerial photograph of Uliga by author overlaid on Google Earth image.

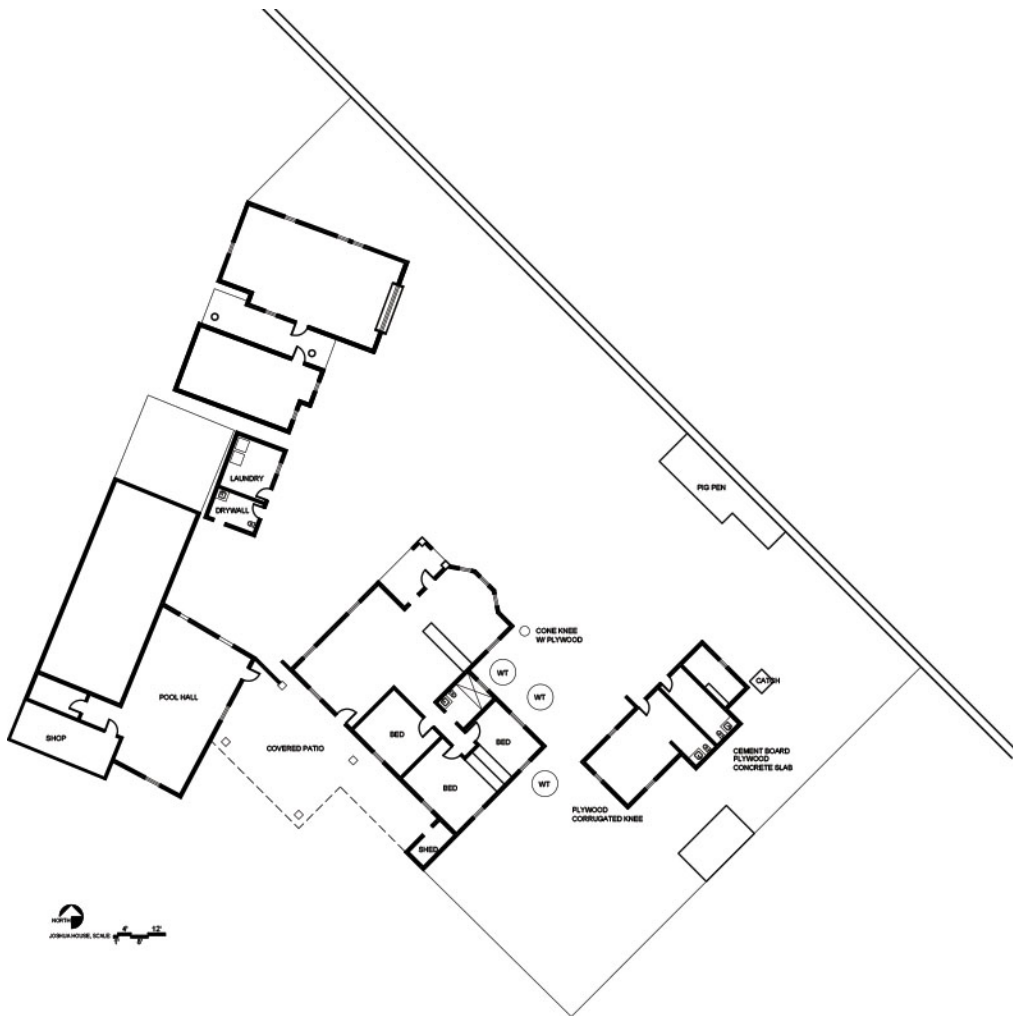


Figure 294. Site plan of Emlapwoj house on Uliga.

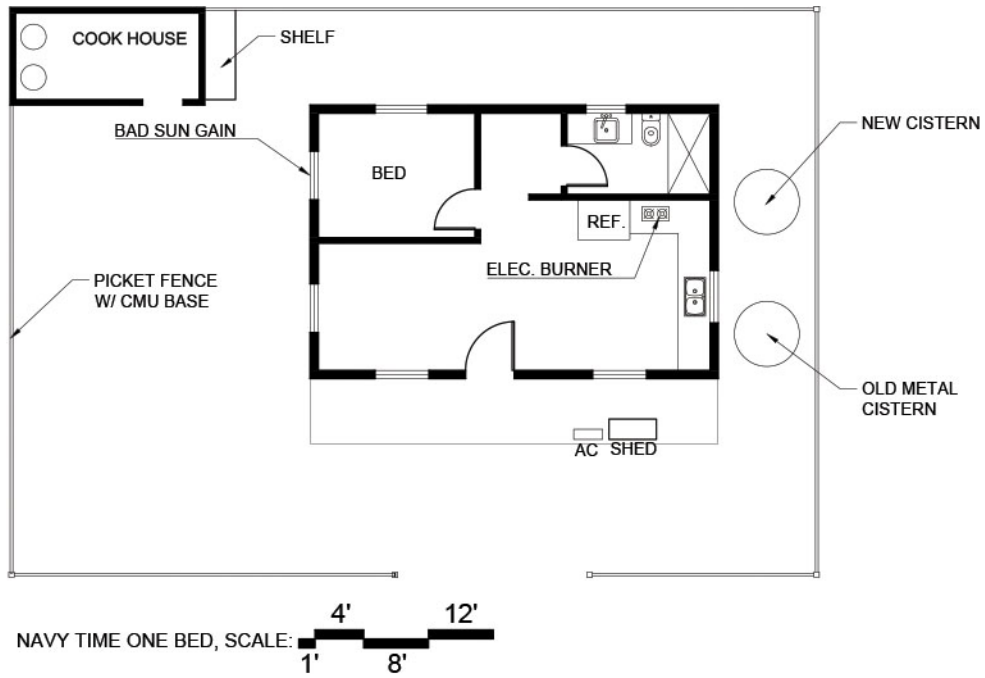


Figure 295. Plan of house on Uliga. A typical one bedroom house constructed by the US Navy that has been adapted by Marshallese family.



Figure 296. Photograph of a newly constructed cookhouse adjacent to the above house.

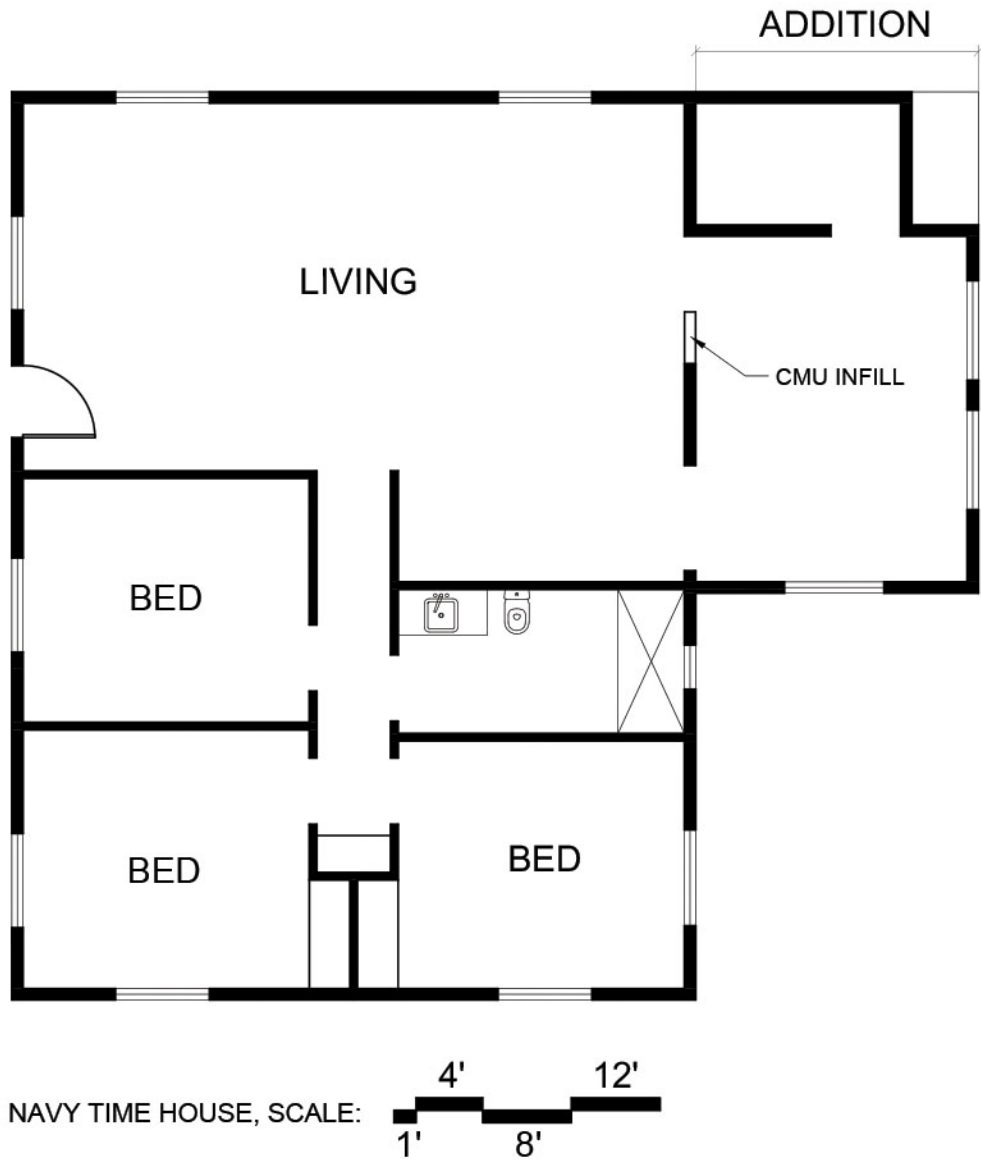


Figure 297. Plan of typical three bedroom house in Uliga. These were the officer houses constructed by the US Navy during the Trust Territory.

APPENDIX C: SPACE SYNTAX ANALYSIS

Namdrik pairwise t-test

Pairwise Comparisons using t tests				
	1	2	3	4
2	0.00494	-	-	-
3	0.02102	0.95529	-	-
4	0.46700	0.00370	0.00850	-
5	0.21444	0.17148	0.23491	0.11530
6	0.34454	0.12720	0.17148	0.15037
7	0.00494	1.00000	0.95529	0.00370
8	0.16823	0.46700	0.48261	0.08192
9	0.00071	0.12720	0.17148	0.00060
	5	6	7	8
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	-	-	-	-
6	0.85336	-	-	-
7	0.17148	0.12720	-	-
8	0.74572	0.58224	0.46700	-
9	0.01382	0.00850	0.12720	0.06676

Table C.1. Mean Real Relative Asymmetry values by space for Namdrik.

Mean Yard RRA	0.923	n=5	0.818	n=6	0.455	n=1	0.935	n=2	0.856	n=3	0.955	n=5	0.706	n=5	0.480	n=1	0.273	n=1
Mean W/C RRA	1.385	n=3	1.201	n=4	1.366	n=2	1.869	n=1	1.526	n=1	1.075	n=1	1.265	n=3	1.057	n=2		
Mean Storage RRA	1.744	n=5	1.367	n=5	1.366	n=2	1.643	n=3	1.397	n=3	1.789	n=2	1.266	n=8	1.490	n=3		
Mean Road RRA	0.659	n=1	0.540	n=2	0.873	n=1	0.850	n=1	0.773	n=2	0.672	n=2	0.565	n=2	0.961	n=1	1	n=1
mean porch RRA			1.080	n=3	0.683	n=1	1.275	n=2	1.178	n=2	1.220	n=2	1.011	n=1	0.673	n=1		
Mean Ocean RRA	0.789	n=1	0.951	n=1	1.404	n=1	1.402	n=1					1.199	n=1	1.538	n=1		
Mean Living RRA	1.330	n=5	1.184	n=6	0.759	n=2	1.699	n=2	1.140	n=4	1.373	n=5	1.084	n=5	1.201	n=2	0.682	n=2
Mean Kitchen RRA	1.824	n=1					1.402	n=1	1.091	n=2			0.892	n=1			0.727	n=1
Mean Hall RRA	1.189	n=1			0.910	n=1												
Mean Cook RRA	1.177	n=5	1.047	n=3	0.835	n=1	1.105	n=1	1.371	n=2	1.158	n=2	1.045	n=4	0.913	n=1	0.818	n=1
mean cemetery RRA			0.822	n=1	0.910	n=1					1.075	n=1	0.832	n=1			1	n=1
mean canoe RRA			1.007	n=3														
Mean Bedroom RRA	1.745	n=4	1.506	n=1	1.441	n=2	1.784	n=1	1.478	n=4	1.758	n=2	1.261	n=4	1.538	n=1	1.182	n=1
Mean Aditi RRA	1.112	n=2	1.011	n=2	0.986	n=1			1.198	n=1			1.140	n=2	1.057	n=1	1	n=1
DF	0.757		0.756		0.753		0.799		0.829		0.773		0.772		0.655		0.665	
H/zo	Monel		Lofoe		Monw		Maki		Moje		Mona		Monk		Wiji		jabon	

<i>Wētō</i>	Atbwe/ Aronan/ Kinu	N	Jonak	N	Likin-Kunen	N
Difference factor	0.790		0.741		0.766	
Mean RRA Agriculture	0.940	5	1.131	3	1.011	1
Mean RRA Bedroom	1.211	27	1.338	8	1.581	6
Mean RRA Canoe	-	-	-	-	-	-
Mean RRA Cemetery	0.859	2	0.821	1	-	-
Mean RRA Cookhouse	0.892	8	1.011	3	1.184	2
Mean RRA Hallway	1.096	5	1.074	1	1.196	2
Mean RRA Kitchen	1.149	11	1.276	4	1.287	3
Mean RRA Living room	0.924	19	0.967	5	0.987	4
Mean RRA Ocean	0.892	2	-	-	0.817	1
Mean RRA Porch	0.878	10	0.898	1	0.962	1
Mean RRA Road	0.600	5	0.499	1	0.691	1
Mean RRA Shop	-	-	0.760	1	-	-
Mean RRA Storage	1.080	3	1.532	5	1.613	4
Mean RRA Washroom	1.101	16	1.083	6	1.322	4
Mean RRA Yard	0.688	15	0.709	5	0.756	3

	Atbwe/ Aronan/ Likin-kinu	Jonak	Likin-Kunen
SD	0.21873	0.287138	0.349136
Mean	0.98956	1.10969	1.23798
CV	22.1038	25.8755	28.202

	Table C.4: Mean RRA values for Lejolimen and Mwinkut.			
<i>Wēto</i>	Lejolimen	N	Mwinkut	N
Difference Factors	0.772	-	0.756	-
Mean RRA Agriculture	0.971	3	-	-
Mean RRA Bedroom	1.262	65	1.252	79
Mean RRA Cemetery	0.738	1	0.696	1
Mean RRA Cookhouse	0.978	8	0.960	10
Mean RRA Hall	1.111	22	1.117	25
Mean RRA Kitchen	1.092	27	1.097	29
Mean RRA Living Rm	0.941	31	0.930	33
Mean RRA Ocean	0.817	1	-	
Mean RRA Porch	0.913	10	0.903	10
Mean RRA Road	0.633	3	0.631	4
Mean RRA Shop	0.768	2	-	-
Mean RRA Storage	1.407	47	1.327	95
Mean RRA Washroom	1.249	31	1.210	32
Mean RRA Yard	0.750	21	0.763	19

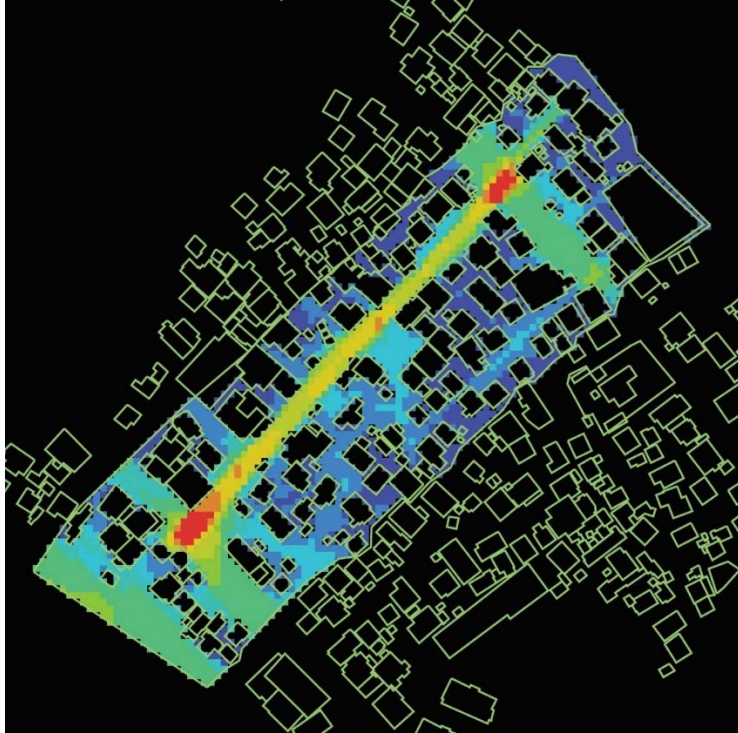


Figure 298. Visual graph analysis of Teron wēto.

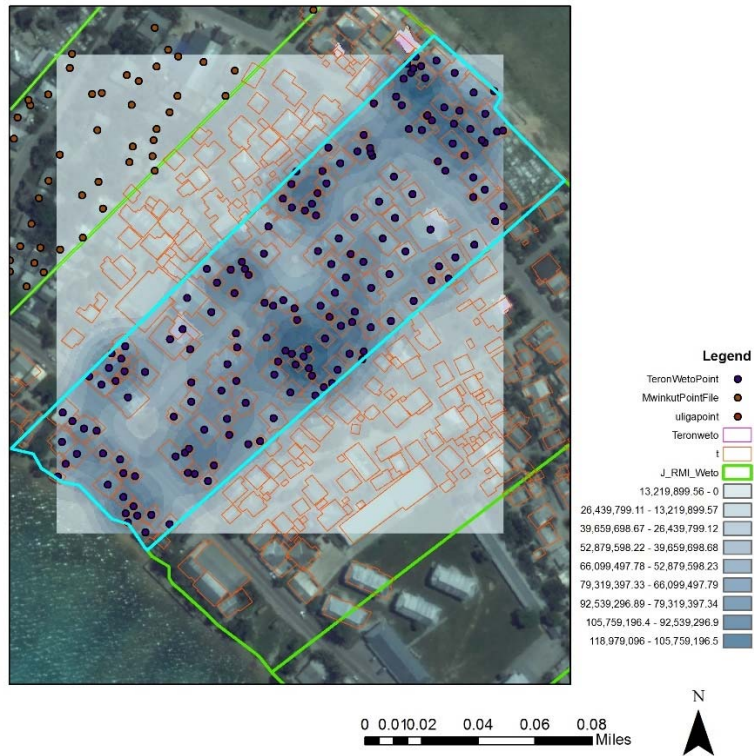


Figure 299. Kernel density raster image of dwellings on Teron wēto, Arc Map 10.5.

Table C.5: Difference factors of wētos in the study.

<i>Wēto</i>	Namdrik	DF
Moneibel	Namdrik	0.75679
Lotoean	Namdrik	0.756021
Monwat	Namdrik	0.753085
Maklon	Namdrik	0.79875
Mojero	Namdrik	0.82939
Monaak	Namdrik	0.772993
Mon-konat	Namdrik	0.772596
Wijlang	Namdrik	0.654715
Jabonuk	Namdrik	0.665498
Likin Atbwe	Laura	0.789923
Jonak	Laura	0.740598
Likin-Kunen	Laura	0.766133
Uliga	D-U-D	0.771953
Mwinkut	D-U-D	0.755833

APPENDIX D: SELECTED INTERVIEWS

D.1. Selected Namdrik Interviews

Man from Wijlang Wēto

J: How long have you lived here?

M: 18 years.

J: 18. How many people live on this *wēto*?

M: 7

J: 7. Did your sister live here longer than you?

M: She just came in.

J: Did she grow up here?

M: Yes.

M: She's going to go back to the mainland, USA. This use to be her house.

J: Ok.

M: And she left for the States, so ever since she left folks came here to live.

J: So you have been here since she went to the States?

M: Yeah.

J: Is everyone living here family?

M: Yeah.

J: What's the age range?

M: (yelling at the kids) 50 some to 7

J: To 7, I know there's a younger one.

M: to 3.

J: Do you have a favorite spot on the *wēto*?

M: Whole thing.

J: The whole thing? Oh, the ocean.

M: Oceanside.

J: What's special about it?

M: Fishing.

J: Is there any other favorite spot?

M: under the...(Laughing)

J: What about - never mind. Did you fish from the shore or do you take the canoe out?

M: I run this canoe fishing. I use netting at times.

J: With a line?

M: On the reef with a net.

J: Is it as shallow there?

M: Yeah. I tie it.

J: So, you walk out.

M: I walk out then.

J: No sharks?

M: Small. (Laughing)

J: They don't bite. You keep telling me.

M: Hahaha. Sometimes they come and tickle.

J: They come and tickle you with their nose and fins.

(All laughing) If you smoke and go fishing, they tickle.

J: Do you know who built the house?

M: His name was Imunad. He was the brother of a chief from Pohnpei, a contractor.

T: He was a friend of my sister's husband.

J: So did her husband hire.

T: Her husband was related to the chief, so he was royalty. He brought in so he Kapua.

M: Her husband maybe far or what, I don't know but he was somebody.

T: Her husband was a relative of the guy who built the house. He brought him over to the island to build the house from Majuro. They were friends. No contract or anything.

J: So did they build it together?

M: We think he did.

J: With all the materials and everything. OK. So, is her husband still living?

M: No.

J: I guess that would explain why it is a little different than others. I'm guessing that is not real brick. It's just lines.

T: Yes, it's marked.

J: That's what I thought. Have you made any changes to the house since living here?

M: Yes. The windows were broken so we fixed.

J: Are the winds real strong from the lagoon side?

M: No.

J: No? The trees block it? I guess they're set back.

M: This *wēto* is higher than most.

J: So when it flooded in February, did you stay dry?

M: No.

J: No? It flooded. OK. Do you know why people don't raise up the houses?

M: No.

J: No?

M: Because of our chief, her husband.

J: So it's true. I wonder if there is any way to move away from that custom. Maybe if you build the chiefs' house really big.

M: First time I think about that, he was raising it up.

J: How high was the water when it flooded?

T: About here from the other one.

J: Oh wow, pretty high.

T: So it flooded that area of the *wēto*. From those trees way out, it flooded.

J: A couple of feet lower over there.

T: Now it's always getting lower there. This part of the island is high. All the roots from the trees, breadfruit, pandanus – all the roots are blocking the soil from going out.

J: So have you planted more pandanus? Alright? Have you made any changes to protect the house from floods and storms?

M: We plant some of the pandanus.

J: Have you done anything to the house to protect from storms?

M: No.

J: Alright. So, did you build the cookhouse?

M: Yeah.

J: Can you tell me a little bit about building the cookhouse?

M: Maybe do it because my wife is good. Everything, house - for wife.
(laughing) When made it higher, the wind will blow it over.

J: The wind will blow it over?

M: Yeah. When it's low, it's alright. Make it low. Before it use to be higher.

J: Was there a reason to put it where it is?

M: Put small kitchen....

J: And what's the little building back there?

M: One over there? Bathroom.

J: Bathroom. OK. Did you build that too?

M: Yeah.

J: Do you move the bathroom?

M: Not yet. 20 years now.

J: 20 years. So it has a big septic tank?

M: Big septic.

J: What is the septic tank made out of? Is it concrete or just a hole?

T: Dig hole in ground and put reeds in it and corals in it. Flush the toilet, it flush it then, the corals. Most of the septic tanks on the Marshall Islands are built that way.

J: Most of the Marshallese built latrines this way. And then the coral spread, collect this from the beach?

M: Yes.

J: How many years, how long did it take to get all of this?

T: How they build the coral, they bring and spread around the house so once it gets like a darker color, they rake them over, spread and bring new ones for around the house. Like the ones you see at the church.

J: Ok.

T: There's new corals around the church and old corals are spread out. Like the ones here.

J: Ok. Then did you plant the hedge, these bushes?

M: Yeah.

J: Are all these Atitis the same?

T: Same structure.

J: Who came up with the design?

M: I don't know.

J: Back to the cookhouse, what are the different parts of it?
Do you usually have a place for the fire, then a place to cut food?

T: A place for firewood also.

J: Storage?

T: Storage, materials to make a fire, store cookware, usually almost every cook house each you store your cookrice in there, put in sacks. In building a cookhouse you need at least three reasons - the cooking, the storing, to chat in there, to eat supper. Something like that.

J: Is there any part of the house that you use more than other parts?

M: Sleeping room.

J: Sleeping room. So what are the different parts inside the house? Like the sleeping area. Is there living space? There's a bedroom, living room.

M: First time we use the sleeping, Majuro house -Window, door, roof, living room. If you want to sleep in you can.

J: So where did you live before coming to Namdrik?

M: Majuro. I was born in Marjuro.1950. I moved in 1979, 1983 from Majuro here.

J: What did you do in Saipan?

M: I went with my brother for work... Worked.

Saipan to Majuro, to here, five times. So we work at the ...station. Government paid all of the families, so we went there. Three years from when my grandmother died, me and my brother and I came to Majuro and stayed at Majuro. Brother left and said are you coming brother? I said: I'm going to stay here. I live in this...everything I have is here. Family history. And I met my auntie from here so I going and stay at night... I have planted an now...

J: Ok.

J: So, how much have things changed since you were a kid?

M: Compared to when I moved from here to Majuro....moved back 1975. When I moved here to save money, to buy materials with it.

J: Since you lived on Namdrik how much have things changed?

M: Plenty change.

J: Could you explain or give some examples.

M: People that come from the ship cannot walk side their house, but time I am in Majuro you walk two, three houses. When I came here.

T: Back then the elders they generated certain ways of living. Every chief houses you walk across it, I don't know, was probably black magic power and all that stuff.

J: So was this considered a chief's house?

M: implied yes

T: If this was back then, you wouldn't have come here. You have to ask permission of chief to come here. Now they can walk around.

J: Have there been any bad changes?

T: Like What?

J: I don't know. What have been the best changes?

Laughing

J: What was that?

T: For example, what are the best changes in life or in this site?

J: In the 18 years you have lived here, what are the best changes?

T: Changes - solar, freezers, air conditioned.

J: What is it?

T: The motor cars.

J: Oh, motor cars.

T: He use to race in Saipan.

J: Racer bikes?

T: Yeah, He has one.

J: OK. Big engine.

T: Heard he use to ride it to Madmad along the reef.

J: How?

T: Winter it. (?) When it's slow tide.

J: That's crazy. Wow.

T: Take motor bike to Madmad. Dirt bike.

J: Wow. Where did that van come from back there?

M: That was a school bus for the kids.

J: School bus. How long ago was that?

M: 24 years - this month it will be.

T: It's getting older.

J: Not working anymore.

T: They ordered in from Majuro parts, but no more.

M: Company didn't have them.

J: Ok. Did the ministry of education send it?

M: Implied yes.

J: Ok. Too bad.

M: There were people using GPS coordinates.

T: There was a use for jeeps. Almost everything. Kids.

Emergency. That was the only vehicle on the island.

J: Before even you bought your motorcycle?

T: That's after.

J: Is there anything that is culturally important about how you live on the *wēto*?

T: Culturally important?

J: Culturally.

T: You know what the alap means, heh?

J: Mmm

M: My friend - his friend.

J: The alap is like the landowner of the *wēto*, manages it.

T: This is his Grandmother's *wēto*.

M: Mother is...

J: Same grandmother.

T:

J: You guys are cousins?

T: His mother is younger than mine.

J: OK

T: Younger than among their parents, among their moms. Actually mom is the youngest. She is the only one living.

J: So she's the alap and she lives here or Majuro? So how much have you planted on the *wēto*? If you can guess how many different types of trees or fruit.

M: All the pandanus, bananas, coconut, lemons...

T: lemon tree.

J: What kind of tree is that?

T: It's lime tree.

J: Lime tree?

T: lime tree.

J: So all the coconut trees that we see?

M: Yeah.

J: Ok. Are there any important landmarks, for example, you were pointing out that a *wēto* is from this fruit tree to this line of coconuts, any important landmarks on the *wēto*?

T: He does not really understand where the *wēto* starts and finishes.

J: Do you know if the *wēto* is throughout generations? If they have stayed the same or do they get divided? So like 100 years ago, were the *wēto* the same? Or have they...

T: No idea. The Chief will know the answer.

J: Yeah,, the chief will know. What is the most important about the way you live and what do you want passed on to your kids?

T: Customs. Everything.

J: I have a question for her, his sister, what does she miss most about Namdrik? It's just an extra question. Since she has lived in the States so long, what does she miss so much about living here?

T: The food.

J: Food, mostly the food.

laughing from men.

T: That's what I would miss if I were in the States. The other thing would be the siblings. Coconut crabs are big. Wow. They have big large claws like that.

J: Wow. So, lots of meat.

T: Much bigger than lobsters.

J: Really. Can you eat the body or no?

T: Yeah, claws, body.

J: So it's not like the mangrove crabs you get.

T: The mangrove crab is little. Only eat the claws.

J: The little claws, yeah. What changes would you make to the house?

M: I'm planning to repair my house. Last year I ask to make repairs for roof, and we went to home...ask around if we could make and we told only Majuro.can we do repairs...

J: The Farmers home is the development bank?

M: Yeah. I ask her and she said the roof... I would like to make improvements. ...you know I ask the chief. I ask him how much for materials for roof but he says it going to be thousands.

T: Instead of designing house some of them like where Randy live, wanted to do repairs. Probably would spend at least \$1,000 to repair the house. The roof, windows. Have to build house.

M: Repair

J: Has there been any big storms recently?

M: I never..

J: Not since living here.

M: 50 someWater to the reef..

T: Yeah, there was a major typhoon, flooded all the islands. No trees from the lagoon.

J: Do you know if anyone has been trying to make repairs to make the house stronger for typhoons? CMI or some people. I know CMI made a handbook, I think this year maybe last year that's for Homeowners Guide to home improvements.

T: There was a handbook for people to do their own repairs?

J: To do their own repairs to resist storms.

T: What was the question.

J: Has anyone done that on Namdrik that you know of?

T: (translator talking to man but unclear if ever translated it.)

J: The USDA houses were built in the 70's so I thought

T: USDA? 70's

J: Before you got here.

T: That's probably like 30 years something.

J: From Saipan?

T: 46 years.

J: Wow

T: 46 years approximately or accurate. A typhoon struck Saipan. Before, the USDA houses were built there, they built on that site and after they build them, a typhoon hits Saipan and all the concrete houses

J: All those houses are fine?

M: Still standing.

J: Wow.

M: Maybe they make this kind of house.

J: Put here and there.

M: Saipan, Guam use to be typhoon.

J: So, how old is this house?

M: 1980 - 1970-80.

T: 1988. House is probably 2 years old. (Laughing)

I was still frisky.

J: Building this house.

T: Maybe like ...in his walker...(unclear)...make a house.

J: When did you get the water tank and the solar?

T: These water catchments came here before the solar, came before the new unit.... I think they were from Taiwanese...

J: And then is there still a well?

M: (indication yes)

J: Oh, it's back there, I remember.

T: All over the area they look for water and he start taking that side and there would really be

J: no water.

T: No water. Third try, over there.

J: What's that concrete?

M: That was for this one, forthree years. I said take that cover and make it masonry....He says.... when we put it really small. (laughing)

T: He and his son were looking for beer.

M: Bury, you see.

M: When I came from work finish that. We hid some more.

J: You had to put it on the porch.

M: Porch is inside.

J: That's unfortunate.

Interview with adults from Monwat Wēto

T: What do you want to ask?

J: Yes.

J: Ok. How long have you lived here?

T: She moved here when she was in her elementary. She was born in 1934. So somewhere around 12-15 years of age, they moved here.

J: In the 40's?

T: Approximately.

J: Have you lived on this *wēto* since moving here?

T: That's what she said. (Indication yes)

J: They moved here.

T: And she has lived here all her life.

J: How old is this house?

T: They built the house around the 1950's, after the typhoon.

J: Were you living here when the typhoon came?

T: Yeah.

J: Can you talk a little about.

T: The typhoon struck the island from the west end. Took all houses, the concrete houses, even this one that was built back in the 50's. Materials for the house typhoon took away. They were cast out in the waves, and pretty much all the coconut trees fell. They built like shelters out of materials that they could find in their own yard. Tin and plywood to make a little house, then afterwards they built this house.

J: After the typhoon was aid brought to the island or did people have to make it themselves?

T: This was a USDA house. So after the typhoon, this funding came. USDA houses built here and on most of the island.

J: Were they concrete houses?

T: There has to be like two buildings made by the builder to be USDA houses, one for(?) and one for the Peace Corps that host it, so this house that they built here is for the Peace Corps. Their houses were..... It happened. So instead of building their house here -

A Peace Corp volunteer lived here.

J: Any idea where he's from?

T: She don't really know. Probably in the States.

J: Before the typhoon what types of houses were on the island?

T: Use to live in hut house but they were higher from the ground.

J: Is that what most people lived in?

T: no answer in English.

J: Were there any other types of houses?

T: Back then, they were the only houses with tin roof. Pilot buildings. There were shops.

J: What was the name of the typhoon?

T: They did not name typhoons back then. Typhoons didn't have names back then.

J: OK. It hit Jaluit too?

T: Yeah. Most of the island.

J: Back before the typhoon what was the most, what did the village look like in comparison to now?

T: Back then people knew how to look after each other, look after one another, to take part in the culture. Now people just don't get it. As far as the customs they change that now.

J: So, that would be a big change from back then to now. Any other?

T: For example?

J: So when living on the *wēto* in the hut house, like how many hut houses would be on a - or how many different buildings would be on a *wēto*?

T: Storage, cold press(?), cook house, all made out of ...So, a coconut storage back there use to have something they called 10...Main house made out of wood. Use to dry coconuts there. Coconuts dry out under the sun so I'm guessing the hut house factory where it gets stored is outside. No matter where you want to take it, stick house, dry coconuts you drag it out. Once you dry you have to bag it. Now you use charcoals.

J: They put it on a matt?

T: No just sticks. Coconut stay on and dry out.

J: So when the people built houses back then like the hut houses, would it just be the family or other members of the community that helped

T: Some of the community come help, if you have a lot of friends. Problem the work -- most of the family do it. Built by family members from the *wētos*.

J: Then but how many families - if you think about, not families...the extended family but the need for their family (?).

How many typically lived on the *wēto*, so like you have the grandparents- that's one family. Family like sisters and brothers that get married and have kids. Two different families, etc.

T: Back then the elders have like 6 six kids. Each - 6-7; 8 families living on land.

J: Would each family have their own house or share houses?

T: They live in different house. Back then, *wētos* was a major building of hut house - village base and it was for everybody. Some other little buildings but they have major huge hut house so everybody. There use to be stories. Stories - rooms up. The elders lived down, but make lattice for the kids....and make hut house and space in ladders for so they can go up, sleep. Elders sleep down. That's how it use to be.

J: Was the big hut house built differently or was it the same as, just bigger, than their hut house?

T: Smaller and bigger. Once you get married and have family, you go off and live on the same *wēto* but a different house. They built you a house. Once you have family they build house.

J: Is it the big hut house where the kids slept above.

T: The grandparents, but their parents live in separate hut house.

J: Ok.

T: They build it in mind be the best.

J: And did a lot of those customs change after the hut houses got wiped away by the typhoon?

T: A lot of changes in customs. Mostly, they use to be a cook or hut house. There's no more hut houses.

J: Are the hut houses you see today similar to the ones back in the day?

T: Same ones. Same ones but higher.

J: Now they build them high?

T: No. They use to build.

J: Did they use to build them above the, like stilted?

T: The chief, he built them.

J: Raised them up from the ground?

T: Raised them up, higher, could walk under them.

J: Could walk under them. So when the elders slept below did they sleep on the ground, was that raised too?

T: The coral spread - they spread out the coral, put them under the house and make matts like fish and that's what living, they sleep on them. The kids sleep higher.

J: What is her opinion of why houses are not raised?

T: These houses were built by USDA and that's how they built them. How Marshalese build their houses back then. They just came and built them. It was concrete.

J: Did the USDA bring their own workers?

T: Contract. They make contract. You have to apply for it to build it, the USDA houses.

J: Did locals help?

T: Yeah.

J: So after the typhoon how did most people build if they were the only ones who got the USDA house? How did other's rebuild? And what types of houses did other people build?

T: They built them as they want them.

J: Did anyone build the houses?

T: Almost nobody. There was only one building that house. Build with cement.

J: Why was that? Did they think it would hold up against the typhoon better?

T: Probably to shelter against wind but leaks and they get flooded easily. Like last flood the water came in here to the road.

J: In thinking about the house now, this house, is there anything that you like better about the houses before the typhoon? Is there anything about the hut house you like better than the concrete house?

T: Back then, hut houses you have to do a lot of repairs. If you want to, you have to often repair. Now-a-days, probably take 20-30 years before you repair it, when you have to repair it. But hut house, the only thing about hut house is that they are cooler from the sun. Hut house is cooler. The only thing they like about the hut house is cooler in the sun.

J: The customs associated with the house? For example, before you had big hut house with children that slept upstairs and the elders on the ground and then when a couple got married they had their own hut house. Now were there any similarities, like similar customs that are still present today?

T: Yeah, like that the customs is fading off now. Most of the customs not being followed.

J: How much of your family lives here on this *wēto*?

T: How much of her family? All their kids were raised here. Once they go off to school and they're married, went out there and they explore the world, and now there is only R. J and mom, the only one stay on the island.

J: Ok. So then does R and his family live in this house?

T: Only the mom was raised here.

J: Got it. What changes if any have been made to the house since living here?

T: The only thing they make ceilings. This was a USDA house so they make grant for goods, matching funding from government. Concrete. They made rooms. It was built without that ceiling.

J: Ok. Why did they add the ceiling?

T: It tin man. To keep the heat off. (laughing.) The only reason for the ceiling. Without the ceiling it is really hot in here.

J: Got it. So have there been other big storms since this house was built? Is there anything that you have done to protect the house from floods?

T: The sea wall was started. That's what she really wants, that sea wall.

J: There are no sea walls.

T: There is only one thing to do, go plant there and dump stuff there.

J: So what changes would you like to make to the house?

T: She would like a big closet. And she really wants to make it higher, lift it off the ground.

J: Know how you do that? You build on top of the wall.

T: On top of the wall?

J: The cheapest solution. But a beam, a post, another post, another beam that goes across, and then you build on top of that.

J: What else other than raised?

T: Closet. For Storing. Seawall.

J: More water cisterns? What about the whole *wēto*? Anything? Improve?

T: She's talking about the cook house. Repair the cook house.

J: How old is the cook house?

T: I was here when it was built. Probably three years old. Built with anything we could see.

J: Who worked on it?

T: Me and Riley, some of the relatives.

J: You just collected everything?

T: We collected. When the suns out, we get three hours of light in it.

J: So how often do you have to rebuild the cook house? or build a new cookhouse?

T: Cook house - every three years.

J: So has the cook house always been in that spot? or no?

T: Close to this breadfruit. We see the concrete here and the cement on the floor.

J: Ok. That's pretty good. I could ask a million more questions but we can save those for later though. Thank you!

Interview with a man from Monkonaat Wēto.

J: Ready. How long have you lived here?

M: Since when I was born, or I'm 67 now.

J: How many people lived on the whole *wēto*?

M: In here we have four in the mainland, but some of our boys are at school and they will come back in summer. Three of them will come back in summer, maybe two, the other one. Eleven including all of them.

J: Only four families? Five?

M: Four families. Richie newcomer. (laughing.) He is family. So on average 17 approximately.

J: So, what was it like here when you were a kid?

M: From nowadays? What? Thatch roof.

T: Back then there were Marshallese hut houses. Lot of different, lot of changes happening here. Different ways of living than back then.

J: Could you name a few of the bigger differences? More important differences?

T: They cemented ...moving from hut houses. When they have family they start new houses. It different now from houses back then. Now they concrete, plywood.

J: When did most of the houses get replaced with plywood and concrete?

T: After the typhoon.

J: What year was the typhoon?

M: 1977.

T: 1979 there was another typhoon, a big one.

J: When was the big one?

T: Back then after the typhoon in 1958, no sponsor or aid came to the island to repair the hut houses again. We started building, local original house. And after the typhoon of 1979 funds came in and they use it that is why USDA houses were built. United States Department of Agriculture.

J: And those are the Plywood type?

T: Plywood and mud type.

M: One was concrete but it was slab.

J: Torn down, built anew.

M: Two types: one concrete and one plywood.

J: Do you know why some houses were concrete and some plywood?

M: I don't know. I was in school the time.

J: Is there an example of one of the concrete houses that was built? Which house is the concrete house that was built?

M: One Bonapin and one in Inbe.

T: Right across from my place.

M: But they didn't finish up. They didn't put roof on. For some reason. But some of them were concrete.

J: I'm guessing most were plywood?

M: Yes.

J: Ok

M: Most plywood, save life of people. The walls. They call it typhoon proof.

J: The ones that came from Saipan, do you remember? I forget who told us that.

M: Saipan people use wood houses. Micronesia

J: Micronesian.

T: Marshal Islands in Trust Territory.

M: We were in agreement with US.

J: So did the typhoon in '79 hit all of the islands or just some?

M: No, just some. Jaluit and here first typhoon and '79 Only here.

'58 Jaluit and Namdrik.

J: So after the typhoon in '58 how did people rebuild?

M: They use leftover materials.

J: Was it by family or did the whole community help?

M: Family. People not have concrete but we build. My mother and father and all children. We didn't have family at the time so we lived with our parents. Same like most of the families.

J: So before the '79 typhoon where was the house?

M: It was there and then after '79 we built the other one.

J: The one here. So what was the concrete parts of a house over there? What was that? Like the ruins.

T: That was the house he used to live in.

J: That was before the USDA built the house here. So how big was your family that lived back then?

M: During that time?

J: Yeah.

M: Mother and father, my parents and wife We were five at the time.

J: Did you all live in the same house?

M: Same house.

J: And was there. What other buildings were there, cookhouse, outhouse?

M: Cookhouse, outdoor toilet (toilet was here), you know they are...wo house then they were separated you know.

J: What Kind of house?

T: Outhouse.

M: The toilet was here and the bathrooms here.

T: Showers.

M: Over there was the well. Underground well. That one.

J: Far one?

M: yeah, very far one.

J: Do you know why they built the house on this side rather than there?

M: My brothers, the older brother, liked the windy place. Because when I in school and when I come back and they talk about the place, he said it is cooler here and I want it here. We didn't expect sea levels to rise be terrible. Maybe at time we want to. We were told that warning, so we didn't care, we wanted the wind to cool the place. We don't like to cut down the trees and breadfruit and plantains and bananas and we want to have a choice.

T: Planting eh?

M: Planting.

T: They want more space for coconut trees and bananas, plant fruits.

J: I see. And then, when was this house built?

M: Last year.

J: Last year. Ok.

M: I built it. This year they give me grant.

USDA gave \$7,500 and I matched the grant.

J: So the house that was here before was the house built by USDA, concrete house, and then was that house smaller than this house or about the same size?

M: It was longer. There was 28x24 but now 32 plus I built that, the lumber one here. The floor is concrete but I put plywood and tin. It's the one from.

J: Did you build a new foundation or was

M: It was same foundation but I made it taller.

T: Higher.

J: Higher so did it flood last year? Did your house flood last February?

M: No. The flooding was coming this way, main road and almost to that place and the other side it was coming to the main road and then go that way. It is written in...

J: Coconut Diaries?

M: Yes. I saw it on land but here no. Almost, island divided to one side for here had plenty here, and here more than that.

J: What are the big differences from the different periods in time, what were the differences in the houses, so the one that was there, then the one USDA built verses this one?

M: Give me an example.

J: So, that one was made out of local materials but did it have, was it one open room or did it have different rooms.

M: Open. Here I have two rooms and one living room, but that one we just have one room but catch water all the time. Me and my mother and father, my sister, we stayed in the people room. There was no tile, no paint. This one has been here almost year.

J: What about between this house and USDA house?

M: Pardon.

J: Between this house and the USDA house, what are the - did the USDA house have multiple rooms?

M: This one was USDA but one was typhoon, maybe was disaster one.

J: Ok.

M: This one, it depends on the budget and what we desire, so different.

T: When they apply for the house, they can print something out to build. This one was built the way disaster house.

M: One blueprint.

J: So it was built the same ways as this.

M: They built different. They do not have the same blueprints.

Depends what you like and what your blueprints.

J: So, what were some changes that you made for this house?

M: Like, what?

J: What things did you know you wanted when you built this house?

M: What?

T: Built on a kitchen.

M: Kitchen. Bedroom - USDA bedroom.

T: Water come inside...ruined some materials. The bathroom...USDA gave him the blueprint for the house but it did not have a bathroom.

J: Ok, and then who -Going back to the house that was built after 1979, who built that house, the concrete house, the old concrete house?

T: He built.

J: So did you help rebuild houses after that?

M: Yes

J: What about this house? Did you have to help in the construction or did they hire someone?

M: I hire those helping and we bid.

J: Did the USDA ship all the materials?

M: Materials and we see already several times of \$3,000 or - 36 places, USDA gave money to build the houses.

T: They gave you the opportunity if you wanted to build your place. They gave you the material and give you the opportunity to hire anybody, and the money to pay them. They give you material and money for labors.

M: Gave us until we finished it.

J: Labor gets paid after...

M: After it finished.

J: Alright. When did you add on the

M: After it was finished.

J: Did you do that yourself or did you hire someone?

M: Same contractor. He wasn't really complete but they stopped doing some of them, but some of them paid.

J: Why did you add that on?

M: Done more for more supplies.

J: So that's what you mostly use that for?

M: This one is going to be a huge place to cook and I will put the sink orsupplies, storage I mean.

T: Storage.

J: When did you build the cookhouse?

M: That one?

T: It was built for the house back then, after '79.

J: Ok. So how long has the cookhouse been there?

M: It was old and then I build it again, maybe now almost 20 years.

J: Ok. And how did you come up with the design for the cookhouse?

M: I didn't have any idea. Just build it and make it a place for roots and place for washing dishes and place cook using plywood. Sometime I put cobra. My *wēto*.

J: And what do you use this space for?

M: This place to sit and talk. Smoking area. (laughing)

J: How long has this lasted?

M: Since last year. December.

J: Turned out pretty well.

M: Now decent place. About a year. One year and one month.

There was agame. A ship come in the bay. Lady....They say the lady on the ship from Majuro so I walked up to here.

T: My nephew's wife. She passed away. She went to Majuro.

M: She went to Majuro and decided she didn't like it.

T: So put in ship and brought it here. Like Chinese made house. And they brought this.

J: OK. What is your favorite spot on the *wēto*?

M: Right here. I am getting used to it, everyone around me congregating.

(Laughing)

T: Sleeping round

M: Taboo

J: What about the Marshallese way of life is most important to you?

M: Local food.....plantain, banana, Marshallese food. The sea.

J: Racing canoe?

T: Racing canoe?

M: Yeah. Yeah. Racing canoe, making kites. (Laughing)

J: Someday that thing is going to work.

M: We want to try to help you with a kite. Maybe with a string maybe forward so the front side is go up like this. Try.

J: First step is using the plastic you gave me.

M: Is the plastic not strong or what?

J: It's strong enough.

M: Try.

J: Ok. How did you all decide where each family would live on the *wēto*? So my nephew lives over there. So everyone grew up around here but then my sister lives ocean side, your sister?

M: We agree to clean our area.

J: To take care of the whole area.

M: Take care of it and clean it. My nephew can clean that place and clean that place too. We have to keep to a schedule so they have to use their cobra there. It is easier to separate ground if you use that.

J: Have you made any changes to protect from storms or floods?
Changes to the house or planted trees, built sea wall.

M: What we are changing about the bay. How to protect it. I put some trees there, coconut trees on that side and sometime I put more sand on that side to raise.

J: To raise the ground.

M: Water will be easier to move out of my place. That is only what we can do. We don't have money to put a concrete wall up.

J: Right. So what do you think needs to be done to prepare for climate change?

M: We have to make our houses higher, something like that. These houses on the island just repair for all people, maybe build them higher, bigger, and stronger house so everybody can. Marshall Island government made a grant to make high places.

J: If you follow disaster evacuation, have at least one community center. You would basically need enough buildings to hold the entire communities that are storm proof. Usually it is a school community center are the buildings they use for that, but school building only has one building that is high enough and it is not big enough. And the community Center is not high enough. So they need at least two more buildings that are high enough and big enough.

M: Everybody pulls in

J: For emergencies. The other issue is the houses themselves. Only, I haven't counted from my, the houses I've done so far but maybe 10% would survive a storm, but the rest would lose their roofs if not the whole thing. So you either rely on - you are either going to end up relying on aid if there's another storm or figuring out how to - I was talking to people at CMI about what happens if the typhoon comes and they said they will just do the same thing that they always do which is not going to make things more resilient to storms because they are going to build the same USDA houses and they are not going to be high enough and they aren't going to be strong enough, or big enough. I think the A solution, not necessarily the best solution is to figure out how to use local resources that will survive a storm, like the mangroves, those would survive a storm. At least to rebuild enough housing for the period between - there's always a period between, storm hits, everything fall apart, falls down and then you kind of evaluate, some houses are going to survive so that can house x amount of people and then how can you rebuild quickly in those following weeks or months enough to house everyone else and then you need to have a plan in place locally of how people want to rebuild so like you say higher, bigger houses and then when aid comes they are not just building the same crap they always

build and build something that's actually going to survive the next storm. That is the thing that they keep telling us as climate changes. Not that we are going to have one storm in 20 years. We're going to have 5 storms in 20 years. Can't survive one, then you aren't going to make it through the rest of them.

M: Does USDA plan to help lowland people?

J: They keep talking about is what to do with worse case scenario and it seems that they're kind of reliant on the migration that is already taking place so that if - this is speculation - is that if, even if a typhoon hit that wiped out almost everything, the US might rely on a policy of immigration rather than spending money on rebuilding, so providing the aid money to rebuild. That's my theory though, it could be completely out there. But I went to - there was a conference a couple of years ago that was all on climate forced migration so it was looking at how climate change was displacing populations like in the Marshalls, Kiribati, low lying areas and they all seem to be leaning towards resettlement rather than trying to build up the low lying areas.

M: You have to build it strong and big and high, maybe we go get help to give us the building. My opinions, ask US to get rid of lowland people. hmmm. That would be the best to rebuild.

J: What would you want -let's say Marshal Islands was evacuated to the United States, like what would you want to happen as far as how you resettled in Hawaii or the mainland?

T: How would be resettled?

J: Yeah.

M: I'd have to think about it. That's a big question. I don't know how to answer. That's a big question. I not answer it too quickly, need to think.

J: Think about it.

M: Hmmm

J: I visited Arkansas, well a little over a year and half ago, and I asked people because I was looking at how - you know Chinese make China town - I was looking at do Marshallese make Marshallese town. To an extent they do because there's like 10 thousand that live in Arkansas now, and I was asking them what buildings they would build that they had back home and everyone said they missed their cookhouse.

T: (laughing.) That's funny. That's what everybody said, they missed their cookhouse?

J: They miss their cookhouse and they miss having their family live close together. That was the bigger one, having your family live together was the bigger thing. But they miss their cookhouse.

T: Marshallese probably why they miss their cookhouse; they miss their local food.

J: That they made in the cookhouse?

T: Yes, that they made in the cookhouse. That's what they missed obviously, the local food.

J: Yes.

T: Like if Chinese people go to America they would want Chinese food.

J: They bring it all with them though.

T: They went to America and built China town. Probably Marshallese people resettle at the US. Marshallese town. Make place to plant like what we have back here.

J: So that's why I want to go to Oceanview Hawaii cause apparently - because it's kind of nomads land, you can do whatever you want, everyone is building the same way, not just Marshallese but like Pohnpeians, - They are all building the same things that they had. It's what they know which is pretty interesting because when you think about of like resettling, like thinking of China town again, you build what you know cause it helps you adapt but it also helps you to hold on to more of your culture.

T: Yeah.

J: Otherwise you just end up just assimilating which will happen eventually as generations. It would be like all the other immigrants to the US over the centuries.

Interview with a man from Mojero Wēto

J: That OK?

M: Yes, OK.

J: So I don't miss anything. So how long have you lived on Namdrik?

M: It's been 16 years. I'm 64 now, 64 years old. I was born here. And based on Namdrik. But then time I went back and forth between here and Majuro. So I spent about 4,5,6 up to 10 years in school. Outside number. When out to micro? spent 2-3 years there and then school there. Then one year outside came to Oregon and spent one year there. Senior year in high school. So most of my time here.

J: On Namdrik?

M: On Namdrik. I came back here in 2007 and become the Mayor.

J: Were you living on Majuro before then?

M: Yes. I lived there since more than 10 years, 15 years.

J: OK

M: Of course, I was a teacher at theschool. I became a school teacher and then become a special ED teacher 1979. Worked with special education program for more than 20 years.

J: You going to spend another 4 years, at least?

M: Another - maybe another four years. Yes, really, it's going to be a long time. When you become mayor, it's really fast, few, it's gone, but as the time goes it's taking longer kind of to become, for second term four years kind of longer and I hope this term is going to be the best. (laughing).

J: This is your third term?

M: Yes, my third term. My mom went to Alway and stay with my older sister and said to me, you really should come back here, need to come to Namdrik. So that's why I bring her here in 2007.

J: OK

M: When I asked the administrator to let me to work at school now, he said you have to work with office. So my first assignment being here. That's why I hoped that

J: Where was the house you grew up in? Was it here?
or was it

M: First when I was here when I come here I use to stay that spot.

J: Is it close to the ocean?

M: Yeah, It's close to the ocean. I grew up there and then we moved down here and I moved here to stay at ocean side. Before that I use to stay at the judge building, close to the church, you know the car staying there by itself, there is a house there, that's where I grew up there, more than 10 years. I went to school when I came back I moved here, where parents.

J: So is this *wēto* your family's *wēto*?

M It's my fathers.

J: And your mothers from here too?

M: My mother is also from here and we Noah, Jabot and those guys, those are my mother's land and some other place but our grandmother on mothers side, No grandfather -her father was English man or something like that from Europe. He came here and married lady from Namdrik and he took this, you know that Catholic church use to be owned by that man. German. He's not from Germany but from Poland or somewhere. -ski, the last name.

J: Definitely polish.

M: Polish, yes. He raise kid and I took them to one, to attend one Catholic Church, school there. That's the only school in Micronesia was in Namdrik from those Catholics.

J: Missionaries.

M: Yes, missionaries. So they raise up there and married to Pohnpei so that's why we have my mother's father, mother's auntie(?). Cause our grandmother went there to attend school and then married to (Pohnpei? hard to understand). But the children are from Namdrik coast. Great-great grandmother from here. My fathers crazy (?).

J: Do you know when the chiefs originally gave the land to the families, do you know what type of

M; The man who owned this place from Kwajalein (?) and those guys, that part. Central part. He's not from Namdrik but the Iroj from those time, chief gave him land, all his family. Almost all of this. You know the .. Isaac and those guys we are related from this house, place. We have the same great- great- grandfather. haha.

J: Wow, you go back far.

M: Yes, That's popular move from that time, from central part...change, and they come here and married to one lady from Namdrik, and stay here all his life. Lot of people try to get, Like one of these families in Namdrik, one of the biggest families.

J: The ones from, the family that you and Peter..

M: On his mothers side, but it's my fathers side.

J: Do you know if there are more *wētos* now then were 150 years ago?

M: I think, of course built up some land, use to not be that much but as time goes on, more family and they cut the piece land - you take this part - from what I heard this use to be not that many land, piece of land. Iroj own. Use to be only one, chief here and then the chief from western town and central part town - Kibo, chief here Kibo. But use to be only one chief on Namdrik. That's what I heard, you know. 100 some years ago. I think that happen you know. Some family cut the land and I do not know and give it to

the different. Life, if they have two sons, they make up their own places. (?) We have more land. But since we kind of have a system like colonial system, like during the Japanese time, they try to make, there is no additional land, see. They steal it. German down to now. Course like German, Spanish, German, Japanese and then USA.

J: So what were, when you were growing up were most of the houses thatched or were there concrete houses?

M: All 100%. Maybe only 10 permanent things. I grew up and watched. Up till I went to school maybe.

J: And when were most of the thatched houses gone?

M: During 1970 some, '78 or '76. Was flooded and all houses destroyed. That's why you see all that type of building there. - house there.

J: Yeah, as Dominic calls them typhoon house.

M: Yes typhoon house. So everybody had, even if that's small house but they built them there, Same 24x24 with tin roof, cement floor. Those people have that kind of house during that time. Use to be like 90% would thatch and but after the typhoon 100%. You never see people staying in now. Only few you'll see.

J: Yeah, I saw, like C's house.

M: Charlies house, This 10, 20. But people only tin roof, 99% thatched.

Now this building here was part of the, you'll see the cement there, floor, this school build area. They build that school and those buildings. There's one, that's the first time he came and teach and stay in this house. He stay there.

J: So they stay here and taught.

M: During bad times in 1960's, before the Peace Corps Program, they call that 8910. That is number of the laws, something like that, so the buildings build then. During 1970 some, us people they lease the school. School, the government use from here all the way around to this side. During 1970 some, they lease some and sell portion of the land. From road to that place. Not from the Lagoon to the Oceanside.

J 1960' s they leased whole *wēto*?

M: Yes, the wording of the lease, the whole *wēto*. So they changed that. This building was outside here. Like Wilda, you'll see all this building at theMajuro, Wilda. (?) These are government building. The land, the tidi (?) is gone. They only have one, like this.

J: OK. So the old school building, that's on this side of the road. Was that let go the same time then?

M: Which one?

J: It has like the foundation is there but only 1/2 of the roof is still there.

M: This? We need to take that out from there. Land building places. Anything here in 2007, 2008, all these tin and those materials scattered all over the place. People don't want to clean them up. So I said come and pick them up, and smoke. Some of people kind of no, lazy. They don't care this building and clean up.

