# ENDOGENOUS CLIMATE RESILIENCE

## Informal Adaptation Pathways in the Pacific's Small Island Developing Cities

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# ABSTRACT

More than half of the world's population currently lives in cities, with an additional 2.5 billion people projected to join these urban inhabitants by the middle of the 21st century. With urban areas being both responsible for the vast majority of carbon emissions associated with energy use, and simultaneously facing substantive risks associated with climate impacts, it is clear that efforts to both mitigate and adapt to climate change impacts will be 'won or lost' in cities.

The term resilience is increasingly being applied to these urban systems, particularly in reference to climate-driven shocks and stresses. The uptake of resilience thinking has been driven in part by its capacity to bridge climate mitigation and adaptation, while incorporating additional fields and methodologies such as those associated with disaster risk management. This flexibility has been particularly appealing to international development actors and institutions, who have accelerated the term's national and sub-national uptake through the embedding of resilience language in international policy frameworks and financing mechanisms.

Resilience's conceptual fluidity, however, has led to sustained criticism from social scientists. These critiques have focused particularly on three areas: resilience thinking's lack of sensitivity to social inequality; the risk of divergence in normative perceptions of 'core' urban functions; and a capacity for the term to facilitate the devolution of the state's duty of care to its most vulnerable citizens. These concerns are especially pertinent for informal settlements, which house an estimated 880 million urban inhabitants globally and operate outside of institutionally recognised urban structures and systems.

This thesis examines the interaction between informally derived endogenous climate resilience and donor-driven exogenous climate resilient development initiatives in two Pacific cities: Honiara, Solomon Islands and Port Vila, Vanuatu. These two case studies provide critical insight into the accelerating process of urbanisation in a region characterised as one of the world's most climate vulnerable, focused through the experiences of two major climate-driven shock events.

Drawing on primary data from interviews with representatives from six informal settlements (n=57) as well as institutions engaged in the deployment of climate resilient development initiatives (n=26), I identify how the endogenous forms of climate resilience that are prevalent in informal settlements interact with donor-driven, exogenous development initiatives. These primary datasets have been integrated with analysis of project documentation, policies and finance, as well as sociodemographic and spatial data.

The results from this research demonstrate that 'informal climate resilience' is an integral part of sub-city systems, especially – but not exclusively – informal settlements. These forms of endogenous resilience are shown to be critical to the recovery, survival, and development of climate vulnerable communities. At the same time, they remain disconnected from institutional resilience-building efforts. Their prevalence, at times in conflict with city-scale values and functional assumptions, is found to be largely unrecognised within contemporary resilience theorisations and practice. By adapting resilience thinking heuristics originating from ecological applications – set within institutional analytical frameworks for engaging with informality – this research identifies strategies for engaging with informal climate resilience, with the potential for application within and beyond the Pacific.

# DECLARATION

This is to certify that:

i) The thesis comprises only my original work towards the degree of *Doctor of Philosophy* except where indicated in the Preface;

ii) Due acknowledgement has been made in the text to all other material used; and

iii) The thesis is fewer than 100,000 words in length, exclusive of tables, maps, bibliographies and appendices.

Alexei Trundle

16th April 2020

# PREFACE

I began working in the South Pacific in 2013, having previously conducted urban climate change adaptation research primarily in South-East Asia and Australia. Since then, I have spent a number of years focused on the region, developing climate change adaptation projects and urban resilience plans with the communities of Vanuatu and Solomon Islands' capital cities in partnership with organisations such as the United Nations Human Settlements Programme (UN-Habitat) and the Pacific Regional Environment Programme (SPREP).

As a newcomer and an outsider, positioned primarily as an urban inhabitant of the Global North, I cannot lay claim to any personal expertise in the multi-layered, culturally complex and contested informal spaces within these deeply experiential localities. Instead I draw here on stories – conveyed through a process referred to locally as *storian* and *tok stori* – from those with firsthand expertise in Pacific informality; urban households living without formal tenure in these cities.

Key caveats must therefore be noted here in the preface to this thesis, particularly relating to linguistic translation (with *Solomon Islands Pidgin* and Vanuatu's equivalent creole *Bislama* poor proxies for the diversity of traditional, island-based languages spoken in each city), as well as the cross-cultural and gender-based limitations associated with sharing *Kastom* (customary traditions, knowledge and practice), and other sociocultural aspects of urban informality.

From my perspective as a development practitioner I nonetheless became increasingly aware of extensive community capacities in these informal settings that were being used to respond to present day climate-related shocks and stresses. Frustratingly, it was evident that these strengths were not only being underestimated by scientific methodologies for assessing climate vulnerability (particularly in measures of adaptive capacity), but were also lacking effective consideration in the more substantive climate resilient development projects active in the region's cities. This empirical evidence ranged from complex, multicultural, social substructures providing critical adaptive capacity within informal settlements, to a vacuum in institutional understandings of how traditional knowledge and non-commodified aspects of attributes such as ecosystem services were being adapted within the region's urban domains.

It was this professional insight and familiarity that informed the initial hypothesis of this research, and I benefited greatly from my personal capacity to draw on pre-existing networks and connections into informal settlements in these two settings. Three projects in particular guided this preliminary thinking and greatly shaped my initial understandings of, and connections with, informality and climate vulnerability in Port Vila and Honiara. The primary literary outputs of these three climate resilient development projects are listed below:

TRUNDLE, A., & MCEVOY, D. (2015). Greater Port Vila Climate Change Vulnerability Assessment. *Cities and Climate Change Initiative: Planning for Climate Change Series,* United Nations Human Settlements Programme (UN-Habitat) Regional Office of the Asia Pacific, Fukuoka, Japan, 63 pages.

TRUNDLE, A., & MCEVOY, D. (2016). Honiara Urban Resilience & Climate Action Plan. *Cities and Climate Change Initiative: Planning for Climate Change Series,* United Nations Human Settlements Programme (UN-Habitat) Regional Office of the Asia Pacific, Fukuoka, Japan, 106 pages.

MCEVOY, D., DE VILLE, N., KOMUGABE-DIXSON, A., & TRUNDLE, A. (2017). *Greater Port Vila Social Mapping and Analysis of Ecosystem Use*. Pacific Regional Environment Programme (SPREP), Apia, Samoa, 90 pages.

Although the following publications are not derived from the research conducted for this thesis, they reflect findings from the institutional action research projects listed above:

TRUNDLE, A. (2017). Governance and agency beyond boundaries Climate resilience in Port Vila's peri-urban settlements. In M. Moloney S. Funfgeld H. Granberg (Ed.), *Local Action on Climate Change: Opportunities & Constraints* (1st ed., pp. 35–52). Routledge. https://doi.org/10.4324/9781315174815

KOMUGABE-DIXSON, A. F., DE VILLE, N. S. E., TRUNDLE, A., & MCEVOY, D. (2019). Environmental change, urbanisation, and socio-ecological resilience in the Pacific: Community narratives from Port Vila, Vanuatu. *Ecosystem Services*, *39*(October), 100973. https://doi.org/10.1016/j.ecoser.2019.100973

TRUNDLE, A., BARTH, B., & MCEVOY, D. (2019). Leveraging endogenous climate resilience: urban adaptation in Pacific Small Island Developing States. *Environment and Urbanization*, *31*(1), 53–74. https://doi.org/10.1177/0956247818816654

MCEVOY, D., MITCHELL, D., & TRUNDLE, A. (2020). Land tenure and urban climate resilience in the South Pacific. *Climate and Development*, *12*(1), 1–11. https://doi.org/10.1080/17565529.2019.1594666

One publication, however, has arisen directly from this doctoral research to date:

TRUNDLE, A. (2020). Resilient cities in a Sea of Islands: Informality and climate change in the South Pacific. *Cities*, *97* (102496). https://doi.org/10.1016/j.cities.2019.102496

This PhD research was supported by an Australian Government Research Training Program Scholarship. Additional fieldwork support was provided by the Melbourne School of Design, the Australian-German Climate & Energy College, and the Melbourne Sustainable Society Institute at the University of Melbourne.

# ACKNOWLEDGEMENTS

At the beginning of my final workshop in Port Vila, a local *ni*-Vanuatu leader explained to her community that this project was not something that came from a donor, or the government, with actions and implementation attached but rather one came 'from the heart'. My response at the time was that this research came as much from their hearts as mine, and that the stories that I now convey here were only able to be told because of their willingness to contribute time and share personal *storian* with no expectation of outcomes, projects, or funding in return.

To this end I must firstly acknowledge and thank the communities of Ontong Java Settlement, Jabros, Wind Valley, Etas, Seaside Paama/Futuna, and Blacksands for taking part in this project. Their contribution is all the more meaningful given the value of time as a resource for those who live precariously, with families to feed, work to be done, and gardens to tend to.

My thanks also to all of the institutional representatives in Port Vila and Honiara who took time out of their busy schedules to take part in interviews and contribute secondary data and policy documents. I'd especially like to thank Steve Likaveke, Vanessa Organo, Ann Pakoa, Lorraine Livia, and Bresley Arnitalu, who were of critical assistance throughout my fieldwork. To all of you, *tankiu/tagio tumas!*

To my supervisors Brendan Gleeson and Lesley Head, your encouragement, patience and professionalism has gone above and beyond what any doctoral researcher could expect or hope for. Thank you for seeing it through to the end with good humour and kindness, and for always being willing to take time out of your extremely busy roles in and beyond the University. Heartfelt thanks also to the members of my advisory committee – Carolyn Whitzman, Crystal Legacy and Jon Barnett – for providing robust and thought-provoking feedback over the past four years.

Thanks also to all of the researchers and professional staff in my own institutional 'homes', the Melbourne School of Design, the Melbourne Sustainable Society Institute, and particularly the Australian-German Climate & Energy College. It has been a privilege to be surrounded by brilliant, likeminded individuals at different stages of a similar journey. Exposure to such a rich diversity of backgrounds – disciplines, nationalities, and pathways to doctoral research – has truly enriched me both personally and intellectually. To all my friends at the College and elsewhere in the University of Melbourne, thank you for inspiring hope as we tackle the most wicked problem of the 21st century.

Thanks to Darryn McEvoy and Bernhard Barth for steering my own journey towards the Pacific before my doctoral studies began and providing critical insight and support throughout.

Lastly and most importantly, thanks to my family for bearing with my absence and general absent-mindedness as I've written the 'big book'. To my wife Holly especially, whose love and care has gotten me through the ups and downs of doctoral studies. To mum, for helping the three of us at home time and time again through fieldwork and writing up. Finally, to Leo, whose future depends so much on the critical collective decisions that we as custodians of this planet make today.

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A Category Five did strike me
I put up a fight in the strife but it smite me
When it did go past destruction was all I see
Wondering why this came to be
Because I came face-to-face with the cyclone
Many things I tried to save was lost and gone
But I still got life and my culture
My faith in God makes me a strong survivor
I will stick to the world, and I'm not falling down
I've been through it all, and I'm rising up again
No matter what they say, I will find a way
To keep on holding firm, because I am resilient

My government declares a state of emergency
Relief supplies keep on pouring in from overseas
No dread and despair, no need to shed tears
I still smile coz I'm alive and that's clear
Up from the rubble shall arise a new beginning
I would emerge again tougher; know that I am winning
I will replant my crops, rebuild my homes
Life will continue because I'm moving on
This time we know what drives these scars
Traditional knowledge, yeah it's my past
That's where my true resilience comes from
In the face of climate change this is my anthem

**Tujah (Bobby Shing) ft. KC & ALA**

*A song written after Tropical Cyclone Pam hit Port Vila, Vanuatu in March 2015*

# 1 INTRODUCTION

## 1.1 *Research Setting & Significance*

It is widely recognised that more than half of the world's population is now living in cities (UNDESA, 2018). However, the additional growth that is projected to occur through the 21st century will dwarf that of its predecessor. By 2050 alone, urban areas are expected to gain a further 2.5 billion people globally (UN-Habitat, 2016b). This shift is happening at the same time as a multiplicity of interrelated, global socioecological crises; 'wicked' problems defined by the dynamic interconnectivity between sociocultural phenomena and the physical ecologies that underpin them (Colding and Barthel, 2019). In particular, the exceedance of key planetary thresholds across an array of earth system functional 'spheres' is putting contemporary social, economic and geopolitical norms at risk (Steffen *et al.*, 2018).

The ongoing failure to plan for this drastic transformation of human habitation patterns has already resulted in the emergence of extensive informal settlements and slums, which currently accommodate one-quarter of the global urban population (UN-Habitat 2016a). Although these urban settings have been widely characterised by their deficiencies in infrastructure, a lack of basic services, and the prevalence of disease and poverty, they also exhibit unique strengths. Micro-economic activity, technological innovation, community cohesion, and the provision of spaces of 'arrival' for newcomers to urban centres often characterise the areas of cities where formal urban governance is lacking (Thieme, 2017).

'Resilience thinking' is increasingly being applied in the planning and development of cities, driven in part by its theoretical capacity to consider shocks and stresses as dynamic components of socioecological systems (McGreavy, 2016; Meerow and Stults, 2016). Associated with this is 'climate resilience' – the specific consideration of climate-related impacts. This branch of resilience thinking encompasses responsiveness to historically prevalent climate hazards as well as the shifts in the climatic conditions that are being observed and are projected to occur as a product of the continuing increase in greenhouse gas emissions (Tyler and Moench, 2012). The rapid emergence of this particular area of resilience theorisation and practice is reflective of the far-reaching, dynamic, and compounding nature of climate-related shocks and stresses.

The consideration of climate resilience in developing cities has been found to challenge many of the ontological assumptions upon which resilience thinking has been built, particularly when applied to those urban agglomerations undergoing rapid transformation and growth. In the Global South, as put by Friend and Moench, cities "are emergent mosaics … which reflect social values and relations, coupled with the coevolving environmental and infrastructure systems" (2015, p. 646). These values and relations are contested and highly subjective, with prospective future forms and functions being anticipated, manipulated and speculated upon by internal and external agents. Urban climate resilience applied in these cities therefore differs substantially from earlier applications of resilience thinking to stable, engineered systems and structures, or ecosystems with distinguishable transitions between stable system states (Chelleri *et al.*, 2015).

Despite these divergent system characteristics the discourse of climate resilience is increasingly pervading international development initiatives, financing and associated institutional agendas (Bahadur, Ibrahim and Tanner, 2013; Surjan, Sharma and Shaw, 2015). The inclusion of targets to "strengthen resilience and adaptive capacity to climate-related hazards" and fund "resilient buildings in Least Developed Countries" (Griggs *et al.*, 2013, p. 16) within the United Nations *2030 Agenda for Sustainable Development*, for example, is driving the uptake of urban-focused climate resilience terminology, frameworks and metrics internationally within both donor and development assistance programmes (Simon *et al.*, 2015; Tanner *et al.*, 2015).

The 11th 'urban' Sustainable Development Goal (SDG11) within this Agenda specifically aims to make cities "inclusive, safe, resilient and sustainable" (Griggs *et al.*, 2013, p. 16). At the same time targets within it use 'resilience' as a bridging concept for the integration of climate change adaptation, the mitigation of greenhouse gas emissions, and disaster risk management (Barnett and Parnell, 2016). In such settings the 'bounce-forward' paradigm integral to socioecological resilience provides a further point of differentiation from conventional post-disaster response processes (Folke *et al.*, 2010). Rather than 'bouncing back', socioecological resilience theory emphasises the long-term transformative potential of the significant international resourcing provided for disaster recovery (Pelling, 2011). Climate resilient development is therefore both normative and directional in its nature, shifting further from resilience thinking's theoretically descriptive origins.

## 1.2 *Problem Statement*

Although climate resilience has clear theoretical potential and institutional appeal, applications of the concept through international development intiatives have been criticised by practicioners and theorists alike. These critiques have been primarily levelled on two fronts. Firstly, its conceptual fluidity both within and across disciplines has allowed for the 'rebranding' of existing programs without substantive engagement with resilience principles (Meerow and Stults, 2016). As put by Weichselgartner and Kelman, "much of what has been recently labelled 'resilience' is 'old wine in new bottles'", resulting in the term running the risk of becoming little more than a buzzword (2015, p. 259).

Secondly, and more fundamentally, the transfer of resilience from a system property into a 'normative vision' – as is implicit when it is expressed in conjunction with sustainable development ideals – demands the integration of new mechanisms for engaging with the agency and values present both within subject systems, and as embodied within intervening development institutions. The lack of such consideration has been argued to lead to a "tendency in resilience theory to depoliticize social change" (Olsson *et al.*, 2015, p. 6), particularly in sociocentric and contested systems such as cities.

These shortcomings are most evident when resilience is applied in climate-vulnerable, developing and rapidly-growing cities, due to the fundamentally unstable nature of the socioecological systems in

question. Such climate-vulnerable, low-capacity settings are typified by two particular country groupings prioritised by international climate finance, as mandated through Article 9.4 of the Paris Agreement: Least Developed Countries (LDCs) and Small Island Developing States (SIDS) (United Nations, 2015).

Even outside of the cyclical impacts of major external shocks and stresses, cities in many of these LDCs and SIDS do not have an identifiable robust, stable state. Rather, transformation is a constant byproduct of the influx of new inhabitants, with fragility constantly manifest in a range of 'adaptation deficits' relating to resources, physical infrastructure, and institutional capacity (Fankhauser and McDermott, 2014). Despite the self-evident need for resilience to be applied in a transformative manner to support sustainable urban development the values espoused by socioecological resilience theorists regularly face in-situ resistance from communities and practitioners alike. The latter two groups often struggle to reconcile these ideals of system improvement and learning with more practical demands to 'bounce back', a more conservative operational and cultural post-disaster norm when coping with a shock or stress event (Olsson *et al.*, 2015).

A second consideration relates to the positioning of socioecological resilience as maintaining 'core function' – rather than a complete restoration of a system's previous state – a necessary precondition to enabling transformation as explained above. When applied to the highly contested spaces prevalent in these cities, the underdevelopment of theoretical frameworks for determining which functions of an urban system are required for its persistence and which could – or should – undergo resilience-enhancing change or destruction is exposed (Seeliger and Turok, 2014; White and O'Hare, 2014). Put more directly, those attributes of a city that are fundamental to one inhabitant's livelihood can differ, or potentially be in conflict, with those considered to be of 'core function' to another.

As a result, applications of resilience in the cities of the Global South can be seen to be ineffectively engaging with fundamental social principles such as rights, ethics, and equity (Friend and Moench, 2013; Ziervogel *et al.*, 2017). In some instances, these limitations have led to resilience-enhancing initiatives being criticised for a predisposition towards reinforcing the capacity, infrastructure and functionality of the urban institutions that initiated them without sufficient consideration of community-level urban realities (Seeliger and Turok, 2013; Chelleri *et al.*, 2015). In cities with weak, ineffective, or nepotistic institutional governance such efforts can contradict the sustainable development paradigm itself by further disadvantaging those already vulnerable, while privileging those in positions of power. This disjuncture is particularly visible when examining the values and sub-systems that operate within informal urban domains (Tanner *et al.*, 2009; Seeliger and Turok, 2014).

Informality encompasses a wide range of modes of production, consumption and habitation. Informal settlements are a subset of this phenomenon, being referred to variously as slums, squatter settlements, and shanty towns, as well as several other local or regional variants (such as Brazil's *favelas*, or Sri Lanka's *palpath*). Globally, the United Nations uses the term 'slums', which it defines as residential areas that lack one or more of five characteristics: improved drinking water; adequate sanitation; durable housing; adequate living spaces; and secure tenure (UN-Habitat, 2003). It is this definition that has been broadly used in this research, with due consideration to its limitations (for instance, regarding other structural and built form attributes). Additional, locally relevant classifications of land tenure types have also been developed iteratively through the research process in order to provide a framework for considering the fifth characteristic: tenure security (which remains excluded from the global figures cited below due to difficulties in establishing global agreement on a suitable multilateral definition).

A 2014 compilation of national-level datasets by UN-Habitat calculated that dwellings meeting one or more of the aforementioned criteria provide housing for more than 880 million urban inhabitants; a

quarter of the world's urban population (2016a). Although similarly difficult to quantify the global informal economy is even more pervasive, with the International Labour Organisation estimating that 51.9 percent of the world's employed population aged fifteen and over work in the informal sector (with informal employment including workers not subject to national labour legislation, income taxation, social protect or entitlement to employment benefits such as sick leave) (ILO, 2018).

Within informal settlements resilience has been observed to be enacted in spite of, rather than through, limited institutional structures and interventions, despite the latter extending into these spaces in differing, 'messy', and often interconnected ways (Cannon and Müller-Mahn, 2010; Trundle, Barth and McEvoy, 2019). Wilson, for instance, sets out an array of 'social memory' attributes – such as customary laws, hazard familiarity, and taboos – observed to increase community resilience across a diverse range of global settings (Wilson, 2015). Building on Wilson and others' empirical observations (see, for example, Jabareen, 2013; McDougall, 2015), the resilience of inhabitants of informal settlements is therefore hypothesised here to be more dependent on predominantly informal, community-based, and traditional capabilities than the formal institutional structures of the nation-state.

It is the disjuncture between these endogenous, informal, sub-city contributors to climate resilience and exogenous, city-scale climate resilient development efforts that provides the point of departure for this research. Although cross-scale interactions have been elaborated on in resilience theory previously, particularly through use of Gunderson and Holling's Panarchy heuristic of nested adaptive cycles (Gunderson and Holling, 2002), these ideas have had limited application in urban- and community-focused resilience practice (Sharifi, 2016). As Bahadur and Tanner note:

> Concepts such as multiple stable states or Panarchy can be difficult to translate into concrete guidance for decision-making, a difficulty further compounded by an absence of common resilience metrics (2014, p. 204).

Gunderson and Holling's heuristic centres upon the premise that a socioecological system alternates between the gradual accumulation and transformation of resources, before and after which the system goes through a rapid process of release or reorganisation (2002). Each cyclical phase corresponds to a different potential for transformative change and varies in exhibited resilience levels. A system is also constituted of subsystems that are 'nested' within it, with their own adaptive cycles operating at shorter and smaller temporal and spatial scales (Holling, 2001). However, although it aligns well with the dynamic nature of developing cities even Panarchy's relatively sophisticated theoretical development lacks conceptual mechanisms for considering the conflict in values, power and agency discussed earlier in this chapter (Olsson *et al.*, 2015). In summary, it is the engagement of city-wide efforts to build climate resilience with the discontinuous, sub-system phenomenon of informality that is the focus of this research. Simply stated:

**Efforts to build climate resilience in urban systems lack effective mechanisms for engaging with the informal systems that are prevalent in the rapid-growth cities of least developed, climate-exposed countries.**

## 1.3 *Background: Cities in Pacific Small Island Developing States*

The South Pacific is one of the world's least urbanised regions, however over the last three decades the region's inhabitants have begun to move from rural to urban areas at a rate well above the global average (Jones, 2016b). Correlating with a wave of decolonisation across the region in the 1970s and 80s, a lack of urban planning capacity and policy following the withdrawal of colonial bureaucracies – coupled with the emergence of neo-colonial land development regimes – has seen a growth of both informal economies and settlements in and around the region's cities (Barnett and Waters, 2016; Jones, 2016a). These conditions are particularly prevalent in Melanesia, the south-western sub-region within the Pacific SIDS group, which encompasses a vast area of the Pacific Ocean (see Figure 1.1).

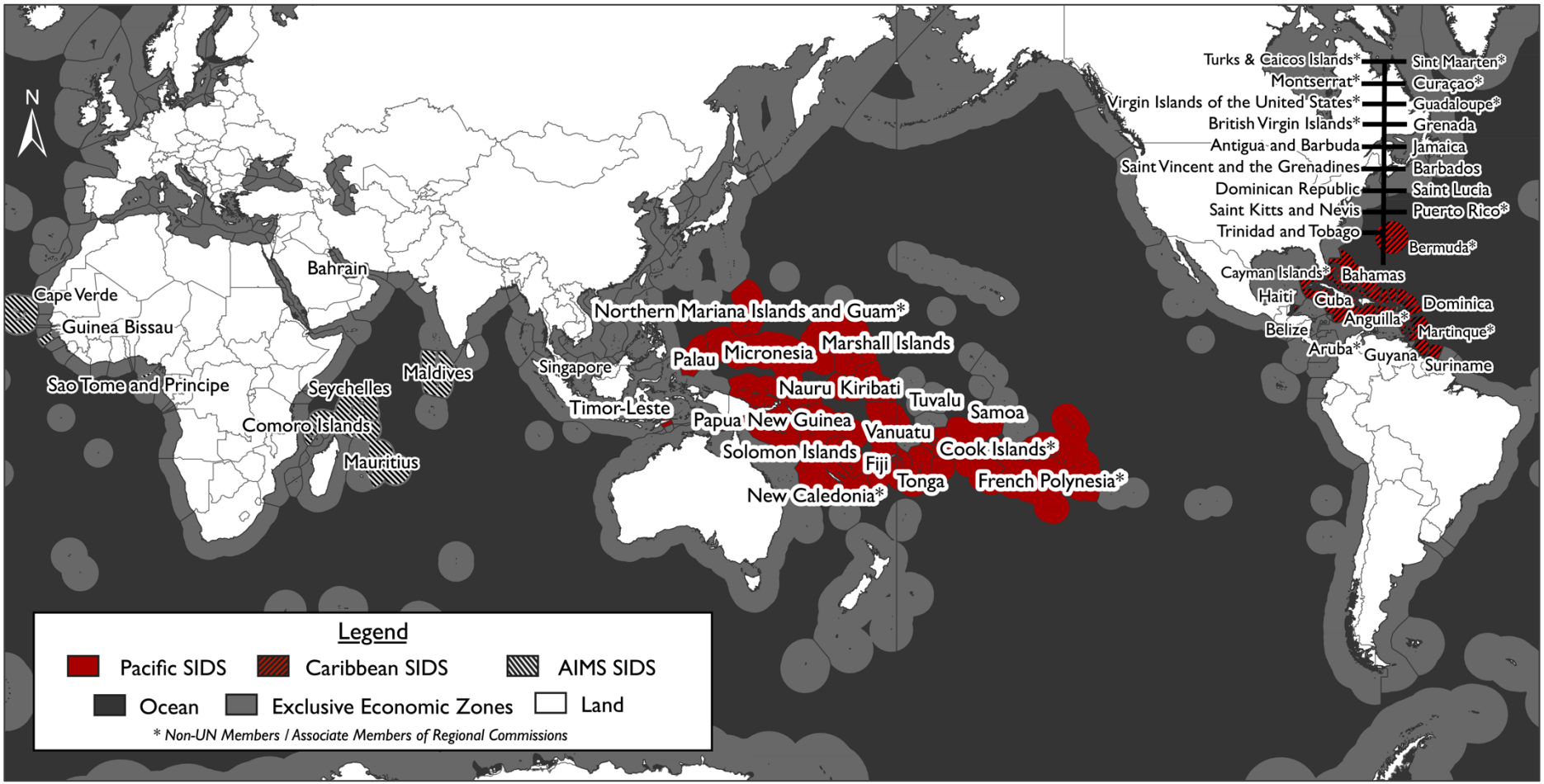


**FIGURE 1.1:** SMALL ISLAND DEVELOPING STATES (SIDS) BY REGION DEPICTED BY EXCLUSIVE ECONOMIC ZONES

(Source: Author, developed using data from the Australian Ocean Data Network, the United Nations and ArcGIS)

Cities in Pacific SIDS act as critical gateways to global markets, house government bureaucracies, and provide Pacific Islanders with both local and international employment opportunities (Connell and Lea, 1994). However, many continue to be defined by legacies of their colonial pasts, beset by complicated relations between alienated customary owners and domestic migrants from culturally-diverse island groups (Connell, 2003; Foukona, 2015; Trundle, 2017). The formative nature of these nascent nation-states, coupled with that of urban livelihoods for many of their citizens, has created a stasis of urban development, reinforced by little expectation for effective city governance and planning. Consequently, the prevalence and persistence of informality in these urban environments presents a challenge to climate resilient development approaches, particularly those that have a focus on the city-scale.

In their review of the concepts and theories underpinning urban applications of climate resilience Tyler and Moench observe that "vulnerability to climate change occurs when fragile, inflexible systems and/or marginalized or low capacity agents are exposed to increased climate hazards, and their ability to respond or shift strategies is limited by constraining institutions" (2012). Informal settlements in the Pacific frequently occupy those areas of the city considered most vulnerable to climate shocks, such as floodplains and coastal fringes (Rodil and Mias-Cea, 2014), with informal tenure also often limiting investment in housing materials (Feeny and McDonald, 2013), as well as access to services and utilities (Schrecongost and Wong, 2015). Isolation from institutional disaster response mechanisms as well as more general governance structures is also an issue that has been regularly identified in post-disaster settings in a number of Pacific cities (Connell, 2006; Jones, 2012b; Scambary, 2013).

Instances of informal climate resilience – albeit not so explicitly defined – can be observed in previous research both in the Pacific and elsewhere in the Global South. Birkmann *et al.*, for instance, reflect that informal social mechanisms of land management play a critical role in flood risk management in Ho Chi Minh City, Vietnam, but are "not sufficiently taken into account" in adaptation planning, "similar to many other cases in developing countries and countries in transition" (2010, p. 197). Ziervogel and colleagues provide a number of examples of "endogenous forms of resilience" in relation to informal settlements in African cities, focusing on the role of peer-to-peer networks within settlements, as well as cultural and experiential knowledges that are drawn upon in the event of a disaster event (2017, p. 11). In the Pacific, Rey *et al.* identify the flexibility of the informal economy, as well as the social security provided through the *wantok* system,[1] as two key sources of resilience that were drawn heavily upon in urban Vanuatu following the impact of Tropical Cyclone Pam in 2015 (2017, p. 270).

## 1.4 *Research Aim & Questions*

The aim of this research is to understand how the endogenous enactments of climate resilience in informal settlements interact with donor-driven, exogenous climate resilient development initiatives, with specific reference to climate vulnerable cities in Pacific SIDS. This aim has been approached through a case study approach, focusing primarily on qualitative data gathered from institutional representatives and six informal communities in the capital cities of two Pacific SIDS: Honiara, Solomon Islands and Port Vila, Vanuatu. A comprehensive rationale for the selection of these two case study settings is provided in Chapter 4, with both aligning strongly with the problem statement set out above (being rapidly-urbanising, developing, climate-vulnerable contexts).

This aim has been approached through the following sequence of three research questions, which focus on the exogenous and endogenous enactments of modes of climate, before more explicitly examining

[1] *Wantok* refers to the indigenous languages of island or regional sub-groups. The *wantok* system is a pervasive 'code' of reciprocity and social support that permeates community, government and business interactions across much of Melanesia.

the interface between formal and informal contributors to the resilience exhibited by these two city systems:

1) **In what ways is the discourse of climate resilience being expressed and applied in exogenous development practice in Vanuatu and Solomon Islands?**
2) **How do informal communities within the two capital cities of these Pacific Small Island Developing States exhibit and enact endogenous forms of climate resilience at a sub-city scale?**
3) **What do the interactions between these endogenous and exogenous modes of resilience mean for climate resilient development and the application of resilience theory in cities?**

Vale proposes that resilience is "simultaneously, a theory about how systems can behave across scales, a practice or proactive approach to planning systems that applies across spaces, and an analytical tool that enables researchers to examine how and why some systems are able to respond to disruption" (2014, p. 191). The three research questions above respectively align with Vale's three characterisations: i) resilience as *planning*, practiced through institutional actors' efforts to proactively adapt or transform their domains into a more resilient state; ii) resilience as *a capacity for response*, evidenced by informal settlement communities at sub-city scales within these domains; and iii) resilience as *a theory of system behaviour*, considering the implications of these cross-scale interactions for climate resilience as a whole.

Although the two binaries set out in the questions above – formal/informal and endogenous/exogenous – are conceptually juxtaposed both within spatial domains and scales of urban governance, in reality both have blurred boundaries, and complex interconnectivities exist between them. Their differentiation here, however, allows a wider exploration of the ways in which related exclusions generate barriers and facilitate access within and beyond the urban systems under examination. Additional sub-questions have been used to structure research procedures and data collection and are elaborated on in as part of the research methodology, which is set out in Chapter 4.

## 1.5 *Port Vila and Honiara: Context & Rationale*

Vanuatu and Solomon Islands are two of only four Pacific Island Countries that are classified as both Least Developed Countries and SIDS (UN-OHRLLS, 2015; UNCDP, 2019). As neighbouring countries within the Melanesian sub-region of the South Pacific, these two archipelagos provide complex but characteristically comparable case study settings, both being representative of rapid urbanisation under high levels of climate vulnerability (Trundle, Barth and McEvoy, 2019). With a diversity of languages, island cultures and complex typologies of informal tenure arrangements, a dual case study approach not only provides a greater breadth of community-scale settings within which to examine informal climate resilience, but also allows for a deeper comparative analysis across differing institutional and socio-cultural environments.

Port Vila is located on Efate, the island at the centre of Shefa Province, which in turn sits at the apex of Vanuatu's 'Y' shaped archipelago. Honiara is similarly located at the focal point of Solomon Islands on the northern coastline of Guadalcanal island, at the centre of Guadalcanal Province. Figure 1.2 contextualises these two cities within the Pacific SIDS region, as well as their respective sub-national provincial structures and immediate island surrounds. At each scale the countries, provinces and greater urban areas that constitute the case study foci of this research have been highlighted, as well as the Exclusive Economic Zones (EEZs) that constitute the vast majority of Pacific SIDS' territory.

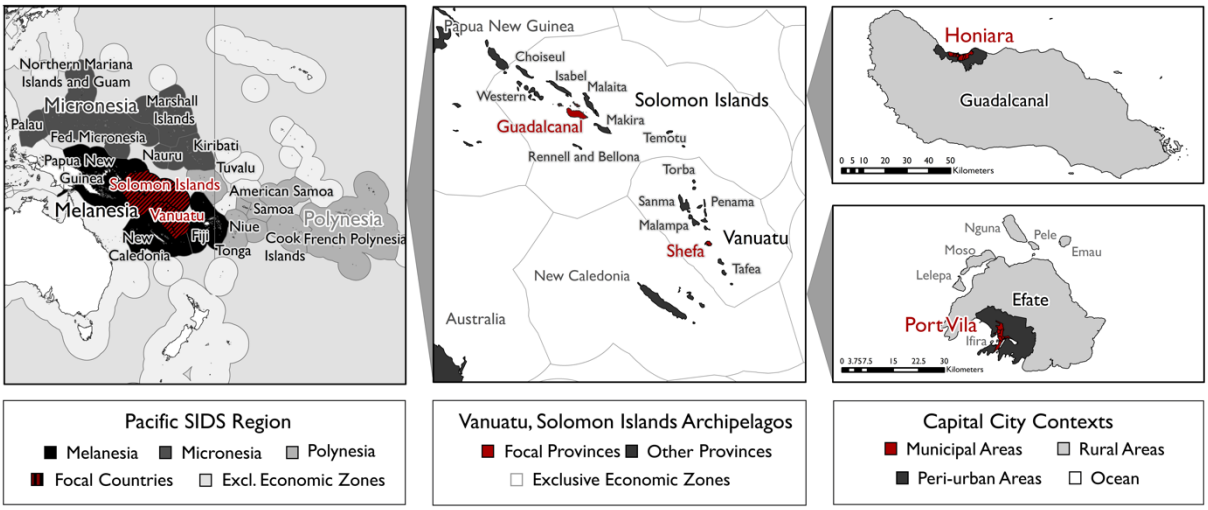


**FIGURE 1.2:** CASE STUDY CITIES WITHIN REGIONAL, NATIONAL, AND ISLAND CONTEXTS

(Source: Author, developed using data from the Governments of Vanuatu and Solomon Islands)

Both Port Vila and Honiara have experienced a rapid acceleration in rural-to-urban migration over the last three decades, with an unprecedented number of migrants negotiating the transition from more traditional livelihoods into urban settings in the region's cities and towns (Connell and Lea, 1994; Jones, 2016b). These regional rates of urban growth are projected to continue over the coming decades, with Pacific SIDS expected to gain another 3.9 million urban inhabitants by 2050 from a 2010 baseline of 1.6 million, a rate of increase 3.5 times greater than the projected global average over the same period (Bedford and Hugo, 2011). In part due to the speed of this expansion – but also as a product of complex post-colonial institutional incapacities and socio-cultural urban histories – large informal sectors and settlements have emerged across the Pacific, with Port Vila and Honiara being no exception (Reuben, 2013; Trundle, 2017).

A compilation of annual, country-level natural disaster risk assessments by the United Nations University's Institute for Environment and Human Security (UNU-EHS) from 2012-2016 found Vanuatu to be facing the highest level of national natural disaster risk globally, with the Solomon Islands ranked sixth over the same period (Garschagen *et al.*, 2015). These rankings were a function of both exceptionally high natural disaster exposure on a per capita basis and an observed lack of adaptive and coping capacities at a national scale. The work of UNU-EHS echoes similar findings in urban-focused disaster risk analysis, with a Natural Hazard Risk Atlas developed in 2015 identifying Port Vila as the most at-risk urban environment out of a global sample of 1,300 cities (Verisk Maplecroft, 2015).

Two recent climate-related natural disasters provide points of reference for this research: Tropical Cyclone Pam, which hit Port Vila in March 2015, and a heavy rainfall and flash flooding event that destroyed critical infrastructure and large settlement areas across Honiara in April 2014 (known locally as the 'April Floods'). The impacts of these climate-related disasters on the two urban systems, along with that of other shocks and stresses experienced by the inhabitants and institutional representatives in each city, have been examined through a series of qualitative interviews and workshops focusing on the two aforementioned groups: six informal communities across the two cities, and a range of institutional representatives engaged in local climate resilient development initiatives (across different scales of agency, from inter-governmental agencies to local community-based civil society organisations).

These two sets of primary data have been both informed by, and compared with, analysis of the principles and characteristics of 'climate resilient development' (as identified in international literature,

as well as locally applied policy and projects). Socioeconomic, quantitative statistics have also undergone spatial analysis to contextualise the identified resilience-building mechanisms, capacities, and resources in each city. Findings have also been informed by analysis of secondary quantitative data relating to the shocks, stressors, and vulnerabilities at city, community and household scales.