J: Do you think the way the people used the house has changed much since living in the thatched houses?

M: Yes, being changed a lot, you know, the way people – Of course when you have thatched, all this, you go outside. Afternoon. There's no storage or something, open end. But now it seem like sometime they go inside the house. They built restroom and all those things, kitchen on same book. Not the same thing. But People now, they kind of focused. Seem to want different kind of houses, different things in the house. All this kind of changed. We took -

J: Can you give an example of some of the things you do differently?

M: Like during our war (?) time, girls and...like that cannot go where the boys sleep. They cannot walk on the matt or fool around there. That separate place, they cannot come to the mens where the boys sleep. Now it doesn't matter. Check inside the window, you'll see those windows there that are open, people insist come inside, some houses open up they can. Come inside. Go inside anywhere in house. Here we really respect more custom. Can have a wall, besides all this. This on the main road. Tell him come to the empty houses now.

J: Is that just to respect houses?

M: Yes, respect houses, you just go straight to your house. Anybody. On the eastside of the house you cannot walk. People when they sleep - you can have coral on that side. You need to go inside, so maybe they are kind of putting up some these kind of like rules or way of doing things because it's easy to break in the house. Can tear down and cook. Nowadays, people not care. Walls and things like that. So we just go down here and there are no longer festivities. Feel more secure inside cement house then - so that is part of what has changed.

J: That is' interesting.

M I don't know but I stay here. It's close enough. Not go around sulking and - Sometime you kick...sulk, to understand no.

J: Were those rules true for your relatives' houses too? Were those rules true if it was your relatives' house? Could you like walk into your aunts or uncles house?

M: Now you can't go. If it's your uncles or grandpa too, to their house. Children are like your kids. Now, your kids come and I don't know maybe because you have toast. They not say unless it matters to them. That's some of the thing changed.

J: Did thatch houses - what did they use for doors

M: Doors matts, you hang them.

J: Like the woven pandanus matts?

M: From pandanus, you make for ceilings and all the floor - you put on floor you can put and doors matt. That's the kinds of thing they put over here. But here we not cook.

J: What if you had valuables?

M: Where do you put them? Inside house because no one go in there. That's pretty well, everything free now. That one side and there are a lot of things change. Lunch. OH...it's hot.

J: Has the way the families lived together changed?

M: Oh, change a lot, you know.

J: I've learned how...like calling for the grandchildren would stay with the grandparents and their parents would have their own house.

M: That's common. Before we had only one house. Parent, children, grandson, granddaughter - all live together. We have only one. We call it fire. Fire is like where you cook your food. Only one pot. One fire. You cook everything in same house. Joint kitchen. Everything cook on the same fire and everything that come out of that, everybody share it. Parents, son, daughter, grandson, granddaughter, like this house is for my father, and my sister and we stay in one house cause we have only one house. You cannot build your house, cannot. You cannot own all by yourself. No. Use to be the chief only have a canoe. The chief. Everybody, used that and we share. Canoe is one of the restricted thing, your know. Only the chief and other people have that. One day they made a canoe. everybody has to work on the canoe. It's a lot of work. Hard work, of course. Imagine we not have any irons. They use shells to cut, so they have to burn the tree and chop it out. 8 years. So everybody work on it and only one kind. So all the family, all the clan not family, all the clan, lot of extended family but...and umm everything they do is like family. This family, like the captain from this family, they cannot teach other people.

J: Oh, you can't teach your own family.

M: You pass it down to your son, grandson, so everything's going in the family. So for this same. Cooking too. Same thing. Only one fire everybody share it. No one can do anything individually.

Maybe that's the difference between nowadays and old days. Now you can do everything by yourself. If you have money or you have a job, you can afford everything for your family. All for you and your family.

Before this time, no, because we shared everything. The breadfruit, the coconut. All the vegetables owned by you like the plant owners, only one *wēto* and lot of people. Same things. So everything in the *wēto*, everybody share that, everybody.

J: So did that custom still exist when you were growing up?

M: Nowadays it is gone. If you have plant one corner, it's just for you. Now. Before you can do nothing even if you plant one corner. You cannot go and take one corner from that, only the alap. You plant breadfruit. Even if you plant that, you cannot take all the one fruit unless the alap said it's time to harvest, and then they share for everybody. Nowadays, even if plant one breadfruit I cannot go and take one. It's for one who planted it.

J: Was it like that growing up too?

M: Nowadays, When I was young, when we make biru, everybody help, only one time, so everybody share everything. Now, only myself could take all the breadfruit while my younger brother and sister do not have one. Really for your time.

Like the payment, you're suppose to use lease for payment of the land. Just pick that up and it was cheap. The rest find their own chow, you know. That's one thing, that's really hard thing. Marshallese custom and Western way - the one we have is way. They cannot go along together

J: Not compatible?

M Cannot, 'because one thing, you'll - everybody turn and share everything. While one you can do it by yourself.

Nowadays I can cut everything on the land but still I can eat because I using money. I can buy it food. I have money. But before, when money is not that important, Oh you can have that one breadfruit that is really bad, but that's what we have around. Everything from that place. Money, that's what really changed things.

J: Using the produce on the *wēto* now, how does

M: Whose plot?

J: Who is the alap?

M: We - our custom is formed by oursite. That's why they say that Marshal Islands is owned by woman, because every alap, you become an alap because your mother's Iroj, not your father but your mother.

All the sons, man son cannot become alap, because their father was an alap, but some place like in war, or you serve the chiefs kennel, then that's where the man own. Line - fathers to son, son to son, things like that. Course they always keep the land for the man - was brave in the war and we win the war. That's the only kind of - where you serve with them. Sailing was really hard too; go from island to island. Only few family members that get lot of lands because the Iroj gave. There's only two kinds of land they can pass from fathers. The race follow the mothers side. But land on other side, stop in one place and no more woman, then change to father line, father, man's side That is Why we have lot of confusion, lot of case in the court - who is the real - who has the right. That's why we see a lot of people in the court. Everything is for them. Who is right owner, who owns the title to

J: To the land.

M: Especially those place, their land, for the land.

J: If you are leasing?

M: Its' very I don't know. Maybe one these days. We still can you know - if that land belongs to all these families, anytime you want to go and make cobra, just go in. ..Or you can go in and pick some breadfruit, some banana, but some people when they plant these things, "do you want?" " No, no, no you go and grow your own banana.

J: So nowadays how do you share the resources on your *wēto* with the family that lives on it?

M: We share it just like people do all this, come in town. See all this, the Youngest one. They got two, three maybe the youngest one has- zero. They always have nothing .(Laughing) . It happens sometimes. Yeah.

J: So you want to be the oldest.

M; Of course, the oldest man can have four kids, so first one, second, third - he'll line them up. Before sister, younger brother and sister - but he give to his children. It happens nowadays. But 10 years ago, you shared with your younger sibling like brothers and sisters, now some people only share kids they share with.

J: So how many different families live on this *wēto*?

M: This *wēto*, Oh plenty. But my father from the youngest lady, I don't know why those Iroj there, cheap She might be the one who was take care of all of this. That is why we have a lot of kind of dispute.

J: Is it your family that lives in the houses around here?

M: That family is living there because that lady there - He's stepfather, married his mother, but actually she is not from here. At that time, father was the owner - stepfather. Stepfather was from this.

J: What about that house there?

M: Barbara is daughter of the owner. That guys mother is younger than my father. So now he is the alap. Not me. Even though I am older than him. My father is older than his mother, but Marshallese custom he step right out .

J: Because his mom is the oldest woman.

M: Yes, oldest woman.

J: OK.

M: She staying at the house. Probably stay alap. Even though his mother is younger than my father, Marshallese - these are the customs. Some people will say, "How come you can have but ". "well he's probably really good. Nothing wrong with that. But if I called upon me, where my mother came from, - oh all the men are the ones. I said, wow. (laughing) All the men, all these pieces of land for that and this, all our mother. She going to stay at your house. So when you come to Marshals you father is big man. But it's good.

J: it works. Most of the houses on this *wēto* were built in the 70's?

M: Yeah. That one, this one, the tall one.besides that house there and the one next to it.

J: On the other side?

M: This one also. One two, three and four. This was built in 1960's, 63-64, this building, most of the building I tear out those, all these garden I take care of. 2005-2006 when I still living here.

J: Which parts did you repair?

M: All these -took out all the (panels?) therekind of exposed to the wind and rain so took them all apart. This window over there suppose to be coop to that thing, but I make it small. It too big.

J: Have you made any other changes to the house?

M: This use to be kitchen. I turn it to a bedroom. This one was storage and laundry was here, cut this thing and move it here. Still kind of change it. This room was - was 60, I think they use iron pipes so we take that out and put those pcp pipes so now it is working. How did you do that? At the other atoll, they really changed theI just changed all that back. Laughing what? I changed the piping. It works.

J: Do you use a water pump or is it just running?

M: Use to be one big tank but when flooded the water come down to here, but now I put one small tank there, small tank, super small to here for water. Now it's run of water so we need to..

J: buckets?

M: That's why I bring my engine, my 4 -1 generator. I never start this one. I'm going to pour cement for the catchment.

J: back there?

M: yeah. Then put one tank on top and then fill it up. Over there. I don't know. Kind of lazy but I really want it. I'm getting older.
(laughing) The water was coming all the way down to this...only side that so I put it up there and now stop right at sea wall.

J: So see it, built up out there.

M: All these corners here not used to be water pushing this place. I do all this. EPA say you cannot do that. Why? You have to move yourI'm going to see if I can make all of this. One is going to affect the other. " Well, we can't just sit here and wait and have the water get you out. You have to do something. Do something to make it more like - You stay two years you move out and want to do something and you can stay there for 20 more years.

J: So the EPA actually comes and

M: Yeah, they came here. Of course, one time I went to a workshop - meeting for climate change and all these things. The church people hold it. There are some people that sell, who have materials to make sea walls, more like us to there. Can you see

it? Course you cannot - you letting this thing happen because if the soil eroded more .(?) take place, not only for her but for island. Going to affect our place but if you are going to make temporary sea wall it will take much longer time. Course climate, not everything is going to change. I don't know what.

J: So what's the EPA's restriction?

M: I don't think restricting what? Restricting, like making sea walls?

J: Why did they get mad at you for?

M: They say it's not up to me to make sea walls.

J: Oh, you're not supposed to make sea walls.

M: That's what they tell us. But...

J: I think that's why they need a ministry of urban development. Then they can fight the EPA and say that housing is just as important as coast line.

M: Yeah. Coastline. I don't know.

J: Because your house is really close to the water.

M: Close to the water.

J: Are there ... There aren't many houses that close.

M: We built this house without thinking about this so land is going to be harmful you know.

J: It's going to erode.

M: We says build it because this good place because the wind and the trees but we forgot, we never knew at the time.

J: So was there, did there use to be more land between the house and the water or was it about the same?

M: About the same. But this spot yes maybe 20 feet.

J: Oh wow. So its eroded quite a bit. Hmmm. So what are your views, opinions of climate change?

M: Views. I been going with --see all these men come out for measurement, plan for Namdrik, because we get into the project with the what they call , Micronesia challenge or something like that, and we been going through a lot of things and whenever we have time to talk about climate change, lots of things come out, we kind of seem like we looking at something going to happen tomorrow. Like all the land is going to submerge and natural disaster is going to be more frequent, like typhoons like that one, flooding and all these things. The water lens going to go down - other side of the island for almost 30 years. Kind of scary. Considering all these things. Sometimes you feel you cannot fight nature. You know. Make it more original ,make it more adaptation and all these things but when you really look at what if big typhoon coming tomorrow? It's going to wipe out everything.

J: Right.

M: So, I don't know. Its come to a point that everything is over us but, you cannot do a lot of, much to prepare for the climate change if it happen. There's nothing you can do a lot there.

J:Do you think there is anything that can be done in the meantime?

M: Meantime, Yes. To all this but we cannot do it ourselves. I really find that sometime that the government, we do it ourselves. The meantime, one time they tell we need to relocate our life. Now instead of thinking about making seawalls, better spending more time on getting more grow inland and grow a lot of things, grow all these trees and all these things, crop trees. Grow all these, like Mangroves, something like that, make 20 feet inland, slow down erosion. So instead of 10 years from now, it's going to be 30- 40- 50 years from now. That's the kind of project. Other than that I don't know. It's really hard to come up with something going to change things, maybe tomorrow.

J: So what's your opinion of relocation?

M: One time we were bidding, somebody was telling about relocating, It's good but some atolls like Namdrik few place is higher than two meter. I don't know if there's any higher than two meters. So, challenging, some of the land here they elevate to - but to where? to other *wētos*? If I am from one *wēto*, I may want to go to a different *wēto*. Some of these things they come up with this not really (?sensible), so its really hard to, I don't know. Maybe we have to come up with some policies or something how to do it. How are we going to do it. Other than relocate, I could thinking about migrating. It start at -

J: Kiribati purchased land in Fiji.

M: Land in Fiji or those place, but I don't know if there is another option other than relocating and migrating out. I think now it's now 50 more years. If things going the same.

J: I think they are projecting 50 years for sea rise but it's more likely we'll have big natural disasters between now and then.

M: Between now and then that's what I was thinking.

J: It's pretty negative view but thinking about - if you had a really bad king tide, it will kill a lot of the crops, so you are going to lose some of your sustenance and if that happens once every four years, it will be hard for trees to grow back.

M: Yes

J: And if you had a typhoon on top of that then the king tides more likely especially with the El Nino years, but if you have a typhoon on top of that or even just separate from that it will knock out a lot of the local economy.

M: Yeah.

J: Then you get to a point of how long can you stay on the island without being relocated.

M: Yeah.

J: In my opinion the sea level rise doesn't matter, because it's what's going to happen before sea level rise that changes everything.

M: Oh

J: That's just my opinion though.

M That's really - something like that is what I was thinking.

J: Who knows when the next natural disaster will happen in the Marshallese but I think that will be the telling sign of what happens.

M: Maybe instead of thinking of tomorrow, why enjoy right now, enjoy your life.

J: It's true. It's a good point.

M: Close enough. Something we cannot stop.

J: I grew up in Indiana on tornado alley they call it - the line from Oklahoma up to that, see Indiana. I remember growing up - towns, not every year, but once every four years a town would be flattened by tornadoes and you just rebuilt, I mean, but there's a point you know it is not good, because insurance companies will not give insurance on your house but seems people just accept the fact that they will live life how they're use to until the next tornado comes.

M: That's good. Maybe that's what we want to do here. Yeah, why not.

J: Why not.

M: That town we stay.

J: We'll see how these typhoon houses.

M: That one is really strong, you know.

J: I don't know who was telling me it but because I guess the design came from Saipan because they did really well in the typhoon that hit Saipan.

M: Yes, that is from FEMA. I don't know who kill that design.

FEMA We were ready that time because we under, we can just see from here to here.

J: Because it was still a trust here?

M: Yeah. So they buying a lot of material. FEMA one to blame. They supply in Majuro and transport here.

J: OK

M: Those military planes.

J: B57 Cargo Planes.

M: Bring all of this, even the pigs. They bring pigs, chicken on the plane and then set it onto the ship. During this time we were really over in still, I can you know ... We miss the opportunity to start all these things. Kind of you have to, but we still...

J: Are most of those houses the same since they were built?
or did people change them a lot?

M: Yep lot of them they changed the - sometime these people whenever I talk to them. Why do you change all these? Well they make it more straight. The most important thing is you know.

J: That's one thing I noticed is that the main brace is this piece so this is the foundation and then it angles out like this, rafters come down like this, but this piece, the main brace, that's just to hold the rafter tail, but this is the main piece to hold the rafters together or the trusses I guess in these houses, but people have cut it.

M: Yeah

J: So they can do that? And then they lose the structure.

M: The rafters go straight from the floor all the way up. It's really strong, but they just cut that and make it - only one wind, it's gone

J: It use to be if a wind if a really strong wind pulls that up, this is going to anchor the whole roof down, but now that you cut that, if a really strong wind comes it will blow the roof off.

M: There was a typhoon in 1957 - I was still young that time, I was five years old. - you know that church building there - that house I was telling you about, we were staying up at that, that house we were staying at, the floor is high. It was kind of a Japanese style house or something like it. The floor is wooden, wooden floor and all these things. When we raise - the wind took the house up.

J: Pulled the whole house up?

M: Yep, blew the whole house up and flat on top of us. We fell down, all brothers and sisters. Our parents, my oldest sister, we were sitting under that. I still can remember blew house like this - it's gone. The lightening, really bright, and I can see the building rip it up. You cannot hear everything. This sound is so condensed - like you cannot hear the thing fell down or sounding. Noise is chocked.

J: Where did everyone go during that?

M: We run to the back of these trees there. That's where we stay. Course fell down and just stay inside those things. Of course, the rain, maybe sand and and all these things come. It really hurt, so you have to hide (?).

J: Did any buildings survive that typhoon?

M: No. All the buildings -whoosh. Those thatches, roof building, everyone says that was all really strong weather. One of those team building.

J: Were the churches thatched too?

M: Church was tin roofing. They said - it fell down. All gone.

All the people still in there.

J: Was that typhoon worse than the one in the 70's?

M: The one in the 50's, the wind is so strong that some of the trees, the coconut trees just gone. You see big hole there.

J: Wow.

M: Yeah. Even this house, this land, when you go other side the swamp there. Lot of that kind -coconuts gone, pulled out. Even if you look at that place you will see the station of three, whew, only few like 1,2,3. My house is there, all the place there's only three coconut were standing. Everything is gone.

J: Flattened whole.

M: Look from here, look what inside, you can shout from there. I was really surprised. Seems so small because everything just fell down. The islands there -only few trees fell down, maybe the wind was only on this side.

J: Only this side.

M: That's really big.

J: Were there always mangroves? Were the mangrove always there?

M: Yeah. All the mangroves fell down, the big one. But now they just grow back. Not lot of them nowadays.

J: Hmm

M: You see Namdrik - king tide come in, you know the one with the long foot and they build this wall like stone like, lot of them - and the tide here is from, see that - that tide here is from Vanuatu or somewhere. Of course, those guys came in and make the assessment, find that the tide from the southwest, and it is going to take all of 29 days to float on the salt water and when try can go , more than this kind of, so that's why they wonder why how did they come from sand bar all the way down 1,000 mile, Kitti said he swam there. That thing was in - we started seeing that 20 years ago, 1980 some. Now it's almost everywhere, and we call it invasive species. When these team from CMI came, our auntie, when we made our study and they mango terrace with the people here, we call it one of these invasive species because it is new, but they say no you got to keep that. That thing grow in all 1 kind of climate like salty, even with water, hot place but it can still grow. Maybe it can die when water is too hot can't die.

J: OK.

M: But the other one, they say this.

J: Do you know why it's a protected - why are the mangroves protected by the EPA?

M: Well, one thing mangroves are hard to kill. They can grow anywhere. So other than mangroves - if the temperature and everything going up and the water, and all kind of tree will die out. That's what I remember why mangroves still there so.

J: So it is the last defense to hold the soil together?

M: Yeah.

J: OK because I was wondering So, I was thinking of local resources for construction and mangroves is a really good wood to use.

M: That's what we have been using all along.

J: But Dominic was saying that because it's protected by the EPA

M: Not EPA.

M: Namdrik local resource.

J: Oh. Namdrik local resource.

M: Not like, cut it down, but you can cut it down, but for like house you have to manage how you, you just take what you need.

J:MMM

M: So if people want to come down, just cut down, and bring here to respect which is really bad. So we have to educate people how to take it.

J: I see.

M: You cannot just cut everything on purpose. That is 40 year old and alop and no no. We protect that place. We are not really going to create a restricted area but we have to know how to use it wisely.

J: So you not kill it all.

M: So it's not restricted 100%.

J: I see.

M: Like the conservation area here in the lagoon. you protect it but you can raise anything you can kill like we put the pearl farm. It's not really going to be place but you know we grew protected life. Like fishing, you cannot fish in there. Fish outside of it. At least, I think. Kind of - So we put all the swamp here and we got those fancier, we cannot do that, we apply for what....RAMSAR, so all here consider on south side. Some people really get mad at us. They say: No. We just want to make sure we protect everything on the island. Just since this place only few thing grow here, so why not protect them. We really get that, consider so only 70 in the (?), so Namdrik's number 7 now. And Marshal Island apply for three five years ago but they don't get it. Maybe that long since 2009 we started, 9, 10, 11,12 we cut it we lucky to have some. So maybe next

year we have some project here. We are going to see if we can go find out you know that vision, there it's kind of black.

J: The what?

M: This one bishop...there kind of black and it's going to rot. That's the only place they can't find it here in Marshal, so we'll plant it along the swamp there. On land that.

M: Still have questions?

J: OK , going with the resource management, is there any management for the cobra? for how many coconut trees you can plant?

M: That's one of our projects, but that one came up when we do our measurement. The management cannot finish it because we are waiting for the CMI to finalize it. They are looking at making the reassessment and finish. Still waiting for them to publish it and then give it to us. But for copra, we the plan for the coop is to make plywood instead of sailing try copra we are going to see if make it and ship. So we started the virgin oil. In these three years from now, we're planning to make sure that 100% . We were trying to start to work training these guys here. But we need to build a lot of big place to do that. It's going to take a lot of space. Then took three years from now we are planning to have that, which is here we have up to 400 tons of cobra each year. So 400 tons, not that much but in one cobra, one ton it's more like 6,000 nuts when you try you get one ton, plus or minus. That's still only 6,000 nuts. So Namdrik make 400 tons that comes out 1,000 nuts.- cobra

J: 2.4 million

M: You know the corners?, I think they made only 300 nuts in one year average, so that's how we going to complete here, 'cause we was never count. We count when we made a survey, and lot of us, estimate how many coconut plant we have from that end to that end - not a lot, no. So that's why we know we had 60% of the corner here of same aisle. They have less fruit and they are too old, so we need to cut them out.

J: Oh, Ok.

M: That's 60%.

J: Wow.

M: Last time, including our replant vision projects, we cut down 5,000 total and we plant, oh we cut down 3,000 coconut tree old one and we replant 5,000 new, lot of them big - I don't know what, when we finish we plant- ?around the island. -That's one thing, we cannot control the people. There's in ordinary life, law you can kill all the pigs but kill all the pigs, that seems really kind of crazy why. You take the pig and boil them. Why let me go and kill them. I don't want to kill people's pigs. That's kind of bad. I do not want

to do that to poor people. But that is where we are at. We still...every time we have something from housing, we turn things to like have people grow their own trees. By educating them and let them that know once they change from try copra to PCU they are going to get more money out of it.

Like one time, they try putting ton to ship, they only going to get 500 dollars for one ton but if you sell for here you going to get \$600. But to make piece you by yourself and sell, you going to get up to 3,000thousand for one thing. Last time we count 200,000 some nuts and came out with 350 tons of oil and sell it and get \$8,500 which is really big when you compare it to when you wait and sell three tons and only get 1,500. But we pay these guys here, the workers and buy cobra with 10 cents nuts but still some money.

Local government here, some people not like that idea, like the ministry of high and they under the fruit security project for the army, that's part of it.

We use these grant from other countries to establish this value headed project. We bought this equipment and supplies, building place to make these things, so we can have this kind of funding too, to start this kind of projects. But first we apply for these things from the government when we made our management plan but change to PCO but they where - can give you some money and this and this but we sign up and apply for that. We applied for housing, Australian grant. For \$14,000 we bought all this machine. We bought all the machines and then men on Marshal Islands want to give us money to start here. So that's how we come up with the officio. The last 7 we are going to get 7,000, but these men, we going to feel out this man to pay off the loan. Want to have around \$10,000 cash for all this equipment for all these things.

I already placed two more (clanking? type of -hard to discern) machines for cobra. We on beach and we saw some of them in Thailand. I went to Thailand one time in 2012, 2013 to attend a meeting for cobra energies or something. They have all these kind of machines, they make their own? copra, government tree and make their own pc oil. They sell it to US. You'll see them in COSTCO, Walmart and those places. They get good money from it. That's what we are aiming at.

J: Trying to do

M: Now we are starting to talk about justification or something like that because we cannot sell it for two years and survive.

J: To survive.

M: Big requirement, because the pc's going for the food companies. We need to get a claim. I think good to sell it in two years-time, maybe someone come and help us out. How to meet the requirements. All the island will come up with something.

Other time people will get more money out of their copra. That's the that's what really gave us the ideas - mayor or son - So we set up \$500 for them and lot of works you have to try and store them in place - kind of dirty but take cobra from tree and go and sell it. You get the money back. You have to wait for the ship. That's one of the management plan, put security in all these things. Try other projects. So what you think about, out of 400 tons we usually one year we get up to \$20,000 for here, money come in. We are going to double it in three years like when you sell it for PCO, 2010 that's a lot of, change a lot of things, especially for the people.

Some people are really, you know, we talk about the land, the alap, the ownership. Some land here, sometime we have only two piece of land with more than 10 families. \$500 is really small compared to these how many people. One of the things- same amount of money cobra but money get out of that is much lower. It's going to be less than now.

Other day find out the oil company, our people think there is going to be a lot of additives, not good for our health but now it's changed.

J: Now it is the hot commodity, the health food. Coconut.

M: That's why we go for - Organic food.

J: That's what my family uses is coconut oil for cooking.

M: That's why we need to hurry up with this before they sell it we need to get it, clean and...These guys going to wear out these.

J: Hat and everything.

M: It's good because these guys are sellers too. Two weeks they buy the bed. This is another good income for their family. You know all these cashier, we pay them about \$2 per hour. Really good. They have something too.

J: Do you know what the daily income of a family is?

M: And they project - good but I don't know, kind of risky though, the product, takes long time.

J: Cause it takes three years for it to grow.

M: Yeah. Hard works. Not have money. Three years is a long time. You got to do a lot of work you have to pay all these expenses.

J. Because you only get paid, so your pay is every three years.

M: Here's, take the cobra from here, sell and get money -these guys here get money really fast.

J: And in the pro farm you lost the manager.

M: We trying.

J: Is that how most pearl farms are?

M: This is the first one in the Marshal Islands, and we are trying to make it.

J: I see.

M: Like pilot projects. Because here we use to have that oyster, grow up here. That's why we take that one. We don't need x-ray or something but CMI and the land grant, that's one thing they don't do. That's the problem we have here. We need to have 10,000 more than 10,000 in order to make it good.

J: I see.

M As long as we are under 10,000, it is not paying for itself so CMI is working with University of Hawaii, land grant program, and they come up -there's one now, going to work, this part of the things - climate change or things like that, money farm from the ocean, but lady came here and worked here. Myra (?) taking care of aqua culture at Uof H. She is one helping us one of the place, U. of H. pilot projects. Of course if they have a good hatchery, then CMI crew make...

J: So has the population of Namdrik dropped much?

M: Much? A lot. More than 50% up since 1980's.

J: Wow. Where do most move to?

M To mainland. USA and Maui. Few went to Saipan, Guam. Lot of people in Guam. Some went to Honolulu, most of them went to Tyson.

J: Yep, Tyson Chicken. Tyson cargo. George. All the plants. I stayed in Arkansas for a month to learn about it.

M: OK.

J: About the Marshallese immigration there.

M: Lot of people there. I have my sons there, just move from Arizona.

My kids went to AZ - cause we have one boy. We adopted him and at times he shop (?) Oregon, and then married to one Filipino lady in USA, and they went, now they are in AZ. I went to that place and it is too hot. How do you live in this?

J: That is why everyone in AZ has a pool.

M: They have a pool in their house. That is very good. Swim pool.

My son wanted to move out so he went to AZ. Went then to Arkansas. "Why you go to Arkansas, lot of places in US, why Arkansas?" But that place people, never again. They take their goats to AZ, miserable to be there - lifestyle and everything. The climate there really.

J: Arkansas is one of the most affordable states to live in.

M: Must be very good. So that is why they really

J: That's why a lot of people, even like retirement communities lot of them are being built in Bentonville. because it is a lot more affordable.

M: OK

J: Bentonville, that's a really nice town.

M: AZ

J: No Arkansas. It's the Walmart headquarters

M: Walmart. Oh..

J: It's right next to Springdale, just north of it 20 miles.

M: That's close, 20 miles. How is Oregon? Still OK?

J: Still OK but drought - I think we are out of the drought, last year we had a bad drought so lot of the farmers and the vineyards didn't do very well but we've gotten- it started raining in October and it hasn't stopped so we got all the water systems have been refilled. So, it's nice.

M: When I stayed with one family. They were good. The ladies were teachers at school and the guy was a lawyer. I attend there.

He owned places, some apartments in Oregon and the building there, Jimmy John's in Salem. I think he owned that too. Lives in some place - Course we went to San Francisco one time and spent one weekend there. They say you want to ride on train. I say Yes. I thought it gas one, but those cable car but so went to San Francisco.

J: There aren't any fast trains on the West Coast.

M: Yeah. That one is very slow huh?

J: That train hasn't changed.

M: What place you go and stop - besides San Francisco, San Diego or

J: San Diego is southern end of CA. Sacramento?

M: No, no

J: San Jose

M: Maybe bridge -not golden gate bridge but another one -

J: Yeah.

M: Get up there.

J: I don't know what town that is.

M: We stay at the...that's where we stay. Old and very good. They tried to assassinate one of the presidents there. Stay at that hotel. I think President Ford or what. They try to stay there besides that hotel.

I was trying to go to Oregon one time, but just the town. Their son always taking care of. He had three kids - 2-4 kids, two black sisters and brother/sister and me five. They had three kids of their own.

J: Big family.

M: Yeah. When we eat. We did dish washing - machine, lot of spoon and everything. Oh man. Dr. Irvine, the president was attending U of Oregon.

J: Oh, really.

M: So go again, I call and I stay with them. Show up and attending Oregon.

J: Was she there for college or graduate school?

M: Grad school in OR.

J: She stayed there for graduate school too?

M: I think that's where she got her MA degree in Oregon. She like Oregon. Attend that school there, graduate from school in Oregon. First time we have scholarship from

Micronesia. That's one I went to. Before we (hard to understand) in this house, she stayed there University of Oregon and got her master there too.

J: HMM

M: One girl from Yap, only from Chidi that time, from Australia she stay in Eugene. When I went to graduation there were 3,000 student graduating and I say wow. In my school we have only 10, 10 kids. There's small school. She said to me: Your school is too small.

J: South Eugene.

M: South Eugene, yeah.

J: That's why she gets tax credit.

M: Yeah. She went to South Eugene for school. Really big. 2000 kids. What? I have two cousins that time. They attend high school too in Medford. That place really good. It really quiet. Eugene good. But Eugene big public school.

J: Medford is still kind of a rural town.

M: My cousin his place. His place, you not see any colored people here so what you never, my family. They thought we were Indian. The public school thought they were Indian. (laughing)

J: You went to college with my aunt at Chaminade. You were classmates.

M :I didn't really know her then. She's younger than John (?). She attend high school and I use to go to... They are related you know ... Tony DeBrum's grandmother's grandfather is from this *wēto*.

J: So, you are related to him?

M: I am related to him. Also, mother's father is from that guy, their name ends in "ski," that is Polish. She graduated. She working at the United.

J: Get your buddy passes?

M: She married one guy and he working at the.....so they can give us (difficult to understand) From the grant there, but then on other end, Phoenix we not pay. They don't ask us to go there, no. Maybe kids go there this summer. It's going to spend one month or so while not have anything to do summer. Now I know, just a plan but we'll see. We have our things to finish here. This is my only town, so if everyone is going to go out, not me. I am going to stay here and then I want to move out. This land here, I am going

to build one small house there. When my road is there. It seems really quiet. Nobody's there. Canoe or walk. 30 miles then I use to walk on the reef.

J: When can you do that? Walk across on the reef?

M: Really depends on current and all those things. All your life and coral come back.

J: What time of day can you walk across?

M: Low tide. Good thing our area when it's high tide you can walk also. Water is around there. And those sand dunes between the island you know, when its high tide you can walk 'cause it's flat. You can walk on this land. This place there's no ...small place.

J: Small reassurance.

M: And you attend the University of Oregon?

J: Yeah. I'm doing a PhD right now. Yep, started my undergraduate at Notre Dame which is in Indiana.

M: That Catholic school?

J: Yes, Catholic School.

M: That's really tough. Tough school. Notre Dame.

J: Good school.

M: One time I was in Majuro, I watched one football game between from Notre Dame and Utah. Good school there. They're really ooooh and Notre Dame win the game. You know I wrote the administrator then all the administrators - give out to graduate cause I went to school - one more year - cause I stopped, cause I was working. Need to graduate too. I went to BYU, spent one semester there. Up to my work times one time we had meeting, specialized religion program from all US. We were meeting in Utah, Salt Lake City. That's the time I went there. After that I went to go to a secondary meeting, so I spent a week there. Another two weeks. All the people from Guam, Saipan... San Juan...went back to Majuro and wait and go back to visit.

You stay there and go to sleep now. You tell ...Lot of Marshallese go there. In Utah. We went the campus, big campus and all the missionaries school, wow.

D.2. Selected Laura Interviews

Interview with a man from Likin Atbwe Wēto

J: How long have you lived in your *wēto*?

M: Around 27 years.

J: Your whole life?

M: Yeah

J: Did you grow up in that house? No you grew up across the street, right?

M: Across the street and then we moved maybe when I was ten years old to the new place.

J: Do you know why you moved?

M: We moved because, I could say my parents could afford their own house.

J: So were they living with your grandparents before?

M: Yeah.

J: OK

M: That's why we moved.

J: OK

M: Stay together as families.

J: And then at your old house, who lived in the houses around it?

M: Um, just the family like uncles, aunties. Like everyone was related in the neighborhood.

J: Got it. And did you guys share a cookhouse?

M: Yep, we shared. That was before, right?

J: Yeah. Was it one big cookhouse?

M: Yeah

J: Got it. And did that, did those houses have the coral spread or is it grass? I don't remember.

M: What is a coral spread?

J: Like those rocks, yeah the gravel.

M: Yeah, we had that since I was little. The one that we measured? We had that a long time ago.

J: OK

M: So it never been replaced. We've never done anything new to it.

J: OK

M: same measurements.

J: Is that house plywood?

M: Yeah

J: So your dad built the house you are in now? Or was it already there?

M: I cannot say it was my dad but it was from the USDA.

J: Oh Right.

M: From my grandmothers, but before that I was here my dad built a plywood house.

J: Plywood house that was same spot.

M: But smaller than now.

J: Ok. Got it. And did you always have a cookhouse in the same spot?

M: No, before we didn't have a cookhouse. We had a small kitchen inside the small house that we have. Then when we add this one, the cement, we built the cookhouse.

J: Then when did you build the garden?

M: This is a recent project for me.

J: OK

M: I started it last year.

J: OK Are you able to make much income off of the produce? Fruits and vegetables?

M: Uh, I could say I make up to \$700, after I harvest and then sell it.

J: Ok

M: That's about \$700 plus. That's living honest.

J: Yeah

M: If I do better than that

J: Like that one, your cousins

M: Half of it we use to use it but this guy came in and took so much. That is why I told you this is a very human place.

J: So you use to use that half?

M: Yeah

J: Was that a compromise or was your cousin just being greedy?

M: Greedy.

J: Man, that's not good.

M: Yeah, man.

J: So do you like having the way it is set up now, cookhouse

M: No, everything we built I say it's not planned. It's built to ...when it's finished we looked at it and were not happy about it.

J: Now?

M: No. We just figured we needed to put this place, this house somewhere else. And something else might be appropriate for this spot. So that's why we build, break, build, break.

J: So how many times have you redone?

M: Twice

J: Because that use to be - you had built a stage for a party.

M: Yeah

J: That's right, coming back.

M: Twice. Yeah, we built without plans. Then later on we see that it is not the right place. We have to break it down and find another place where

J: How do you decide or how do you know when it's not the right spot, or when it is the right spot?

M: I mean every year the family is growing. Then other people might need space. And, I mean, this is actually a big cookhouse. We need to make it smaller.

J: hmm

M: Because a cook house is just a place to cook, not a place for no other stuff inside.

J: Right

M: That's how I grew up. Knowing what a cookhouse is for. Just to cook the food and eat someplace else. Like this one we can cook and eat here.

J: Right. That could be half the size, maybe even less than half the size.

M: Yeah

J: It's big enough to put a table and eat at.

M: We actually have two tables inside.

J: Oh, Ok. This is like some of my friends in town, their cookhouse is just - they built one of these and then just put the counter right along the house, and the fire over there.

M: Mean before when we stayed here, our cookhouse was like a roof and then a place to put the logs, the fire, and then nothing else, a place to cook. Wood table, nothing else. Just all the materials needed for cooking.

J: Got it, from then. Do you know if there's any, like where people put their house, like your house, you're going to put your house over there, how did you decide that?

M: For me, I just chose that sight because it's only my mom's side that can use that piece of land. I mean, her sisters, they are not allowed, because she was adopted, by Jacks.

J: Oh, right.

M: Grandfather. I choose that place because there's not too many houses there, so not like this place with lots of houses, but there will be maybe two, so that's why I like that spot.

J: OK

M: Isolated from people, so peaceful. I want a quiet place, so that's pretty much how I chose that. How we came to the island, I really don't know. How did my parents decide?

J: Where to have the house? So does Jack have any say as to where you put your house or what you do?

M: No

J: Or what you do?

M: No. Some, certain areas, he has plans for, like for his place right where you walk, there's a road. I tried to ask him if I could build a house and then he told me he's going to have his garden set up here so those kind of things can stop you from building.

J: So is your dad the alap of this?

M: No. He's from, their alap some places around and some small islands here.

J: OK. Is that the island you guys picnic at?

J: Ok

M: Yeah, that's why at the island we have free electricity.

J: Are there houses on the island?

M: Yeah. There's actually a school.

J: Really! Oh it's the one right there at the end of Lauren and there's the reef that you can walk across.

M: Not the first one but a few, a couple more islands and reach it.

J: Is it an all boy's school or something?

M: No. It's a Christian school.

J: I just heard a story from awhile back where a kid - where they'd run out, you know, run out after curfew and try to walk across the reef.

M: That's the school.

J: laughing

M: They exercise corporal punishment. Is that corporal punishment?

J: Yeah, corporal punishment. Like hitting and that kind of stuff?

M: It was a very strict school.

J: MMM

M: So students, sometime run away from the school during low tide. They just walk across the place. Funny place, man but now they - every student have their rights so corporal punishment has been put aside.

J: Yeah.

M: Like, even me man, I'm a teacher at school - I act like I not like corporal punishment, but sometimes I think again and make up my mind that corporal punishment cannot take me. It's a waste of anger.

J: I can see that. Back to houses. What is the most important part of a house for you? Like so when you are building your new house, what's the most important thing that your are going to put in or around the house?

M: A bathroom. I don't care if I don't have any living room. At least I have a bathroom and a bedroom. Living room doesn't matter anymore.

J: What about kitchen?

M: Not big kitchen, just do a cookhouse. Nowadays, without a kitchen your plans are not complete but before Kitchen doesn't matter too much in the house.

J: I think it is funny. I was talking with a friend Navel and her they grew up in Rita, like right next to the Salvation Army, and they had - like their house was like this but plywood. It's still there, and they had a little tiny cookhouse. Now there's more houses back then I guess there weren't that many houses. And the bathroom was outside. But then their family got back the American houses in Uluga and then she was saying how it was weird that you had your kitchen inside because you are so use to cooking outside.

M: yeah, man

J: I kind of like it though because you don't have to worry about all the ants and cock roaches inside and then all the smells stay outside.

M: I mean. Without a kitchen inside the house, it is still a house. The most important parts of a house which I think are bedrooms and bathrooms.

J: What about things around the house like gardens, porch space, patio like this, etc?

M: For me, I don't think they are very important. It's just a place for social, like reuniting after my parents were, after we come back from lunch. This is where the life, every life bring about, this table. Make jokes, tell stories, rumors, you know then morning comes. We don't usually eat breakfast. We just go straight out to work. And the only time we meet is here in the evening.

J: Got it

M: And this is where we usually gather all our thoughts. But is it important, no. To me, it's not.

J: Then, where do you spend the most time when you are at home?

M: Mmm, in my room. I mean, this is when I started using Wi-Fi in my room. But before I didn't spend time here I just went to the ball field, basketball court.

J: Mmm

M: But now man, I just love staying inside and watch American Got Talent.

Laughing That's my favorite show. Either American Got Talent or Britain's Got Talent.

J: Or what?

M: Britain. British.

J: Britain. I didn't know they had one.

M: Yeah, even the Filipinos have got one too.

J: So, what's the most important part about the *wēto* to you?

M: Ok, I think the *wēto* is completely or you cannot tell, like who you are and your community, right? If you don't have any *wētos*, that means you're not part of this community. The *wēto* is like what can I say man, it's not just a piece of land but it is where you get your shelter. It's where you get you income from mainly in terms of planting and selling so it's basically everything. Without it you are nothing.

J: Got it.

M: That's pretty much what we got from our folks, fathers or what do you say ancestors. So there is a saying: If you don't have a land, that means you are no body. Our lands are more precious than gold. That's our local motto.

J: Is there a phrase, a Marshallese phrase?

M: I don't know but I heard it that they say our - if you lose your land it's like you lose your identity. So that's why mobile moving, moving to Hilo, right, our most frightening subject to our beliefs that our land are more precious than - so if we lose our land that means we lose who we are. We're lost. We don't know if we are Marshallese or we don't know who we are. That's pretty much what I can say about it.

J: So, do you think if the Marshallese had to be re-settled somewhere else, if there's anything that can be done to mitigate that loss?

M: I don't know man. I have never pictured us moving into another place. I mean in my belief God gave us piece of dough to be secure. They'll take away from me. So that's what I believe.

I don't believe that the Marshall Islands will be right there under the water 20 years from now. Yeah we might lose some of the lands here but I don't think we will vanish. That's what I believe. And I don't know if I answered your question because I have never thought about.

J: Even if you had to immigrate like to the US. What would make it feel like home?

M: OK. To Marshallese, two big things. I mean. People in the States, they find it hard to live together. They are not use to culture here. For instance, independence, right? You have to take care of themselves. So I think when we go there, we'll have to maybe take some of our culture in order to survive. But adapting a new culture might take few years to learn it and then to be.

J: So what's the most important parts of your culture to you?

M: It's the language and food. I don't want to be like someone saying, the Marshallese are stupid because they bring this, but I mean the culture is getting weaker because some young Marshallese they know how to speak Marshallese but they prefer to speak English while they are in their own conversations.

J: I've noticed that.

M: Even though it's not the thing to speak English about, they use it. That's why I say language it's becoming weak.

J: There is a group when I was on Namdrik. There was a group on the airplane from Majuro that came. Yeah, Marshallese that came to like vacation there basically and they would only speak English when they were on their own island. It was weird.

M: Even in CMI, but our motto, you know, if you -- our motto "simen Kibek....it means: ask your neighbor about the culture. So part of our culture is language, but in CMI they are practicing English more than Marshallese.

J: So what are, So you think language and food are the most important to hold on to? To pass down to your sons.

M: Yeah, because now a days we are actually managing many diseases.

J: Yep

M: Due to what we import today.

J: Imported food?

M: What we feed our children. If we stay on our locals, we might get sick but we will be healthier than what we are now. So that's why I chose two. I don't know if other people might have their own top two.

J: language is usually in top two if not number one. Alright. I think that's it.

J: How many siblings did you have?

M: Two. They are all in the States. One

J: I thought your brother was building that house?

M: I call him brother, but you call them cousins in your culture, right?

J: Yeah, Ok.

M: Like a mother and a mother. First cousins.

J: He has over there. How big was that house? Just the size of that?

M: Same size as this one here, but there were actually three families living.

J: So how many of these old USDA houses are there?

M: 15-20.

J: When were they built?

M: Around 1990 some. 2000.

J: So, not that long ago.

M: Yeah. The newest USDA project 15+ new houses now, but these ones were the first projects.

J: OK. So what did your grandma live in before this was built?

M: Umm, about the same spot.

J: Got it. And those are your cousins across the street?

M: Yes, first cousins.

J: First cousins.

M: Yeah, that guy over there he has an afro.

J: Yeah.

M: My first cousin. Everyone here first cousins.

J: And what about the other side?

M: What side?

J: Well, like the where island radio is?

M: Yeah, those are my cousins. They, you know J's father? You know alap J? The father he adopted, the grandfather for J adopted my mom.

J: Ok

M: So, Jack's father and my mom they are like cousins, but brother and sister.

J; brother and sister.

M: So that is why J is my cousin.

J: Well, your uncle.

M: mmm: No J's father is my mom's brother.

J: So, Oh J's father is your mom's brother.

M: So J is my cousin.

J: Ok.

M: Old cousins.

J: So cousins here are basically like brothers and sisters?

M: That's the thing.

J: The culture?

M: Brother, sister is more like mom, mom. father and father, but when we say cousins it's like father and a mother.

J: Oh.

M: So cousins are allowed to get married. Brothers and sisters they are not. What do you call person that say your mom has a brother and then your mother's brother, your uncle had a sister, what do you call it?

J: Wait. So your mom's brother has a

M: Like for instance, me and my brother we have kids, we both have kids and then my son and his son, they are going to be brothers, but me and my son and my sisters son, they are going to be called cousins.

J: Hmmm. For us it would be the same.

M: Same eh?

J: Your brother's kids are going to be your kid's cousins and your sister's kids are going to be your kids cousins.

M: Yeah. So what is a first cousin?

J: That's a first cousin. It's the kids from your parent's brothers and sisters

Interview with a councilman from Jeirok district

James: Where did you live before? Just in town?

Man: I moved here because of my wife. I met my wife on Ebye.

James: Oh ok.

Man: She's originally from Laura, from that village.

Man: I'm not from that place and she gave me.. I have to move here to meet my wife so we can start a family. We met each other on E-by and then we moved.

James: So where your house is now is your wife's?

Man: Yeah, that's my wife's property.

James: Did you guys build the house or was it here?

Man: No, we lived there. Her parents built it and then left to Kauai and then we left and we are the ones who are taking care of the house and the land.

James: ok

Man: Most of her brothers and sisters started moving to safety. So she's the only one on the island.

James: OK. How big is that *wēto*?

Man: I think from ocean side to the lagoon side to the pool side is about maybe 2 and 1/2 acres.

James: Do some of her other relatives still live on it?

Man: No, just the other people that are living on the other side, opposite of us. They are related to my wife.

James: Ok

Man: They don't own the land but they came and have to stay there.

James: So it's your wife's parents - who is the *alap*?

Man: my wife is title is in the *Iroj*. She has her own. Her mother has her own.

If my mother-in-law pass away there's going to be my wife, two brothers and if they are gone it will be my wife. But traditionally the land right has to pass to the woman. My wife is the eldest woman so my children will be the one holding the title on the next generation.

James: So it will go down to your eldest daughter.

Man: Yeah, it will go down to my eldest daughter which is graduating this week. And then I have two more boys, younger.

James: OK. So the ..what are the levels of the *iroj* for because I noticed Laura that there are a lot that are Elden and there are a lot of the *wētos* that are under Elden or Hezekia on that list you gave me, but then there is also a mix of...

Man: Mix of elders.

James: You have lots of Hezekias and Eldens and then other names.

Man: Oh yeah. These are different village titles. So my wife belongs to these titles.

James: OK

Man: And the other Elden and all these are different, the other village title so we not under them, under these Elden and these. This is her grandfather. Late President that just passed away. He was the grandfather for my wife. He adopted my mother-in-law.

James: OK

Man: My wife is pretty close to this guy.

James: That is the thing I'm so confused the difference between the Iroj Eric and there's the Iroj Laplap

Man: It all falls under in history there was war going on. Way different families so that's why it's all mixed because some of the people win on some soil and some win on other soil. The one that won most of the land on Majuro is the Zedkaia family because that is the family of fought and won most of the wars, and the others didn't win all the *wētos* because they lost their war. That is why it is mixed.

James: So then your *wēto* has just two families on it? Yours and your wife's?

Man: My wife's relatives. Yes, there is only two families on it. In some of the *wētos* there are four, five families on it.

James: Yeah, I think between the... which one?

M: the one on the main road going into the lagoon ocean side.

Man: One piece of land there is so many families.

James: This one?

Man: yeah

James: So between that one and that way, I think there are at least 15 houses done and that is not all the houses. There are still more families. Like even out here in Jeirok like a lot larger *wēto* but only three, four families compared to...

Do you know why that is? There seems to be a lot of families, like this one?

Man: These are mostly brothers and sisters, cousins and all. Most of these people have jobs and they are well educated on these island compared to this set. Most of the people on this side you will see that most of the houses are empty. They have already migrated to the States to find a better job, better education for the children's, medical and all.

James: Is there any reason why? Is it just that family had more of...

M: Had more families in their realm?

J: Is the reason they are educated is because that the family pushed more for education?

Man: Could be education. Maybe...there are some people not want stay on Majuro, People are afraid of leaving to the states. Some on the ocean side of this wedge.

James: Yeah I saw, two houses are empty.

Man: Most of these people on this side are not educated. Some don't even have a job compared to the people on the ocean side. Most of them have jobs, have money. They can afford anything. They are educated. One of the things that I see like these people really don't totally go along with the custom. They don't respect a lot. But the people of the ocean side. They respect. They help each other. They feed each other. They share. But on the ocean side, the lagoon side -they share but not as much as the people of ocean side. They drink a lot, even on Sunday. They party on Sunday which is really against the elders. When you go out and you get drunk on Sunday, the elders would be pissed off so easily, because you don't have respect. You should respect God.

James: Interesting. That's what Jack was explaining how he used to, oh what was it, we were talking about whether or not they ate the produce they grew.

M: J?

J: J. And that. How before they would share. All the fruits and vegetables on the whole wide open *wēto*. Only collect what's near your house. And then he was joking how they have a Bikinian family that lives on the ocean side but because the people who live in the house aren't related to the family - I think J's son married their daughter. That it's his daughter and E, his son and his daughter-in-law get divorced - he's going to kick them off.

M: (laughing) Yeah, pretty much different now.

J: How did it use to be?

M: I grew up on Ebye. Very guarded community. We share. Our houses like five feet, three feet apart but the whole community we're all related. My father has nieces, nephews, grandsons, children, cousins. He was the eldest. He shared. When I was a kid, my father go out to the islands, to the ...islands and come back, would bring bundles of fish and breadfruit and pandanus. The first thing he would do is to split them up for different households. There wer nine households that were related to us. I was the one taking these baskets, giving it to the families. And I see a lot of things. When I went back I brought fish from Majuro, a cooler of fish and 2 and 1/2 fish in all, give it to my eldest brother and he put it in his freezer. He didn't share. Aren't you going to

share? Ah. Hardly can you find a fish on the island. You don't just go and get. Too hard to find so I tell my wife and kids different from...

J: When you first came to Majuro, was the family still share?

M: Yes, my brother-in-law and sisters-in-law, we share a lot. That is the house I'm living in. I remember when I came and I had my first daughter, my younger sister had another daughter and it was about one age younger than my first daughter and my brother-in-law had another son and they were all same age - just months difference and we share. When I go out I buy diapers, I buy three packs of diapers and bring it in. When I go and buy milk, I buy three containers of milk and bring in. Same thing as brother-in-law and sister-in-law, because when they go out, they bring, we share. Everything we bring, we share. Besides the clothes that we are wearing. And now that they are gone, well we don't share much but we help them out, even though they are in the State parts, sometime they are behind with rent and all these so we have to send them money to bail out these rent and bills. We also, cause I have my sons and daughters there, so I have to support them. We don't share food now, but now we share money, just to cover up the expenses they have. Say, the only thing I need money for here on the island is just food, clothing and all, fuel. I have good relationship with my wife own the land and she getting free electricity. We get water. I pay for water. I pay for internet (?). I don't pay for rent. I own the land, not me but my wife own the land so we just save and then whenever they are in trouble, just cover it. I'm not a guy that seek money for myself. I just share it with my kids and my wife's, so I don't really believe in saving money for myself. I save just for when there is an emergency case.

J: So I'm just curious. What kinds of jobs do most people get that are going to like Hilo?

M: They just do labor work. They work in the restaurant and the kitchen. They ...cleaning, especially hotel work, housewife services. Hardly you ever find Marshallese working in office, coordinating things, running grants, no way. Some of the Marshallese when they go out there they get this big paycheck and they say "Man, I'm making \$2 bucks an hour." and the next thing they realize they have to pay for electricity, rent, coffee, food ...and all these. Compound they would get 200-300 that's all.

J: I remember one of Mark's cousins in Arkansas and Mark had to bail him out. I don't know what he went and bought. It might have been a TV, but he didn't think about his rent, electrical bill and something else.

M: So did they put him in jail for not paying his bills?

J: Oh no. He just had to borrow money to pay all this. Anyways.

J: So what do you think, in your opinion, is the most cultural aspect of land and living on the land?

M: the most important?

J: Cultural aspects. The most important in the Marshallese way of life?

M: It's the sharing. The most important thing in the culture is the sharing. Because with the sharing it shows that the culture is still alive. It shows that we still love each other. It shows that the community is enforcing the culture and it shows that you are a true Marshallese. That's the most important, sharing.

J: Got it. Why do you think, in some respects, it seems historically the family compound use to be more tight knot so most of the family would live in one house or two houses? right next to each other? Well as now a days the houses are kind of spread out all over the *wēto*.

M: This is all because of this warring. Cultures that are coming in now. Money. All these. Long ago people just stayed in one house. And you will see in most of these households there are extended family within one house. This is what we pick up from our elders. People stay with each other. We take care of each other. To share with each other and to look after each other. Now many things are going on. We have money. It's not that I don't like foreign things start coming in. All comes in and people are then people are getting more educated. People are getting greedy and all these and they want to move out because they do not want to share. They move out because they do not want to share. They do not want to feed the others that are not working. What is... I see the point. A man actually sweats to feed the family. What kills me if I sweat and two other guys are not sweating but they are eating from my pocket so this is the thing? The people that are not working now just sit and do Facebook and they don't plan, they don't fish. If they would help with gardening and go fish and all it would be good, but they don't fish, they don't plan. They just sit, Facebook, talk story, drink coffee, all day, and all night. Go to sleep. (chuckling)

When they are hungry they come and eat from the food that I brought. From my ...This thing is breaking the culture up. It's not only that the foreign but also us. People are getting lazy. They will just sit and do nothing.

James: Why do you think that is?

Man: Well, lazy is lazy. They want to watch movie and sit in the AC plus we have, people that are from Majic- They say " I am from Majic." I own that land. I have some rights on the land. I'm getting paid from the land.

They'll say: You're not from Majic. You came here to marry my sister or my cousin. You work for us. So that's funny. I have a problem.

J: Any land basis in your village?

M: Uh Not so many. Uh The other side of my wife land was on the ocean side, the government owned...

J: Is that where they are digging up stuff? There's all those bulldozers and..

M: No, that's further away.

J: Is the government land have like fenced off and cactus like plants growing?

M: Yes, that's leased by the government.

J: What is that?

M: That's the Taiwanese farm.

J: OK, the experimental farm

M: They are doing gardening, raising pigs, and all these.

J: Basically the land that your family uses is just the lagoon side and the middle kind of, not even the whole middle.

M: Yeah, just the land. We are planning on moving to the further site, next to a school on the ocean side. We are still planning on moving out there and then clean the whole area and build a house there.

J: what's the reason to move to the

M: it's quiet. For me, I want to build so I can do more planting and less salty. It's saltiest where I am. And I can plant papaya and I can plant banana and plantains. The soil is much fertile out there compared to the lagoon side which is too alkaline and always salty.

J: Is it just because of the spray from because of the wind?

M: I guess. Maybe. And on the lagoon side of the land, I think it would work better to clear off to do a lot of planting, plant coconut, plantains, breadfruit and you won't see my house. I dug a hole right beside the road. I'm trying to bring all these organic matters so I could plant the tree of life because one of the things I am trying to attract is bringing these experts on tree of life so they can teach the community how to use or cook the tree of life. I've been doing a little research on the tree of life. I know of it, the leaves and all are full of nutrition. You get all the - the very small stems, you can use the roots. And all these.

J: Where does it come from?

M: I think it comes from Africa.

J: Africa?

M: And it grows wild here.

J: Huh.

M: Interesting. They call it monka. That's the common name. The other name for it is tree of life.

J: I'll have to look it up.

M: Yeah and you and the importance of tree of life.

J: Got it.

M: They already do a lot of study on it. They see that it is very good for human body.'

J: So the house you live in now, have you made any additions or changes since living here.

M: No, not yet. We haven't really...I was going to renovate the whole house but then my daughter graduated in Kalihi so I have to save some money so we can fly out and as soon as we come back I am going to focus on either renovating the whole house or move to the other side. If I move to the other side, I can lease or rent the house too, the government or local government. These are reduced that are coming in.

J: The other thing I'm surprised that not more like the people that move to Hawaii or northwest or where ever. Why they don't try leasing out or renting out their houses.

M: The houses that they bought.

J: Like all these abandoned houses.

M: Oh yeah.

J: Why they don't try renting them.

M: I just. Some of these people are thinking they just go and come back. But they do is they go and they get into these welfare and free money, free chow so they ended up Oh maybe I'll come back two years from now. Then the houses broke down and get old and by the time they want to come back, they don't have money to come back. They can only afford to pay the rent in all these, but they can't afford to come back and then there is OK, I'll wait for this coming income so I can come. By the time they get the income, they get all these fancy cars, so they ended up buying cars. Maybe the next income will come and the houses falling apart.

J: So they don't necessarily intend to move permanently.

M: They might just go for visit or just want to go and try it out and also if you build a house and you want to lease the house, you can rent the house, but when you come to lease, you have to go through these different islands.

J: Yeah, the iroij erik.

M: for them to sign, to agree on these and if you get all these guys, they will also have a share from your lease, not only you. So maybe - I don't want to waste time on that. I'd rather fly out.

J: What's the difference from leasing or just renting?

M: If you lease it you can lease it for a very long time. Renting you can rent for months, but when you lease it you take away, your giving away your authority to that particular person for certain year. So like 15 years you will have right on that land for 15 years once it is signed.

J: That's what the Utters did.

M: Yeah. They have a 25 year lease.

M: So these 15-20-30. You can rent for months and then if you don't like the people that are renting from here you can kick them out any time you want.

James: Mmm got it. Does your family still use the cook out?

M: Yeah. And we are sleeping in it now.

J: Oh?

M: I like the wind. I really don't want to stay in the AC. When I sleep in the AC, I don't like it. In the wind I really like it. I woke up early and week when I woke up but in the AC - too many temptation in the AC to sleep and you never know you overslept. I don't like AC. Always pretty cold. Oh good. More sleep. But when I'm without AC once I see light I just woke up. I like when the power goes out I don't have to worry AC and all these.

J: Does the house not have very good breathe through?

M: It has, but the cook house is more open space and wind coming in from different directions.

It's good.

J: It's like when I was in Namdrik, we spent a lot of time in the cookhouse.

M: yeah

J: it's a lot more comfortable.

M: It's simple. You can wear your shoes in it. You can move around easy. But in the room you have to take off your shoes. You have to clean your feet. With all these blankets and these carpet and these fancy things - I don't know why we need all these fancy things. The only thing we need is sleep. But when in the cookhouse you just go lay down sleep, rest, get up in the morning and work.

J: Does your house have a kitchen too or do you do all your cooking in the cook house?

M: We had a kitchen but we broke it down because the parts were getting old.

J: how old is that house?

M: I think like 10 years now. We are using our cook house for all the cooking stuff and all these dish washing. That way we save and lock it and watch it so things don't disappear. If you put it in the kitchen, you never know when people come and take things.

J: So the cookhouse is 10 years old?

M: The cookhouse is pretty young, not even 1 year, 7 months. We just built it and my wife and I were trying to see and we have more of this and more of this, more land. Let's try sleeping. No we staying here. We gave our room to our mother-in-law. She just came in from Hawaii.

My mother-in-law and my son they are sleeping in the house. My wife and I like the cook house and the funny thing is these people are coming in. "You sleeping in a cookhouse?" Yeah, what's the problem? "You have a fancy truck and you are councilman, you can't be sleeping in... I don't mind. As long as I get the job done and I sleep well, that's it. The fancy truck is just to take me around and get the work done. It doesn't mean I want to get fancy. I want a strong truck where I can load so many things to go.

J: Are mosquitoes bad?

M: At the cookhouse? No, we have a very strong wind coming in and no mosquitoes. If you go in the further side of the lagoon side, the ocean side where no winds at all you, will see mosquitoes. But when strong winds, hard to see mosquitoes. And we do a lot of cleaning in our own back yard.

J: To keep the water out.

M: I really don't like to leave any water, plastic, and all. I collect all my rubbish and take to collection every week. So I always tell my nieces and nephews that stay with us that I don't want to see a plastic on the ground. I don't want to see a foam cup. I don't want to

see a can. Everything has to go into a trash can because they don't belong. We put leaves, organic stuff.

I teach them and they know

J: So how many people are staying at your house?

M: I have my mom, my father-in-law that came in from Texas last year, my mother-in-law, my son, three of my niece, one nephew and my wife and I. There's ten of us.

J: ok

M: 11 and my brother.

J: Just the house and the cookhouse.

M: They are all staying in the big house. I and my wife are staying at the cookhouse.

J: How many rooms is the big house.

M: Four rooms in the big house.

J: Got it. So your parents are staying for a while then?

M: Yes, they came just to visit and they are going to leave next month, April. I'm planning on surfacing on April. They brought a brother of mine which he has a mental problem. He was using a lot of drugs when he was in Hawaii. He's really messed up. They brought him over and then he is going to stay and I am going to look after him because nobody is looking after him. So once they leave, I will be the one taking care of him so I have a lot of responsibility.

J: That's good of you. So a lot of people visiting at the moment.

M: That house. A lot of people come to my house every single day. All the way to night because I am a councilman for the village. I have other car, truck, a small car and it is an old one but I use to use for work, but now I have this new truck, people are always coming in and using my car for filling up water or going to hospital or going to buy stuff so they always come and ask.

J: hmm

M: I grew up in a very simple family where we work hard and we share a lot. I don't mind sharing with people because that's what I grew up. I was from a family where I'm known. I'm wealthy, not really well known family, poor but not really rich so I too help people a lot. So people always come to me. Not that I give them money but I help them.

J: Help them somehow. That's good.

M: Yeah

J: Do you know how the four villages originally came to be? Like when did they decide to turn Laura village into four villages?

M: Oh. No, I'm not really familiar with that history of Laura.

J: OK

M: Even though I'm 20 years old here, I don't really know the history.

J: Yeah.

M: Maybe I should ask around. These elders might know.

J: I was reading about it in one book and it was just...the historians couldn't find out. Even back in the German time it was still four villages. It goes back a pretty long time. Yep.

So is your wife's family's *wēto*. Has it pretty much been those two houses?

M: Yeah.

J: At least as long as you have been here.

M: Got it.

Interview with an elder from Erlab Wēto.

Translator: Do you have other specific question?

J: Um. Not really just there's are some things I'm interested in. We were just talking with Paul about how this use to be houses for American teachers.

M: Everybody. These use to be buildings for the American teachers and when they left they gave it back to the owners. 1950's

J: Is this school the same school or when did they build the school?

M: Same.

J: Same. OK. And then what how long ago did they turn the houses back to the land owners?

M: 1950

J: Ok. How long has you lived in this house?

M: They use to live elsewhere but when the teachers left around 1950 they started moving to here.

J: So, where did you live before?

M: That *wēto*. A kinds of touristy area.

J: Tourist town.

Translator: Its - maybe we will find it when we look at our map.

J: Yeah. And what was the, what kind of housing did you have out there?

M: Empty country. They were made out of lumber, wood and tin.

J: About how big?

M: It was small. One or two families.

J: Did most of your family - back then did your extended family, so like your aunts, uncles, cousins live like close together, houses close together?

M: Yeah. So from his experience, from what he knows, the family use to live close together. They all use to live close together, but once they all started getting their own families, they all moved out and built their own houses, scattered around.

J: Do you know how long ago people started to scatter around?

M: Around the time when they all started moving here, around like that 10 year period - (not sure of numbers 16-68) people started moving out.

J: Do you remember why the American's left?

M: So their program kind of expired and the Marshallese took over or they trained enough to take over. We had these house, the pink one, this one.

J: Was it part of the program that they built the school and the housing?

M: Yeah. They built this.

J: So when you - as far back as you can remember where there many houses going down the center road and on the ocean side when you were a kid?

M: It's very few. Once the country grows into an independent state, people started

getting their own houses, that's when the housing building began developing, when usage.

J: Got it. So what year were you born?

M: 1931, July.

J: Still Japanese? So what was it like in Japanese occupation?

M: He's 84 years now. Everything was a lot cheaper. Life was a lot simpler, cheaper. The changes now increase in price, because lot of the people, they get their finances, income from natural resources like handicrafts.

J: In the - I guess- How was Laura when this was the center of town? What was it like when Laura use to be the downtown?

M: He was just describing this was the civilian area. This is where everyone lived. Maybe everyone lived around payback. Everything like the hospitals, the government, and everybody was here and life was a lot simpler, people communicated and commuted a lot in here. It was a lot easier to get around and get stuff but now that the government moved down there and the hospital and everything moved. The former downtown a little bit to get around. Because there was a road then that they used, their main transportation services would be a boat that would take them to town for them to work and they would stay in town for the rest of the week and come back and live here.

J: So what type of work did most people do back in the 30's and 40's.

M: Um. He doesn't really know what type of jobs that they did but they would just go and help out.

J: What type of food did most families eat back then? Was it local food or was it store bought food?

M: Local.

J: So, most families sustained themselves off their crops?

Trans: What else do you want to know?

J: Were there many thatched houses or any traditional houses when you were a kid?

M: This area was all thatched. There was very little developed houses or American made houses.

They would...whatever family would need a house, they would all get together, and the community would get together and build a thatch house for them.

J: Would you mind explaining a little bit about when a community came together to build a house?

M: From all the local they pulled together and made announcements for people who were not busy around to get together and join hands and help out. The men would get all the stuff. The women would weave thatches and the men would put them together with the house, with all the forefathers and such.

J: OK. Did they still keep a similar process when all the local materials began to get replaced by plywood, concrete, and tin?

M: Because of all the stuff that was brought in, they started relying on wood and stuff and not heavily relying on the thatches. But they would use the thatches, as well.

J: In your opinion was the thatched house more comfortable to live in then a plywood house?

M: It was a lot more comfortable to live in a thatched house. It was a lot cooler.

The tin directs more heat into the house, a lot hotter than usual, a lot hotter than what they usually live in.

J: So, in your opinion why do you think people stopped building thatched houses?

M: Because it was - it requires a lot of time to build a thatched house. Because of the way her brother would like nail the thread.

J: Do you remember if there were any thatched houses that looked like this? (Showing picture). Those are the three traditional.

M: Yeah, he does. Yeah, he does remember.

J: And did they have...they were on posts, and do you remember if they had a, kind of like a ceiling but you could climb up into it and sleep there?

M: If you would want to build a bunk to sleep on, like a bunk.

J: And those are pretty common?

M: People - if people wanted bunks, they would build bunks but the more common thing was to sleep on mats.

J: What year would you say is when a lot of the housing started to change to being plywood and concrete?

M: When the Americans came in, that's when that changed. During the Japanese times, they still practicing thatched houses.

J: Did the Japanese bring in any type of housing or construction?

M: They brought in some stuff for building some houses but not a lot. They just brought in several things for several houses.

J: Did the Japanese teach anyone in their construction methods or train workers?

M: There's some houses. Japanese houses have a lot of lower windows and there are like plywood and stuff. They had some people learn how to build their houses.

J: I was curious because as I was talking to some families on Namdrik and they mentioned how even their thatched houses there are different because it was a Japanese influence. Yeah. So, since - how long lived in this house?

Translator: We already asked that question. 50's.

J: Since living in this house, have you made many changes to it?

M: These houses were very old but we cannot rebuild. Grandson rebuilt everything and got help from others in the government.

J: So, were these houses plywood - the old ones?

M: Plywood.

J: Plywood. Weather well?

M: These were plywood and the building materials were from anywhere from their leftover building materials, so they just grabbed so they could all rebuild, renovated the house. They brought them over and they rebuilt their house.

J: Oh. OK. So, you did both these houses? That house and this house?

M: People rebuilt their own. The people that live in their own, like the other house the people are living in, rebuilt the house.

J: Both these houses have a similar porch.

M: They built it as same house. Just the last one that might be renovated.

J: Since living here have there been any major storms? Typhoons or ?

M: There would be winds but not a lot of damage.

J: Ok. So, what about ...there haven't been any typhoons in your life time?

M: This area really doesn't get them. Whenever the wind changes it's the backside that gets the most pressure and that's where look inside of town, the downtown, gets a lot.

J: So, then that's just from waves?

Trans: Yes, waves and wind and gee (?).

J: Houses when you were growing up had problems with the roofs being taken off by the wind.

M: They pretty bad, the joints - Hard to understand the translator, very soft response. Maybe you can relisted here.

J: As far as using the land on the *wēto*, how much has it changed in your life time - I'm guessing from when you were growing up you maybe planted or just harvested the local foods from the trees and plants, where today there is a lot of houses.

M: The dedication of customs, what means that they have lost? The ways of the Marshallese life which is very sustainable reliance on resources there. Heavily relying now on imports and they don't practice what they usually practiced. Living has kind of seized to a point where they are losing so much of their knowledge.

J: What would be kind of examples of the knowledge?

M: For example, how to build the thatch house, the traditional thatch house. That use to be a common thing but now they look for an elder or somebody who has experience in building to kind of replicate what use to be a thatched house. People really don't know how to build them so they kind of use an alternate thing which would mean like using nails with thatches and using other materials.

J: What about managing different types of breadfruit, taro, banana, etc.?

M: Not a lot of people plant or invest in their plants. There has been a lot of change. Back then 100% of their eating generated from, had their own agricultural lens in life and now it's just if you want to you can. Not everyone wants to because you have input.

J: Does your family still grow and eat the produce from the land?

M: There's still some they still do but not a lot.

J: Not a lot. In your opinion what caused the change?

M: Because they brought in all these machines, all these technology, the just put something on the stove, put batteries into, gather wood or whatever they use for fire. They're gathering breadfruit. They just put in the rice and just cook it. Have it ready and do anything you like. Prepared the breadfruit. Life got way too simple and easy for them to live the same life where they would work.

J: What did all the people do with all the thatches (?)?

M: Some people still practice traditional weave. So he's been doing this forever. It's just an expertise. It's what he does. So, people do some things but others not so much.

J: Were you trained in the traditional way of?

M: Yeah, he was trained by their handicraft. He's been doing this for about - He's been doing other handicrafts like this thing is for 20 years. This is another thing then - bigger, bigger. I cannot split it at this point. It looks as if it should be. These are marks. (showing something.)

J: Which *wēto* is this?

M: Erlab.

J: How many families, like how many houses have families in them?

M: The *wētos*. Three. There was a lot of people living in them but houses that some people got discouraged, some people moved but there's only three families.

J: Only three families?

M: Three houses with three families.

J: So a lot have moved then to the States?

M: Moved and their house destroyed.

J: Destroyed?

M: They got destroyed and they never renovated.

J: Decayed over time?

M: Yeah.

J: OK. Over time with all the change what would you say stayed the same or stayed consistent in your culture?

M: The people are still practicing agriculture, planting their plants and fruits and preparing taro.

J: Anything else? What about the way the family lives together on the *wēto*?

M: He using an example with sharing food. Back then people, whoever would whatever family in the *wēto* would caught the fish, everybody would eat it in their house so they

would all share the same food, the same table and now it's just you know they would assume that people have their own rights, their own money to buy their own food.

J: What about the way people arrange their houses? Where to put your houses on the *wēto*? In a cluster or spread out?

T: Do you think that is going to be part of your research and their moving out?

J: Some families are. These clusters.

M: They are spread out from his point of view, because this is it's like when talking about *wētos* they call every house like one house. *Wēto* is a big house for different heads of household. So he says that this house is part of that house. Past they use to be super close to each other but now spread out.

J: Do you know why they are spread out? Like how did they make the decision that this household is going to be in this location and this household is going to be in that location?

M: Their own decision. Whether there is a reason or not, it's their own decision.

J: Their own decision because it is their house.

M: Yeah. Whatever reasons.

J: The whole kind of idea is that this big house is where the extended family lives, this family household, this family. Like this cluster is gone on Laura?

M: Pretty much, yes.

J: OK. Can't think of much more. I would like to talk more in the future. Thank you very much.

D.3. Selected Djarrit – Uliga – Delap Interviews

Interview from an alap in Uliga

M. And then we move on to the trash territory, and then all these housing were all government housing like they all are.

J: So the American administration?

M: Like all the head of the government. American consulate.

J: They all lived here?

M: All living here long.

J: And then did - was it just Americans or were there locals that lived around here?

M: When then they moved and (asking woman) Why they moved out? the Americans.

They leave and then we are own government.

Lady: No, the navy came and build all these houses. Build all these houses on the land. They started to bring their way. Some American people and some Hawaiian. And they came and train all these people and then they went back and some more people took these houses.

J: So when?

L: 1970. They return the buildings to the landowners.

J: OK.

L: Government moving. The land also. They took the land.

Maybe. 1970-75 somethings like that.

J: So, like back in the 70's were there many other - like was this house here?

It was?

Lady: Government boys - live in these.

M: Government stay in all of it. They call it all government housing.

J: So were there fewer houses back then than now?

M: Yeah.

Lady. They use to call this the American town. What's so nice? Lots of trees. All the houses were all nice.

M: They looked alike and were all clean. You can't tell when you look at the old housing, they look alike.

Lady: They use to have a bar because he had a piano right there.

Man: Open rendezvous plot. What do you call it. Rendezvous?

J: Where was that?

M: Near our cemetery there.

J: That's your family?

M: Our house we start. One family, one government. One family like that.

We all share the house, the one family. All my uncles and my mom's sisters and brothers. All of this area are all families.

J: Big extended family. How recently did most of the housing around here start to build up? When did more housing start to build in this area?

L: 1986. Henry?

M: 1976

L: 1980 some

J: OK How old is this house?

M: This house is very old. Like she said from the navy time.

J: Ok.

L: The roof we never changed it. We haven't changed it. Same roof.

Man: Same locks and everything. They all come from Guam.

L: Really strong.

M: That family, they not make blocks and rebar, and all. They shipped it from Guam.

All the government houses. Can tell all the blocks in all these buildings here, they have what do you call that, organic thing - gravel. They grind it. It's like block but it's kind of black like blood.

M: Volcanic. They are very hard. Took long time to collapse.

J: How long has the vacant house next to the tall building like over there....there's a house that, you know that two three story building? green building?

M: They just built it now.

J: The house next to it, how long has that been vacant?

M: Vacant? Oh, a few months, that guy was going to lease it. eh? They lie to the owner, my auntie, so she stopped it from them getting the lease, because they lied to her. Not give her the money she want. She bought the lease. She signed and they gave the money to a guy that sister, family not a 100%, auntie's son, so he shares the money with the landlord and my auntie now who is now the landlord tell him to stop so that's why it's sitting there like that.

J: So is that your auntie's alap?

M: Yeah. My younger auntie. That house there. That coward try to break into pieces. He said he tried to break the window but the - see the body and the blocks and everything has to be fixed. That place still old, old, old.

J: The ones from Guam?

M: Yeah. from Guam

J: Ok.

M: You can take picture of the roof, eh? Take picture of the roof of the house.

J: It builds a map kind of.

M: I'm interested in is track from CMI from all the way from there to here. Tall building on this side.

J: Which tall building?

M: Two stories.

J: Ok. CMI to that.

L: Sea wall, old sea wall.

J: That sea walls from the navy? The navy built it. How far does that sea wall go?

M: Close to this house so that's why maybe the waves vary.

J: So, your sea wall is newer?

M: Yeah.

J: Ok. So it's just behind that house.

M: Make that just to protect from the waves hitting the house.

L: Maybe water still coming in.

J: Coming in.

M: Should that side, very big space. Should be -only take picture.

J: You can take picture, video. It doesn't have to be - you can angle the camera.

M: Oh, You can angle it. What kind just like an old one, spying one. That plane, eh?

What do you call that? The American spy plane. (laughing.) Taking photo all this.

L: So this is part of your study, eh? oh.

J: I'm looking at human settlement.

M: How about that big one, climate change? Learn about the climate change, erosion. They put mark on the reef, on our reef there. Put something - not understand what they study about -how the erosion came

J: How long ago was that?

M: 2-3 years .

L: They told me, this one, they mark the wall - it wasn't working, me too much water. Ok. I ask you one.

M: If it reach the top of the blocks, on one of the blocks on our school, they say. They checking if tidal wave the waves will rise to sea level. They from Sweden. Sweden is very far, right?

J: Yep, and really far North.

M: All the way from Sweden, all the way here.

J: It's got to be the opposite side of the world from here. Close to it.

L: It not reach the block yet.

J: It hasn't reached the block yet? OK. hmm. Do you get many researches staying here?

L: Some students like you.

M: Two students: one from Hawaii, one from Japan, one from New York.

L: Students from Sweden. They call them exchange students or what. We sponsor them. We feed them. They sleep in the house. They research come back.

J: I see.

M: There's one boy, pure Hawaiian from Kailua. His name is Ikaifi.

L: Nice kid.

M: He went back. The first time I heard the song by Izzy?

J: Yeah, the "over the rainbow".

M: The fat Hawaiian guy.

J: Izzy?

M: He went back and sent me one CD and he said Oh I play all these. I like this song.

J: Yep.

M; I still have one playing now in my car. I brought it from that izzy. Mine lost before.

J: Facing futures.

M: iPhone. You drink something?

J: I've been drinking sacau with some other Pohnpeian guys.

M: Where?

M: Where at?

J: They live in Ajeltake I was staying with them. And they drink with some other Pohnpeian guys who also live out in Ajeltake.

M: I think maybe you want to put it in the car. I see you want some sacau. Maybe yesterday? You want?

J: Did they bring any back from Pohnpei? Did they bring back the roots?

M: No, they bring already They just rinse it and then rinse what do you call it...

J: The hibiscus.

M: The hibiscus stem. Then that's it. Better than kava. Kava is a powder so that's why I not really like it.

L: Do the Hawaiians drink that?

J: Yeah, they drink Kawa. I don't know if they have it. I've had it strong so it wasn't just powder but I don't know where they got the roots from.

M: That's the one that they rinse it and flame it, the one. It's water or like kind of slimy?

J: Like sacau, but they don't. They just call it, at least my friends just call it Kawa.

J: I know people in Oregon who drink Kawa and it's just the powder stirred into a cup of water.

M: In Oregon heh?

J: Yeah. The first time I ever had sacau was in Oregon because I have friends from Vanuatu and Fiji.

M: Vanuatu - Sacaw is stronger and very nice.

L: Hard to sleep.

J: So, how long ago did you move from Namdrik?

L: 1969.

M: She has to move to here so she can attend the school.

L: My parents, my dad was a teacher at that time so we come here for me go to school. That was the best time I have in life. (Hard to hear the woman here.)

J: The ones right behind the church.

L: All the way through there.

M: They are still there but behind the big one.

J: Five maybe. Five big. It's like from the community center to Protestant church.

L Use to be lots of taro.

J: All were taro were dead when I got there.

M: It's dry.

L: People are lazy.

M: The thing dry or what?

J: No, they had the big king tide not this February but last February and it flooded most of the taro pits.

L The people are lazy now. They are lazy. Long time ago when I lived here, on Saturday the policeman would walk around blowing whistle and all people would start cleaning.

J: Yeah, they told me that Monday was cleaning day, but I didn't see that many people cleaning on Monday.

M: Only a few. Only those who want to clean.

J: One of the guys I know was or hung out with was one of the police officers and he didn't do anything.

L: These people are lazy.

J: Though the first week I was there, the first two weeks the ship was coming to collect all the coffers so they were pretty busy, from like dusk until late in the evening.

L: Saturday, women make gyro and dinner and Sunday's everybody shard food with us. It was so nice.

J: It seems like the Joel family was kind of like my host family and they still did that, maybe not every week. They cooked the traditional meals at least once a week and they would go picnic on Madmad maybe once a month.

L: Do you like Fish? The ones that are black in the mud. Did you hear them go like...click, click.

J: No. Where are they? On Madmad? I don't remember that.

L: The back leg of the fish is really like a little fishand their eyes...and you didn't see those fish?

M: She mixed up with gin.

M: Human animal or what?

J: Weird.

L: What you call this one? (asking other woman?) What you call this? See, those three numbers. Shadowy like this one but this one like a fish and when you look at their eyes, they really like they stay in water and are dark brown colors.

J: They're not in.

L: Oh that's the guide.

J: The Pohnpeian guy?

L: He's American. He has been here 7 years.

J: I thought the guy was a professor from COM.

L: The one standing on..

J: So, he can go study whatever that is?

M: Namdrik - insects.

M: Fish - It's in the book? Here's one.

M: That's mommy's money, not your money. (speaking to child?)

M: How you tell the boundary lines. That picture you took. You can overlay that on top and it can show the boundary line.

J: Try to find like an original copy of that, that Matthew used. That one?

M: Yeah. The picture you took of my house here, you can put it on top and see. Where's the line. It's somewhere here or somewhere there.

J: It would be easier if I had the map.

M: The one you took the picture of?

J: Yeah. Where did you get that from?

M: Also, from ESPU (?).

J: Really?

M: Yeah.

J: Ok. Is this different than the ways the *wētos* are today?

M: Yeah. Some of the boundary lines nowadays, you know what your boundary line here? I think that the original one. It is from the Navy time.

J: It doesn't even have all the houses on it. It's even earlier because there's the catchment, right?

M: Yep.

J: Your house might be on it, but some of the others aren't, like the two bedroom is not on it.

M: If you picture on top of that one, you see this one like this and like that. Just follow the reefs and all that.

J: Yeah, I can do that.

M: And you know my graveyard there? Maybe we can go and just look. You know, they looking for a place to build a US school. An elementary school.

J: Oh, really.

M: That place is too - they can landfill that place. It is possible to put USDA wood there. But now the plan is to put US in real corner which is dark, so how can you tell. Where is elementary school? And after this alap, Marshal Islands.

J: How much space do they need?

M: That space is big. Let's go see it.

J: Ok.

M: You see the head of, the CMI seawall is over there. You see all the pile of rocks there?

J: Yeah.

M: That's the end of the seawall there. You take the next path all the way up and you see all here. They can build school over here.

J: And fill over the reef.

M: Yeah. And then we can make the entrance and have houses. OK? And all of this space will be - they might put this narrow space maybe playground somewhere here and all the school will be like that. That's what I want you to give us, so we can get. You can then print out and I can give it to my planners of the school.

J: I think if I get all of that.

M: I think you can take care of that. Eh? You on my graveyard or what? They all eroded. But it is from there to that high building over there. That's one piece of land.

This is my land. Only me and my aunties. But if interest to land, problem. This is one land. Back of all these things. That's a very big piece, build over there, right? See all those elementary school building like that? That two story one? They can do like one, two, three. Like that. So all the youth from 13 or 2, something.

J: Do you mind if I take another picture during low tide?

M: Yeah.

J: Growing up in Majuro, how have you seen changes in houses, housing, how people live, and then how people use the *wēto*? Is it still mostly family on the *wēto* or ?

M: Mostly family.

J: Where did you grow as a kid?

M: I grow up before, here. You know where CMI is? Our house use to be there. One of the housing.

J: Keep the hospital? Over there?

M: I think it is one of your...Old house

Then time to make that hospital. Old Navy hospital, and now they are planning to make that new hospital there, which is CMI now. That use to be our old hospital. All CMI now. We were living on that ocean side, under code 3, that CMI and then they move us. They told us to move because they are going to build that hospital. That's why we move from there to Rita.

J: OK. The house by the hospital, was that your families?

M: That was my grandmother's. They put out there because that's our land.

J: What were the houses like on that? What were the houses like there?

M: Where?

J: The house you lived in by CMI? What was the house made out of?

M: I think it was also like this one. I was too young. I have picture of this in my mom's album. I have picture of mom in the house. It was wooden, something like this and then instead of plywood they make one....something like that.

J: Blocks?

M: Yeah. One by two block, one by four.

J: Built by the Navy?

M: Yeah, something like that. And then we move there. I -what year was that - around '65. We grew up there. When the, what you call it, trust territories started using this land, that's the time we move back here. They set up going there. They still use that. Change to our alap school and then we just moved all houses.

J: So where did you live in Rita?

M: You know PI and Salvation Army? Little wantame. You know when you go, communications cafe. We all come to Rita, Harriet. Cafe there's a road going to Salvation Army. Salvation Army, house just like that.

J: That's where the apartments for CMI Marshal Islands teachers have.

M: Those are - former president helping. So there my houses kept, you know the house with the fence around it like that? That's for the old president, the former president and my house is right there. I grew up there. My house.

J: Is that family property too?

M: That's my mom's family. Why she got to build a house there but where the family family. Mom, I don't know maybe they asked if they could put up several. They already moved back from there, no other place to go.

J: How many people in your family lived in that house?

M: All of my brothers and sisters. The house I am talking that is my own house, but the real house from my mom and dad is on the other side. You have to see the landowner of the house. If we have the power, I can go and now my nephew, my sister's son, is staying in that house.

J: On ocean side?

M: On the Lagoon side. The main road. You know the fruit and company, you take green bay culture. That is from this side. You can see one buyer. His brothers. That's our old house. Us, my dad and my other, all of us are like seven boys and three girls.

J: Any other extended family, like aunts or uncles live near-by?

M: Like staying with us?

J: Or in other houses near- by, adjacent to your land?

M: No. Only some other people. But really this just one road.

J: Ok. Were those houses concrete or plywood?

M: All use to be half like this one. Concrete and then plywood on top. But now, my brother-in-law, my sister's husband, build it like all blocks. All concrete.

J: Did it have a cookhouse or?

M: Yeah, cook kitchen, everything. See our small patio like this for bingo. My mom use to make like bingo for the family. Like us, we always have bingo. That's for the farmer, for the, I don't know.

J: Then you moved here in the late '70s? You moved here.

M: Yeah. Move here late '70's maybe, 80's. '90's! Something like that.

J: So 1990 something.

M: '70's I was a seaman. '76,'77, '78.

J: Like in the Navy?

M: Probably from Marshal Islands, high school in '74. '75 I just hang around, drinking and all that, can't keep my.....'77,'78 I get off. My wife had hard time with my eldest son. Try to take care of. This is my good time now. No more drinking, that kind of style now. Work all the time.

J: So what kind of shipping did you do?

M: Cargo boat, cargo ship. See every time we go from here maybe - If I go from here maybe I'm generally I probably come back summer, go back, come back. Two times a year I come here. Have to go meals, sail to Palau, Thailand, Okinawa, all this, Japan, I don't know. Before Japan, go maybe Korea, come back Philippines. I like this land. Come to Micronesia. I like Guam, Saipan, all the small islands of Saipan. I go out there, you know. Going to be close to Ebye. Majuro. One week I don't work. Sometimes I took my other friends ' ship. Ok, I take your ship. I go to my island. Ok take it, like that.

J: So what did you do after working for the ships?

M: They put me on land. Lots of time, '78,'79, ...like a boat. We pull out from station Micronesia. That's the time we pull out to be like independent... That's the time to pull out and you know the ship I was work now? I think the Micronesian, they split the ship. The ships that go to the Marshall Islands. That/s when I get out and they put me ashore. I was working atlike that. I take care of the fuel, probation in all the town. Attrition like, too much work. Meet the rival of the ships. See the ships departing, check the

people for that. That's CMI. I'm not wellness.

J: That's CMI.

M: Looks like this.

J: Same cup.

M: It's the one I really benefited.

J: You're sure?

M: I'm not the one. They don't taste good.

J: The housing food?

M: The housing food. When I taste it, Ahh, something wrong.

J: How is it today?

M: I don't know. Oh very nice. What's this?

J: Stew.

M: I don't like this. Tomato, tomato ketchup. What's that?

J: Bread.

J: It's probably good.

M: You sure.

J: Yeah.

M: It's not shower? Not shower based, I don't like.

J: I don't know.

M: Ehh.

J: So when did you move into this house?

M: Around '70,80, '90.

J: When you moved in was it different than it is today?

M: Yeah, before very. - almost like the house we -

J: Just plain?

M: Not plain at all, but all...

J: Did you put a new roof on?

M: No, no. Only the ceiling now. It's the ceiling. The ceiling is still the same. Except the ceiling on some of the two by two lumbers to hold the ceiling. Heh? Those rooms are still the same. It has new tiles at this house on the closet. New doors.

J: Did you add the porch? Did you add on this?

M: Yeah. I add on this one and that one.

J: And then that.

M: That one I added too. This one use to be my road to the back. That's my closet, then make us nice floor. Last month my (hard to understand)..... When I work.

J: Did you do construction yourself or did you?

M: Yeah. Me and some prisoners. If need help, I put sign out at the prison from the correction. I tell you why - can I have three, four workers? OK, for two make cement. That's also my field. That's why I bring the corrections.

J: You built this new house? Where did you learn to do that?

M: I just taught myself. I put rewires and I put (stone?)...between the fans. Just build it ourselves. Very easy put to plow it and then reroute to the reef like that and you can make another things like this, like school. That's why you see this speaker. Those prisoner, you know, they like to come out from the jail. They like to have fresh air outside you know. Instead of staying in the like its time of pay, very hot, no wind and they upset. That like stable you full of complaints.

J: No air conditioning?

M: Yeah. Sometime we don't need it. S.... the wind. The air that we breathe very good. Here very hot. My wife work at the politician. She can also sign up prisoners to work. They sign out their names and where they go, whom they going to work with and bring them in. OK. You guys go, go travel just like this. This day we will mix the cement. All this week we can put two plows together. Finish up. Two plows? Finish today. Tomorrow we will take it out and extend it like that, next one like that, and then put it up like that. Very easy, very fast.

J: How long did it take to build that?

M: It depends on why it's labor, sometimes you have no rocks. You have to go and get rocks from some other place. No more rock like this. Put in-between the cement

and....(talking in Marshallese to woman.) Later on that's nice. I don't know. I don't know you like... You always go Wanetu (?)?

J: Only sometimes.

M: Did they buy the fruit there? You buy the fruit there?

J: Sometimes.

M: They sell the food. When people go there, they buy it.

J: I usually eat there. You get bigger portions.

M: They put different kind of seawall. Maybe beyond. Around here, the it's not really smooth. Me and my mom we don't get happy. Last time we don't. Only my brother's heart attack. Maybe that's the problem with it. High blood pressure. My mom has high blood pressure. My other brothers, they are blessed. That's why I come for....I go big, make myself slim living. I know my way now between under 85 and under 90. Somewhere there. I can go down to 170 better. Sometimes I, 90 some.

J: Do you eat well every day?

M: Not well. But sometimes I don't eat. Maybe I eat only morning, afternoon. Maybe at lunch, dinner but very small. All day I don't eat.

J: I don't know if I could do that. Were these rentals always rentals?

M: Which one?

J: That concrete house, the one next to it, the one right here.

M: Which one?

J: The one on the corner and the one right behind it.

M; Those are Pilipino houses. You mean my two house over here?

J: Correct. Were those always rentals? That one?

M:Same as the other two and that one, I gave it to my son. Like five rentals. When I was working, I started with that one. The CMI always rent that one to the Japanese. That house there, my family staying in now. That was my first rental house. That's my ,the good one, but I don't have the money or what. I start building that house there with money rent. .Village go go go village. When these two house make money, I get make another house too.

J: Just like that.

M: We started out, I retire, had nothing to do. Some time I go Taipei, sometime I go Hawaii. This is my brother, heh.

J: Where do most of your siblings live? Where do your siblings live? Your brothers and sisters.

M: Use to still live here. Only me and my sister, but my two brothers are in States. One in Los Angeles, CA and one in Honolulu. I think it's hot. I think some are in drug house (?) All of these, daughters. This daughter, I think she works in one of the hospitals in Hawaii. I don't know. She use to work at ...but now works at other hospital.

J: Queens?

M: Maybe Queens. She worked in the central, eh. That's my other son. My other brothers' son. They selling roll up yarn. like materials. I think they still do that in Hawaii.

J: Where did they live when they lived here before they moved?

M: Their houses were on that beach. Next to my uncle and aunts, my other uncles' house on the beach, on the sand. Like every house and now his other son is working, you know R, I think he's the one looking after the TV station. There is no other here. Sending the money to.

J: So what is the relationship of most of the people that live on this *wēto*?

M: Oh like, these houses are for my uncles and aunties.

J: Son is on the Lagoon side?

M: Yeah, I think. And one uncles is staying there with my mom. Two uncles and one next to Tony Muller's house and then in the middle of one, two, three, four - two uncles and all this housing in the middle.

J: Which is TM's house?

M: One on beach next to mobile.

J: On this side of Mobile?

M: House just right there and it belongs to one of my uncles. And then, houses in center are my uncle, my other uncle, my mom's house, my aunties' house, my aunties house, then the one here, the back side of the graveyard is my adopted and my uncle out here. And then, other uncle here. Then, relatives. All family.

J: Who built the, that two story building that are like, there is the green one that has a

laundromat and then the one across the street.

M: That green one?

J: Yeah.

M: Probably one of my cousins. The son of my aunts.

J: Are those apartments?

M: Yeah, they apartments.

J: Then the blue one? That they built on top of the one story, that one bedroom houses, is that a family of two?

M: Yeah

J: OK.

M: One on this laundromat. Drive up there. Only build in town but only three, two stories.

J: All of the other houses, the houses that are not the Navy houses, like when did those start to get built?

M: Just after getting, like the families they just want to make maybe extra house for their relatives or family their wife's family, or like that. That kind of house I am going to build them. They look up to you. All these houses are good, would make them better looking. This town will look cool. Like building that land of houses, no good.

J: Do you know why, the houses like this one that are just the concrete. Do you know why people just didn't renovate those, repair them and live in them?

M: Along that. They want to repair it, but they have problems with all the family. All of them are all like six in that house without father. One starting to build it, like one of the brothers, and the other brothers not like and they talking and it stops. That's why they stop.

J: So, you got disputes.

M: Yeah. I told them, you know, it's your father's place and most of them are saying no and one of the guys saying yes. One start to build for them so if they come here, they have place to stay instead of renting house. What I told. Dispute. Plan to talk about it. This guy stop. So, that is how it is now.

J: There's a few of them like that.

M: The other house over there belong to my brother, the one back away. His son is the one managing the Marshal land plot, the value track, but he says he's gone to renovate. He married another woman, staying next to weather station.

J: Out by the airport?

M: By the airport. House is on the other side. House there and then like he's not bother to, bothered by, but my brother's eldest, his grandson, my brother's grandson. I told him to build that house for you because you stay here with one of his cousins. It was a house. That house is his grandfather's house. Wait till they grow up maybe they will make it.

J: Who built the USDA houses? There's like the one right there.

M: Yeah. That one, my cousin helped out for my sister and one sisters' cousins. One there and one beyond there.

J: There's another one over there?

M: Yeah, it's by the graveyard.

J: Oh yeah.

M: Behind. You know whose house is that? Mabel's friend, the one working with the local, Lisa. Ask Lisa about that.

J: Ok. The one that's by the graveyard?

M: Yeah. That's the one housing like that.

J: Ok. They're out of town, aren't they? I think they are all out of town. So, do you like living on the Oceanside or the lagoon side of the *wēto*?

M: I kind of go there but futile (?). Nowhere else to go. When I first start to come here, you see that seawall there, lot was coming so the people maybe that why they don't like this. After that this one, heh man you have very big area -from here and we go to the back and it's very, seems very big. Like I occupy half of this land now. Heh, Better than ...I'm the landlord and everything else. I landfill it. I seawall it. That's my area, so they don't complain. They want to build houses like this, no. Go build somewhere else. Even here I put that.

J: The lagoon side was that all like - who was living all there that there was no room? Who was living on the lagoon side?

M: My cousins, Tony and my brother's house. Know that garage and my uncle and auntie.

J: So, there no s's just no space for building a house there?

M: Very cannot do. Only if you can landfill it, then you can.

J: So, are they like pretty important families? Tony

M: Tony and I, we are from the same family clan.

J: How did they get houses over there on the lagoon side?

M: From their father. Father hung around with our aunties and uncles and like that. The old people. When I come here they already have house so we cannot build the house. They are our family also.

J: Is it true that historically or traditionally the important people lived by the lagoon side?

M: Who said monkey? You, OK. (he may have been talking to grandkids?)

That's my brother's house the one. That's my brothers, this one.

J: Got it. Oh graduation.

M: Graduation from coop. Saying happiness is the highest level of success.

J; Happiness is the highest level of success.

M: Named after my brothers name.

J: Is it true that traditionally that the more important people lived on the lagoon? Like the Alap, Iroj Erik.

M: I don't know. On other islands. The Iroj usually stay in the middle of the island.

J: So the Iroj of Majuro lives way out near Laura, right?

M: Yeah. Live in the middle. But I don't really know. You ask Mark and them about some of that. ...They know what happened. I see them going there, interviewing all the old people in the other islands about that thing.

J: Alright. More questions. What is the most important part of the house to you?

M: What house?

J: Your house.

M: Staying right now.

J: Owning the land?

M: Yeah. Nobody to bother me or like tax me like that. Other places where you stay in the land, they say heh, your roof, your house roof, I one quarter late and the buyers were like that. More like If they have a funeral or they have-all these guys on the islands do that.

J: If you live on their land

M: If you live on the land they want you to come to duty. Like today, right now you don't give family, you have to move out from the land before. But now the land I am staying on my land now. Now I'm free. That's what I want. Not like it.

J: So, what's your favorite spot in or around the house?

M: My favorite spot use to be the pool place because I want to play pool. Stay in my store but now outside. My favorite spot now is the TV there. You too, I watch it. That's my favorite spot right now.

J: So, what's important about living on the *wēto*? So, like families together, living near your family, or having fruit trees and such.

M: All the things what?

J: What's important to you? About the *wēto*?

M: I don't really learn about the *wēto*. Mean like me if I grow something or developing or what?

J: Like the fact that you have your own land, you don't have to worry about it. Don't worry about giving money to someone. That would be one example. Another would be being close to all of your family. Anything else?

M: Yeah. like what now?

J: So do you, are you guys able to broil much?

M: I would grow. It comes, we planning to get some branches out, like those, you see they have the wood kind, along with them products. Somebody coming here to make. Something like this. I plan to make some windbreakers or something like that for the seawalls. Get rid of the salt spray. You know.

J: Mostly just pandanas?

M: Pandanas, coconut, everything too.

J: Are there any breadfruit?

M: Breadfruit cannot grow.

J: Breadfruit too much salt?

M: Too much salt. Now there's, these kind of things for the weapons(?)...three years local stuff.

J: The big one?

M: Yeah. All this kind of trees. See the banana there? That's the kind of banana if you fall down like that, you drink it and then be... The baby and all this, fall down. They mix the banana with water.

J: I hadn't heard that one before.

M: It's funny, you know that plastic thing, if we broil it and put oil on it. The head of that skin...

J: Like the leaf?

M: Talking in-between the leaf and the peel is like a plastic thing. It's like plastic they rip. You can see the boil coming partly, coming outside. I think it's ...if I do that to me, I go hospital. Cut it and then pain, ah. Really pain.

J: What does the factory do?

M: They make it for drinking for pain or something like that.

J: Do you spend most of your time around the house or do you go other places to spend time?

M: Around the house. Only if I go shopping or I need something, I go out but mostly I stay around the house. Why I start to get bore, I go out.

(Man talking to woman in Marshallese. 36? she answers 32.) No. You want to..?

J: I don't know if I could affordlike that.

M: It's only \$4 some.

J: An hour? Do you still have a lot of family around here?

M: Only...

J: So is your name a German name?

M: It's a German name. You'd be surprised. My grandmother's name is Lydia. Lydia is

from Europe. Portuguese whalers and Spaniards, English. So I mix. My great-grandfather is Julius, like Julius Caesar from Europe. So come to my papas' father's name is Evan which maybe is spelled before Ebin, instead of Evan they call it Ebin. His first son name is Heinrich. Second sons name is my son, J. Third son name is S, my father. Then my auntie name is M. And the youngest brother's name is E. Those are all German names.

J: Yep.

M: Then my mom on the other side half Japanese. My mom's brother is Japanese during the war. That's why we got maybe bit light skin. We all mix like German, Japanese, Portuguese.

J: Like the Hawaiians. We are all mixed.

M: Marshalese are the ...

J: Not related to the same family name on Namdrik?

M: No. They different.

J: Oh. So did you, how did you come up for the design for your rentals?

M: I just- first I make the scrap then I maybe I just plan it. I don't make a plan. I just. I build it first and then, you know those two houses there? The other house use to be mine too, one story. So I make one. Make one bathroom then I make. Then I realize I split the house so I make the wall in- between. One room here and one room here. Splitting the two, like studio or something like that. You watch the inside, heh?

J: It's pretty good.

M: I was trying to put that side low but my sons say leave it like that. Just go on. For now we can plan like that. So now we can try our.... We finish using ...what you guys tracking?

J: Just the conversation. Was there any reason for where you put them?

M: No.

J: Just put them where they are at?

M: Yeah. I was in my plan of making of making house but look at that, some house, that use to be a cookhouse too, that small house. Here, I look at that this place maybe I can, it's OK. I make the wall, I make a room and I make a rental. Like that. I plan like that, like the pool house. I make that store. It use to be a road here, too open how. There was a house there. And the prisoner house and we were allowed back yard. What's that?

Make a pool house. What? Make a pool house. OK. Just make it.

J: Got it.

M: No plans. It used to be open too but when people play. Ok, maybe close later.

J: Wind blows.

M: The wind come. They always run away.

J: Was that trailer always there?

M: Was like here. The trailers were like one, two, three, and four like that.

J: So who use to live in those?

M: I only know some teachers from, government contracts, and teachers. Because used to be like - this one use to have two bedrooms, on this side. That's not all trailers. For the, I think they share the kitchen and the shower but each stay in each one. They for the single teachers, man, woman, before.

J: Now, is it just storage?

M: This side you see, storage. Pretty like the other ones there. Pretty time make that place near the court. All the kids like to play there. So I make the court here. I make the store here, and maybe they buy everything, water.

J: There you go. Get some customers.

M: Yeah. Where you going to go after this?

J: I was going to meet. So, what's in your opinion, the most important part of Marshallese culture?

M: Marshallese culture? I really don't know what our culture is. What do you mean by?

J: Customs that you will pass down or think are important.

M: Maybe I don't really -wait here, I will come back.

J: OK.

M: I think change. Changes, I think money changes all the customs. Like you buy, if people not give you money, I can't do. If I have to: Give me my mother's share. She die and I am in charge of the CMI.

J: Did the shares thing?

M: There was a share like that. I view. I do not know. These people, like my mother she care about her sisters and brothers. She get paid from like, company there, like \$5,000; share it among them, like this nowadays auntie are very greedy. They only think of themselves.

J: So, was your mom the alap?

M: Before, she is the eldest woman.

J: But now it's your auntie?

M: All this women. They're sisters, That's the last sister. This one and when my uncles gone, and now you know our custom, you know we go on our mothers' side, my mother is the eldest and all my brothers and sisters are died those that are older than me, so I'll be the alap, it would be me. As long as they happy. Eat healthy food, I can still live longer.

J: So it would go from your auntie when she dies, it goes to you?

M: The eldest son or daughter of the eldest one woman of the family. Now,

(Woman talking in Marshallese) We got to go. She has to take care of a lot. Let's go on the side of the window. Watch your head. Very nice.

J: Yes, it is a lot nicer over here.

M: That is why I tell is my favorite spot here. Very windy. Ahh.

J: So, you don't know if they are going to continue that? Passing the land down to you?

M: It's automatically, always happens.

J: It automatically happens.

M: My auntie die now. There was just all the uncles and let's say that generation dies, so the next generation, son and daughter of eldest woman.

J: Who does it pass down after you then?

M: Be my sister who is younger than me.

J: OK

M: Then my brother in Hawaii, and after that will be the last brother. When we all die we will come to the next woman chief, like that. So right now, me now. In Majuro, we go on the man's side. Marshal on the woman's side. ...on the man side. In Pohnpei, I'm the landlord of my father's house. You want to go serve on my land. I have land now.

Maybe one day I may..

J: Do they have better man records? In Pohnpei?

M: Yeah, they have. You know like, like little brothers, we have this land we can split it, it's ok. It's my land here and your land there. You cannot come in. That's my land. I cannot touch your land even though a garage like that one. My lands are still empty, so maybe one day. Even went to one funeral, they read a stick under my name, What you here? You have to take your papa's share. ...Not here, but I will do it. Start on Monday. Share the food like that. My share they take it. You cannot come here. They come over here. You have to give it to my other cousin, my uncle there even though he got share too but she also give our shares to people because many fruits like that. My share and this share.

Interview with a woman from Uliga

J: Ok. Did you grow up here your whole life?

W: What you mean?

J: At this house?

W: No. I grew up on the other side, Makinas town.

J: In Rita?

W: I stayed until I graduated at school and I spent two years here in Lela, then I left for the states. 2005-2008 I came back and live here since.

J: Where did you live in Rita?

W: Like you know my parents old house.

J: The one that

W: The one across the Salvation Army Church.

J: OK

W: Yeah, that one

J: I just went back there today to look at the old Japanese bunker.

W: Yeah, I'm like right there.

J: Right next to it?

W: No, like two houses down.

J: Ok. So why did you guys move from there to here?

W: When my dad was young, they relocated the family. So, the American lease this part of the land and the family moved down to Makiro. So, my dad grew up in that town. When the Americans left, some of the families came back and my grandma was another that came back and asked if I wanted the houses. So it's a few years back when my dad moved down here. He still. They still have their houses there, the family houses. So, we still have the houses, but like we have two houses, Makiro and here. My dad still has a house, even the uncle right here still has the house there, My grandparents, they still have their whole house. One of the brothers, two of them actually, still stay there. They're family. They live there.

J: So that *wēto*?

W: We don't own it. We don't have any rights on it.

J: Ok. You just like lease the property?

W: Well we were kind of family friends of the owners and my, that family they were going to be the first people that live on that land, they grew up there.

J: OK. So, what was growing up there like? Growing up in Rita? So is Rita, the guy I went over with there today, he said there is a lot more houses. He lives in Teron, the middle road. And that's one- he's like the road right after Rita elementary. He said he can walk from Marshal Islands High School to home like through yards and now there's houses there. So, are there any differences between where you grew up in Rita verses here?

W: Sorry, What is? (Talking to kids in Marshallese)

J: So, what was it like growing up in Rita?

W: Fine. Cramped. People everything. Have to experience like life wasn't just big group, wasn't just the family. Houses were close together and there's the church and there's the canoe and the high school. There's a gym there, as well. We had things to do. I was always....really different from here. Then again, it's that that side is more crowded than this area also. We get more privacy here.

J: So, what do you like about living here better?

W: The privacy. The fact that we are part of this place. There's security there. We get to do whatever we like. We have more freedom here.

J: Is your place in Rita where you grew up, mostly family around you or what?

W: We had not like here. Here is close family but there they were distant cousins and we had my first cousins, they still live down there. They are much older than I am.

J: Got it. Did you have, was there anything culturally significant about living there?

W: It was the unity. It was- you can tell, you can see how people work together, the community was down there. When there were parties, everybody contributed. You see that kind of culture there. We're always helping out.

J: What about here?

W: Here. The fact that you can see how private this place is; the area is so, there's boundaries like people don't just come over to borrow. Just not anybody. It's not like this here. Like in Lila, anybody can come and go here, and everyone comes here.

J: Did you guys have a cookhouse or outdoor cooking area in Rita?

W: Yeah. We use to have one.

J: Was it just your family that used it? Like immediate family?

W: Yes.

J: What about here?

W: Yeah. Much bigger. The cooking area we have it's much bigger.

J: You guys, was it mostly your immediate family around the house or are there?

W: Here, yeah. We have immediate family. That would be my father's brother right there.

J: What parts of the house are important to you?

W: Which house?

J: I guess, you could say in general.

W: Which house?

J: It could be in general.

W: The kitchen. The living room

J: Why is that?

W: When you come here, we are always in there. Everybody. Just why. Good to have everyone in the family.

J: What about outdoor spaces?

W: It's very spacious. We have to have the basketball court and then we have the big parking lot. I like the space. It's more than we need, but then again you never know, the family is growing.

J: Do you think there is anything culturally important about the way you live?

W: Here?

J: Here.

W: The family oriented thing. It's not like back there. There it was you would go share with non-family members, just anybody. But here, it is mostly family. We have to look after each other. You can find a babysitter like in an hour. Everybody helps out. It's easier. Things are easier.. You get security. The security - I let my kids play everywhere. I don't have to worry.

J: Do you know the old taboos where you couldn't walk around someone's house?

W: It doesn't apply here.

J: Then not taboo but the other practice where the cookhouse is the center of the *wēto*. Doesn't happen anymore?

W: Doesn't apply here.

J: You did say that people don't still just don't come to the house unless they, like how people just don't come to the house, unless they know you. Do you think that carries over from that tradition?

W: Yeah. It's kind of like they have respect. They are landowners, so they try to stay out of trouble. Stay out of the spotlight. Stuff like that. They don't want to meet any attention. I guess because my dad, they own the land. They get that kind of respect from the people. That's the only thing, that's why people don't just come to the house.

J: Yeah.

W: But it's not like everyone not coming. Families are coming and you were talking the whole town. Not family.

J: What do you typically do on the *wēto*? Like typical day? Typical Saturday.

W: We community. We would be on the normal, like Saturday, be outside cleaning, the whole town everybody comes out and we all clean. We still do that. The women would get together and make food for everybody. Everyone's cleaning out there.

J: Are there any other things like that?

W: During when we have birthday parties or parties, everybody contributes, monetary or just bringing different dishes. We save.

J: So what are your favorite places in the village?

W: Everywhere. Get to talk to everybody. The whole town.

J: No specific place? Is there any one spot that is more important than others or you spend time more than others? Is there one spot that you spend more time in than others?

W: Here?

J: Yeah here.

W: Beside the store, here. Just here.

J: Is there any reason behind that?

W: No.

J: Is there any reason why you like being out here?

W: The kids are always out there. I make myself happening here. When they are running around. There is a pool. You see car coming and you come.

J: Active spot. Alright, in your opinion what does the concept to take roots mean?

W: Take roots?

J: Or be rooted to a place?

W: To be rooted to a place you have to be, there have to be sickness can. I guess you never feel like - you feel happy being there. You get to do whatever you want. You get to live. You don't have to, you don't have anybody wait for you to tell you what to do. You have freedom on your own. You get to do a lot more. You get to be an active member of the community. More active member of the community. You get the advantages of being selected like members to various community things, something, just being owners, you get all these advantages. That's my two things. I can't lie. I mean you understand how land is really important here.

J: So if it is the case that sea level floods the island, and with the next 100 years, do you

think it's possible to transplant the communities here somewhere else?

W: Sorry. I'm so sorry.

J: If sea level floods the island, do you think that the communities can transplant somewhere else?

W: Yeah. Not materially, not some material stuff, but the intangible things like the stories, the chants, the songs, the heartland of past. Yeah, whatever we can take we will take, but it would be really important that we invest ourselves in intangible culture, I would think.

J: So if there was a rebuilding by the Marshallese themselves, physical rebuilding of houses, etc. do you think there is anything that could be designed or kept similar to here, that would help culture be maintained?

W: I've actually thought a lot about that. I don't think so. I don't think relocating something different, even the setting, it won't feel right.

J: So a couple, I guess examples would be like, if you think of China town, Korea town, Japan town, etc. or something like holding on to division of land, following like a traditional system. One would be like what would a Marshallese town be like thinking about like China town or Korea town.

W: It would be the worse rise. I mean the language will be there, but the town won't be there. Have you ever been Americans. Even the people will be - we getting all the mix of things. So yeah. We will be like the Hawaiians. We have all this stuff. They are lucky they still have a place. They still have the land. They are still there. Imagine if we had the land where are we going to take our music. Where are we going to play them freely? Where are we going to wear our traditional attire? Where are we going to..

J: So what elements of your culture are most important to you? What aspects of culture?

W: I would say to promote, to protect and to promote. Preservation.

J: Of the intangible culture?

W: All the culture. Origins.

J: Is there anything about the way you live on the *wēto* that is important to maintain?

W: Like I told you. It's a historical site. It was once a really great town and I liked it. Especially in the middle of the Pacific. Have you been to Kwajalein? If you can go and look at the houses and neat they are and we love that. You have to remember that when we came back to these houses, we already have a kitchen. It was already set up, so most

of the houses do not have the tradition of cooking house or they don't have those showers so we become more American. We have the showers, we have the kitchen, the sink, the pipes, the ceiling, and the flushing toilet. We cannot left where we were just came here.

J: So in Rita you didn't have indoor?

W: We didn't bring over our cooking-houses. In Rita, we had some sort of. I like a lot of the culture, the traditional ways in Rita.

J: So was it just mostly the American houses that had indoor kitchens and indoor bathrooms, indoor plumbing and all that?

W: Mostly, yes. We didn't have any Chinese houses then. We only had American, local house. We had a few Japanese staying. They were half -family.

J: Is there any way you express your heritage in your home?

W: My mom and I do a lot of handcrafting.

J: Decorations from that?

W; Yeah. Then we still do a lot of local mats where we sit. My mom still extracts the juice from pandanas and banana juices. Still practices local medicines.

J: Yeah. Your dad was saying that he grows some of the local medicinal plants.

W: Yeah.

J: Is that taro right there?

W: Yeah.

J: How is that growing there?

W: They set up the dirt, fill in cement and fill it up with water.

J: It is like a little swamp. So where do most of the family events happen?

W: Birthdays, Easter.

J: Do they happen at the house or elsewhere?

W: Here or my dads' auntie's house.

J: Where is that?

W: Over there, right across from my family.

J: Got it. That's about it.

Interview with a woman from Djarrit

B.Stege.

J: How long did you live here?

W: Pretty much all my life. Except for the last, on and off, when I going away to school. 8 years, high school, college. Visiting like in other places like Saipan, so another four years. 16 to almost 20 years. Pretty much. I wasn't born here but I pretty much came here when I was like five years old. Lived in this spot.

J: What buildings were here back then?

W. None of these. There were other buildings. There were two buildings which were kind of over here. And a cookhouse was on this side. And I think the beach was starting from, you see where the rocks kind of stop. There was like a beach all the way. Pretty much like here where those spigots are. All of these were beach houses on this side.

J: How many family members lived in those houses?

W. There were eight of us. Plus visiting relatives would come in, you know, from the other islands. 8,9,10, with my parents, me, additional, one time 6 or more people. Basically it was just eight of us and my parents, so 10.

J: Ok. Do you remember any of like the taboo practices, still being, some of the traditional, like can't walk past a certain part of the house or...

W. Yeah, I remember those. Usually, each house has all the - where you lie down, your head is raising on that side, so usually that's where you don't walk. We have a lot of taboos about sitting on matts that belong to somebody else like there's a sleeping matt or eventually was like beds and people require beds, and can sit on the beds. But the taboos were really about - because you consider your brothers, and like your cousin come here, mother's side, mother, they're not kissing cousins, they like your sons, so you really taboos about genital contact. Cousin with father and mother - they like kissing cousins. That's allowed. Cousins who have same father and father, same mother and mother, then you really not supposed to do anything. But walking, you know, if you walking any by house you. You get down, even if riding bicycle, you have to watch and you don't shout. You don't make lot of noise when you walking by. Iroj just down the street a little bit, some of the iroj live down there, so when we walking, we have to be very respectful. Yeah.

J: Even when you were growing up would people abide by the one where you cannot walk along the side of the house where people were sleeping?

W: Yeah. It was very much, if you do that as a kid, pretty soon someone would yell at you and say, "you don't walk over there." Usually with the houses like this, usually the

ocean side of the house. Better houses with grant, with iroij inside the house. Usually, maybe because that's where the breeze comes in. So you are facing in that direction.

J: I see. When do you think that practice and others like it started to be lost?