## 1.6 *Key Concepts & Methodological Framings*

As set out earlier in this chapter, this research bridges institutional and informal forms of resilience; an integrative process that currently lacks an agreed analytical mechanism, and which necessarily draws upon dissimilar and discrete sets of data. A mixed methods approach has therefore been developed as part of this research, drawing on theorisations of both resilience and urban informality from the interrelated disciplines of Human Geography and Anthropology. These disciplines have been central to the emergence of the fields of climate change adaptation and disaster risk management, areas that the discourse and practice of climate resilience draws upon heavily (Füssel and Klein, 2006; Leichenko, 2011). They have also provided fertile grounds for critical analysis of sociocentric applications of resilience discourse; reflections that have informed the problem statement set out earlier in this chapter (Weichselgartner and Kelman, 2015).

In addition to contributing to the theorisations of resilience, Anthropology provides the disciplinary foundation for the field of development studies, the dominant framing for critical analysis of international and intergovernmental aid, financing, and institutions. It also engages nuanced perspectives on alternative capabilities – outside of Western, technocratic theoretical models – for responding to shocks and stressors, which have vexed histories of interaction with Eurocentric, technocratic modes of disaster risk management and response (Gaillard, 2007, p. 525). Finally, both disciplines are implicit in the *'geographies of movement'* that Lawson proposes are traversed by migrant households. These households are the primary unit of analysis used here within informal settlements, having the capacity to demonstrated both the dynamics that underpinning rapid urban growth and the nature of endogenous informal resilience capacities (Lawson, 2000).

Simon and Randall note that "critical assessments of resilience can cut across the generality and evasiveness of the term by nailing it down and forcing the question of specifics when it is summoned" (Simon and Randalls, 2016, p. 15). In this research, resilience is argued to be necessarily considered simultaneously as a discursive structure, a practiced normative ideal, and a theorised property of system behaviour. A singular, unifying definition therefore does little to address Simon and Randall's concerns. Nonetheless, following the typology developed by Olsson *et al.* (2015), resilience as used here can be defined as the capacity for a system to cope with, recover from, adapt to, or transform in response to a shock or stress, as measured by an acceptable return to or maintenance of system function.

The 'specifics' of resilience are instead drawn upon through the term's differing applications within the research methodology, as visualised in Figure 1.3. This methodological conceptualisation builds on the propositions of resilience paradigms put forward by Vale (2014), with each aspect having its own definitional considerations of resilience theory and practice.

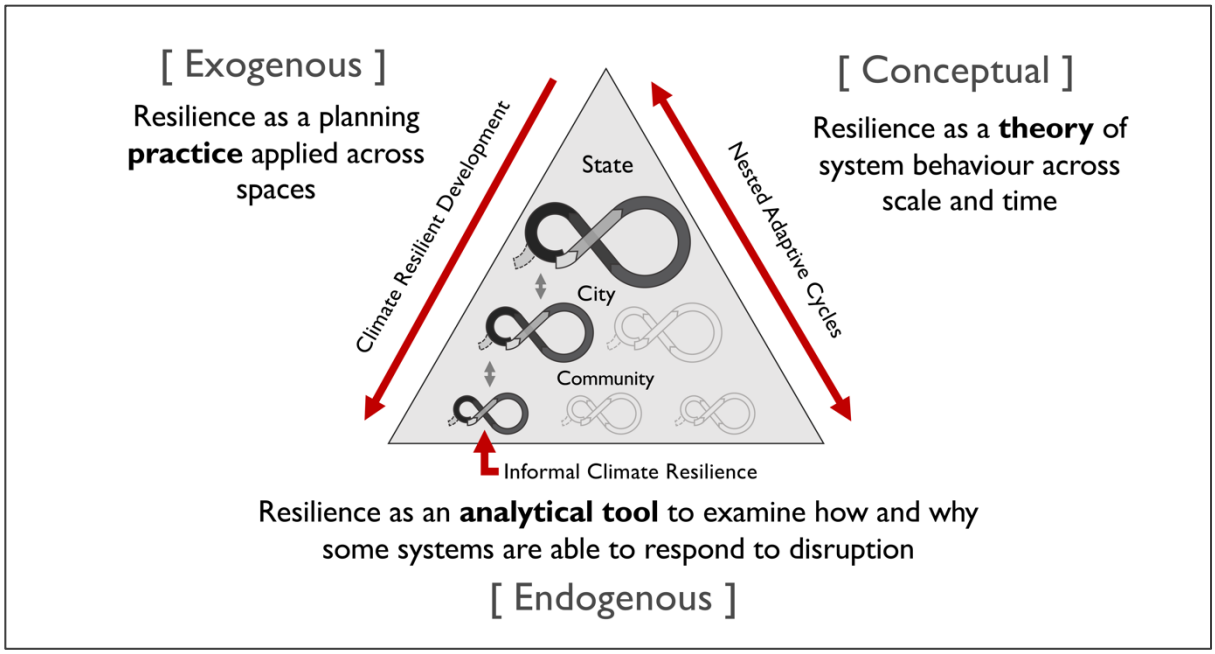


**FIGURE 1.3:** RESEARCH APPLICATION OF VALE'S RESILIENCE PARADIGMS

(Source: Author, building on the theorisations of resilience set out in Vale 2014)

Firstly, exogenous resilience is depicted as planning practice, as reflected in institutionally led development efforts. In this paradigm the system's capacity to recover from a shock or stress is considered to be made resilient through the process of enhancement to an acceptable developmental level. This explicitly normative practice of resilience, as applied within and across the urban systems that constitute the two case studies, is the focus of RQ1. The more specific definition of 'climate resilient development', including its ontological emergence, disciplinary roots, and normative applications, is elaborated on in Chapter 2.

The second dimension of resilience depicted in Figure 1.3 is a function of the community-level, subsystem characteristics and properties that can be drawn upon in relation to specific climate-related shock and stress events. This conceptualisation has been used here as an analytical tool, providing a framework for examining informal, endogenous capacities operating at a sub-system scale within the two case study cities (RQ2). While the adaptive cycle "does not in itself offer a framework for 'measuring' resilience", it nonetheless "offers an evolutionary understanding of resilience as continually altering, as the system adapts and changes" (Davoudi, Brooks and Mehmood, 2013, p. 310). It is this dynamic, evolutionary definition of resilience that most reflects the experience of informal migrant households. As Weichselgartner and Kelman surmise, "based on vulnerability and development geography, the ability to be resilient is never distributed homogenously within and through social groups" (2015, p. 252). Informal urban communities have therefore been purposively targeted here, being key outliers in spatial inequality and thus providing a contrasting understanding of the urban system's purpose and function.

The third of Vale's proposed resilience paradigms positions resilience as a theory of system behaviour across scales and time, thus allowing analysis of the interaction between exogenous and endogenous resilience (RQ3). This specific technical approach applies Gunderson and Holling's Panarchy heuristic of nested adaptive cycles, visually depicted at the centre of Figure 1.3 (Gunderson and Holling, 2002). As Allen *et al.* observe, Panarchy provides a dynamic, multi-scale framework that "presents opportunities to test specific hypotheses regarding resilience, discontinuity, novelty, structuring

processes in complex systems, cross-scale phenomena, and regime shifts" (2014, p. 584). These nested cycles are depicted at the centre of Figure 1.3, and are elaborated on more fully in Chapter 2.

## 1.7 *Research Approach*

As noted in the problem statement set out earlier in this chapter, resilience thinking requires further modification if it is to address key normative features, values, and politics within sociocentric systems. In order to address these criticisms, a framework for engaging informal structures, derived from comparative politics, has been embedded within this research methodology. Helmke and Levitsky set out a 'typology of informal institutions' that defines informality "in terms of shared expectations rather than shared values", providing a basis for understanding these sub-city functions in terms of both the convergence (or divergence) of expected outcomes, and the functional effectiveness of the formal, city-scale instituitions themselves (2004, p. 278). By integrating these considerations of political power, alternative values, and the capacity for legitimate functional outcomes through informality, the Panarchy heuristic has been further refined to enable consideration of these subjective components of resilience.

Helmke and Levitsky's Informal Institutional Framework identifies four forms of informal-formal interaction, which they categorise as (1) Complementary, (2) Accommodating, (3) Competing, and (4) Substitutive (2004). Within this framework, informal institutions are defined as "socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels", a classification that has been applied here to establish the social ontology of rural-to-urban migrants in each case (Helmke & Levitsky 2004, p. 727). These rules are transmitted by social networks and enforced through non-institutional systems and organisations. Temporally, they are understood to be enacted through the capacity of such institutions to respond to shocks and stressors, as reflected by systemic relationships between vulnerability, resilience and adaptive capacity (Gallopin, 2006).

Central to the dynamic nature of these particular urban systems are rural-to-urban migrants. Although the correlation between informal settlements and rural migrants transitioning into the urban cash economy is well documented (see Roy, 2002; Thieme, 2017; or Mitchell *et al.*, 2016 for a Pacific example), informal migrants also provide a unique perspective on the urban system itself, occupying a dialectal space of 'otherness' within the city (Silvey and Lawson, 1999). Many urban migrants in Pacific SIDS are highly marginalised, with their pre-urban knowledges and practices disrupted (being both discordant with and in some cases undermined by institutionally-led, climate resilience enhancing initiatives) (Gaillard, 2007; Miller *et al.*, 2010). At the same time, informal migrants are able to draw on resources, knowledge systems and networks from beyond its boundaries (Seto, 2011; Usamah *et al.*, 2014). They therefore provide ideal research candidates for uncovering the endogenous modes of climate resilience that operate in cities outside of the institutional 'formal' domain.

## 1.8 *Contribution to Knowledge*

By examining endogenous informal contributions to urban climate resilience through the analysis of rural-to-urban migrant experiences of climate shocks this research provides a new contribution to resilience theory and climate resilient development practice. This research demonstrates that these informal contributions also have the potential to contribute significantly to the normative enhancements of resilience being deployed through exogenous climate resilient development efforts, particularly in least developed small island cities and states. As Jones notes in his analysis of urban planning in Pacific Island Countries (PICs), "with urban management receiving little attention on PIC development agendas and local government being marginalised in decision-making processes, it is timely to ask what new forms of urban management could emerge that reflects the post independence

PIC reality" (2012, p328). Informality is therefore not only critical due to the substantial share of urban inhabitation and production that it encompasses, but also due to the potential for uncovering avenues for enhancing urban climate resilience that exist outside of mainstream urban planning approaches.

At a whole-of-city scale, the rapid urban growth driven by these migrant households stretches already-limited local institutional resources, reducing institutional capacity to support the climate resilience of the marginalised households, further isolating them from the formal domain (Vale, 2014; Mitchell *et al.*, 2016). This holds particular significance in Solomon Islands and Vanuatu due to the complex relationship between traditional sociocultural order – which sits outside of, and pre-dates, the concept of the nation-state – and contemporary urban governance (Storey, 2006; Jones, 2016b). The paucity of evidence relating to the latter – with particular reference to substantial flows of climate resilient development assistance – is also analysed here, providing an evidence base for these more empirical claims of a fragile regime-level urban governance system.

Developing an understanding of the migrant perspectives on, and capacities that relate to, climate resilience in light of their individual transitions from non-urban livelihoods and customary systems is therefore critical if the relationship between institutional and informal resilience-building is to be understood. At the same time the dialectal interplay of the rural-to-urban migrant experience provides an as-yet unexplored viewpoint for critical analysis of urban climate resilience, enabled through their role as a re-interpretive agent of both development and urbanisation (Lawson 2000 p.173).

## 1.9 *Thesis Structure*

Chapter 2 of this thesis provides a review of the theoretical literature that underpins the discourse of climate resilient development, drawing on the conceptual origins and evolution of resilience thinking, as well their appropriation through practice in the fields of climate change adaptation, international development and urban planning. The chapter culminates in a consideration of the operation of nested adaptive cycles in relation to climate resilient development practice in cities undergoing transition. This demonstrates the shortcomings of sociocentric applications of resilience thinking specifically in terms of its capacity to consider system attributes such as agency, equity, conflict and power. These aspects are doubly important due to their critical role in informal urban climate resilience.

Chapter 3 examines urban transitions in relation to the geopolitical processes that underpin development practice, with the latter contextualised within the South Pacific region. Helmke and Levitsky's typology of informal structures and systems is elaborated on with reference to the particular characteristics of informality present in Pacific SIDS; attributes that are shown have shaped the application of climate resilience theory in the two case study countries. This typology is then linked to the core characteristics and principles that underpin urban climate resilience discourse, before the chapter culminates in an overview of the conceptual framework developed from this literature review.

Chapter 4 details the theoretical frame, methodology and methods that have been used in developing, conducting and analysing this research project. A rationale is provided for the mixed methods approach that has been developed in relation to the literary overview and background provided in Chapters 2 and 3. The selection of the two case study cities – as well as the institutional and community representatives that provided the primary data for this study – is also grounded through preliminary analysis of secondary spatial, socio-demographic data in order that each case study setting can be validated and characterised in relation to resilience theory and the overall research aim.

Chapter 5 presents findings specific to Research Question 1, revealing the ways in which exogenous modes of climate resilience are being enacted and expressed in the two case study settings at a whole-of-city scale. These results draw upon interviews with institutional representatives; primary research

outputs that have then been integrated with desktop analysis of policies and programme documentation relating to climate resilient development initiatives. Through the integration of these primary and secondary datasets city-scale interventions are contextualised within the broader international policy frameworks that target Pacific SIDS, particularly climate finance and official development assistance.

Chapter 6 profiles the informal migrant dialectic across the six case study communities, contextualising informality within each of the two city settings and integrating secondary city-scale data with primary research data. Analysis of primary interview data relating to the concept of 'home' is integrated with secondary spatial data and historical records across the two countries, positioning each city system within national patterns of movement and socio-cultural systems. Chapter 7 then draws on these findings to address Research Question 2, setting out the evidence for endogenous modes of climate resilience (in light of the urban climate resilience characteristics set out in Chapter 2).

Chapter 8 addresses Research Question 3, discussing the relationship between these exogenous and endogenous expressions of urban climate resilience at both city and community scales, with the dynamic aspects of these interactions considered through Gunderson and Holling's Panarchy heuristic (Gunderson and Holling, 2002). These interactions are categorised through Helmke and Levitsky's Informal Institutional Framework (2004), highlighting points of normative conflict, and complementarity with reference to the impact of major climate-related shock and stress events on urban systems. The wider implications of these observed interactions are then reflected on in relation to climate resilience theory and practice, as well as the emergent development assistance frameworks relating to global efforts to mitigate and adapt to climate change.

Conclusions are then drawn in Chapter 9, which recaps the research findings in relation to the research aim and questions. The wider implications for these contributions to the fields of knowledge related to climate resilient development, urban informality, and resilience theory are emphasised, as well as areas identified for further research.

# 2 CLIMATE RESILIENT DEVELOPMENT: A NORMATIVE APPROPRIATION

> It's not 'climate', it's 'resilience' that we use. But that's new terminology that can only be used by people that have gone to schools. At the community level people will not use resilience … they'd rather use climate change.
>
> Its meaning depends on different environments. To be resilient up in the hills might be different to being resilient if you're living down by the coast or if you're dependant on the garden or if you're dependant on the sea or the water.
>
> 'Resilient' is a big English term … people that work on climate change or in disaster management areas, they are the ones that know 'resilience'. But for the general population the really have to define it in their own local contexts."
>
> **Civil Society Representative, Vanuatu (VUE7)**

## *2.1 Introduction*

This chapter examines resilience 'as a theory of system behaviour across scale and time', identifying the constructs, theorists and disciplines central to the emergence of climate resilience as a discursive device. In addition to positioning this thesis within the literature this review also draws out the attributes of urban climate resilience as a subset of this field, providing a frame of reference for the analysis of both exogenous climate resilient development efforts (RQ1) and enacted endogenous resilience attributes (RQ2) in the two case study cities.

The chapter begins by tracing the evolution of 'resilience thinking' from a descriptive attribute to a normative ideal, highlighting critical gaps in its current theoretical capabilities and the consequences for its practical application. Resilience practice in sociocentric systems such as cities is then demonstrated to require new mechanisms for engaging with contested values, the exertion of power and control, and broader ethical concerns relating to justice and inequality. These shortcomings are shown to have been compounded by the disbandment of earlier conceptual strengths, particularly in relation to theorising dynamic, multi-scale systems.

Gunderson and Holling's heuristic of nested adaptive cycles is then put forward as a seminal but largely forsaken conceptual framework (Gunderson and Holling, 2002). Although its use in urban contexts has been limited to date, I argue that it has the potential to be adapted as an effective construct for examining the cross-scale interplay between exogenous and endogenous modes of climate resilience. The four stages of 'Panarchy' are then positioned in relation to the case study settings and the nested scales under examination in this research, as well as the commonly theorised modes of sub-system interaction.

By focusing on urban applications of resilience key theoretical gaps in the consideration of urban informality can be identified within the literature. These shortcomings are demonstrated through prominent examples of climate resilient development activities in the Pacific, with climate finance argued to be a dominant discursive driver of resilience thinking in SIDS. Key intermediaries such as regional bodies are then drawn out as critical actors in determining the normative forms of resilience that are being deployed in Pacific cities.

## *2.2 An Abridged Chronology of Resilience Theory*

Urban climate resilience brings together two of the most critical dynamics of the contemporary human condition – urbanisation and climate change – through an increasingly applied but heavily contested conceptual frame; resilience thinking (Leichenko, 2011; Seeliger and Turok, 2013). Direct reference to 'urban climate resilience' is nascent, with a review by Meerow and Stults identifying a divergence between its scholarly and practical application, no clear consensus on the term's definition, and disagreement regarding its functional characteristics (2016). Instead, much of its use to date has

emerged through grey literature, with a wide array of intergovernmental institutions, civil society, donors, and monetary organisations embracing the concept (Davoudi *et al.*, 2012; Friend and Moench, 2013). Although often examined in urban settings, the rhetorical focus in many of these practitioner-driven interpretations has instead been on climate resilient development more broadly. This expression encapsulates the action-oriented objectives of development practice in both urban and rural systems while focusing on the impact of and capacity to respond to climate-related shocks and stresses (Fankhauser and Schmidt-Traub, 2011).

Use of 'resilience' in peer-reviewed literature took hold in the 1970s and 80s, despite the term appearing briefly 40 years earlier in the field of econometrics (Creedy 1934). Its first theoretical application is widely attributed to Holling's seminal work examining the stability of ecological systems over time, in which he proposed an additional property in system behaviour – resilience – that, in contrast to theories of stable equilibrium, enabled them to persist under highly unstable conditions (1973, p. 15). Holling's theorisation recognised the capacity of such systems to "absorb change and disturbance and still maintain the same relationships between populations or state variables" (ibid), thus providing a novel avenue for not only understanding persistence, but also for actively enhancing the ability of other systems to cope with shocks and stressors (Folke *et al.*, 2010).

'Resilience thinking' subsequently spread into disciplines focused on systems characterised by fundamentally different modes of agency, scale, dynamism and function. In addition to ecology, structural and behavioural applications in engineering (Hashimoto, Stedinger and Loucks, 1982) and psychology (Garmezy and Masten, 1986) respectively led to deviations in the acceptable, or desirable, post-disturbance states of the system under examination. These adaptations were nonetheless consistent with Holling's overall theoretical trajectory; a return of system function following a shock or stress event (Davoudi *et al.*, 2012). For instance, as elaborated on in Trundle *et al.* (2016, p. 30), interpretations in psychology demand maintenance of a relative level of physical and psychological function in an individual's mental state for 'resilience' to be exhibited (i.e. the avoidance of a mental 'breakdown'), while those in engineering require a timely 'bounce-back' to function following a disturbance (albeit allowing for temporary failure of function during such an impact).

In response, Holling expanded on his earlier theorisation of the term by proposing that 'engineering resilience' and 'ecological resilience' represented alternative paradigms of resilience thinking, with the former's measurement of functional efficiency having the potential to conflict with the latter's emphasis on the ability of a system to absorb increasing magnitudes and modes of change (Holling, 1996). Critically, Holling noted that while not mutually exclusive, "these two aspects of a system's stability have very different consequences for evaluating, understanding, and managing complexity and change" (ibid, p33). Under these divergent interpretations, Holling surmised that it was not the theoretical construct of resilience that varied, but rather the mechanisms for enacting it, which were in turn being derived from purposive applications by different disciplines and practices (Gunderson and Holling, 2002).

Although equilibrium-based resilience thinking continued to expand into new disciplinary areas, subject systems, and subsets of shocks and stressors, the introduction of non-equilibrium understandings of resilient systems provided a novel and discrete theoretical branch to resilience discourse (McGreavy, 2016). This emerged in part through the application of resilience thinking to socio-ecological systems, which brought to light two key additional considerations pre-empted in Holling's earlier work. Firstly, agency within a system was argued to have the potential to determine the nature of a system's shift towards a new state, while also being capable of generating internal forms of stress and shock (Wagenaar and Wilkinson, 2013). Secondly, the accumulative 'system memory' that could result from more complex enactments of resilience usually caused some level of novel

reorganisation, even if the system returned to a previous equilibrium-derived 'basin of attraction' (Carpenter *et al.*, 2001; Folke *et al.*, 2002). These characteristics were proposed to be central, but by no means unique, to systems inclusive of human-based societal relations and institutions. As a result, they further shifted the desirability of 'bounce-back' properties in such systems by demonstrating the potential for positive transformation to result from the fluidity generated by shocks and stressors.

### *2.3 Descriptive to Normative: A Divisive Shift*

The analysis of peer-reviewed literature conducted as part of this research identified three distinct bodies of literature, with each distinguishable by differences in the classification of post-shock/stress system states. This finding was developed further into a simplistic model for classifying these three phases of resilience thinking. A visual depiction of these categories is shown in Figure 2.1, based upon the 'basins of attraction' schematic referred to above.

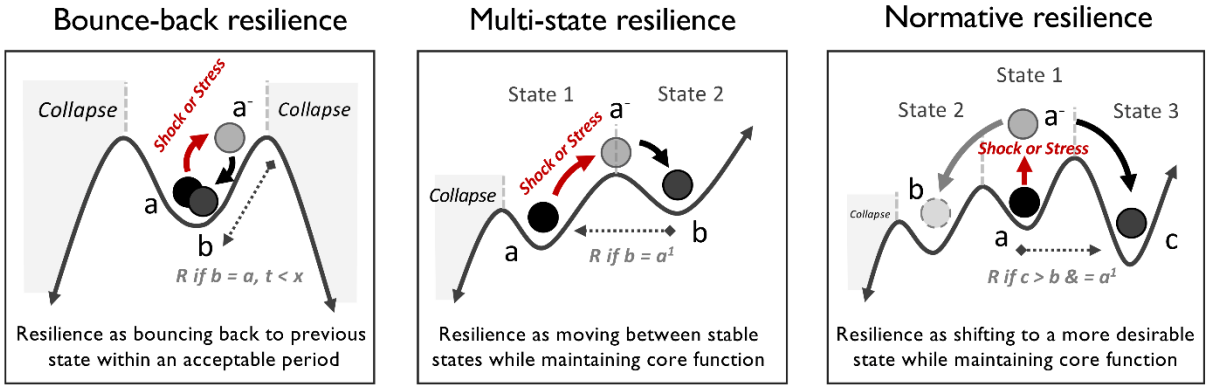


**FIGURE 2.1:** THE EVOLUTION OF RESILIENCE THINKING DEFINED BY POST- SHOCK/STRESS STATE

(Source: Author)

The first theorisation, 'bounce-back resilience', was focused on system persistence and return to both function and its original state under stress or following a shock. This can be expressed as '*R if b = a, t < x*', with resilience (*R*) being observed if the post-shock/stress state '*b*' is equivalent to the pre-shock/stress state '*a*', and a return to this state is met in an acceptable period of time (less than '*x*'). This is depicted to the left of Figure 2.1, and conforms with conventional applications prevalent in disciplines such as engineering.

The second, 'multi-state resilience', redefines resilience as being the potential to shift a system between multiple stable – and functional – states, differentiated instead by thresholds resisting disruption or system collapse. In this instance, a system can be resilient if it maintains 'core' functions even with differing structural arrangements. This is depicted in the central box in Figure 2.1, with resilience being exhibited when post shock/stress state '*b*' is functionally equivalent to '*a*' (with this equivalence denoted as '$a^1$'). This conceptualisation has been widely applied in ecology, for instance where forest fires drive cyclical changes in an ecosystem's composition (Folke, 2006).

The third phase of resilience thinking established the potential for normatively defined system optimisation and self-direction through learning, self-awareness, and connectivity. In this theorisation, resilience necessitates system 'evolution', but in doing so presents opportunities to determine different potential future system states (shown in Figure 2.1 as the two different basins of attraction in the third box, State 2 and State 3). In this instance, a resilient post-shock state is not only one where the system maintains core function, but also one whereby it 'bounces forward' (to preferred basin 'c', rather than 'b') following a shock or stress.

The re-framing of resilience from an observed system property to an enacted objective of system design proved to be a polarising step for resilience theorists, as well as critical social science scholars in the disciplinary domains through which these new normative resilience ideals were being applied. Criticism of this 'third wave' of resilience thinking relates primarily to the inadequate consideration of the inherent values in the choice of system state (i.e., determining which potential functional arrangement is more or less optimal), as well as the sub-system consequences of any such re-arrangement (in particular, what functional attributes constituted 'core', and 'non-core' system components) (Brand and Jax, 2007; Tanner *et al.*, 2015). At its most extreme this discordance led to theorists questioning of the value of resilience itself, as related by Meerow, Newell and Stults:

> But what if the original state is undesirable? Certain conditions (e.g. poverty, dictatorships, fossil dependence) can be highly undesirable yet quite resilient. Determining what is or is not a desirable state requires normative judgements. Not all stakeholders will benefit equally from resilience-based actions, and the concept may be used to promote a neoliberal agenda or retain systemic inequality. (2016, p. 44)

Reflecting on these shortcomings, Olsson *et al.* conclude that as "core concepts and theories in social science – such as agency, conflict, knowledge and power – are absent from resilience theory … the attempt 'to make resilience a full-scale paradigm or even a science' [means] its explanatory power gets 'pushed to represent more than it can deliver'" (2015, pp. 6, 9).

These more strident critics of resilience thinking contend that a fundamental conflict exists when it is applied in socially-dominated settings, stemming from its theoretical foundations in structural functionalism (McGreavy, 2016). The latter ontology is argued to be outmoded in social sciences, having been demonstrated to prevent effective consideration of conflicting interests, diversity, inequality and power, consequently depoliticising social change (Olsson *et al.*, 2015).

Although instructive of the shortcomings of resilience's theoretical development and application to sociocentric settings to date, the foundation of this argument is actively challenged in this research. Rather than dismissing resilience thinking's application to sociocentric systems outright, the methodological approach that has been developed here addresses these conceptual gaps by integrating social science concepts originating from the disciplines set out above, building on the work of Adger (2006), Chelleri *et al.* (2015), Simon and Randalls (2016), and others. This contradicts the contention set out above; namely that resilience thinking is incompatible with social science. Instead it is proposed here that systemic structures can be considered and functionally negotiated by a broader methodologically grounded engagement of actor groups. This process, however, requires a more systematic approach to understanding the contested and competing nature of system elements; a development addressed in Chapter 3.

While the 'basins of attraction' discussed above provide a useful conceptual abstraction of 'resilience in action' relative to the impact of a shock or stress, some non-equilibrium understandings of resilience dispose of this representation altogether, arguing that an emphasis on stability masks the more fundamental states of system flux and regeneration upon which resilience depends. Although not specific to normative imperatives, the 'evolutionary' reframing of resilience thinking focuses instead on changes in the nature of the system itself, as well as its interaction with surrounding and internal conditions (depicted by the static 'topography' of the basins in Figure 2.1).

I argue that these dynamic interactions are as crucial to the resilience of the system as any point-in-time comparison of a system state. This position is supported by the findings of theorists such as Davoudi *et al.*, who propose that "evolutionary resilience challenges the whole idea of equilibrium and advocates that the very nature of systems may change over time with or without external disturbance" (2012, p. 302). This more fluid characterisation of resilient systems also aligns well with the urban and sub-city

systems that act as the case studies for this research, which are undergoing rapid economic, cultural, and structural transformations on multiple levels. Critically, it also provides an entry point for conceptualising the role of informal sub-systems in relation to not only the entire city-system, but also the exogenous forces being imposed upon it through climate resilient development initiatives, as elaborated on below.

### *2.4 Resilience: Nested Adaptive Cycles*

Central to the concept of climate resilient development is the receptiveness of not only the subject system, but also its component parts, to be purposively adapted or transformed into a more resilient state. As Folke *et al.* note, these "transformations are never scale-independent, but draw on socio-ecological sources of resilience across scales" (Folke *et al.*, 2010). It is these cross-scale, dynamic characteristics that led Gunderson and Holling to develop their heuristic of nested adaptive cycles, through which they proposed that the multi-scale dynamics of evolutionary resilience could be understood (Gunderson and Holling, 2002).

Termed 'Panarchy', Gunderson and Holling's resilience heuristic is premised on a cyclical characterisation of socio-ecological systems, which are theorised as iterating through four distinct phases: '*K*', conservation; 'Ω', creative destruction, or collapse; '*α*', reorganisation; and '*r*', growth. Rather than being defined in relation to a specific shock or stressor, these phases instead represent different modes of resource use, accumulation, interaction and function, with each having distinct consequences for the resilience of the system. A stylised representation of Gunderson and Holling's adaptive cycle is shown in Figure 2.2, with overall resilience fluctuating through the cycle (reducing as the 'growth' phase leads to consolidation, conservation, and ultimately, collapse, before increasing again through the process of reorganisation).

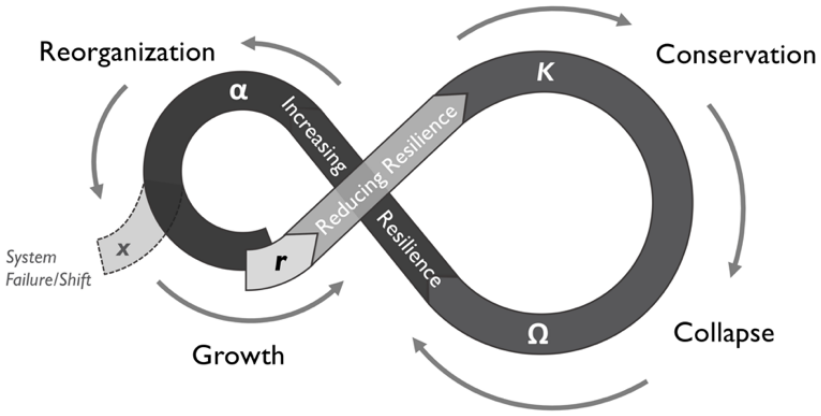


**FIGURE 2.2:** GUNDERSON AND HOLLING'S ADAPTIVE CYCLE

(Source: Author, developed based upon Holling and Gunderson, 2002)

Gunderson and Holling proposed that this cycle occurs at multiple levels within a system, which are in turn intertwined – or 'nested' – across proportional spatial and temporal scales. Critically, shifts in state at one level, triggered during reorganizational and destructive phases, are argued to be able to drive, restrict, or synchronise with change at another (Chelleri *et al.*, 2015). The term 'Panarchy' itself was created by Gunderson and Holling to challenge the 'hierarchical' assumptions of linear relationships across scales; in particular, that of 'top-down control' (Gunderson and Holling, 2002). The name of the Greek god Pan was, in Holling's own words, appropriated to "meld … the epitoma [sic] of unpredictable change with the notion of hierarchies across scales to invent a new term that could represent structures

that sustain experiment, test its results, and allow adaptive evolution" (Holling, 2001, p. 396). For an overview of different applications of the Panarchy heuristic to cities and other socioecological systems see Allen *et al.* (2014).

A tangible example of Panarchy in action is provided by Walker and Salt in their handbook on resilience practice, in which they reflect on the Murray-Darling Basin, a largely agricultural landscape that covers one seventh of Australia's land mass (Walker and Salt, 2012). Within this complex ecological system are a series of river catchments crossing multiple sub-national government jurisdictions and a number of climatic zones. Constituent social systems similarly range from downstream cities to remote Indigenous Australian communities, intertwined with major and minor agricultural water users. Each of these sub-systems operate with varying levels of interaction in relation to one another. Discrete sub-systems shift state through shorter and spatially smaller adaptive loops: individual crops, for instance, grow within localised domains over short-term, seasonal cycles, while larger scales of catchment water stocks and flows fluctuate inter-annually through periods of flood and drought.

In this adaptive socioecological system cross-scale interactions are distinctly non-hierarchical in nature. For instance, extraction of water by individual landholders upstream has led to wide-scale environmental impacts in the lower-Murray catchment, triggering responses by sub-national governments (Abel *et al.*, 2016). In another sub-domain, widespread fish deaths within one area of the river system are shown to be driven by extraction, but also extreme heat conditions worsened by climate change; itself the embodiment of a large-scale, slow atmospheric system. These phenomena in turn generated prolonged national attention and calls for intervention by the federal government (Vertessy *et al.*, 2019).

The respective agency of actors at each scale also presents a complex problem for decision-makers if resilience is to be 'enacted' from within, or in relation to, such a multifaceted environment. This is particularly the case when transformative change is perceived as being necessary to maintain or improve the resilience of the system as a whole, as this requires fundamental restructuring of system functions with disproportionate impacts on those nested sub-systems operating at smaller scales.

Although theorists such as Davoudi *et al.* contend that Panarchy "underpins the evolutionary meaning of resilience" (2012, p. 304), it is argued here that as an heuristic it is representative of resilience theory and its principles, rather than being necessarily tied to the functionalist understandings of society from which it emerged. Criticisms by Olsson *et al.* (2015) that centre on the outmoded structural functionalist interpretations of social systems (origins evidenced in Gunderson and Holling's seminal *Panarchy* book), do not, therefore, preclude the use of nested adaptive cycles in developing a normatively critical understanding of urban climate resilience. However, they do highlight a need for "giving more space to conflict theory and issues of diversity, inequality, and power" (ibid, p. 5), while cautioning its use as a 'unifying concept' within socially dominated systems.

More practice-oriented criticisms of Panarchy centre upon the complexity of the heuristic, a characteristics that leads to the model's more compelling attributes being "difficult to translate into concrete guidance for decision-making" (Bahadur and Tanner, 2014, p. 204). These critiques are supported by the limited use of Gunderson and Holling's terminology – as well as the concepts embedded within it – in the policy and planning domains that are driving the uptake of urban climate resilience terminology and climate resilient development initiatives (Sharifi, 2016). However, they also run parallel to accusations of a lack of theorisation in resilience practice itself, with most alternative theorisations building on Gunderson and Holling's work when addressing cross-scale aspects of urban resilience as a conceptual framework (for some examples see: Ernstson *et al.*, 2010; Tyler and Moench, 2012b; Wagenaar and Wilkinson, 2013; Kim and Lim, 2016).

While cyclical understandings of resilience align well with applications in the field of disaster risk reduction (which similarly centre on recurring sequences of action before, during and after shock events), they conflict with the conventionally linear trajectories widely associated with the planning and governance processes that prevail at the regime-level of urban systems (Joerin and Shaw, 2011; Usamah *et al.*, 2014). Climate resilient development is thus "paradoxically reliant on the very institutions it seeks to transform" (Grove, 2013, p. 149), resulting in contradictory and ill-defined measures for urban climate resilience throughout both peer-reviewed and practice-focused resilience literatures (Meerow, Newell and Stults, 2016).

### *2.5 Urban Panarchy – A Generic Nested System*

Although urban systems vary in structure, size and governance, a basic model of the Panarchy heuristic in operation has been developed as part of this preliminary stage of this doctoral research, as shown in Figure 2.3. This diagram provides a general schematic of how Gunderson and Holling's framework could be used in relation to urban climate resilience. Whilst the illustrated nested scales are only a snapshot of those relevant to a city system (with individuals and household also being critical sub-scales of resilience in urban systems, for instance, as well as international geopolitical and environmental domains), this simplified example of adaptive cycles has been developed to demonstrate three critical cross-scale interactions relevant to this research and the two case study cities in question.

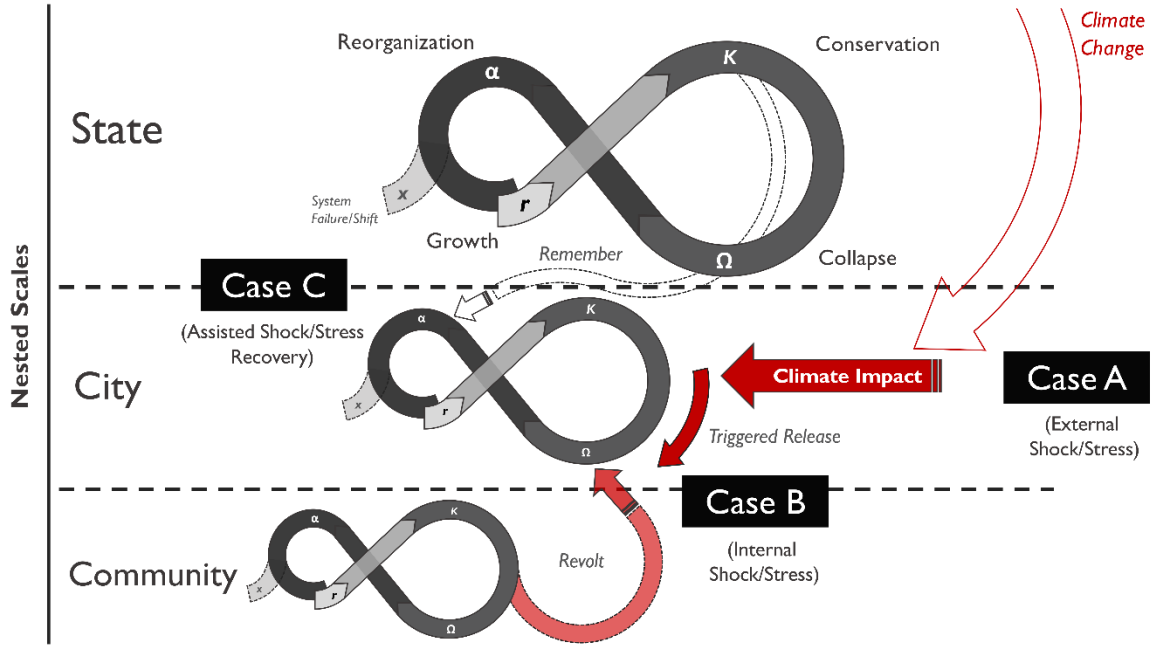


**FIGURE 2.3:** THE PANARCHY HEURISTIC: A MODEL OF URBAN ADAPTIVE CYCLES

(Source: Author, developed based upon Holling and Gunderson, 2002)

The first such interaction is reflective of the central tenant of climate resilience, and demonstrates how shocks and stressors, such as climate change, can act on one or more scale to trigger the collapse – or Ω – phase. In Figure 6 this is depicted as Case A, whereby a climate shock event at a city scale triggers a breakdown of function, resulting in reorganisation as the city rebuilds.

Gunderson and Holling also recognised that shocks and stressors could originate from within the nested adaptive cycles themselves, as demonstrated by Case B. Termed 'revolt', this could be imagined in an urban context to be the result of social unrest and the collapse of community systems to a point that the city itself ceases to function or undergoes radical transformation.

Lastly, it was noted that in many worked examples larger scales were employed to accelerate or guide the reorganisation of nested sub-systems, a function that they termed as 'remember' (Case C). In the context of urban climate resilience, this could be conceived as either national or international relief efforts being deployed to assist in a disaster recovery setting, or support for adaptation planning to prevent a shift to an undesirable functional state under the stress of slow-onset climate change impacts.

Each of these cross-scale interactions can be observed in the recent histories of the two cities in which this research is being conducted, with preliminarily adaptations of Gunderson and Holling's heuristic considered in this research set out below (2002). Instances of Cases A and C (collapse due to a climate shock, and external assistance in response respectively), for instance, are evident in the city-wide destruction that occurred in 2015 when Tropical Cyclone Pam hit Port Vila, Vanuatu. In this example, the cyclone destroyed more than half of the city's housing, cut off a number of key transport routes and facilities, and disrupted infrastructure and services (World Bank, 2015; McEvoy *et al.*, 2017). Subsequently, following Case C, international assistance was quickly mobilised to provide food, material, and technical assistance, which enhanced and accelerated the capacity of the city to rebuild and reorganise.

A relevant example of Case B aligns with a more counterproductive demonstration of nested cyclical interactions; the 'Ethnic Tension' that occurred in Solomon Islands between 1998 and 2003. In this instance the collapse of relations between urban migrants into the city of Honiara (predominantly from the neighbouring island of Malaita) and the customary land owners of Guadalcanal (the island on which Honiara is situated), coupled with a failure of the state to effectively re-organise urban land management structures following national independence led to armed conflict and the displacement of more than a third of the capital region's inhabitants (Foukona, 2015; Moore, 2015a). With the conflicts leading to a collapse in not only city but also national governance, an international peacekeeping force was deployed – another example of 'remembering', as in Case C – in order that the state, city and community scales could reorganize and return to a more functional arrangement (Allen and Dinnen, 2015).

In summary, 'Panarchy' can provide an effective, dynamic understanding of the ways in which different scales within and beyond urban systems interact in relation to external and internal shocks and stressors. However, as with the criticisms of resilience's transposition into sociocentric contexts as a whole, it is notable that the 'top-down' imposition of Gunderson and Holling's identified terms for cross-scale interaction – 'revolt' and 'remember' – normatively reinforce the 'regime' scale, echoing Olsson *et al.*'s concerns of the depoliticization of social change and a failure to consider power, conflict and agency (2015, p. 6). Relatedly, the nature of the relationships between the multiplicity of sub-systems at a particular scale remains largely unexamined, limiting the framework's capacity to compare differing nested interactions across domains such as the formal and informal within a city (Bahadur and Tanner, 2014).

Nonetheless the heuristic of nested adaptive cycles – as well as the other variants on resilience thinking discussed earlier in this chapter – can be seen to conceptually articulate phenomena often witnessed in urban settings as they relate to both climate change impacts and the overall function of city systems. Equally, despite the aforementioned gaps in critical consideration of contested social agency and control (many of which were recognised by Gunderson and Holling themselves), I argue that the potential for addressing these normative assumptions within Panarchy itself provides an opportunity to improve theorisations of resilience within the growing body work already applying the term in sociocentric settings. To this end, it was necessary to further examine the wider emergence of climate resilient development practice, and the urban climate resilience literature that sits behind it, in order that its

potential application in the case studies being examined in this research can be more fully understood. By incorporating these wider literary observations from theory and practice, the Panarchy heuristic has been adapted iteratively though this research as a dynamic, cross-scale approach to problematising the observed relationships and interactions between endogenous and exogenous climate resilience.

### *2.6 The Emergence of Climate Resilient Development*

In practice climate resilient development initiatives have not been conceptually restricted to a singular theoretical or disciplinary branch of resilience thinking. Instead, evaluations of a number of global climate resilient development initiatives suggest that most emerged through the interpretations of practitioners responding to the complex shocks and stressors that they face, such as natural disasters, climate change, global economic forces, and human conflict (Tanner *et al.*, 2009; Brown, Dayal and Rumbaitis Del Rio, 2012; Gingerich and Vitale, 2017; Jones and Sanderson, 2017). These initiatives often transposed the emerging use of resilience thinking in the Global North – in particular, in response to major disaster events such as Hurricane Katrina's impact on New Orleans – into the developing world (Park *et al.*, 2013). The resulting policies and response frameworks often draw heavily upon on the substantial body of existing urban hazards and disaster risk reduction literature (Ernstson *et al.*, 2010; Leichenko, 2011).

As a result, climate resilient development builds on what can best be characterised as a theoretical mosaic, with differing levels of recognition of resilience thinking attributes (such as alternative states and adaptive cycles) evident in a both project and policy documentation, as well as the resilience assessment toolkits that guide them (Sharifi, 2016, p. 643). This lack of conceptual coherence is all the more problematic due to the appropriation of at times contradictory theoretical viewpoints and mechanisms (Meerow, Newell and Stults, 2016). It is these applications – namely, of resilience thinking to developing country settings in response to climate-related shocks and stressors – that are further examined below to contextualise the use of resilience terminology in the Pacific region.

The formative scholarly nature of both 'climate resilient development' and 'urban climate resilience' can be illustrated through analysis of each term's use over time in peer-reviewed publications, particularly with reference to other equivalent resilience thinking terminology. In their recent review of conceptualisations of urban climate resilience Meerow and Stults identified publications in the *Web of Science* that included both "urban resilience" and "climate change" in their title, keywords, or abstract (Meerow and Stults, 2016, p. 2).

A more explicit approach has been taken in this thesis in order that key terminology can be positioned in relation to the existing divisions within resilience thinking literature. Specifically, nine exact expressions of differing streams of resilience thinking were mapped as part of the literature review phase of this research, as shown in Figure 2.4. Exact occurrences of each of these terms a full-text search of peer-reviewed scholarly articles have been summarised by year, from 2018 back to 1990, with each resilience 'phrase' having been selected based on the key divisions in resilience thinking discussed earlier in this chapter.

Paired terms narrow either the classification of the subject system (as in 'community' or 'ecological' resilience), or the shocks and stressors that it is subject to (as in 'disaster' or 'climate' resilience). 'Urban climate resilience', however, combines both a subset of impacts and the system type. 'Climate resilient development' literature also draws heavily on the more prevalent – and rapidly growing – bodies of work that examine 'urban resilience' and 'climate resilience' directly, while also being applied more specifically to settings in the Global South. The approach taken by Meerow and Stults also maps to the broader categorisations of 'urban resilience' and 'climate resilience' as highlighted in Figure 2.4 (ibid).

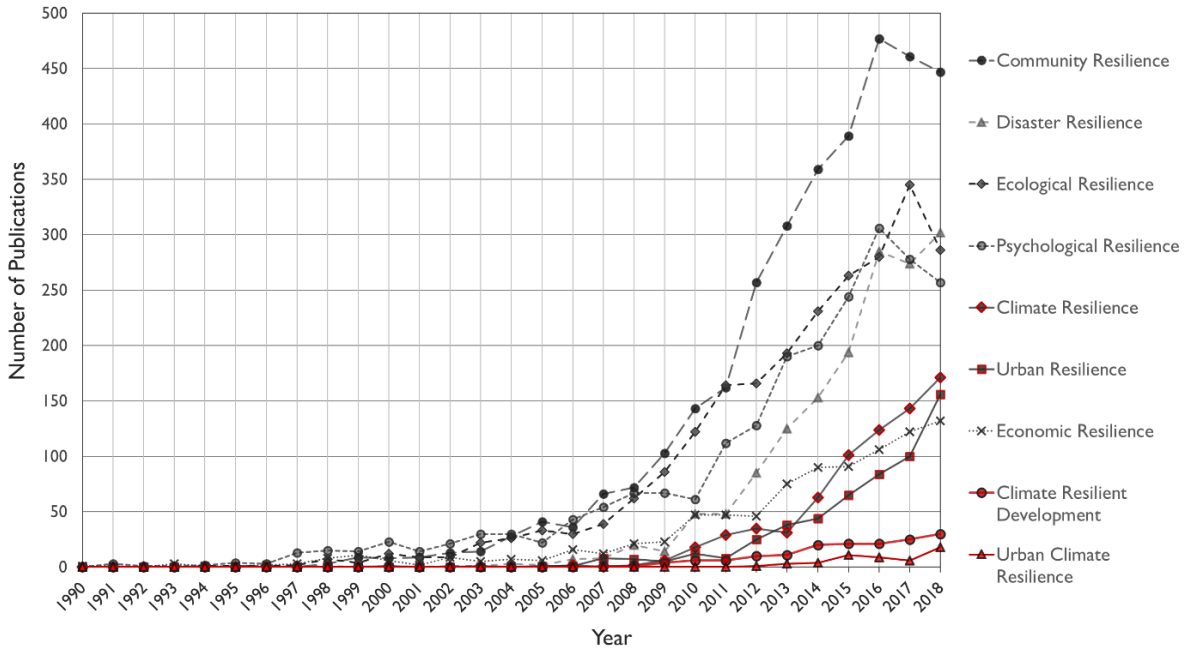


**FIGURE 2.4:** RESILIENCE TERMINOLOGY IN PEER-REVIEWED PUBLICATIONS 1990-2018

(Source: Author, developed using the ProQuest full text online publication database)

Despite the difference in query approach and literary database, the 'resilience turn' identified by Meerow and Stults is also clearly visible in Figure 2.4, with a distinct year-to-year acceleration in climate- and urban-related resilience publications evident over the last decade. This is consistent with Leichenko and colleagues' observation of an interrelationship between urban climate resilience and disaster resilience literature, with references to the latter having emerged at a similar point in time, but having grown to a far more substantive body of published work (Leichenko, 2011; Solecki, Leichenko and O'Brien, 2011). As noted by da Silva *et al.*, the ability to consider both disaster risk management and climate change adaptation through a 'resilience' lens also enabled – and actively encouraged – the integration of natural hazards and climate change considerations within the same framework, further accelerating the uptake of resilience thinking in the planning of complex systems such as cities (da Silva *et al.*, 2012).

Not shown in the publications plotted above is the extensive body of grey literature and practitioner-based project documentation upon which the peer-reviewed work above is often based. These initiatives are driven not only by theoretical discourse but also by guidelines, policies and toolkits developed by funding agencies, donors, and city networks. Examples of the mechanisms driving this more direct, practical dissemination include the Paris Agreement, the Sendai Framework for Disaster Risk Reduction, the Sustainable Development Goals, and the New Urban Agenda (Ziervogel *et al.*, 2017), while bodies such as the Asian Cities Climate Change Resilience Network (Tyler and Moench, 2012) and ICLEI – Local Governments for Sustainability (Meerow and Stults, 2016, p. 3) have promoted its uptake at a city scale through direct funding mechanisms.

A detailed review of practice-based socio-ecological applications of resilience thinking has recently been completed by Sharifi, who assessed 36 community resilience assessment tools that had been put into practice globally (reflective of the broad, but prevalent 'community resilience' body of published literature evident above). These practice-driven resilience frameworks, predominantly applied to communities within urban contexts, were then considered in relation to the theoretical attributes shown in Figure 2.4; in particular, consideration of more complex frameworks such as nested adaptive cycles and temporal dynamics (Sharifi, 2016).

Reflecting on his findings, Sharifi observes that "issues of cross-scale relationships and dynamic hierarchical system[s] of scales have been largely overlooked" in these sociocentric resilience assessment frameworks, with only six of the frameworks taking them into account in practice (2016, p. 644). Similarly, complex theorisations relating to alternate states (as discussed earlier in this chapter and depicted in Figure 2.1), were found to be addressed in only five of the 36 tools. Given the centrality of these characterisations to not only the theoretical body of literature but also the rationale for a transition to resilience thinking in international development literature and practice, the key arguments for this disjuncture need further consideration.

### *2.7 Discursive Barriers: From Resilience Theory to Practice*

As the section above demonstrates, the discourse of climate resilience has emerged iteratively through its practical application to a diverse range of subject systems, absorbing at times conflicting theoretical viewpoints from an array of disciplinary backgrounds. In order to understand its application in exogenous development practice in the two case study cities under examination here, the use of the term within the wider field of international development must first be understood. This consideration grounds the theoretical criticisms set out earlier in this chapter, as well as the disjuncture between practice and earlier theoretical modes for consideration of cross-scale interactions and adaptive, cyclical change.

Critically, the mechanisms of international development itself are highly institutionalised and rarely seek to achieve systemic transformation at their own – global – scale of operation. Rather, their purpose is, in effect, to preserve the existing international regime, as reflected in the Bretton Woods institutions' objectives to spread modernization through the dissemination of global economic structures and systems of trade (Parnell, 2016). As Jerneck and Olsson note, "although development continuously mainstreams new issues into its domain, the common denominator, in idea and practice, is poverty alleviation, framed in simplified images or quantitative terms" (2008, p. 173). Consideration of the fundamental transformations needed in the capitalist, growth-based global system that is driving anthropogenic climate change is therefore a key paradox at the scale of intergovernmental systems themselves.

At a national level resilience, as a fluid but normatively appealing term, is most often deployed as an ideological or political tool rather than in an effort to substantiate or quantify the complex socio-ecological system that encompasses an entire country (Simon and Randalls, 2016). It is here that resilience's "malleability in science combined with its popularity among powerful private or public actors, [risks] (un)intentional scientific justification of particular policies, projects, and practices" (Olsson *et al.*, 2015, p. 6). Although this malleability may at first appear to be benign, the more substantial issues become evident when the resilience of specific sub-systems are interpreted by institutional actors as having a negative, rather than positive, overall outcome. For instance, as noted by Ziervogel *et al.*, "when applied to the cities of the global South, where levels of inequality are often high, a justice focus invites us to critically consider the "what" and "for whom" of resilience interventions" (2017, p. 2), with informal urban constituents often lacking consideration – and at worse being further disadvantaged – by institutionally-led resilience projects.

In order to assess the sub-national structures that drive climate resilient development, a division must first be drawn between internal arms of government and the non-government organisations that predominantly draw funding, programmatic development and personnel from high-income donor countries. Sharifi's review of community resilience assessment mechanisms, for example, identifies that most of the resilience toolkits were designed by humanitarian aid agencies, philanthropies and consultancies for use by local authorities and community organisations (ibid). He concludes his analysis

noting that as many of these toolkits were originally designed in developed countries (reflecting the origins of the conceptual emergence of urban climate resilience itself), there were "concerns about their generalizability and applicability to communities in the developing world" (Sharifi, 2016, p. 643). Sub-national resilience practice is therefore highly contingent on interpretations of climate resilience discourse by these international actors due to the potential transposition of values, functional assumptions, and authority into decision-making processes.

City-level institutional structures broadly promote resilience as a rhetorical device for bridging the operational capacities of disaster management (predominantly focused on response/recovery mechanisms) and climate change adaptation (wherein preparedness is developed through longer-term, strategic planning) (Solecki, Leichenko and O'Brien, 2011; Stead, 2014). However, limited internal capabilities within municipal governments can inhibit implementation (da Silva *et al.*, 2012). This deficiency is often coupled with the outsourcing of technical expertise, which further limits the ability of municipal governments to sustainably self-support resilience-building initiatives over time. The proximity of political cycles and immediacy of urban function and reorganisation to these institutions parallel the more accelerated adaptive cycles that Gunderson and Holling theorise at these sub-national levels (relative to international discourse and national decision-making). However, the accelerated uptake of resilience language could be argued to be preceding – rather than disregarding – more substantive restructuring of policies and initiatives around the resilience paradigm.

Within city-systems the community-level functional processes, as well as the actor-level rationales of urban citizens, operate through a separate structural regime, derived from more immediate timescales and shaped by the direct impact of shocks and stressors on livelihoods, social structures and broader goals of economic betterment and wellbeing (Massey, 1990). Over time these experiences provide an accumulative basis for adaptive actions, including migration to – or from – the urban system, and a range of endemic coping mechanisms stemming from informal networks, traditional knowledges and non-institutional social structures (Adger *et al.*, 2002). However, the capacity to understand the technical basis of institutionally led climate resilience (such as ocean acidification thresholds or downscaled seasonal rainfall projections) at a household level is limited. In part this is a product of the structural complexity discussed above, which is exacerbated by a lack of emphasis on communications and multi-modal information dissemination to time-, technology- and literacy- poor (and often linguistically diverse) communities (Friend and Moench, 2015). This can lead to recurring misattribution of locally-driven ecosystem disruption to externally-driven climate change processes (Khan and Kelman, 2012).

Beyond the complexity of the dissemination of resilience thinking through the nested actors and institutions discussed above, application of resilience thinking also maps to the adaptive cycles within the system itself. For instance, the occurrence of a climate shock event can act as a catalyst in such cities for the simultaneous realisation and enactment of each of these scales of resilience. These events bring to light conceptual inconsistencies and discordances in a practical setting, while at the same time stimulating responsive action and a heightened interest in resilience-building activities in the short- to medium-term (Rosenzweig and Solecki, 2014). Further, the implicit – or assumed – underlying link with anthropogenic climate change has in some instances been observed to illuminate a deeper interconnectivity, namely between the Global North's carbon-intensive growth, the colonial extractive processes that fuelled it throughout the 19th and 20th centuries, and the international development agenda that continues to be premised upon – and derived from – its proceeds (Mosse, 2004). Although this connection with climate change mitigation and fossil-fuel extractive industries is beyond the scope of this thesis it nonetheless provides an important insight into contemporary framings of 'climate resilience', particularly in areas acutely exposed to climate impacts (Farbotko and Lazrus, 2012).

The lack of theoretical clarity when applied to anthropocentric systems such as cities and communities – which are primarily constituted by their societal, rather than ecological, form and function – is therefore argued to be contributing to a divergence between practitioner and scholarly understandings of the core characteristics that underpin climate resilient development when applied to cities. Meerow and Stults, for instance, note that publications by the former emphasised 'robustness' and 'forward thinking', in contrast to the latter's characterisation of resilience as requiring 'flexibility', 'redundancy', and 'diversity' (Meerow & Stults 2016, p8). Although the fluidity of these characterisations has enabled the expansive use of resilience thinking to date, it is nonetheless evident that contradictions and trade-offs are prevalent in urban resilience practice. At the same time, consideration of the more complex cross-scale relationships and dynamics reflected in Panarchy have undergone minimal examination in anthropocentric assessment processes (Chelleri *et al.*, 2015; Sharifi, 2016).

### *2.8 Characterising Urban Climate Resilience: Core Attributes*

In addition to the nested scales of resilience that drive the discursive influence of urban climate resilience, the concept's core attributes have also been derived as part of this literature review. This has provided a structure for analysis of the expressions and applications evident in exogenous development practice across the two case study cities, allowing RQ1 to be systematically addressed (see Chapter 5). This draws upon an extensive body of research and practice that has attempted to characterise the nature of climate resilient urban systems, building predominantly around the core attributes that reflect observations of, or attempts to enhance, 'resilience'.

Meerow and Stults' study, introduced in Section 2.6, analysed 172 peer-reviewed articles that conceptualised forms of urban climate resilience (Meerow and Stults, 2016, p. 7). Their review identified sixteen recurrent characteristics that underpinned theoretical understandings of the term; core attributes then provided the basis for a global survey of local government practitioners. This additional data was used to compare participants' initial definitions of the concept with sixteen pre-defined characteristics, ranked by level of importance in practice (five being 'critical'; four, 'very important'; three, 'important'; two, 'slightly important'; and one, 'unimportant').

Rather than duplicating Meerow and Stults' extensive and in-depth body of work, a summary of the characteristics that they identified through that process has been repurposed in this research as shown in Table 2.1. This summary relates practitioner references to characteristics of urban climate resilience as collated through a survey completed by 134 urban practitioners, as well as respondent rankings of each of the key urban climate resilience characteristics evident in the body of peer reviewed literature (including characteristics beyond those that they identified).

Given the application of Gunderson and Holling's nested adaptive cycles in this research's case study methodology a more fundamental relationship between these theoretical characteristics and the components of the Panarchy heuristic has also been integrated into the table. By considering characteristics in relation to specific cyclical phases otherwise contradictory attributes can be more coherently included within the same resilience-building efforts. For instance, by maintaining redundancy through growth phases (*r*), novel avenues for reorganisation (α) may enable system recovery, while efficiency in the reorganizational phase itself may ensure a more rapid return to growth (*r*). These potential cyclical alignments of urban climate resilience characteristics are discussed further in Chapter 8.

**TABLE 2.1:** AN ADAPTATION OF MEEROW & STULTS' URBAN CLIMATE RESILIENCE CHARACTERISTICS

| Characteristic | Definition | Application in the Panarchy Heuristic | Practitioner References | Importance Rating/Rank |
|---|---|---|---|---|
| Forward-Thinking | Integrating information about future conditions (i.e. population, economy, weather) into community planning and decision-making | Anticipation of shifts in adaptive cycle stage (less loss in collapse (Ω) & better reorganisation (α) | 40 | 3.9 (2) |
| Robustness | Ensuring municipal-wide infrastructure and organisations can withstand external shocks and quickly return to the previous operational state | Characteristic of conservation *(K)*; minimal reorganisation needs & speedy return to growth (*r*) | 39 | 4.0 (1) |
| Adaptive Capacity | Ensuring that all residents have the capacity to adapt to climate change | Ability to transition through Adaptive Cycles | 21 | 3.6 (12) |
| Environmental Sensitivity | Protecting natural systems and assets | Human sub-system biosphere dependence; central to conservation *(K)* | 11 | 3.9 (3) |
| Integration | Making sure that plans and actions are integrated across multiple departments and external organisations | Using higher system linkages to enable reorganisation (α) | 11 | 3.9 (4) |
| Equity | Ensuring that the benefits and impacts associated with actions are felt equitably throughout the municipality | Not addressed | 10 | 3.7 (7) |
| Decentralization | Decentralizing services, resources and governance | Potential to minimise collapse (Ω), diversifies reorganisation pathways (α) | 6 | 3.2 (16) |
| Flexibility | Making municipal operations and plans flexible and open to change when needed | More pathways for reorganisation (α) | 5 | 3.8 (5) |
| Efficiency | Enhancing the efficiency of government and external operations | Characteristic of growth (*r*) and conservation *(K)* phases | 5 | 3.6 (11) |
| Iterative Process | Creating a process whereby feedback and lessons learned are continually used to inform future actions | Larger (slower) structural adaptive cycles can 'remember' *(K)* to enable sub-scale reorganisation (α) | 5 | 3.5 (13) |
| Feedback | Building mechanisms so that information is rapidly fed back to decision-makers or system operators | Central to nested cycles concept – enabler of creative destruction/ reorganisation (α) | 5 | 3.4 (14) |
| Inclusivity | Ensuring all residents have access to municipal infrastructure and services, including providing the opportunity to participate in decision-making | Not addressed | 2 | 3.7 (8) |
| Diversity | Ensuring a diverse economy, infrastructure, and resource base | Loss of diversity can lead to collapse of adaptive cycles through poverty (from *r)* or rigidity (from *K*) traps | 1 | 3.8 (6) |
| Redundancy | Having back-up systems, infrastructure, institutions, and agents | Often reduced during growth (*r*); more reorganisation (α) pathways | 1 | 3.6 (10) |
| Transparency | Ensuring that all municipal processes and operations are open and transparent | Not addressed | 0 | 3.6 (9) |
| Predictability | Ensuring that systems are designed to fail in predictable, safe ways | Centrality of collapse (Ω) in adaptive cycles | 0 | 3.4 (15) |

Significantly, links with several characteristics were not able to be directly related to the cyclical phases that Gunderson and Holling identify. These omissions are argued to be illustrative of gaps in the Panarchy theorisation – rather than practice – that reinforces broader critiques of resilience thinking as applied to cities. This is supported by the characteristics – equity, inclusivity, and transparency – being strongly aligned with the concerns identified by Jerneck and Olsson (2008), Chelleri *et al.* (2015), Ziervogel *et al.* (2017) and others relating to the failure of resilience thinking to effectively consider agency, equity, and power within sociocentric systems.

The characteristics outlined in Table 2.1 have been used as the basis for analysis of climate resilient development initiatives in the two case study cities examined in this research (RQ1), as well as in the coding and subsequent cross-examination of qualitative primary data in the form of community responses and workshop outputs (the results of which are summarised in Chapter 7). Although these characteristics reflect the current state of peer-reviewed literature on urban climate resilience, improvement of individual attributes has been noted to have the potential to result in trade-offs, with some – such as efficiency and redundancy – arguably being ideologically opposed (Jabareen, 2013). Notably, 'redundancy' was included in none of the 134 definitions provided by local government practitioners in their response to the survey, despite its theoretical prevalence (see Table 1). The perceptions and implications of these conflicts, as well as their understanding by community and institutional stakeholders in Port Vila and Honiara, are explored in more detail in Chapter 8.

As Table 2.1 demonstrates, many of the characteristics of urban climate resilience are not dissimilar to principles set out in earlier iterations of international development, such as those reflected in Environmentally Sustainable Development strategies and Climate Change Adaptation planning processes (Cannon and Müller-Mahn, 2010; Davoudi *et al.*, 2012). Instead I argue that it is the assemblage of these characteristics through a systems-based understanding of a city, coupled with their dynamic consideration of particular shocks and stressors, that most clearly distinguishes urban climate resilience (Gaillard, 2010). However, as discussed in the previous section, the extent to which this system-based understanding is taken up by policymakers, practitioners and other institutional actors varies. As a result, much of the potential connectivity across spatial domains, and through dynamic phases, remains unrealised.

Climate resilient development at a conceptual level is therefore argued to have the potential to provide a novel approach to understanding the development process itself; eliciting a functional understanding of the varied and dynamic capacities and vulnerabilities of socioecological systems, capable of integrating fields and actors across different scales and disciplinary domains. In the case of a city, these system components consist primarily of its citizens, their livelihoods, and the social, physical and institutional infrastructure that enable their interactivity and persistence.

It remains an open question, however, as to whether efforts to enhance urban climate resilience are able to be clearly differentiated from both earlier iterations of and parallel discourses within the field of international development focused on economic, social, gender or environmental inequities (Koehler, 2015). Further, more cynical viewpoints of the term's fluidity as a detractor from more tangible transformative purpose have not been systematically weighted against the unifying benefits across complementary fields of practice and actor groups with a shared purpose in striving for more sustainable urban development. As a result, understandings of – and attempts to act through – the discourse of climate resilience forms a critical line of inquiry with institutional representatives in each of the two case study cities, as elaborated on in Chapter 1. However, as a first step, literatures relating to the financial underpinnings of climate resilient development have been reviewed here in order to identify the non-theoretical institutional parameters that influence climate resilience discourse.

### *2.9 Climate Finance: A Key Driver of Resilience Discourse in Pacific SIDS*

Small Island Developing States were first widely recognised as a critical group for international development efforts at the UN Conference on Environment and Development, held in Rio de Janeiro, Brazil in 1992 (more generally known as the Rio Earth Summit). Its outcome document *Agenda 21* identified SIDS as being "ecologically fragile and vulnerable", noted their "small size, limited resources, geographic dispersion and isolation from markets", and called for a global conference to identify sustainable development pathways targeted to these countries (United Nations, 1992, p. 198). The resulting Global Conference on Sustainable Development of SIDS, held two years later, led to the *Barbados Programme of Action*, which in turn set out a UN framework for international assistance focused on these countries for the next decade, before being superseded by the *Mauritius Strategy* in 2005 (Kelman and West, 2009). The current iteration of this global framework – the *SIDS Accelerated Modalities of Action (SAMOA) Pathway* – was resolved by the UN General Assembly another decade later in November 2014, and notes the "uneven" attainment of the goals set out in its two predecessors, as well as economic regression of some SIDS despite these efforts (UNGA 2014, p. 4).

Nonetheless international assistance has played a major role in the economic development of SIDS over the last 25 years and continues to account for a large share of the cash income for many of these countries. Aid is considered to be so central to the economic development of some SIDS that it provides one of four pillars in the widely-used Migration, Remittances, Aid and Bureaucracy (MIRAB) economic theory of "South Pacific micro states", a model that has subsequently been applied in similar economies outside of the Pacific region (Barnett and Waters, 2016; Dornan and Pryke, 2017). The contribution of development assistance to this sub-grouping of countries is notably higher as a percentage of their accumulative capital. Official Development Assistance (ODA) to SIDS in 2013, for instance, accounted for an average of 11.5 percent of their Gross National Income, compared to 4.7 percent in other developing countries (Hurley, 2015, p. 24). Once population size is accounted for this variance is even more substantial, with figures from the same year showing that SIDS received US$447 per capita compared to an average of US$59 in low-income countries as a whole (ibid).

A report by the United Nations Department of Social and Economic Affairs (UNDESA) examining finance in SIDS concluded that: "lower income SIDS countries are among the most [economically] vulnerable countries in the world. Most have not experienced [economic] growth for decades" (UNDESA, 2013, p. 15). While aid's ability to generate economic development for recipient countries is therefore a subject of debate, there is considerable agreement in the literature that "the effectiveness of ODA in achieving donor interests has been substantial" (Spring, 2017, p. 8). As such, reflecting on these donor motives provides a critical perspective on aid frameworks and agendas, with positioning for geopolitical, economic and strategic advantage particularly apparent in bilateral aid programs.

Evidence of this in the Pacific can be observed as early as the 1980s, with European powers continuing to exert influence in their former colonies once they gained independence. In Vanuatu, for instance, the two Joint Condominium powers that constituted the New Hebrides government – France and Britain – continued to underwrite Vanuatu's newly constituted public service and finance its capital works, with ODA making up 40 percent of the country's first national budget in 1981 (ibid). In other newly-formed nation states these contributions were also used to maintain regional influence as part of efforts to quell calls for independence in neighbouring colonies (Connell and Corbett, 2016). Additional fiscal transfers, not included in ODA calculations, by countries such as the United States and France to their remaining territories continue to constitute significant portions of overall regional funding. France, for instance, contributes an estimated US $500 million to its territory of New Caledonia annually (Dornan and Pryke, 2017, p. 392).

Pacific island countries have collectively affirmed their own prioritisation of climate change action as recently as 2018, with the 49th Pacific Islands Forum outcome document known as the *Boe Declaration* asserting it to be "the single greatest threat to the Pacific" (Ackman, Naupa and Tuimalealiifano, 2018). The use of climate-related framings by donor countries seeking to maintain their influence over the region, beyond the use of resilience-related language in global development frameworks, is therefore well aligned to this interest. However, the impact of resilience's uptake in terms of additional finance or substantive change to program implementation is more questionable, as explained below.

In the case of the Pacific's biggest bilateral donor, Australia, the use of 'climate resilience' gained particular prominence in 2016 at the 47th Pacific Island Forum, at which the then Australian Prime Minister Malcolm Turnbull committed AU $300 million as "part of the [AU] $1 billion climate finance Australia pledged at the 2014 Paris climate change meeting to reduce emissions and build resilience in developing countries over five years" (DFAT 2018a, p. 1). Within this pledge, however, only AU $80 million was attributable to 'new' funding (Department of Foreign Affairs and Trade (DFAT), 2018b). The majority of this additional support – AU $75 million – was committed to the 'Australia Pacific Climate Partnership', a program designed to "strengthen climate information services, climate change governance and inclusive integration across Australian aid investments" (ibid). The remaining AU $220 million was a continuation of existing ODA programs, combining those already focused on disaster risk management or climate change with repackaged assistance programs capable of 'mainstreaming' climate resilience into practice.

The uptake of 'resilience' language in this instance can thus be seen to simultaneously encapsulate both the practical rationales and the normative shortcomings of climate resilience. The characterisation by da Silva *et al.* (da Silva *et al.*, 2012) of resilience as a bridging concept capable of interlinking discrete fields of practice is borne out in the integration of disaster response, development, climate adaptation and humanitarian programs. However Weichselgartner and Kelman's critique of resilience being at risk of becoming a 'fashionable' (re)labelling device is equally true, with the 'old wine' in their metaphor in this case being development projects rather than research proposals as they originally envisaged (2015, p. 259). As Grove notes in his review of resilience politics, "good intentions notwithstanding, the effect of resilience initiatives is often to defend and strengthen the political economic *status quo*"; a prescient warning of the limits to such approaches as more transformative needs are demanded as a result of the increasing pressures associated with climate change (Grove, 2013, p. 146).

Australia's AU $200 million contribution to the Green Climate Fund – provided in tandem with the AU $300 million bilateral commitment detailed above – was a notable new investment, representing a distinctive shift in the country's approach to climate-related ODA (Pickering and Mitchell, 2017). This strategically timed contribution was credited with assisting Australia's successful bid to co-chair the Green Climate Fund board, giving the country significant influence over the multi-billion dollar climate finance mechanism and thus additional status in the Pacific region (Seo, 2019). At the 50th Pacific Islands Forum, however, Australia reaffirmed that it would not be replenishing this initial contribution, despite the Forum Communiqué calling for "the international community to continue efforts towards meeting their global climate finance commitment of USD 100 billion per year by 2020 … including the Green Climate Fund" (Pacific Islands Forum Secretariat (PIFS), 2019). As a result, substantive involvement of the region's biggest donor in multilateral climate resilient development finance appears to have been short-lived.

The language of 'climate resilience' is nonetheless evident in many of the region's most active multilateral donor programs, having been driven both by the interests of contributing nation states and the objectives of global frameworks such as the *2030 Agenda for Sustainable Development* and the

*Paris Agreement*. These high-level discursive influences can be seen in both the eleventh 'Urban Goal', which sets out to "make cities and human settlements inclusive, safe, resilient and sustainable", as well as specific SDG targets; for instance, 11.B sets out to increase development of integrated urban strategies for "mitigation and adaptation to climate change [and] resilience to disasters" by 2020 (UN, 2018).

Use of the terminology can also been seen in the structure of the aforementioned Green Climate Fund, which classifies four of its eight funding criteria as being based on "increasing climate-resilient sustainable development", with the remaining 'impact areas' focused on low-emissions pathways (GCF, 2014). Notably, a key subsidiary criteria is vulnerability; a term often intertwined with climate resilience, and synonymous with highly disaster exposed regions such as the Pacific (Klein and Möhner, 2011; McDonnell, 2019). This is in some senses a proxy for normative characteristics and qualities such as 'equity' and inclusivity, however as with resilience theory this relationship is poorly defined in practice, and largely lacks operational mechanisms at a project level.

Similar funding streams and structures can be found in other multilateral development finance mechanisms and organisations. For example, the Asian Development Bank's *Climate Change Operational Framework 2017-2030* categorises their assistance in two streams of "low greenhouse gas emissions" and "climate-resilient development" (ADB, 2017). The World Bank first established a pilot climate resilience program in the Asia-Pacific region as early as 2008; an initiative that it claims to have expanded substantially over the last decade. A 'compendium' of case studies based on this experience contends that climate resilient development "is essential to eliminate extreme poverty and achieve shared prosperity by 2030" (The World Bank, 2013, p. 16). Although this risk-based report emphasises the need to 'bounce-forward' post-disaster (framed as "Resilient Reconstruction"), its suite of proposed actions draw almost exclusively upon formal institutional enhancements (such as improved urban planning and early warning systems), while social considerations are broadly contained within "well-designed social protection mechanisms" (ibid, p. 39). Thus, although the additional vulnerability faced by marginal groups is noted, their consideration is broadly limited to 'inclusivity' (as reflected in Table 2.1), rather than elevating or prioritising their specific development needs.

'Climate resilience' and 'climate resilient development' are thus increasingly prominent in the programmatic language of these funding and financing mechanisms, in many instances replacing – or supplementing – earlier framings of climate change adaptation. The juxtaposition of climate resilient development and emissions-focused mitigation targets also echoes the earlier consideration of climate change adaptation in development practice (Pelling, 2011). This is consistent with analysis of climate finance in Pacific Island Countries by the Stockholm Environment Institute, which found that while 59 percent of climate finance supported projects addressed adaptation measures and 36 percent focused on mitigation, only five percent addressed both. Although this follows arguments regarding the evolution of climate resilience from climate change adaptation discourse, it diverges from more aspirational 'unifying' propositions, wherein climate resilience is positioned as a bridge between adaptation and mitigation goals, programs and conceptual domains.

The integration of natural disaster management, however, differentiates climate resilient development from earlier climate change adaptation efforts. The latter functionally excluded those natural hazards outside of the climatic system, such as tsunamis and earthquakes. As a result, much of the already established learnings on disaster risk reduction, as well as associated humanitarian response mechanisms, policies, and frameworks were either duplicated or ignored by adaptation-focused development practice (Nalau *et al.*, 2016).

This division has long been used as a supportive argument for embracing resilience language, with Pelling and Uitto – writing about SIDS, disaster vulnerability and global change at the beginning of the

21st century – proposing that "efforts to enhance island resilience must be mainstreamed into general development policy formulation, with disaster mitigation not seen as a separate and largely engineering or land-use planning based realm" (2001, pp. 61–62). These achievements contrast the less successful efforts to bridge adaptation and mitigation set out above and are reflected in the regional institutional arrangements within the Pacific, discussed below.