W: Probably, my kids' generation, like Mark and Tina's generation. I mean, there is still some of that, but pretty soon after that generation than it really....

W: When I was growing up there was no TV. There was no TV even when Mark and Tina were growing up. It was starting to come in. I can remember when TV started. People started watching. More people travelled. That's when things kind of started, changed.

J: Travelled a lot more?

W. I am 67. About 60 some years ago, there were those taboos were still pretty much.

J: Were there any other important customs regarding space and how the space is used or how you might arrange buildings based on different customs?

W: I don't know about that. I only know that usually we have a sleeping house and then a cookhouse. A lot of activities happens around the cookhouse and usually you would need to, maybe not so much breakfast; you probably eat inside of cookhouse but usually like dinner would be outside the cookhouse, if it's not raining or the weather. We use kind of rocks and sit out on the lawn. That's where we'd eat our dinner. Usually, now I remember when Peter and because back then, fishing was either caught by yourself for your families. Growing up like my dad, he would do fishing a lot, you know not a lot but after work or weekends but he was working, and then so we would look out for him to see if anybody's out there, bottom fishing, like those canoes. So we would be waiting for them to come in with the families and then when they'd come in we'd go and dry out the fish.

Yeah, that was really good, so simple, nothing, no power, no electricity, just study by the lantern. You just go bed early because there was nothing much else to do. But sometimes I, we all sleep, maybe there was like one bedroom. The other house we had two bedrooms. I think there was a living room area. Most of the time everybody would be sleeping in the common area and we would just put our matt out, you know. In the morning just fold it up, put them away.

So, in terms of disciplining, you know, like chores, we were really good at it. We really knew what our chores are. There was no privacy in terms of practicing where you want to have your own space. Really what is that? Everything was pretty much done by somebody else. I don't think Marshallese really know, I think they have hard time be by themselves, alone. You know, they always live by themselves. You go and talk with somebody, but not always. Go find somebody. Always like talking. I don't think there is such thing as I want to be by myself.

J: Independence?

W: Yeah. It really wouldn't happen.

J: So, the house you stayed in, was it just your siblings and parents?

W: Pretty much the whole time. Because we had two houses, our family, when we had guests over, other families visiting would use the other house. Pretty much, because the houses were not that big so you can only put so many people in them.

J: Were the houses concrete or were they plywood?

W: No, in fact, the house that we had, you know those houses that maybe looked like that, because my dad was back from a trip, so when he came to Majuro and built that house, it was like the houses here and it was made out of wood. I don't know where he got the wood. It was a pretty decent house, two bedroom, big living room. The kitchen was outside like all cookhouses outside.

J: Was the cookhouse tin and plywood or?

W: Yeah. Tin and plywood. We never, I don't recall living in a thatched house. On the other island, yeah, but not here.

J: So did your grandparents, did they stay in...

W: I only saw my one grandmother when I growing up, my maternal grandmother. She stayed with us.

J: Did she stay here?

W: Yeah.

J: Just curious, the houses, Likiep style houses, were those influenced by the German traders, since they are different? I just wondering since they are distinct from any other house.

W: Yeah. I think so. We were different in a way because my dad who built both those houses There's a sea captain so we got a lot of that.

J: I see. When did like the other buildings around here start being built?

W: It was always because finding size (?) Because the house that I grew up in was knocked down while I was away at school. When I came back, maybe in college, when I came back, the two houses that I grew up in, were gone. But there was a house that was built, and so that is kind of where my family stayed then. This house was just like a one room house when Skylar and I when we came back in '82, we just extended the house. This house is an extension of the original that was built. The one house we stayed in.

J: Where the offices?

W: Yeah. We just kind of extended. None of these houses were here. These houses just got built.

J: More recently?

W: Yeah. After -first this one. That one was my parents' house right there. It's been renovated. Kind of see. We moved out and moved here.

J: Was it all family that was living here?

W: All family. Tribal family home.

J: But a lot have moved since? So, the original houses you grew up in are completely gone?

W: Gone. But they all made out of wood and tin roofing.

J: And then later your parents had a new house?

W: Yeah. They had a house that they built. These houses, kind of their houses. They're better than where they live, but ...my nephews house, renovated inside and painted it. They kept the back when the back (?) was always outside, the kids too. This was their house.

J: When Martin and Tina were growing up, and you guys were living here, did family share the cookhouse? Was there a shared cookhouse?

W: Always a cookhouse. The original cookhouse was like the old style. We are the ones that put it up. Everybody kind of shares. We all eat in our own kitchen in here. My mom had a kitchen in there. Lot of time when we cooking fish, eating together, we did all this cooking. Cooking was outside. Because back then nobody really had, but when we have power, but we still usually use kerosene still just to sit on, then have plywood then we would use plywood.

J: Where does the property of the compound?

W: End over there. On this atoll and studio and there's a wall over there on the other side of ...but I don't know when you guys were going up because it seems bigger right? We clean up that place. It was idle over there. (Man comments in back: There was nothing.) It seems like the Seawall was bigger because we didn't have the building. We didn't expand. We extended this, even bigger. It was little bigger.

Man: You know where you tripped, that's where the house ended. The yard use to be much bigger.

J: So, your parents were the ones who made the land agreement?

W: My mom's relative owned the land.

J: Ok.

W: Back then, you know, you have your relative, you ask them and your welcome and they open to the family. The family has been here ever since. Actually the whole

compound, this one, the house next door to us, there's a house we were talking about, that's all Peace Corps built houses, all of it belonged to my dad's family. All that pretty much. JD's mom and his uncle, they lived there, the house is right next to ours. There was another house next and two people there, and another house. It was like a family came to Majuro they would settle here.

J: Then, Have like these family groups stayed or have some moved somewhere?

W: They stayed. We stayed. The one next to other gone. The one over there is gone.

Man: Who is over there?

W: Fireman. He moved down just near you. Like two families they come.

M: This one's four?

J: Today, has everyone kind of built up since then? Built more houses than than?

W: When they moved out they build some houses on land of ours. Pretty much, Charlie, Dominic moved to this small island. Then set up his business. People just kind of move out and started their own thing. The family is still together and they gather whenever someone has an event, or someone die. We're still that extended family. System just continues.

J: What do you think is the most important element of habituating on the *wēto*?
Habitation on the *wēto*?

W: People watching things. You know the customs, when we really get it, whenever we cook food, we take plates, we share food to the point of, and plates would be going like this - from this house to their house. If there's fish, give you fish. Anything, which is always, so I guess that living as a family, a compound or whatever you want to call it, things were always shared. Not so much anymore those things, but back then always. I had an uncle who was a bachelor, he was never married. He stayed at the house over there and he would go around to the cookhouses and see who has good food for dinner tonight and he would then decide OK that he wants to come over here to eat dinner, and tomorrow go somewhere. He just going around like that you know because he went around and ate with other families.

J: Do you think that the American influence on some housing, the American style house, influences the way Marshallese live at all?

W: Not just the American style or housing, I think it's also the money kind, you don't share too much anymore. And before you could never walk in front of somebody else's food (?). It was unthinkable. So, you would never take something, but now, people like go to the grocery store and buy your food and somebody, but before you could never take anything without sharing. There is a word for it in Marshallese. Like you don't dare go without sharing. I think it's mainly when the money come. The style now before people cook inside their houses, there's no more outdoor cooking where people

come together and cook and cook together and obviously have to share the food, but now you just, everything is done inside your house. You don't feel obligated. You don't have to share something with your neighbors. It's really, yeah, the style of American construction.

J: American construction?

W: Yeah

J: That's another things I was learning in Namdrik how back in the day latest was in the '70's, where the community, you were building a thatch house, it took a lot of help to build it, so you had the whole community come, build the house and everyone shares a meal or meals depending on how long it takes. And then when they started replacing things with tin and plywood, then they started to do that less and less.

W: Less and less. It's true, because like the division of labor, when you do the Marshallese style house, you know who is going to do the thatch, whose going to put up those rafters, so like division of labor was clear. With the tin roofing and all that stuff. You know who do what. You have a cheap carpenter.

J: Yeah. That's pretty cool.

W: It's really something.

J: So if you think of how essentially the design of house or the arrangement of houses could influence a culture, what would you think are the most important things that would help Marshallese culture be better maintained? It's a pretty theoretical question or philosophical question.

W: I think nowadays we could lease land. It may not be the *wēto*. You know, that already, you know you gave the family the *wēto*. It's a family *wēto* that really connects you to your land, and so anybody in the family can come and put up their houses, kind of continues the family. Making the family togetherness and with especially in Majuro, like at the centers, outer island I think is different because people still have their *wētos* there. Same kind of religion for a lot of us. We could probably see the other island but that concept is still being kept, still going on you know, and you have that *wēto* you know where you go, you can build your house there and live there and establish your food, your plants. Without using someone else's land you can manage it, at least. So at Majuro, unless you from Majuro then, like Laura, but even in Laura, people like these there is a lot of leased land. Or you know along the island not so (?) you still see that person, people are still on there. And so they still pay to the iroij, they still do that. I think - once a year, I don't know how they do it. They still gather the fish and give it to the iroij. And nowadays, the Iroij, by asking like something beyond their traditional, if they have an opinion they will ask people to give a case of chicken or even at Christmas time, they would ask people gather money from every roof, every household, \$50 to throw in. We're changing - from food from the land to cash.

J: So, living here, was that, is it a lease or just an agreement since its family?

W: Agreement. It's an agreement. Then it continues over the generation to generation. My parents and now my generation and so on. My parents then your generation, still family but every once in a while they would collect money because a bag of rice is \$20.

J: So, still some type of exchange. What about the property in long island?

W: That is back in my name now. That's pretty much, my property.

J: OK. So more family land rights. And does it extend all the way, ocean to lagoon?

W: Just past the road to the ocean.

J: From the tree line to the tree line? Behind David's and then?

W: Yeah, you see the wall, those poles.

J: Ok.

W: There is my present for ...and his family.

J: And does anyone live in that? The white.

W: Downstairs. Another nephew - grandnephew.

J: What about the house that's like behind the little building, like this house but little building, and there's a green house.

W: The small thing?

J: Not that but there's a house behind that.

W: The one behind it? That's not ours. That is the other family that originally came - there were four families that came.

J: That's the other one.

W: So two names to the property.

J: So did that family build their house?

W: Yes, they also built. There was a house there. When I had my kindergarten and first grade. The old house. The mom taught kindergarten and first grade and that's where I went to school. J: OK

Interview with a Councilman from Djarrit.

M: I was born and raised here in the town Rita. I've seen the difference, seen a lot of differences ever since I was a kid here. Use to be, when I was the younger age we use to have a wooden house all over, so like be generous and build like nowadays like

completely everywhere you can see. I don't know why that's that, but when people build house nowadays they have housing programs and different laws and the rules to have people build the house that way. Seems everything, most likely everybody build the house by they don't own it right away, but just like a lean, you know. Some, very rare to see people build a big house and right away they have it. I mean, they give by cash. Most likely, I would say maybe 40-70% of homes on this island, they owned a housing program here. Now, lot of country houses in Majuro.

J: So it's like the USDA Marshall Islands Vault and Bank.

M: That is right

J: And then the Asian development do the housing programs.

M: When I say my brothers and sisters, we live together because we are family, village. Human family from the lagoon to ocean side. Where I grow up, most likely everyone is my nieces and my nephews, four, third cousins, something like that.

J: It's all the way from living...

M: Yeah. When we come here from the road on the way to my house, you can see a lot of people waiting to buy land. Person over here. I don't think there's a government basic standard of building the house, like the USDA have. Mainly land like a block. The pattern of the house, you know what I'm saying? They just did the house scattering. There is no set of rules saying how you have to do the house like the other ones.

J: Oh, yeah.

M: You know what I'm saying? Everybody just builds. Maybe it's just a matter of family extended, people stop by.

J: Do you know how people, how do people decide where they put the houses?

M: You are my landlord and you are my uncle, I would just come on the shore and say "Eh ...Uncle, can I build my home. " " OK, Yeah, you can - where you want to build? " "Right there in the bush over there, this sort of building. " There is no such thing, so and so, you have to approach, I don't know what they call it, the land something security. They don't need their landlord but the power, there is a matter of the agencies. They look after the houses in Hawaii.

J: So, like a building permit. Planning Office.

M: That is right. Right here, nobody do it like that. Maybe the new preacher but ..

J: So you just get permission from the alap and the ?

M: What they do is when you build the house nowadays, there is somebody who wants to build a house, in order for them to get the house, they have to fill out the forms, and the alap sign and then (couldn't understand the title of next person), another person sign and the erose. so three signatures on that one. If the alap signs but the drijerbal does

not sign, the deal of house is incomplete. He won't build it. Maybe these two can sign and iroij not there, it's not complete. All these three have to agree as one, so they can proceed on the house.

J: Who is the drijerbal usually? Who is the drijerbal?

M: Some say the alap is the one drijerbal, another one an iroij, drijerbal still same authority but a little bit lower than the alap. So alap is the one always leading the villagers. Whatever comes to the village, community, alap first then drijerbal next. But they still have authority together. Same power, but always more respected is the alap. Drijerbal means in our language worker.

J: Like property manager.

M: Yeah, something like that. It's a person that is always going. Let's say there's a war, the drijerbal, the people, the alap. It's the one fighting before the alap die. That's why we call it Jaban. Jaban is for like, you're seen but definition is ... or a manager for the alap. The alop means elders in our language, elders, someone older than you, but on the island always alap. All the time. Cooperates the alap....that's another way of saying.

J: Got it. Who is the alap of this *wēto*?

M: For example now, my parent's boy, my younger brother, is my family's alap now. And then sometime we in the family they select a user, meaning, mix younger brother. Sometimes, proper way, I was - always alap's coming from old clan. You are coming by clan. Alap always coming from old clan. 7-1 coming from younger line, so family style, so coming from the alap, younger clan.

J: Ok.

M: It depends. I don't know. What are some other things you want to know more about?

J: You were talking about how houses were wood before. Do you know who built the wooden houses?

M: The wooden?

J: The wooden houses.

M: First, in the long time, we do not have nails or hammer, right. Before the wooden house, we use to have thatch house. I live at the thatch house before. I live here longer than you living in this world, right? I'm older than you. My mother from Jaluit and my father from here. You know to get in Jaluit yet? Jaluit is like another district like somewhere here in the Marshal Islands. They have high schools, bank and power and things like that. But even in old times, when I was like, I'd say between 7-10 years old, I go with my mother to visit the alap, so I live there, I eat simple food. Fish most likely, everything, breadfruit and I live in the thatch house. About late '70's. 1970's when my grandmother still alive, originally coming from Jaluit. So, that's kind of how we say winning case but at same time, kind of make me feel sad.

Because nowadays everything going to be like the Western lifestyle. I don't know. Everywhere. I've been to some of other islands, countries, islands here besides Marshall Islands. I play the PGA groups and I see (difficult to understand here) - couple of islands, I see that there is more turning to Western lifestyle.

What came thatch, wooden houses? Thatch - I don't know what's come before that. From generation to generation.

J: So what was the thatched house like?

M: That's what I am saying, make me feel sad because everyone, everybody that the housing program, they ended up reaching out and replacing their natural house that we put up. You can quote: Nowadays if you go you see the covered houses, nice houses I would say. During the day cool, different from the country, kitchen. It's not hot but fortunately they come to renew the past. I would say twice a year, only in the winter, all these groups and that's how it is. How we say the fathers, the knowledge how they build it. The houses face the room everyone is sitting best, big families gather. Everybody get inside. They share everything they have together. You will not find any big thatch house with a roof but everybody maybe it's a way that have one mind on everything, one work. You won't find any thatch house that have rooms. Everybody just scattering with family. That's how it is. I feel sad about it because I say maybe 20% I have now skip the building. The reason why is I love it, feel younger, from Jaluit attending Majuro, that's our neighbor for that do the (not clear what follows)...Those are the things that make me sad now.

The customs, the appreciation came estranged.

J. So your family in Jaluit, were there several thatch houses or one big one?

M: I never could do where I was for more than 30 years old. I went to Jaluit just maybe just the summer in Cabal. In Cabal everybody live like this. I did not go for (unclear)... The company said where I was, with my grandmother. I asked my family when they came in - Where is that house, the thatched house? They say - We want to make (hard to understand)...so we don't like thatched houses. I guess, it depends, the younger generation. Majuro getting worse ever since I know. The kids never play like the way that our customs nature, the way we use to have very simple way of life. Everybody stays at the house is corrected. That's all. They do not even spear fishing sometime. They don't like coconut and breadfruit and all they have is (hard to hear)...I don't know. It's funny.

J: When you were growing up in the thatch house, were there, did your family stay in one house or were there a few?

M: When we live with my mother, when we live with my mother, my father was here in Majuro and he stay on ship. It take almost 48 hours, ship from here to there. First, we not have the origin of my dad, my mother but we live with our extended family.

We had about three families in that same thatch house. Three families. Anyway we had small thatch - some other people stayed there. There was limitation to living in that thatch house. Everybody, they wanted to stay in that thatch house, that one night, yeah, but sometime when there is no wind, leave the windows open, some people came out and were sleeping under the stars and the moon. That's what i really miss is the natural - no power, no electric. Based on times like that lot of people, they sleep under the moon. (hard to understand).....we can stay in thatched but people come out just to enjoy that breeze natural, nature of the breeze.

J: It's like another councilman said, he will go sleep in the cookhouse. He doesn't like the air conditioning.

M: Yeah, some people are doing that. I don't know where but I guess raised in simple way of live.

M: My brother-in-law was born from there. It's more like..... I like him because simple way of living.

J: So how big was the thatch house?

M: It depends. Maybe the thatch house I am telling you about is, I don't know, maybe it was big. I was in the corner here and right in here....

J: About the size of the one that I've seen? I was on Namdrik and there's a few. Maybe five total.

M: I think Namdrik more. Do they also have thatch house there?

J: There are five houses. One has a family living in it. I guess only one has a family living in it. The other is just one of the sons of a large family that built the thatch house.

M: It is rare to hear thatch house are still around.

J: Yeah.

M: I've talked to some people about solo. Solo is good. There is no question about it. It is good. But, I don't like to go out to the other islands. Now people have solar and lights. I don't mean Namdrik but where I think Jaluit lights 67 power. In the evening, people already have dinners together. And then, later one everybody starts to go to bed, sleep, but nowadays, solo family. People stay out late if they say they want to play games and sort of like other family. Like getting change, all of them. I don't know maybe evolution or kind of change happening everywhere in the world. The builds, the thatch (hard to understand)....they have attached roof.

J: So, then growing up here, what was it like?

M: Here in Majuro?

J: Yeah.

M: Economically, it tough. Majuro is where I think I will (unclear). I am going to die here. It is a home in comparison to nowadays 20 years ago different from 1974. I just don't like the younger generation that because they don't know the customs. Gang wars. They start all of this. Horrible. Lot of kids, they grow up here, they go away to mainland. They go out there and some never come back. Some they come back here. So, I don't keep them wrong. Some of them. I think they do respect us. We have the same nationality. They say: Go this alap. That means: Respect your elders. For example, (very hard to understand with or without ear phones.)....Fishing, breadfruit. I would say the place is changing. (difficult to hear). I would say to all my relatives, if you love this country...(unclear) nobody else. You are the one....(unclear). As far asmaybe you go from two alap, nine to 10 hours. Traditionlanguage and.....

J: As far as how your family lived, 20 years ago, verses today, how has that changed? or has it changed?

M: Many things. Maybe one of the before now is uhhh, 20 years ago I see people tell me
....nowadays, like I say, life is...., everybody, they all don't share all that they have. They..... (not understand). Foods change things. There are times...breadfruit was the main. They not like breadfruit. So a lot of things change. Lifestyle, food.

J: Did you grow here?

M: In Majuro? Those breadfruits you see right now, those kind of breadfruit, my father. It's not our house. They just killed them. ... On the top bring the fruit down. I think Ifor the family. They are the one ...the breadfruit. Call me and use the pole. There is no.. onlyyounger. Yeah, don't scare me, don't scare me. But my agethey'll climb.

J: Are there a lot more houses now than were 20 years ago?

M: That house - they build the house differently. Mostly, because people coming from other islands. Federal education shipping better...

J: So no longer just family living on the *wēto*?

M: No. Kind of was, I say, I have related, my cousin married to a person from Jaluit and then Jaluit people, they come to person and ask permission to build house and the guys build the house.

J: Some of the families I interviewed in Laura, had a son married, woman's family from Bikini.

M: That's how it is.

J: Yeah. Because of that it changed things. Family. How do you think that changes how the family socializes?

M: Including the alap or the village - when that allowed house, that's when a lot of people come and more contribution, and probation on this *wēto* likethen alap is the one making, the festivals, lot of people sometimes. I think about it, crowded, lot of people, sometimes violence.....extended family, one or two people working....that's how it is. I'd say good food.Some kids grow up with ...certain peer pressure take place....not bring the knowledge of the people. (The wind or whatever is preventing me from hearing clearly the conversation.)

J: As far as life on the *wēto* or living on the *wēto*, in your opinion, what is the most important aspect of the *wēto*, and living on it?

M: Personally, I don't like it, but I live near church since I was originally born here with my parents. Majuro is designed to be the capital of the Marshal Islands. We don't chase people when they come and ask to use the *wēto*. Everywhere you hear how Japanese people build townhouse. They humble and want to take care of *wēto*. Sometime I like it. It's always us to the alap. (?) At Christmas time church have Christmas customs.....there is not many family but.....on the *wēto*.the alap...

Think that, maybe he won't like it. Children in the family are suffering too. They all need money, mother, father. That's why..... I want a *wēto* that is very simple. I believe in simple with no cost. It's a poor country. Most coming are working for government housing. Donating income from houses. The government and 40% of our own living from cobra or fish. In *wēto*, there is house, I like it. Sometimes I don't like it.

J: When I leave the *wēto* for the outer islands produce money, cobra, food and everything. Here you don't have it. It's just houses.

M: Every week we put cobra down in the public areas. They struggle even from college, some houses are - some houses given the families. They don't have adequate income source, but everything here is so high. Even on Marshal Islands the people ...live on *wēto*. The alap in town for people who live on the *wēto* ...summer. If you don't work nowadays, you don't have anything, maybe \$75.

J: What do people do?

M: They go to the alap. Maybe don't believe in alap, you go to alap maybe last week and ask for money. They go around the *wēto* and say if you.... don't keep us. It's happening sometimes here. People say that this guy is the alap of the *wēto*. He say: "If he doesn't want to listen to me, to follow my instructions, maybe one day I'll kick him out." That's another thing about living on the *wēto*.

J: How long ago were those here houses were built?

M: I would say, Houses, that house? Around 20 years ago. This one about 15 years ago. My sisters was built recently. They came. We built it bigger.

J: Were they all from plans (?)

M: Yeah. When I built my house there was different ways to from plans. My sister and brother built house from that housing program. The reason why.....long time

J: Why are your family houses in this spot?

M: Let me start from the beginning. Majuro was starting to be capital of the Marshal Islands and this one house, people in the family...One day we say OK I want to build my house and we ended up building ... Actually that wooden house before. My father built this house. That's how I come to this house. They built this house for my older brother, my sister, my cousin. We are all around here. This is where we started. They prefer to stay here in Majuro rather than ... That's how, the reason why we leave Majuro. Here the village is my father. He have breadfruit. My dream so we can eat. So I was planning....because we live here.

J: Do you. We are going to draw a map from memory. It would be a good exercise, to draw a map from your memory. This was your father's house, kind of how many trees were there verses, imagine walking one end to the other, what it was like.

M: You talking about near my fathers' house. Did you see the house there? It used to be trees.

J: I guess if there were trees, you couldn't see the ocean, but were there trees to the ocean or were there still a lot of houses?

M: In the old days, trees to the beaches. When we build a house on island, this house .. They prefer to build a house on the shore. See this shore.

J: So most houses...

M: Very hard to see people build a house very high. Reason why...alap of island... no building so build house on shore. In those days, friends live local on shore. The families live on the shore. Nobody live here on this side.

J: That's similar toGrandparents house, not much of anything going to the ocean. Then your dad built in the middle of the...

M: Yeah. Reason why, my father kind of like ...We use to have lot of bananas. You can see some. When I was young, everywhere is bananas. I remember the story. He said: The reason why I want build in the middle to have breadfruit. The breadfruits in village from my father. Nowadays ... here people building the house three story (?).

J: What would you say has changed the least, as far as like the ways families living here?

M: On the *wēto*, when they sign the lease, get permission to build it's not the lease like on Hawaii or Mainland on the island is forever maybe or sometimes based on how they borrow money from the bank or something.

J: So people will do like a - so Asian businesses will do that?

M: Yeah.

J: To lease it for a long time.

M: Yeah. That's right. You know, in the life before they conquer by the US, Japanese or German, not use money at all. We didn't know what money like. Money like. The more money you have, the more power you have. The foreign family in the country, that's how we...They sign the lease to have permission to live on the *wēto* because you are related. You are my cousin or in-law or something like that. There are some people nowadays come foreign style to buy the land, to lease the land, so most likely, the housing program when they sign, the housing company, the alap say just learn, money for it.

J: What do you think over time has stayed the same that has not changed?

So like, even the fact that this house is built on the same spot as your dad's house would show that it stayed kind of the same, but also like the fact that families are living together would show that it stayed the same.

M: Thank you. That is a good question. I think since my brother. I am number eight in the family. I'm young in the family. That is my sister. She is number three in the family. Another is number four in the family. So, we still have respect for each other. You work for your own. We still share our food together. It's because we still follow like our parents, the people doing this kind of style to the other people on the *wēto*. Stranger share the breadfruit. I still remember in my mind that when I was a younger, my father when he climb the breadfruit, I thought he was old and the person the breadfruit belong to my family, the big family. My father come out and say you take two breadfruits to each house on this *wēto*. So I bring the wagon and go house to house, door to door, here's the breadfruit from my father share. So, we still kind of share. Sometime my father, my brother, or regular...we still share. Take the rice, the barbecue, chicken, we still...we believe ...even if little, we share it. Because my father...we always share and care.. This shrinking.

J: Are there any other traditions like that you try to carry on ?

M: I don't really have that much nowadays. We have this care. If problem, we try to solve in the family. I don't have, I have to think about that besides sharing.

J: Do you guys have a cookhouse or does everyone have separate cookhouse?

M: We still have cookhouse. We share the fire with the family, share the knowledge. Western Lifestyle. Have my own kitchen. We do not eat like when I was younger. We eat simple food. I really don't care for Western food much.

J: When you were growing up, did your aunts and uncles live on this spot?

M: Yes. They all are gone. There's no...except my wife. We are old, nowadays, everybody is gone. Very rare to see.

J: Mostly your generation?

M: My generation. My eldest brother is the one now we expecting as the alap. The alap is for the *wēto* but one to share...this is what I want, follow this section and we follow.

J: How do you think climate change is affecting the *wēto*?

M: The *wēto*? I still want to convince myself that it's climate change over generations. My family owns house, small house here in Majuro and I frequently go to the islands. Please to have lot of breadfruit, bananas. When I go on the land it seems everything is dying. We can all see that climate change like the ocean. Climate change is really affect life around. You can see that. I think it's getting warmer and far as the....Only the island seems scary because there's climate change taking place nowadays. And climate change probably expensive. Find somebody to take our living to just outside.....

J: On the ocean side and the lagoon side, has there been more erosion affecting the houses on the shore?

M: We have. There is a big....now...flooding, people say destroy their place because sea level is up. People build their own seawall. There's sea wall here kind of ruining....starting here.....go to \$60,000 to build the sea wall. It is affecting planting. Nowadays, I see people along Majuro keep building...

J: I think that's all the questions.

J: What part of your house is most important to you? Can be indoors or outdoors.

M: I would say, almost both of them, but I would rather have outside.

J: Outside?

M: Yeah.

J: Like what kind of space outside?

M: Just affirm right now, because I love grass. I wanted to have kind of thatch but I didn't have. Fresh breeze all the time. Sometimes I am inside but I'd rather stay outside, for example when there is no power, at night time I sleep on the grass. I want to enjoy the breeze. Natural. I go out with my bed. Very simple life. Very humble life. I have my bed way down the hills. Living here, like living long time ago. Very humble life.

J: Is there anything about the way you live that is important - important customs that you live by?

M: I would say, yes. The land that I live on is where I started. Built my skills. This land, Inherit from my dad. This is where we started. We like pulling weeds, my dad from the switch. Go fish all the time. Certainly, I would say this is the place where I started, learning to fish, local way of doing, skills, and the knowledge. The soil, when I see around, it's like I see my dad. Because of him, my dad I can be somehow contributing to the public. And I am being grateful for this banana farm. Trust me,

people think that I can do something, maybe at least better way, in good way for them. So, I never go outside beyond this boundary of my dad. Outside. Yeah, in fact but there are others way better than where I live know. But I always came back home. Came back to my roots. When I go to school it made me, I didn't find myself. What's important? I have everything on this soil

J: In those regards, what is the most important thing you heard, that you inherited that you want to pass down to your kids?

M: That's a good question. Thank you. I would say that nothing fancy over here right now. The knowledge that want to pass to my sons. Do the same thing. The way that my dad taught me to care for everything. Things, everything gone one day, the thing I want them leave to remember is to care for others. That is basically what my dad wanted me to do. Important things, I don't know, pride, what to say but I make it better, like pave the road and make it humbly. I want my son to have the same thing. How he can be inspired personally. One day the only thing that

I want is to care for others. Eventually, I would say that this is where I started.

J: What would you say is important about the way you live together with your family on the land?

M: I think the way, I would say is most important right now is, the phrase that I wanted. The phrase is I love sharing and caring. The more we care and share, the stronger unity can we have. For now you see, just recently see my nephew. Son of one of my sisters around here taking care of my place. He doesn't ask for how much for that but just because we share. When we kill one pig, not only my wife and my family, my kids, just like the whole, brothers, sisters around, cousins around, we share. At least, eat and share together. So, when we get together the bonds, what makes better village here, everyone takes care of one another. Sometimes we do not have food together. We share the food together. My dad's breadfruit trees around. We don't have to go around reminding people to give us food. We just go climb breadfruit and that part we share with people around. The young family too. The village.

J: Do you know the concept the nuclear family? Like the American family is pretty, so when we think of family in the states, we think of just your brothers, sisters, and your immediate family. Do you think here the concept of family is a lot broader than just that?

M: Well, if you, remember previous meeting together I was kind of saying, the bandage the family together here. Don't get me wrong the environment and the government with issue of culture, I'd say that we still in Majuro, live different after 20-30 years old. The family bond is starting to shrink. Money is displacing everything here now.

J: Right. I remember.

M: Money kind of make you popular. The concept - My neighbor respect me because I am the alap. He respect me because I have money, something like that. So, I think the

family, the extended family here is ok but here in Majuro, getting farther and farther. I would say maybe 50 years from now total different. Maybe other islands still have more of the family together, more when they make cobra together, stronger and faster. Today is totally different.

J: So, it's more kind of about the individual.

M: That is correct.

J: Than the immediate family.

M: Looking at the Culture - separating the house, separating the kitchens and that. In old days, everybody eats from one only one cooking house. The fire on ground. When everybody fish, bring the fish and we put fish and- cook fish here. That's way we sharing and caring. That use to be our way of life here. But all I see now, In my generation everything is different from 20 years ago, 30-40 years ago. So I say still carry on. Partly, particularly I say...

J: That's interesting. How now the kitchen didn't use to be separated. They shared the cookhouse.

M: That is right.

J: The important part what I study is how architecture or a house, certain style of a house, can influence the way you live. If you think about a lot of the houses today or almost all the houses today are influenced by the Western style. So everyone has a kitchen to themselves for the most part. Not everybody.

M: That's right. So I don't maybe experience Majuro life style and Namdrik lifestyle. I don't know what is in Namdrik, never get to Namdrik, on Majuro. I bet, I don't know if still exist somewhere just like the other islands. Some still keep it. Very strong. They try to keep it very strong. Some are gone.

J: Namdrik keeps a lot of traditions still. Even like families who have their own kitchen. There was one family who just used their kitchen. The other families they never used the kitchen because they had their cookhouse that they shared with the rest of the family, other members of the family. They still keep that custom, tradition.

M: The problem that I see today is lot of old people, old age people, coming from other island... just go to Hawaii. What I am looking at, they go with lot of people and they spoke and when there stop. One thing I regret, but I still try is to keep the way of life. I do that. My dad could do that. When I talk to him, I kind of know, I don't know why but when I with him I kinds of ignored, I don't know why but the skill not have and now I regret it. Wish said to dad - teach me more. With my son I constantly ask him on computer... The thought is, I should have. Affecting only 2-3% of local.....the way. It's the kind of thing that made me come and regret. A lot of old people. I see...and say wow. Some there and not so there. Watching old people. When did they go there and what have they done? Did they live separate?

J: That's like when I was working in Laura, people kept saying, I'll have to go to Arkansas to talk with the elders because none of them live there anymore.

M: So it's pretty much money to hear that.

J: There is a group called Marshallese Education Initiative in Arkansas and they are doing a oral history project so they are collecting oral histories from all the elders that live in Arkansas.

M: That is wonderful. That is good.

J: At least they are trying to record it so the local Marshallese there can learn from the stories.

M: What I would do in the near future is I want someone - I quit leading the colonies, maybe 10 or few more can talk politically and at the same time can talk traditionally , very strong both of them. Set up - he can do like for example, what you did at the same time. So, I would say that is a great leader. Why, sometimes I ask my wife, I should, Wife, why do people still call us Marshallese since we do not know how keep all strong. Kind of make me mad sometimes. They call me Marshallese. You act Marshallese that is true but are you a real Marshallese? The language is getting changing every time, especially compared how we use to have. That's really Marshallese. And we still have chance fortunately to learn. Maybe government have to Find better way to keep the tradition, the culture, otherwise not getting tradition. Comes from....really quick and fast.

J: So, what do you think can be done to prevent it from being lost?

M: I think one of the things we have to start is to have the government create this one thing after another. Instead of only thinking about bringing the goods from outside. First time, we have to start from ourselves. And I don't know, maybe the CMI or the thing that is owning the language, I don't know. If we have someone to have the training on the way that the thatch house.

J: The traditional method?

M: Yeah, the traditional thatch house. And how we say teaching respect from the primary school, the younger. I just I don't know. I might feel I really not contribute and do the tradition. I try everyday to keep this life. Thinking about money in the bank ...inside and outside and I thinking that's why. I myself find that I miss one month collection last November. You'd think that make me trying to convince myself that I can do better. Sometime I working in the manner that we live.Do I have to do the foundation or do I fish. Change my career or suits my way to the government to wake up the people, something like that. I'm not saying that I'm smart, but what I am saying is that the feel of the language I haveis very important for me. Lady in the middle passing ocean that makes news will islander, particularly culture and ... I talk to my wife

sometime. When you talk to the people in Majuro, the local people for mix news. The language now, we adapt the work.

J: Credit, yeah.

M: We talk to the people to try to break it down. Try to break it down as far as you can in the work. Besides this, we do not recognize nowadays. Facebook. Wow. It's getting worse here too. You going to make friends all the time. They really don't. When we come to get together. I don't like it. It's good. Its best, the language. There's no tradition the family world. That's the mainnow. At the same time, you have to have somewhere you have in common. For me give of yourself.

J: What are your favorites places on the *wēto*?

M: That's pretty what is most important. I use to love the *wēto* that I live here. Far as the climate thing changing from half the time. I don't like the *wēto*. This not my favorite *wēto*. I consider myself I love all the *wētos*, in general but in particular, there are several things that make me think I don't like. I don't want to be in that *wēto*. There are some *wētos* that have good things. Generally speaking, obviously, I love my own *wēto* because the *wēto*, the more people

I know where I came in Majuro, going around the *wēto*. I feel more comfortable because again the environment, the lifestyle and everyone in the *wēto* has their own unity, based on the alap, the landlord that he owns, how do you say this word, strategy, they have their own way of living. Speaking, seems complimentary to alap on the *wēto*, people there.

J: How would you describe the way of living on your *wēto*?

M: One thing, again, we started from the family. Everywhere I go, my cousin's house.... That's my dad's site, a lot of people live here on my dad's site. We like and my mother from Jaluet, on the village from Jaluit, they live here too. So, I love this *wēto* because there are just our people.have lot of respect related to my job here. The *wēto* I would say this I love this *wēto*.

J: So what are some things you don't mind about being

M: The thing I don't like that make me sad today that young generation, we have some *wēto* issues that we need to talk about now. Help. i would say younger generation, the thing I don't like here, there is a lot of , for instance younger they get drunk. They away from their home and we have to call and say pick up your son. Now they tell me, the person, I don't know. Even when the police pick them up. It's no life. Drink....the younger generation lifestyle be - sometimes they are fighting around, here in this *wēto* and we have topeople around all the time, and sometimes here to people drinking Sometimes someone of relation invites, having people from outside, strangers come to this village and drink here. That's one thing I don't like, especially drunk people.

J: What does the concept to take roots mean to you? To take roots or to be rooted in a place. Like a tree root. What does it mean to be rooted in a place? So, like rooted in the land.

M: I think it means a lot for me because I want everyone here to grow up in humble ways we have here. Own generation. The tools. Sorry that the future people here, they just being selfish and think they better than others. Having the heart to work like one *wēto* - like one great...when they use to live here, everyone just gather in kitchen, cooking house. It is very important that growing up but have its good future, education. People can leave this place anytime but we have something to come back. They built this *wēto* and especially the custom. So, I want the future of this *wēto*, language, cooking, and if there are good report in the future we should be seeking them, to bring them here. I got invitation the other day, some school year schedules pretty much fish not too often and I bring that I wanted to talk about some of the situations in the *wēto* for the generations. On the local, how to approach the Mayor and let him know I have leadership give speech at high school of the most important things. I feel that the younger have the future in my hands. I want somebody, especially the younger generation to think this way, not to have the knowledge and the skill and the future for themselves but to come back. Some are. When you have the education - it not mean you are going to get your body...you are Marshallese One day from that, it is good to bring....and make loyal to your American got, they don't need people to build the place. They are number one in the world. We are very poor country. We need somebody to live show a better way of living, not for the money, but for the culture and your identity. That's the thing.

J: When you said earlier the come from one cookhouse, is that a saying?

M: I would say, yes, there is a saying for that. Juon land. Juon is one, only one land that means. See the crack right now in my house, did you know that ...you know what it's like?

J: Coral, pebbles, coral spread.

M: Yeah, you see in Namdrik? All the time the house? We call it life. So they always say: Juon is life. Maybe the families get up during the day or where they were for awhile or when they come back that is when you only one, the rocks . It is only one that means, only one *wēto*, only one kitchen. Only one kitchen, only one fire. The ground

J: Yeah, yeah, pit fires?

M: Call it kijek. One gravel and one fire, only one fire. That's the same. If you make another, fire that is rude. If you fisherman and you come back with your fish, OK I don't want to have my fish on fire - it very rude.

J: OK

M: If still alive prevent....still control. Something has to be changed. Alaps want fire. Breadfruit share everything and everybody eats the same time, sharing and you eat on

the land, not on the grass. Because surrounded the fire is the land. Maybe you see in Namdrik but reason they not have fire and grass around. That so, that change. There is one land and one fire; one *wēto*, one fire.

J: Do most people grow up learning that?

M: Ah. Well, I would say very sad nowadays, like I said you talking to the wrong person, use to be the real life, maybe still exist in outer islands, some other islands. But come in Majuro, goes different. I want grass nowadays and I want flower around. I have my kitchen and there is bathroom. Do you know where the bathroom was in the old days?

J: Yep, reef in the ocean. Ocean side.

M: Lagoon or ocean is the best. That's the old...

J: The ocean side it will push away from the land.

M: (Laughing) You learn. Now you learn everything over here for Marshal Islands.

Anyway I would say talking about days ago, but the real life. There is no bathroom... not even the toilet paper. Today that's kind of Majuro kind of embarrass if no toilet. Like I say, modern life style. You educated person.

J: That was the end of my questions

D.4. Interview from Springdale, Arkansas

Interview with a Deacon who was raised in Namdrik and moved to Arkansas.

T: So he was describing how in the Marshallese culture there is no such thing as homelessness. Because in the Marshallese culture there is non compensatory looking after each other. It's just you just do it? So, sharing food, sharing your home, sharing everything at no expense to the person receiving the benefit. And that's a unique trait of Marshallese culture and identity that sense of communism if you will. And to emphasize the point, if you have run out of rice, you go to your family down the way and you ask for rice. Sharing of resources and sharing of wealth.

Similarly with the vehicle, you could say, my friend can I use your car for the day? And that would be fine, again with no cost to you. And all the Kamems and gatherings for Marshallese at the Church, etc. he...expresses that Marshallese who have lost their language, are not able to speak Marshallese, have lost their culture. And there's this word in Marshallese that refers to a basket of food, it's called enra. The word - meaning those other people around you and so the basket of food is for each to recognize those around you and to act the practice of putting together that basket of food as culturally significant and reflected in the word used to describe that basket of food, enra. Again emphasizing this communal sense of sharing and selflessness. And so it's in the

language, in the resource use. It's in the practice, cultural practices. It's all in meshed in this culture. All these expressions of the culture.

So, go ahead with questions. Happy to answer them.

J: Ok. Well to start with the technical part of getting consent for interviewing. I just ask if I have your permission to record the interview.

T: Yes. Thank you.

J: How long ago did you come to Arkansas. I guess first the States then Arkansas?

T: Four years ago or so. Came to the US.

J: So, where have you lived? Which states?

T: Just California and Arkansas. From California to Arkansas.

J: What originally brought you to California?

T: The kids were going to school there and they paid for us to go and ..them there. We were working and going to school to pay for us to join us.

J: Then what brought you to Arkansas?

J: And do you know why they decided to move here?

T: The expenses there...the revenue, the jobs were just not there

T: When everyone moves, I follow them, and the cost of living was higher than here.

J: Was there a big community in California?

T: About 600-700 people at that time.

J: Did many of them move here or did most stay?

T: Yes, very many, about 200 of them came here. 200 plus. For the same reasons, they were compelled for the same reasons to move.

J: Ok.

T: He's referring to something credit but I am not really sure. Something having to do with good credit and bad credit and that also being a factor in moving. Here in Arkansas it's not an issue for some reason here in Arkansas where there it was. Not fully sure what that means.

J: Where in the Marshal Islands did you live? Which atoll or atolls?

T: At what age maybe, defines.

J: Which atoll did you grow up in? And where did you live the longest?

T: Yes, thank you. Born on Namdrik. I was born in 1934, April 26 on Namdrik atoll. Then I went to Likiep and went to school there on Likiep. That's both grade school and high school. I returned home to Namdrik. They elected me as their Magistrate. After six years of doing that, I went to Majuro and adopted a young daughter. His daughter needed medical attention so after six years on Namdrik he took his daughter to Majuro. As a tiny prominent politician, and....I was at the time Director of Education. From a teacher on Majuro. He did return to Namdrik but when he returned he was a teacher for 34 years, because he was appointed as a teacher by Dwight Heidi on Majuro when he was down there. but he had gone back to Namdrik there was a policy to switch all magistrates to a new title which was Mayor. He was the Mayor for 13 years. Point in the administration of that of the Marshal Islands people were directed to choose between a public or an elected public or appointed public position and he chose the appointed one of a teacher because he was closer to retirement and benefits there end if he stayed a teacher. So he relinquished his Mayor position and remained a teacher. Then Marshal Islands independence was won. Constitutional Convention was held in 1979, the very first. In 1979 they initialed the. Few years went before he was compound representative from Namdrik. so that'sAfter 1979 I went back and returned as a teacher. 1996 he retired as a teacher. He was a teacher during that time.

J: All on Namdrik?

T: Only on Namdrik. He stayed on Namdrik the whole time.

J: OK

T: 1998 I moved to California.

J: Then 13 years later here.

M: Now I am staying in Arkansas. 2014.

J: Long trip.

T: Is everything cool about his past?

J: Very clear. Going back, imagining Namdrik back when you lived there, what are the most, if you think about the places, buildings, what could you kind of explain so we can try to get a picture of what was the most Marshallese culturally significant imagery of paces in Namdrik.

T: For him it was the church. I mean the school because I spent so much time there. The second place was the ocean because I would always go fishing. Those were the places of significance for him. I would go fishing after school. In the daytime and also at night time. The other place is the church where he spent a lot of time also there. And then the other places are the meeting houses for our local government. From the council. It's just one small island and everyone still have there and being such a singular place, everyone is together and knew each other very well. Namdrik is unique in that way. I don't know if you've seen that.

J: Yeah. I've seen that.

T: It's a very singular type of place. It's not sprawled out

J: So, if you can remember..

T: When you go back and forth on the roads, Namdrik, and some of the people are cooking outside and you can say, Come and wait for the fire to be started so we can eat together.

J: So what were that typical houses like on Namdrik?

T: A lot of thatched roofing, thatched housing in the beginning. They were good. Marshallese houses were good. When it would rain, get cold, the inside would stay warm and cozy. When it was hot and humid outside, the inside stayed cool and comfortable. Then in the years, there was a typhoon, a big one, wiped out all the homes. Marshal Islands government, trust territory, government to the trust territories, they brought in the corrugated roofing, all the thatch housing was not replaced. Thatched housing with other housing by trust territory. And you know personally I feel very nostalgic and I miss the thatch houses.

M: You know 1968 Peace Corps training in Namdrik.

T: In 1968 there was a Peace Corps training held on Namdrik. The Peace Corps over there were very comfortable and they liked the thatched houses, because they are not hot. And they refused or were less inclined to stay in the more Westernized homes because they were warm. So what we did for the Peace Corps, we built thatch housing for them to live when they were conducting their training there.

Translator asks man: What year was the typhoon?

M: 1957.

T: The typhoon was in 1957. This is the same one that is well documented as having hit Jaluit. This is where along with Jaluit typhoon. After that there was our first son. After that first typhoon we had our first son. And since that time we now have 13 children all together.

J: Wow, big family.

T: And one of them because 13, we adopted one. Because this is Marshallese custom we are able to support each other and provide for that many people. (He then asks the man: Is that correct?) It has been more easy or difficult to have done the same if you were in the United States? Marshals were able to do it because we have togetherness or a sharing culture.

J: Were you under one roof or many?

T: So the people all stayed together under one roof. The kids would all live together and our relatives, his brothers and his wife's brothers or his sisters or his wife's sisters would live under different roof.

J: What was the housing like that you lived in?

T: Maybe you can specify. What are the options?

J: Was it a Western house, thatched house, concrete, wood?

T: Was it always the same?

J: Yeah, good point.

T: It was a thatched home. But then after the typhoon we had switched over to a corrugated roofing type of building. Plywood and corrugated. But the thatched was both roof and walls. That was replaced with corrugated roof and plywood walls.

J: Were most of the thatched houses eliminated after the typhoon?

T: Most were damaged by the typhoon. Some still rebuilt them.

J: Did the craft of building thatch houses stay?

T: Yes, they still know how to do it which is thread a thin strip ofin Marshals and they built that house, everybody's involved and the women are doing the weave work, thatch together. And we all work together. That is one thing great about Marshallese in Namdrik when we build the homes. We do it together.

J: When they built the new homes of corrugated metal and timber, was there a similar togetherness? Or was it hire contractors from abroad?

T: We would use the same approach to building each other's homes. There was ...we would help each other building each other's homes. After the typhoon not only were homes needing to be rebuilt but trees had to be replanted and we all did that together as well.

J: What about the churches and schools?

T: They were also damaged. There was no undamaged building.

J: So did the same community rebuild?

T: The men would be doing the heavy lifting and the laborious tasks and the women would be cooking the food for them to continue working. The churches and the schools we had to all pitch in, as well. That time he was talking about feeding because there was more. The government provided the materials and supplies for the school and community provided for the Church. They brought these very thick aluminum sheets of prefab buildings for the schools, and you can see them in Rita today. There are these buildings still present in some places, you can still see these very thick sheets of aluminum sheets buildings, that they built after that time.

J: OK.

T: They also put a place with concrete structures. Because those are compact funded. Very specifically the schools are getting a lot of the compact money.

J: When you were rebuilding, was there any aspect of the traditional method of building housing or other structures that made it into the new, or were the traditional methods of building replaced with modern construction methods?

T: They are using different materials like switch from thatch from plywood.

J: Thatch is completely woven work.

T: Instead of like maybe more nails and other pieces for, I don't know. I'm not sure how to ask that question. Maybe you could rephrase it? What is it you are trying to ask?

J: Other than everyone helping together to build, are there other maybe, not a ceremony to it, but something that is culturally significant to the way that they get together to build? Like a Amish pull barn raising would be an example of that.

T: I think that would be maybe ask him typical house building from start to finish?

J: Yeah. That works. So what happens from beginning to end of a typical house building?

T: The very beginning, we all ask ...help Marshal Islands. If you attend, you have to supply 10 pieces of lumber. This is at the beginning. Like the resourcing of material. So individual people of the community are assigned a number according to their needs. ...brought to a central location and there is a chief carpenter who directs the labor and sequencing of building the house. And this is the traditional thatch housing by the way. After the pieces of the house, the framing of the houses has been built, there's an

announcement - tomorrow there's going to be the thatching of this house. When they do this, when they are building the framing they don't use nails, they use Marshallese call it...which coconut fibers rolled in to a knot. There is this tool which is called a kneeimage that punctures the thatch and pulls back down the thread as the threading occurs. And when it's all done, a lot of people come and weave the matts.

J; What do you think

Woman singing.

T: She's going to sing a little bit.

J: Thank you.

T: Song is referring to your eating (then trails off).

T: There's actually a grade school that he attended administered by the Japanese. He learned a little Japanese there. So, do you have any other questions?

J: Yeah. So getting back to the process of building a thatch house, when they were building the new houses after the typhoon, was there a similar method to it as the thatch, so the gathering of the pieces, distributing equally and other resources distributing it equally and the process of you set up the frame and then as a group build the walls, kind of like they were doing that weaving, and build it up that way, or is it completely different?

T: The disaster relief fund came from the United States. So that was the first resourcing of materials, externally, not internally. The money to Majuro. And they gave the responsibility to the Department of Agriculture to administer the rebuilding process on Namdrik. There were men on Majuro who knew how to build Western homes like Melan and others. They were following a blueprint that the government had provided for them. Now the very first thing that you do when you build these types of homes is the foundation. After the foundation comes the walls. Then the roof the very last. After that the next one and the next one. So they would build the homes until all homes had been replaced.

J: Then, did these homes have separate rooms or was it one space?

T: These homes was a single room. You would have to make your own rooms inside the building.

J: And the thatch houses was one room?

T: Do you mean like the

J: What was the organization of space?

T: It was a single room, it was a one room.

J: So you slept in one room and cooked outside, had bathroom outside,

T: You would build one cookhouse. The cookhouse was built separately. It's separate from the living quarters.

J: Is that similar to the traditional thatch?

T: Cook houses were using thatch. The government only provided for living quarters not for a cooking area.

J: Ok.

T: We would help each other again, similarly as described before to build these cookhouses.

J: Ok. So how long did you live in that house that was built after the typhoon?

T: The entire time before I moved over to the States. 1958 to '98.

J: Ok. Long time.

T: 1957-1998.

J: 40 years.

T: But that building which is a tin home, the translation is still standing today.

J: Do you still have land in Namdrik or on Namdrik?

T: Yeah.

J: Ok. And was that similar in the whole island, that type of housing?

T: Yes, similarly every home. Most of them are similarly set up but the ones who had some money, they would build the tin cookhouse, corrugated roof. The others make the thatch cookhouse.

J: Where is all of your family now? Sons and daughters? Parents?

T: One is in California. But otherwise they are all here in Arkansas. Two in Hawaii. Two in the Marshals. So one in California, two in Hawaii, two in the Marshals and the rest are here in Arkansas.

J: Are the ones in the Marshals in Namdrik or elsewhere?

T: One is on Namdrik. And one is on Majuro. He is the manager of a fish base. I know his son on Majuro. One son on Majuro and one son on Namdrik. Oh, on Namdrik it's a woman. The one that he adopted.

J: In the same house or?

T: She moved from that house to another one that is her older brothers' home. His relatives asked him to stay at his house and he allowed them to. According to Marshallese custom not instruct them to pay rent.

J: All right. So, thinking about life on Namdrik, what is the most significant difference living here in Arkansas?

T: Namdrik -Getting to places, like bicycle and walk. All the routes, the roads there. Here we're afraid to walk on the streets because they (cars) can hit us, and that's the biggest difference. Another one. Another big difference is in Namdrik, you could fall asleep under a tree or anywhere and just relax but here you never know what will happen if you do that. You might. They might assault you here if you tried to do that. Another one is sleeping outdoors at night time. You can't do that here because of the cold. It snows. You can't sleep outdoors. You have to sleep inside. These are the big differences basically.

J: What aspects in this community make it feel like home back in the Marshals?

T: The communal sense of probably of storytelling each other and jabbering of each other. The similar of attitudes in money and resources. The extension of the question of what is not different between the two or what is similar between the two but what is better about the United States is the medical services available here and the educational services. These are way better than back in the islands and thank you to Americans for that.

J: Is there anything that you've done with your home that exists in the community that helps not only remember home in a way but you see as a way to maintain cultural habits? Is there anything you have done in the house to remind yourself of home or reminds you of Namdrik?

T: The human aspect of, not the material part of the home but the people in the home is that, the representation is through the people in the home. Decorated the home with people as opposed to furniture. Sometimes conflicts with the number of people that are allowed inside a home. So we have to keep it quiet sometimes, our cultural expression and home making and place making is at odds with the landowner and so we have to restrain ourselves from being too open about it. But to the credit of our relatives who need a place to stay from time to time, they don't stay too long. It works out.

J: Are there other locations in the community, here in Springdale that you see as cultural centers or help maintain cultural aspects of the Marshallese community?

T: This place, Terry and Wilson. They are street names. So these are places that are identifiable as Marshallese areas. The affiliation expresses our self-evident, people want to be here because there are other Marshallese here. There is a reason why together. Social ...the ability to request food in a time of need. This proximity to each other makes that possible. And so that's a very practical reason. Living among different ethnic group like the Vietnamese or the Mexicans, there wouldn't be that ability to request food or to share resources. This is according to our custom, our culture.

J: What else supports the community to bring in things like food that you are familiar, or that is important to have as a Marshallese, an islander really?

T: Clothing is also. I don't know if I asked the right question.

J: Clothing, food.

T: I would think that you have to purchase ...like their sugar, their meat, protein, the ingredients for certain dishes. Is there money. This is all part of the custom, the culture of sharing easily those things explained earlier, for example the basket of food, the enra, so you can watch each other, look after each other.

J: So, where do you get the Marshallese clothing and the Marshallese food?

T: There is no Marshallese food here so people who fly in, drive back and forth, they bring the Marshallese food. When they come, you'll be surprised to hear a knock on your door, bringing you breadfruit or fish, because they just flew in from the islands.

J: What about clothes? Is it flown in or do people make them here? Is there a store to buy them?

T: Here in Springdale there are some seamstresses. Buy them at the store and from the Chinese stores that have them. And they bring them during - as party favors.

J: So what landmarks in the area are kind of important or used a lot by Marshallese like I know Tyson Park and the Rodeo, were there other locations used by the community?

T: The Churches. First the came in events locations. The third the Christmases. We share Christmases together.

J: Where do all of these events take place?

T: I think there's around here, several of them. Places for the came in was just locations, different places. People right to have. There are eleven churches so there's eleven such separate events. There's an equivalent number of ..

There's a total of 40 churches. 42.

J: How many did you and Carmen get to?

T: 30.

J: Do you have any last words to say about how culture is maintained here and how it can be maintained in the future?

T: The question is again what?

J: How is culture is maintained here now? And how do you see it or what needs to be done to maintain it in the future generations?

T: The most important thing is to teach Marshallese languages at the schools. That is the most important. In the school system here to have Marshallese languages as one of the activities in the schools. That is the most important thing. Looking into the future. Consider there is a child that doesn't know Marshallese, and he goes to his house and sits in a place not appropriate for her to sit. You tell her and she doesn't know what you are talking about, because she doesn't know her language. Because she doesn't know the language, she doesn't know her customs. That's why. Does that answer your question?

J: Yeah.

T: You both are very welcome and God bless you both.

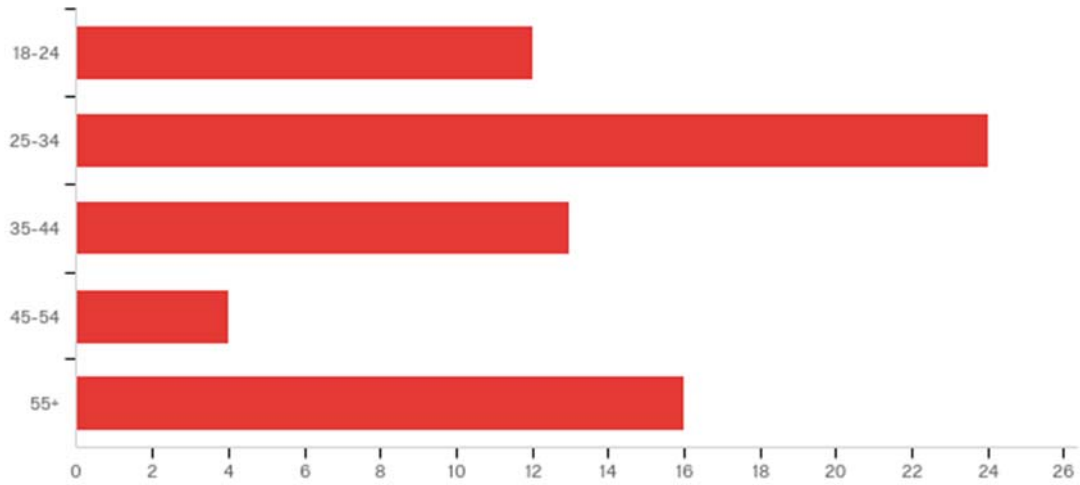
J: Thank you very much for your help.

T: Is there a form to sign?

J: Just the consent by oral.

APPENDIX E: SURVEY

Q1 - What is your age?