### *2.10 Regional Bodies & Extra-State Actors: Resilience Advocates, Experts & Gatekeepers*

McGreavy observes in her Foucauldian analysis of resilience that "sites that produce, concentrate, and disperse knowledge about resilience can influence how ideas about resilience circulate within media, popular press, and funding organizations" (2016, p. 108). In the Pacific, these 'sites' are centred upon not only multi-lateral organisations such as the World Bank, but also regional bodies, which play a major role in shaping the wider geopolitical authority and agenda of Pacific SIDS. This characteristics is argued by Hau'ofa to be derived from Pacific Islanders' "common inheritance of a very considerable portion of Earth's largest body of water" (1998, p. 392). Less optimistically, this regional identity has been argued by other influential academics to have developed "more as an external imposition rather than one generated by impulses within the islands" (Hassall, 2012, p. 6). In either case, these regional institutions have been "shaped by existing conflicts, power (im)balances, and social stratifications" (Olsson *et al.*, 2015, p. 5), and therefore in turn impose a distinct and regionally-specific influence over resilience discourse.

The Pacific's regional institutions range from political bodies such as the Pacific Islands Forum Secretariat, to sector specific organisations (for instance, the economically-powerful Forum Fisheries Agency), to distributed educational and training facilities such as the University of the South Pacific (White, 2015). Beyond providing repositories of technical expertise and facilitating advocacy in international fora, these institutions are also significant direct recipients of aid of their own accord, accounting for 13.8 percent of total ODA to the Pacific between 2010 and 2017 (OECD, 2019, p. 16). Their regional frameworks and policy statements also play a critical role in framing the discourse of climate resilient development within the region, as well as its advocacy in global fora.

The most prominent resilience-focused regional policy document is the *Framework for Resilient Development in the Pacific* (FRDP), which is designed to provide "high level strategic guidance to different stakeholder groups on how to enhance resilience to climate change and disasters, in ways that contribute to and are embedded in sustainable development" (SPC 2016, p. 2). First endorsed in the Communiqué of the 45th Pacific Islands Forum in 2016, the FRDP defined resilience as "the ability of a system, community or society exposed to hazards, and/or climate change, to resist, absorb, accommodate, recover and transfer the consequences of a hazard event or of climate change in a timely and efficient manner" (SPC 2016, p. 7; PIFS 2016). A number of subsequently endorsed national development policies in the region, such as Vanuatu's *National Sustainable Development Plan 2016-2030* (NSDP), have explicitly taken the FRDP into account in their design. Vanuatu's NSDP, for instance, includes "enhanced resilience and adaptive capacity to climate change and natural disasters" as one of its five conceptual pillars; language attributed to the regional framework within the document itself (GoV, 2016; GIZ, 2018).

Scales and delineations of actor groups within the FRDP provide critical insight into the positioning of different stakeholders within the Pacific from a regional perspective. Under Goal 1 – "Strengthened Integrated Adaptation and Risk Reduction to Enhance Resilience to Climate Change and Disasters" – priority actions are set out in relation to four stakeholder groups: National and Subnational Governments; Civil Society and Communities; the Private Sector; and Regional Organisations and Development Partners. Of the 19 listed government-driven actions eight directly reference technical

capacity building, while a further four aim to build internal capacity to access climate finance. The importance of linking national governance to finance mechanisms for climate resilient development is clearly evident in the first such goal:

> i)(a) PICs to build capacity to develop fundable projects appropriate for the access criteria of the Green Climate Fund, Adaptation Fund, and Global Environment Facility. (SPC 2016, p. 15)

A further five government priority actions focus on driving 'inclusive multi-sectoral engagement' while four directly encourage resilience-focused policies, planning and decision-making frameworks at national and sub-national levels. In contrast, of the nine actions proposed for civil society and communities five emphasise inclusivity and rights, while three target capacity-building at a local level and two discuss the need for alignment of these actions with national objectives and private sector goals (SPC 2016, p. 16).

As McDonnell cautions, "efforts focussing on strengthening community-based resilience in times of disaster must pay particular attention to power and politics within the space of the imagined community" (McDonnell, 2019, p. 9). The divergence between national and community scales in terms of actor power (government 'influence' vs civil and community 'alignment') and the invocation of Meerow and Stults' urban resilience characteristics of 'equity' and 'inclusivity' (at sub-system, local scales only) instead perpetuates the theoretical blind spots for which normative resilience thinking is widely criticised (Davoudi *et al.*, 2012; Olsson *et al.*, 2015). At the same time, understanding of – and responsibility for – addressing any conflicts in values and competing system functions is divulged from the state. This is despite non-state actors being urged to be compliant within (and thus restrained to) these national and subnational hierarchies.

Of the 22 goals set out for regional bodies and other development partners under the FRDP, twelve address capacity building, compliance, finance and technical assistance directly, with a further nine focused on programme design, monitoring and risk management (SPC 2016, p. 16). This is reflective of the 'gatekeeper' function performed by many of these bodies, with organisations such as the Pacific Community (SPC) and the Secretariat of the Pacific Regional Environmental Programme (SPREP) housing much of the region's data, as well as policy, scientific and technical expertise (Hassall, 2012). The latter are two examples of the region's officially recognised 'CROP' agencies; members of the Council of Regional Organisations of the Pacific, a title that affords further regional access, as well as privileges in terms of national accreditation and resourcing. However, other subsidiaries of intergovernmental organisations and structures play similarly substantive roles, such as the United Nations Development Programme Pacific Office and the Alliance of Small Island States (AOSIS).

The regionalisation of these functions does afford efficiencies and access to highly specialised technical expertise that may not be readily available to smaller Pacific island countries. For instance, the design, enumeration and processing of national census data – a critical exercise for informing and monitoring development across Pacific SIDS – is conducted with the assistance of SPC's Statistics for Development Division. This division coordinates major statistical collections across the region through rotation of a team of technical experts and houses and provides access to census data through a regional online data portal (Kelly *et al.*, 2014, p. 16). However, while these CROP bodies are answerable to national governments (and are partially financed by Pacific island states and territories), the intermittent and spatially remote repository of both data and expertise can also result in a lack of local capacity, restricting data access and re-use at times to the detriment of national stakeholders.

Analysis of ODA flows from both bilateral and multilateral sources over the period 2010-2014 by Atteridge and Canales found that regional bodies received approximately a quarter of the total climate finance provided to the Pacific, roughly three times that received by non-government organisations for

use in the region over the same period (2017, p. 23). As noted by Fee *et al.*, accessing funds such as the Green Climate Fund and the Adaptation Fund can be difficult for countries with smaller and less effectively resourced bureaucracies due to the complexity of application processes and the strict fiduciary standards required for accreditation as a National Implementing Entity (2019, p. 88). These hurdles advantage regional and multilateral agencies, which are institutionally tailored to suit these requirements (or, arguably, these requirements are tailored to suit such institutions).

### *2.11 Conclusion*

This chapter laid out the theoretical emergence and subsequent practical interpretation of resilience thinking in the context of developing cities and climate-related shocks and stressors. It did so to both contextualise the research within the relevant fields of study, while also relating the discourse of climate resilience to climate resilient development practice. This conceptualisation of resilience "as a theory of system behaviour across space and time" provides the theoretical foundation for addressing each of the three sub-questions in this research. These theoretical attributes are then linked to practice; both broadly across the field of international development, and more specifically as evident within Pacific SIDS.

By elaborating on the gaps between resilience discourse and practice across different scales of institutional actors, this chapter demonstrated a need for additional theoretical development, particularly when resilience is applied normatively in sociocentric domains such as cities. Whilst key characteristics of urban climate resilient theory and practice are identified, discursive disjunctures emerge when considering different institutional actors across the domains that operate above the city-system itself. This observation is shown to be especially relevant when the normative framings of international development are considered, particularly in relation to climate finance and the Pacific's regional intermediaries (which are in turn financially underwritten on a strategic and thus normative basis by regional geopolitical actors such as Australia and the United States).

These institutions and their policy frameworks are noted to reinforce critiques of resilience thinking by Olsson *et al.* and others, who highlight a risk posed by such terms being 'adopted' by existing institutions; namely, that as "institutions are "sticky" and not easily replaced nor designed", "inefficient or ineffective norms, rules and values often persist", while an "emphasis on the functionality of institutions implies a conservative approach to social change" (2015, p. 5). Therefore, their role in shaping the discourse of climate resilience is treated critically in this study, not only in addressing RQ1, but also through consideration of their interactions with endogenous modes of climate resilience (RQ3). To this end, the following chapter draws on mechanisms from political science, and particularly comparative politics, to counter the more functionalist tendencies for which resilience's social adaptations sustain substantial criticism.

Rather than being limitations of resilience itself, I argued that these additional considerations present opportunities to build theoretical considerations of rights, ethics and equity into the normative practice of climate resilient development. Gunderson and Holling's seminal Panarchy heuristic, although generally disregarded by urban climate resilience theoretical literature and practice alike, is proposed to have the potential to provide a more robust framework for understanding the interactions between different scales within urban systems as they respond to various shocks and stressors. However, as the following chapter will demonstrate, additional mechanisms are needed to effectively consider divergences between institutional and informal actors and domains.

# 3 PACIFIC CITIES: POSTCOLONIAL LEGACIES & RESISTED IDENTITIES

> In my community, the set up here is quite like the set up at home. At home in the villages they have chiefs, chief leaders, elders. The set up here we try to do the same. The community has a chief, chairman, and some elders too.
>
> But … that group, the chiefs and the elders at home, it's not something like that we elect. It's something that comes from the tribe, and can pass from father to children, and those things. Not like here that we have to elect a committee member or a chairman.
>
> Community in town it's a mix of culture. It's a mix of custom. Like, different islands, different provinces they come and live together, so like Western province they come up with their people from Malaita, then they come and mix together.
>
> **Community Workshop – Wind Valley, Honiara (WVHH1)**

## 3.1 *Introduction*

The purpose of this third chapter is to contextualise urbanisation in the Pacific within the wider consideration of urban resilience, with a specific focus on informality and the historical emergence of cities in the region. Theoretical understandings of migration, informality and place are examined in order that they can be drawn upon to address the shortcomings of contemporary resilience thinking set out in Chapter 2. The identification and integration of these additional conceptual components is a critical precursor to both RQ1 and RQ2, allowing informal communities to be positioned within the institutional contexts of urbanisation and urban governance in the Pacific.

I begin this chapter by arguing that recent theorisations of sustainable urban development parallel aspects of the normative 'turn' in resilience thinking, with the former challenging many of the assumptions of stability and control associated with 20th century urban practice. Urban informality in particular is shown to have played a critical role in highlighting an equivalent disjuncture of values, function, and power to the critiques of resilience discussed in Chapter 2. Informality is also demonstrated to be a prevalent and persistent aspect of urbanisation that will continue to grow throughout the 21st century. Understanding the nature of informal-formal interactions is therefore argued to be crucial to understanding the aforementioned divergences in urban function, with Helmke & Levitsky's typology of informal structures and systems put forward here as a key framework for differentiating variance in access to urban functions and securities such as a land rights and production.

The chapter then contextualises urbanisation and informality in the Pacific within global patterns and trends, examining the impacts of national and colonial legacies on urban forms, institutional arrangements and identities. Particular attention is paid to the types of governance that operate outside of the region's state-based institutions, demonstrating the fallacy of assumptions of regime-level control that prevail within resilience theory. These are related to regional phenomena of circular migration and urban transience; critical features of Pacific urban identities. Additional spatial complexities, especially those relating to peri-urban areas outside of the jurisdiction of municipal governments, are then considered in relation to both the migrant dialectic and urban identities more broadly.

The chapter closes by presenting the conceptual framework that I developed and refined based upon the literature review set out across Chapters 2 and 3, integrating the theoretical components of Panarchy with those of informality and migration, transposed in the transition from rural to urban domains. This framework – specific to the urban condition prevalent within Pacific SIDS – forms the basis for the methodology deployed throughout this research, as elaborated on further in Chapter 4.

## 3.2 *Evolutionary Resilience for Evolving Cities*

The emergence of evolutionary resilience in the late 20th century occurred at the same time as shifts in the theorisation of cities more broadly. The proposition of equilibrium in urban systems itself, however, considerably pre-dates similar developments in resilience thinking, with the influential 1933 'Charter of Athens' setting out the Modernist ideal of a city as being one in "a state of equilibrium among all its respective functions" (Davoudi *et al.*, 2012, p. 301). In tandem with the developments in resilience thinking set out in Chapter 2, the Charter has also recently been theoretically challenged in both urban theory and the international fora that influence global urban planning and practice. This was most recently evident in the 3rd vicennial United Nations Conference on Housing and Sustainable Urban Development (Habitat III), which set out a 'New Urban Agenda' designed to challenge conventions of urban planning in a majority-urban world (Schindler *et al.*, 2017).

As noted by Sassen, Sennett and Burdett in their jointly authored response to the Habitat III process (a document known as 'The Quito Papers'), equilibrium-derived theorisations of cities have proved to be disingenuous in the face of sustained, spatially varied, and often unmanageable urban change at a global scale. The necessity of this shift in the urban imaginary is vividly illustrated by the growth in the world's urban population since the Charter's initial publication to a figure now totalling more than 3.5 billion (UNDESA 2011). As summarised by Burdett in his concluding essay in *The Quito Papers:*

> Cities today are being re-made at a faster pace and at a larger scale than ever before. Yet, the way they are planned and designed is lodged in an ideological and spatial model that is, at best, 80 years out-of-date … The blunt planning instruments inherited from the Charter of Athens are rigid and formulaic. They fail to recognise time, uncertainty and complexity as instrumental components of urban churn. (Sassen *et al.*, 2017, p. 141)

The evolutionary characteristics of socio-ecological resilience thinking, a counterpoint to equilibrium-based applications, closely parallel Sassen *et al.*'s proposal for a new 21st Century transformative urban planning manifesto. Further reinforcing these similarities, the ability to account for these recognised urban characteristics is also limited by a lack of compatibility with conventional planning tools and frameworks, due in part to their shared foundations in these outmoded equilibrium-based ideals.

As Vale notes reflecting on the interface between cities and resilience, this more contemporary understanding positions such settings as being "always in states of uneasy non-equilibrium (perhaps because a city's state of equilibrium is, paradoxically, the presence of constant or oscillating change) – and the internal and external pressures for urban change come from multiple directions" (2014, p. 193). The failure to consider this, particularly in the Global South, has both theoretical and practical consequences. Regarding the former, the potential for transformation (enabling, for instance, shifts to low-carbon economies, or technology-driven development pathways) has been underdeveloped as both a 'condition and a process' (Romero-Lankao *et al.*, 2018). The latter, however, is demonstrated by a loss of both urban function and institutional control over large areas of cities, in which formal policies and practice are unable to effectively manage rapid urban change.

These shortcomings are most strongly felt by those who traverse this urban transition directly; namely, rural-to-urban migrants unable to obtain formal or legitimate urban citizenship, tenure and/or services due to either their own poverty, the shortcomings of urban planning process, or in most cases, a combination of both. Referred to by Sassen in her essay 'Who Owns the City?' as occupants of the 21st Century 'frontier', these migrants can be understood as "actors from different worlds [who can] have an encounter for which there are no established rules of engagement" (Sassen *et al.*, 2017, p. 51). Such encounters often occur within – and add to – the urban informal sector, which comprises those inhabitants, settlements, economies, and social structures that operate beyond the formal structures idealised in the conventionally 'planned', and legally governed, city (Kearney, 1986, p. 349).

## 3.3 *Resilience Beyond the Formal: Institutional Control as an Urban Continuum*

As Cannon and Müller-Mahn counsel "the notion of resilience – whether derived from natural (ecosystem) or technological (physics or engineering) usage – is dangerous because it is removing the inherently power-related connotation of vulnerability" (Cannon and Müller-Mahn, 2010). In urban systems, an inextricable contributor to vulnerability is fragility of tenure, a common plight for the urban poor and particularly migrants transitioning from low-cash or subsistence-based rural livelihoods (Usamah *et al.*, 2014; Mitchell *et al.*, 2016). Although by no means restricted to the rights to land for habitation, land tenure and the lack thereof is central to the spatial contexts in which informality is most commonly enacted; informal settlements (UN-Habitat, 2003). Additionally, large areas of informal tenure often strain local governance institutions already struggling to manage and plan for urban growth, limiting both city-wide and locally-applicable response capacities (Adger *et al.*, 2002).

Roy, in her influential proposition of urban informality as a central tenet in the development of a 21st century epistemology of urban planning, notes that "two contrasting frames dominate the current discussion of informality … one of crisis and the other of heroism" (2002, p. 147). Whilst an inability to control, plan and institutionalise urban informality is clearly contrary to the 20th century planning ideals outlined by Sassen *et al.*, the crisis Roy observes extends beyond divergent ideologies of urban planning. Correlations with criminal activity, negative health outcomes, occupation of disaster-prone urban environments, and poor sanitation and infrastructure reflect more fundamental conditions of human habitation (Scambary, 2013; Schrecongost and Wong, 2015; Jones, 2016a). A balance, therefore, must be struck between anarchistic, non-formal urban governance and bottom-up, participatory democratic governance principles, capable of addressing both citizens' 'Right to the City' and the structural and social security of the State (Jones, 2017; Thieme, 2017; Kamalipour and Dovey, 2019).

It is not secure tenure alone that constitutes globally-accepted definitions of informal, or 'slum', households, with the United Nations Human Settlements Programme (UN-Habitat) providing four additional criteria: i) access to improved drinking water sources; ii) access to improved sanitation; iii) durability of housing; and iv) sufficient living areas relative to the number of household inhabitants (UN-Habitat 2016a). The inclusion of these alternative classifications of informal occupation highlights the wide spectrum of conditions and recognised legality that can occur not only in differing global and urban contexts but also within a city; often a product of evolving changes in the urban planning regimes and spatial settings under which they have emerged (Akinola, 2016). Each criterion is similarly multifaceted; land tenure, for instance, is described by UN-Habitat's Global Land Tools Network (GLTN) as a continuum, rather than a more superficial binary between formal and informal modes of habitation (as shown below in Figure 3.1).

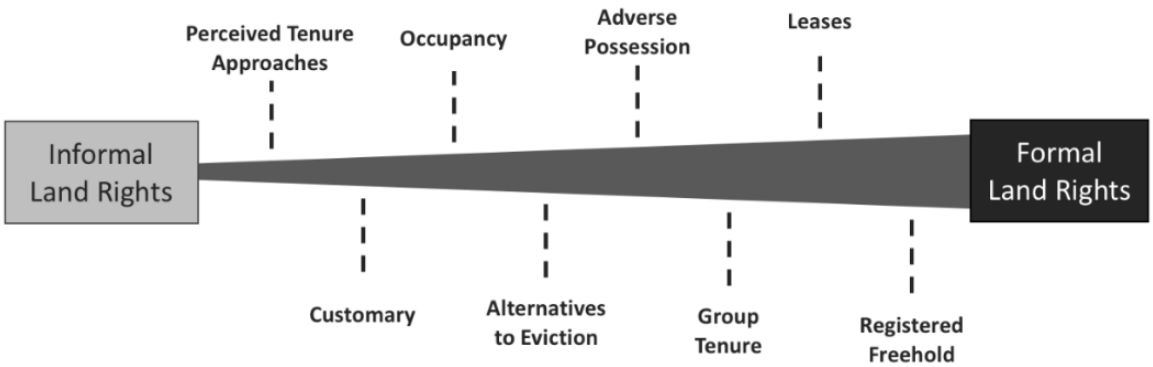


**FIGURE 3.1:** THE CONTINUUM OF LAND RIGHTS

(Source: Author, adapted from GLTN 2008, p.8)

It is notable that UN-Habitat's most recent estimate of nearly one billion urban inhabitants occupying informal settlements is based on only four of the five criteria set out above (UN-Habitat 2016a, p.2). The fifth such measure – tenure security – is excluded from these calculations due to disagreement on the classification of tenure security between differing governance and cultural contexts (ibid). With a number of countries unable to provide data for all of the four remaining criterion, this figure undoubtedly represents a low-end estimate of the total number of informal urban inhabitants globally (Sassen *et al.*, 2017).

Although substantial efforts to upgrade informal settlements to meet the minimum standards set out above have reduced the share of the urban population living in such conditions over the last two decades (from 39 to 30 percent between 2000 and 2014), the total number of informal inhabitants has continued to grow, with regional divergences in the direction and extent of the changes observed shown in Figure 3.2 (UN-Habitat 2016a). As illustrated below, the urban population of the these developing regions has doubled since 1990, and is expected to continue growing well into the 21st century; from 3.2 billion presently (76 percent of the global urban population) to 5.6 billion by 2050 (UNDESA, 2018).

Urban resilience, as applied in the formal domain, draws heavily on data analytics and quantification of urban componentry, with an aim of establishing strategic partnerships with (formal) private sector and non-governmental organisations (Brown, Dayal and Rumbaitis Del Rio, 2012). This model, intertwined with global corporations and consultancies, could more critically be viewed to "have taken the lead in spreading an urban resilience gospel that is perfectly attuned to neoliberal urbanism" (Leitner *et al.*, 2018, p. 1281). Even within these codified and ideologically fraught constructs, however, urban resilience reflects a shift from static or linear planning towards building capacities and linkages.

Cities – especially those in the developing world – are therefore poorly suited to consideration through stable, or even equilibrium-based, theorisations of resilience. Rather their constant reinvention, rapid growth, and the ungoverned, messy absorption of new technologies and migrants aligns more with the 'evolutionary' structures embedded within socioecological resilience. Through the lens of Gunderson and Holling's Panarchy heuristic the vast majority of these cities – at a whole-of-system scale – embody the '*r*' (growth) phase of the adaptive cycle, albeit with varying states of reorganisation, and at times collapse, within individual cities (Gunderson and Holling, 2002).

## 3.4 *Urban In-migration: System Function or Stress?*

If the primary function of cities is to house and enable the livelihoods of their inhabitants, migrants represent the most elementary flux in and out of these systems. Although migration is increasingly being recognised for its potential as a mechanism for adapting to climate change (and, conversely, a stress – or even threat – by many more developed 'destination' countries), its role within understandings of urban climate resilience is relatively under-theorised (Scheffran, Marmer and Sow, 2012; Perumal, 2018). As Adger *et al.* recognise, this lack of consideration can undermine resilience itself, with social upheaval and changing economic structures potentially disrupting wider system function (2002, p. 364).

Migrants are therefore more than a measure of the growth and increased 'potential' of urban systems; Holling's original theorisation of Ecological Resilience being that an 'increase in biomass' is the most fundamental measure of an ecosystem (1973). Migrants also put urban structures under substantial stress as a force acting, initially at least, from beyond the system's functional boundary (Burrows and Kinney, 2016). These stresses can also compound, with migration having the potential to "induce changes in social and economic structures that make additional migration likely", creating a positive feedback loop capable of reinforcing earlier migratory impacts (Massey, 1990, p. 4).

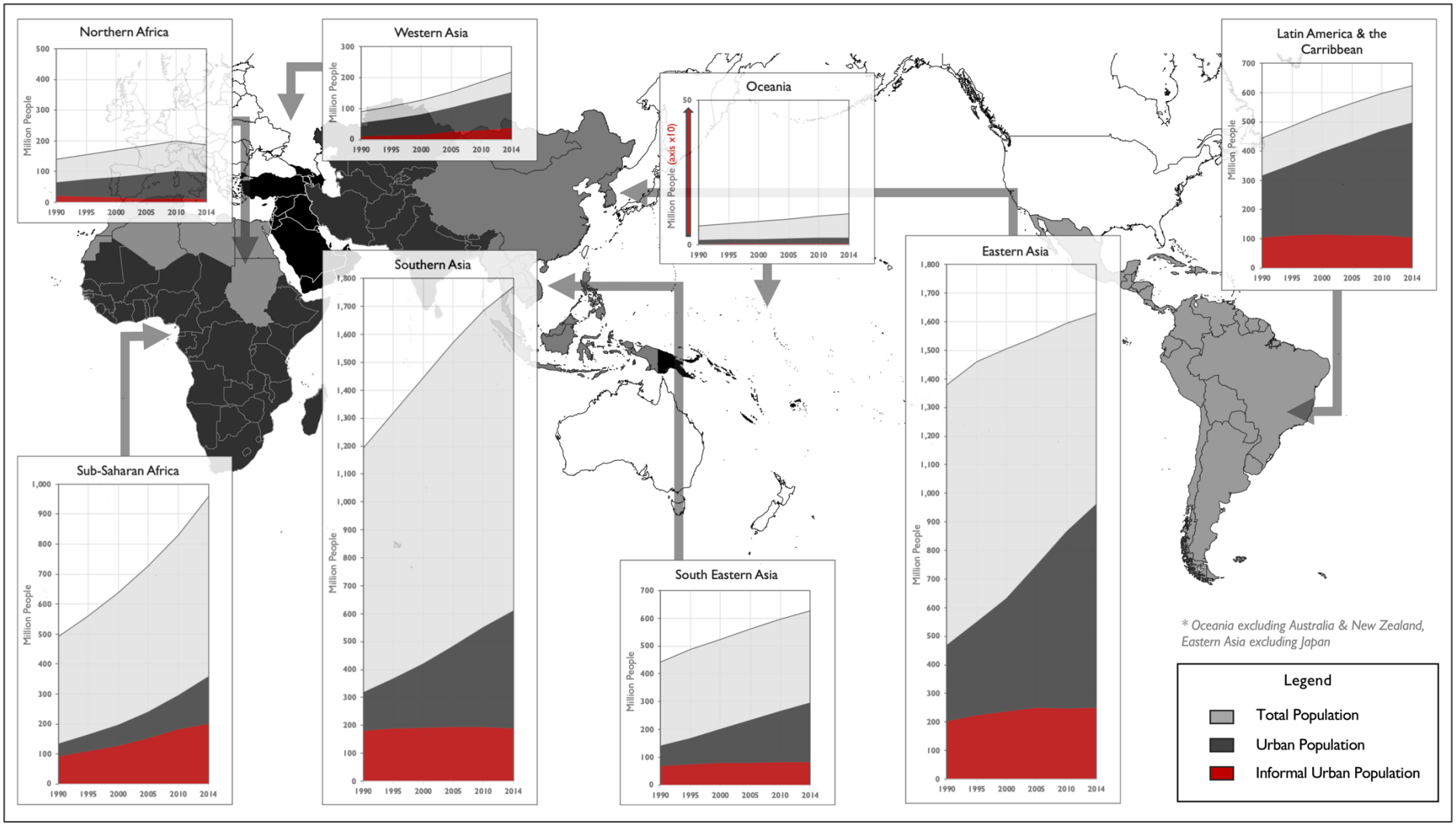


**FIGURE 3.2:** URBAN POPULATION GROWTH & SLUMS, 1990-2014

(Source: Author, using data from UN-Habitat, 2016a)

The geographies of rural-to-urban migration are dependent on complex social and familial networks, often cyclical, and hinge on an array of urban attractors and non-urban push factors that have varying and often interrelated impacts on differing demographics, household members, and socio-cultural groupings (Mabogunje, 1970). In King's review of the juncture of geography and migration studies he notes that although conventional geographical understandings of these phenomena have centred upon the quantification of economic and demographic structures and models, contemporary understandings are transitioning to "a different epistemology based more on culture and the role of consciousness and individual agency in human behaviour" (2012, p. 142). These approaches to the geographies of migration centre instead upon the 'cultural geographies of diaspora', which, according to Brubaker, are comprised of three core features: dispersion, homeland orientation, and boundary maintenance (2005). This shifts the focus from displacement *across* space – the definitional origin of the term – to identity *within* place; in the case of rural-to-urban migration this being the urban system itself.

Thieme observes that "depictions of informality emphasizing what is absent, transient, or defective require counter-narratives to conceptualize what actually is taking place" (2017, p. 6). The juncture of informality and migration provides one such focal point for understanding both the nature of former and the enactment of the characteristics of socioecological resilience through the latter. Referred to by Lawson as a 'dialectical interplay', migrants "maintain plural identities and experience complex relations of incorporation and resistance to projects of globalized modernization, urban progress, [and] national belonging" (Lawson, 2000, p. 173). This plurality is catalysed by informality; as Kearney notes, "migration in the late twentieth century is quite different from the comparably large flows of the late nineteenth century in that a greater percentage of it flows not into labour markets, but into the informal economy" (Kearney, 1986, p. 349). I therefore argue that the migrant dialectic is a rich but underexplored avenue for identifying the contribution of informality to both climate resilience and urban function generally (Silvey and Lawson, 1999; Scheffran, Marmer and Sow, 2012).

Helmke and Levitsky propose a simple typology for considering informal structures and systems, adapted here through use of the former's definition of informal 'institutions' as being "socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels" (Helmke and Levitsky, 2004, p. 727). In urban contexts such as informal settlements, this framework allows for consideration of how informality can either contribute to or detract from the overall function of the city, while at the same time accounting for the effectiveness of these extra-governmental capabilities. An explanatory, modified version of this typology is presented in Table 3.1.

**TABLE 3.1:** HELMKE & LEVITSKY'S TYPOLOGY OF INFORMAL STRUCTURES & SYSTEMS

| Functional Alignment: | Formal Institutional Environment: | |
|---|---|---|
| | Effective | Ineffective |
| Convergent | **Complementary**<br>Informal functions address formal institutional gaps or enable local/individual outcomes within the formal institutional framework. | **Substitutive**<br>Intended functions of formal institutional procedures and rules are achieved by equivalent informal systems and structures. |
| Divergent | **Accommodating**<br>Informal systems and structures that contradict the intended function of formal rules, without directly undermining formal institutional authority. | **Competing**<br>Formal institutional functions are actively undermined and violated by alternative informal structures and systems. |

Both informal and migratory communities draw much of these capabilities, systems and structures from domains beyond the urban boundary. Examples of this include: the development of informal governance systems based on customary, extrajudicial 'law' (Perumal, 2018); the application of traditional knowledge in community-based disaster response and recovery techniques (Thieme, 2017); and social structures derived from indigenous cultural or linguistic groups (Jones, 2016a). More direct but temporally-specific links are also evident in familial networks, remittance flows, and the circular migration patterns that occur across urban, rural, and peri-urban boundaries (Adger *et al.*, 2002; Roy, 2002; Scambary, 2013). In order to properly conceptualise what is taking place in these informal settings, as proposed by Thieme (2017), it is therefore necessary to begin with the external identities, systems and resources that these urban inhabitants draw upon.

Building on Gunderson and Holling's Panarchy heuristic (Gunderson and Holling, 2002), it is also important to note that the axes of Helmke and Levitsky's typology can be argued to traverse system scales, with the formal institutional environment generally operating at a wider systemic scale than the informal sub-systems that are nested within it. Although a comparison between formal and informal functions at, for instance, a community level would provide further insight into the enactment of informal resilience (with formal functions providing an at-scale control group by way of contrast), such an exercise is beyond the scope of this research.

Instead, the focus in this thesis as set out in Chapter 1 is primarily a relational one; that is, between informal nested sub-city processes and the institutional operations of the formal city-scale domain. The former, consistent with Helmke and Levitsky's definition above, consists specifically of 'rules', to the exclusion of behavioural regularities, informal organisations, culture and mere weakness in formality (2004, p. 727). The latter, meanwhile, is defined as "rules and procedures that are created, communicated, and enforced through channels widely accepted as official" (ibid). It is the historical emergence of urban informality across the Pacific that the following section focuses upon, with the evolution of formal urban governance further characterised later in this chapter.

## 3.5 *Urbanisation in a Sea of Islands*

In his influential essay 'Our Sea of Islands' the late Epeli Hau'ofa presented a "new and optimistic" vision of Oceania at the turn of the millennium, a counterpoint to "views of the Pacific from the level of macroeconomics and micropolitics [that] often differ markedly from those from the level of ordinary people" (Hau'ofa, 1993, p. 3). His explicit rejection of the emphasis on the 'smallness' and 'vulnerability' of Pacific SIDS provides an important point of reference for understanding the role of cities and urbanisation in the region. Perceptions of physically bounded urban domains within spatially limited and dispersed islands were argued by Hau'ofa to mask the transnational exchange of goods, education services, people, and remittances; flows enacted by a global diaspora of Pacific Islanders and supported by the region's expansive oceanic Exclusive Economic Zones. He reflected further on this phenomenon arguing that it represents part of a broader intergenerational shift:

> Increasingly the older movers and shakers of the islands are being replaced by younger ones; and when they meet each other in Suva, Honiara, Apia, [Port] Vila or any other capital city of the South Pacific they meet as friends. (1993, p. 13)

Despite this transformative and interconnected characterisation, the Pacific grouping of SIDS remains one of the world's least urbanised regions. Only 23.6 percent of the inhabitants of Pacific SIDS reside in cities and towns as of 2015, well below levels in Africa (41.2 percent), Asia (48.0 percent), Europe (73.9 percent), and Latin America and the Caribbean (79.9 percent) (UNDESA, 2018).

Hau'ofa's proposition therefore presents as a paradox, within which "mobility, and the exchanges that it facilitates, is best understood as churn between metropoles and islands, rather than a net loss or 'brain drain'" (Barnett and Waters, 2016, p. 742). Analysis of urbanisation trends must therefore be recognised as being limited by both the transitory nature of urban habitation, as well as the circular patterns of migration to – and through – Pacific island cities (Bedford, 1999). At the same time, substantive youth 'bulges' in urban populations prevail, suggesting that Hau'ofa's cultural shift may not yet be fully borne out, nor reflected in divergent spatial demographics and sub-national urban growth projections (Bedford and Hugo, 2011; Jones, 2016b).

Melanesia, Polynesia, and Micronesia exhibit considerably different urbanisation characteristics, while individual countries within these Pacific sub-regions vary substantially in both their respective levels of urbanisation and projected rates of urban growth, as shown in Figure 3.3. Micronesia, for instance, urbanised rapidly in the 1970s, driven in large part by U.S. policy changes in the territories of Guam and the Northern Mariana Islands (Mayo, 1987; for a detailed explanation see Trundle, 2020). Despite a subsequent reduction in urban growth rates, the north-western Pacific sub-region remains substantially more urbanised than the global average. Polynesia, meanwhile, tracked at close to the global level of urbanisation for much of the latter half of the 20th century, before stabilising in recent decades with slightly less than half of its inhabitants living in cities. Rural population growth in Tonga and Samoa coupled with recent international out-migration is projected to offset urbanisation elsewhere in Polynesia until 2035, running counter to global trends (UNDESA, 2018).

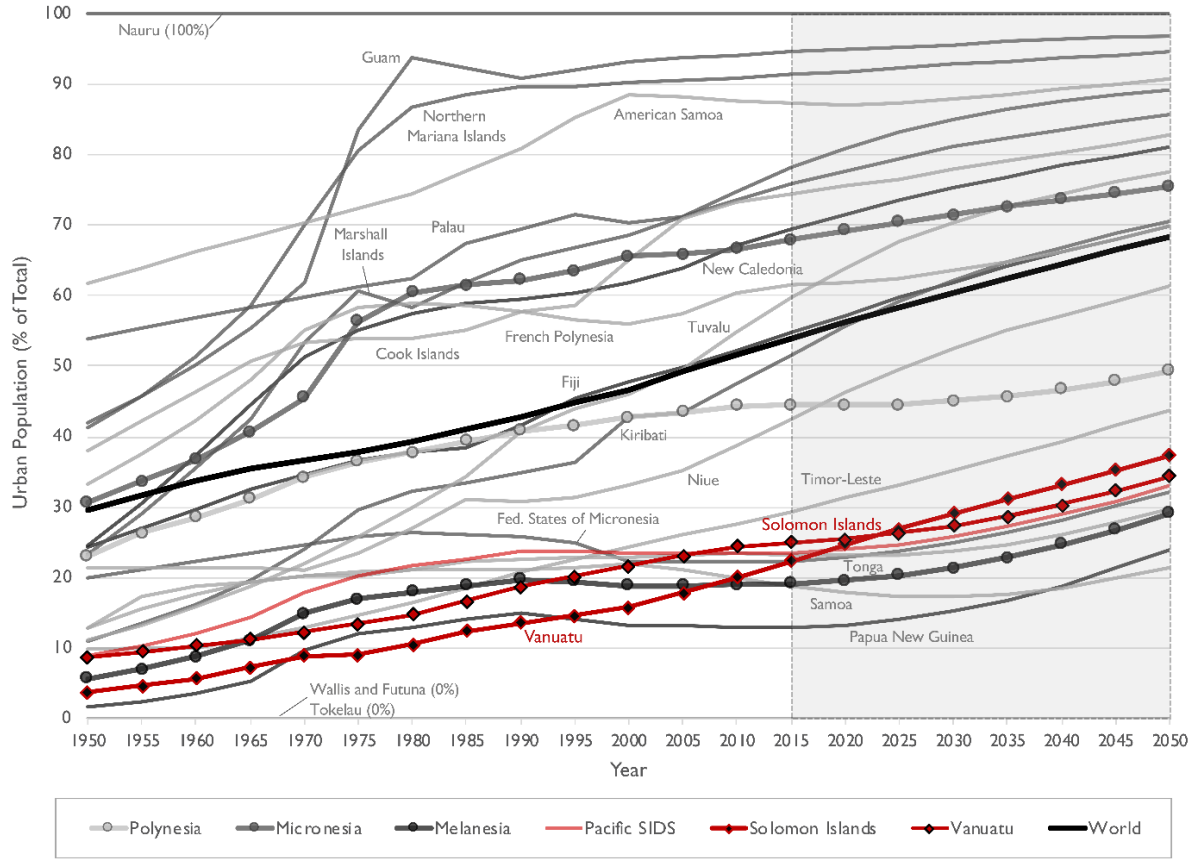


**FIGURE 3.3:** HISTORICAL & PROJECTED URBANISATION IN THE PACIFIC

(Source: Author, derived from UNDESA 2018 data)

The combined populations of Micronesia (518,995) and Polynesia (676,747) are heavily outnumbered by the larger archipelagic countries that comprise Melanesia, which as of 2015 had a total population of

more than 12 million (UNDESA, 2018). At a national level the inclusion of Papua New Guinea (PNG) in the Melanesian total (a country which alone has a population of 9.9 million) further skews both sub-regional and regional rates of urban change. It is PNG's rural-to-urban internal migration, predominantly to the capital Port Moresby, that is expected to drive much of the overall urban growth in the Pacific over the next three decades (Storey, 2006). Urbanisation in the two case study countries of Solomon Islands and Vanuatu has, irrespective of these outliers, historically tracked closely to the average of the Pacific SIDS region as a whole, as highlighted in Figure 3.3.

Despite this internal variation Melanesia – a region characterised by mountainous island chains and high levels of cultural and linguistic diversity – is predicted to remain less than 25 percent urbanised by the middle of the 21st century, well below the global average one hundred years earlier. This projection is, as noted above, contingent on conservative in-migration rates into the region's cities and limited understandings of changing urban extents. Also complicating these forward estimates are informal settlements, which remain difficult to enumerate and can grow rapidly, both within and outside of official urban boundaries (an issue addressed in more detail in Section 3.7).

Irrespective of any potential underestimation of either current or future levels of urban growth the Pacific remains definitively on the 'fringe' of planetary urbanisation, a global phenomenon often presumed to universally pervade the 21st century human condition (Brenner, 2013). This resistance is despite more than a century of disruption of traditional livelihoods, driven by colonial exertions of territorial control, ecosystem degradation by extractive industries, contamination (ranging from chemical spills to nuclear testing), and exposure to global consumption and markets. Instead, long-standing rural subsistence livelihoods – albeit often supplemented by some level of small-scale cash-crop production – remain the predominant way of life throughout many Pacific Island Countries. As Connell and Lea explain:

> Urban life is a personal phenomenon in Melanesia. Although third- or even fourth-generation urban residents are present today, impermanence is still inherent in some aspects of urban life … even long-established residents may have a rural home. (1994, p. 271)

The basis of this unusual characterisation of persistent urban impermanence in the face of a rapidly growing urban population is argued here to centre upon a combination of the historical legacies of urban land alienation, the maintenance of diverse cultural practices through circular migration and familial networks, and the continued failure to establish an appealing alternative urban identity; three facets of Pacific urbanism elaborated on below.

## 3.6 *Pacific Urban Identities: Custom, Colonisation and the Centre of the Nation-State*

In the early 1970s Bedford noted that, despite what he observed to be a recent acceleration of population growth in Port Vila and Vanuatu's second city Luganville, "the movement from villages to town is not as yet resulting in any major permanent redistribution of New Hebrideans [the pre-independence name for the indigenous inhabitants of the Vanuatu archipelago]" (Bedford, 1974, p. 131). Revisiting his analysis of urbanisation in Melanesia nearly four decades later, Bedford reflected that – enabled by temporary worker visas and more affordable and accessible international transport options – this circularity in migration was continuing both in Vanuatu and elsewhere, albeit at a larger and more internationalised spatial scale (Bedford, 2010). This perception was in spite of the official population of Port Vila having grown more than five-fold over the interim period of time, from 8,206 in 1972 to 44,039 in 2009 (NHCBS, 1973; VNSO, 2010).

Contrary to this increasingly global movement of Pacific Islanders, the emergence of urban identities continues to be actively resisted by many Melanesian city-dwellers. Reflective of this is the descriptive

language embedded within the region's common 'pidgin' languages; *lingua franca* that are used particularly in Melanesian cities to traverse the diverse array of island-based indigenous languages. As noted in Trundle *et al.* (2019), '*man blo taun'* – a Solomon Islands Pidgin expression that translates to 'person from town' – is an indicator of a lack of belonging, rather than place-based identity, while '*man Vila'* (person from Port Vila), in the context of Vanuatu's capital, is a term used in often hostile and insulting reference to inter-island newcomers to the city,[2] rather than with the intention of establishing collective urban citizenship and commonality (Rawlings, 1999; Maggio, 2018).

Such resistance to urban naturalisation goes beyond Bedford's reflections on the prevalence of circular migratory movement and temporary occupation of Pacific cities; a point further reinforced by the steady net growth – and therefore increasing permanence – of these urban centres. Instead, it is argued here that two key additional factors are at play: (1) the strength of diverse island identities; and (2) the exclusionary histories of urban spaces designed to exert colonial law and European control. The former attribute is widely acknowledged; for instance, the more than 200 distinct spoken languages in Solomon Islands and Vanuatu and further 700 recognised within Papua New Guinea create immediately noticeable cultural nuances within both cities and national identities, and are frequently acknowledged in published literature (Haberkorn, 2008). The latter, however, requires some additional contextualisation, as it is neither easily discernible in Melanesia's urban centres, nor often acknowledged in contemporary regional analysis (McDonnell, Allen and Filer, 2017).

The exclusion of indigenous Pacific Islanders from municipal domains – through regulation and direct alienation of land – coupled with the legislated removal of urban customary land rights played a significant historical role in limiting rural-to-urban migration prior to the wave of independence movements throughout the region from the 1960s onward (Jones, 2016b). As Rawlings relates, "colonial policies attempted to regulate or exclude [Indigenous peoples] through ordinances controlling movement, residence and dress" to varying degrees across each territorial domain (1999, p. 73). Even in the 1950s "Indigenous land tenure systems were seen by many European researchers and technical advisers to the newly formed South Pacific Commission to be a significant constraint" to development both within and beyond urban domains (Bedford, 2011, p. 131). As a result, urbanisation in the Pacific was perceived to be "the result of British, French, German and Australian colonial projects: there was no indigenous history of urbanisation, no native cities or towns" (Rawlings, 1999, p. 73).

The push for decolonisation that spread through the region following World War II varied significantly in form, uptake, and colonial resistance between each territory (New Caledonia's continued status as a French territory within Melanesia, despite multiple referendums, being a contemporary demonstration of this). Equally varied was the establishment of both shared national identities and the constitution of state law following independence itself. As Connell and Lea note, "few if any nations are more imagined than those of Melanesia" (1994, p. 280).

An additional consideration beyond urban land alienated by municipal designation was those areas adjacent to colonial townships, which included not only farmland and plantations but also critical national infrastructure such as airports, education, waste and health facilities. The difficulty in addressing customary-urban land conflict is best demonstrated by Vanuatu, a legislative exemplar of customary land rights where their primacy is enshrined in the constitution (Chapter 12, s73-74):

> All land in the Republic of Vanuatu belongs to the indigenous custom owners and their descendants. The rules of custom shall form the basis of ownership and use of land in the Republic of Vanuatu. (Nari, 2000, p. 7)

[2] In contrast *man-Efate* is a term relating to the traditional inhabitants of the island Efate, upon which Port Vila is situated.

Despite the return of perpetual title to customary owners in rural areas, municipal land was viewed at the time of independence as being too difficult to fully repatriate. Specifically, a fear of 'capital flight' (Rawlings, 1999, p. 76) resulted in the establishment of declared 'public land', to be managed by the state on behalf of customary landowner groups.

In Port Vila this arrangement was initially facilitated through the Vila Urban Land Corporation (VULCAN). However, this organisation was dissolved seven years later "on the grounds of mismanagement and excessive expense" after disputes over the use and distribution of rental fees by three of the five peri-urban customary communities who had claim to the municipal area (Corrin and Paterson, 2017, p. 312). This move by the government was interpreted as a power grab and resulted in large-scale protests, riots and violence, with graffiti across the city that read "custom land, not public land" reflective of the objections of the surrounding *man Efate* customary land owners (Rawlings, 1999, p. 77). Although substantial compensation payments were made for the permanent 'loss' of customary domain in 1992, one land owner group, *man Ifira*, refused, leaving the status of urban land "somewhat confused", with the development of new urban land within the alienated municipality being henceforth considered "virtually impossible" (Connell and Lea, 2002).

The consequence of these exclusionary policies is manifest in not only the identities of urban dwellers in Pacific Island Countries, but also in global perceptions and enumerations of the region's urbanisation, such as those derived in Figure 3.3. As Jones notes in his regional assessment, "official statistics on rates of urbanization and urban growth trends are well under-enumerated in the Pacific, a key reason being that Pacific economies exclude their peri-urban areas [which] remain formally classified as rural" (Jones, 2016b, pp. 10–11). This can be clearly seen in the case of Port Vila, where the contestation of land ownership and customary rights has led to strong resistance to both the expansion of the municipal boundary, as well as to efforts to recognise built-up areas beyond it being even in a practical sense part of the city itself (Trundle, 2017).

In order to further demonstrate these statistical limitations secondary spatial data has been integrated with historical census records as part of the preliminary data analysis conducted for this thesis. This exercise demonstrated the extent to which this resistance has caused a more widespread misperception of rural-to-urban migration. Stakeholder perceptions of the practical boundary of metropolitan Port Vila derived from data drawn from a UN-Habitat climate change planning workshop (Trundle and McEvoy, 2015) were used to delineate a 'real' metropolitan zone, incorporating commuter and migratory communities dependent on Port Vila. Historical demographic records, as well as household geo-location points from more recent census data, were then re-analysed based on this new metropolitan domain as well as the municipal boundary and the formal urban-classified area, before being integrated with national urban aggregates.

The results of this analysis are shown in the following two figures. The newly classified 'Metropolitan Port Vila' boundary is shown in light grey in Figure 3.4, which also depicts point-based household locations as demarcated during the 2009 census. As the figure illustrates, Port Vila's official 'urban' boundary neither aligns with the Municipal Council area, nor does it include most of the city's peri-urban, migratory inhabitants. As part of the archival research conducted for this thesis I found that this urban classified area correlates to the original "Proposed Municipal Council Area" that was first set out in the 1972 census, determined in preparation for the establishment of pre-independence municipal councils as prescribed under the French-British Condominium's *Joint Regulation No.1 of 1975* (NHCBS, 1973; Woodward, 2014, p. 48). Further consultations with institutional stakeholders conducted through the fieldwork stage of this research – including meetings with the current National

Statistician and senior ministry GIS officials – were unable to clarify why this urban area continued to be used in national governance and legislative references (such as the delineation of Area Councils).

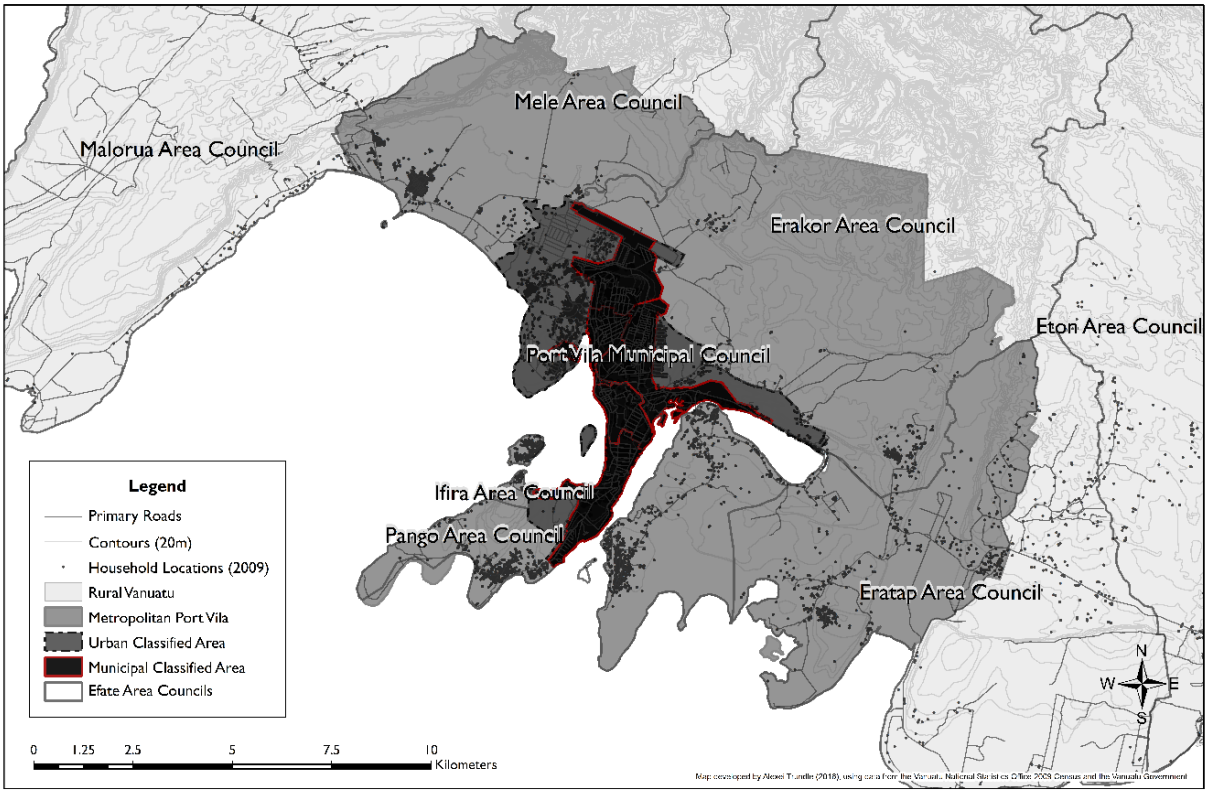


**FIGURE 3.4:** PORT VILA'S MUNICIPAL, URBAN-CLASSIFIED AND PERI-URBAN REGIONS

(Source: Author, developed using Government of Vanuatu spatial boundaries & 2009 national census data)

Although the 'urban classified' boundary holds no legal status it continues to be used in official national and international statistics, such as those that form the basis of international urbanisation levels in Figure 3.3, and has not been adjusted since it was first delineated in 1972. This has resulted in a divergence between reported urbanisation and the 'real' rate of rural-to-urban migration, with the effective metropolitan Port Vila region (encompassing migrant settlements at a radius of roughly eight kilometres from the city centre) having exceeded the UNDESA urban population figure for Vanuatu as a whole since 1999, as shown in Figure 3.5 (a product of the archival analysis discussed previously).

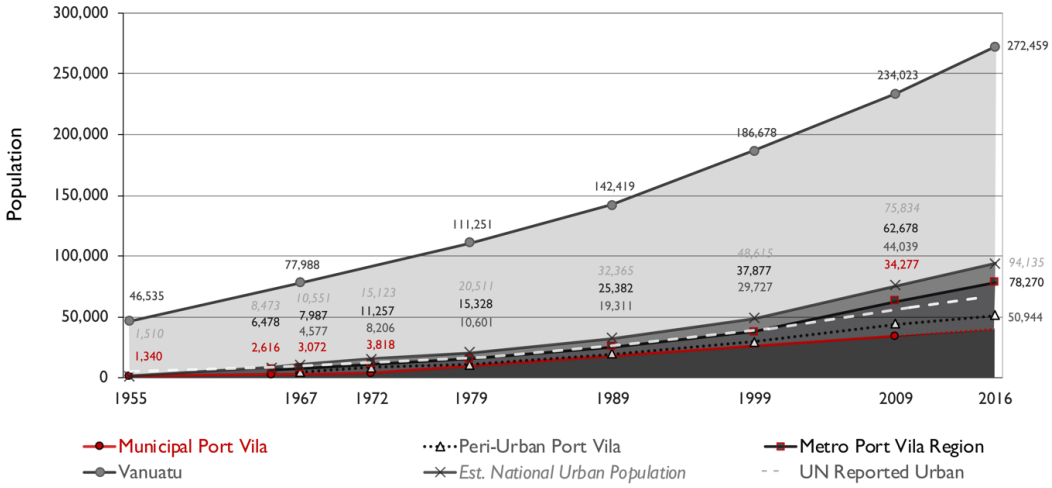


**FIGURE 3.5:** POPULATION GROWTH IN VANUATU 1955-2016

(Source: Author, developed using Government of Vanuatu archival census data)

This inaccuracy is reflective of a broader malaise in urban planning and development processes in Melanesia, even with respect to the capital cities that provide homes for the majority of the region's urban citizens. At the most recent national census Port Vila's municipal population[3] – 34,277 – was only slightly more than half that of the metropolitan city as a whole – 62,678 – when the latter is instead defined by those areas predominantly inhabited by rural-to-urban migrants. Further, analysis of 2016 mini-census data shows that an estimated 34.6 percent of ni-Vanuatu currently live within the combined urban areas of Metropolitan Port Vila and Luganville. This national urbanisation level is ten percent higher than that shown in official figures, and exceeds the UN's projections for Vanuatu through to 2050 (UNDESA, 2018). These estimates also do not account for observed and growing peri-urban sprawl in Luganville, as well as Vanuatu's third urban centre, Lenakel, suggesting present day urbanisation – as well as that expected to 2050 – is higher still (Mecartney and Connell, 2017).

Although the definition of urban areas in many Pacific countries as encapsulated in the example above has created problems for planners and statisticians, it is the consequences in terms of the resourcing, planning and servicing of Pacific cities that are of more direct significance. McDonnell, for instance, argues that the underestimation and subsequent neglect of Pacific urbanisation has contributed to a governance vacuum, allowing elites who act as the "masters of modernity", to use "the power of the state, as well as their claims to customary authority, in attempts to legitimate their dealings with foreign or non-indigenous real estate developers" through "shadow state networks [that] dominate ministerial leasing of urban state land" (2017, p. 286).

In effect these systems, intertwined with international and expatriate interests, perpetuate a form of neo-colonialism that disempowers vulnerable and poor urban inhabitants, including in some instances the traditional occupants of urban and peri-urban land themselves. In the case of Vanuatu this is reflected by analysis that shows that 56.5 percent of Efate island's coastline – including that of the municipal area of Port Vila – is now being leased to private interests rather than held for use by customary landowner groups (McDonnell, 2017, p. 285).

As urbanisation has continued, increasingly malapportioned parliamentary representation (similarly a bi-product of static electoral boundaries at a national scale), coupled with the primacy of capital cities (which provides an easy target for non-urban political representatives), has fuelled an ongoing "anti-urban rhetoric" that pervades Pacific discourse (Jones, 2012b, p. 335). Persistent political arguments for decentralisation and development of provincial and rural areas – targeted primarily at constituents – are reinforced by urban disfunction. As a result the diversion of migrants is often seen by government actors as preferable to the perceived risks of accelerating urban drift by provision of any additional urban resourcing (Barbara and Keen, 2017).

Attempts to drive change through regional political frameworks and academic analysis have also been ineffective to date. The *Pacific Urban Agenda* (PUA), developed in 2003 by peak bodies such as the Pacific Islands Forum Secretariat, the Commonwealth Global Government Forum (CLGF) Pacific Office, UN-Habitat and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), was intended to build awareness of and action to improve the urbanisation challenges being faced across the region (Jones, 2016b). However, as noted by Mecartney and Connell, the PUA was not formalised through the regional Pacific Islands Forum Secretariat, nor tasked to a specific regional authority, despite being reiterated in 2007 and 2011 (2017).

[3] This figure was derived from GPS data from the 2009 Vanuatu National Census; however, it is not used directly in official government documentation.

At the fourth such forum, held in 2015, a *New Pacific Urban Agenda* was developed, with the intention of presenting a unified and strengthened Pacific voice in the development of the *New Urban Agenda* prior to its endorsement at Habitat III (Kiddle *et al.*, 2017). Despite these efforts it was noted at 'PUF5', held four years later, that there continued to be "tangible exasperation at the many plans and ad hoc projects that were resulting in little implementation or enduring benefits on the ground" (Keen and Kiddle, 2019).

Pacific Island cities must therefore be understood as being both constrained by their colonial alienation from traditional knowledge, social structure and customs, while at the same time being central to the function and emergent national identities of post-colonial Pacific Island Countries. Their physical domains, particularly those directly controlled or owned by the state, are "an important site for illustrating the exercise of state power" (Mcdonnell, 2017, p. 284). However, as Jones observes, "village-based forms of authority and formal state institutions now exist side by side in urban areas" (2012a, p. 147). Economically, Pacific cities house the bulk of national bureaucracies and associated institutions, as well as key national infrastructure. As a result, they provide access to international goods, services, and trade and employment opportunities. However, it is the informal sector within these cities that dominates the day-to-day activities and livelihoods of the majority of urban citizens; in the case of Solomon Islands, for instance, accounting for an estimated 85 percent of employment in the capital, Honiara (Keen and Connell, 2019).

In combination, these contradictions and contestations continue to inhibit the establishment of effective urban political leadership across the Pacific at regional, national and city scales. These issues are also particularly acute in the less-urbanised and largely less developed subregion of Melanesia where, as Storey notes, "meeting the needs of migrants, custom land rights, and upholding the role of the state poses enormous challenges" (Storey, 2003). The intersection of these conflicting needs and values is most evident in the informal settlements that prevail across many Pacific countries; domains central to the rural-to-urban migrant pathways into the region's cities.

## 3.7 *Informality as a Pathway to Urbanisation*

One direct by-product of the ineffectual planning for and resourcing of cities in the Pacific is the continued expansion of urban informality. Although this is most visibly evident in the form of settlement areas, it also permeates other urban dimensions such as the economy (through informal marketplaces and unregistered traders), services (including water sources and waste management) and infrastructure (such as roads and drainage systems). At a regional level, informal settlements have been estimated to have comprised roughly a quarter of Oceania's urban population for at least the last three decades (UNDESA, 2018). The total number of informal settlement dwellers in the Pacific has therefore increased proportionate to the region's urbanisation rate over this period, as rural-to-urban migration continues apace (as shown in Figure 3.2).

Despite the apparent stagnation of the share of the Pacific's urban population living informally these official figures face similar – and arguably more substantial – issues in terms of their accuracy at a country level than those of urbanisation itself. In the case of Solomon Islands, for instance, the population of informal settlements is calculated on the basis of 'informal settlement zones' (ISZs). These areas were originally developed by the Solomon Islands Institutional Strengthening of Land Administration Project (SIISLAP), an Australian Government funded initiative that ran from 2000 to 2007 (Larden and Sullivan, 2007). Although broadly indicative of the majority of the informal urban population, these zones are limited to land within the city boundary and therefore do not account for peri-urban settlements, nor the emergence of informal settlement areas in provincial cities such as Auki (UN-Habitat, 2012). A further unknown but not insignificant number of informal urban inhabitants

also reside throughout the city along roadsides, as well as within other designated areas such as the National Botanical Gardens and the town cemetery (Trundle and McEvoy, 2016, p. 19).

The prevalence of similar issues in other Pacific cities suggests a significantly higher – and growing – level of urban informality for the region than that shown in UN estimates. In PNG, calculations by Schrecongost and Wong using 2013 data on the lack of access to improved sanitation showed 45 percent of the capital Port Moresby's population – up to 315,000 inhabitants – met this criteria of informality alone; a share projected to rise to 56 percent by 2023 if current differential rates of formal and informal growth are extrapolated (2015, p. 5). As Jones cautions in his assessment of Pacific urbanisation, "all indications are that in the next 15 years, squatter and informal settlements will comprise the main urban form in Pacific towns and cities"; a level that would be double that currently shown in regional urbanisation estimates (2012a, p. 335).

In Vanuatu mapping of informal settlement areas has not been updated since 1997 (shown in Figure 3.6), while the most recent survey of these settlements was by the now-defunct National Housing Corporation in 2012 (Chung and Hill, 2002; UN-Habitat 2016a). Although many of these areas remain informal, others have been developed, with extensive new informal settlement zones having emerged within the wider metropolitan area discussed earlier in this chapter.

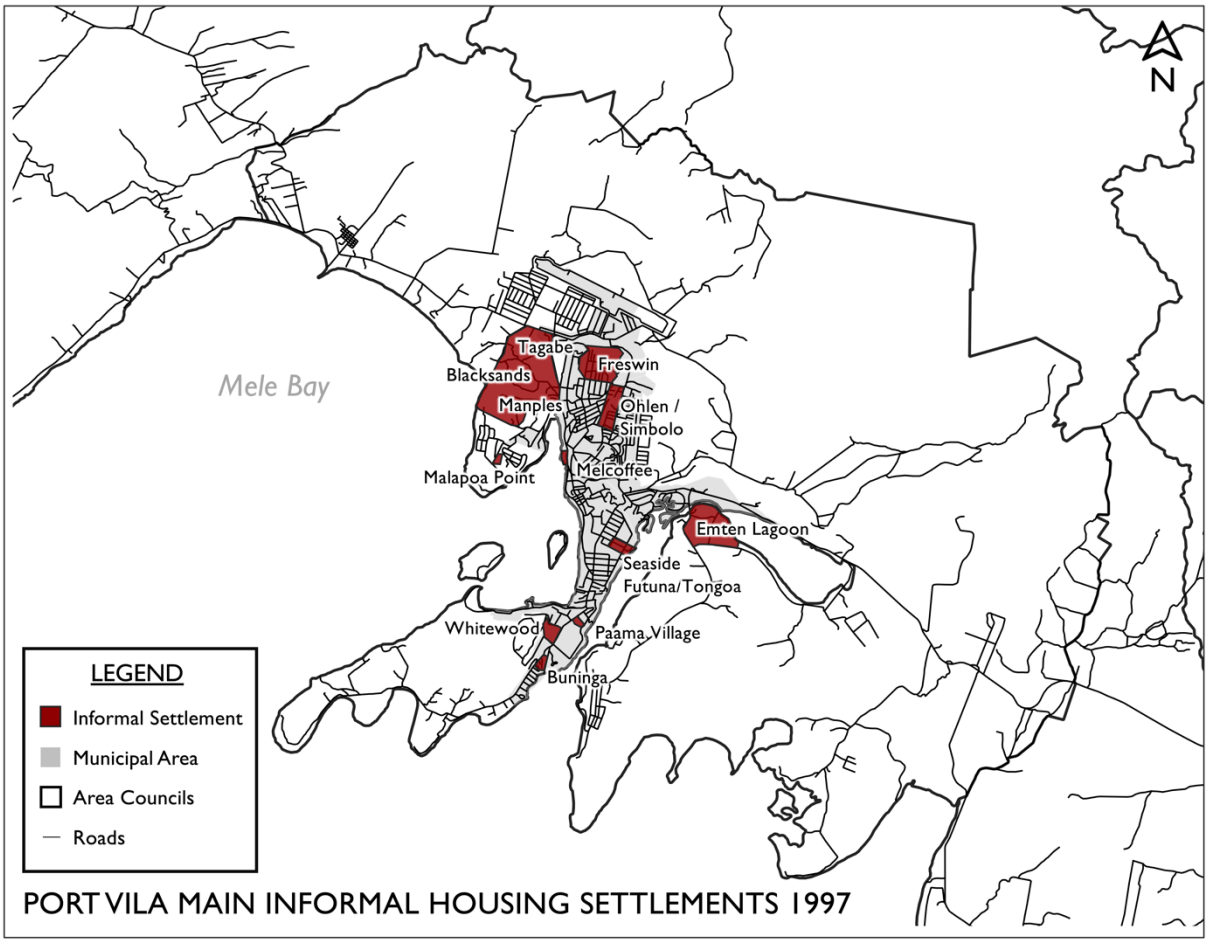


**FIGURE 3.6:** INFORMAL SETTLEMENTS OF PORT VILA AS IDENTIFIED BY THE ASIAN DEVELOPMENT BANK

(Source: Author, digitised adaptation of Chung and Hill, 2002, p. 8)

As with urbanisation more broadly the persistence and nature of urban informality in the Pacific is as much related to colonial policies of alienation and segregation as it is to contemporary issues of poor urban planning. Reflecting on the first town plan for Honiara, developed in 1962, Bellam observed that:

> The delineation of "low density" and "high density" residential areas [in] this plan officially sanctioned the spatial segregation of the town into European and Solomon Islander suburbs … The Europeans were confirmed in their occupation of the extensive terrace tops. These, which are cooled by evening breezes and afford magnificent views over Iron Bottom Sound, constitute the most attractive residential areas in the capital. (Bellam, 1970)

The outcomes of this process are evident in Bellam's mapping of the spatially segregated 'ecology' of Honiara in 1967, as shown in Figure 3.7 below.

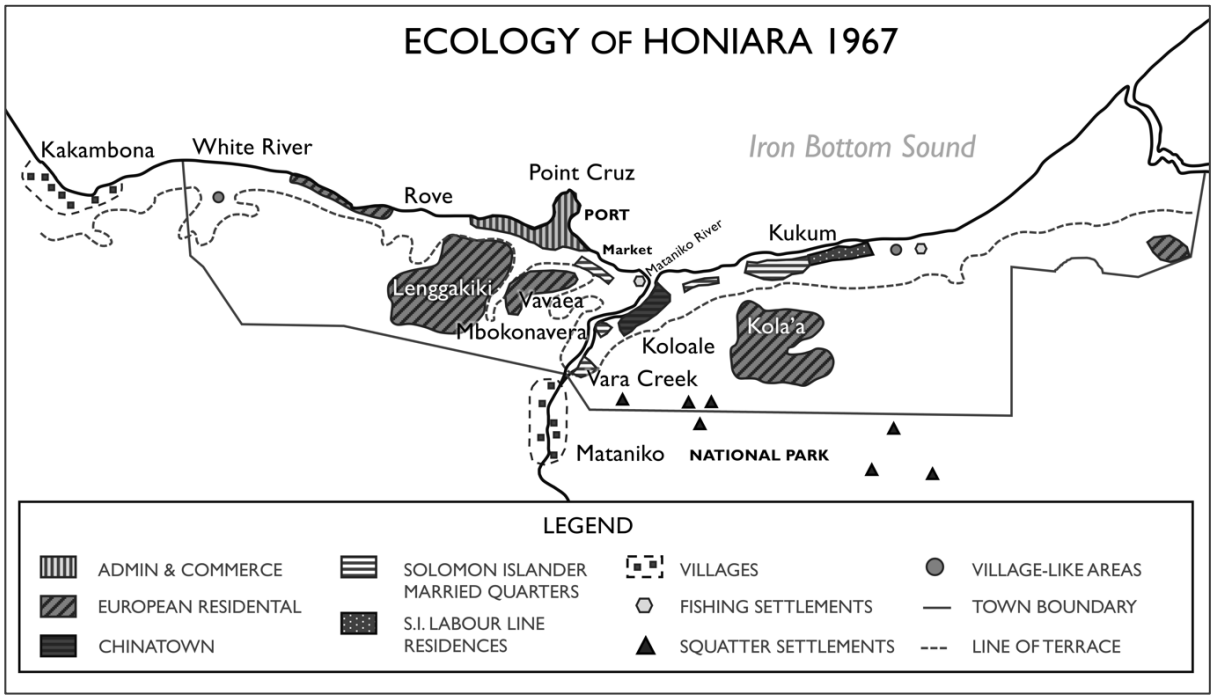


**FIGURE 3.7:** ILLUSTRATIVE LAND USE – HONIARA IN 1967

(Source: Author, Digitised Adaptation of Bellam 1970)

Bellam's 'squatter settlement' sites continue to correlate with informal settlement locations half a century later. Vara Creek, visible at the centre of Figure 3.7, has grown into the largest group of SIISLAP-classified informal settlement zones (now known as 'Aekafo-Feraladoa'), while the cross-boundary communities to the south-east of the Kola'a 'European' residential area has expanded northward, creating a cross-boundary peri-urban community now known as Gilbert Camp. Elsewhere in the city most of the 'fishing settlements' and 'village like areas' also remain in some form, having undergone little or limited formalisation either prior to or following independence.

The example of Honiara is illustrative of the remarkable longevity of many informal settlements in the Pacific; a characteristic that underlines the narratives of transience and circular migration set out earlier in this chapter. Movements between wider kinship networks therefore define not only rural-to-urban migrants, but also facilitate a critical cultural norm that persists across Melanesia more broadly:

> Migration histories established that people living in their villages … had been just as mobile as their kin who were interviewed in Vila. Over half the individuals over fifteen years of age resident in both their villages and in the town had made four or more moves involving them in residence for at least one month in places other than their villages. Thirty percent had moved more than ten times. (Bedford, 1974, p. 141)

The continuity of these informal spaces is instead argued here to be based upon factors outside of Eurocentric understandings of tenure and, relatedly, tenure security; these being conventionally derived from the ongoing occupation of an area by an individual or household. This differentiation is a

critical component of informality in Pacific cities and therefore warrants further explanation. Constituent to this is not only colonial alienation set out above, but also the nature of the rural-to-urban migrant dialectic itself; a dualistic perspective of 'otherness' through which individuals and household units view their own transition to the urban environment (Silvey and Lawson, 1999).

In the absence of effective state control, the review of peer-reviewed literature relating to Pacific urbanisation and informality that underpins this chapter identified three fundamental conditions that facilitate these dominant, established forms of informal occupation:

i) The availability of alienated or vacated land;

ii) The capacity for negotiating customary arrangements between migratory and owner actors; and

iii) The kinship obligations that underpin extended family networks.

Although these conditions do not account for all modes of informality that are present in Pacific cities, I argue that they are central to the spatial arrangements and complex negotiation processes that underly the transition into the urban domain for most rural-to-urban migrants in the two case study cities under examination.

Despite the widely referenced patterns of circular and transient migration at an individual level, the permanence of informal settlement areas within Pacific cities is argued here to be primarily enabled by the historical alienation of urban land itself. The language of 'public' or 'waste' land in Honiara, for instance, originates from colonial regulations from the late 1890s (Foukona, 2015). Waste land was defined in these regulations as that "which is not owned, cultivated or occupied by any native or non-native person", the sale of which provided a critical revenue stream for the then British Solomon Islands Protectorate (Allan, 1957).

This rationale was used by colonial-era corporations to justify the alienation of 289,754 acres of land over the first decade of the 20th century alone, an area equivalent to five percent of Solomon Islands' land mass (ibid). Despite more than 120,000 acres of the land claimed under the scheme being repatriated through the subsequent Land Commission in 1925, and further repatriation occurring immediately prior to independence, the concept of 'waste land' has continued to pervade national narratives of the process of land acquisition in Solomon Islands (Bennett, 1995).

Similar articulations have also been made elsewhere in a number of other former British colonies, including neighbouring Papua New Guinea (Lawrence, 2014; Nayahamui Rooney, 2017). Although boundaries – and particularly, areas isolated from customary ownership such as municipalities – are disputed, the principle of occupation of 'unused' or 'spare' land, especially that within state-held domains and lapsed plantation leases, continues to provide a rationale for migratory settlement. Such practice has in some instances also begun to be applied within customarily-controlled domains, with Foukona and Allen noting that "settler narratives of counter-exclusion have recently begun to invoke the colonial construct of 'waste lands', with its obvious connections to the overarching discursive themes of citizenship and nation-building" (2017, p. 87).

The capacity for negotiating arrangements based on customary ownership and occupation systems provides the second condition critical to many peri-urban informal settlements, particularly in Pacific countries where customary land rights have been successfully maintained or integrated with state law. Although the nature of the interaction between customary owners and colonial and state actors has been discussed earlier in this chapter, direct engagement between the traditional occupants of peri-urban areas and rural-to-urban migrants prevails to varying degrees in informal domains, either in tandem – or in some instances in conflict with – state-based formal tenure arrangements.

As advised by Allan in his report 'Customary Land Tenure in the British Solomon Islands Protectorate' (the outcome of a second Lands Commission conducted in Solomon Islands in the 1950s):

> It is a popular fallacy that native custom is static … the present day system of customary tenure is a synthesis of ancient and modern custom modified by European concepts of tenure and governed by new needs, values and wants. (Allan, 1957)

Despite being more than half-a-century old Allan's comprehensive assessment of customary tenure in Solomon Islands highlights the complexity of sub-national variations in custom 'law'; differences that continue to vex cross-island interactions in both rural and urban migratory contexts. These variations, a product of the region's internal sociocultural diversity, have critical implications for the ability to negotiate occupation between established customary and migratory groups in land where native title prevails.

A distinct example of this can be found in the interaction between patrilineal and matrilineal land ownership systems, as occurs in the case of inter-marriage and subsequent intergenerational inheritance across migrants and land-owning customary groups. Monson elaborates on this with reference to the matrilineal systems of the Guale customary owners of the peri-urban land surrounding Honiara and that of the patrilineal Malaitans (who comprise the majority of rural-to-urban settlers moving to the city):

> If a migrant man marries a Guadalcanal woman, their children will have land through their mother's tribe. This situation is more uncertain in the case of a migrant woman marrying a man from Guadalcanal. The couple will generally have access to land for housing and gardening during their lifetime, and the man may secure his children's rights in the future through … the exchange of goods and feasting. (2010, p. 3).

More complex are customary requirements that relate to occupancy and use of land by outsiders, which demand differing levels of landowner engagement and consultation in customary practice. For instance, Allan noted the need for consultation engaging with the "whole tribal community" when more major allowances of occupation by non-tribal members was to occur, giving the hypothetical example of Malaitans wishing to "acquire interests in land in the vicinity of Honiara", in addition to acquisitions by European corporations and the protectorate itself (Allan, 1957). The latter of these two examples proved particularly prescient given the Ethnic Tension that occurred between these two customary groups 40 years later; civil unrest centred squarely on conflict relating to peri-urban land occupancy.

In effect, the capacity to operate across differing customary systems has been central to the persistence of informality at the periphery of alienated municipal domains. This process of tenure negotiation beyond the state has also evolved in tandem with the introduction of colonially-derived modes of urban occupation and statehood, in turn reinforcing island-based customs within these mixed tenure peri-urban domains, whereby rural-to-urban migrants bring "traditional ideologies and customary practices of a kin based ordered society [that] are played out and modified in 'village like' settlements" (Jones, 2016a, p. 172).These informal processes allow for an alternative, hybrid form of urban livelihoods derived from island-based cultural norms, broadly in opposition to the individualised, bureaucratic and capital-derived systems that underwrite tenure within the formal domain of the state. Their non-compliance with the state expectations is central to informality, contravening laws and regulatory norms of urban occupation.

The third condition that underpins persistent informality in the Pacific is the reproduction of these kinship-based customs within extended family networks, particularly at a household scale. Often referred to as the 'wantok' system in linguistically-diverse Melanesia (being pidgin for 'one language'), these cultural norms of reciprocity extend to physically accommodating family members within one's own home or area of land (sometimes referred to as a 'tribal', 'island', or 'village' group). In the short-

term this system facilitates much of the informal transience in urban domains, with populations fluctuating based on island harvests, school terms, need for health services, and even international seasonal employment schemes (Connell and Lea, 2002).

Central to this is the contrast between Western presumptions of a discrete 'nuclear' household unit and multi-family, intergenerational norms that prevail in Pacific urban settings. In the case of lower-density informal settlement areas, the nature of these extended household units drives expansion of households further into alienated or public land, with family members often building new homes around first-comers, emulating the physical typology of the 'village' (Butcher-Gollach, 2012; Jones, 2016b). In more compact areas, these obligations can lead to overcrowding within individual buildings, with households of 20-30 occupants being recorded in some informal areas (Moore, 2015b).