#	Answer	%	Count
1	18-24	17.39%	12
2	25-34	34.78%	24
3	35-44	18.84%	13
4	45-54	5.80%	4
5	55+	23.19%	16
	Total	100%	69

Q2 - Where were you born?

Where were you born?

Wotje Atoll

Wotje

USA

United States

Terre haute IN

Rongrong

RMI

Oahu, Hawaii

Namdrik Atoll

Namdrik

Namdrik

Namdrik

Namdrik

Namdrik

Namdrik

Namdrik

Namdrik

Namdrik

Namdrik

Namdrik

Namdrik

Namdik Atoll, Marshall Islands

Mejit

Marshall Islands

Marshall Islands

Majuro, MH

Majuro, Marshall Islands

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Likiep

Kwajalein, Marshall Islands

Honolulu, Hi

Every

Enewatak

Ebeye Kwajalein

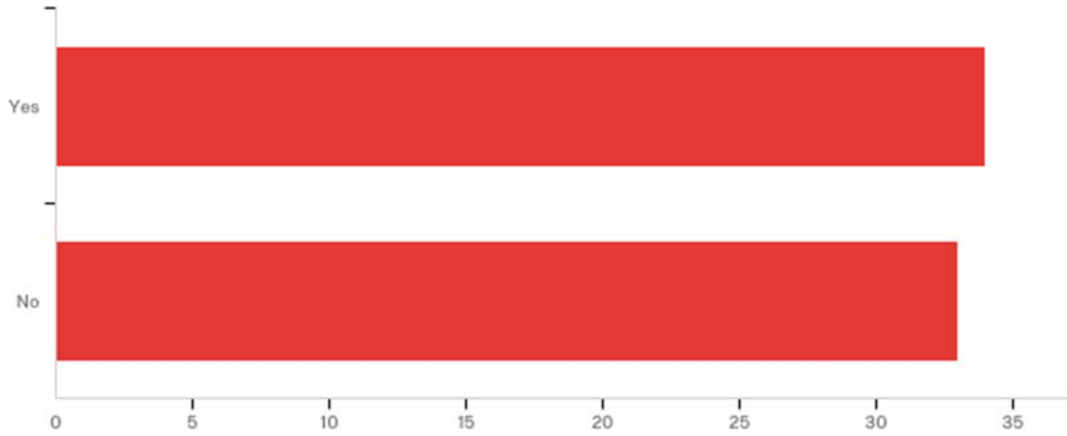
Ebeye

Arno, Marshall Islands

Arno

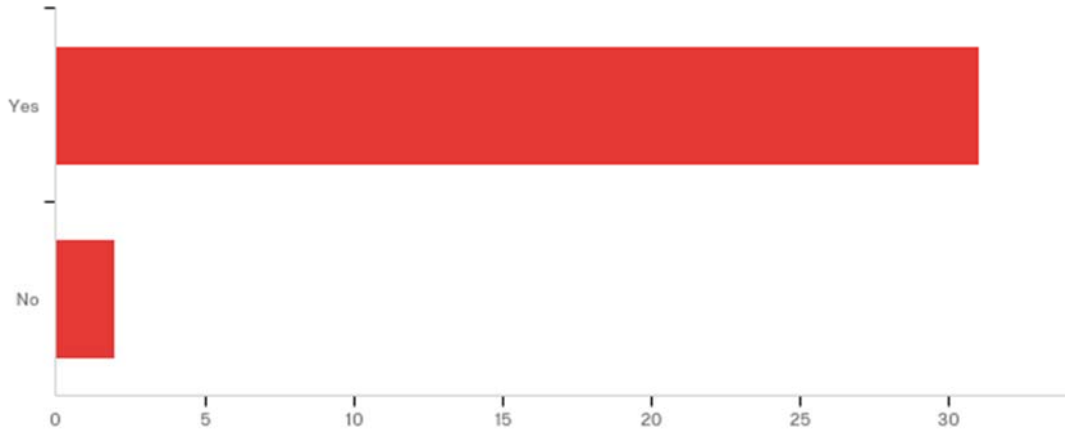
Airok, Ailinglaplap

Q3 - Are you married?



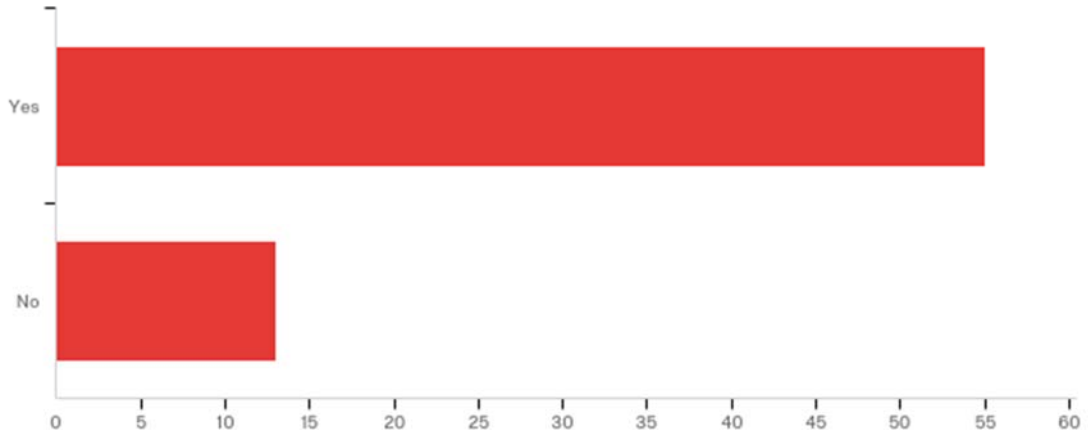
#	Answer	%	Count
1	Yes	50.75%	34
2	No	49.25%	33
	Total	100%	67

Q8 - If yes, are you living with your spouse?



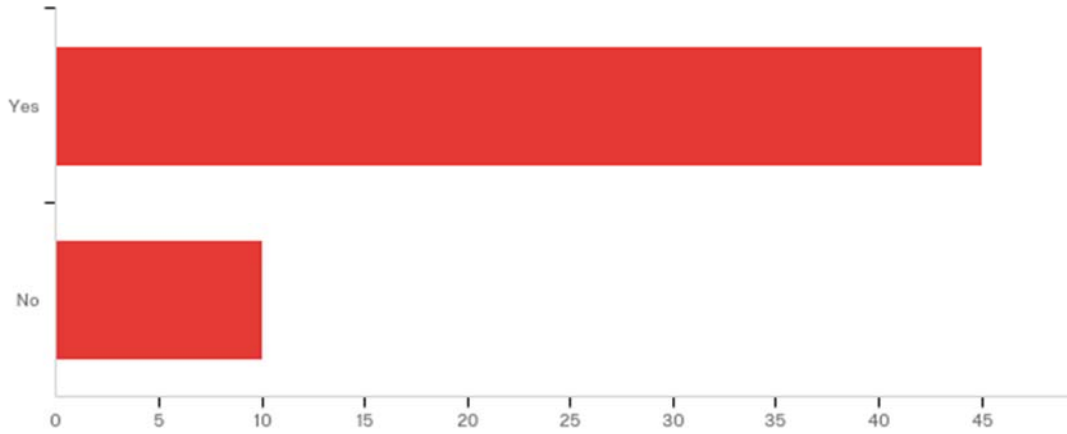
#	Answer	%	Count
1	Yes	93.94%	31
2	No	6.06%	2
	Total	100%	33

Q5 - Do you have any children?



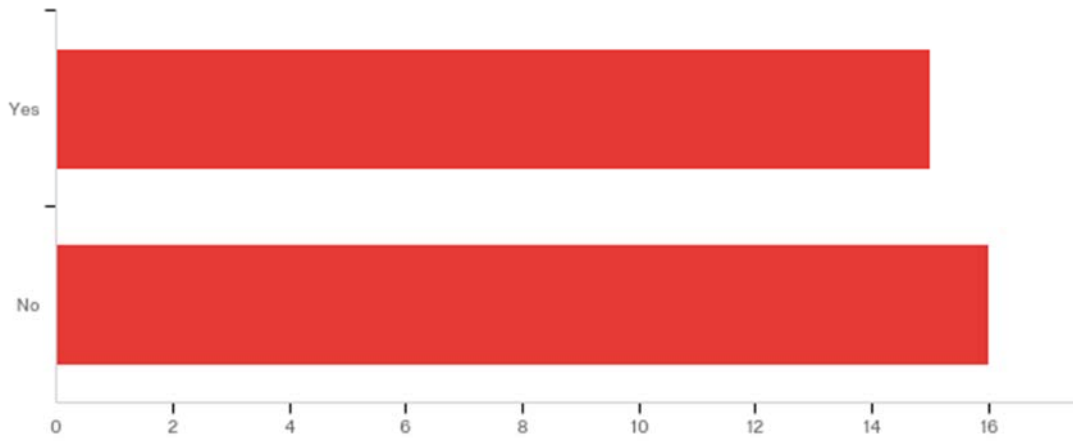
#	Answer	%	Count
1	Yes	80.88%	55
2	No	19.12%	13
	Total	100%	68

Q9 - If yes, do they live with you in your house?



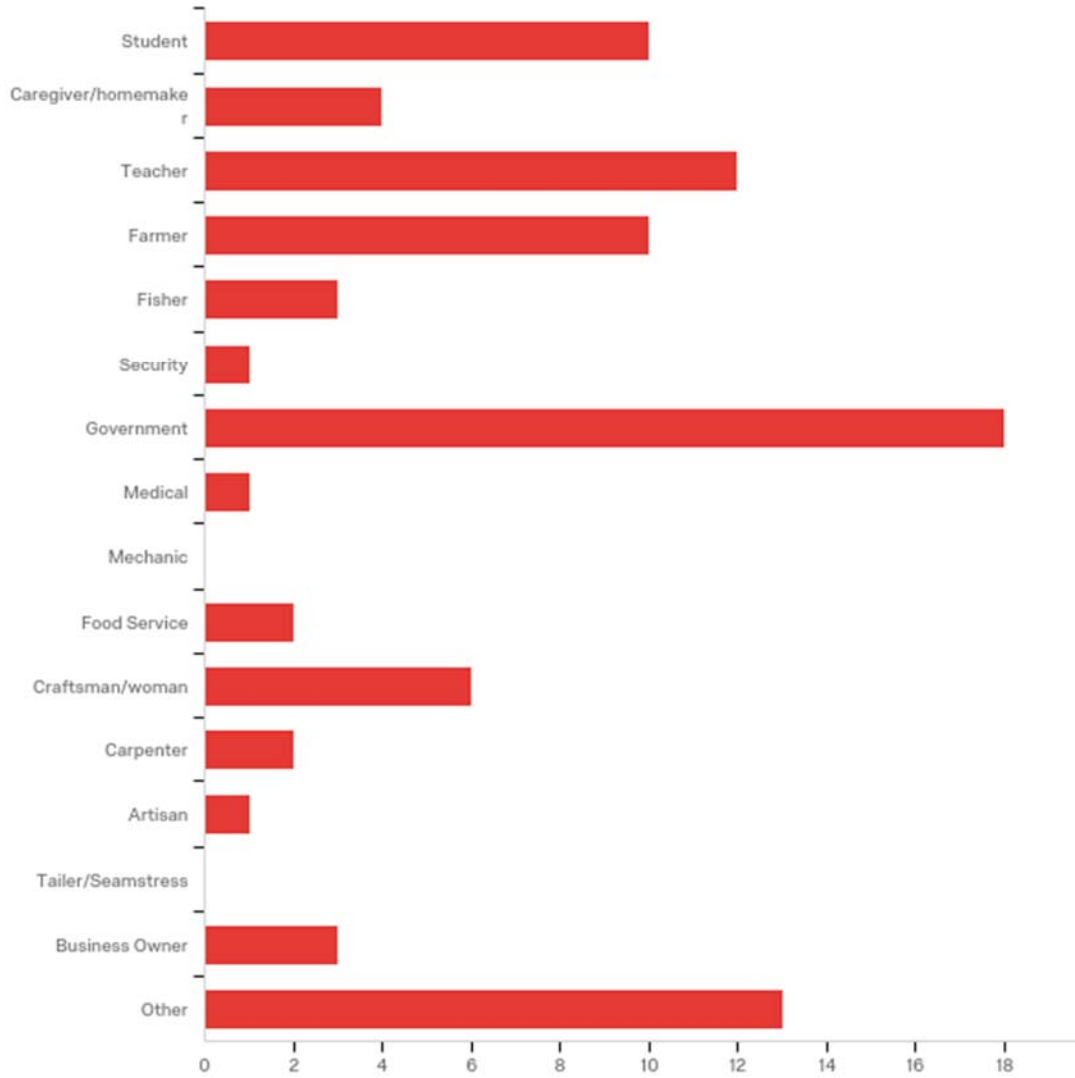
#	Answer	%	Count
1	Yes	81.82%	45
2	No	18.18%	10
	Total	100%	55

Q10 - If yes, but they do not live with you, do they live on the same piece of land as you?



#	Answer	%	Count
1	Yes	48.39%	15
2	No	51.61%	16
	Total	100%	31

Q11 - What is your role in the community?



#	Answer	%	Count
1	Student	11.63%	10
2	Caregiver/homemaker	4.65%	4
3	Teacher	13.95%	12
4	Farmer	11.63%	10
5	Fisher	3.49%	3
6	Security	1.16%	1

7	Government	20.93%	18
8	Medical	1.16%	1
9	Mechanic	0.00%	0
10	Food Service	2.33%	2
11	Craftsman/woman	6.98%	6
12	Carpenter	2.33%	2
13	Artisan	1.16%	1
14	Tailer/Seamstress	0.00%	0
15	Business Owner	3.49%	3
16	Other	15.12%	13
	Total	100%	86

Q13 - If you chose business owner, could you please describe the type of business you own?

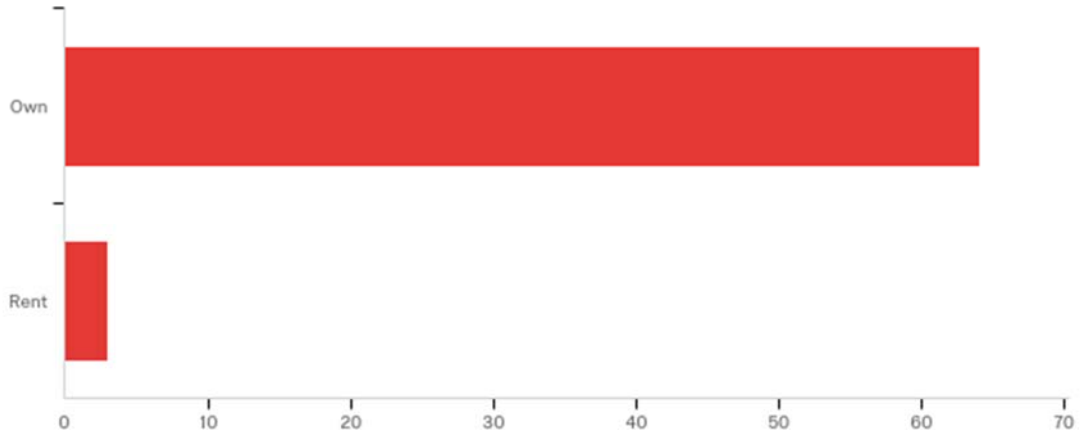
If you chose business owner, could you please describe the type of business you own?

Take out

Retail store

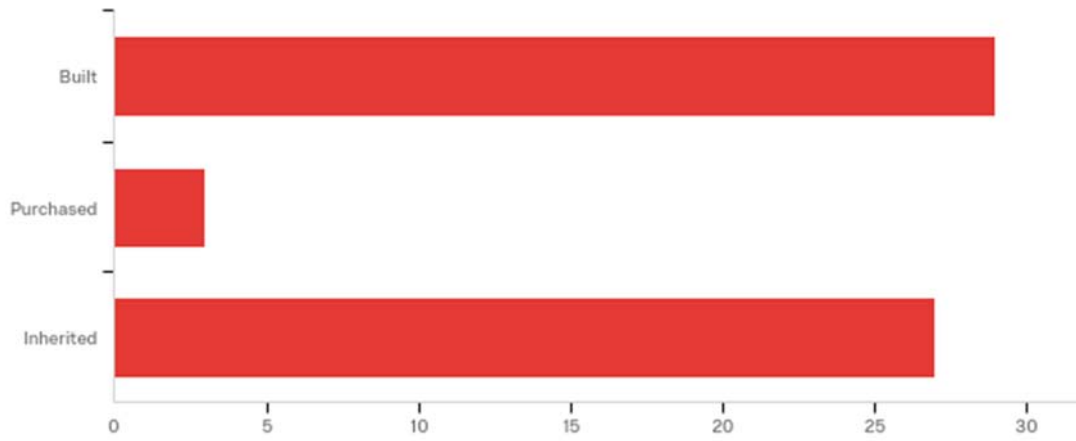
Shop keep Works during election time

Q14 - Do you own your home or rent?



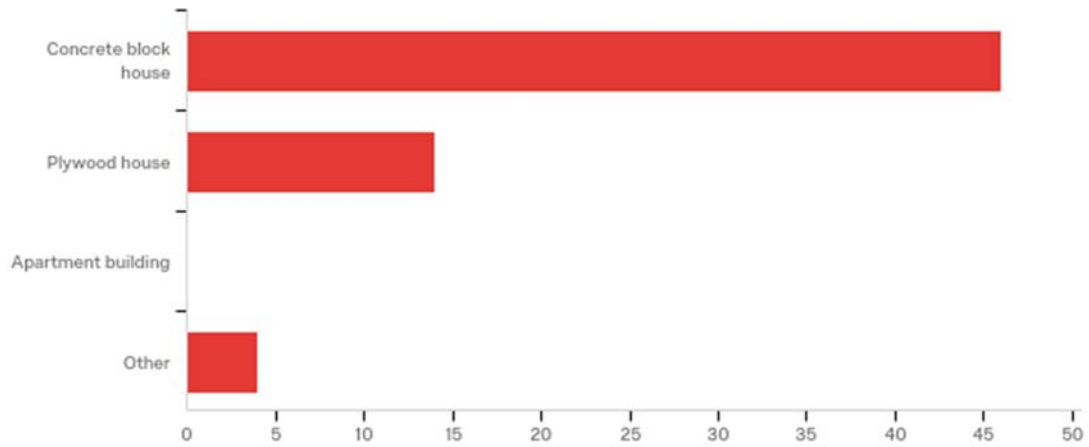
#	Answer	%	Count
1	Own	95.52%	64
2	Rent	4.48%	3
	Total	100%	67

**Q16 - If you own your home, did you build it, purchase it, or inherit it?
Please choose one:**



#	Answer	%	Count
1	Built	49.15%	29
2	Purchased	5.08%	3
3	Inherited	45.76%	27
	Total	100%	59

Q17 - How would you describe the type of housing you live in? Please choose one:



#	Answer	%	Count
1	Concrete block house	71.88%	46
2	Plywood house	21.88%	14
3	Apartment building	0.00%	0
4	Other	6.25%	4
	Total	100%	64

Q18 - Please describe the use for each room in your house:

Please describe the use for each room in your house:

bedrooms for sleeping and living room for entertainment.

Eating Sleeping

Sleeping

Sleeping Gathering

Eating Sleeping Socializing

Bedroom, living room and kitchen. Toilet and bath are separated from the house.

Eating Sleeping

The house i am living in has 5 small bedrooms with one bathroom. My sister's house is adjacent to my house and has one bedroom, small living room and one bathroom which my other siblings and their kids also use. My mother's house is concrete and has 2 bedrooms with bathrooms, a kitchen and a living room. FYI there are 3 houses on the land that I am reciting on.

living room, kitchen, 3 bedroom with 2 bathrooms

1. Living Room 2. Kitchen 3. Bathroo w/shower 4. Three bedrooms

2 bedroom home. One for my sons and one for my son's father & I.

There are 3 rooms in my house one is for my brother family, my sister family, and one for me.

there is one room in my house. only my parent living in the room.

There are 3 bedrooms, a bathroom and the living room is combined with the kitchen.

6 For Sleeping 3 Foor restroom and bathing

two rooms as bedrooms (but not sleeping in), one for storage, one kitchen, one dining, one living room (used for sleeping), one bathroom

Dining, bedroom - sleeping

All bedrooms are for sleeping, although one was converted into a walk-in-closet.

Sleeping, eating and socializing

One room house

Sleeping

3 rooms all used for bedrooms

Sleeping, storage and kitchen

No room

Eating Sleeping

Bed, mat, pillow, rug, blanket

One is used for store room and the other one for bedroom

Living Room, bedroom, bedroom, storage, bedroom (see drawing)

bedrooms are for sleeping kitchen is for cooking food, eating, and sitdown for meals living room is for resting, talking story, kids play

eating, socializing, relaxing, sleeping, showering, cleaning, working, studying, preparing meals, washing clothes, storing items, showcasing collections and memorabilia

room for each child, and master bedroom for myself and my partner

na

Master bedroom - girlfriend and I Two other bedrooms - for daughter and mother in law
Kitchen/ dining Living Room Bathroom

It is an old house trailer brought to Majuro from Kwajalein Island. Parts of the outside are metal and inside most of it is made from wood.

Sleep

3 bedrooms 2 bathrooms Living Room Kitchen

My house has only one room for sleeping

3 bedrooms, living room, kitchen and dining area, cookhouse, porch, shop, pool house

Master bedroom (girlfriend and I), two other bedrooms - for daughter and mother in law

3 bedrooms, 1 bathroom, living room/area, kitchen.

2 rooms. One for husband and wife to sleep and the other room is for the grandpa and grandma.
Living Room Bathroom Cookhouse

2 rooms, sleeping rooms

One room, only sleeping

One room for sleeping and storage - multi purpose really

2 bedrooms and one living room.

Two rooms. Two bedrooms. Sleeping. And one living room. Cool, watch tv, working making mats and bwebwenato.

Omimono, sleep, spend time, cooking with propane stove, storage

Living Room, three bedrooms, 1 bathroom.

Plywood only

Three rooms, one room for dining, two bedrooms and one living room

One room, sleeping, making mat, storage

One room, sleeping and doing other work

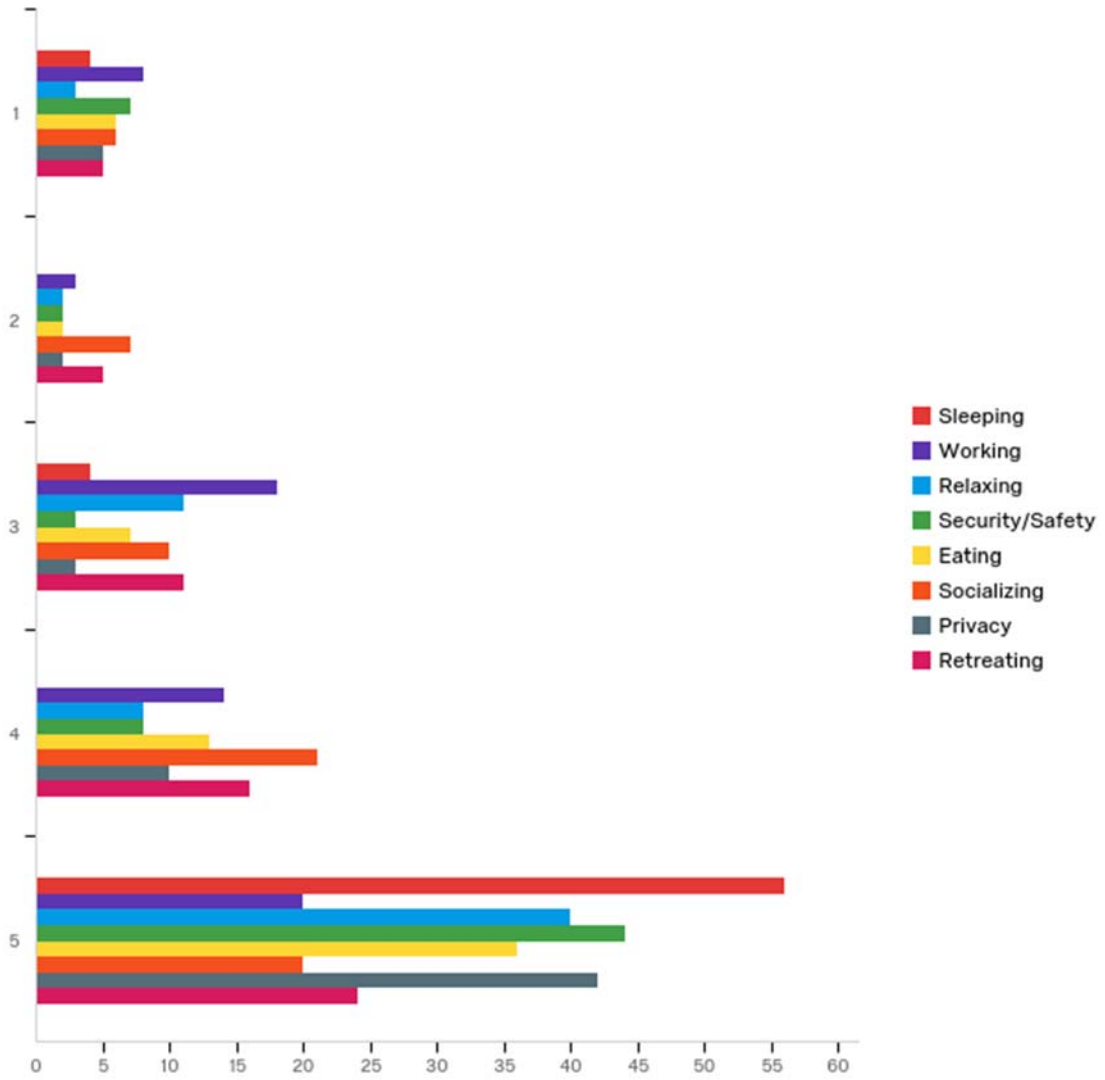
Living Room and porch

One room for bedroom, and living room and bathroom

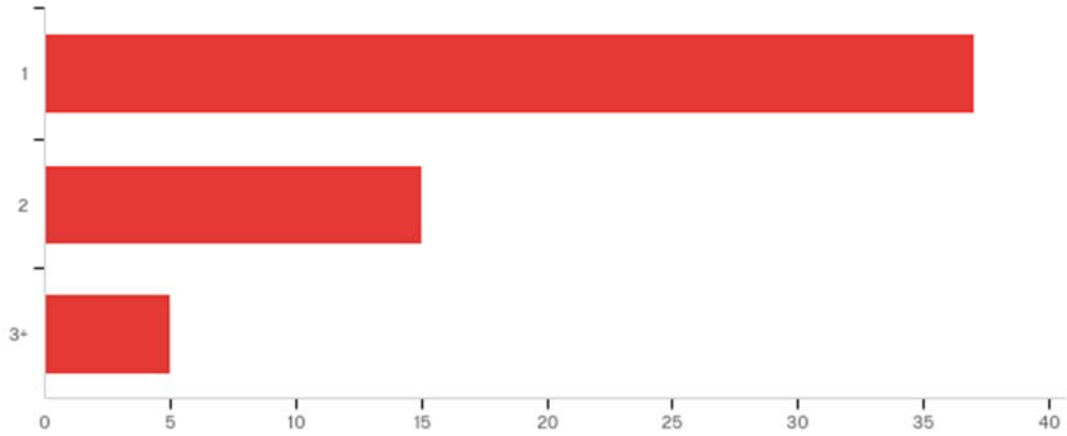
2 bed, 1 storage, 1 kitchen, 1 living room

Q19 - Please rate the importance of each of the following uses of your house on a scale from 1 - 5, 5 being very important and 1 being not important.

#	Question	1	2	3	4	5	Total
1	Sleeping	6.25% 4	0.00% 0	6.25% 4	0.00% 0	87.50% 56	64
2	Working	12.70% 8	4.76% 3	28.57% 18	22.22% 14	31.75% 20	63
3	Relaxing	4.69% 3	3.13% 2	17.19% 11	12.50% 8	62.50% 40	64
4	Security/Safety	10.94% 7	3.13% 2	4.69% 3	12.50% 8	68.75% 44	64
5	Eating	9.38% 6	3.13% 2	10.94% 7	20.31% 13	56.25% 36	64
6	Socializing	9.38% 6	10.94% 7	15.63% 10	32.81% 21	31.25% 20	64
7	Privacy	8.06% 5	3.23% 2	4.84% 3	16.13% 10	67.74% 42	62
8	Retreating	8.20% 5	8.20% 5	18.03% 11	26.23% 16	39.34% 24	61

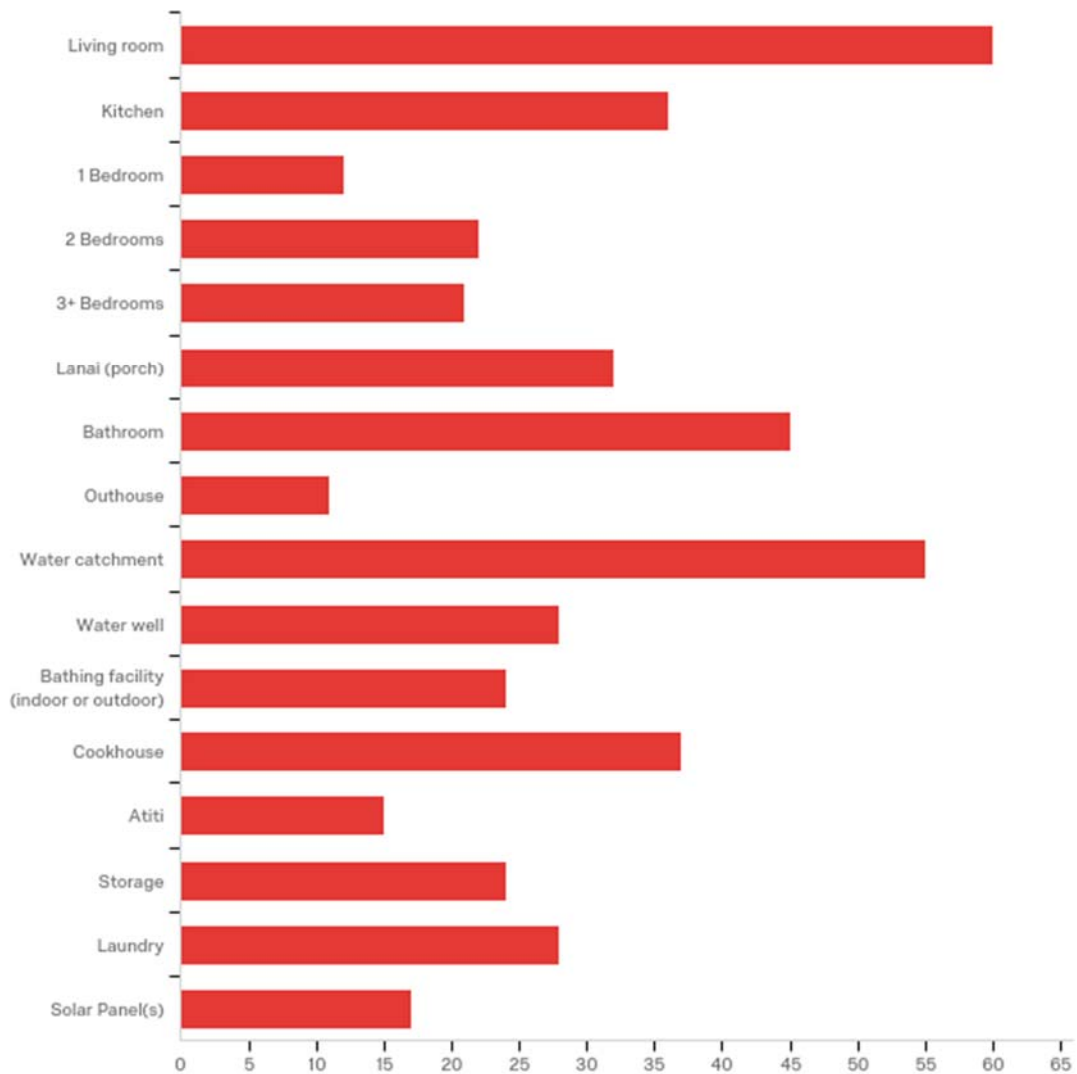


Q21 - How many bathrooms/outhouses do you have?



#	Answer	%	Count
1	1	64.91%	37
2	2	26.32%	15
3	3+	8.77%	5
	Total	100%	57

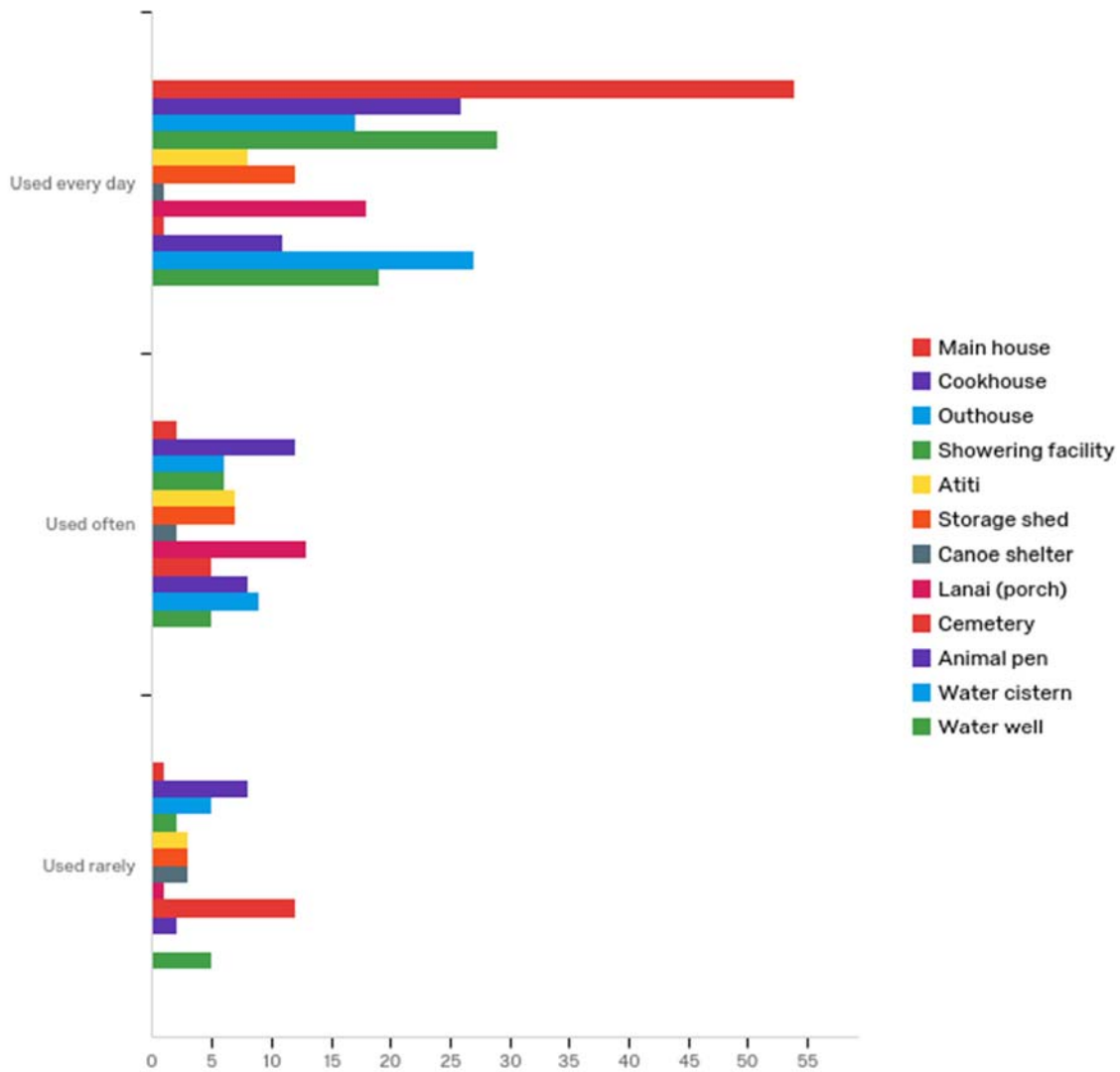
Q22 - Of the following rooms, please select all that are present in your house.



#	Answer	%	Count
1	Living room	12.85%	60
2	Kitchen	7.71%	36
3	1 Bedroom	2.57%	12
4	2 Bedrooms	4.71%	22
5	3+ Bedrooms	4.50%	21

6	Lanai (porch)	6.85%	32
7	Bathroom	9.64%	45
8	Outhouse	2.36%	11
9	Water catchment	11.78%	55
10	Water well	6.00%	28
11	Bathing facility (indoor or outdoor)	5.14%	24
12	Cookhouse	7.92%	37
13	Atiti	3.21%	15
14	Storage	5.14%	24
15	Laundry	6.00%	28
16	Solar Panel(s)	3.64%	17
	Total	100%	467

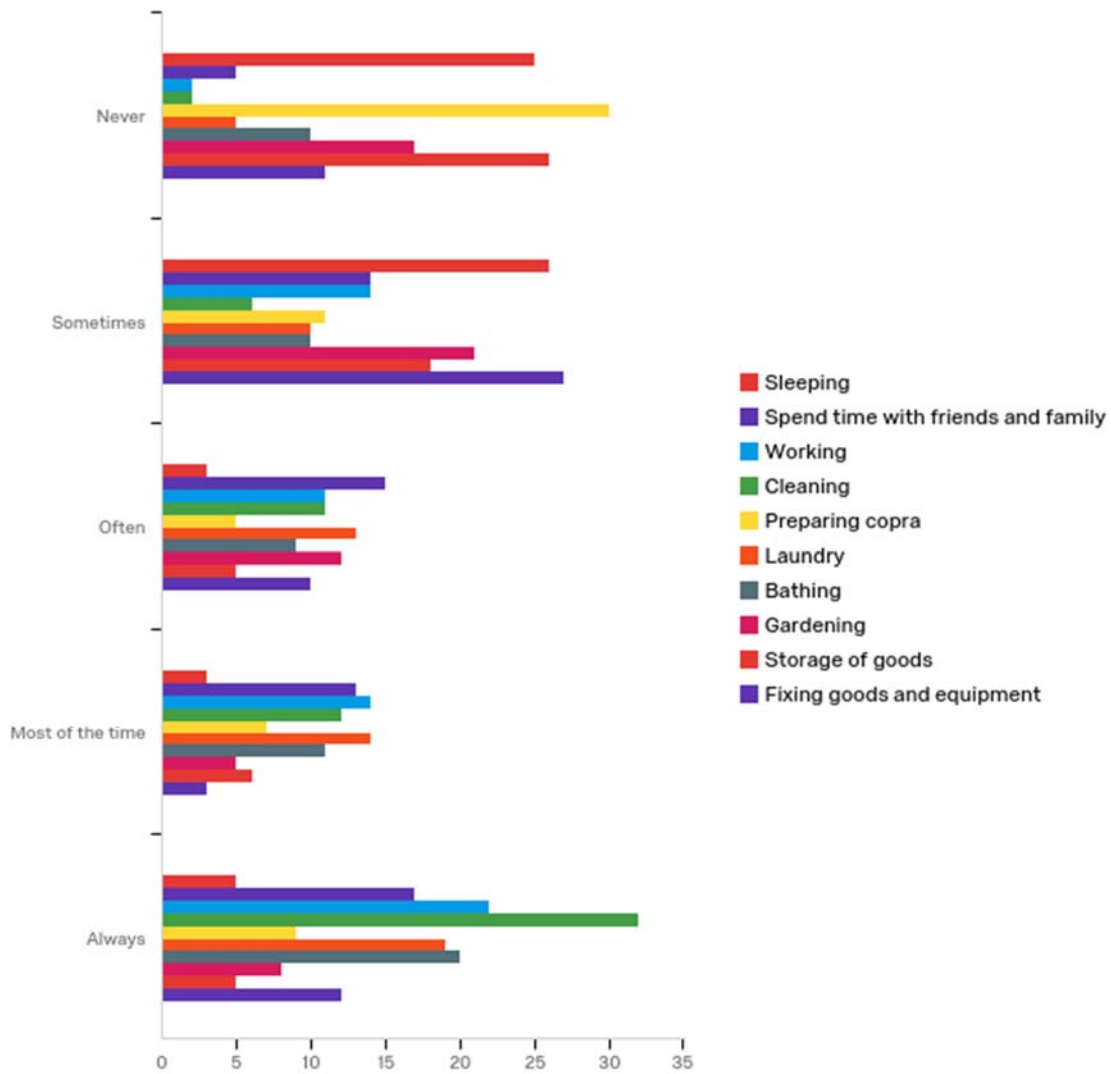
Q23 - What other type of buildings are around your house and on your property? How often are they are used?



#	Question	Used every day		Used often		Used rarely		Total
1	Main house	94.74%	54	3.51%	2	1.75%	1	57
2	Cookhouse	56.52%	26	26.09%	12	17.39%	8	46
3	Outhouse	60.71%	17	21.43%	6	17.86%	5	28
4	Showering facility	78.38%	29	16.22%	6	5.41%	2	37
5	Atiti	44.44%	8	38.89%	7	16.67%	3	18

6	Storage shed	54.55%	12	31.82%	7	13.64%	3	22
7	Canoe shelter	16.67%	1	33.33%	2	50.00%	3	6
8	Lanai (porch)	56.25%	18	40.63%	13	3.13%	1	32
9	Cemetery	5.56%	1	27.78%	5	66.67%	12	18
10	Animal pen	52.38%	11	38.10%	8	9.52%	2	21
11	Water cistern	75.00%	27	25.00%	9	0.00%	0	36
12	Water well	65.52%	19	17.24%	5	17.24%	5	29

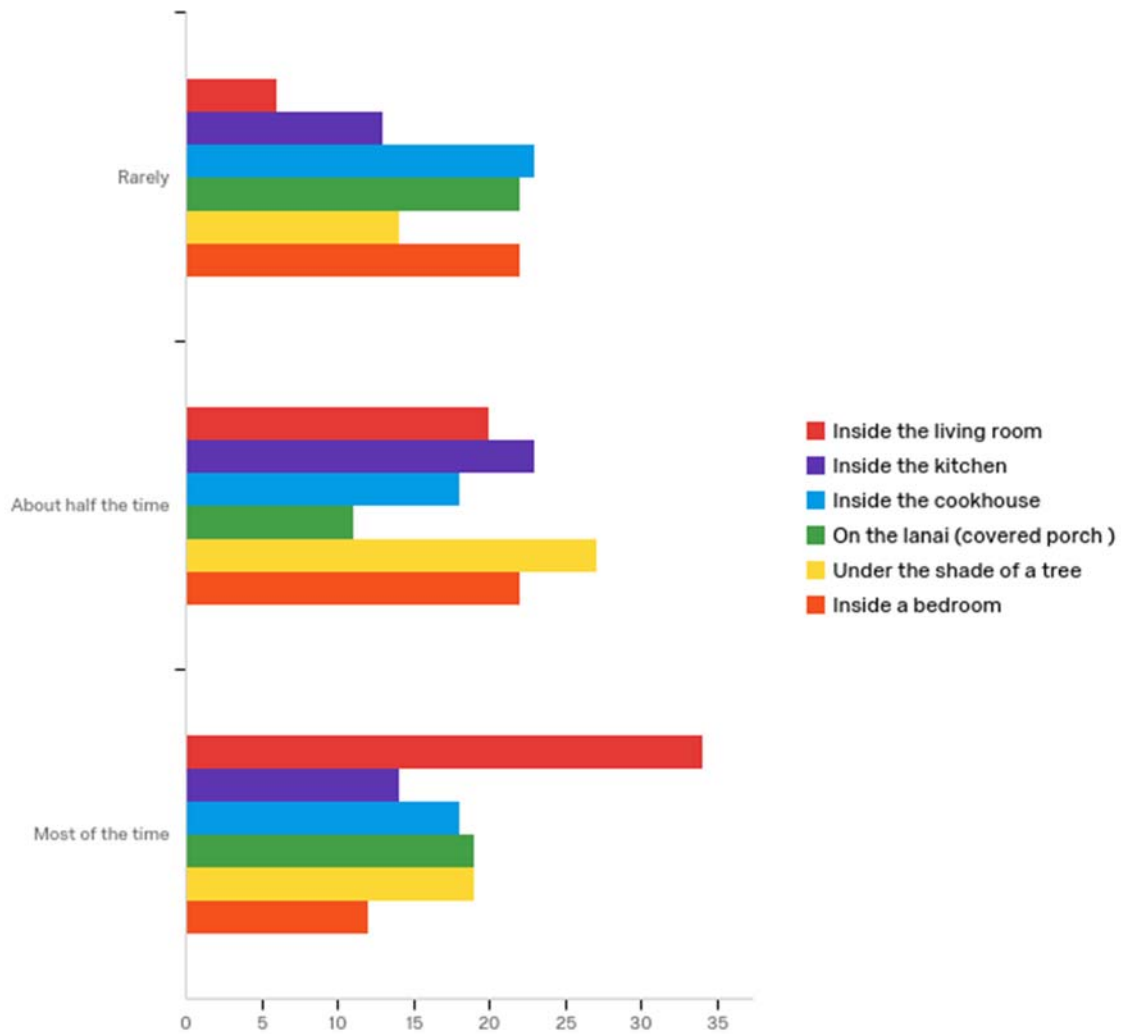
Q170 - What type of activities take place outside of your home but on your property? Please mark how often they take place.



#	Question	Never		Sometim es		Often		Most of the time		Alway s		Tota l
1	Sleeping	40.32 %	2 5	41.94%	2 6	4.84%	3	4.84%	3	8.06%	5	62
2	Spend time with friends and family	7.81%	5	21.88%	1 4	23.44 %	1 5	20.31 %	1 3	26.56 %	1 7	64
3	Working	3.17%	2	22.22%	1 4	17.46 %	1 1	22.22 %	1 4	34.92 %	2 2	63

4	Cleaning	3.17%	2	9.52%	6	17.46%	1	19.05%	1	50.79%	3	63
5	Preparin g copra	48.39%	3	17.74%	1	8.06%	5	11.29%	7	14.52%	9	62
6	Laundry	8.20%	5	16.39%	1	21.31%	1	22.95%	1	31.15%	1	61
7	Bathing	16.67%	1	16.67%	1	15.00%	9	18.33%	1	33.33%	2	60
8	Gardenin g	26.98%	1	33.33%	2	19.05%	1	7.94%	5	12.70%	8	63
9	Storage of goods	43.33%	2	30.00%	1	8.33%	5	10.00%	6	8.33%	5	60
1 0	Fixing goods and equipme nt	17.46%	1	42.86%	2	15.87%	1	4.76%	3	19.05%	1	63

Q171 - Where does bwebwenato take place most often? Please rank the locations.



#	Question	Rarely		About half the time		Most of the time		Total
1	Inside the living room	10.00%	6	33.33%	20	56.67%	34	60
2	Inside the kitchen	26.00%	13	46.00%	23	28.00%	14	50
3	Inside the cookhouse	38.98%	23	30.51%	18	30.51%	18	59
4	On the lanai (covered porch)	42.31%	22	21.15%	11	36.54%	19	52
5	Under the shade of a tree	23.33%	14	45.00%	27	31.67%	19	60
6	Inside a bedroom	39.29%	22	39.29%	22	21.43%	12	56

Q27 - How many of your relatives live in your neighborhood?

How many of your relatives live in your neighborhood?

More than 50

5

16

16

30

15

17

10

30

none

25+

everyone is related to eachother

30

there are alot

3

15+

0

50+

10+

A lot

10+

30

10+

About 40

5

2

40+

50 + the people that live on the *wēto* are relatives

20 +

About half of them

40+

4

25

50+

0

8

None

None

None

More than 100

8

50+

8

5,

50+

3

6-7

Almost all of the neighbors are relatives

Most of them are relatives nearby

So many

Five

5+ families

All of them

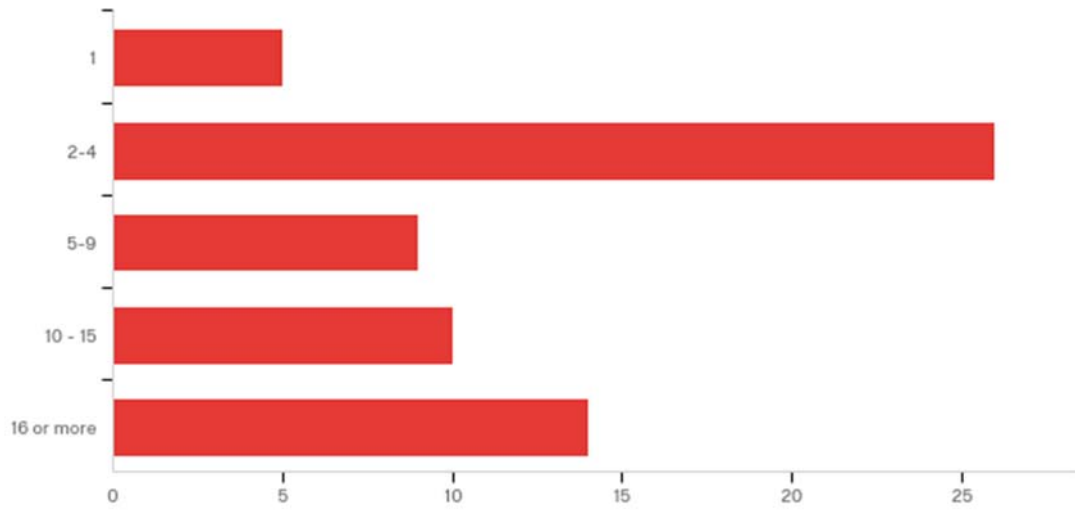
3 families

More than 10 or 20

Only him and his grandchildren

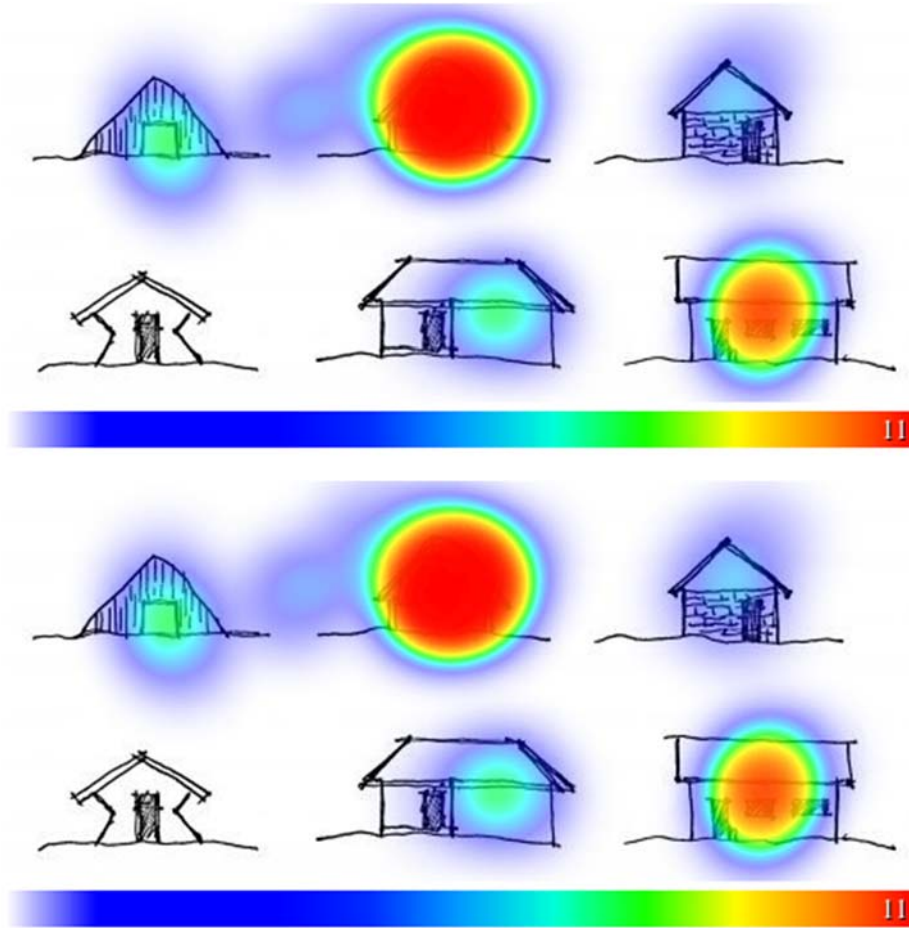
11 on my wato, 19 in the neighborhood

Q172 - If you live on a wato, how many occupied houses are on the wato?



#	Answer	%	Count
1	1	7.81%	5
2	2-4	40.63%	26
3	5-9	14.06%	9
4	10 - 15	15.63%	10
5	16 or more	21.88%	14
	Total	100%	64

Q169 - In your opinion, which of the following drawings represents a traditional house? Please indicate one.



Q34 - What types of changes have you made to your home? (For example: added a room, built a cookhouse, added windows, boarded a door, replaced the roof, added a room partition, etc).

What types of changes have you made to your home? (For example: added a room, built a cookhouse, added windows, boarded a door, replaced the roof, added a room partition, etc).

nothing yet

n/a

No

None

New room

Nothing

Nothing

Added walls, windows, doors, bedrooms and a kitchen.

None

cement walls, tin roofing, windows, front porch, front and back door,

1. renewed window louvers. 2. added a room. 3. built a walk-in closet. 4. changed the color of my living room paint.

all of the examples

added a door

Added rooms, built with concrete, built a cookhouse, added windows, replaced the roof with tin and built a garage.

added a screen door

Added a porch

Roof and the renewable

Modifications to the interior

Boarded a door and replaced the roof

None

None

Replaced the roof

None

Replaced tin roof and ceiling, painted, added kitchen counter, renovated bed rooms, and added airconditioning

Renovated office and repaired broken ceiling.

none

None

The house was full of termites, so all the cupboards, and many of the walls were replaced over a span of 2 or so years. My bedroom was also full termites and shelving and some of the walls had to be replaced. This was done by the landlords.

added room

Built a fence around the house

No change

Built the porch, built apartments

Nothing

The whole place represents nothing like a traditional house. Very modern and concrete

Added a bedroom

Replaced the roof and replaced the atiti Once a year, sometime two for the atiti Roof every three to four years.

No change

Replaced the windows to have sliding Small garden Changes to the bathroom Built covered areas

Made the cookhouse

Make the porch, make bathroom, change the water catchment

None

Adding a room, adding a bathroom, make a kitchen inside

Replace the roof and added a room partition

None

None

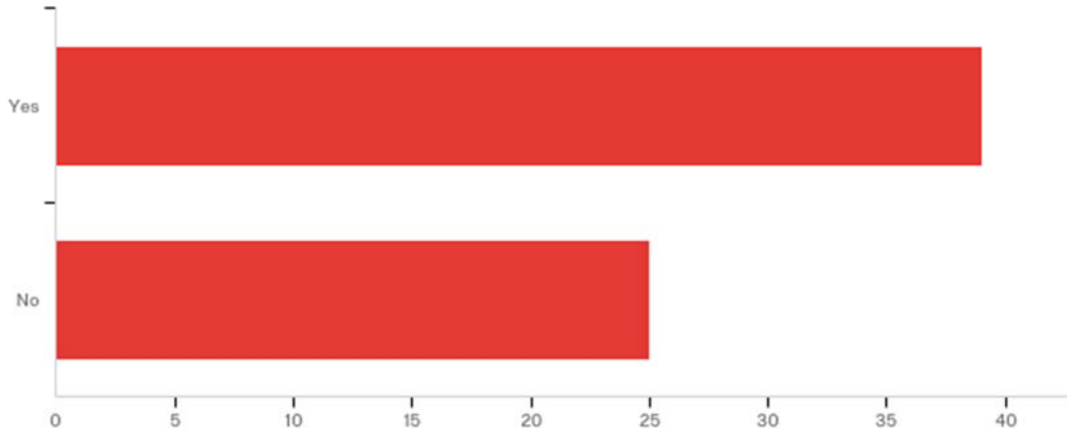
Going to build a bathroom

No change

Added the porch,

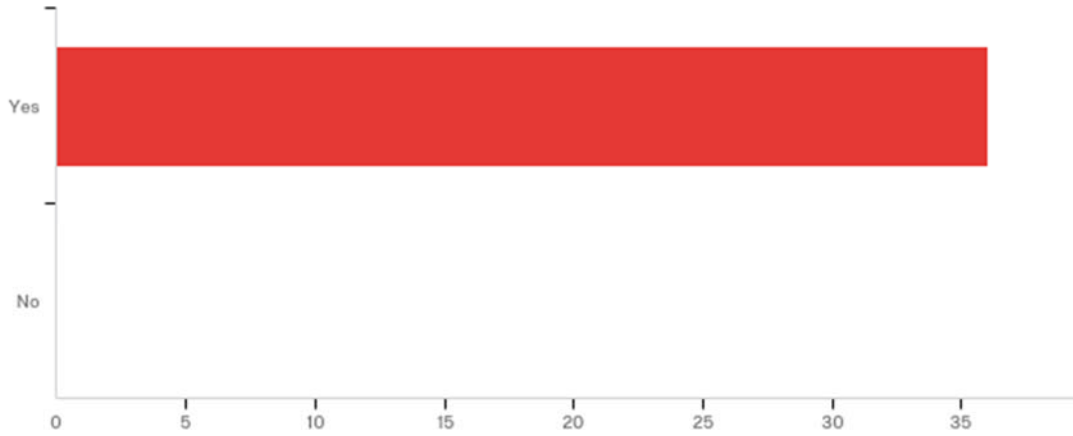
Added kitchen area, added a room, built a cookhouse

Q35 - Do you decorate the walls of your house?