This process of 'migration through relation' is even reflected in the contemporary name of the largest grouping of informal settlements in Honiara, Aekafo-Feraladoa; settlements that have grown from Bellam's 'Vara Creek' area over the 52 years since its original identification (Bellam, 1970; Foukona and Allen, 2017). 'Feraladoa' roughly translates from Kwara'ae, the most widely spoken Malaitan language, as "to build a house and keep extending it"; a common practice for facilitating familial in-migration in the area (McEvoy, Mitchell and Trundle, 2020).

Rural-to-urban migrants in the Pacific's informal settlements therefore not only embody a transitory position between these two spatial domains but also underpin the emergence of these post-colonial Pacific urban identities. Instead of deploying Western household norms, these migrants engage with both their own island-based customs and those of the original pre-colonial occupants of alienated and peripheral urban lands. This Pacific migrant dialectic is most actively deployed in areas absented by the state; specifically, the informal settlements through which the majority of rural-to-urban migrants transition as they shift from traditional, subsidence livelihoods into the capital intensive urban economy (Birk and Rasmussen, 2014).

It is notable that the above description differs somewhat from Lawson's observations of "migrant subjects who desire modernity, but who also experience exclusion and alienation", as well as the condition of "new" arrivals in defining migrant trajectories (Lawson, 2000, pp. 174, 177). Although their "state of between-ness" remains (Lawson, 2000, p. 174), there is also active positioning, maintenance and even conscious incursion of rural identities and culture into the malleable and weakened urban domain. Understanding the nature of migrant perceptions of 'place' is therefore a critical entry point for understanding the informal systems that contribute to climate resilience in the Pacific, with this particular variant on Silvey and Lawson's migrant dialectic providing a unique analytical viewpoint in this research (1999). These migratory attributes have been integrated with the characterisations of informality set out earlier in this chapter, providing a conceptual axis of movement into the informal settlements of the South Pacific, as elaborated on in the final section of this chapter below.

## 3.8 *Informal Urban Climate Resilience: A Conceptual Framework for the South Pacific*

Chapters 2 and 3 of this thesis summarise an extensive review of literature relating to the theoretical construct of urban climate resilience and its more direct conceptual application in climate resilient development initiatives in Pacific SIDS. Beyond grounding this work in the relevant bodies of literature, this review has also been used to develop a conceptual framework for conducting the research itself. This reflects the problem statement put forward in Chapter 1; that efforts to build climate resilience in urban systems lack effective theoretical and practical mechanisms for engaging with the informal systems that are prevalent in the rapidly growing cities of least developed, climate exposed countries.

This framework integrates both the nested adaptive cycles that drive exogenous resilience efforts and the migrant dialectic through which informal enactments of endogenous resilience can be observed. The need for integrating these two factors in particular is articulated by Shaw, who argues for a 'reframing' of resilience that accounts for these non-institutionalised resilience contributors:

> There is still much empirical work to be done on how effective leadership for resilience can be further developed, how professionals can best learn about resilience, and how the appropriate balance between organisational resilience and other types of resilience (such as those operating at the level of the community or individual) can be operationalised. (2012, p. 310)

This statement reiterates the substantial research gap that this thesis contributes to by focusing on the contribution of one such 'other' non-organisational type of resilience. Although this particular form, being that which is derived from and generated by informality, is only one mode of operationalised resilience, its prevalence in the numerous rapid-growth cities of least developed, climate-exposed countries warrants specific focus and consideration.

The conceptual framework that has been developed for the purposes of this research is shown in Figure 3.8 below, and is reflective of the two South Pacific case study countries under examination, but could equally be adapted for use in other case studies in Melanesia and elsewhere in the South Pacific. The framework's 'y-axis' was particularly informed by the findings presented in Chapter 2, centring upon the nested adaptive cycles particular to the exogenous climate resilient development efforts in the two case study cities. It categorises the various institutional actors engaged within each urban system, including those external donors discussed earlier in this chapter.

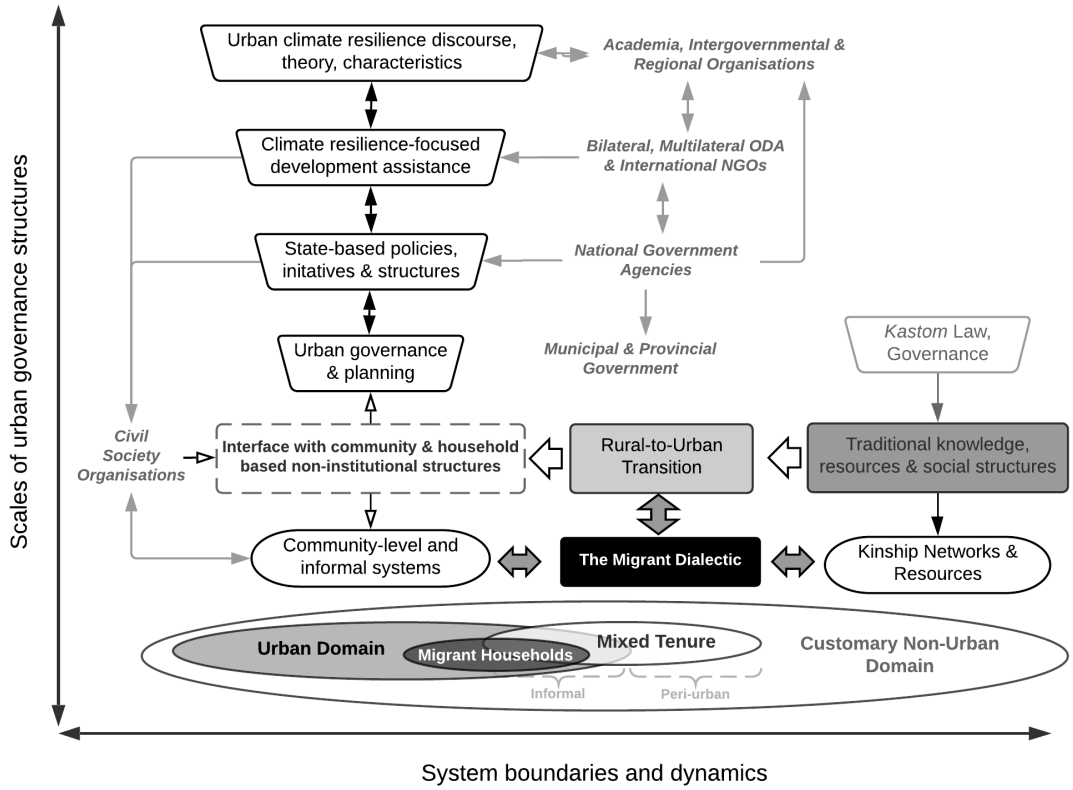


**FIGURE 3.8:** A FRAMEWORK FOR EXAMINING INFORMAL URBAN CLIMATE RESILIENCE IN PACIFIC SIDS

(Source: Author)

The horizontal 'x-axis', meanwhile, has been primarily informed by the findings presented in this chapter, including literary understandings of the rural-to-urban transition, as centred upon the migrant dialectic experienced by households in informal settlements. This captures not only the transition of migrants into the urban system, but also both the rural systems that this dialectic draws upon, as well as the 'fuzzy' environmental dialectic that exists in the mixture of informal and peri-urban communities. This 'fuzziness' is also reflected in the multi-sited depiction of informality in the figure above. This is due to informality – as demonstrated earlier in this chapter in Figure 3.1 – being shown in both these two case studies and elsewhere to occur not only within the urban domain, but also through a continuum of 'mixed' tenure arrangements that extend into peri-urban and customary spaces.

The third 'axis' critical to analysing resilience that is not able to be depicted in Figure 3.8 is temporal, (rather than spatial or scale-based), being reflective of the cyclical, dynamic phenomenon central to Gunderson and Holling's Panarchy heuristic (Gunderson and Holling, 2002). As noted by Holling in his earlier work on understanding the nature of nested adaptive cycles:

> The α phase is the stage that is least examined and the least known. It is the beginning of a process of reorganization that provides the potential for subsequent growth, resource accumulation, and storage. At this stage, ecological resilience is high, as is potential. But connectedness is low and internal regulation is weak.
>
> There is a wide stability region, with weak regulation around equilibria, low connectivity among variables, and a substantial amount of potential available for future options. Because of those features, it is a fertile environment for experiments … it is a time of both crisis and opportunity. (2001, p. 395)

As such a critical focal point for engaging with the migrant dialectic is the response of both migrants, and the actors embedded within the urban hierarchical scales above, during the 'α' phase generated by major shock events. This is in addition to temporal aspects reflected in migration itself, which act in a similar fashion (being a product of actions taken outside of the boundary of the urban system in question).

The two recent major, climate-related shock events that are focused on here, as previously explained, are Tropical Cyclone Pam, which impacted the Vanuatu archipelago in March 2015 including Port Vila, and the April 2014 Floods that caused severe local damage across much of Honiara. They form a temporal focal point for data collection examining the apex of the conceptual framework shown above, providing tangible examples of the interaction between exogenous efforts and endogenous responses by community and household-level non-institutional structures. This aspect of the framework – including more general interactions across the different cycles between collapse, reorganisation, growth and conservation phases that occur across both the x- and y-axes – is elaborated on in both Chapters 5 and 7, with the interplay between the different adaptive cycle stages across nested scales also being a focus of the discussion in Chapter 8.

## 3.9 *Conclusion*

This chapter examined contemporary urban theory and associated understandings of informality, with an emphasis on Pacific SIDS, in order to provide a baseline for understanding informal climate resilience in the region. Analysis of the literature considered here supplemented that related to resilience thinking and theory, as summarised in Chapter 2. This additional analysis was conducted to further context to the conceptual gaps relating to sociocentric systems and the potential divergence of values and conflict in urban function that can occur between informal and formal domains, as well as across city- and community- urban scales. This chapter thus provides a foundation for answering all three research questions, as well as establishing the conceptual framework for doing so (elaborated on further as part of the research methodology set out in Chapter 4).

I argued that the relationship between rural-to-urban migration and the persistent condition of urban informality is a critical foundation for understanding 21st century urban growth in the Global South. Rather than positioning informality as operating in a governance vacuum, literary evidence of endemic systems, rules and resources demonstrates a structured set of sub-system functions within which the occupants of – and migrants to – these informal domains operate. Helmke and Levitsky's conceptualisations of informal-formal interactions was then put forward as a useful theoretical basis for analysis of this interface. In combination with Panarchy, as put forward in Chapter 2, the latter provides a compatibly cross-scale heuristic that can contribute to the absence of analytical mechanisms for addressing this research's central problematic.

The nature of urbanisation and informality was also examined at a regional scale within the Pacific in order to set out the nature of both the region's urban systems, and the nature of the rural-to-urban migration that is fuelling rapid urbanisation across much of Oceania. The review of colonial policies of exclusion, and logics of urban and peri-urban alienation, was shown to continue to be an influential force in shaping urban identities at a community scale. At the same time, these colonial legacies were also demonstrated to result in an underestimation of the extent of the Pacific urban shift within national, regional and international considerations and estimates. Locally relevant attributes relating to the continuation of non-urban identities and customs were also shown challenge assumptions within the migrant dialectic as considered in literature relating to rural-to-urban transitions elsewhere, highlighting the importance of considering perceptions of 'place' in this research.

The chapter culminated in an explanation of the conceptual framework shown in Figure 3.8; a regionally specific construct that underpins this research's methodology, which is set out in the following chapter. This framework has been used to structure primary data collection in both institutional and informal domains, as well as their integration through analysis of exogenous and endogenous modes of climate resilience. By combining the spatial, 'horizontal' contrasts and movements of migrants into urban informal spaces with the nested scales of urban governance this thesis applies a novel approach to understanding the interface between resilience thinking and informal urbanism. Further, the operation of this interface in light of two major climate-related shock events provides a rich, common narrative that bridges exogenous and endogenous modes of urban climate resilience.

# 4 EXAMINING THE EXOGENOUS-ENDOGENOUS INTERFACE: A METHODOLOGY FOR EVALUATING INFORMAL CLIMATE RESILIENCE

> Back in your country, everything easy, yeah? Money easy, life, luxury. But then you look back in Solomons, and very hard yeah. Everything, work for money, but you're earning small money. Then we usually work *lo* garden every day. Suppose no earn any money today for your pain, a little bit *kakai*, let's say rice, we all go *lo* garden, put *lo* whatever.
>
> So *hem nai,* so *mi hearem* yesterday, *mi lookim* this one [consent] form, I think 'hey, the main purpose for this [research project], I think this person not *makem* any changes *bai yumi*'.
>
> Most [researchers] that are doing this disappear for long time. You say, why? Them disappear now, you think, where all these things happen? I think money is a very big amount, or I don't know? No garem heart for people? I dunno.
>
> So … *em* okay. *Mi* live *lo* country *blo* me, so *mi* have to survive on whatever, earner what. *Em* satisfied. So *hem* no more work that *mi tellem*, that one day *bai yu* come back *mi likem* you … you okay.
>
> Not for anything, just friends, respect, laugh, people, even love your neighbours as you love yourself. [Laughs].
>
> Yeah brother. So, *olsem* good *tumas*.
>
> **Community Representative – Jabros Informal Settlement, Honiara (JBHH5)**

## *4.1 Introduction*

This chapter sets out the methodology that has been developed for this research, with the aim of examining how endogenous forms of informal climate resilience interact with exogenous climate resilient development initiatives. This approach has been developed iteratively through the preliminary stages of this research project, having been informed by the review of climate resilient development and urban climate resilience literature as summarised in Chapter 2, as well as the analysis of urbanisation and informality in the Pacific provided in Chapter 3.

The chapter begins with an overview of the disciplines that this interdisciplinary research approach has primarily drawn upon, relating their ontologies to the theories of climate resilience, migration, informality and urbanisation. These higher-level framings are used to contextualise socioecological resilience, providing a theoretical basis for the consideration of dynamic system shifts driven by climate-related shocks and stresses. They are also related to the structures under examination, including international development and the spatiality of the informal migrant household.

A rationale is then provided for the selection of the case studies focused on in this research, situating the Pacific SIDS grouping as the subject of this analysis, as well as the two case study cities that have been examined within this discrete and distinctive region. This builds on the more general literary framing of urbanisation and informality in the Pacific provided in Chapter 3. The process of selecting and classifying the informal case study communities within Port Vila and Honiara is then also expanded upon, with particular reference to the variations in informal tenure that lack more explicit definition elsewhere in peer-reviewed literature.

Methods are then related to the aim, problem statement and research questions provided in Chapter 1, with analysis, findings and outputs relating to the former aligned with their respective chapters. The data collection process is also explained, setting out fieldwork conduct, procedures and timelines. Analytical procedures are then summarised, along with research limitations and issues addressed by the author during fieldwork. Reflexive considerations relating to the author's own positionality then conclude the chapter, as well as strategies for mitigating the influence of these biases and limitations in the research findings.

### *4.2 An Interdisciplinary Research Methodology*

As prefaced in Chapter 2, this thesis has been grounded in a systems thinking understanding of the urban environments that it examines; a conceptual origin shared with complexity theory, which is itself the higher level theoretical derivation of resilience (Folke *et al.*, 2002; Olsson *et al.*, 2015). As Olsson *et al.* argue, resilience should not be considered as a "grand or unifying theory, it should be seen (and used) as a middle-range theory compatible with some, but not all, ontologies" (2015, p. 9). It is the relationship between these wider ontologies (set out in Chapters 2 and 3) and their foundational disciplines that has focused the methodology and conceptual framework applied here, as explained below.

The conceptual framework developed as part of this research draws heavily upon concepts and theories related to the disciplines Human Geography and Anthropology. This interdisciplinarity reflects two central fields engaged through the 'resiliences' discussed above and throughout Chapter 2 (Simon and Randalls, 2016). It also allows for an ethnographically-informed understanding of the performative aspects of local enactments of resilience (Olwig, 2012), as well as its discursive realisation and limitations (as exhibited through climate resilient development programs at a whole-of-city scale). The latter addresses RQ1, while the former applies to both institutional (RQ1) and informal (RQ2) actors.

As articulated by Wagennar and Wilkinson, "a performative account of how social-ecological resilience is enacted in practice provides a useful way to help explore the gap between the ideal and the practice of governing for resilience" (2013, p. 7). It is this 'performance' that the household-level interviews undertaken as part of this research were focused upon, being the central unit of analysis for RQ2. Engagement with these agents of informality was strongly informed by Marcus' approach to Multi-Sited Ethnography, which allowed the focus here to move "out from the single sites and local situations of conventional ethnographic research designs to examine the circulation of cultural meanings, objects, and identities in diffuse time-space" (1995, p. 96). Notably, Marcus argues that Anthropology itself is necessarily interdisciplinary, as migrant ethnographies "do not share a clearly bounded object of study, [therefore] distinct disciplinary perspectives that participate in them tend to be challenged" (ibid).

This framing closely paralleled the transition from rural to urban environments; a critical feature of these endogenous informal resilience capabilities as well as the conceptual framework itself. This transitory consideration has allowed examination of the role of institutional structures in limiting the spatial extent of – and types of actors with access to – socioecological systems. This is of particular importance as system boundaries are the second critical consideration in resilience's ontological compatibility with social science, as put forward in the critique by Olsson *et al.* (2015, p. 3).

Systems thinking approaches, being the basis of socioecological resilience theory, are thus functionally compatible with both conceptual and methodological approaches to understanding the non-institutional urban features within which informal climate resilience is able to be enacted, maintained and developed. Further, the interface between these sub-city systems and the system is critical if their function is to be understood in terms of whole-of-city resilience. It is this aspect that makes systems thinking a central methodological feature in considering the final research question, RQ3.

Gunderson and Holling's Panarchy model – as elaborated on in Chapter 2 – has been applied as an heuristic device in this research's exploration of the interaction of the conceptual framework shown in Figure 3.8, taking into account the dynamic responses of these interconnected scales to climate-related shocks and stressors (Gunderson and Holling, 2002). The adaptive cycles that comprise the Panarchic heuristics are argued here to be better suited than traditional hierarchy theory in such settings due to their capacity to consider the cross-scale alignment of – and influence over – the potential for transformative change (Holling, 2001). As put by Allen *et al.*:

> Because of the potential for cycling within adaptive cycles to affect both smaller scales and larger scales, panarchy theory emphasizes cross-scale linkages whereby processes at one scale affect those at other scales to influence the overall dynamics of the system. (2014, p. 578)

This theoretical frame – in particular, its nested cyclical phases of 'K', conservation; 'Ω', creative destruction; 'α', reorganisation; and 'r', growth – was used in the examination of both experienced climate-related shocks and stressors, as well as the analysis of policies and programmes designed to enable climate resilient development in relation to future climate impacts. Although originating from ecology, it is the application of this dynamic understanding of systems within the urban domain, predominantly through a human-focused, geographically defined approach, that forms the final disciplinary contributor to this research methodology.

### *4.3 Case Study Rationale*

Consistent with applications of the Panarchy heuristic in the study of socioecological resilience elsewhere (see Allen *et al.*, 2014, p. 581 for a number of examples), an exploratory case study approach has been taken in this research to examine the enactment of informal urban climate resilience. As set out by Yin, in contrast to research that aims to describe, or predict, the outcomes of a phenomenon, ""how" and "why" questions are more explanatory and likely to lead to the use of case studies, histories and experiments as the preferred research strategies" (Yin, 2006, p. 7).

Two case study cities have been selected for analysis in this project, with three informal case study communities selected within each of these two city systems (for a total of six settlements). This sample size was chosen to ensure a diversity of city-level institutional representatives were able to be engaged in the qualitative data collection conducted for research, while at the same time sampling a diversity of community-level household representatives from contrasting informal settlement typologies. The latter attribute, acknowledged as critical to the capabilities and capacities of informal settlement dwellers in the literature review set out in Chapter 3, was then used for comparative purposes to explore the wider implications of these case study findings.

The Pacific group of SIDS currently contains four Least Developed Countries (LDCs), of which two are Solomon Islands and Vanuatu (Trundle, Barth and McEvoy, 2019). The two others, Tuvalu and Kiribati, are smaller coral atoll states with only the latter having a notable urban agglomeration: the capital South Tarawa. Of the three capital cities in these potential candidate countries only Port Vila and Honiara experienced major climate-related shocks in the five years prior to the development of this research. Both also exhibit high levels of informality, rapid rates of rural-to-urban migration, and face a diverse array of severe climate-related shocks and stressors when assessed against their global counterparts.

The LDC grouping is widely acknowledged in the literature to represent one of the 'final frontiers' of the global neoliberal project, whereby traditional livelihoods and knowledges are isolated and replaced by capitalist modes of production and consumption, under the guise of development and foreign aid (Robinson, 2003). In addition to their economic stagnation LDCs and SIDS are frequently cited for their 'vulnerability', with both characteristics providing the rationale for an increasing flow of climate and disaster resilience-focused Official Development Assistance, low-interest intergovernmental loans and in-kind technical assistance (McGreavy, 2016).

Relatedly, Vanuatu remains classified as an LDC despite having a sufficient per capita gross national income to be considered a 'More Developed Country' specifically due to its exposure to recurrent natural disasters (UNCTAD 2012). In their submission to the United Nations' LDC revision process the Government of Vanuatu declared that they "still needs to build a resilient and sustainable economy as a pathway for post LDC [status] as unforeseen consecutive natural disasters and economic shocks would

devastate our economy" (ibid p.1). Similarly, the April 2014 floods that devastated Honiara were estimated to result in damage and loss with a total economic value of SB $787.3 million (US $96.8 million), equivalent to 9.2 percent of the country's GDP (SIG 2014).

Consistent with Miller *et al.*, it is argued here that "to address questions of transformation and adaptation, there is a real need to draw upon the experience of the vulnerability [research] community in the subjective domain of values, power and social differentiation" (2010, p. 10). It is for this reason that the experiences of informal settlements and communities are the central focus of this research and comprise the larger share of primary data collection. The interface between the values of these socially-differentiated, vulnerable stakeholders and those of formal institutions hinges particularly upon power and politics, with Helmke and Levitsky's typology itself derived from comparative politics (2004).

Gunderson and Holling's Panarchy model positions the α– or creative destruction – phase as the beginning of a critical process of system-scale reorganisation. This stage of reduced connectivity and internal regulation also offers an underutilised point of reference for such an investigation, as discussed in Chapter 2 (Folke, 2006; Allen *et al.*, 2014). With both Port Vila and Honiara having recently experienced substantial climate-related disaster events, informal migrant households in these case studies are well placed to provide insights into the enactment of resilience, as well as 'negotiated' forms of resilience-building triggered by the influx of disaster response resources, institutions, and personnel in the aftermath of each event (Surjan, Sharma and Shaw, 2015; Ziervogel *et al.*, 2017). Although an individual climate-related disaster event should not be considered directly analogous to future shocks and stressors, it nonetheless provides insight into how individuals or a community might respond, and the resources, structures and knowledges upon which they can draw should such an event or change occur (Sharifi and Yamagata, 2014).

Finally, a more specific rational has been deployed in the selection of communities within the two case study cities. As Pelling explains:

> Stability and vulnerability provide useful bounding concepts for resilience. They suggest that resilience is about the potential for flexibility to reduce vulnerability and allow specific functions to persist. What it does not tell us is how these functions are identified or who decides. This requires a more critical engagement with social processes. (2011, p. 67)

A framework accounting for both climate vulnerability and the socially derived variations in informal tenure is therefore set out later in this chapter (building upon desktop assessment of secondary data and the literature review set out in Chapter 3).

### *4.4 Research Methods: Examining Enactments of Informal & Formal Climate Resilience*

A mixed methods approach was taken in this research integrating spatial and statistical analysis of quantitative secondary data with qualitative primary interview and workshop data from the two case study cities. As McGreavy observes in her review of resilience as discourse, "in resilience's ontology, the human is both embedded within and an autonomous entity able to exert an inordinate amount of influence over the system" (2016, p. 112). It is therefore qualitative, 'humanistic' primary data – extracted from institutional representatives and informal settlement household members – that this research is centred upon, with secondary data used generally to inform these direct observations within each urban system. It is noted that this extractive and structured research process is in itself constrained by its complicity and origins within the formal processes that it seeks to critique; a positionality that is discussed further in the final chapter of this thesis.

In order to demonstrate the relationship between this suite of methods and the research aim, each of the three research questions set out in Chapter 1 have been broken down into sub-questions that

informed the conduct of the data collection and analysis phases of the project. These have in turn been aligned with research outputs, as depicted in Table 4.1. The rationale for their selection, as well as their origins within the wider methods literature, is elaborated on in more detail below.

**TABLE 4.1:** ALIGNMENT OF RESEARCH QUESTIONS, METHODS AND OUTPUTS

| Research Question | Methods | Outputs | Chapter |
|---|---|---|---|
| 1. In what ways is the discourse of climate resilience being expressed and applied in exogenous development practice in Vanuatu and Solomon Islands? | | | |
| **1(a) What are the principles and characteristics of urban climate resilience as applied in international development?** | ➢ Critical literature review | *Analysis of peer-reviewed literature applying resilience thinking, climate hazards and cities.* | **2** |
| **1(b) How is 'climate resilience' being applied by institutional decision-makers in Port Vila and Honiara, with particular reference to regional and global climate finance and policy frameworks?** | ➢ Critical literature review<br>➢ Desktop policy & climate finance content analysis<br>➢ Spatial assessment of resilience initiatives<br>➢ Expert / stakeholder semi-structured interviews | *Analysis of regional and national urbanisation trends and key informality characteristics*<br>*Tabulated resilience 'language' in development projects and policy*<br>*Mapping of climate resilient development applications in each city, contextualised within regional finance*<br>*Institutional climate resilience characteristics, urban system actor maps & shocks/stressors* | **3**<br>**5**<br>**5**<br>**5** |
| 2. How do informal communities within the two capital cities of these Small Island Developing States exhibit and enact endogenous forms of climate resilience at a sub-city scale? | | | |
| **2(a) What resilience-building informal social structures, resources and non-institutional exist in both cities, and why have these modes of informality occurred?** | ➢ Archival analysis of urbanisation records<br>➢ Spatial analysis of urban migration patterns<br>➢ Transect walks & community-scale spatial data analysis | *Historical and spatial outputs relating to informal settlement zones & tenure typologies*<br>*Longitudinal and sub-national mapping of migration patterns across each case study country*<br>*Localised mapping of key community features, tenure arrangements and household typologies* | **6**<br>**6**<br>**6** |
| **2(b) How did these informal components operate during recent shock and/or stress events?** | ➢ Community-based household semi-structured interviews | *Thematically coded primary data & analysis of endogenous responses to shock/stress events*<br>*Endogenous resilience model for informal settlements in the South Pacific* | **7**<br>**7** |
| 3. What do the interactions between these endogenous and exogenous modes of resilience mean for climate resilient development and the application of resilience theory in cities? | | | |
| **3(a) How do informal modes of climate resilience currently interact with climate resilient development initiatives in Port Vila and Honiara?** | ➢ Community and expert/stakeholder workshops | *Integrated tabulation of exogenous and endogenous exhibition of urban climate resilience characteristics*<br>*Case summary of informal-formal interactions (derived from Helmke & Levitsky's typology)* | **8** |
| **3(b) How and why did these interactions differ or exhibit similarities between Port Vila and Honiara and each case study community?** | ➢ Comparative review of interview and workshop outputs | *Comparative summary of both sets of sub-city systems differentiated by aspects of the Melanesian informal land tenure decision-tree typology*<br>*Integrated analysis of climate finance, institutional frameworks and community-level project engagement* | **8** |
| **3(c) In what ways can these findings be considered more widely in the emerging field of urban climate resilience, with particular reference to its application in climate vulnerable small island cities?** | ➢ Integration of analysis of primary data outputs with peer reviewed theoretical literature & policy documentation | *A modified Panarchy heuristic for integrating informal climate resilience into city-wide theoretical frameworks/systems*<br>*A rights-based framework for climate resilient development in climate-vulnerable small island cities* | **8** |

Research Question 1 follows the y-axis of the conceptual framework set out at the end of Chapter 3 and has been addressed through two constituent sub-questions. The first centres upon the discourse of climate resilience as evident in peer-reviewed literature at a global scale, the outputs of which have form the basis of Chapter 2. The second, however, demanded a more diverse array of data sources in order to assess the various nested scales engaged in climate resilient development across the two Pacific SIDS. As such, a mixture of secondary and primary datasets were employed to develop an understanding of both the external policy- and finance-based discursive drivers of climate resilient development, as well as the normative values implicit within these exogenously-derived projects (as elicited through interviews with representatives of these development- and governance-focused institutions). This 'intertexuality' is argued to be central to effective discourse analysis, with finance and global policy regimes exhibiting different aspects of the central discursive concept of power (Waitt, 2016). This addresses Olsson *et al.*'s first concern in their critique of the disjuncture between resilience in practice and social science; being that:

> policy use of resilience is almost exclusively normative … however, the tendency to see resilience and all that it entails as desirable is an important reason, we argue, why social science focusing on social change over stability has difficulties accepting the resilience concept. (2015, p. 2)

Examination of the desirability of resilience – specifically, that of the enactment of its properties through system interventions – across both differing scales as well as institutional and informal urban actors is therefore necessarily central to the approach that has been adopted in this research.

As elaborated in Chapter 5, climate resilient development projects relevant to each case study were extracted as part of this research from global ODA data (specifically, the Lowy Institute's *Pacific Aid Map* online tool and database), which was subsequently supplemented at a national level in each country through additional analysis of the project registries held by their respective climate change ministries. The former provided a more comprehensive view of climate resilient development in the region, including the role of regional bodies in its discursive and financial disbursement, while the latter allowed sub-national analysis specific to each case study city and their surrounding provinces. This secondary analysis drew on the methodologies of Atteridge and Canales (2017) and Dornan and Pryke (2017); two studies that similarly analysed ODA flows to the region.

Content analysis of policy documents conducted for this research centred upon the use of the term 'resilience' itself, which was considered in light of the urban climate resilience characteristics set out by Meerow and Stults (as shown in Table 2.1), and was informed by a Foucauldian approach to discourse analysis (Waitt, 2016). The recurrence of these characteristics was also correlated to the different scales of actor groups and institutions as designated in the nested scales shown in Figure 3.8, with policies explicitly linked to the financial flows evident in the secondary ODA data referenced above.

Waitt argues that the interest of geographers in discourse analysis is derived from its capacity to "investigate the effect of how individuals weigh up their own position in relationship to … discursive norms [as] displayed through their actions and attitudes" (2016, p. 174). The final – and most critical – method employed to address RQ1 therefore used semi-structured interviews with representatives of the institutions engaged in exogenous climate resilient development efforts in each city (n-26). These participants were purposively sampled on the basis of the projects identified through the policy and project review set out above. The interview schedule that formed the basis of these interviews is provided in Appendix A, with the primary data collection process detailed further in Section 4.7.

Research Question 2 was initially informed by a review of literature and secondary data relating to informality and urbanisation in the Pacific region, the content of which is predominantly reflected in Chapter 3. This review informed both the selection of community-level case studies and the more

general framing of household interview questions, as explained below. Archival analysis of census data conducted as part of this research also ensured a more rigorous understanding of the practical 'boundaries' of the urban systems in question, a central point of differentiation in the 'x-axis' of the research's conceptual framework (Figure 3.8). Migrant patterns – fundamental to both characterisation of each informal settlement, and the migrant relationships contained within them – were also derived at a national scale through re-analysis of secondary census data by the author, the outputs of which can be found in Chapter 6.

Research interviews are proposed by Dunn to be used for four main reasons: to fill a gap in knowledge; to investigate complex behaviours and motivations; to collect a diversity of meaning; and to show respect for and empower the individuals and groups who provide the data (2005, p. 80). All four of these functions contributed to the rationale for the central use of semi-structured household interviews in this research, which formed the primary method of not only answering RQ2, but also the central unit for evidencing endogenous resilience itself; the critical contribution of this thesis to resilience theory and practice.

The lack of a clearly documented migrant ontology in the Pacific made the establishment of a collective migrant narrative to frame community selection challenging, as reflected in the difficulty in differentiating 'recent migrants' within population groups collectively defined by island origins (Wickham, Kinch and Lal, 2009; Toole, Klocker and Head, 2015). Instead, the transition into the urban domain – facilitated through community and familial networks – was focused at the household scale.

The significance of the household unit, rather than individuals, in the migratory decision-making process is well documented, with Massey – in her seminal review of the cumulative causation of migration – arguing that "theory and research point to the importance of the household as the core decision unit in migration" (Massey, 1990, p. 11). As she continues, in order to truly reflect this decision-making process "a complete account of migration requires theories and data that link larger social structures with individual and household decisions, connect macro- and micro-levels of analysis, and relate causes to consequences over space and time" (ibid). The complex array of kinship obligations, circular migration, and gender-based differentiation was empirically evident in the two case studies prior to the conduct of primary data collection, supporting the argument for establishing the social ontology of rural-to-urban migrants within the Melanesian setting as a preliminary component of this research (Silvey and Lawson, 1999; de Haas, 2010).

As with the institutional interviews discussed above, a schedule for these household interviews has been appended to this thesis (see Appendix A). Although following a similar thematic guide, structures were less closely followed in household settings, with interviews instead following cultural conventions of *tok stori* / *storian* in Solomon Islands and Vanuatu respectively. This method was therefore more akin to the practice of oral history, a tool ideally suited to uncovering endogenous modes of climate resilience given its strength in "studying hidden histories in geographies, the place-based lives and memories of disadvantaged people, minority groups, and others whose views have been ignored or whose lives pass quietly, producing few, if any written records" (George and Stratford, 2006, p. 107).

Research Question 3 was primarily addressed through the integration and disaggregation of the findings from RQ1 and RQ2, a procedure characterised by the triangulation of multiple sources and theories, which doubled as a checking procedure to ensure research rigour, as advised by Bradshaw and Stratford (2016). Workshops held with each case study community also constituted a critical additional checking procedure to ensure the credibility and trustworthiness of research findings. These workshops also allowed direct community input into existing and potential frameworks for improving the

interaction between endogenous and exogenous efforts to enhance and improve climate resilience, as reflected in the outputs in Chapter 8.

### *4.5 Classifying Informal Land Tenure in the Pacific – Informality's Fifth Determinant*

Informality unquestionably extends beyond settlement areas into numerous other components of the urban system, such as unlicensed marketplaces and socially-negotiated access to shared resources or ecosystem services (Komugabe-Dixson *et al.*, 2019). However, settlement areas provided the most logical focal point for developing an understanding the informal sector's economic and social activity from the household perspective, with other functions either highly gendered (as in the case of markets) or separated from day-to-day livelihood and community practice (Mitchell *et al.*, 2016).

As noted in Chapter 2 the nature of informal tenure is both highly contested and contextual, with a spectrum of arrangements having distinct implications for the security and rights of their occupants (Roy, 2002). Despite lacking an agreed definition, tenure security also constitutes the fifth, and arguably most critical, of the five definitional characteristics of informal settlements as set out by UN-Habitat's definition, as discussed in Chapter 1. As such, categorising the spectrum of occupancy arrangements in the two case study cities constituted a critical exercise in the process of selecting the communities to be engaged in this research.

This preliminary component of the research initially built on observations in the published literature set out in Chapter 3, as well as secondary spatial data and legislative documentation. These existing resources were built into a draft framework (McEvoy, Mitchell and Trundle, 2020), which was then further developed in consultation with a subset of institutional respondents who had expertise or experience in engaging with informal communities outside of the formal institutional interview structure discussed above. The final output of this exercise – a decision-tree typology capable of specifying forms of informality in the Melanesian sub-region of the Pacific – is shown in Figure 4.1. Each level in this classification tool was derived from one of four structural 'branches' that emerged through this process, as explained further below.

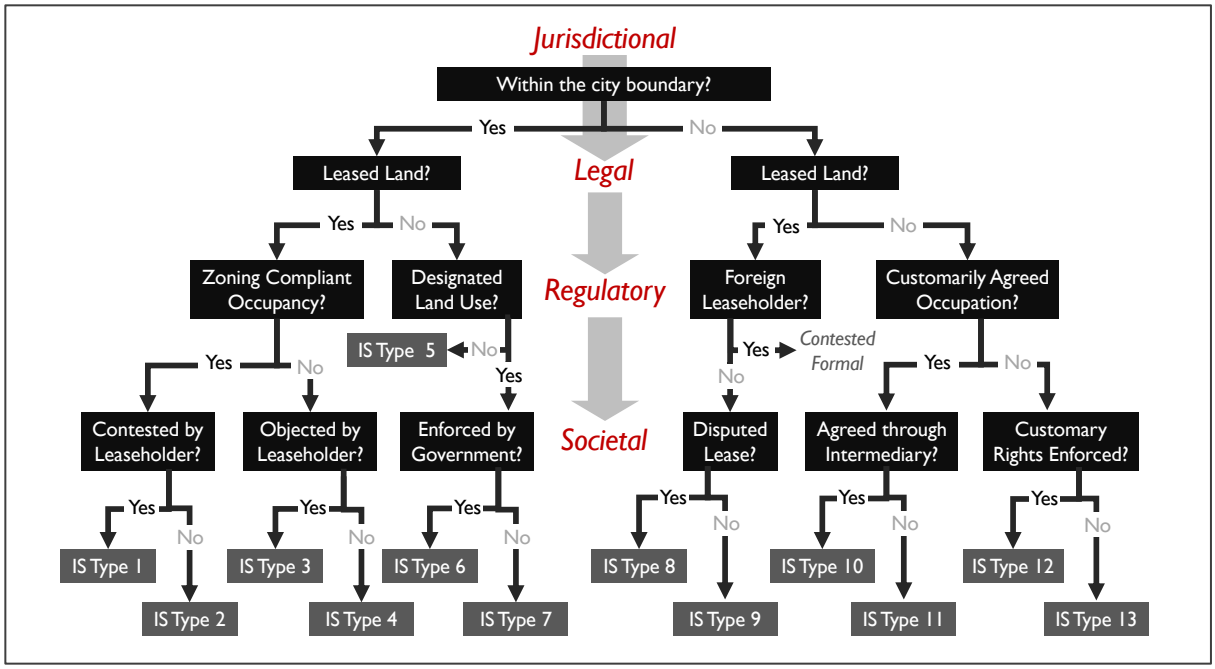


**FIGURE 4.1:** MELANESIAN INFORMAL LAND TENURE DECISION-TREE TYPOLOGY

(Source: Author)

In the framework above initial consideration is given to the critical divergence between peri-urban and municipal governance, with the former provincial classification allowing a different array of customary arrangements that – while legitimate under national law – are recognised, sanctioned and negotiated outside of the direct control of the state. Secondly, access to legal title is accounted for, with extensive areas of land lacking formal lease arrangements (and thus differing significantly in terms of the settlers who occupy them).