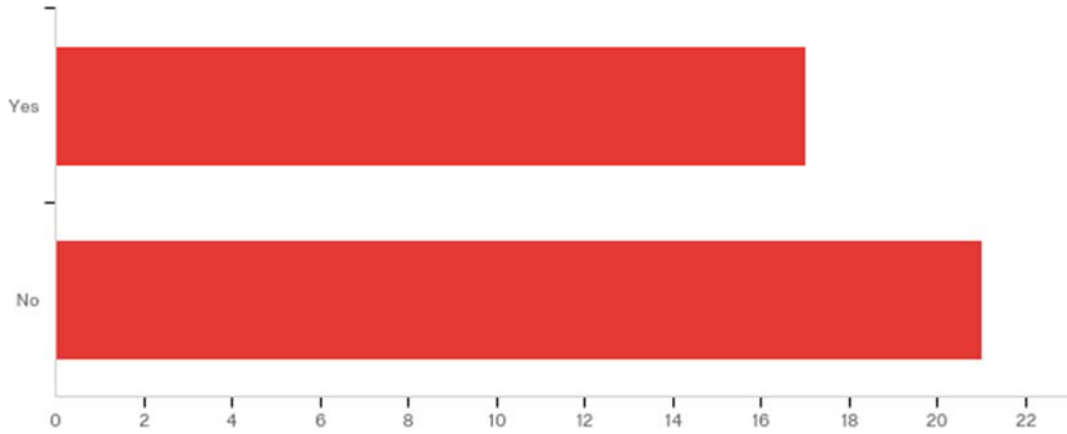
#	Answer	%	Count
1	Yes	60.94%	39
2	No	39.06%	25
	Total	100%	64

Q36 - If yes, do you decorate the walls with omimono?



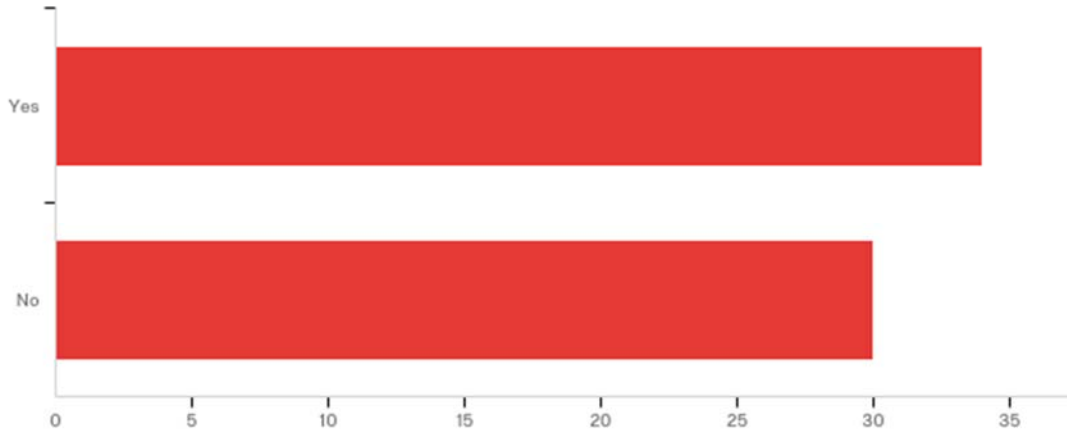
#	Answer	%	Count
1	Yes	100.00%	36
2	No	0.00%	0
	Total	100%	36

Q37 - If yes, do you decorate with pandanus mats?



#	Answer	%	Count
1	Yes	44.74%	17
2	No	55.26%	21
	Total	100%	38

Q38 - Do you place mats on your floor?



#	Answer	%	Count
1	Yes	53.13%	34
2	No	46.88%	30
	Total	100%	64

Q39 - If yes, what are they made from?/what type are they?

If yes, what are they made from?/what type are they?

pandanus

bought from store

Namdrik

the mats are made of pandanus leaves

foam

Speacial kine of fruitless pandanus leafes

ostrich designed

Pandanus Leave full mat for the floor and half mat for the wall

Pandanus

Marshallese mats made from pandanus leaves

American style floor mat

Natural materials

Foreign mat

Pandanus

fans, stick charts

wotje/pandanus

Pandanus

Whole and halves, Jaki Ed, Table mats.

Pandanus

Pandanus

Pandanus

Pandanus

Pandanus

Pandanus

Pandamus

Pandanus leaves

Pandanus

Pandanus

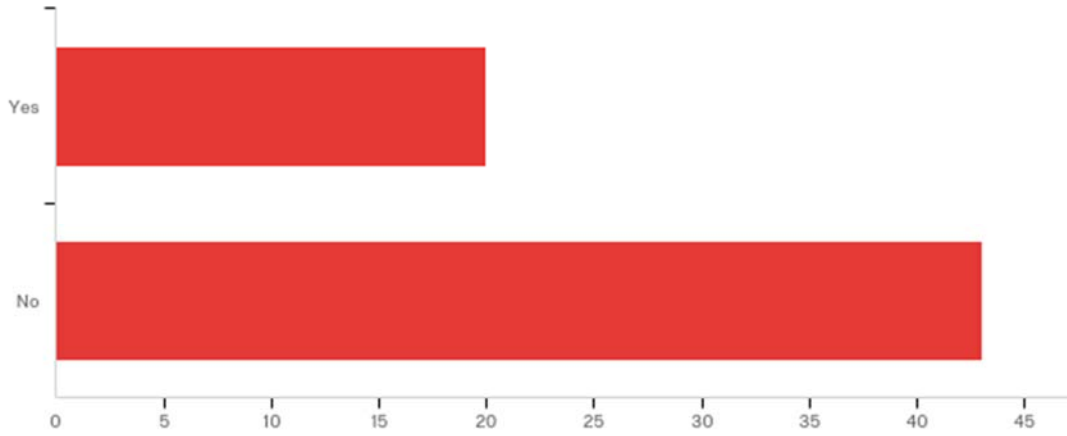
Pandamus

Pandanus

Pandanus

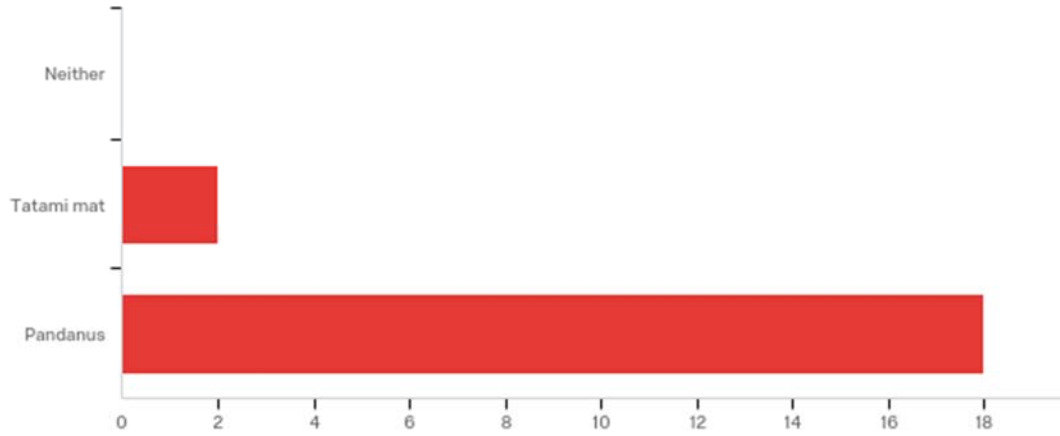
Pandamus

Q40 - Do you sleep on a mat?



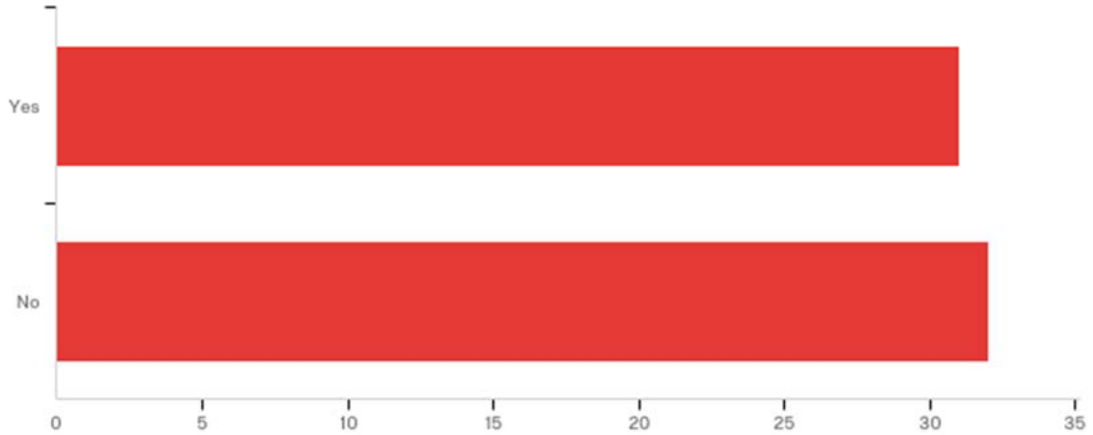
#	Answer	%	Count
1	Yes	31.75%	20
2	No	68.25%	43
	Total	100%	63

Q41 - If yes, is it a tatami mat or a pandanus mat?



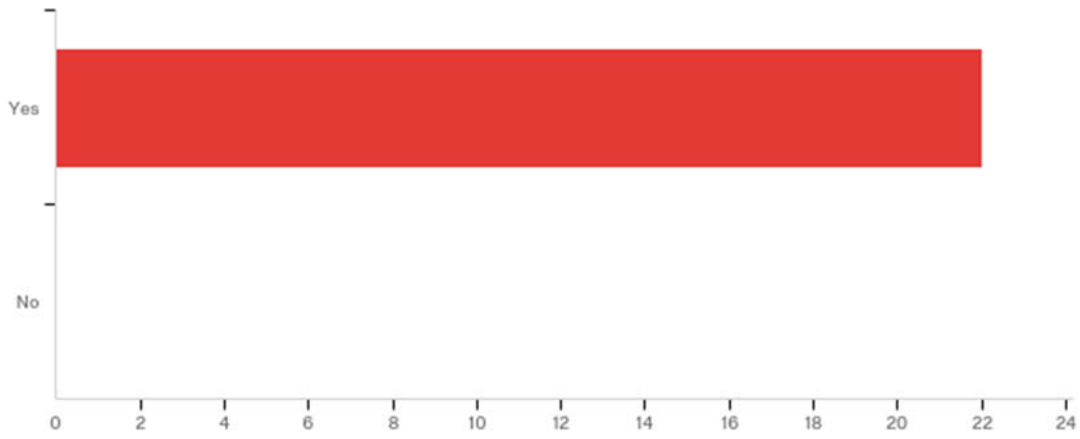
#	Answer	%	Count
1	Neither	0.00%	0
2	Tatami mat	10.00%	2
3	Pandanus	90.00%	18
	Total	100%	20

Q46 - There is an old cultural practice held by some, in which the wall of a sleeping place (bedroom or hut) where the head rests and the rear of the hut located near it are not allowed to be passed by or entered by anyone. Were you taught this growing up?



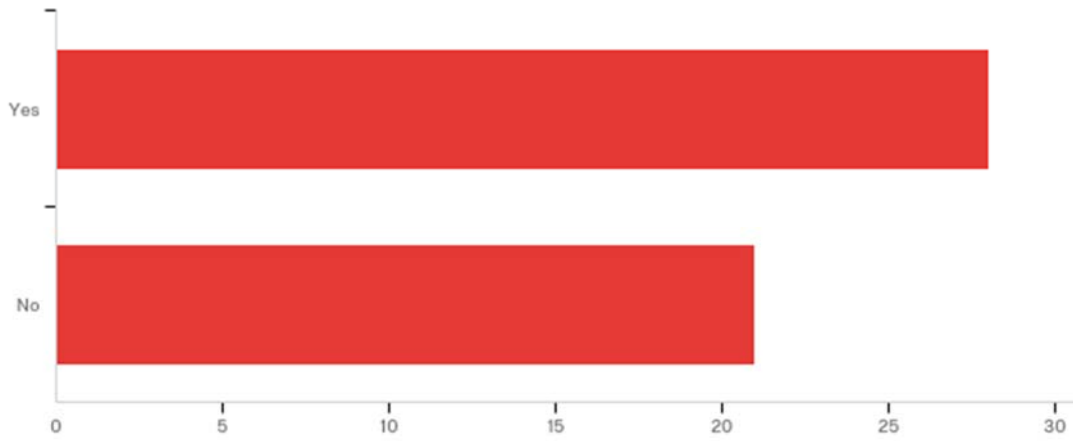
#	Answer	%	Count
1	Yes	49.21%	31
2	No	50.79%	32
	Total	100%	63

Q47 - If you are familiar with this practice, in your opinion, is it still practiced and taught to children?



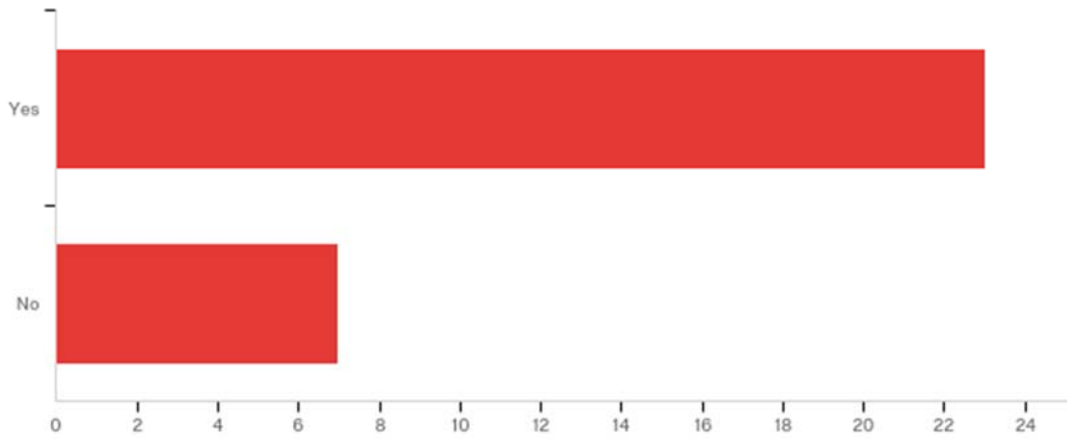
#	Answer	%	Count
1	Yes	100.00%	22
2	No	0.00%	0
	Total	100%	22

Q48 - If you remember this being practiced, in your opinion, do you think it changed how people walked around houses?



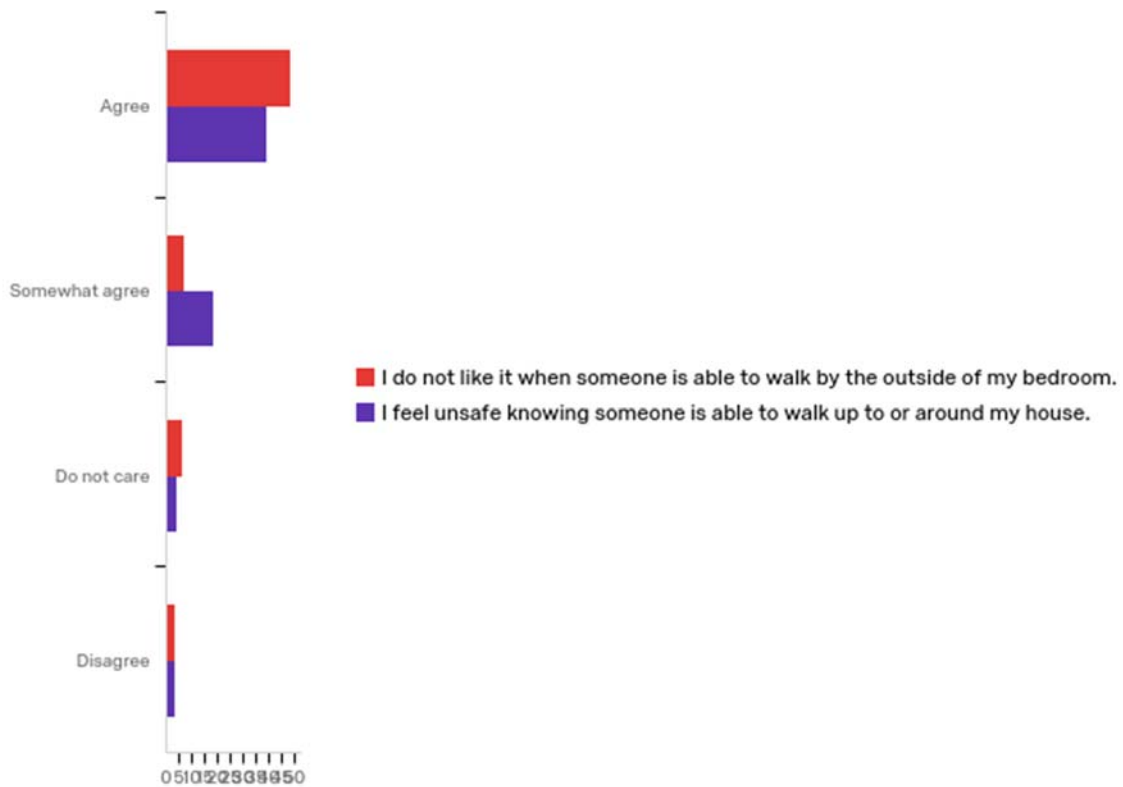
#	Answer	%	Count
1	Yes	57.14%	28
2	No	42.86%	21
	Total	100%	49

Q49 - If you remember this being practiced, in your opinion, do you think it changed how houses were situated or oriented?



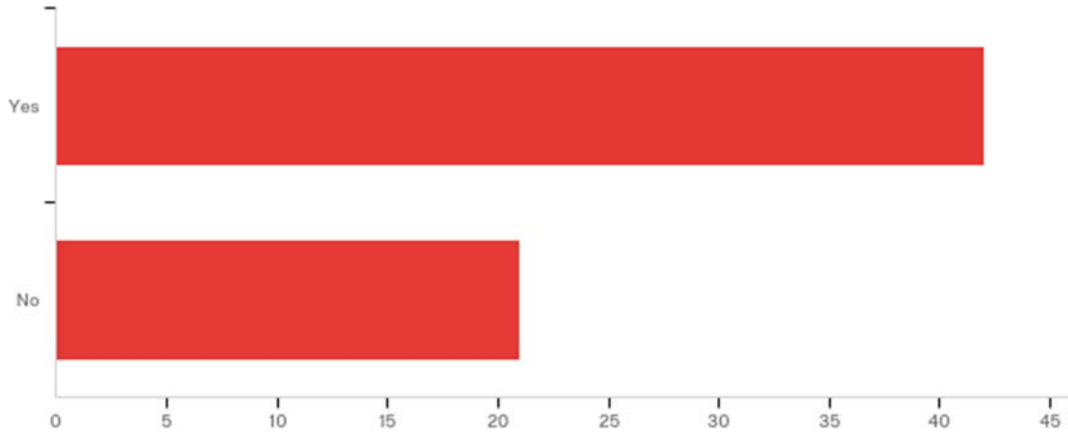
#	Answer	%	Count
1	Yes	76.67%	23
2	No	23.33%	7
	Total	100%	30

Q50 - Based on the following statements, please select the appropriate rating based on whether or not you agree.



#	Question	Agree		Somewhat agree		Do not care		Disagree		Total
1	I do not like it when someone is able to walk by the outside of my bedroom.	75.00%	48	10.94%	7	9.38%	6	4.69%	3	64
2	I feel unsafe knowing someone is able to walk up to or around my house.	60.94%	39	28.13%	18	6.25%	4	4.69%	3	64

Q51 - Is the location where you plant pandanus important?



#	Answer	%	Count
1	Yes	66.67%	42
2	No	33.33%	21
	Total	100%	63

Q52 - If yes, where are you supposed to plan pandanus?

If yes, where are you supposed to plan pandanus?

somewhere with more space

outside house

Front yard

Where the land is fertile. For instance, inland and not near the lagoon.

since i am reciting at the ocean side i want the pandanus to be planted on the ocean side for protection from the spray salt and protection of the shoreline from being eroded.

Near the beach

outside my house where I can see them everyday

No

along the coastline

Near around the house

Garden area

Close to the house

Little far from the house

Somewhere around the house but not too close

Area by my house

Near my cookhouse

Away from shoreline

At my backyard

somewhere visibale

Anywhere to help mark off property boundaries but more so near shoreline of the property

behind the house, away from the salt spray

Away from my house, I like more space

Pandanus is planted behind the house, next to the ocean.

far from house

Around the *wēto* but not close to the hous

In the middle of the wato

Away from house, I like more space

My mom has a couple bordering the compound

Far from the house, don't want the leaves falling o. The roof

Along the shoreline, clean spot

Sometimes in the middle of the islands

Any place is ok

Middle

Middle

West side of the road

On the beach near my house

Close to the house

Middle

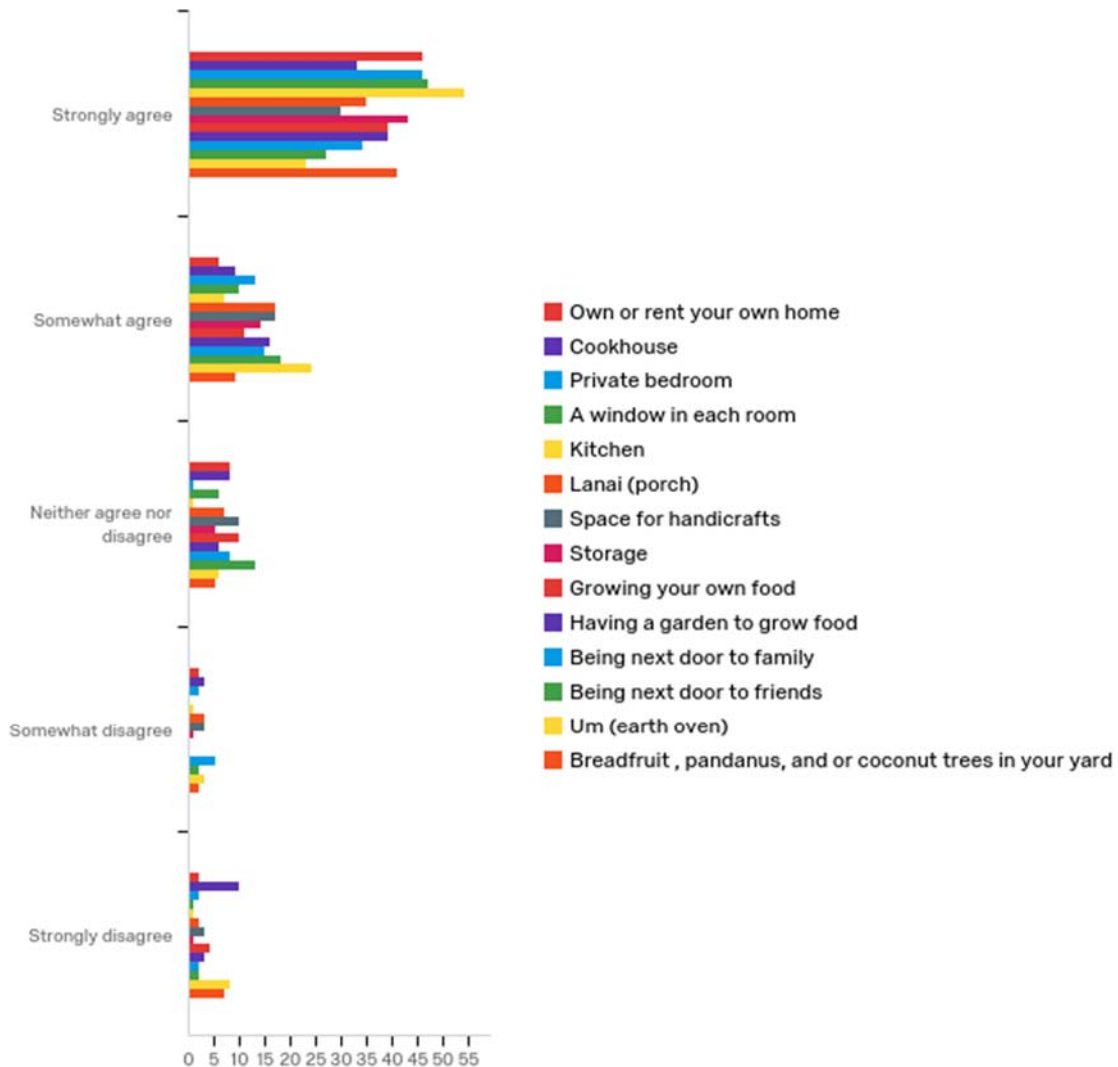
Middle

Plant pandanus at the lagoon but banana and breadfruit at the middle

Ok the lagoon and ocean side

Near the lagoon side to block the wind

Q42 - For this question, please think about these two things: 1. Think about your answer to the question that ranked the importance of rooms and activities at your house. 2. Imagine that you and your family and friends had to move to another country, such as Australia or the United States, and had to leave everything behind. Please rate the level of importance for having each of the following items available to you in your new home and neighborhood.



#	Question	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Total
1	Own or rent your	71.88%	9.38%	12.50%	3.13%	3.13%	64

	own home											
2	Cookhouse	52.38%	33	14.29%	9	12.70%	8	4.76%	3	15.87%	10	63
3	Private bedroom	71.88%	46	20.31%	13	1.56%	1	3.13%	2	3.13%	2	64
4	A window in each room	73.44%	47	15.63%	10	9.38%	6	0.00%	0	1.56%	1	64
5	Kitchen	84.38%	54	10.94%	7	1.56%	1	1.56%	1	1.56%	1	64
6	Lanai (porch)	54.69%	35	26.56%	17	10.94%	7	4.69%	3	3.13%	2	64
7	Space for handicrafts	47.62%	30	26.98%	17	15.87%	10	4.76%	3	4.76%	3	63
8	Storage	67.19%	43	21.88%	14	7.81%	5	1.56%	1	1.56%	1	64
9	Growing your own food	60.94%	39	17.19%	11	15.63%	10	0.00%	0	6.25%	4	64
10	Having a garden to grow food	60.94%	39	25.00%	16	9.38%	6	0.00%	0	4.69%	3	64
11	Being next door to family	53.13%	34	23.44%	15	12.50%	8	7.81%	5	3.13%	2	64
12	Being next door to friends	43.55%	27	29.03%	18	20.97%	13	3.23%	2	3.23%	2	62
13	Um (earth oven)	35.94%	23	37.50%	24	9.38%	6	4.69%	3	12.50%	8	64
14	Breadfruit, pandanus, and/or coconut trees in your yard	64.06%	41	14.06%	9	7.81%	5	3.13%	2	10.94%	7	64

Q43 - If you and your family were forced to move, anywhere in the world, please list the country, state, and city to which you would like to move.

If you and your family were forced to move, anywhere in the world, please list the country, state, and city to which you would like to move.

Other Pacific island countries

arizona, oregon, california, hawaii

Kosrea

Japan

California

China India Australia

Lad Vegas

Solomon Islands

HAWAII since its near to my homeland...

US - Washington State or Oregon

USA, Fiji, Paris

washington

Never want to leave the Marshall Islands

Oahu, Hawaii

United States, Hawaii

Hungary

Somewhere in southern Italy

Guam or Hawaii

Hawaii

Hawaii

Paris

USA Seattle

USA

USA

I would like to move to the outer islands

Hilo, Hawaii

Hawaii or Guam

Kiribati

Hawaii, its closer to home. Also because it has trees that are found here on island. For example, breadfruit tree, coconut, etc.

Japan

Move to outer islands

New York

New York

US mainland

Another Pacific Island or Taiwan

USA, Washington State, anywhere in King County

Australia (Melbourne) USA (Portland) Fiji (Suva) New Zealand

Portland, OR

If we have to move due to climate change I would like the government to purchase land somewhere in the Pacific, such as Fiji where we as Marshallese could settle and maintain some of our language and culture and still be partially together as a people, instead of spread out across the U.S.

Honolulu, HI

Miami or Kauai

Florida

Somewhere like here, warm - someplace where coconut, breadfruit or banana can grow, like tree - Puerto Rico

Portland, or

Hawaii

USA, don't know where

One of the Pacific states in the USA

USA, hawaii. Good to live there because the rate for working is high. Pacific Islanders

USA, Seattle Washington

USA, Arkansas

USA, Florida

USA, Arkansas

Washington state

Texas, Spokane, and new york

USA, Arkansas or California

USA, Arkansas

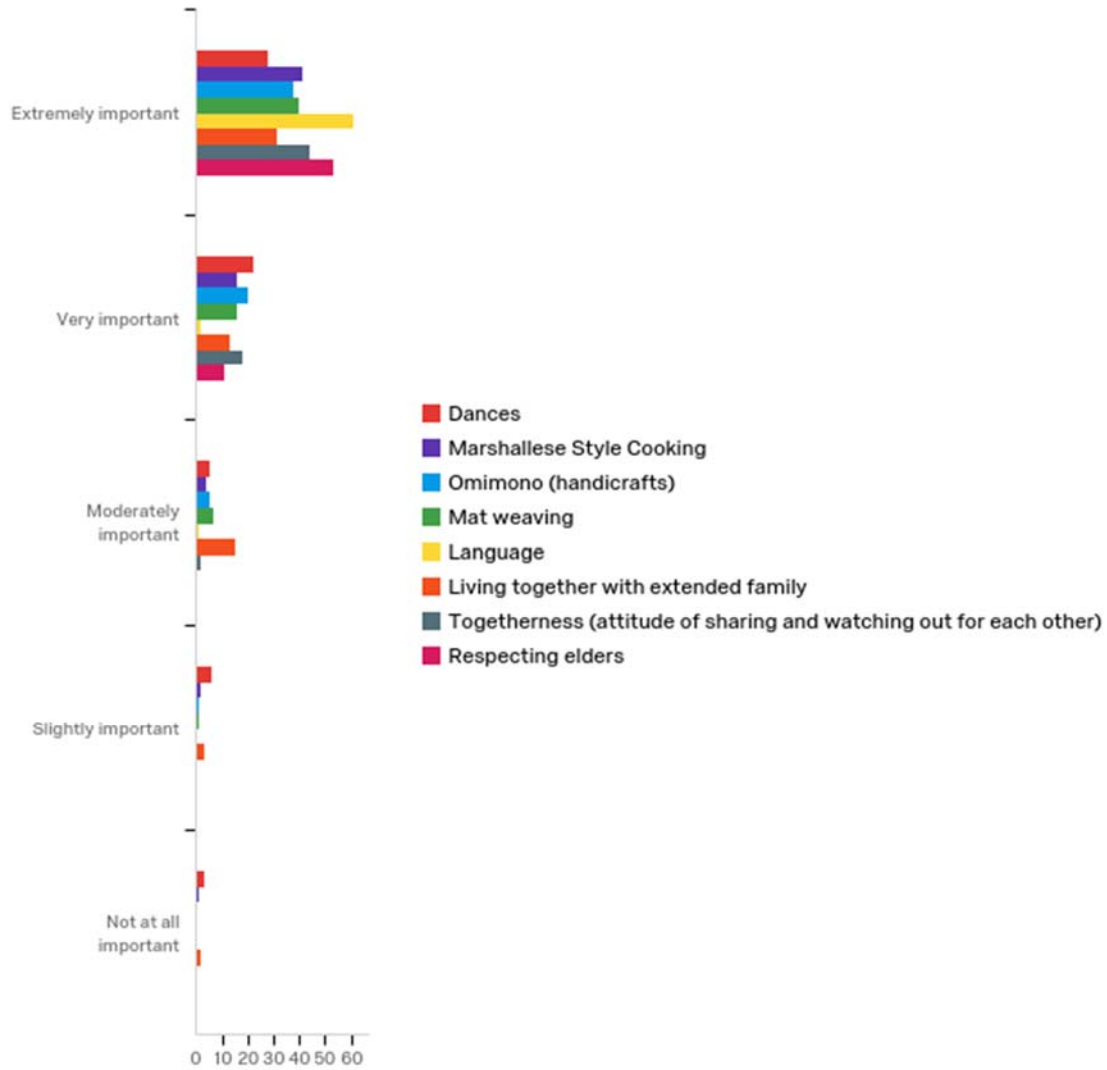
USA, Arkansas

USA, Hawaii

USA, Arkansas

USA, Spokane WA

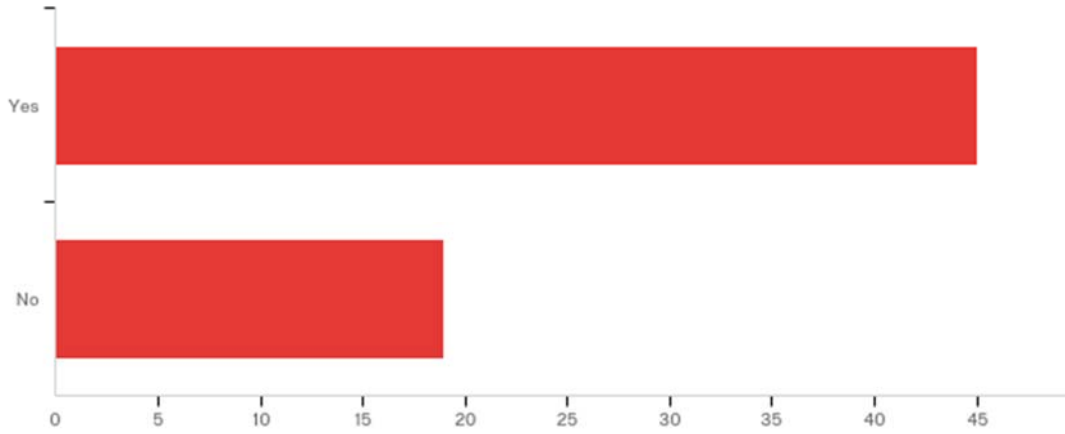
Q45 - Of the following cultural traditions, how important is it to be passed down to your kids or future kids? Please rate each tradition based on its level of importance.



#	Question	Extremely important	Very important	Moderately important	Slightly important	Not at all important	Total
1	Dances	43.75%	34.38%	7.81%	9.38%	4.69%	64
2	Marshallese Style Cooking	64.06%	25.00%	6.25%	3.13%	1.56%	64
3	Omimono (handicrafts)	59.38%	31.25%	7.81%	1.56%	0.00%	64
4	Mat weaving	62.50%	25.00%	10.94%	1.56%	0.00%	64

5	Language	95.31%	61	3.13%	2	1.56%	1	0.00%	0	0.00%	0	64
6	Living together with extended family	48.44%	31	20.31%	13	23.44%	15	4.69%	3	3.13%	2	64
7	Togetherness (attitude of sharing and watching out for each other)	68.75%	44	28.13%	18	3.13%	2	0.00%	0	0.00%	0	64
8	Respecting elders	82.81%	53	17.19%	11	0.00%	0	0.00%	0	0.00%	0	64

Q48 - Is the location where you plant breadfruit trees important?



#	Answer	%	Count
1	Yes	70.31%	45
2	No	29.69%	19
	Total	100%	64

Q49 - If yes, where are you supposed to plant breadfruit trees?

If yes, where are you supposed to plant breadfruit trees?

big space

outside house

Inland

some where not too close to the oceans...

Outside the house

outside my house

near my house.

Near the home where its shades can cover outside the home in order to have space outside to socialize with others

Far from home

Near around the house

Garden area

Close to house

Close to home

On the lagoon side

Close to your home

Next to my house

Somewhere far behind the house

Near the cookhouse

Near the house

At the backyard

Away from salty water

Opposite side of the ocean with the house as a buffer to saltspray. Most inland of your property.

Yes

Away from the house. The roots and branches might damage hoise

Where the best soil exists and there is protection from salt spray.

nearby house

Near the house but not too close

In the middle of the wato

Away from house, the roots and branches might damage house if bigger

Back yard

Far from the house. Better on lagoon side

Middle of the island

Middle of the island

Middle of the island

Middle

Middle, have to run from ocean and lagoon side

West side of the road

West side of my house

Middle

Middle

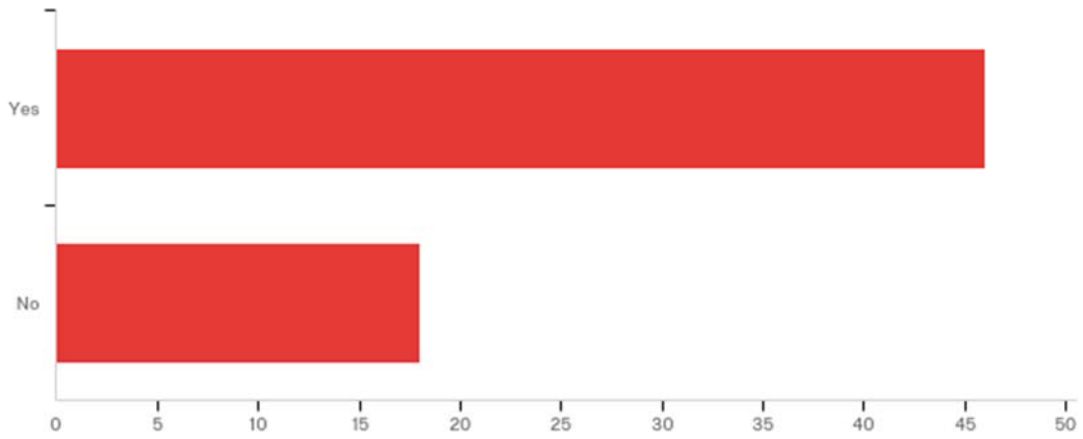
Middle

Middle

Close to the house

Ocean side of the house

Q50 - Have you ever used local wood for building (for a house, cookhouse, or other building)?



#	Answer	%	Count
1	Yes	71.88%	46
2	No	28.13%	18
	Total	100%	64

Q51 - If yes, could you list the type of wood or name of the tree it came from that you use?

If yes, could you list the type of wood or name of the tree it came from that you use?

can't remember

Breadfruit Coconut

Cool house

Breadfruit Coconut Law

Breadfruit Coconut

Marshalled call it wutilomar

Breadfruit Coconut tree

Kone

Marshallese name: kone (pronounced keng ay).

Kimeme, Konwe, Pandanus

Breadfruit, kone, wutilomar

Local house, gardening, cook house

Pandanus, wutiloman, coconut, lukwej

Make line for laundry

Cookhouse Took to get breadfruit (komkom)

Cook hoiw, wood storage for cooking

Kaar for cooking house

Coconut and pandanus

Coconut, breadfruit and Wiloman

Lo Breadfruit Coconut

Mei, lo, coconut

Kar, pine tree, noni tree

Lo, coconut tree, pine tree

Pandanus, coconut tree, one Marshallese tree we call Kar

i have used wood left over from pallets, kone, dried up tree branches that wash up shore, we use coconut shells and the husk too

Wutilomar & lukwej

Coconut tree trunks, coconut leaves, pandanus leaves, pandanus roots, and coconut frond center pieces.

Mangrove, Lukej, arme, kimeme, kono, kaar

Ko?e, breadfruit, lukeej, k?no

Pandanus, mangroves, lukwej

Witwotwi, kimeme, mangrove (jon)

Mei, pinpin, kemimi, Jon (mangrove), car

Kemimi, pinpin, lukwej, pandanus, mei.

Bob, car, ni, kemimi, mangrove, lukwej,

Kemimi, car, pinpin, kino , lukwej.

Breadfruit, mangrove, pinpin, Lo Kije, lukwej, wutilomar, nin, armwe,kiden,jon,kimame

Pandanus, breadfruit, mangrove etc...

Mangrove, kemimi, lo (hibiscus)

The local wood houses are gone now

Mangrove, kemimi, witwotwit

Kemimi, mangrove, pandanus

Kejbar, witwutwit,

Jon, kar, lo, kimeme,

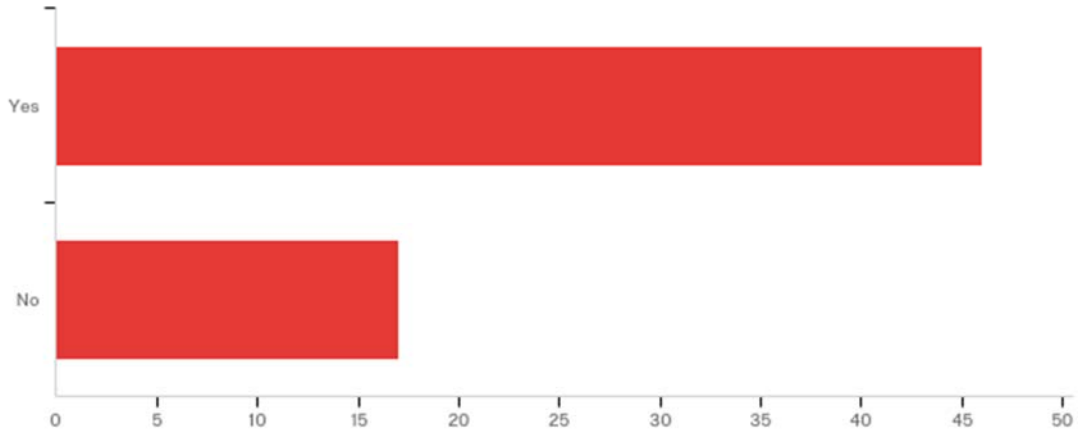
**Q53 - For the following questions take think about the following definitions:
Crowding: the feeling that too many people share one space or the feeling
that too many buildings share the same space. Density: The number of people
in a space, it is a measurement. Or, the number of houses in an area.**

How many people can live in a 1 room house before it is too crowded?	How many people can live in a 2 room house before it is too crowded?	How many people can live in a 3 room house before it is too crowded?	How many people can live on a <i>wēto</i> (wato) before it is too crowded?	How many houses can be on a <i>wēto</i> (wato) before it is too crowded?
4	4	6	More than 100	50
3	4	5	10	3
6	8	13	23	15
2	3	6	60	20
2	3	6	60	46
4	6	7	45	25
2	3	6	50	20
2	5	7	Depends on land rights.	Depends on land rights.
2	5	10	20	10
6	8	12	40	15
3	4	6	depends on how many acres the <i>wēto</i> is	depends on how many acres the <i>wēto</i> is
7up to 15	15	20	100	5 and up to 15
3	5	7	30	10
6	12	24	depend on how big is the <i>wēto</i>	depend on how big is the <i>wēto</i>
4+	10+	12+	100+	depends on the space of the <i>wēto</i>
3-4	3-6	6-8	50-80	10-15
2-3	3-4	4-8	Depends on Space of Wa?to.	As long as you See the sea from the Shore line its all good. If not there is a problem/

3	5	6	25	5
4	8	12	100+	20+
5+	5+	10+	10+	3+
3	5	7	Depends on size of <i>wēto</i>	Depends on size of <i>wēto</i>
3	6	9	30	10+
3	6	9	30	6
3	6	9	30+	4
3	6	9	60	20
4	6	10	25	4
5	7	3	25	9
3-5	8-10	5	50	10
2	5	9	30+	10+
5	10	20	50	20
2	4	6	20+	5+
3-4	6-8	7-8	Not too many	10-11
4	8	16	150+	50+
2	4	6	20+	10+
1 couple	1 couple	Same as above	Only family and relatives	Same as above
5	8	10	300	30
3	5	8	Depends how big the <i>wēto</i> is	Same as above
5	8	11	depends on land space	depends
4	8	12	20-30	15-20
3	6	8	80-90	20-30
5	10	15	More than 15	10
2	4	8	2-6	2-8
4	5-8	10	Depends on the size of the wato, maybe 20 or more	Depends on the size of the wato, maybe 5 to 10 houses.

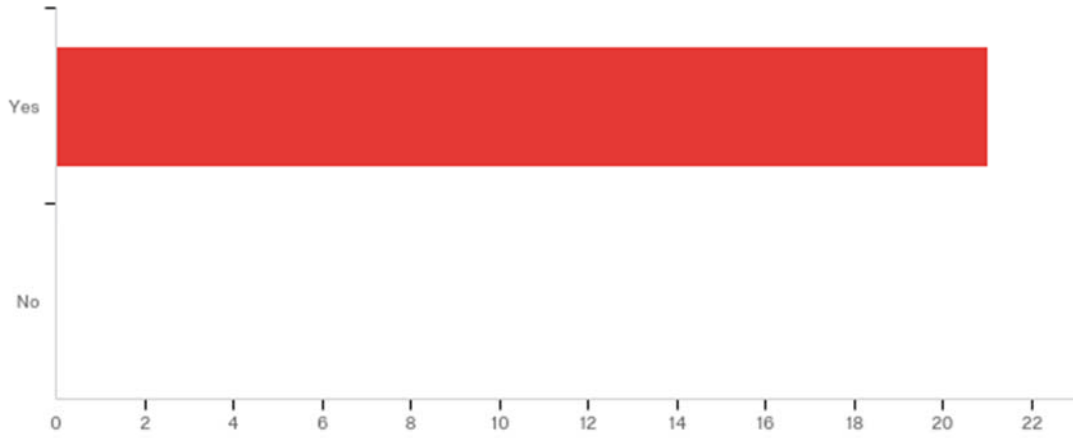
6	10	15	50	10
1-3	4-6	7-10	20 or more	Depends on how big the <i>wēto</i> is
2	4	6	6	2
8	16			100
3	6	8	80-90	20-30
3	6	9	50+	30
4	4	6	8-10	3
3	4-5	8	More than 20	10-11
6-7	10	15	150	20
6	5 per room	12-15	More than 10	3-4
2	4	6	More than 10	2-3
2-3	2-3		More than 10	2-4
5-6	More than 10	More than 10	More than 10	3
5	10	15	5 families	5
Six	Ten	Maybe twenty	Five	Seven
4	6	10	10	4
2	6	10	More than 10	2
2	4	6	6 people is enough ok this smal wato	2
One family 4	5-6	10	2-3 families	3
3-4	6	12	Less than 10	2
10	15	30	50-100	10

Q55 - Is the ground where a former chief lived sacred?



#	Answer	%	Count
1	Yes	73.02%	46
2	No	26.98%	17
	Total	100%	63

Q56 - If yes, can the land be built on?



#	Answer	%	Count
1	Yes	100.00%	21
2	No	0.00%	0
	Total	100%	21

Q57 - If the land can be built one, who is allowed to build on it?

If the land can be built one, who is allowed to build on it?

n/a

usually immediate family, close members of the family

chief clan

Family member of the chief

the landlord and the relatives

Land Owners

Anyone

Relatives of the chief

The chiefs family

Chiefs family only

Relatives or those who are granted permission from the family

some people say it should be used for family of chief but i think if land is needed by common people it should be given

Need permission from the Irooj and maybe the Alap.

Chiefs family

Only the family of the chief

Relatives

Only the family

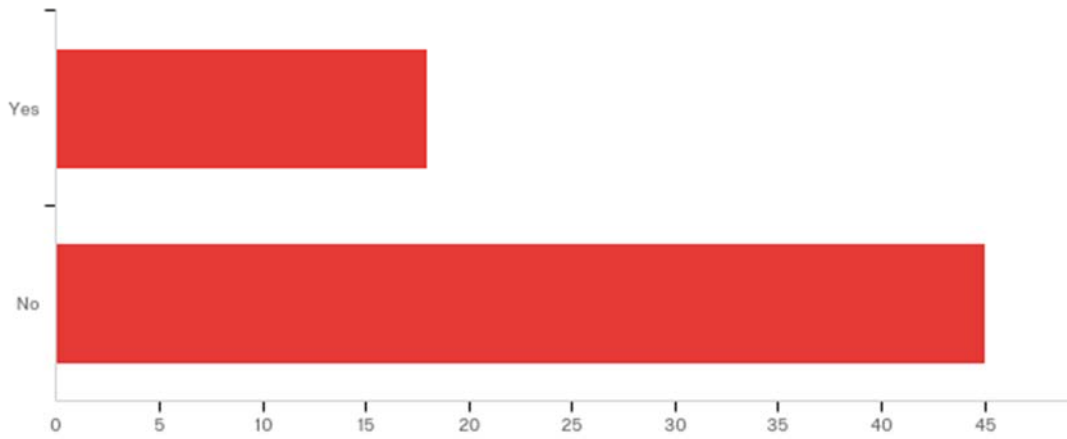
Only the relatives

Their relatives

Only the iroj

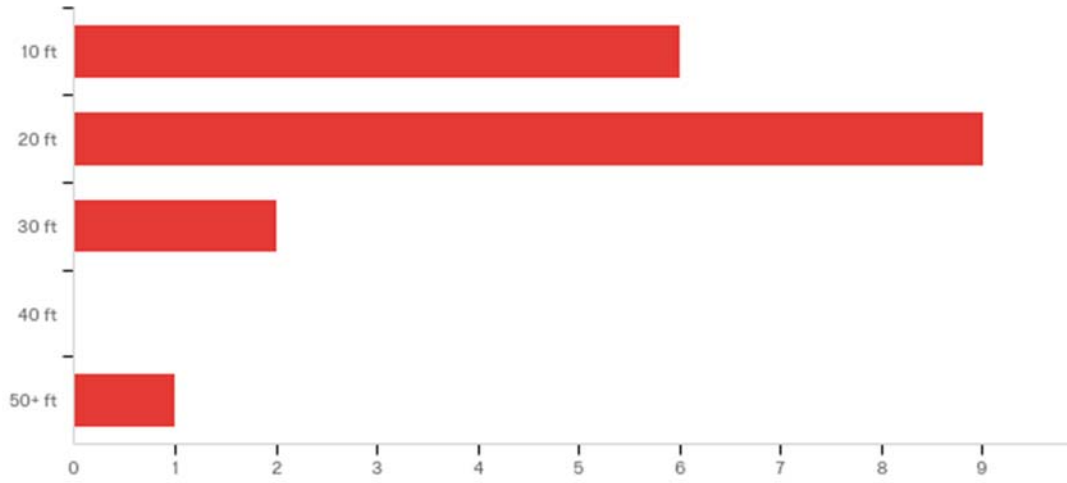
Only those in same family

Q58 - In your experience or opinion, is there a height limit for how tall a house can be?



#	Answer	%	Count
1	Yes	28.57%	18
2	No	71.43%	45
	Total	100%	63

Q59 - If yes, what is it?



#	Answer	%	Count
1	10 ft	33.33%	6
2	20 ft	50.00%	9
3	30 ft	11.11%	2
4	40 ft	0.00%	0
5	50+ ft	5.56%	1
	Total	100%	18

Q61 - If yes, why do you think that height limit exists?

If yes, why do you think that height limit exists?

because it's not appropriate for the traditional chief when he/she passes by...

yes if there is a chief around the *wēto* because we don't have to be above him

because people are not allowed to go up on the chief

I believe the East trade winds are blocked from the Chinese Castles on Island

To save the roof of the house from winds

No, it could be higher

Custom- if a chief builds a house no one else can build their house as tall as his.

Good for looking, for Alden the house can be no more than 2 story because of the chief

High and cool

Thanks

High tide

All the same for the houses here

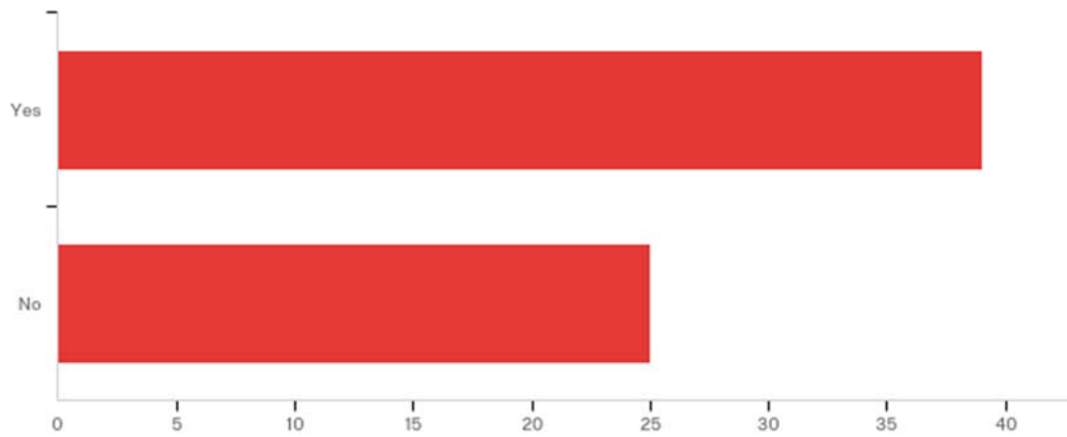
All the same height

All the houses the same height

People just like to build this kind of house - maybe not enough material to make it higher

What building allows

Q62 - Have you lived with another family member for an extended time?



#	Answer	%	Count
1	Yes	60.94%	39
2	No	39.06%	25
	Total	100%	64

Q63 - Why?

Why?

comfort

My house was destroyed by a typhoon. Another time was i had to leave my home to another island to go to school

had no place to go

seeking education

Because our family or relatives are very happy and pleased to look after themselves

School

Moved from the US and needed a place while I got settled

Education reasons

Summer

Funeral

School

Visit

Just for fun

Summer vacation, loved it so I stayed for a while

Because we prepare food for big family birthday, marriage party, etc

I was away for school and had to live with my cousin abroad

Summer vacation

I was following my grandfather who moved to one of his daughter's house.

I have lived with my adopted family on Lae and in Majuro for many years in the past.

just how it is

Went to school and stayed with family

Went to stay in Majuro to work

Moved from Namdrik to Majuro

House renovation

After graduating from MOC, lived with mother's younger sister on Majuro

some times with parents sometimes with family member

Food there and sleep there. If you have an uncle out there, you can just go out there and sleep.

Like to stay with them

When the typhoon hit, she lived with relatives

In school

Because my parent moved to other place

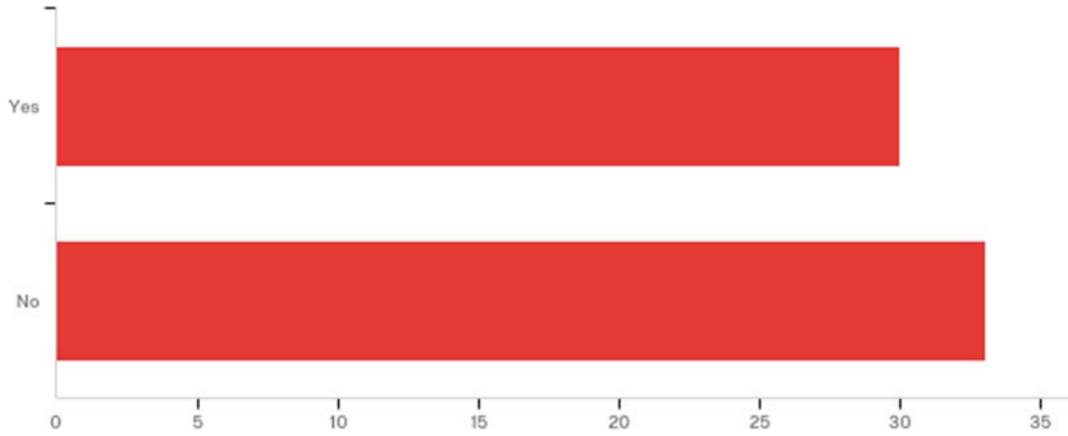
Because they are relatives

Sometimes they have her stay with them

Grew up with family but when he was married loved to her family wato

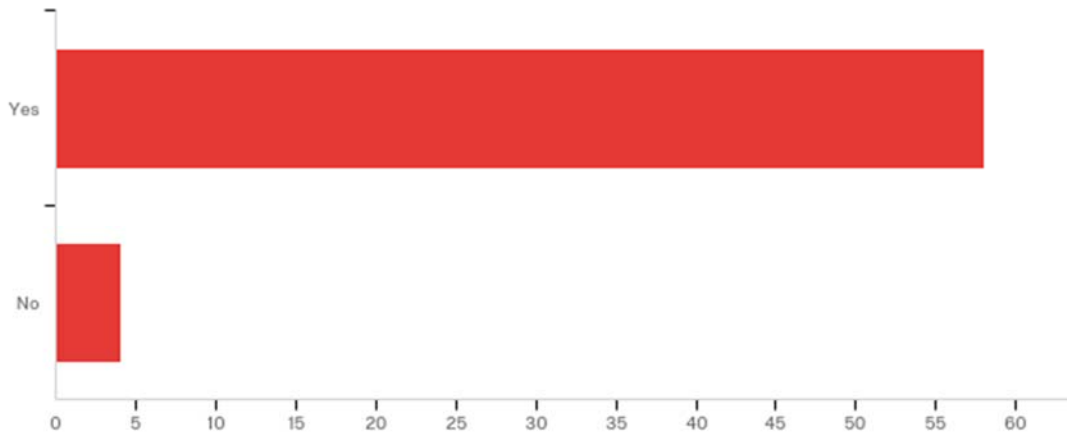
Went to enter and stayed with family

Q67 - Do you spread coral around your house and /or adjacent area?



#	Answer	%	Count
1	Yes	47.62%	30
2	No	52.38%	33
	Total	100%	63

Q70 - Is it important to you to use local resources (plants, vegetables, fruit, water, etc) in your daily life?



#	Answer	%	Count
1	Yes	93.55%	58
2	No	6.45%	4
	Total	100%	62

Q71 - If yes, what local resources do you use everyday?

If yes, what local resources do you use everyday?

water

coconut

Wood Food

Plants

Plants Trees Foods (local)

Plant Woods Food

Wood Plants Food

Wood Food

coconut pandanus breadfruit etc...

Plants

seawall project. using landfills to build up my seawall before cement filling

coconut oil and marshallese food

breadfruit, coconut, bananas, well

Banana, pandanus, breadfruits, coconut trees

Ma?- Breadfruit. I replace it for rice due to the fiber count. Rice should be banned.

Food and logs for fire wood

Anything

I try to eat local crops, fish, etc. as much as I can.