A third categorisation relates to compliance with residential regulatory standards; a critical aspect for allowing access to government services, as well as issues of overcrowding (an additional component of UN-Habitat's definition of informality). Finally, differing levels of societal acceptance of the settlement established the final condition for informal occupation, with various actors (ranging from the government, to individual legal leaseholders) accepting, contesting, or even encouraging informal occupation in different circumstances.

Not considered within the typology above are variations within settlements, which can include mixtures of each form of tenure arrangement, as well as more complex tenancy arrangements such as subletting and short-term visiting rights facilitated through tribally delineated *wantok* networks. Rather, Figure 4.1 has been developed to categorise the perceived 'owners' of the housing structures present within each settlement more generally, whether recognised through the state or other means. An additional consideration outside of the scope of the decision tree tool is contestation over the status of actor groups; for instance, the legitimacy of at times competing customary claimants, or the status of newer migrants within an existing informal settlement area with respect to earlier arrangements (two issues that arise across different case study communities as elaborated in Chapter 7).

Despite the partial nature of data relating to informal settlement areas across Honiara and Port Vila, sufficient information was available to provide general assessments of the forms of tenure present on the basis of Figure 4.1. These efforts combined incomplete assessments of informal settlements across each city with cadastral and other spatial data (including GPS-based census information), in order to provide a more comprehensive picture of informality in each city. This preliminary analysis formed the basis for selecting the six case study communities that were engaged in this research; an assessment process that is summarised below.

In the case of Port Vila, a scoping exercise conducted for UN-Habitat's Informal Settlements Upgrading Project by the now-defunct Vanuatu National Housing Corporation (NHC) identified thirteen informal settlements across the city (NHC, 2012). Using the characteristics reported from the NHC assessment an approximate a profile of Port Vila's informal settlements was developed, as shown in Table 4.2. This information was then integrated with 2014 cadastral boundaries, which were overlayed with 2009 census data and legislative boundaries to provide a comprehensive assessment on the basis of the typology shown in Figure 4.1. This preliminary analysis found that these informal settlement areas accounted for approximately 21.0 percent of the population of metropolitan Port Vila at the 2009 census. Over the intervening decade, however, many of these settlements have grown substantially – Etas, for example, is estimated to house 5-6,000 settlers – while several new peri-urban informal settlement areas have also emerged.

**TABLE 4.2:** INFORMAL SETTLEMENT CHARACTERISTICS – PORT VILA (ADAPTED FROM NHC 2012)

| Settlement | Pop. (2009) | Jurisdiction | Registration | Land Dispute | Zoning | IS Type | Tenure Description |
|---|---|---|---|---|---|---|---|
| Blacksands<br>Manples | 7,662 | Customary | Not Registered | No | N/A | 11 | Owned by Ifira, informal resident agreements and multiple sub-rental agreements |
| Tagabe Bridge | 330 | Customary | Not Registered | No | N/A | 11 | Owned by Ifira, annual rent agreements per household |
| Ohlen Freswin | 1,500 | Municipal | Mixed | Yes | Residential | 2 | Government land with disputed customary ownership and corporate sub-division |
| Ohlen Mataso | 560 | Municipal | Leased | No | Residential | 2 | Community-government lease arrangement, no services available |
| Simbolo | 360 | Municipal | Leased | No | Residential | 2 | Community-government lease |
| Seaside Futuna/ Tongoa/ Paama | 1,368 | Municipal | Leased | No | Residential | 4 | Island origin community-based renthouse & sub-lease arrangements with no formal government standards/municipal zoning |
| Etas Teouma *(ex-Whitewood)* | 495 | Customary | Leased | No | Residential | 9 | Community-government lease, two island community-based villages |
| Etas – Areman | 145 | Customary | Not Registered | No | N/A | 10 | Customary subdivision rent arrangement, no titles/approval |
| Etas | 275 | Customary | Not Registered | No | N/A | 11 | No formal subdivision, landowner payed monthly rent per-plot |
| Buninga/ Paama Village | 250 | Municipal | Non-occupant Lease | No | Commercial | 4 | Land historically gifted to community but held in separate corporate lease |
| Nambatri | 90 | Municipal | Non-occupant Lease | Yes | Residential | 1 | Households on private leasehold against owner wishes, outstanding legal fees/property taxes |
| Freswota North 4 | 110 | Municipal | Non-occupant Lease | No | Residential | 2 | Households on private land without title/permission |

Slightly more than two-thirds of the population living in these thirteen zones were found in Port Vila's peri-urban periphery, with the remaining 32.2 percent of informal settlers occupying land within the municipal boundary. The large populations within the adjacent peri-urban areas of Blacksands, Manples and Tagabe Bridge – each of which are predominantly IS Type 11 – accounted for the bulk of the informal population across the city. The subsequent rapid growth of peripheral settlements such as Etas through unregistered customary allotments is likely to have further consolidated the dominance of this form of peri-urban informal settlement type in Port Vila.

In Honiara extensive informal settlement zones (ISZs) were identified by the SIISLAP project in 2006. Although these zones accounted for the majority of informal dwellings at the time, their designation was limited to unleased 'spare' government land within the city boundary (IS Type 5). Many of these zones evolved from a 1960s-era policy to established so-called Temporary Housing Areas, within which 'Temporary Occupation Licenses' (TOLs) were granted to settlers allowing them to occupy public land on an annual basis (Storey, 2003). At the time the housing market – already inaccessible for non-Europeans due to the high costs of limited allotment areas – was further distorted by the government building and granting of housing for families; part of an effort to improve the gender imbalance in the city (Tedder, 1966). Government employees, who made up the bulk of the labour force, were also supplied with housing, with a basic dwelling furnished and built at a cost of around £1000, equivalent to US$27,900 in present day value (ibid). Annual rent varied as a percentage of each public servant's salary but was capped annually at £12 (equating to five percent of the average income, or US $335 at present day value).

Despite the continuation of the regulatory system of TOLs in Honiara subsequent to Independence, a review of the 3,000 registered dwellings in 2006 found that only ten were currently valid with all other licenses having lapsed due to a failure to meet annual renewal requirements (Moore, 2015b). Even with a recent shift to a three-year, SB $1,000 (US $122) licence structure, it was noted that very few settlers presently paid this relatively small fee, reflective of a low level of perceived eviction risk and limited incentive to do so in terms of improved access to services (McEvoy, Mitchell and Trundle, 2020). This is both a product of the wider structural sensitivities stemming from the Ethnic Tension, as well as the precedent set through 60 years of inaction on both formal and informal urban expansion within the town boundary. Thus, although the TOL system could constitute a discrete classification within the informal tenure typology used here (effectively a sub-class of IS Type 5), compliance with the scheme is negligible and thus not relevant to the two case studies at hand.

Additionally, substantial progress has been made by the Lands Ministry and UN-Habitat in formalising many of these zones since the resolution of the Ethnic Tensions. Of the more than 3,500 household dwellings within these ISZs, 68.5 percent are undergoing the surveying stage of the formalisation process, while 11.4 percent have been granted legal title (MLHS, 2016). A further 19.7 percent being excluded from formalisation either due to designation of public land uses (such as road and utility reserves) or their location within high-risk hazard areas (ibid). The distribution and formalisation status of these ISZs is shown below in Figure 4.2.

Beyond these classified areas institutional representatives noted extensive informal occupation of designated road reserves, as well as public land reserved for other purposes such as the national botanical gardens, the cemetery, and Solomon Water bore hole water extraction points (IS Type 7). The re-emergence of growth of settlements into peri-urban areas of Guadalcanal – a key factor in the inter-island violence in the late 1990s – is also visible in Figure 4.2. This is particularly the case at the southern boundary of Panatina Ward, where growth points subsequent to the 2009 census (derived from mapping of dwelling structures by MLHS in 2015) are particularly prevalent. Peri-urban expansion is further complicated by large, formerly alienated plantation titles, many of which – having been repatriated – are now held on behalf of the government by the Commissioner for Lands (MLHS, 2015, p. 21).

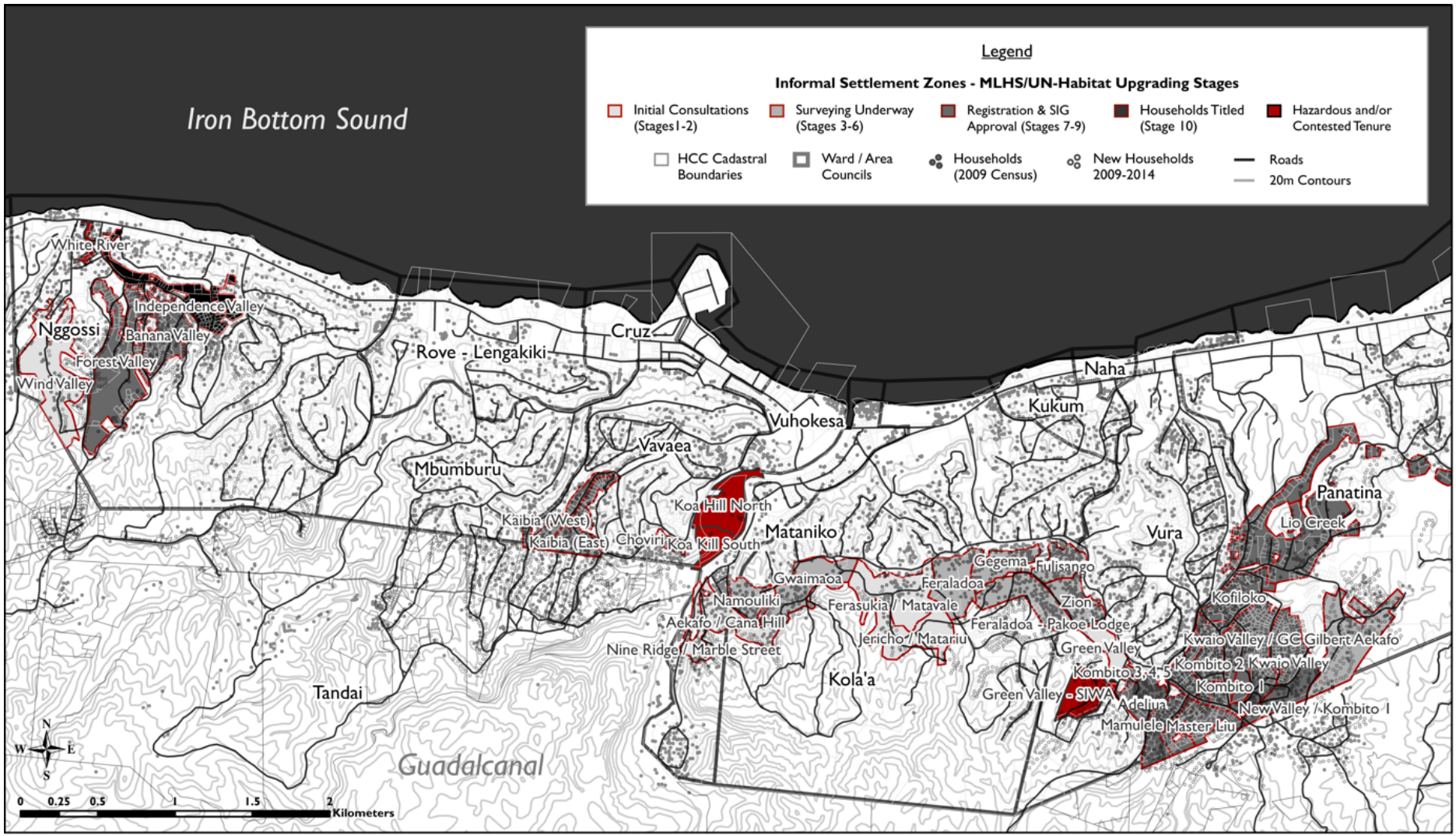


**FIGURE 4.2:** INFORMAL SETTLEMENT ZONE UPGRADING STATUS, 2016 – HONIARA, SOLOMON ISLANDS

(Source: Author, derived from internal MLHS data and SIG spatial information)

### *4.6 Community Sub-Systems: Selection Rationale & Overview*

The central unit of analysis in this project, as noted earlier in this chapter, is the informal migrant household, whose inhabitants are argued to exhibit a unique 'otherness' within the urban form. This perspective is capable of eliciting particular attributes of endogenous resilience as reflected in the respective informal settlements of the two case study cities (Lawson, 2000). As a result, households were purposively recruited from a sample of the settlement types set out in Section 4.5.

A target of ten household interviews was set for each community in order to ensure a diverse representation of perspectives within and across the six different informal settings. Four informal communities in each city were initially selected as potential targets for recruitment, before being narrowed to three based on in-country discussions with community leaders and engagement with relevant institutional experts. These eight initial communities were selected primarily of the basis of exhibiting of deviant sample attributes at a city scale in relation to overall climate vulnerability.

A secondary consideration was ensuring a varied distribution of settlement types in relation to the typology provided out in Section 4.5. Climate vulnerability was determined through analysis of a set of available criterion relating to climate hazard exposure, adaptive capacity, and sensitivity, with the selection model provided in Figure 4.3 below. These three categories are derived from a climate vulnerability framework (as explained in Adger, 2006) consistent with the approach taken by the Intergovernmental Panel on Climate Change (IPCC).

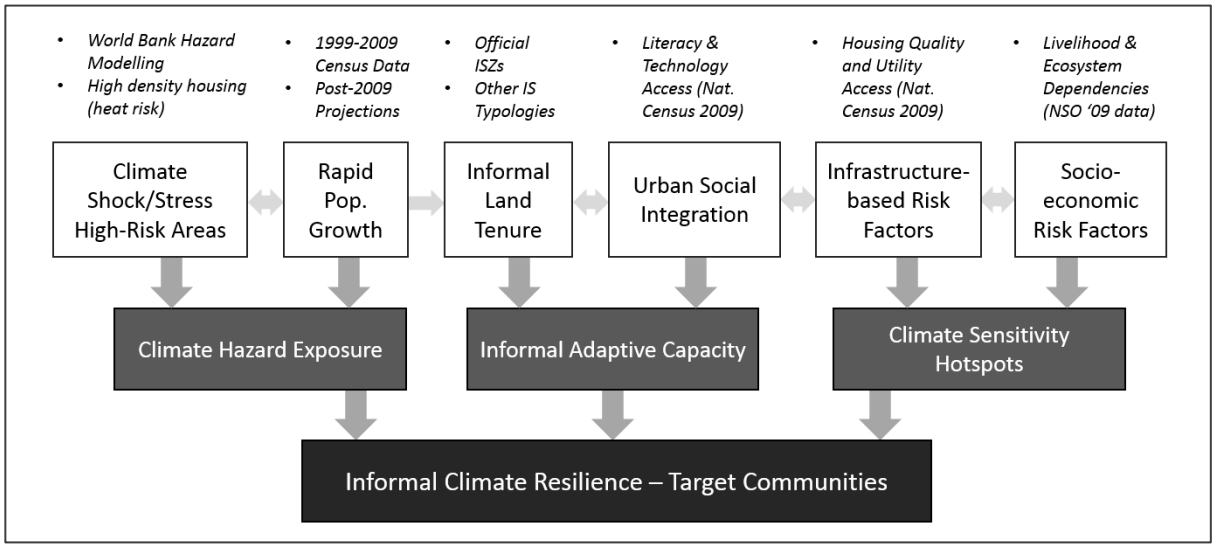


**FIGURE 4.3:** INFORMAL CLIMATE RESILIENCE COMMUNITY SELECTION MODEL

(Source: Author)

As depicted in Figure 4.3, spatially differentiated exposure to current-day climate hazards was been considered through city-wide risk mapping exercises. These secondary sources, derived from data supplied by each country's National Disaster Management Office (NDMO), accounted for the key climate hazard exposure variables that were known to be directly impacting each city (such as elevation in relation to coastal and riverine inundation levels).

Health and productivity issues associated with extreme heat – although not considered in these mapping exercises – were also empirically evident in the high-density informal settlement areas in both Port Vila and Honiara (Rodil and Mias-Cea, 2014; Trundle and McEvoy, 2015). As such, population density was also considered as a proxy for heat exposure. Rapid population growth zones were also integrated into the selection model in order to account for likely increases in the level of exposed

inhabitants over time, while simultaneously increasingly the likelihood of recruitment of recent migrants in the household interview process.

Climate sensitivity was primarily considered through variations in built infrastructure, socio-demographics, and livelihood dependencies, which contribute to variations in the damage resulting from hazard exposure (Brenkert and Malone, 2005). Although a wide range of variables could be considered, the lack of access to utilities, use of non-permanent or improvised housing materials, and dependencies on marine and ecosystem-based resources for food were identified as being critically interlinked to a range of climate hazards, including drought, ocean acidification, cyclonic winds and flooding (Reckien *et al.*, 2017). Data for these variables has been derived from Enumeration Area level socio-economic datasets extracted from each country's 2009 census, as provided by their respective National Statistics Offices.

As Chelleri *et al.* note adaptive capacity is "a useful entry point for assessing resilience at the individual and community levels, taking insights from both vulnerability and resilience approaches" (Chelleri *et al.*, 2015, p. 192). Informal land tenure, being a central expression of urban informality, was thus itself a primary criterion for community selection. When framed by climate vulnerability, however, informal modes of adaptive capacity similarly parallel these areas of informal tenure, where state-based structures such as disaster response infrastructure and networks are less likely to be present (Mitchell *et al.*, 2016). At the same time, other measures of access to 'formal' modes of adaptive capacity have also been considered, such as ownership of mobile phones for communications and literacy rates. These levels have been similarly extracted from the 2009 national censuses of each country.

Despite its application here to determine the most likely sites for observing informal climate resilience, vulnerability should not be considered an inverse representation of resilience (Gallopin, 2006; Cannon and Müller-Mahn, 2010), despite some studies expressing a dialectic relationship between the terms in areas of the climate resilience literature reviewed above (see McGreavy, 2016 for some examples). Similarly, the three elements of vulnerability are not being proposed as a structural basis for understanding the components of Informal Climate Resilience. However, the two terms are argued in their respective bodies of theoretical literature to be strongly inter-connected, and related in both practice and conceptual application (Gallopin, 2006; Usamah *et al.*, 2014; Kim and Lim, 2016).

The six selected communities are shown in Figure 4.4 below, with the two additional communities – Simbolo in Port Vila and Aekafo-Feraladoa in Honiara – excluded following in-country consultations with key informants as discussed earlier.[4] In Honiara, the three communities selected were Ontong Java Settlement (inner-city), Wind Valley (suburban), and Jabros (peri-urban/non-municipal land). In Port Vila, the three communities were Seaside Paama/Futuna (inner-city), Blacksands (suburban/non-municipal land), and Etas (peri-urban/non-municipal land). A complete characterisation of these informal settlements – particularly in relation to the informal settlement typology explained earlier in this chapter – is provided in Chapter 6.

[4] Simbolo was noted by institutional respondents to lack a simplified leadership structure which complicated approaches by the author, while Aekafo-Feraladoa comprised eight large sub-communities that would have required partial engagement and complicated follow-up workshop conduct.

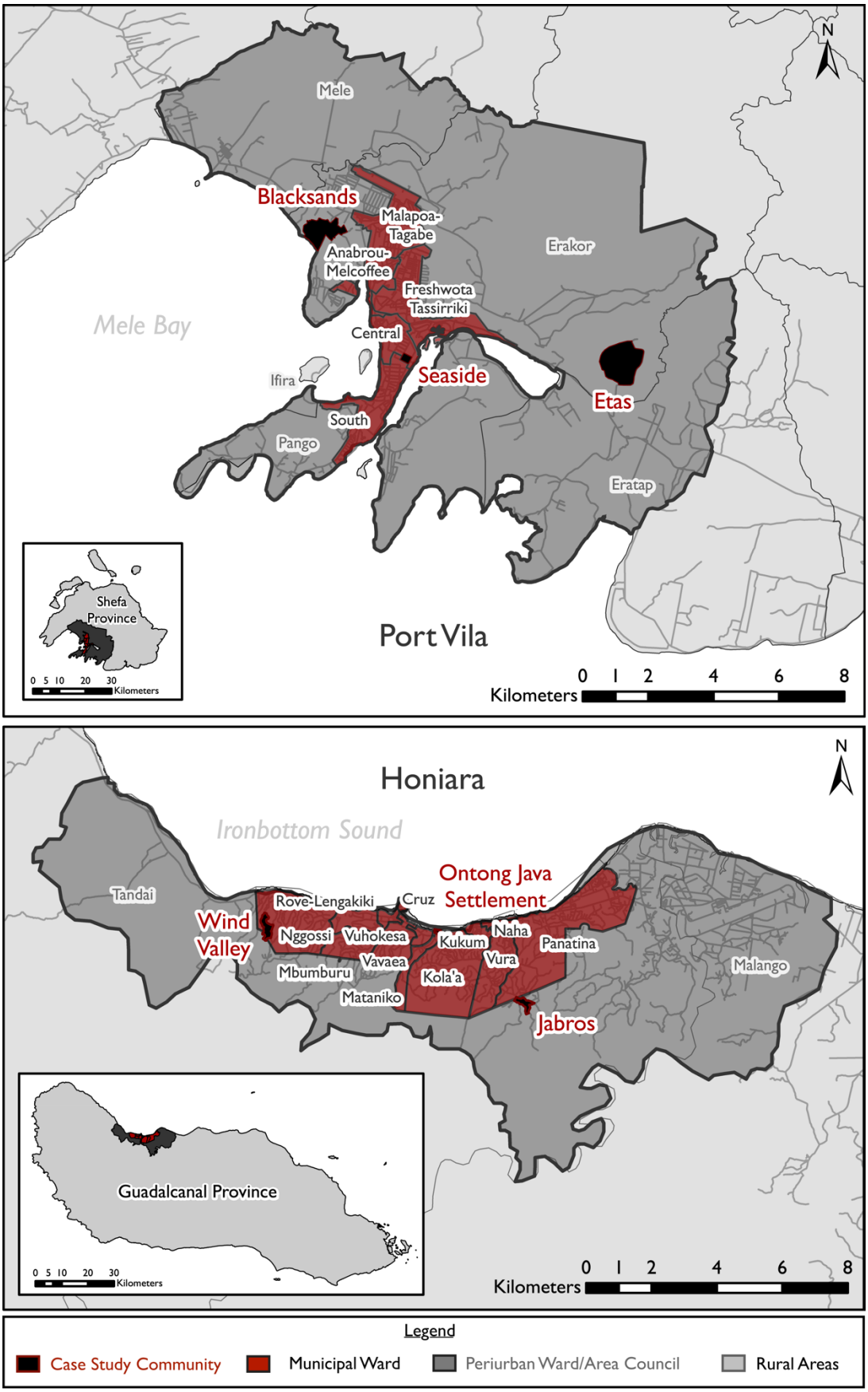


**FIGURE 4.4:** CASE STUDY INFORMAL COMMUNITIES IN HONIARA & PORT VILA

(Source: Author, developed using Spatial Data provided by SIG & GoV)

Although these communities have been delineated through a set of clear boundaries in the figure above it was acknowledged that informal networks and systems extended throughout the city and in some instances were not able to be spatially defined. Similarly, as surmised by Gaillard, many aspects of endogenous resilience are neither spatially, nor physically identifiable:

> Capacities are often rooted in resources which are endogenous to the community and which rely on traditional knowledge, indigenous skills and technologies and solidarity networks. In contrast, vulnerabilities often depend on structure constraints which are exogenous to the community, such as unequal distribution of wealth and resources within the society, market forces, political systems and governance. (Gaillard, 2010, p. 220)

In particular, community resources were noted to extend across a more complex array of tenure and ownership systems, with bush gardens and ocean resources in particular being accessed through customary and other informal arrangements.

### *4.7 Fieldwork Procedures & Timelines*

Fieldwork was conducted in two stages, with the initial phase taking place from April to June 2017, and the second occurring between November 2017 and February 2018. Prior to conducting primary data collection, I scoped the initial eight communities with key institutional informants and, where appropriate, conducted transect walks through each settlement area. I then held introductory *tok stori / storian* conversations with leaders of each of the six selected case study communities to familiarise them with the research purpose and process. Hard copies of the research Plain Language Statement and Community Participant Consent Form were also provided for general circulation (see Appendix B). This preliminary step was particularly relevant given the sensitivity of engaging in informal settlement areas generally (as emphasised in George and Stratford, 2006), while additional consideration was given to those communities that had been badly impacted by the two disaster events under examination as part of the interview structure.

Institutional representatives were identified through a review of national, city-wide and localised policy and planning literature relating to climate resilient development in Vanuatu and the Solomon Islands. Representatives known to the author through previous research engagement were approached prior to the fieldwork via email, along with others whose contact details were available online (the latter being addressed through a pro forma introductory email, attached in Appendix D). Copies of the research's Plain Language Statement and Institutional Participant Consent Form were also provided electronically in these instances (see Appendix C). Additional representatives related to specific policies or urban initiatives were identified and approached directly in-country through a snowballing approach, based on initial interviews and informal discussions. Some organisations were also identified through community consultations (for example, where a smaller civil society initiative did not have a visible presence online or through other institutional programmes, but had engaged with a target community), with representatives identified through site visits to offices and phone calls.

In each country formal research approval processes were followed, and research permits obtained. In the case of Vanuatu approval was granted through the Vanuatu Cultural Council. In Solomon Islands a permit was acquired through the Ministry of Education & Human Resources Development. In addition, the research was registered through the National Advisory Board on Climate Change and Disaster Risk Reduction (NAB), which was designated as the focal point for the doctoral project at a government level in Vanuatu. The Ministry of Lands, Housing and Survey provided similar role in Honiara, with a briefing provided to the Ministry's Permanent Secretary, Undersecretary and the Acting Commissioner for Lands. The town clerk of each municipal council was also briefed on the project, as well as directors of the aforementioned government agencies. Formal ethics approval was also granted by the University of

Melbourne prior to the beginning of the fieldwork stage of the research. Copies of each research permit have been provided in Appendix E.

Interviews with institutional representatives focused on two key areas: (i) the application and understanding of the concept of 'climate resilience', and (ii) the application of climate resilient development projects in each city by these and other institutions. The former focus was designed to supplement literary analysis relating to the characteristics and principles of climate resilience discourse as applied in practice, providing in-depth evidence to examine RQ1(b). The latter, however, not only provided a basis for mapping out these exogenous climate resilience interventions with reference to the case study communities in question, but also allowed cross-referencing of household level experiences of climate resilient development itself, addressing RQ3(a). Wider consideration of exogenous climate resilient initiatives outside of these communities also informed the comparison between the two case study cities; RQ3(b).

Households were engaged through local leaders and community focal points, with institutional contacts from national, provincial and municipal governments providing initial introductions with the appropriate individuals. In the case of Port Vila, the municipal community (Seaside) was approached through the Central Ward Secretary within the Port Vila Municipal Government, while the peri-urban communities (Blacksands and Etas) were approach through the community focal point at the Shefa Provincial Government, who facilitated meetings with appropriate local committee members. In Honiara, existing relationships with the inner-urban Ontong Java Settlement allowed the author to directly approach the chairlady of the community, while introductions to Wind Valley and Jabros community were made through the national Ministry of Lands, Housing and Survey (MLHS) and local representatives of UN-Habitat working directly in these areas.

Community leaders were then asked to identify ten household heads with a mix of recent and earlier migrants, to allow an in-depth exploration of variants on Lawson's migrant dialectic (2000). It was also requested than a balanced number of men and women were present for the interviews. In most cases interviews were conducted in the subject's household, however in some instances a central community space was advised by the local leader as being more appropriate. In the case of the former, walking routes and key features in each community were tracked using GPS software and geocoding of photographs taken at households and throughout each settlement. For the latter, household locations were referenced through use of satellite imagery and maps provided by the author. Settlement boundaries were also walked with community leaders in the case of Wind Valley and Jabros; sites which did not have clearly delineated extents in any obtainable institutional records or secondary data sources.

A local research assistant was employed throughout the community engagement process in each country. This enhanced the researcher's familiarity with the specific cultural practices and social norms of each settlement and assisted in the translation of the two 'common' languages used in each country; namely Bislama in Vanuatu and Solomon Islands Pidgin. For the purpose of household interviews a female research assistant was deliberately selected to avoid cultural issues related to approaching community members of the opposite gender in their households without an equivalent research team member being present.

Household interviews were designed to be semi-structured and conducted in three parts. The first built on the procedures set out by Helmke and Levitsky, requiring identification of the mutual understanding of informal 'rules', the community/domain to which they apply, and the methods through which they are enforced and/or sanctioned (Helmke and Levitsky, 2004, p. 733). This interview component addressed RQ2(a), and included identification of the basic rationale for urban in-migration (thus mapping the Pacific migrant dialectic), as well as an exploratory consideration of both community-level

networks and capacities, and household perceptions of the particular characterisation of their informal community relative to other areas of the city. An additional line of questioning was intended to related to household understandings of the term 'climate resilience', however this was removed due to preliminary discussions with institutional representatives showing that the term had limited use and understanding at a community level (as discussed further in Chapter 7).

The second set of household interview questions explored the participants' experiences of recent shocks and stressors; in particular the April 2014 floods and Tropical Cyclone Pam in Honiara and Port Vila respectively. The influence of these shocks on overall perceptions of climate impacts has been considered and where possible controlled for, due to variable-specific biases on other and more general resilience attributes, in order to answer RQ2(b). This procedure was informed by Wolf *et al.'s* consideration of availability heuristics (2010), as well as Fernandez-Llamazares *et al.'s* conceptualisation of 'shifting baseline syndrome' (2015), as expanded on in Chapter 7 in relation to the analysis of observed climate-related shocks and stressors. The two recent shock events thus provided focal points for critiquing the application of 'bounce-back' approaches to resilience, in comparison with more transformative applications of the term.

The third household interview theme related to the interaction between exogenous resilience efforts and the endogenous resilience properties elicited through the questions set out above, in particular focusing on the engagement of these household by institutional stakeholders and programmes both in a general sense and in relation to these and other climate-related shock and stress events. This allowed identification of any constructive exogenous engagement in informal settlements that relate to generalized resilience attributes, as well as more problematic aspects of these experiences, addressing RQ3(a) (Tyler and Moench, 2012).

Following preliminary analysis of these interviews a second round of primary data collection was conducted with the aim of more directly exploring the engagement of the case study communities by the institutional programmes and enactments of climate resilient discourse identified by institutional representatives (and informed by a further phase of policy analysis). This reflects Chelleri *et al.'s* observation that:

> In certain contexts, it has already been argued that a focus on broader general resilience, rather than resilience to individual specific shocks, is necessary. As we argue … taking such a general resilience view implies a proper understanding and evaluation of resilience trade-offs at both temporal and spatial scales. (2015, p. 194)

This second phase of fieldwork was conducted between November 2017 and February 2018, primarily involving community workshops in each of the informal settlements. As set out by Torres and Carte, "workshops are best described as group meetings during which dynamic activities engage participants in dialogue, consciousness building and the co-production of knowledge around a given issue" (2014, p. 143). This format was therefore seen as being more effective at disseminating and verifying research findings than household-specific interviews and allowed for broader community discussions regarding institutional engagement in the area, and the nature of its involvement of informal climate resilience attributes.

Additional informal consultations were also conducted with institutional representatives, with correspondence and feedback relating to phase one being generally conveyed by email due to time constraints and an intention to minimise demands on the time of research participants. An additional seventh workshop was conducted with the landowner group that was recognised as holding customary tenure over the peri-urban Jabros Community settlement in Honiara, with the intention of cross-referencing the varied claims of a current customary occupancy agreement referred to by the occupants of this informal area. Further information was also supplied relating to both climate change and two

major climate resilient development initiatives that were impacting their customary area (the ADB-led Greater Honiara Area Development Project, and a SPREP-led Ecosystem-based Adaptation project, discussed in further detail in Chapter 5).

Workshops were structured around dissemination and feedback regarding preliminary findings, a wider discussion of the potential impacts of climate change on the local area, and a group exercise where endogenous (community) and exogenous (institutional) interventions were brainstormed in relation to a critical climate shock or stressor chosen by each group. As noted by Walker and Salt (Walker and Salt, 2012), developing an understanding of the thresholds for a change in system state is a critical aspect of socioecological resilience and resilience thinking more broadly.

The final component of the community workshop focused on these thresholds in relation to both climate shocks and stressors and change in the formal-informal interaction, with the aim of identifying the limits of endogenous climate resilience in the absence of the state. These six workshops, which lasted roughly 3.5 hours, allowing for a comprehensive community-based response to Research Question 3(a), as well as verification and feedback on interview-based results in relation to RQ1 and RQ2.

### *4.8 Primary Data: Outcomes & Reflexive Research Considerations*

A total of 57 semi-structured household interviews were conducted across the six communities, engaging 77 participants. Although gender representation was balanced across the body of interviews (38F/39M), the number of men and women engaged in each community varied significantly, despite efforts to the contrary. In some instances, this was related to the role of the local community leader or chief in pre-selecting each household prior to arrival in the community, which limited the researcher's ability to adjust the sample once a bias became evident. In others, interview conduct during working hours lead to a higher representation of women within the community engaged, due to a gender bias in both workforce and household roles. [5]

Thirteen institutional stakeholders (4F,9M) were interviewed in Port Vila, with a further thirteen (3F,10M) interviewed in Honiara. The distribution of these stakeholders relative to the vertical axis of the project's conceptual framework is shown in Figure 4.5 below. Despite a range of organisations at different scales of urban management being engaged across both cities, it was noted during fieldwork that there was a significant skew towards male participants, potentially reflective of the gender bias exhibited within government agencies and elected representatives across both countries.

The six follow-up workshops held in the case study settlements involved a total of 140 community participants but ranged from 15 attendees in Seaside to 46 in Etas (in Honiara, as with Blacksands, close to 20 participants took part in each workshop). Workshop outputs included audio-recordings of group feedback following the oral presentation of research findings by the author, worksheets from breakout activities, and audio-visual recordings of group presentations. Twenty hardcopies of fieldwork reports from phase 1 activities were also left with each community, which included one-page profiles of the six communities as well as findings from interviews and analysis of institutional involvement in climate resilient development.

[5] Most interviews were with one-to-two participants, however in some instances wider family or community groupings participated, reflecting the more complex cultural understanding of a 'household' discussed in detail later in Chapter 6.

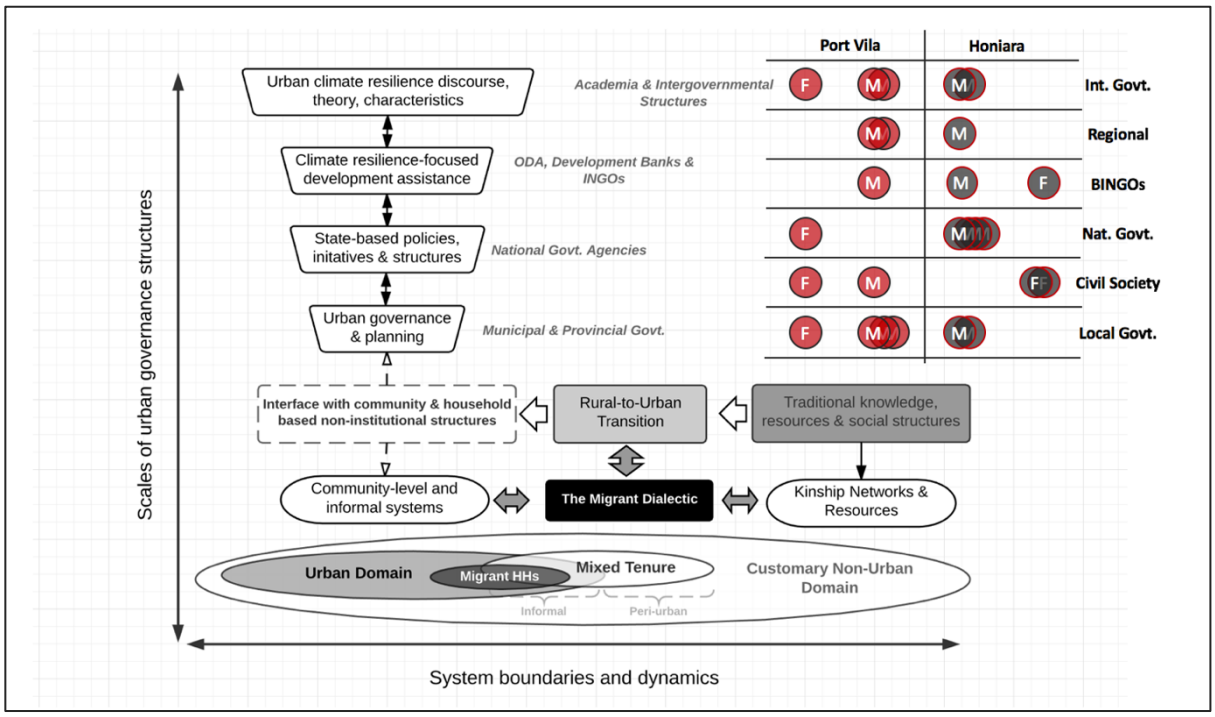


**FIGURE 4.5:** INSTITUTIONAL RESPONDENTS ALIGNED WITH THE RESEARCH'S CONCEPTUAL FRAMEWORK

(Source: Author)

Beyond the representatives of organisations and government departments actively engaged in climate resilient development activities, additional supplementary interviews were held throughout the two-month period to address particular gaps in the authors knowledge of each urban system and generate additional feedback relating to the secondary data analysis conducted in each city (for instance, with representatives of each national statistics office). These totalled a further 41 participants, which exhibited a much more balanced gender distribution: eleven women and ten men in Port Vila, and eleven women and nine men in Honiara (see Figure 2). Notes from these additional meetings have been integrated into the findings where relevant but have not been directly coded.