Wood, pandanus, coconut, logs

Food and wood

Wood, coconut tree, Mei

Wood and food

Plants and water

Coconut, breadfruit, pandanus and tarot

Food

Food, trees, wood

Plants

Coconut tree

Breadfruit, coconut and crab

Water and local trees and shrubs

Coconut products

fish, water, local food (when available)

Banana, papaya, etc. trying to promote local resources

Local food

When available I buy and prepare and eat some local foods.

biomass

Coconuts

Foods and copra

Food, medicine (noni)

Banana, papaya, fish, tryout my to promote local resources

Oil, local spices, local medicines,

Coconut, pandanus,

Pandanus, coconut, breadfruit, banana leaves

Copra, mei, biru

Pandanus, copra, breadfruit,

Copra, pandanus,

Waini, mat pandanus

Copra, breadfruit, pandanus,

Pandanus, copra, banana, pig, omimono, teaching

Copra and handicraft

Mat and copra, banana, and other foods

Fruit, pandanus for mat, copra

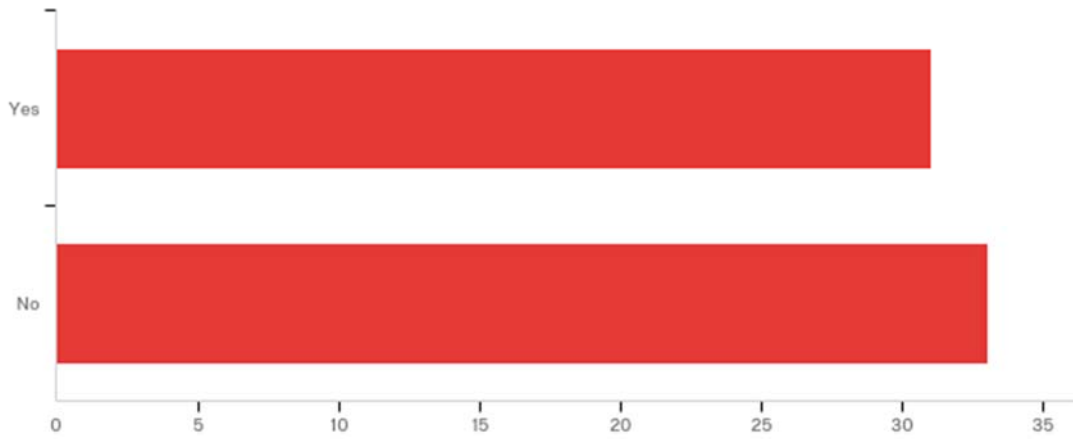
Copra, foods

Copra, fruit,

Copra, food

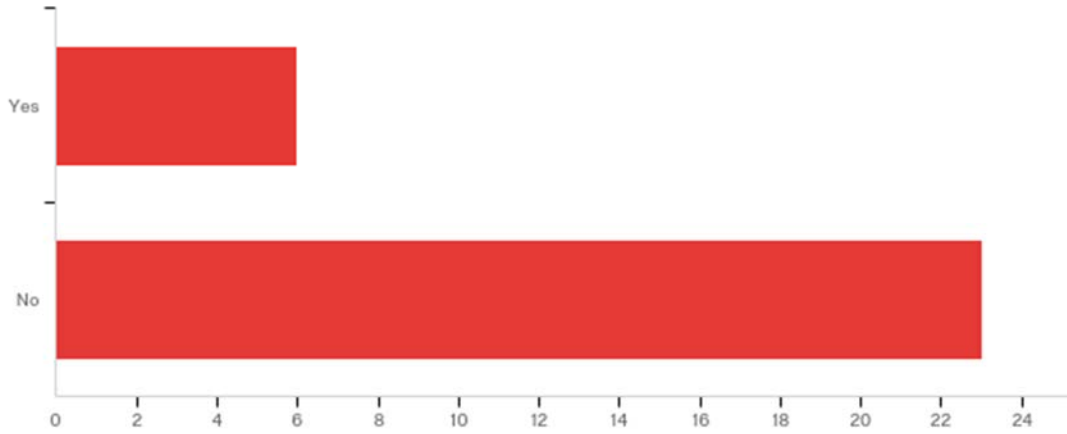
Mei, banana, coconut pandanus, fish, copra

Q72 - Do you have a storage space for important and/ or valuable items (for example jewelry)?



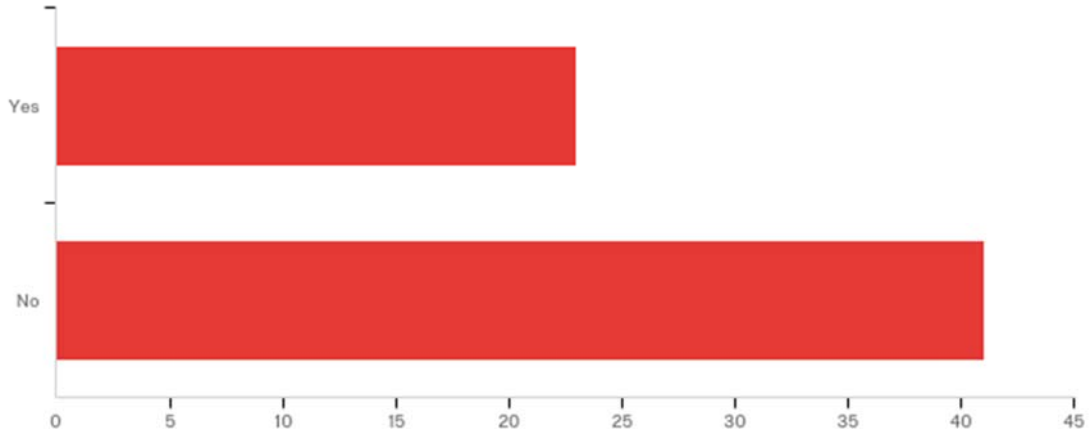
#	Answer	%	Count
1	Yes	48.44%	31
2	No	51.56%	33
	Total	100%	64

Q73 - If yes, where is this space located in the attic?



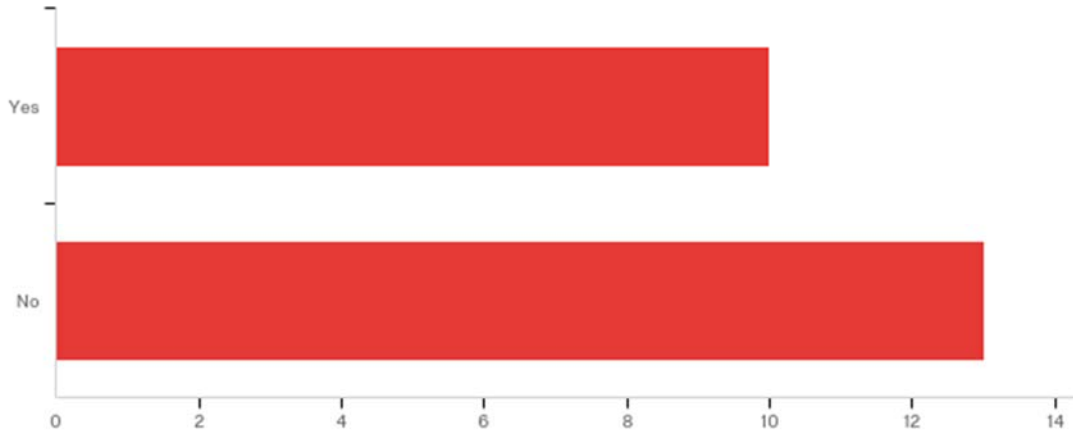
#	Answer	%	Count
1	Yes	20.69%	6
2	No	79.31%	23
	Total	100%	29

Q74 - Are you familiar with the traditional village housing in which the alap's house was the big house on the *wēto* (wato) that was at the center of life on the *wēto* (wato)?



#	Answer	%	Count
1	Yes	35.94%	23
2	No	64.06%	41
	Total	100%	64

Q75 - If yes, in your opinion, does this pattern still take place?



#	Answer	%	Count
1	Yes	43.48%	10
2	No	56.52%	13
	Total	100%	23

Q78 - If yes, where? If no, why not?

If yes, where? If no, why not?

Culture has changed

Majuro

in the outer islands and on Majuro

lokonmok ritA

Uluga Behind the Bowling Alley. "Icedonia"

Here

Life has been changed

House does not show power only money

Other people on the *wēto* are financially well off and able to afford a bigger house

Rita

Sometimes it still happens but often the alap is not living on the land.

Outer Islands, Rural area and some areas on Majuro

Nowadays different people stay on a wato. Which means they built their houses bigger than the alap.

Because most of the alap are not in their *wēto* these days

Man is always the alap, responsible for taking care of his people and bring peace with the famil. this house is now the alaps house

My uncles house

Live in modern time now, doing the modern life

Don't follow tradition. Slaps are trouble

Houses are different now, and people don't follow old customs.

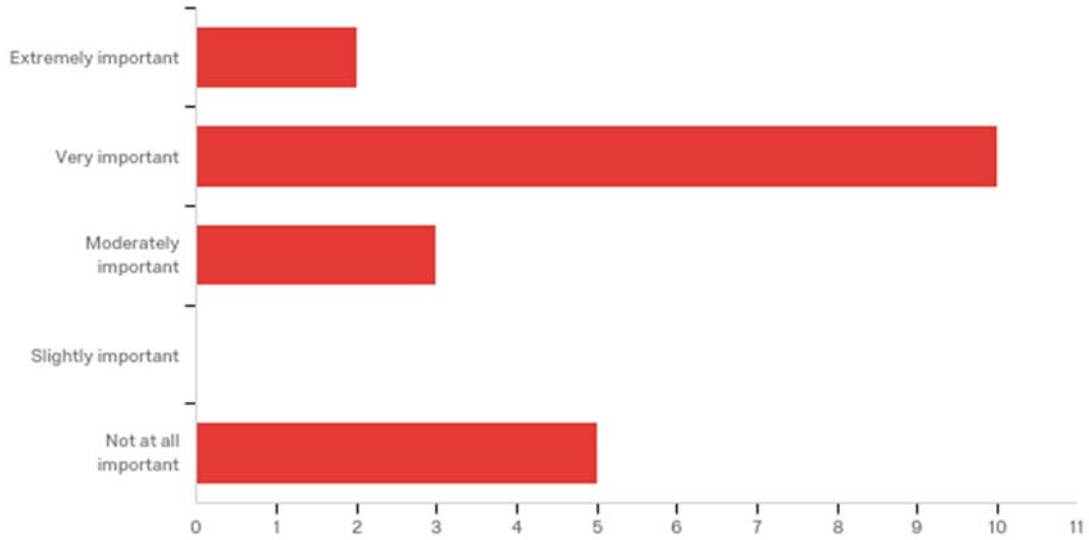
Because they think about themselves and don't care about everybody else, most people don't respect their alap these days

Now a days some people do not respect their alaps

People don't care and don't respect their alap - no more rules

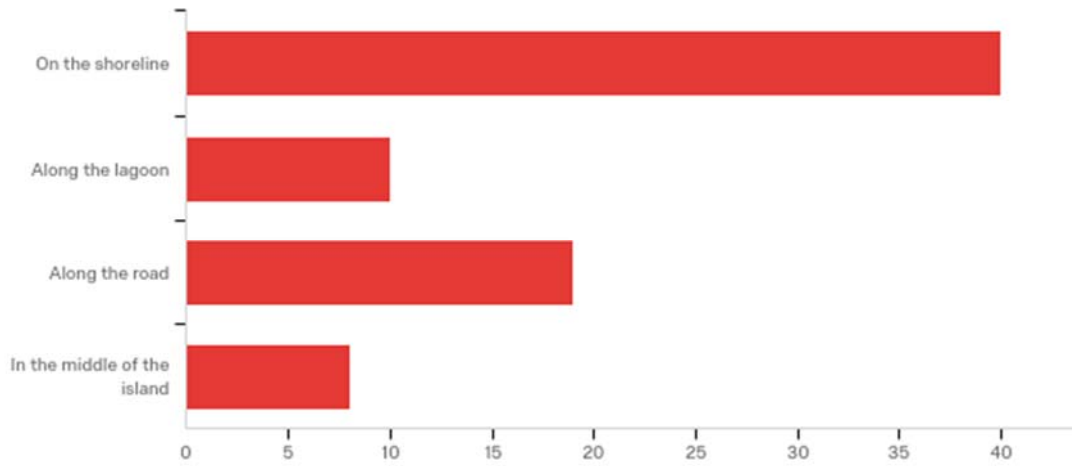
In my place, where I put my house

Q79 - If yes, please rate how important this tradition is.



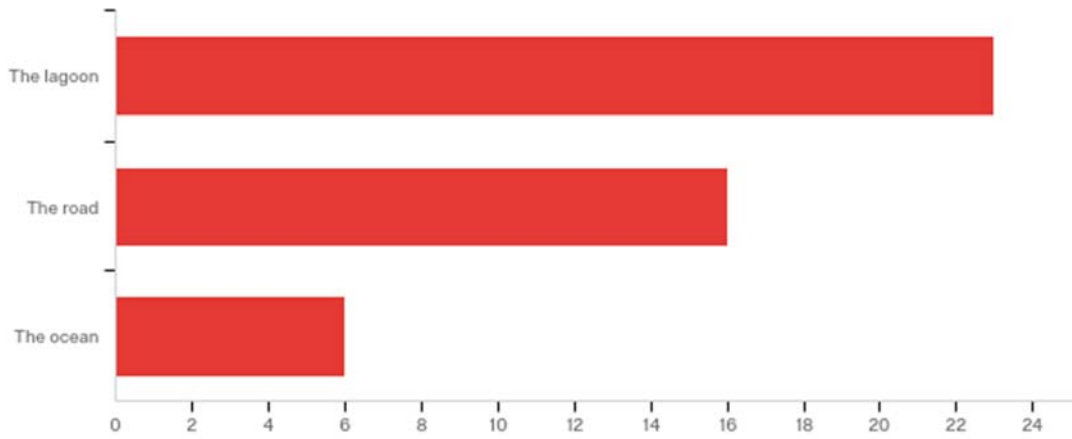
#	Answer	%	Count
1	Extremely important	10.00%	2
2	Very important	50.00%	10
3	Moderately important	15.00%	3
4	Slightly important	0.00%	0
5	Not at all important	25.00%	5
	Total	100%	20

Q81 - In your opinion, on the island, where is a bad place to locate a house? Please select bad locations included on this list.



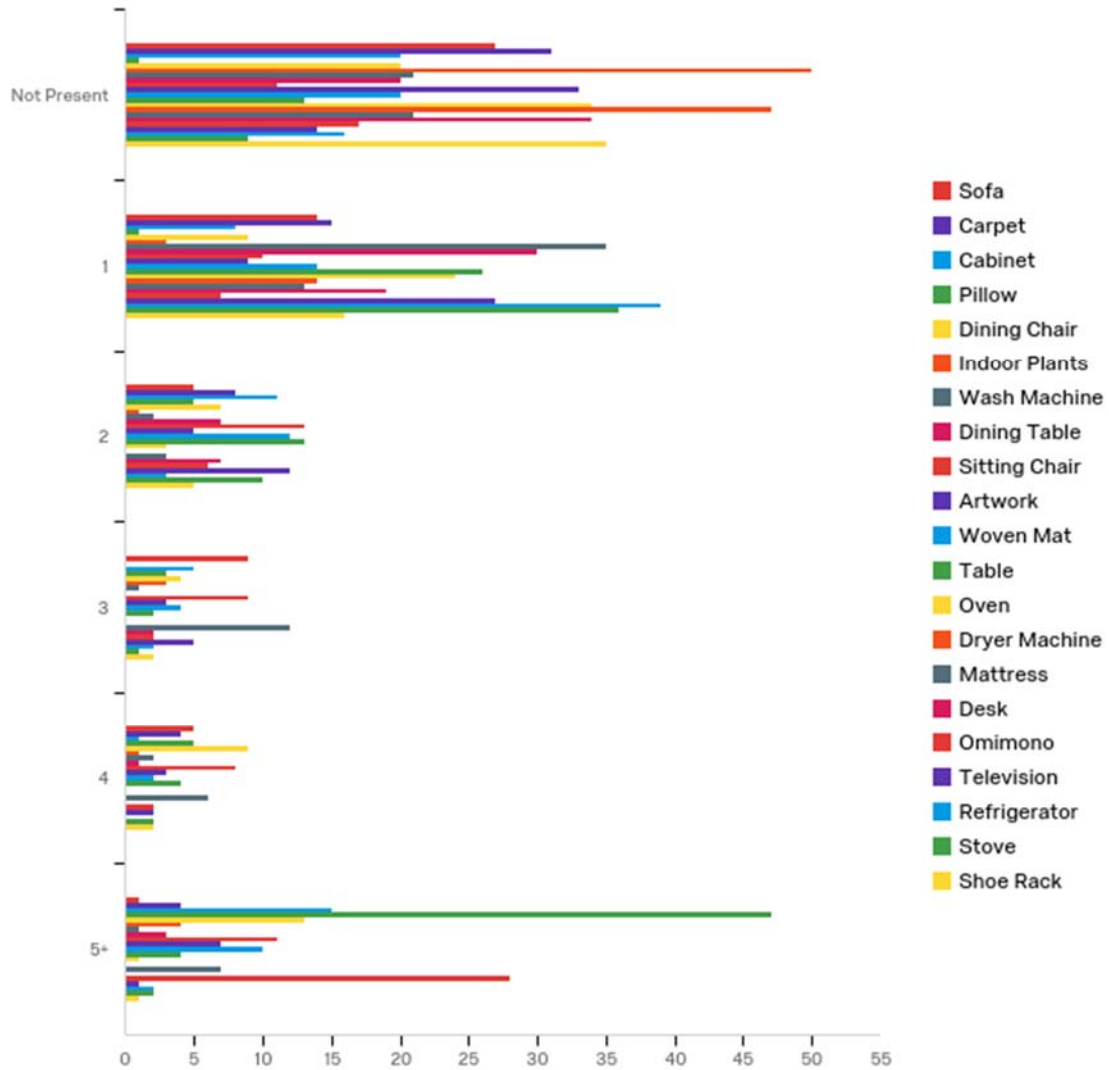
#	Answer	%	Count
1	On the shoreline	51.95%	40
2	Along the lagoon	12.99%	10
3	Along the road	24.68%	19
4	In the middle of the island	10.39%	8
	Total	100%	77

Q82 - In your opinion, should the house be oriented along one of the following?



#	Answer	%	Count
1	The lagoon	51.11%	23
2	The road	35.56%	16
3	The ocean	13.33%	6
	Total	100%	45

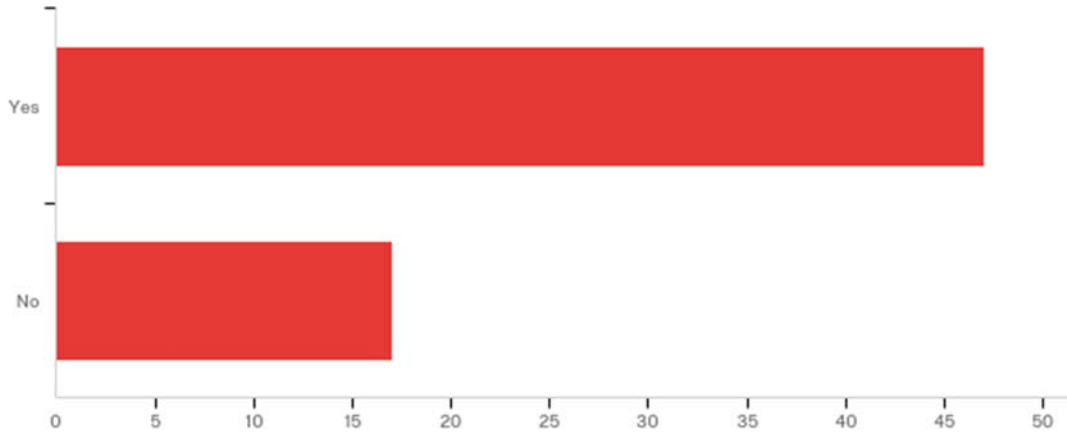
Q86 - The following question has to do with furnishings in your house. Please indicate which furnishings are present in your house and the number of each that are present.



#	Question	Not Present	1	2	3	4	5+	Total						
1	Sofa	44.26 %	27	22.95 %	14	8.20%	5	14.75 %	9	8.20%	5	1.64%	1	61
2	Carpet	50.00 %	31	24.19 %	15	12.90 %	8	0.00%	0	6.45%	4	6.45%	4	62
3	Cabinet	33.33 %	20	13.33 %	8	18.33 %	11	8.33%	5	1.67%	1	25.00 %	15	60
4	Pillow	1.61 %	1	1.61%	1	8.06%	5	4.84%	3	8.06%	5	75.81 %	47	62
5	Dining Chair	32.26 %	20	14.52 %	9	11.29 %	7	6.45%	4	14.52 %	9	20.97 %	13	62

6	Indoor Plants	80.65 %	5 0	4.84%	3	1.61%	1	4.84%	3	1.61%	1	6.45%	4	62
7	Wash Machine	33.87 %	2 1	56.45 %	3 5	3.23%	2	1.61%	1	3.23%	2	1.61%	1	62
8	Dining Table	32.79 %	2 0	49.18 %	3 0	11.48 %	7	0.00%	0	1.64%	1	4.92%	3	61
9	Sitting Chair	17.74 %	1 1	16.13 %	1 0	20.97 %	1 3	14.52 %	9	12.90 %	8	17.74 %	1 1	62
10	Artwork	55.00 %	3 3	15.00 %	9	8.33%	5	5.00%	3	5.00%	3	11.67 %	7	60
11	Woven Mat	32.26 %	2 0	22.58 %	1 4	19.35 %	1 2	6.45%	4	3.23%	2	16.13 %	1 0	62
12	Table	20.97 %	1 3	41.94 %	2 6	20.97 %	1 3	3.23%	2	6.45%	4	6.45%	4	62
13	Oven	54.84 %	3 4	38.71 %	2 4	4.84%	3	0.00%	0	0.00%	0	1.61%	1	62
14	Dryer Machine	77.05 %	4 7	22.95 %	1 4	0.00%	0	0.00%	0	0.00%	0	0.00%	0	61
15	Mattress	33.87 %	2 1	20.97 %	1 3	4.84%	3	19.35 %	1 2	9.68%	6	11.29 %	7	62
16	Desk	54.84 %	3 4	30.65 %	1 9	11.29 %	7	3.23%	2	0.00%	0	0.00%	0	62
17	Omimono	27.42 %	1 7	11.29 %	7	9.68%	6	3.23%	2	3.23%	2	45.16 %	2 8	62
18	Television	22.95 %	1 4	44.26 %	2 7	19.67 %	1 2	8.20%	5	3.28%	2	1.64%	1	61
19	Refrigerator	25.81 %	1 6	62.90 %	3 9	4.84%	3	3.23%	2	0.00%	0	3.23%	2	62
20	Stove	15.00 %	9	60.00 %	3 6	16.67 %	1 0	1.67%	1	3.33%	2	3.33%	2	60
21	Shoe Rack	57.38 %	3 5	26.23 %	1 6	8.20%	5	3.28%	2	3.28%	2	1.64%	1	61

Q97 - Do you know the boundaries of your land/ property?



#	Answer	%	Count
1	Yes	73.44%	47
2	No	26.56%	17
	Total	100%	64

Q98 - If yes, please estimate the size?

If yes, please estimate the size?

5 feet away from house

do not know exact measurements

roughly, 200 yards

6 here

i dont know

1/4 acre

60x60

dont know exact number

Not sure

3 acres +

60x60

300ft X 400ft

Not sure - Kopjeje - to middle of island

150 to 200 from lagoon to ocean and 150 - 200 wide

Not sure

Not sure

Can not

Maybe 250 feet wide

200 x ocean to lagoon

250ft

Can't estimate

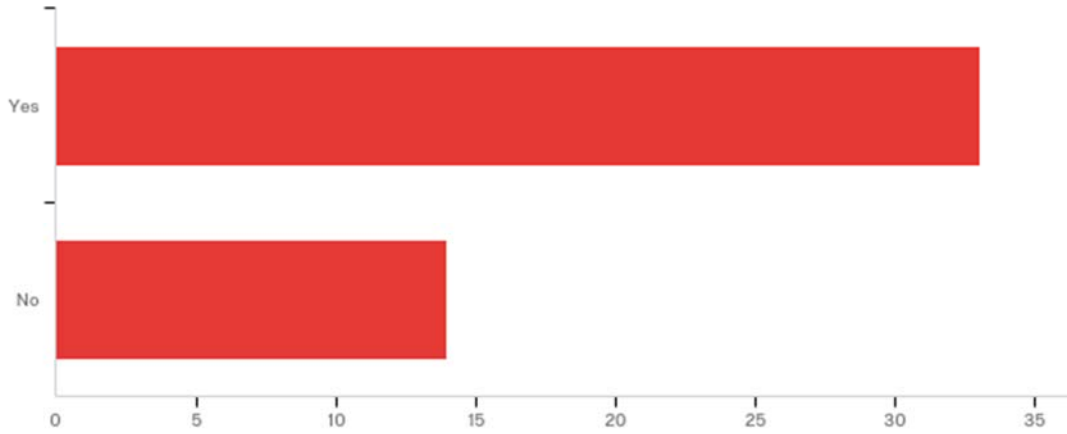
No

No

Would have to measure it

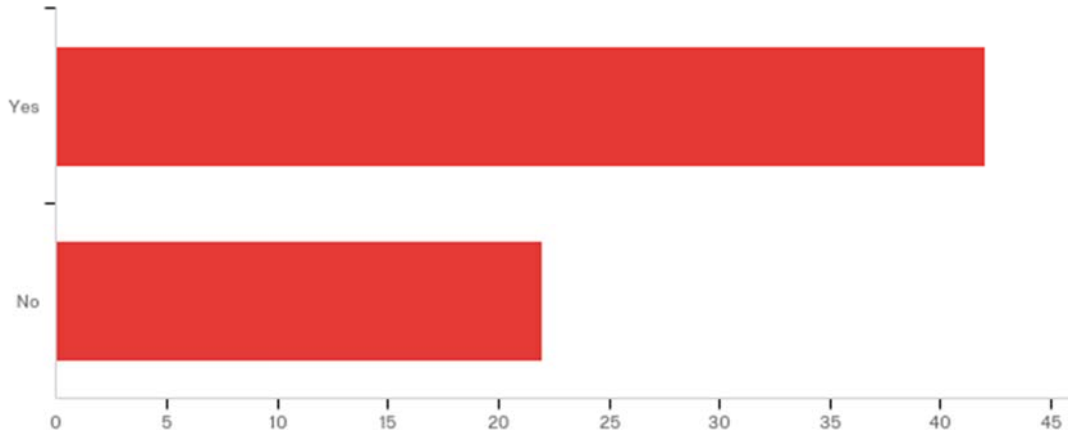
Pig pen by Riley to the graveyard,

Q99 - Does the property go from the ocean all of the way to the lagoon?



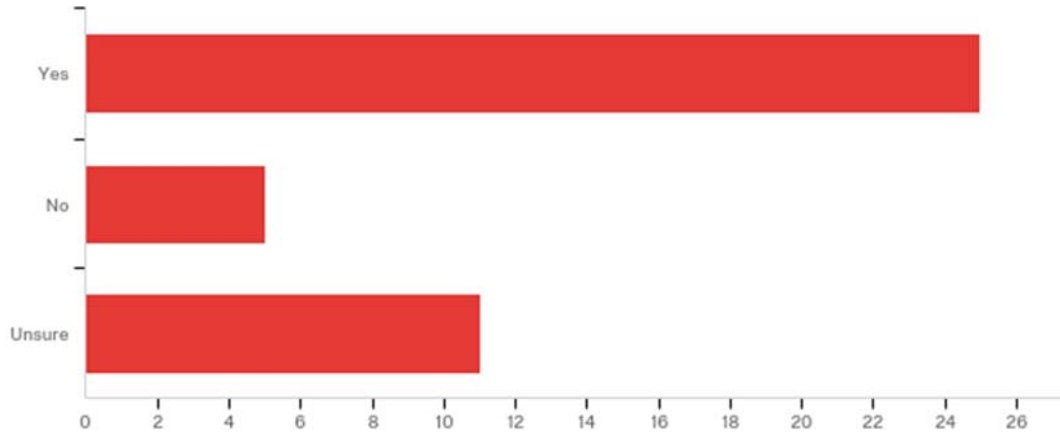
#	Answer	%	Count
1	Yes	70.21%	33
2	No	29.79%	14
	Total	100%	47

Q100 - Does your property have a cemetery on it?



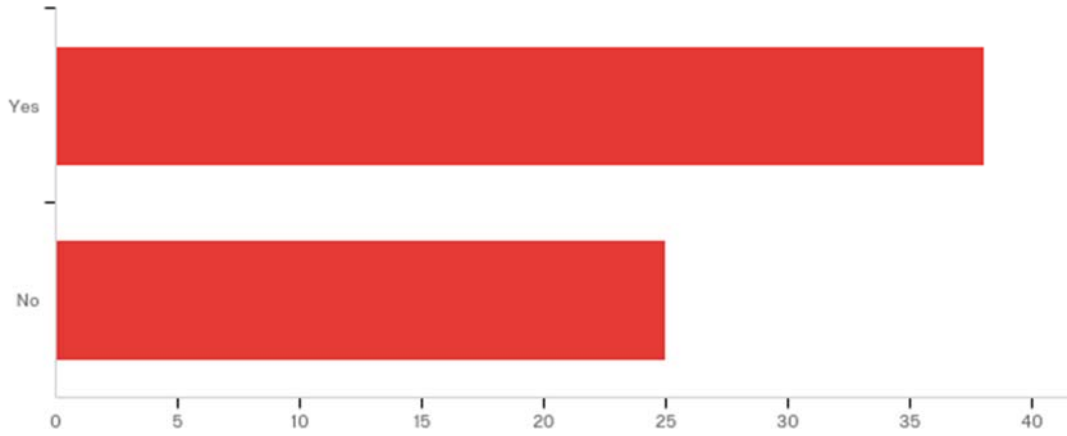
#	Answer	%	Count
1	Yes	65.63%	42
2	No	34.38%	22
	Total	100%	64

Q101 - If yes, are the tombs in the cemetery all relatives and ancestors?



#	Answer	%	Count
1	Yes	60.98%	25
2	No	12.20%	5
3	Unsure	26.83%	11
	Total	100%	41

Q103 - Does the alap control what can be built on your land?



#	Answer	%	Count
1	Yes	60.32%	38
2	No	39.68%	25
	Total	100%	63

Q104 - If yes, how do you and the alap determine what is allowed?

If yes, how do you and the alap determine what is allowed?

consultation meetings

Relation

Interest

Friend

If a fencing or a house for a close relative then no problem, but if some outsider wants to lease, then the alap will have to notify the paramount chief.

Space

the land is owned by my family so essentially our grandmother is the alap. it is a land filled area my grandfather built so we don't need to go to the Iroj of Majuro to ask for permission to build in our family area.

I will visit by bringing food to discuss with the alap

I don't know

No criteria as long as it is asked and approved by the Alap before any construction

Relatives and friends

Sometimes I give her advice about home space

Depends on purpose (if important and needed) and space availability

Relatives or friends

Relative, friends

According to the status or relation to the alap

Discuss it

Spacing

We talked about it first

Have to ask and get permission on case by case basis

unsure

The alap and the irroj are mostly the ones who determine whether or not to build a house

My landlord determines that with the alap.

Negotiate

The alap usually favors the request except if the space has already been allotted.

Collect some money and clean up the places around.

Didn't work with the alap

Money from the copra

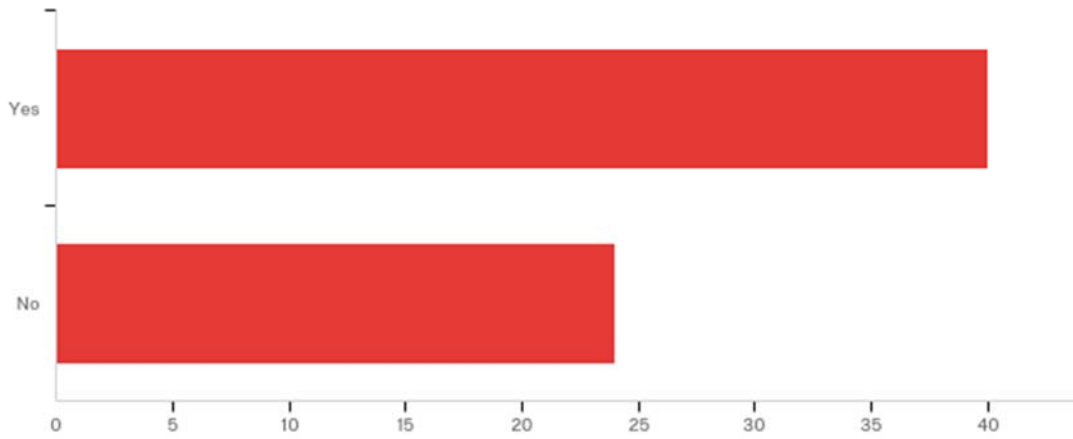
Talk with her to decide what can be built

Talk with him

Tells them where and how to build

Approve the place where the house will be built

Q105 - Does the alap determine where a house or building on your land can be built?



#	Answer	%	Count
1	Yes	62.50%	40
2	No	37.50%	24
	Total	100%	64

Q106 - If yes, how is this location determined?

If yes, how is this location determined?

available space and space agreed by builder

How much money you offer

Space

Space

Space

Space

Not too close to the family cemetery.

Space

There is a portion for every head of the clan in the family, the alap will see if there is space on your side of the family place then he will decide or I can ask if I want a certain place on the land

I don't know.

By Careful examination of space and making sure the plants are also untouched.

Where is it available and wont be in the Alap's way of any future plans

Space

It could be good so far

Where both parties agree to

Space

Discussion

Space

Don't know

Depends on the space available

by alab

depends on the space availability

Availability

The alap makes the decision and you pick the spot

Negotiate

Availability

Alaps decisions.

He looks at how the winds come and where he can get the cool air. Where it's not too hot.

Build close to the lagoon side. Have to be on lagoon or ocean side so that you don't cut down coconut trees.

Also said to build the houses here

Didn't work with the alap

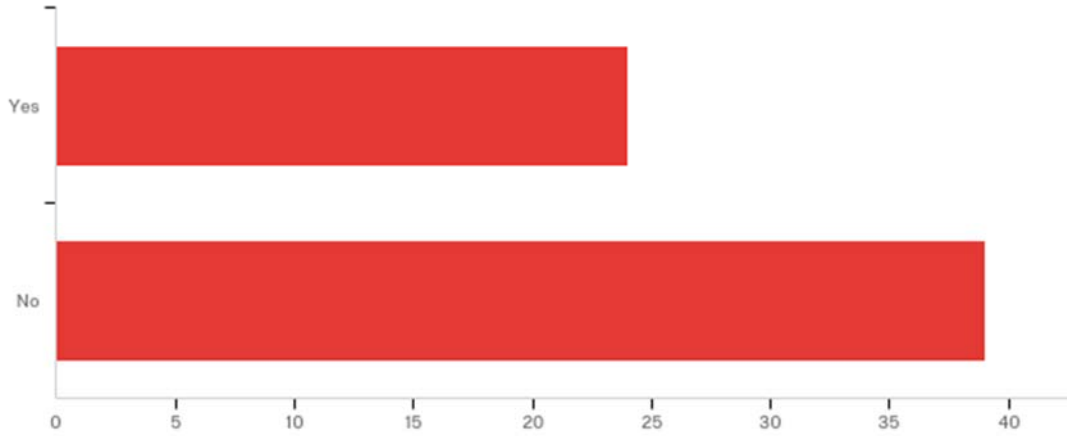
Ask the alap.

Just talk

FEMA just built the house on top of the location of the previous house

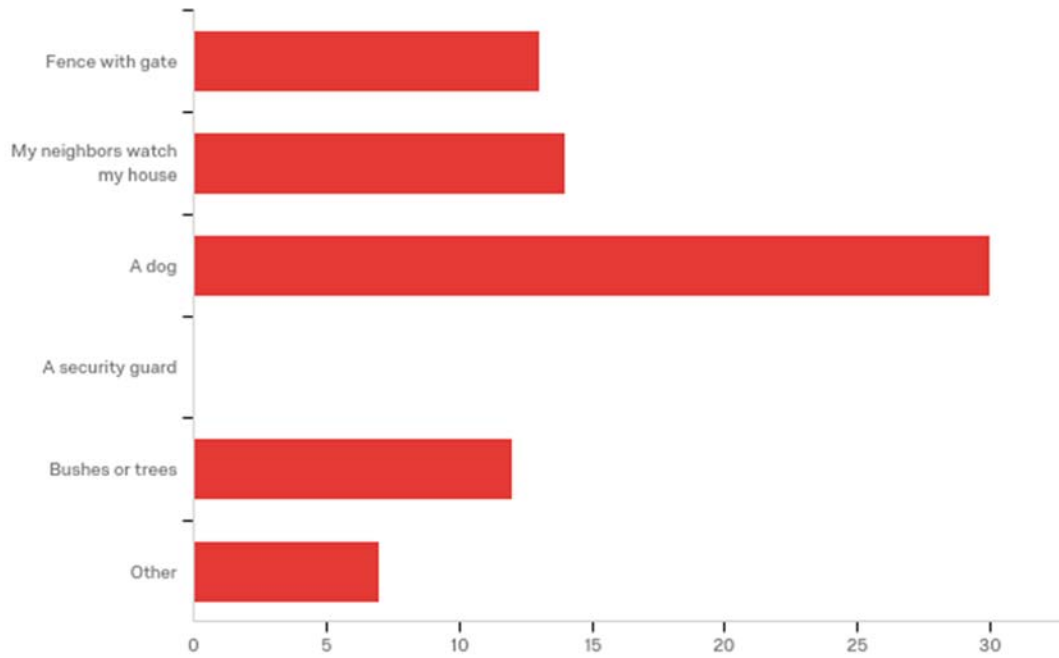
If no not that place, ask where. You say there. Alap might have something in mind.

Q108 - Do you have any barrier (physical or non physical) in place to prevent or slow people approaching your house? (Ex: Fence, gate, dog, taboos, etc?)



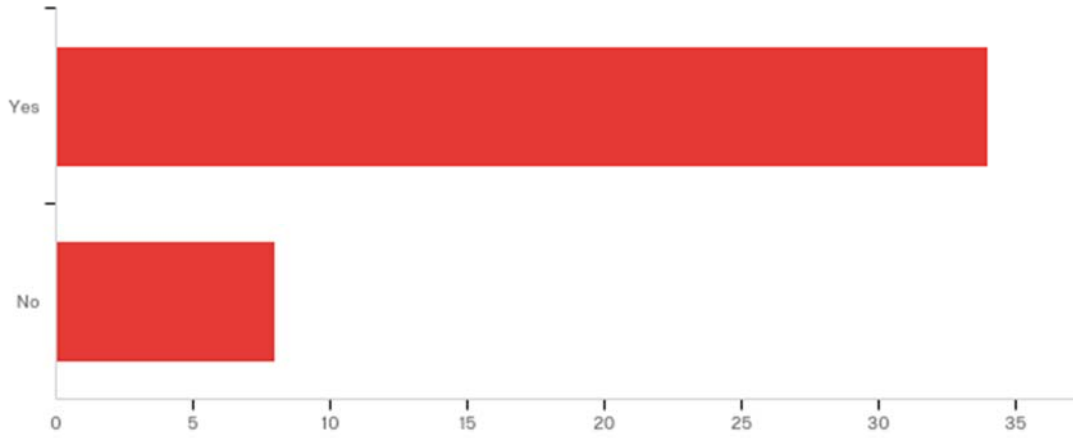
#	Answer	%	Count
1	Yes	38.10%	24
2	No	61.90%	39
	Total	100%	63

Q111 - How is security created/ provided on your wato? Mark all that apply



#	Answer	%	Count
1	Fence with gate	17.11%	13
2	My neighbors watch my house	18.42%	14
3	A dog	39.47%	30
4	A security guard	0.00%	0
5	Bushes or trees	15.79%	12
6	Other	9.21%	7
	Total	100%	76

Q112 - In your opinion, are the methods you described effective?



#	Answer	%	Count
1	Yes	80.95%	34
2	No	19.05%	8
	Total	100%	42

Q113 - How could security be improved?

How could security be improved?

animals like dogs

Have a weapon

Fence

Bodyguards

Security guard

Fence

By installing security cameras ones home, provided by government.

Hire security

Signages: No taxi allowed, private property

locked gates. cameras. lights surrounding the entire house

more supply

very improved

security guards and dogs

Have a store to have people staying up and watching the property

Police enforcement of curfew hours so people arent roaming around especially at night time

Hire security guard or have camera to record

Locked fences/gates, trained dogs, security cameras, burglar system, etc.

Dogs, security guard

Fenced place in house

Hire one security guard

Hire security

Have a pet dog

Get A big dog

Make wire fences

Not really important security in my *wēto*, national police substrate stand on my own *wēto*

Better communication amongst neighbors

Install security cameras

neighborhood watch

Ministry of Internal Affairs Division of Land and Survey

More dogs

I feel secure so don't think anything additional is needed.

Get more dogs or fence with a gate

More dogs

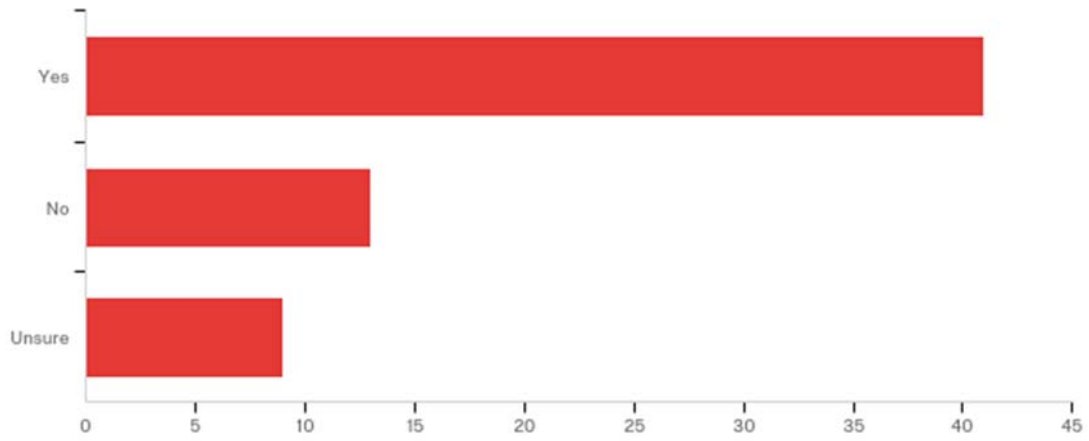
More lights

It's good

Protect from stealer

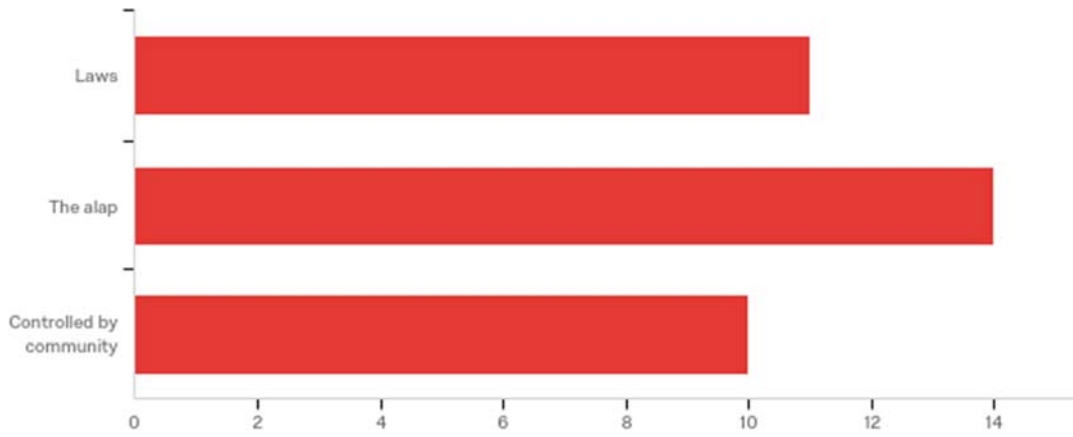
Used to use Deamon's to secure property - if you go where your not suppose to the Deaton will kill you

Q114 - Are all paths and roads near your house public (can anyone walk about on paths around your house and neighborhood)?



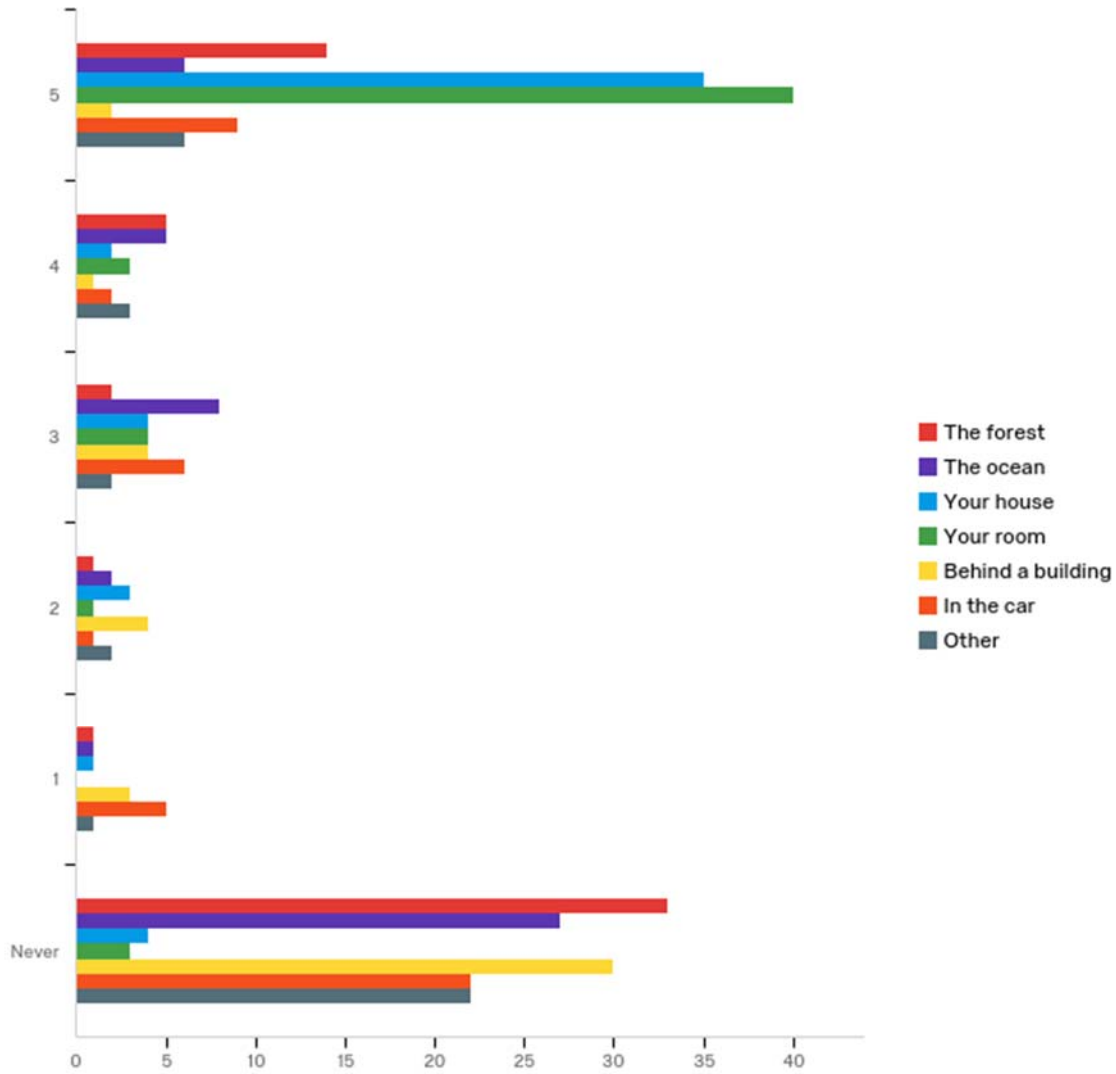
#	Answer	%	Count
1	Yes	65.08%	41
2	No	20.63%	13
3	Unsure	14.29%	9
	Total	100%	63

Q116 - How is the privacy of a path or road determined? Mark all that apply



#	Answer	%	Count
1	Laws	31.43%	11
2	The alap	40.00%	14
3	Controlled by community	28.57%	10
	Total	100%	35

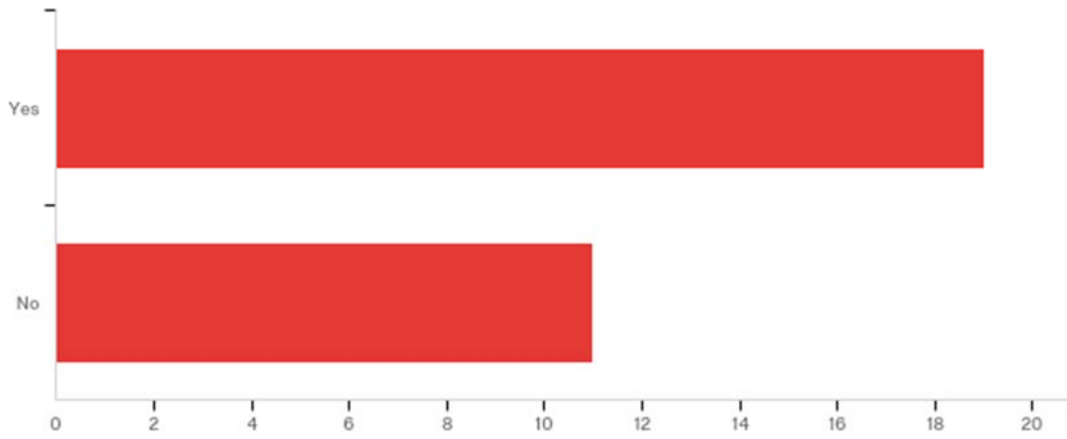
Q117 - If you want to do anything in secret, where do you go most frequently? For each location, provide a rating between 1 and 5, 5 being the most frequently visited spot and 1 being the least.



#	Question	5		4		3		2		1		Never		Total
1	The forest	25.00%	14	8.93%	5	3.57%	2	1.79%	1	1.79%	1	58.93%	33	56
2	The ocean	12.24%	6	10.20%	5	16.33%	8	4.08%	2	2.04%	1	55.10%	27	49
3	Your house	71.43%	35	4.08%	2	8.16%	4	6.12%	3	2.04%	1	8.16%	4	49
4	Your room	78.43%	40	5.88%	3	7.84%	4	1.96%	1	0.00%	0	5.88%	3	51
5	Behind a building	4.55%	2	2.27%	1	9.09%	4	9.09%	4	6.82%	3	68.18%	30	44

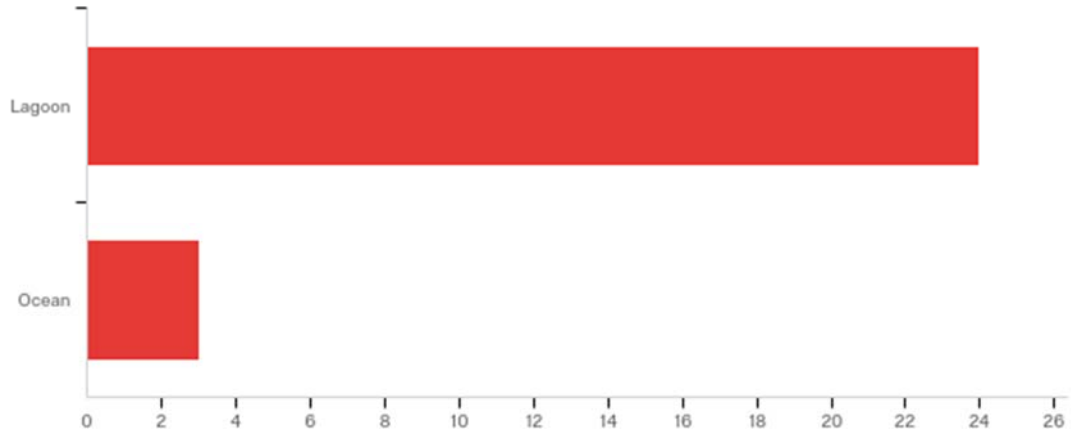
6	In the car	20.00%	9	4.44%	2	13.33%	6	2.22%	1	11.11%	5	48.89%	22	45
7	Other	16.67%	6	8.33%	3	5.56%	2	5.56%	2	2.78%	1	61.11%	22	36

Q119 - If you have a canoe (outrigger), is there a special location you keep it?



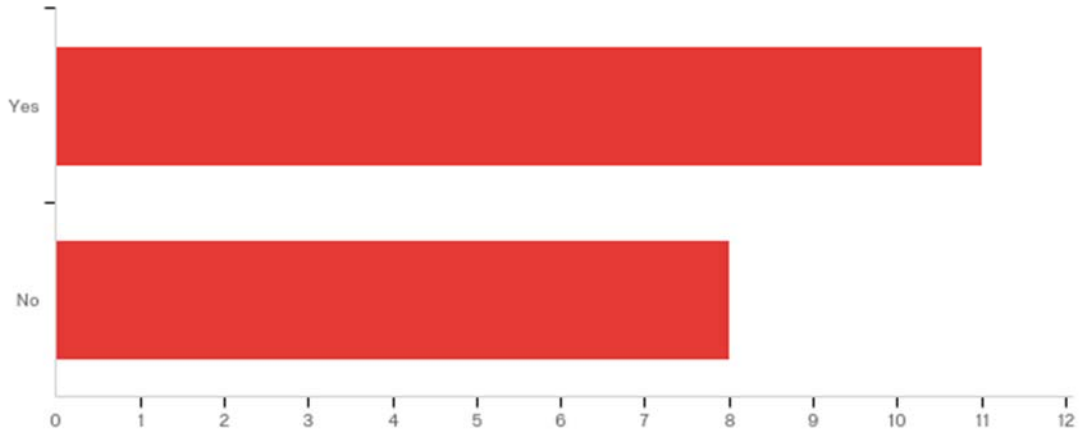
#	Answer	%	Count
1	Yes	63.33%	19
2	No	36.67%	11
	Total	100%	30

Q121 - If yes, is this location adjacent the lagoon or the ocean?



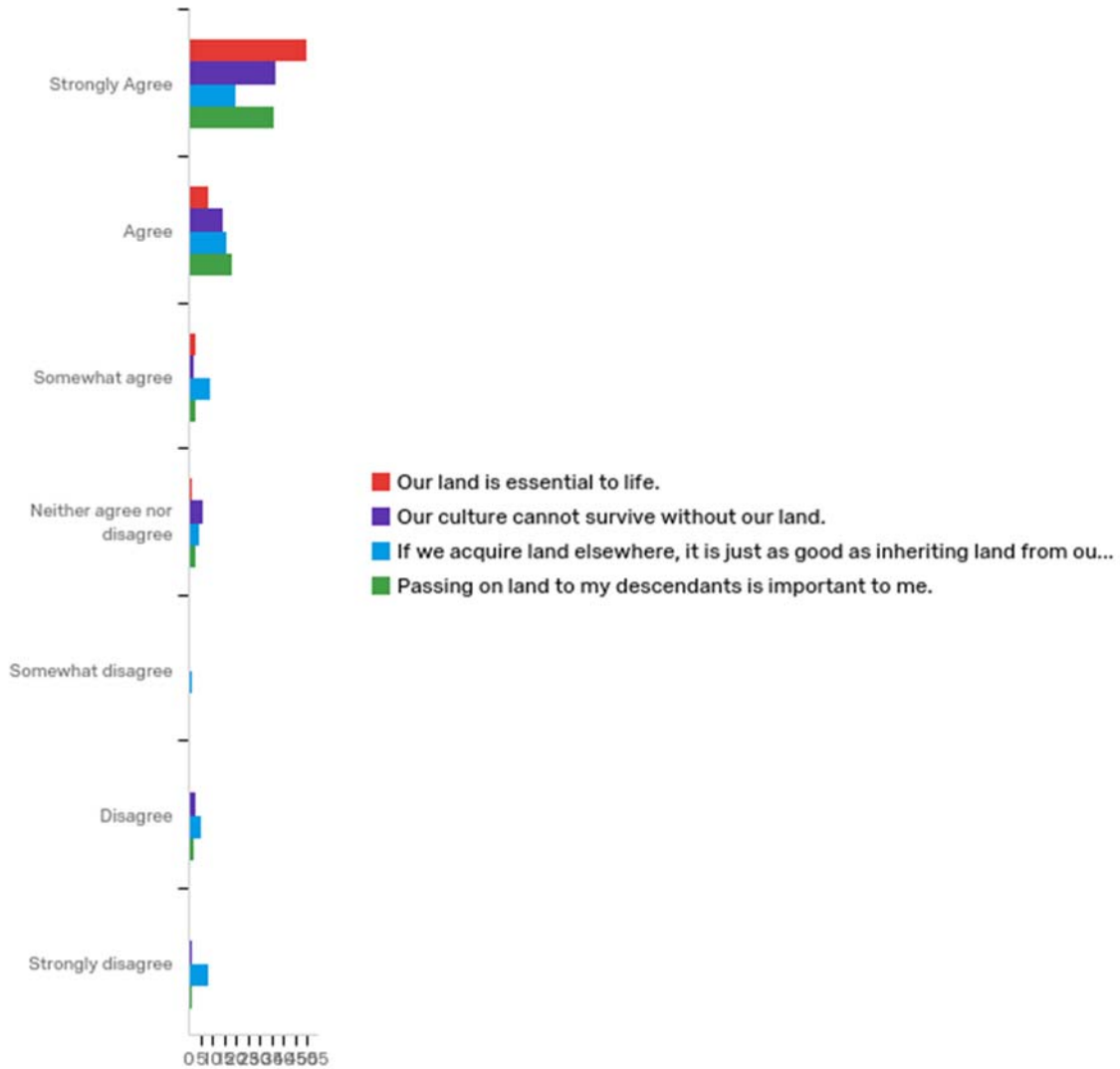
#	Answer	%	Count
1	Lagoon	88.89%	24
2	Ocean	11.11%	3
	Total	100%	27

Q122 - If yes, is it a covered space?



#	Answer	%	Count
1	Yes	57.89%	11
2	No	42.11%	8
	Total	100%	19

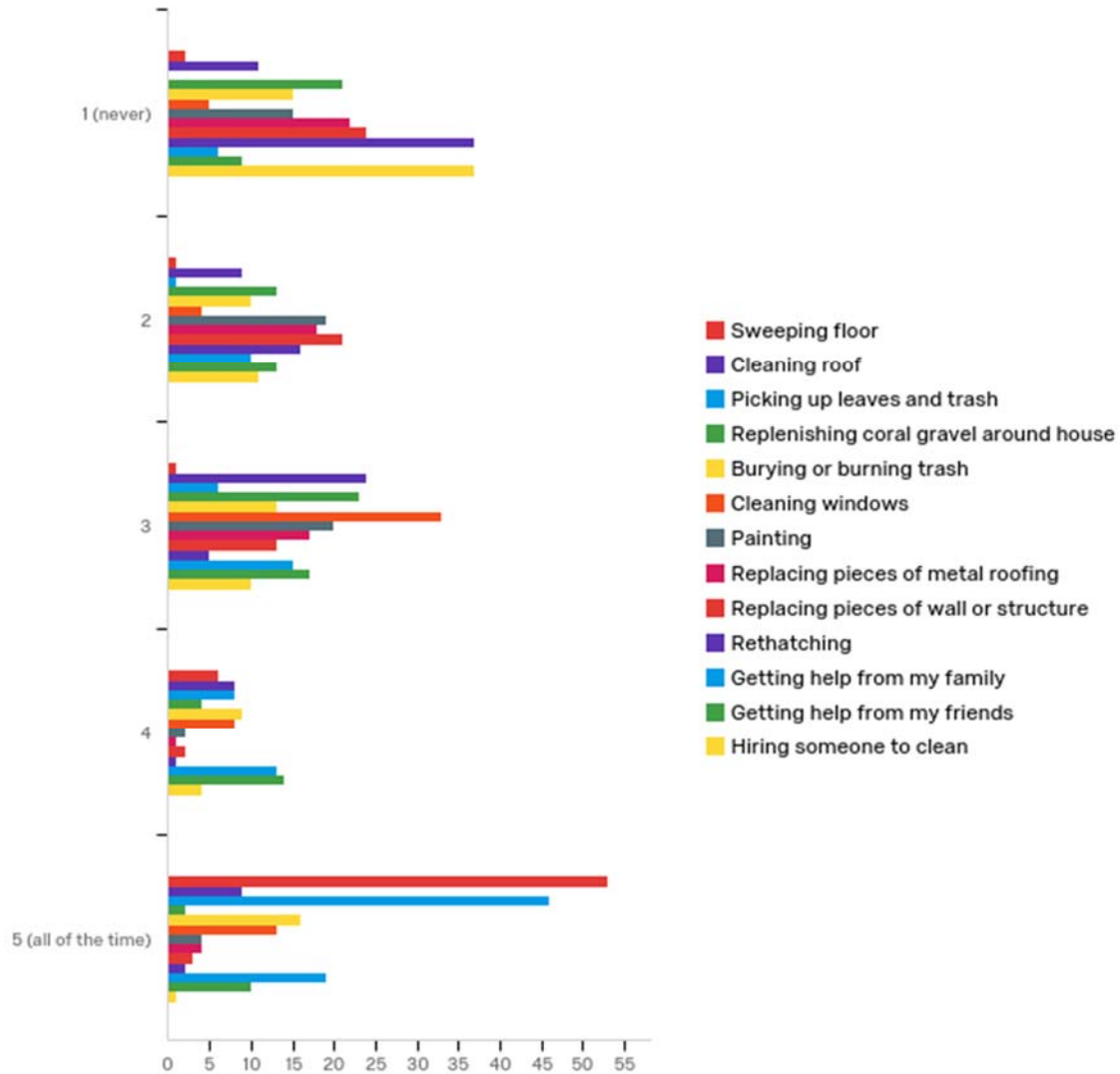
Q124 - Imagine for a moment that you, or your family, lose the land you have inherited from your ancestors today. Imagine that it is taken by the rising waters and sinks far below the surface, gone forever to the ocean. Based on your emotions to this scenario, please rate each of the following statements based on your level of agreement.



#	Question	Strongly Agree	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree	Strongly disagree	Total							
1	Our land is essential to life.	80.65%	5	12.90%	8	4.84%	3	1.61%	1	0.00%	0	0.00%	0	0.00%	0	62

2	Our culture cannot survive without our land.	58.73 %	37	22.22 %	14	3.17%	2	9.52 %	6	0.00%	0	4.76%	3	1.59 %	1	63
3	If we acquire land elsewhere, it is just as good as inheriting land from our ancestors.	31.75 %	20	25.40 %	16	14.29%	9	6.35 %	4	1.59%	1	7.94%	5	12.70 %	8	63
4	Passing on land to my descendants is important to me.	57.14 %	36	28.57 %	18	4.76%	3	4.76 %	3	0.00%	0	3.17%	2	1.59 %	1	63

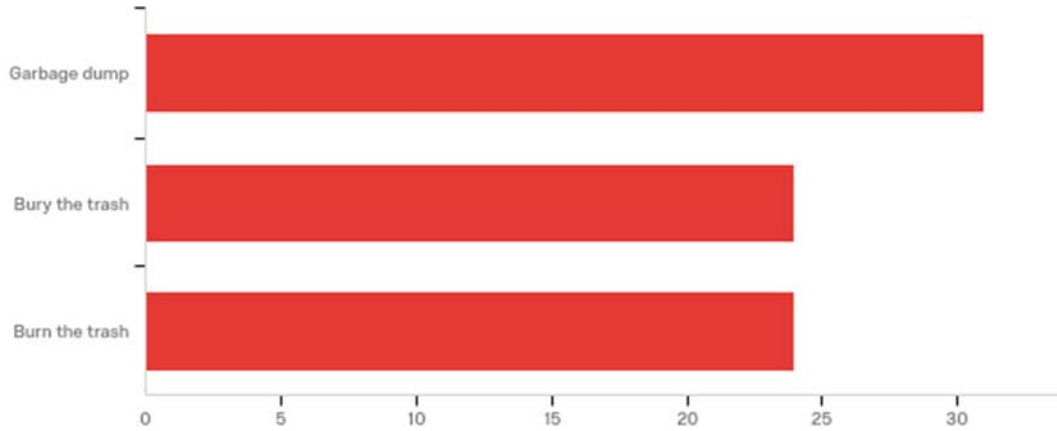
Q126 - If you maintain your own house and yard. How do you maintain your house and yard? On a scale of 1 to 5, please rate them based on how frequent you use each method. 1 = never and 5 = all of the time.



#	Question	1 (never)	2	3	4	5 (all of the time)	Total						
1	Sweeping floor	3.17%	2	1.59%	1	1.59%	1	9.52%	6	84.13%	53	63	
2	Cleaning roof	18.03%	1	14.75%	9	39.34%	2	13.11%	4	14.75%	8	9	61
3	Picking up leaves and trash	0.00%	0	1.64%	1	9.84%	6	13.11%	8	75.41%	46	61	

4	Replenishing coral gravel around house	33.33 %	2 1	20.63 %	1 3	36.51 %	2 3	6.35%	4	3.17%	2	63
5	Burying or burning trash	23.81 %	1 5	15.87 %	1 0	20.63 %	1 3	14.29 %	9	25.40 %	1 6	63
6	Cleaning windows	7.94%	5	6.35%	4	52.38 %	3 3	12.70 %	8	20.63 %	1 3	63
7	Painting	25.00 %	1 5	31.67 %	1 9	33.33 %	2 0	3.33%	2	6.67%	4	60
8	Replacing pieces of metal roofing	35.48 %	2 2	29.03 %	1 8	27.42 %	1 7	1.61%	1	6.45%	4	62
9	Replacing pieces of wall or structure	38.10 %	2 4	33.33 %	2 1	20.63 %	1 3	3.17%	2	4.76%	3	63
10	Rethatching	60.66 %	3 7	26.23 %	1 6	8.20%	5	1.64%	1	3.28%	2	61
11	Getting help from my family	9.52%	6	15.87 %	1 0	23.81 %	1 5	20.63 %	1 3	30.16 %	1 9	63
12	Getting help from my friends	14.29 %	9	20.63 %	1 3	26.98 %	1 7	22.22 %	1 4	15.87 %	1 0	63
13	Hiring someone to clean	58.73 %	3 7	17.46 %	1 1	15.87 %	1 0	6.35%	4	1.59%	1	63

Q127 - Where do you put your garbage/trash?



#	Answer	%	Count
1	Garbage dump	39.24%	31
2	Bury the trash	30.38%	24
3	Burn the trash	30.38%	24
	Total	100%	79

Q132 - Where is the location of the hole in relation to your house and in relation to the lagoon?

Where is the location of the hole in relation to your house and in relation to the lagoon?

Close to the kocean shoreine

Far from home

Far

From the house to lagoon

Far from home/ close to oceanside

Ocean side shore

Outside my house

Near the sea wall

Burn it

Along the road

Along the road

On the other side of the road

Behind house toward middle

Lagoon side, make a landfill

Ocean side and west side - helps with fertilizing plants

Behind the house and burn it and bury it

Behind the house on the edge of forest

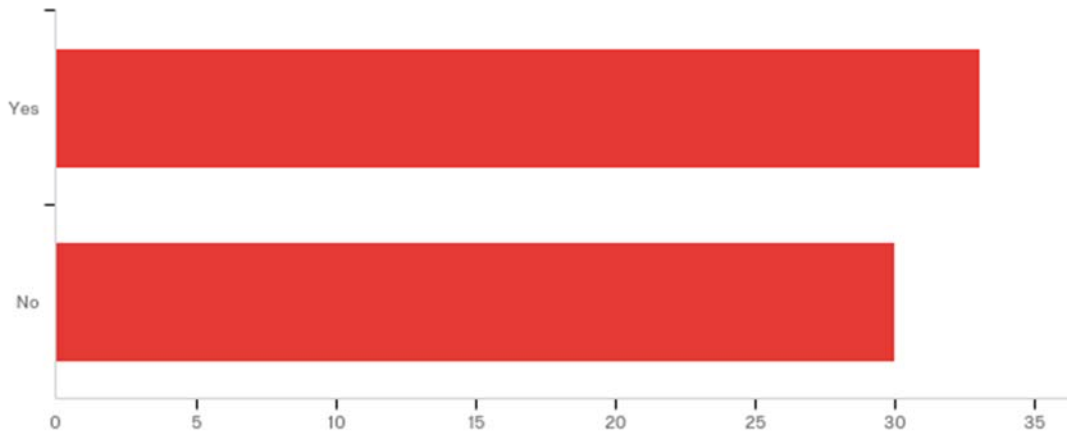
Rear of house to the side by the edge of the forest

Along the side of the roadside at the edge of forest

Sometimes the lagoon side, sometimes toward the ocean

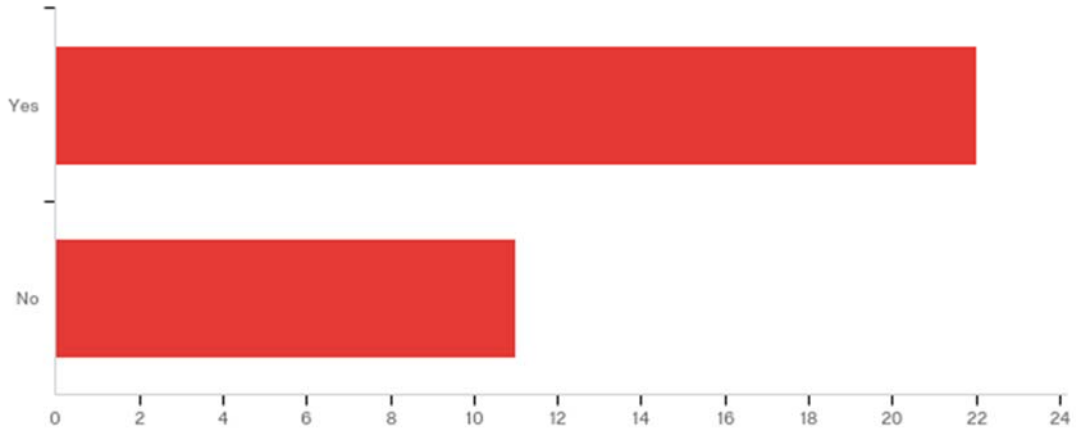
By the road, dig a hole and put it there. When it's full I burn it.

Q135 - Have you ever built or had a house built for you and your family?



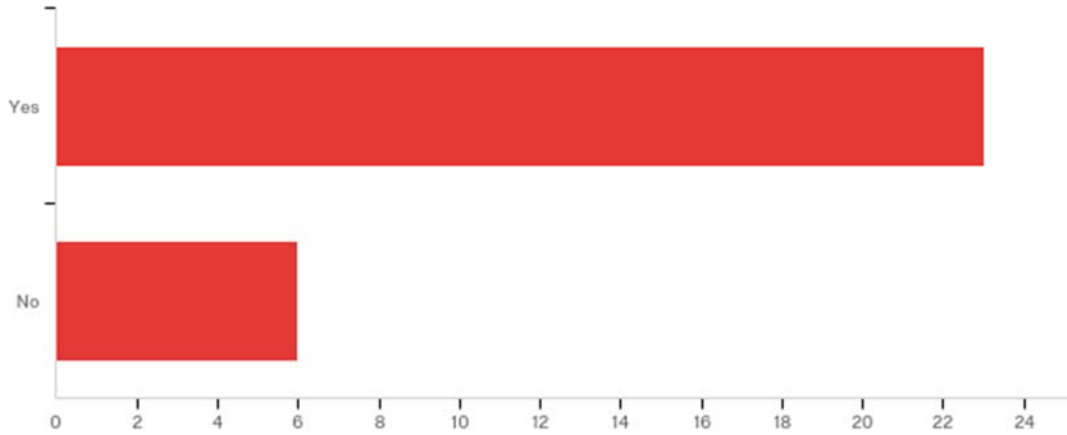
#	Answer	%	Count
1	Yes	52.38%	33
2	No	47.62%	30
	Total	100%	63

Q136 - If yes, did you help in the actual construction?



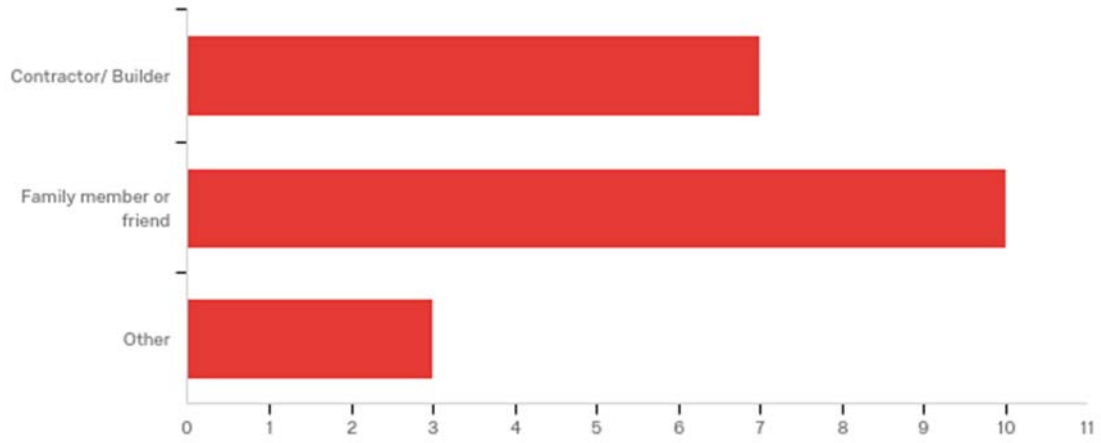
#	Answer	%	Count
1	Yes	66.67%	22
2	No	33.33%	11
	Total	100%	33

Q137 - If yes, did you get family and/ or friends to help in the construction?



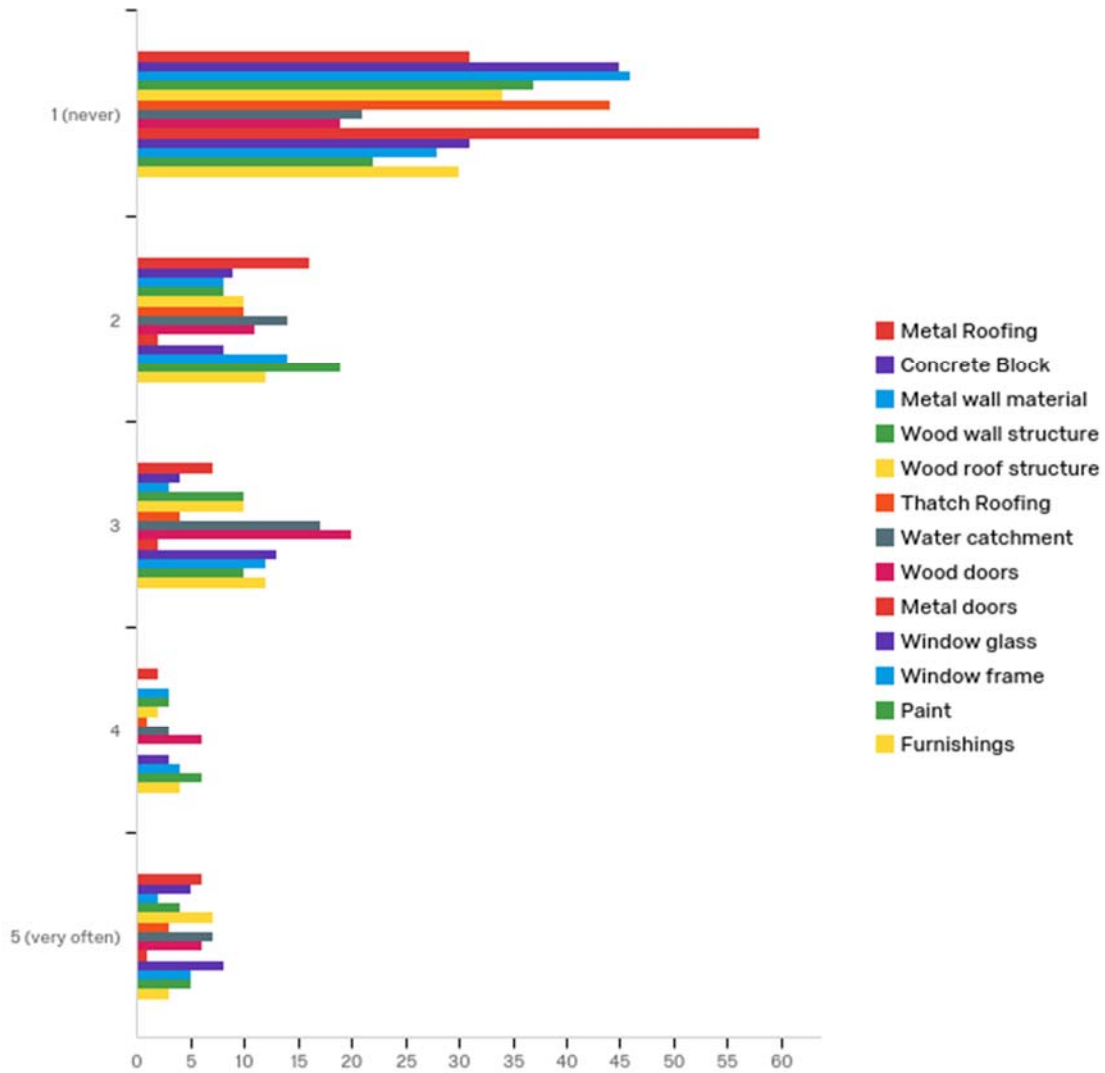
#	Answer	%	Count
1	Yes	79.31%	23
2	No	20.69%	6
	Total	100%	29

Q138 - If you did not actually help in the construction, who built the house for you?



#	Answer	%	Count
1	Contractor/ Builder	35.00%	7
2	Family member or friend	50.00%	10
3	Other	15.00%	3
	Total	100%	20

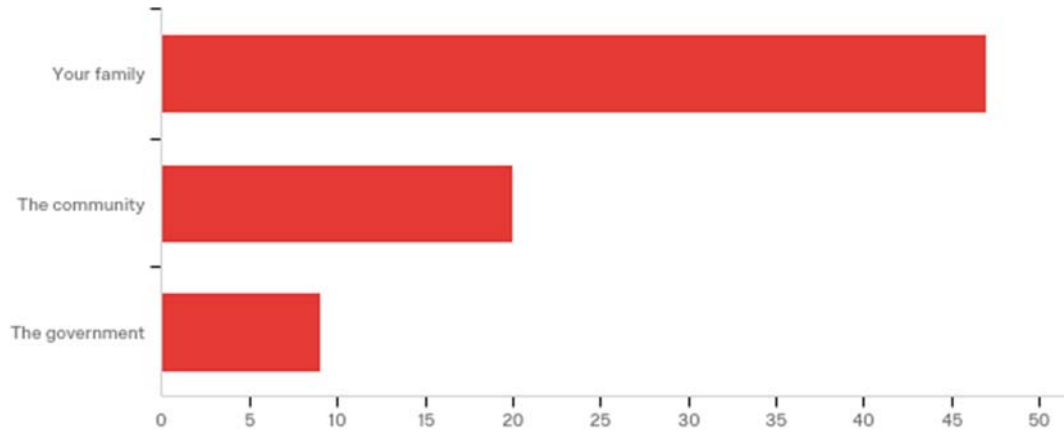
Q139 - How often are the following materials on or in your house replaced or repaired? Please rate on a scale from 1 to 5, 1 being never and 5 being very often.



#	Question	1 (never)	2	3	4	5 (very often)	Total
1	Metal Roofing	50.00 %	3 25.81 %	1 11.29 %	7 3.23 %	2 9.68%	62
2	Concrete Block	71.43 %	4 14.29 %	9 6.35%	4 0.00 %	0 7.94%	63
3	Metal wall material	74.19 %	4 12.90 %	8 4.84%	3 4.84 %	3 3.23%	62
4	Wood wall structure	59.68 %	3 12.90 %	8 16.13 %	1 4.84 %	3 6.45%	62

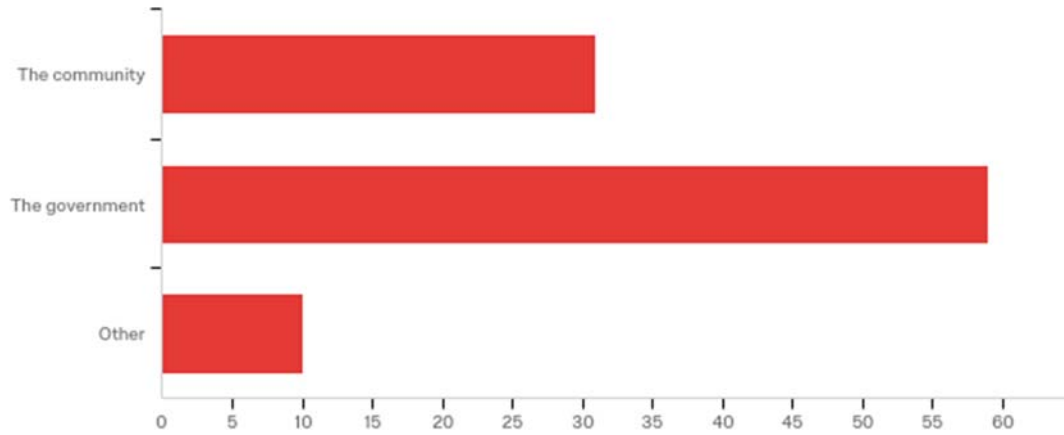
5	Wood roof structure	53.97 %	3 4	15.87 %	1 0	15.87 %	1 0	3.17 %	2	11.11 %	7	63
6	Thatch Roofing	70.97 %	4 4	16.13 %	1 0	6.45%	4	1.61 %	1	4.84%	3	62
7	Water catchment	33.87 %	2 1	22.58 %	1 4	27.42 %	1 7	4.84 %	3	11.29 %	7	62
8	Wood doors	30.65 %	1 9	17.74 %	1 1	32.26 %	2 0	9.68 %	6	9.68%	6	62
9	Metal doors	92.06 %	5 8	3.17%	2	3.17%	2	0.00 %	0	1.59%	1	63
10	Window glass	49.21 %	3 1	12.70 %	8	20.63 %	1 3	4.76 %	3	12.70 %	8	63
11	Window frame	44.44 %	2 8	22.22 %	1 4	19.05 %	1 2	6.35 %	4	7.94%	5	63
12	Paint	35.48 %	2 2	30.65 %	1 9	16.13 %	1 0	9.68 %	6	8.06%	5	62
13	Furnishings	49.18 %	3 0	19.67 %	1 2	19.67 %	1 2	6.56 %	4	4.92%	3	61

Q140 - Who is responsible for maintaining foot paths? Mark all that apply



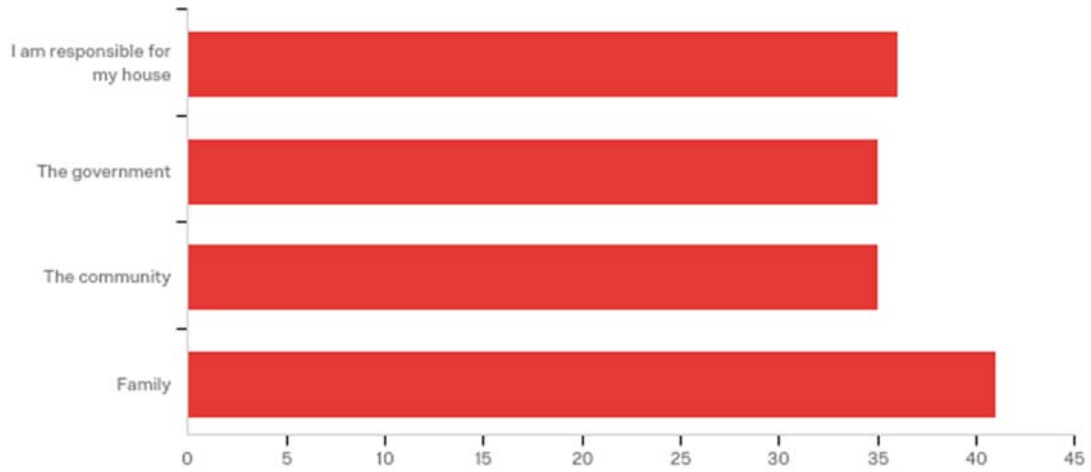
#	Answer	%	Count
1	Your family	61.84%	47
2	The community	26.32%	20
3	The government	11.84%	9
	Total	100%	76

Q141 - Who is responsible for maintaining roads? Please mark all that apply.



#	Answer	%	Count
1	The community	31.00%	31
2	The government	59.00%	59
3	Other	10.00%	10
	Total	100%	100

Q142 - After heavy rains, high winds, or a storm, who helps clean up and repair houses? Mark all that apply.



#	Answer	%	Count
1	I am responsible for my house	24.49%	36
2	The government	23.81%	35
3	The community	23.81%	35
4	Family	27.89%	41
	Total	100%	147

Q143 - Is there a special name for the process of helping each other clean up and repair houses? If yes, what is it?

Is there a special name for the process of helping each other clean up and repair houses? If yes, what is it?

unsure

NA

Ippen doon.

I dont know

no

Kumit - it means working together

Kumit

Internation Organization of Migration

Disaster

Na

Cleaning areas

"Ippen doon"

None

Na

No where

Sometimes we call family/ church members for help

Not sure

yes, mael

None

Jiban droon

forgot the name

Kupit or kuk or kukodok or jemjemmaal (sharpening the metal - working together)

Drijoukoj - gather and make a boat or together to collect food

Kuk ippen doon.

Don't no

Kumit system

Kopamaron (gathering power)

USDA

All of the people help each other. Worajebel - everybody comes together to do the work together

Q145 - During a typhoon, where do you seek shelter/ protection?

During a typhoon, where do you seek shelter/ protection?

just stay home

hotel

Church

NA

School compound

Home

High roofs

my mother's concrete house sometimes the hotel

never experienced a typhoon yet

Church, hospital buildings

Any suitable places

family

churches and schools

Trash Mountain

other family/school or office

Home

The church

Home

Home

Tower

Church/ school

School and church

Church

Church

High building

Laura village is a safe place to be during a typhoon

Church

From the government

Stay in the house

Neighbors with stronger built homes, churches, schools

Home

school, church or home if strong enough.

Home

Cement block structure

govt buildings

Just stay home

Church, school building

Tall building

Home

Once we retreated in a church.

The school building

The school or church

Church and school and government building

School, church

Concrete house - comm, church, school

The church

The church, the school building.

Under the big trees, in the church, (had typhoon around 81) the warehouse, the school

Churches

The church and the government building

Church

The school

Go to big and high houses (churches and school)

Church and school building

The school house

Q146 - How do you stay safe during heavy flooding?

How do you stay safe during heavy flooding?

stay on high grounds

Stay in high ground

NA

Stay indoors

Go to higher ground

go we go the hotel and stay on either the 2nd or 3rd floor

Have not experienced heavy flooding

I go near a big tree and tie myself

go to higher building

stay inside our house

get to high places like big buildings or get to places that is far from the ocean and lagoon

Dig a big hole and put big boulders than rocks and watch it drain.

stay at my house or go somewhere it isn't flooded

Stay indoors and away from the lagoon/ocean

Home preparation

Home

Safely

Stay in the house

Stay indoors

Climb a tree

Stay inside the big building where the heavy flood can't reach

Yes

Find a elevated house or location

Home

stay indoor..climb the coconut trees? lol

Na

So far haven't had flooding where I have lived through the years.

escape to higher buildings like school houses

Seek higher ground

Stay in the high buildings

Tall building

In house

The school

Same

High buildings

The church

You cant The Protestant church

Go to the high building

Went to the high place

Stay with relatives, pray for God to help us

Don't know yet

Go to the high building

Church is high

Climb a tree

Went to the high place

Climb a tree

Don't know, go up the tree

Q147 - How do you secure your house or other buildings during a flood?

How do you secure your house or other buildings during a flood?

seawalls

Not sure

Use big rocks

Block

Make barrier with rock and cement

we put our items in plastic containers and put on high tables or selves

have not experienced heavy flooding

cannot

Never

nothing

cover windows with woods

House on stilts

sand bags around the house. Sometimes there's no way to secure so must go elsewhere

Block doors and leakage

Na

Build sea wall

Build high concrete walls

Not sure

Built on high grounds

Build a sea wall

Well I never had flood at my home before

Sand bags

Nothing

vulnerable

seawall is the best defensive structure so far in the low-lying atoll.

Na

Close down the house and take my camera and computer with me if I leave the house.

build seawalls

Put everything in seal container and put on top of each other

Close all the doors and windows

Don't know / just watch those waved

Haven't experience any

Na

Run

Don't know how to, just close it

Lock the home we and move to the church

Nail all the doors and run

Close the door and walk away

Nothing, close the door and went to the church

No way to secure

None

Take clothes and go out

Don't know how to

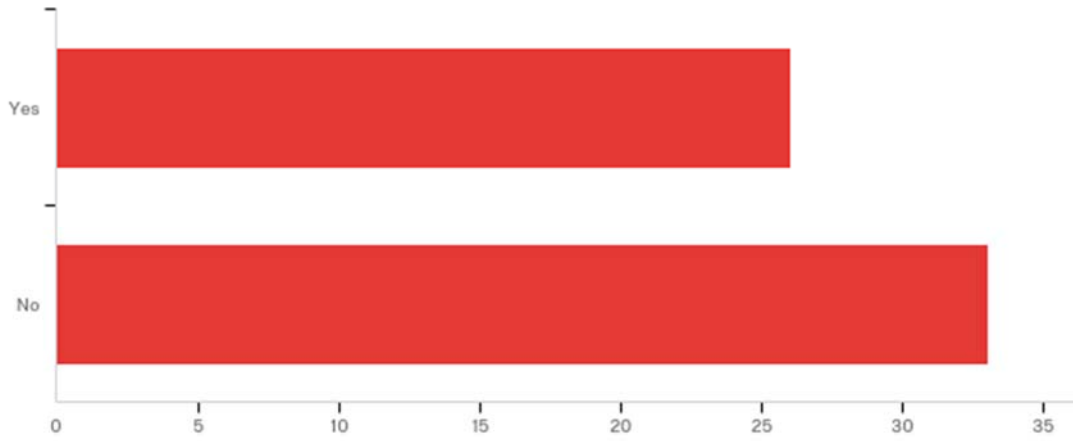
Nothing to secure t with , just close the door and go to the school

Doesn't know how to prepare

No way to do anything

Don't know

Q149 - Is it important for you to have your house clustered with your other family members?



#	Answer	%	Count
1	Yes	44.07%	26
2	No	55.93%	33
	Total	100%	59

Q150 - If yes, why?

If yes, why?

we can work together

feel safer, kids are able to play with each other, we can help each other out as closer living proximity, etc.

this is our traditional culture

To share and feel safe

To know where everyone is at

security, safety of children

Enra bwe jen lale ra-ra!

I do believe in Family members stay together, during any flood

Because I know them and will help each other other

Good to have family around

To help each other

Help each other out

Help each other

Help each other

Stay together and help each other

To make it safe

Stay close together and help

Share and help each other

Stay together and help each other in every way

Know each other and take care of each other - it is part of our culture

Help each other, stay together cuz we know each other

Need each other to help each other

Q151 - If no, why not?

If no, why not?

na

Still do damage during

Putting other lives in risk

Clustered does more damage during big storm

Not necessary

we all need our privacy.

Privacy concerns

it's a small island already, and I like to have a lot of open land

Majuro is a small place to commute so no need to be next door neighbors. I like my privacy too.

Not effective to preparation

Not necessary

Not that important

Low income

It's good to be alone

I think everyone has their own priorities thus maintain them in their own way.

Space is very important to me

Because they do not live in the Marshall Islands.

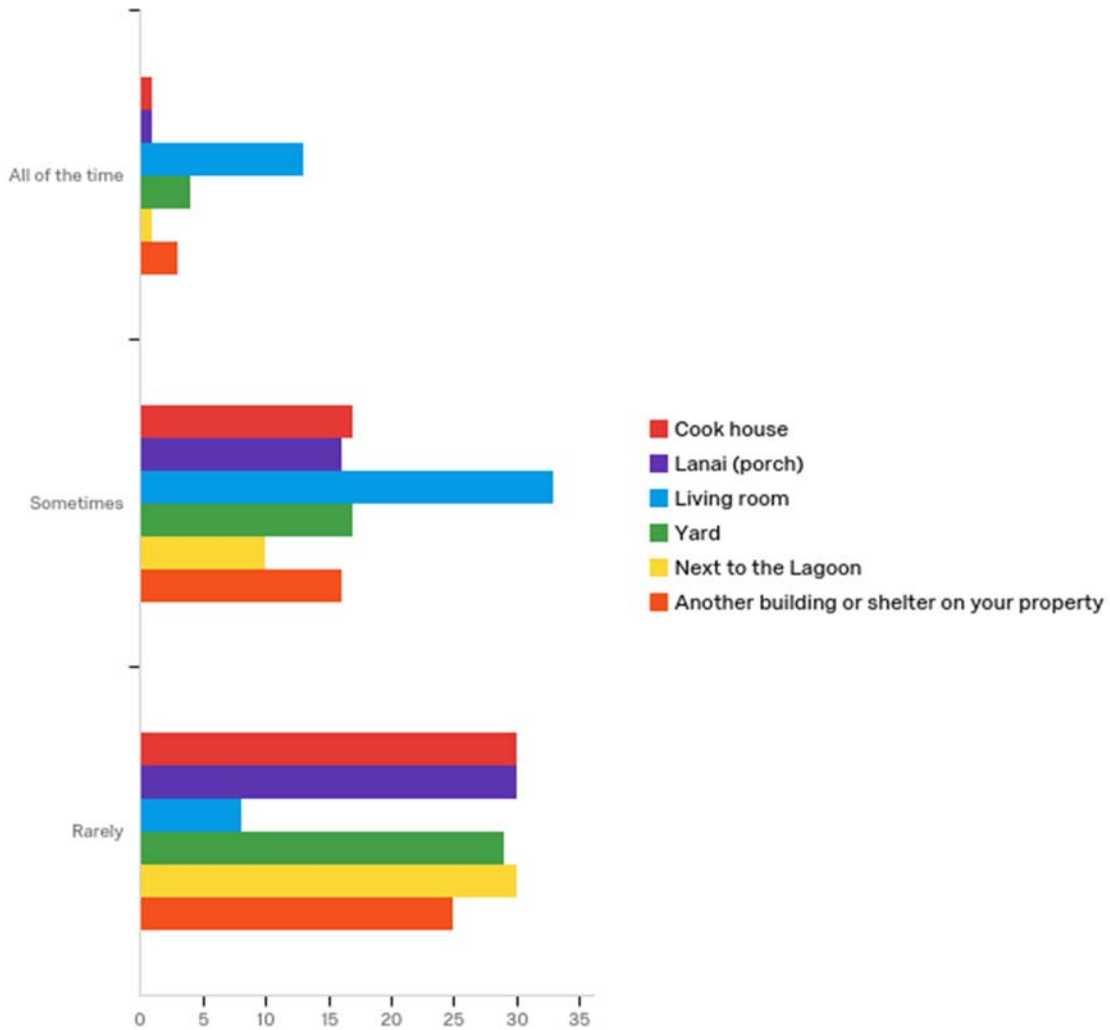
they have their own houses

Space is very important to me

Depend on our resources, main resource is copra so it is good to be on wato byself.

Because of Marshallese culture, man's house is separate,also related woman doesn't come to our house

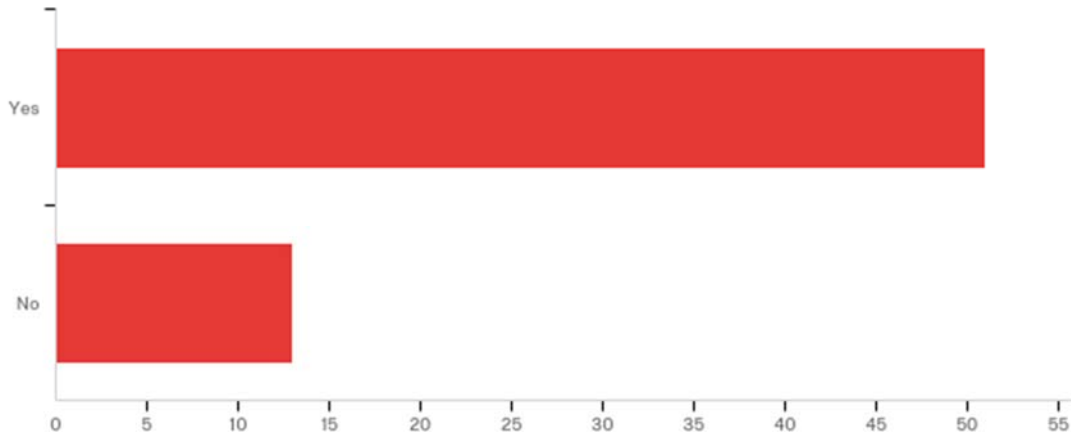
Q152 - Do you ever sleep outside of your bedroom? Please indicate locations you like to sleep other than your room and provide a rating for each space based on use.



#	Question	All of the time		Sometimes		Rarely		Total
1	Cook house	2.08%	1	35.42%	17	62.50%	30	48
2	Lanai (porch)	2.13%	1	34.04%	16	63.83%	30	47
3	Living room	24.07%	13	61.11%	33	14.81%	8	54
4	Yard	8.00%	4	34.00%	17	58.00%	29	50
5	Next to the Lagoon	2.44%	1	24.39%	10	73.17%	30	41

6	Another building or shelter on your property	6.82%	3	36.36%	16	56.82%	25	44
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Q153 - Is cooking in the house kitchen different from cooking in the cook house?



#	Answer	%	Count
1	Yes	79.69%	51
2	No	20.31%	13
	Total	100%	64

Q154 - If yes, what do you cook in the kitchen that you do not cook in the cook house?

If yes, what do you cook in the kitchen that you do not cook in the cook house?

na

western food

Western imported food.

all kinds of food either imported goods or local foods such as fish breadfruit etc

most western foods

Rice, jalele

everything we cook in the kitchen we can cook at the cook house

in the kitchen we use propane, but in the cook house we have hole to light up fire

In the kitchen i cooked regular meals for the family

Foreign recipes

can use kitchen for everything

Caked

Anything that does not require BBQ or underground oven

Cake

Cake

Pancake

Cake

Use electricity

Cake

Rice

Pancake

Cake, bread

Pretty much everything

rice

Kitchen modern equipment (microwave, oven, etc) cook house fire pit

Rice and pancake

Pancake

I use an electric stove not a fire to cook.

regular meals

Ramen, coffee

What is not local food

Modern equipment

Pig local food

In the kitchen we cook more carefully because the fire may catch the house on fire

Cool rice in the house

Coffee, ramen and those small items

Ramen, pancake,

Ramen, simple food

Ramen, donut

Pancake and donut - things made with flour

We cook all kinds of food in the cook house

Rice and ramen and small meals

Rice, donut,

Never cook inside

Cool with propane

Propane stove to cook

Q155 - If yes, what do you cook in the cook house that you do not cook in the kitchen?

If yes, what do you cook in the cook house that you do not cook in the kitchen?

na

Local food

Local food.

umum pig, ground cooking of breadfruit (kwanjin) and boiling pandanus and other local foods and BBQ

bbq, breadfruit, ground oven cooked pig,turtle, etc

Marshallese food

rice with cocnut milk, grilled fish,breadfruit,roasted pig,underground oven turtle

pandanus

Local foods and for big events and bbq

Pig, Turtle, Bar b que, Fish on an open fire

sometimes we cook fish, rice, meats in open fire

(Ma) breadfruit

Cooking breadfruit on ground

Local oven

Cooking pandanus (traditionally)

Underground oven , chicken

Use fire to cook rice and breadfruit, sometimes meats

Bwiro

Breadfruit, pandanus, BBQ fish

Mei, ground cooking

Breadfruit (ma kwanjin)

Roasted breadfruit, high volume of food for parties to save on propane

fish

Breadfruit and pandanus

Cake

traditional food for special occasions

Start a fire

Rice, breadfruit, banana

Fire pit

Meals

Only stuff for cooking is in the cookhouse.

Cool breadfruit and other meats like pig

Rice, mei, banana, meat

Breadfruit, rice, meat

Everything else

Everything else, coffee and everything else

All kinds of local food using woods

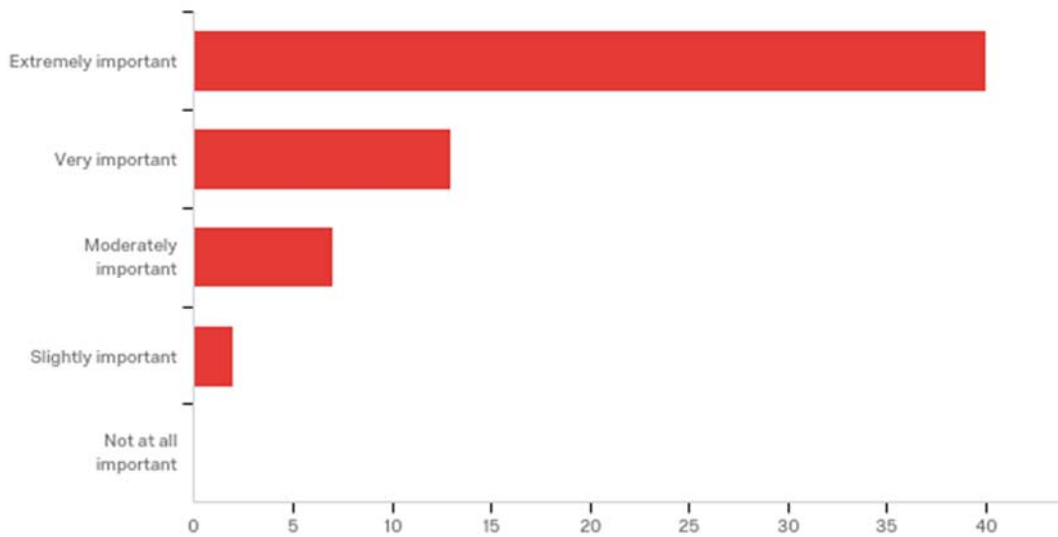
Breadfruit and other things

Breadfruit, banana

Cool with fire

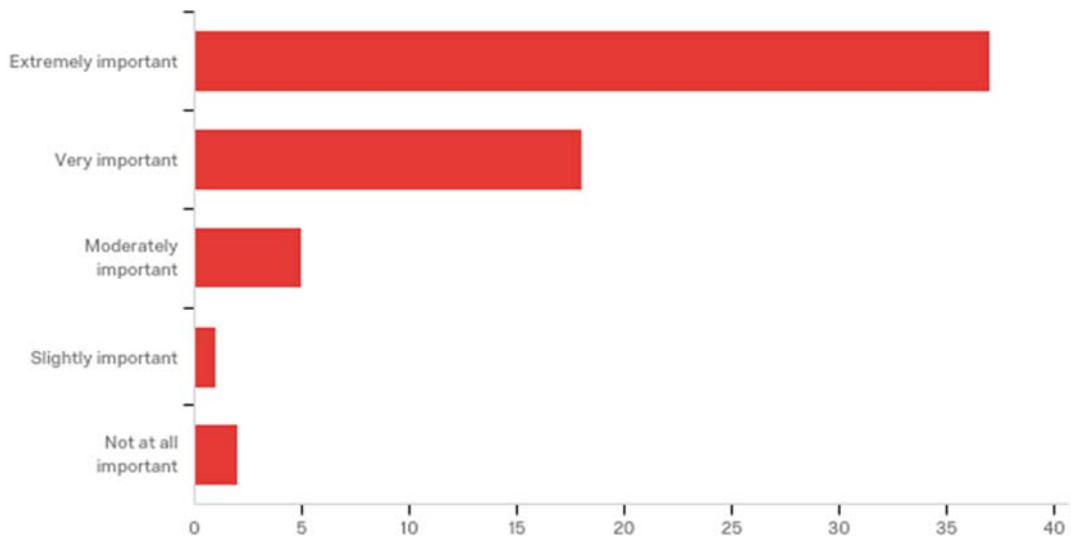
Use the fire with local material and earth oven

Q156 - How important is having a cook house?



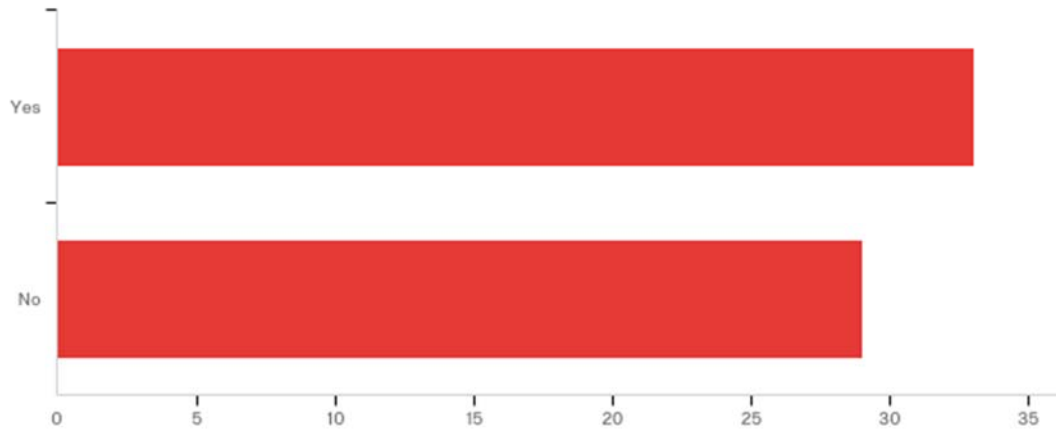
#	Answer	%	Count
1	Extremely important	64.52%	40
2	Very important	20.97%	13
3	Moderately important	11.29%	7
4	Slightly important	3.23%	2
5	Not at all important	0.00%	0
	Total	100%	62

Q157 - How important is having a kitchen?



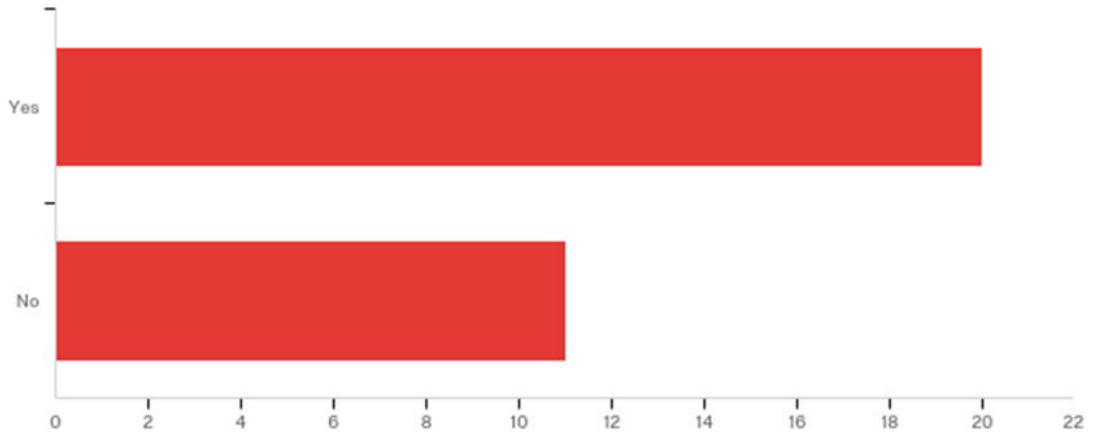
#	Answer	%	Count
1	Extremely important	58.73%	37
2	Very important	28.57%	18
3	Moderately important	7.94%	5
4	Slightly important	1.59%	1
5	Not at all important	3.17%	2
	Total	100%	63

Q159 - Do you dry fish, fruit, or other food?



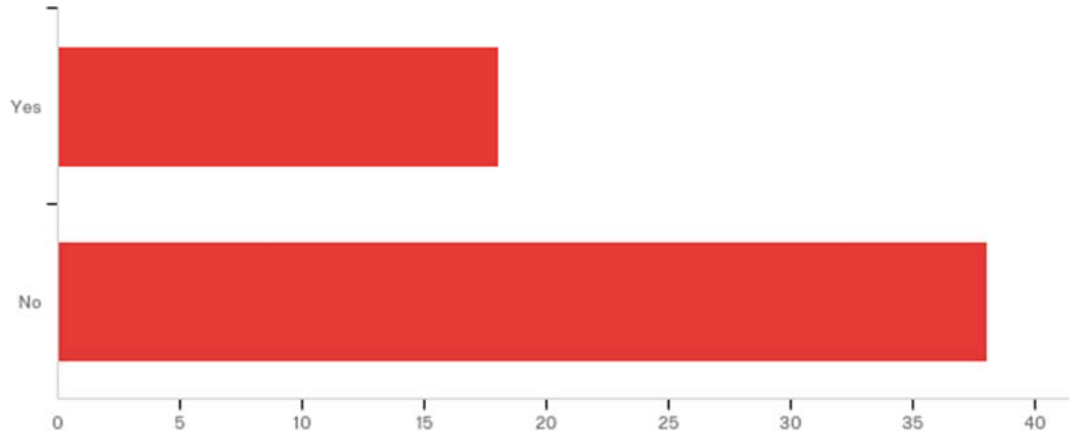
#	Answer	%	Count
1	Yes	53.23%	33
2	No	46.77%	29
	Total	100%	62

Q161 - If yes, do you use a drying shed?



#	Answer	%	Count
1	Yes	64.52%	20
2	No	35.48%	11
	Total	100%	31

Q164 - Are there sacred directions (North, South, East, West)?



#	Answer	%	Count
1	Yes	32.14%	18
2	No	67.86%	38
	Total	100%	56

Q165 - If yes, do you have any cultural practices that avoid certain directions? Could you describe?

If yes, do you have any cultural practices that avoid certain directions? Could you describe?

I dont know

Not sure

Sleeping we do not face head during north, as the story of the 4 post men. The man up North kills and eats humans, while East provides light and south provides food.

Just direction on where you're going. Going to the north side we say "Ean" or south "rok"

No

Just direction on where you are going, going north side we would say "ean", or south "rok"

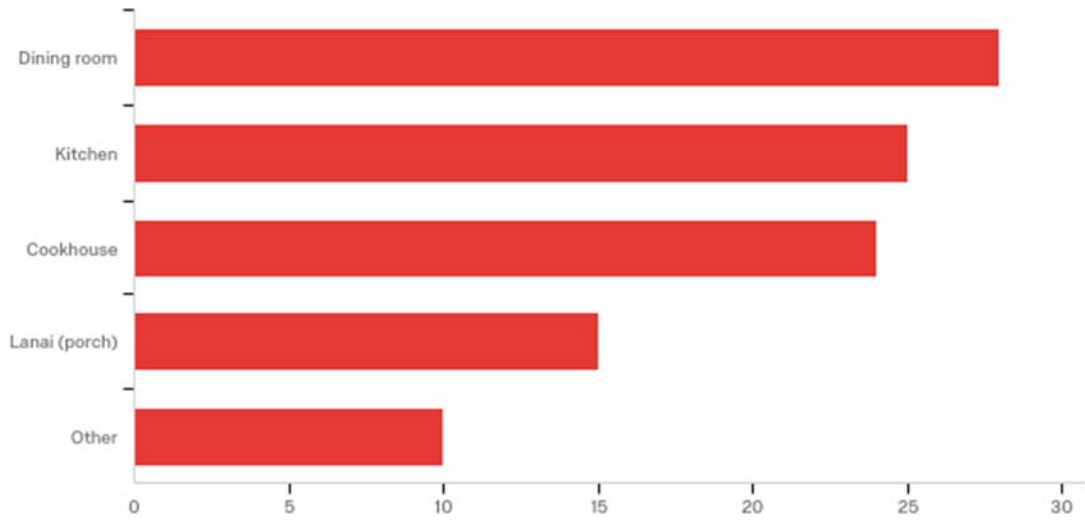
Yes. Don't look at opposite direction when facing a direction when you're performing some kind of local magic

North is sacred. Old stories say not to go north

Don't go north

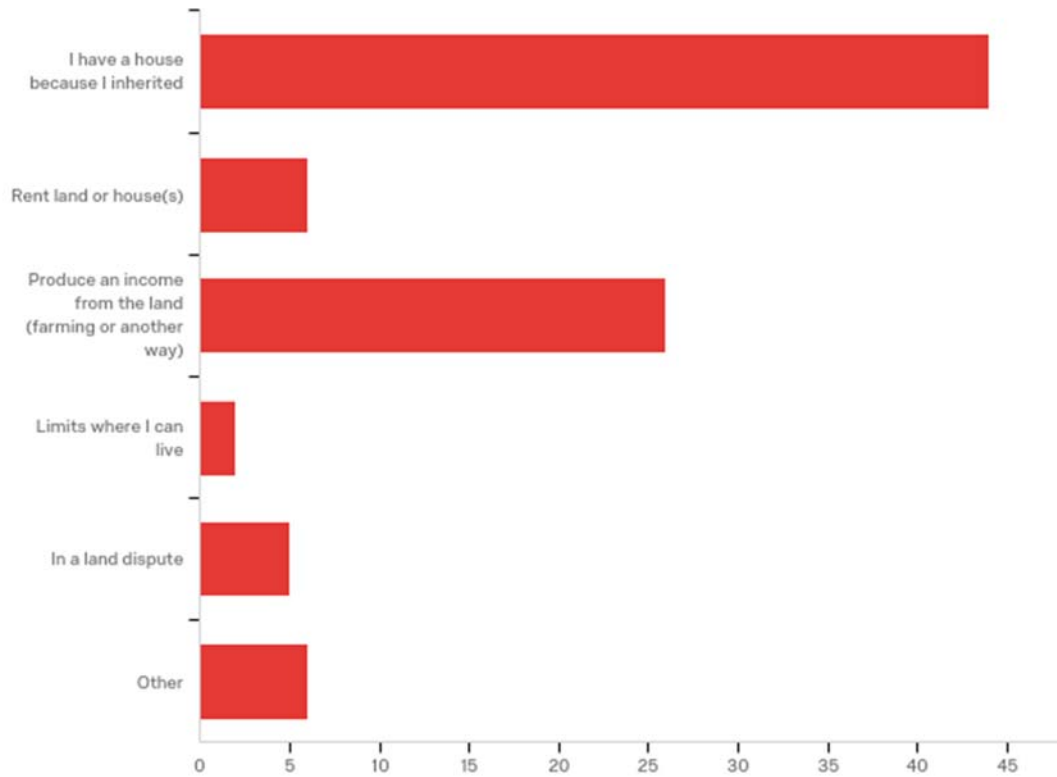
Heads facing to the east because sun and moon come from the east. Most of our trade winds come from the east.

Q166 - Where do you eat meals?



#	Answer	%	Count
1	Dining room	27.45%	28
2	Kitchen	24.51%	25
3	Cookhouse	23.53%	24
4	Lanai (porch)	14.71%	15
5	Other	9.80%	10
	Total	100%	102

Q168 - Could you please describe how traditional land tenure has affected you personally? (For example, I have a house because I inherited the right to the land). Mark all that apply



#	Answer	%	Count
1	I have a house because I inherited	49.44%	44
2	Rent land or house(s)	6.74%	6
3	Produce an income from the land (farming or another way)	29.21%	26
4	Limits where I can live	2.25%	2
5	In a land dispute	5.62%	5
6	Other	6.74%	6
	Total	100%	89

Q44 - If you and your family and friends had to move to the United States, please list the state and city to which you would like to move.

If you and your family and friends had to move to the United States, please list the state and city to which you would like to move.

phoenix, az

Hawaii

Not sure

Seattle Washington

Arkansas

Washington state

If we had to, then it would be Hawai'i. Its close and most relatives are there.

Washington State. Seattle

hawaii

Not too familiar with which cities but heard good reviews of Oregon and Washington state in terms of costs of living and healthcare

seattle washington

Never want to move

Oahu, Hawaii

United States Hawaii

Canada.

Portland, Oregon

Seattle WA

Kona, Hawaii

Hollywood

USA Seattle Washington

Arkansas

Seattle WA

Hilo

Hawaii or Guam

Arkansas

New York

Kauai, Hawaii

Undecided

NYC

Washington State, Oregon, California or Texas

Washington state... anywhere in king county

Salem and Portland - Oregon

Portland, Or

Anywhere

Not sure

Honolulu, HI

Hawaii, similar life to the Marshall Islands

Florida

Portland Oregon or Costa Mesa, CA

New York

Texas

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