As Marcus observes, Multi-Sited Ethnography requires "strategies of quite literally following connections, associations, and putative relationships", a methodological approach that is, in his view, "at the very heart of designing multi-sited ethnographic research" (1995, p. 97). Reflective of this, a number of additional consultations and participatory exercises further informed the research process. In particular, it was noted during fieldwork that customary landowner groups were a significant factor in determining peri-urban resource access, tenure, and even institutional governance in each city. Consultations were therefore had with the Paramount Chief of Erakor (the customary landowner group of the land on which Etas, Port Vila, is situated), and a workshop was held with Barana Village, the customary landowners of the site of Jabros Community in Honiara. Attempts to hold similar meetings with the *man*-Ifira customary owners of the Blacksands settlement area were, however, unsuccessful.

Despite the initial intent to focus community interviews through discussion of 'resilience' directly (as reflected in the interview schedule provided in Appendix B), it became quickly apparent during institutional interviews and preliminary informant discussions that the word 'resilience' not only lacked general use outside of those actors engaged in climate resilient development practice, but also had no equivalent term in either Bislama or Solomon Islands Pidgin. As such 'resilience' was used only in institutional interviews, with more general references to made to exogenous efforts each community through use of the more commonly used term 'climate change'.

An additional recurrent issue at the community was an interest in direct outcomes – in terms of infrastructure or financial support – as a result of the research process, despite the emphasis on the project being a student-led initiative. This was particularly the case in communities that had previously been heavily surveyed or workshopped with little direct outcome, as reflected in the epigraph at the start of this chapter. As a result, next steps were strongly emphasised at the end of each interview, with the author working to provide 'in-kind' technical assistance to each community where possible. For instance, a registry of households in Wind Valley was digitized to assist their formalisation process with the government, while a community constitution in Ontong Java Settlement was digitised, printed and distributed to community leaders. Hard copies of land titles were also retrieved and supplied to settlements in Honiara where requested. Each of the six communities were also provided with additional climate change information and training as part of the workshop phase of the research, along with community maps and the fieldwork summary reports discussed above.

As a final reflexive consideration the author's positionality required careful consideration in both the conduct of primary research and the assessment of the climate resilient development initiatives set out in Chapter 5. This was due to previous employment and research involvement with a number of the communities and institutions related to the two case study cities; particularly the two UN-Habitat city-scale projects (Trundle and McEvoy, 2015, 2016), in which the author had played a central research role. As Waitt argues, despite Foucauldian discourse analysis demanding a detachment from preconceptions, "Foucault's request to attempt to suspend yourself when approaching your analysis from everything you have experienced or learnt is an impossible task" (Waitt, 2016, p. 180). Nonetheless, it was seen as important that these previous professional engagements were disclosed at the beginning of each research engagement, and conscious effort was made to separate pre-existing categorisations and objectively consider these exogenous engagements throughout the research process.

### *4.9 Interview and Workshop Processing, Coding & Analysis*

Institutional and household interviews were audio-recorded, with responses provided in a mixture of English, Bislama and Solomon Pidgin. In the case that either of the latter two languages were unable to be interpreted a translation was provided by the research assistant during the interview. These recordings were fully transcribed by the author to allow verbatim records and a comprehensive coding approach, with the transcription process itself also allowing a deeper immersion in the data as a preliminary phase of analysis (Dunn, 2005, p. 97).

Respondents were de-identified prior to transcription with attributes such as gender, community, and institutional classification used to replace names and organisational affiliations (as demonstrated in Figure 4.5). Each interviewee was designated a two letter, three-digit identifier related to either the case study country (VU or SI in the case of institutional respondents) or settlement (SS, ET, BS, WV, OJ, JB in the case of community respondents). The distribution of interview lengths is shown in Figure 4.6 below, with institutional interviews intended to range from 30-40 minutes and community interviews aimed to last 20-30 minutes.

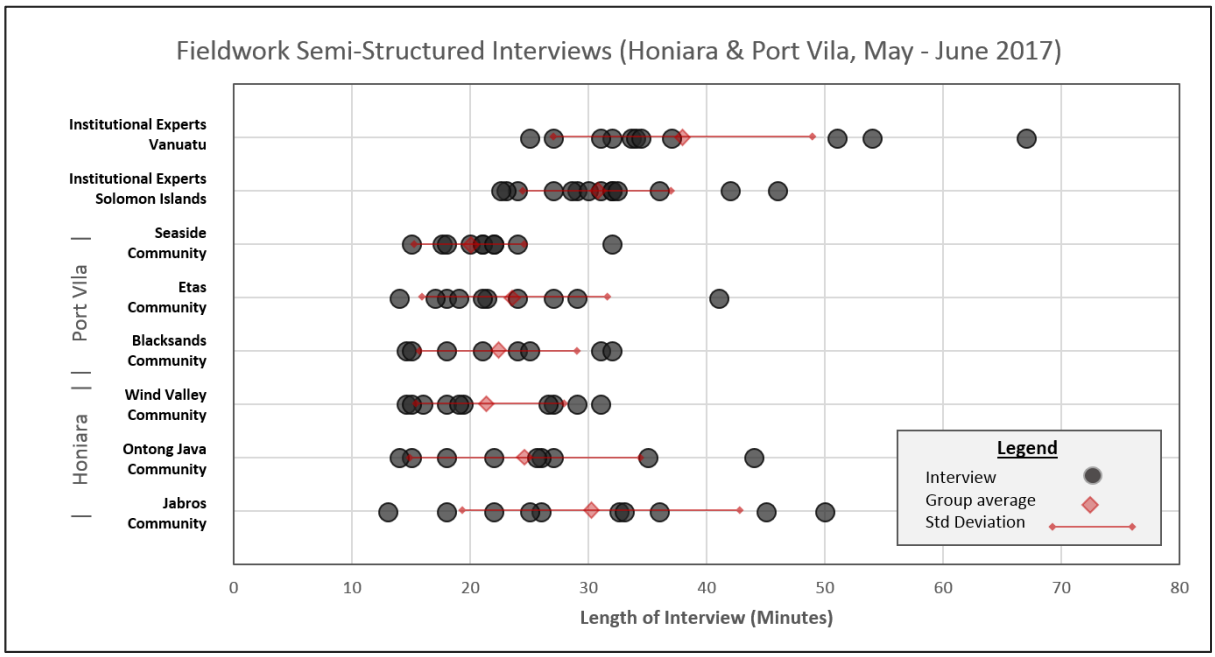


**FIGURE 4.6:** INTERVIEW LENGTH BY RESPONDENT TYPE AND GROUPING

(Source: Author)

In practice institutional interviews lasted for around 30-35 minutes, while most community interviews were between 20-25 minutes long. Outliers in community interviews largely related to either (i) very recent migrants having little to contribute to questions relating to experiences of climate hazards, or (ii) community leaders or elders providing more extensive histories of the settlements, the former being notably shorter and the latter lasting for more than 40 minutes. Some participants also requested more detailed explanations of the nature of climate change itself, with these interviews having a more substantial proportion of time taken up by the author. In one instance, a community leader also represented an NGO working in the community so institutional questions were included at the end of the household interview component, with responses separated in subsequent analysis.

Coding was conducted through the NVIVO software platform. An initial screening phase identified key terms and themes throughout the two sets of interviews, thus identifying manifest messages evident in response to the research questions described in Section 4.4. *In vivo* codes were also collated with key terms occurring more than 20 times across household interviews being compiled to identify key descriptors any additional latent messages related to endogenous capabilities within the household-level interview data (following the approach proposed in Cope, 2005). The codebooks developed for both community-level and institutional interview data are provided in Appendix F, with a summary of the key areas of coding in these two datasets is elaborated on below.

The primary aim of interviews with institutional representatives was to elicit an understanding of how the discourse of climate resilience was being deployed in exogenous development efforts in the two cities (RQ1). As such, coding efforts centred upon the identification of latent and manifest descriptions of Meerow and Stults' Urban Climate Resilience characteristics (as shown in Table 2.1), as well as definitional themes related to understandings of resilience itself (the fourth component of 1(b) as outlined in Table 4.1). The third aspect of sub-question 1(b) was also addressed through the coding of resilience-related exogenous initiatives at various scales within each city. Cases referring to particular shocks and stresses were also collated, as well as evidence of the key stages of Gunderson and Holling's adaptive cycle. Further thematic consideration was given to discussion of informality and the

characteristics of Pacific urbanism, with the former used to contextualise community-level perspectives, and the latter to cross-reference findings from the literature review.

A similar approach was taken to the coding of household interviews, particularly with reference to albeit limited evidence of exogenous engagement in climate resilient development within each of the six case study communities. The central focus of this data was, however, on identifying and categorising evidence for enactments of endogenous climate resilience (and thus, answering RQ2). These enactments were mapped against any interaction with institutional actors (following Helmke and Levitsky's typology), as well as other key non-state systems, particularly those that existed beyond the urban domain (such as traditional knowledge originating from rural areas and extended family networks beyond each city). Themes relating to shocks and stressors were also extracted, along with other emergent factors relating to the migrant dialectic, including definitional understandings of 'home' and 'tenure'.

From the integration of these two exogenously and endogenously derived datasets a framework for integrating community-level systems – namely social capital, local networks and household structures – with city-scale urban climate resilience frameworks was subsequently developed in order to provide a multi-scalar comparison of household capabilities and enactments of climate resilience with broader conceptualisations of resilience thinking that largely stem from a single-scale, systems-based methodological origin (see, for instance, Davoudi, Brooks and Mehmood, 2013; or for a more mathematical approach Gao, Barzel and Barabási, 2016).

Through this, characteristics of urban climate resilience (such as connectivity, reachability, density and centrality) have been compared to provide a basis for examining the differences and similarities between informal network characteristics and espoused in urban climate resilience literature and the characteristics of each city as an overarching socioecological system. This has allowed consideration of RQ3, in order to address the cross-scale structural gap in climate resilient development practice and urban climate resilience theory identified in the project's problem statement, building on consideration of the similarities and differences across the two case studies. This discussion, as well as the wider implications of these findings for theoretical understandings of socioecological resilience, is elaborated on in Chapter 8.

## *4.10 Conclusion*

As Janssen *et al.* observe, "there is no such thing as the "right" way to represent the social-ecological network of a given system, just useful and not so useful ones" (2006, p. 14). To that end, this chapter set out the novel approach taken in this thesis to examining the enactment of climate resilience within informal settlements, and the interaction of these sub-city systems with whole-of-city climate resilient development initiatives. Individual methods have been aligned with sub-questions, outputs, and referenced relative to the overall thesis structure. A deeper methodological rationale has also been provided for the selection of these particular methods, based upon the disciplinary origins of urban climate resilience and climate resilient development, as well as the spatial, temporal and structural characteristics of the subject systems in question (as set out in the conceptual framework shown in Figure 3.8).

An overview of the informal settlement types that were identified across the two cities was then provided; preliminary analysis that critically informed both the selection of community sites and household sampling within them. This critical criterion that had not previously been developed to differentiate tenure in the cities of Pacific SIDS, was then integrated into a wider model of community selection. This model was similarly developed for this research, with the aim of explicitly identifying key

sources of endogenous climate resilience. The informal settlement typology set out here also forms the basis for further comparative analysis in Chapter 8, with tenure security forming the critical fifth – but internationally undefined – determinant of informality.

The procedures and timelines for primary data collection were then explained, setting out the stages of recruitment and engagement for household and institutional participants. Research approval processes – including those within each case study country – were summarised, along with the more informal procedures employed at a community level. The structures of the two interview approaches, as well as the outputs and purpose of the subsequent workshops, was elaborated on, before a reflexive statement positions the author relative to both the research content and its inherently subjective analysis. Finally, a summary of the process of analysing primary data is provided, with reference to their respective alignment with the research questions set out in Chapter 1.

# 5 EXOGENOUS RESILIENCE: CLIMATE CHANGE, URBANISATION & DEVELOPMENT IN THE PACIFIC

> So, *em* big money yeah? We know! Coming from those projects. We know. *Cam* from Solomon Island Government, from there, they *mi no savee* what now yeah? They self … *takem*, they use it for own benefit. So, no support, for fee.
>
> So *hem* what *mi garem mi tellem mifela stori*. Maybe *bai* you *makem* change any time that when you coming back. This is how, for crying people *blo* Solomon islands… how they live.
>
> Why now Solomon island government, no man *lookim mifela*? This time, corruption *lo* government Solomon, too much! Too much *affectem* in the communities. *Mi lo askem* you one thing. When you come this time, and you go back, what now outcome? What now benefit from it?
>
> **Household Representative – Jabros Community, Solomon Islands (SIHH5)**

## 5.1 *Introduction*

This chapter addresses the first of this project's three research questions, in doing so presenting the first set of results from the empirical data and analysis conducted for this study relating to institutional, exogenous resilience actors, institutions and projects. Through this I demonstrate the ways that climate resilience is being expressed and applied in development programs in Vanuatu and Solomon Islands.

I begin the chapter by arguing that foreign aid and climate finance within the Pacific is a critical vector for climate resilient discourse. This proposition is supported by results from secondary data analysis, conducted for this research, which examines climate resilient development finance flows to the two case study countries. Analysis of project and policy documents associated with these finance mechanisms is presented and cross-referenced with resilience theory and the characteristics identified in Meerow and Stults' classification of urban climate resilience, demonstrating the extent to which these global discursive structures are influencing local applications.

This secondary data is then integrated with primary research findings from semi-structured interviews with 26 institutional representatives, which were transcribed and coded as elaborated on in Chapter 4. These findings have been supplemented by 41 further consultations with international development actors engaged elsewhere in the sector. Coded data are also cross-referenced with the cyclical components of Gunderson and Holling's Panarchy heuristic, revealing key dynamic interactions with climate-related shock and stress events.

This process identified the cross-scale and dynamic interactions that were operating as part of the conceptual framework set out in Chapter 3 (Figure 3.8), testing whether the dissemination of resilience discourse was having a substantive impact on practice, particularly in informal environments. These observations have then been used to map out functional and dysfunctional institutions and processes; a critical component of Helmke and Levitsky's typology of informal structures and systems. These findings also provide a foundation for consideration of the subsequent two research questions.

Finally, findings relating to the nature of 'exogenous' resilience efforts in Solomon Islands and Vanuatu are then categorised through consideration of resilience 'of what?', 'to what?' and 'how?'. Despite the urban focus of this research the enactment and resourcing of climate resilient development initiatives was found to generally occur in rural settings, with limited activity focused on or engaging institutional structures at the community level in each city. This finding is demonstrated to have substantive implications for the ways that the term is operationalised and understood. Institutional observations are then used to demonstrate a secondary series of thematic findings, which are summarised here as a counterpoint to the community-level findings conveyed in Chapter 7.

## 5.2 *Official Development Assistance for Urban Climate Resilience in Pacific 'Micro States'*

In the absence of effective urban governance exogenous urban climate resilience in the Pacific is derived primarily from international development; the third pillar of the 'MIRAB' model of Pacific SIDS' economies as noted in Chapter 2 (Barnett and Waters, 2016). Foreign aid in its conventional form emerged as a substantive geopolitical mechanism in the 1940s following the establishment of the Marshall Plan for the reconstruction of Europe (Dornan and Pryke, 2017). Following the Bretton Woods Conference in 1944 the concept of aid was shaped by a broader economic development agenda, with the establishment of the World Bank and the International Monetary Fund providing new multilateral mechanisms for assistance through loan-based frameworks specifically targeted at low income countries (Wade, 2011). It was not until the late 20th century that the Bretton Woods agenda was broadened beyond these economic development rationales into social and environmental spheres, with the now-superseded Millennium Development Goals providing an overarching, global, multi-sectoral framework for both loan- and grant-based assistance (Sachs and McArthur, 2005).

As a result, Official Development Assistance (ODA) has been defined by the Organisation for Economic Co-operation and Development (OECD) as "government aid that promotes and specifically targets the economic development and welfare of developing countries" (OECD 2018, p. 1). Although ODA is used as a more general descriptor elsewhere its use by the OECD is generally limited to the 30 countries who hold membership of its Development Assistance Committee.[6] It therefore excludes finance from emerging economies who are increasingly providing aid both directly and through multilateral finance mechanisms. OECD-classified ODA is thus no longer able to provide a comprehensive inventory of development grants and loans. However, their database remains the most extensive such record at a global scale, with detail records having been compiled since 1969. As such, preliminary analysis for this research was conducted using OECD records, the findings from which are discussed briefly here to provide context to the subsequent analysis of secondary climate finance data.

Although national receipt of ODA varies significantly across SIDS it is highest within the Pacific group, whose member states receive more than four times that of their Caribbean and AIMS counterparts on a per capita basis (Hurley, 2015). Nine SIDS across the three regions are also classified as Least Developed Countries (LDCs), allowing them special access to additional international support measures. With substantially lower per capita incomes, these LDC SIDS – which in the Pacific consists of the countries of Vanuatu, Solomon Islands, Tuvalu and Kiribati – are heavily reliant on development assistance for government income. Vanuatu, for instance, which is due to 'graduate' from its classification as an LDC in 2020,[7] continues to derive a substantial share of its national budget from ODA; a figure that averaged 13.5 percent between 2013 and 2016 (Spring, 2017, p. 37). Solomon Islands, with roughly two-thirds of Vanuatu's per capita gross national income, received net ODA equivalent to 42 percent of national government expenses in 2017, which, though high, was a much improved position from 2011 when ODA was equivalent to 128 percent of the national budget (World Bank, 2018).

The dominant bilateral ODA donors to the Pacific in the 21st century continue to be those with particular regional geopolitical interests. Australia, for example, has contributed roughly half of the disbursements to the region over the last two decades (including 54.6 percent over the period 2010-2017), followed by New Zealand, the United States, and Japan (OECD 2019). In total the Pacific SIDS region received an

[6] 20 'non-DAC' countries also voluntarily report to the OECD; however, these reports are less comprehensive than those required to be submitted by DAC countries.

[7] Vanuatu was expected to graduate from its classification as an LDC in 2017 having become eligible for graduation in 2012 under the 'income only' criteria, however the loss and damage resulting from Tropical Cyclone Pam in 2015 saw this deadline pushed back to 2020.

annual average of US $1.5 billion over this period from OECD countries through bilateral mechanisms, equivalent to 80 percent of its annual ODA (ibid). Multilateral support accounts for the remaining US $371 million, including loans and grants provided through the World Bank (26 percent), EU Institutions (26 percent), the Asian Development Bank (19 percent), and the Global Environment Facility (8 percent) (ibid). A notable omission from these figures is China, which is not a member of the OECD and does not report its aid financing through either the OECD or any other international reporting mechanism. Despite this, research conducted by the Lowy Institute estimates that China "has become the third most important source of ODA to the region, with a total of US $1.78 billion provided as development assistance between 2006 and 2016" (Dornan and Pryke, 2017, p. 394).

In the case of Solomon Islands, current considerations of the rise of China – and its associated geopolitical interests – are particularly evident. At the time of this research a shift from recognizing the Republic of China (Taiwan) to supporting the People's Republic of China's *One China Policy* was being actively pursued by the Solomon Islands Government, primarily on the grounds of gaining additional access to financial support (Zhang, 2018). Geopolitical tensions between China and Australia have also seen the latter donor pivot towards infrastructure investment in the region. One example of this was Australia diverting a portion of its existing aid budget to fund the construction of a submarine communications cable to Solomon Islands (at an estimated cost of AU $137 million), after security and surveillance concerns were raised regarding an initial proposal from a Chinese company (ibid). Although not specific to climate resilience, this example illustrates the tendency to strategically 'pivot' bilateral aid, with climate finance similarly captive to these geopolitical concerns and posturing.

Outside of OECD datasets, as Atteridge and Canales observe, "there is no comprehensive synthesis of climate finance flows to the Pacific", as "mapping exercises of climate finance typically combine the Pacific with Asia, which renders invisible what is happening across the region of small Pacific Islands" (2017, p. 9). In order to address these limitations, the analysis of climate finance flows to Vanuatu and Solomon Islands conducted in this research has been derived by the author from the Lowy Institute's *Pacific Aid Map* database. This online resource supplements OECD data with further information from the International Aid Transparency Initiative, the International Finance Corporation, and specific bilateral databases from various national foreign ministries (Dayant and Pryke, 2018, p. 12). Reflective of the discussion in Chapter 2, ODA flows to regional bodies have also been incorporated into the analysis due to the substantial secondary movement of project-based finance from these regional bodies to target countries within the region; flows that are not able to be identified either through ODA or climate finance records (Atteridge and Canales, 2017). Although not specific to Solomon Islands or Vanuatu, these figures do provide some insight into the use of urban, climate, and resilience terminology at a regional level.

For this analysis I conducted a search of the *Pacific Aid Map* database for project titles that included variants on the terms 'urban', 'climate', and 'resilience' over the period 2011 to 2017, with subsequent years excluded due to a lack of complete annual records (as of late 2019). These records were limited to projects located in Solomon Islands and Vanuatu, as well as those classified as being conducted at the regional 'Oceania' level. The total funding for each project was then averaged across each project lifespan to provide a general estimate of the annual project value for multi-year initiatives.[8] Additional data was extracted to provide overall ODA figures for each of these three categories, with projects incorporating two or more of the three search terms also classified as such. 144 projects were identified that matched the criteria set out above. The results of this analysis are summarised in Figure 5.1, which

[8] Pacific Aid Map Project IDs 7062, 9133 and 9299 were modified, while Project ID 9261 was deleted due to duplicating Project ID 9133.

illustrates the share of total ODA committed to urban climate resilience at regional and national scales, as well as the respective breakdown of 'urban', 'climate' and 'resilience' referencing projects on an annual basis. These figures – produced as part of this research – should not be considered to encompass all urban climate development initiatives active in each country and the region over this period of time; urban-focused projects, for instance, may not include the term 'urban' explicitly, and additional work is carried out by governments and civil society that is not able to be accounted for here.

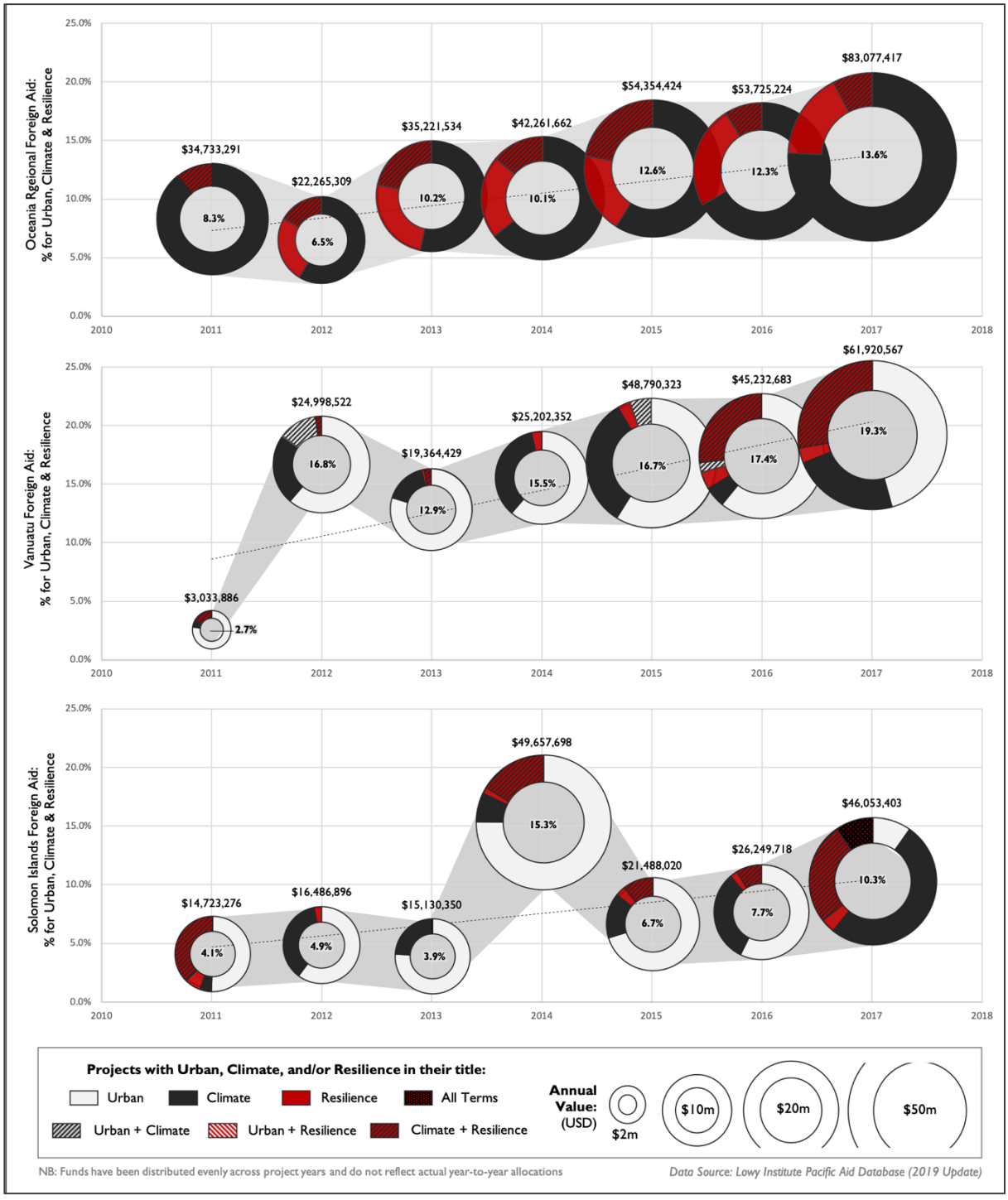


**FIGURE 5.1:** 'URBAN', 'CLIMATE' AND 'RESILIENCE' DEVELOPMENT FINANCE IN OCEANIA, SOLOMON ISLANDS AND VANUATU 2011-2017

(Source: Author, developed using the Lowy Institute Pacific Aid Map database)

These outputs are consistent with Atteridge and Canales' observation that regional bodies account for a significant share of climate funding and map closely to their analysis of average annual figures from 2010-2014. As shown in the figure above, ODA relating to these two terms reached more than thirteen percent of total regional financing in 2015 based on Lowy Institute figures, equivalent to more the US $51 million. At this regional scale 'resilience' projects have also shown the most substantial growth in the five years prior to 2016, having increased in value from less than US $2.5 million in 2011 to a peak of US $18 million in 2015.

The number of ODA-funded climate projects at a regional scale, however, continues to outweigh those focused on resilience at a ratio of four-to-one, with regional bodies being recipients of an average of 22 climate projects annually over the period. Notably, only one explicitly 'urban' project was evident at a regional scale between 2011 and 2017, with the European Union contributing US $475,058 to "Improving Humanitarian Actors' Capacity to Respond to Urban Crises" in 2015. All regional projects that included multiple terms related exclusively to 'climate' and 'resilience'.

ODA that referred to urban, climate or resilience in Vanuatu (n=33) and Solomon Islands (n=34) comprised roughly half of the total projects identified, with a further 77 projects attributed to the Oceania regional classification. Nationally targeted projects, however, accounted for a smaller share of the total ODA received at their respective scales; 6.7 percent in Vanuatu and 3.3 percent in Solomon Islands over the six-year period, compared with 10.2 percent at the regional level. Analysis of the wider *Pacific Aid Map* project database found that the difference in ODA share between these two countries was predominantly due to expenditure related to the Regional Assistance Mission to Solomon Islands (RAMSI), which was carried out from 2003 to 2017 in response to the events known as the Ethnic Tension. This period of inter-island violence and militancy lasted from 1998 until the arrival of RAMSI in 2003, culminating in a coup-d'état on the 5th of June 2000, and caused the displacement of an estimated 20,000 people (McEvoy, Mitchell and Trundle, 2020).

RAMSI cost an estimated AU $2.8 billion over its lifespan, with Australia being the primary contributor to the mission both financially and in terms of personnel, making the response Australia's "largest and most costly peacekeeping mission" (Moore, 2018). The Ethnic Tension itself centred upon conflict between the customary landowners of Guadalcanal and the rural-to-urban migrants – predominantly from neighbouring Malaita – who had emigrated to Honiara and settled both within the town boundary and in the surrounding peri-urban areas (Moore, 2015b; McEvoy, Mitchell and Trundle, 2020).

As such, while most of the peacekeeping effort focused on improving national governance and the training of security forces and policing, several RAMSI-related projects focused specifically on Honiara's governance and its peri-urban surrounds. The most prominent of these was the Solomon Islands Institutional Strengthening of Land Administration Project (SIISLAP), led by the Australian Government, which was originally approved for implementation in 1998 but was revised, extended and integrated into RAMSI itself as the Tension unfolded (Larden and Sullivan, 2007). Although not explicitly urban in its intent, SIISLAP included the mapping and upgrading of informal settlements across Honiara, as well as the improvement of processes for the management of land records within the national government.

An additional political consequence of the Ethnic Tension was an emphasis on 'rural development' across the archipelago, despite the focus on central government institutions based in Honiara. This linguistic avoidance of 'urban' – as in the SIISLAP project discussed above – further obscured the ability to financially differentiate urban initiatives in Solomon Islands. However, the effectiveness of RAMSI's efforts to improve local governance in both rural and urban settings – outside of policing – has been widely criticised. As Allen and Dinnen noted shortly before the conclusion of the assistance mission:

> RAMSI's almost exclusive focus on the agencies of central government in Honiara has enabled a continuation of the 'governance without government' that has arguably prevailed in most of Solomon's rural communities over the past several decades and that intensified remarkably during the Tension period. (2015, p. 393)

With the exclusion of RAMSI-related finance urban climate resilience funding becomes more comparable between the two countries. Between 2011 and 2016 Vanuatu and Solomon Islands received US $76.4 million and US $61.8 million worth of urban climate resilience related ODA respectively, although the total value varied significantly year-to-year (as is visible in Figure 5.1). One such spike in finance is evident in the case of Solomon Islands in 2014, which correlates with substantive relief funding associated with the April 2014 Floods. Much of the relief in Vanuatu associated with Tropical Cyclone Pam was national in nature and therefore does not register as clearly in the figure. Nonetheless, the total ODA envelope to Vanuatu did increase from 2015, with multiple 'climate resilience' projects being established following the impact of the cyclone (visible in Figure 5.1 in hashed red and black).

Where multiple terms were associated with a project the strongest correlation was between 'climate' and 'resilience', with no 'urban resilience' projects evident in the *Pacific Aid Map* database at a national scale in Vanuatu or Solomon Islands. This subset of projects also frequently linked climate change to non-climate natural disasters, following the regional and international policy mechanisms outlined earlier in this chapter. For instance, Vanuatu received a US $1.5 million grant from the Global Environmental Facility titled "Increasing Resilience to Climate Change and Natural Hazards", while a US$7.3 million World Bank project in Solomon Islands initiated in 2014 is titled "Community Resilience to Climate and Disaster Risk in Solomon Islands". These findings correlated with the policy directives linking climate change and disaster resilience discussed earlier in this chapter.

## 5.3 *National & Sub-National Approaches to Climate Resilient Development*

Although analysis of development finance provides important international and regional context to climate resilient development in the Pacific, consideration of state-recognised projects can provide more specific insight from the perspective of national governments. Cross-referencing international databases with these national records allows clearer analysis of active in-country projects, particularly those funded through regional bodies, and civil society programs and respective national governments that aren't otherwise evident in ODA finance databases. This additional analysis is capable of accounting for internally funded government projects and other initiatives not contingent on international donors.

In the case of Vanuatu and Solomon Islands environmentally focused development initiatives are recorded by their respective environment ministries. In the former climate-related projects are required to register through the National Advisory Board on Climate Change and Disaster Risk Reduction (NAB), which hosts an online portal registering each project, including timelines and total funding (NAB, no date). Solomon Islands' Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECCDM) performs a similar function, tracking projects through their Programme Management and Coordination Unit (MECCDM, no date).

As the next phase of this research, projects in these two databases were compiled and analysed following a similar approach to that conducted through the *Pacific Aid Map* as set out in Section 5.2 above. Due to the higher level of detail in project documentation available in these national databases each possible combination of 'urban', 'climate', and 'resilience' was incorporated, and the use of the word 'resilience' also recorded in context from each project brief. Sub-national spatial information at a provincial and municipal levels was also recorded, along with donor information where relevant. Projects were included through to the end of 2018, after which only partial project listings were available. An overview of the findings from these national-level analyses is provided in Figure 5.2 and Figure 5.3, with 57 projects identified in Vanuatu and a further 48 in Solomon Islands.

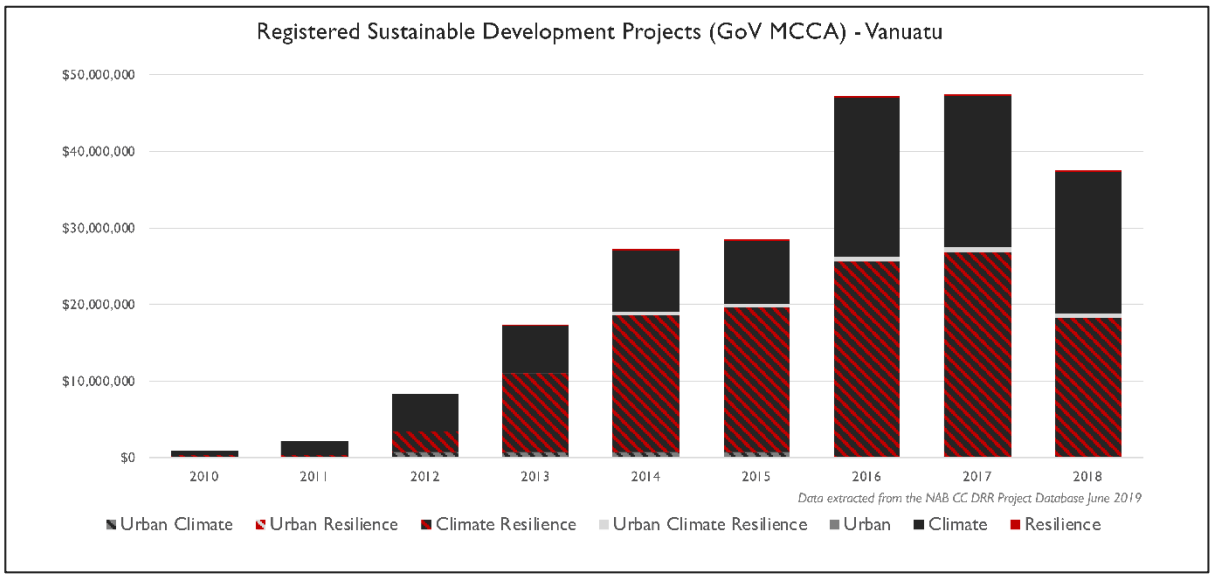


**FIGURE 5.2:** CLIMATE-RELATED PROJECTS REGISTERED WITH THE GOVERNMENT OF VANUATU

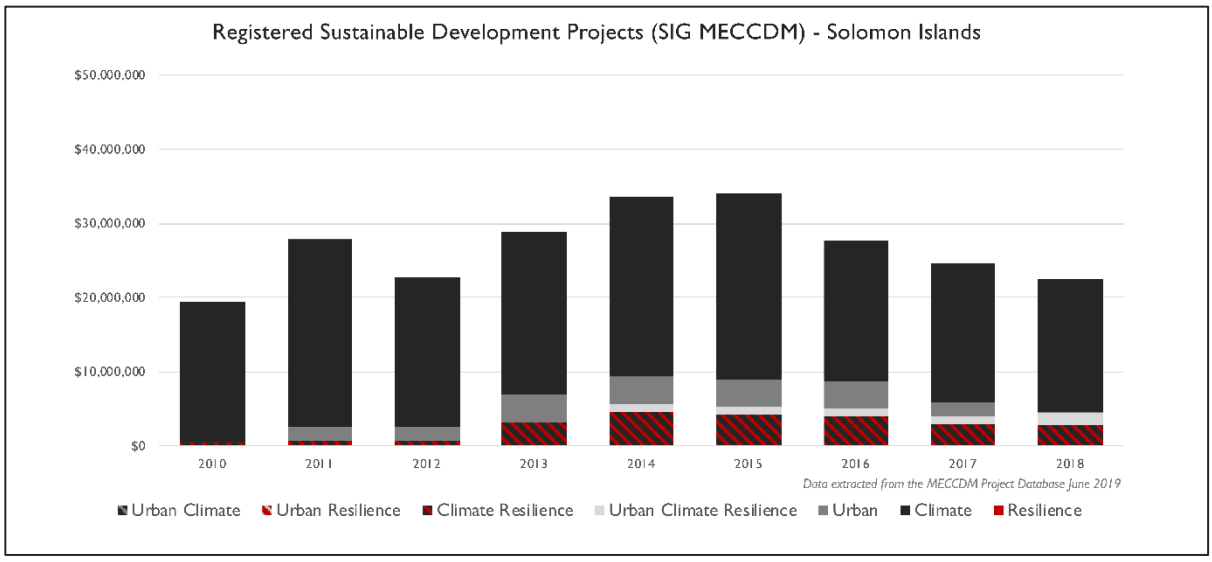


**FIGURE 5.3:** CLIMATE-RELATED PROJECTS REGISTERED WITH THE SOLOMON ISLANDS GOVERNMENT

(Sources: Author, developed using data Vanuatu and Solomon Islands Government data)

As these two research outputs demonstrate use of "climate resilience" terminology at a national level was a key point of difference between the two countries. Slightly more than half of the projects identified in Vanuatu's registry used the term 'resilience' (51.4 percent), compared with less than a third of those registered in Solomon Islands (31.5 percent). This contrast is even more striking when project value is considered. Over the five years prior to 2019 a total of 57.5 percent of registered sustainable development funding in Vanuatu was attributable to projects that directly reference 'climate resilience', in comparison with only 12.0 percent in Solomon Islands.

In both Vanuatu and Solomon Islands climate resilient development projects with an explicitly 'urban' focus were a small share of nationally registered initiatives; 8.9 percent (2.1 percent of finance) and 14.6 percent (12.0 percent of finance) respectively. However, the inclusion of the Green Climate Fund supported US $120 million 'Tina Hydro Project', designed to provide Greater Honiara with renewable electricity, would increase Solomon Islands' 'urban' climate resilient development finance significantly. Analysis of projects by target province further highlights the wide variation in spatial allocation of

climate-related resources within the two countries, as depicted in Figure 5.4 and Figure 5.5 below. Designated provincial funding on a per capita basis in Vanuatu varies from US $80 in Shefa Province to more than US $757 in Torba. Similarly, in Solomon Islands Guadalcanal Province has received $922 per person compared with $136 in the more heavily populated Malaita.

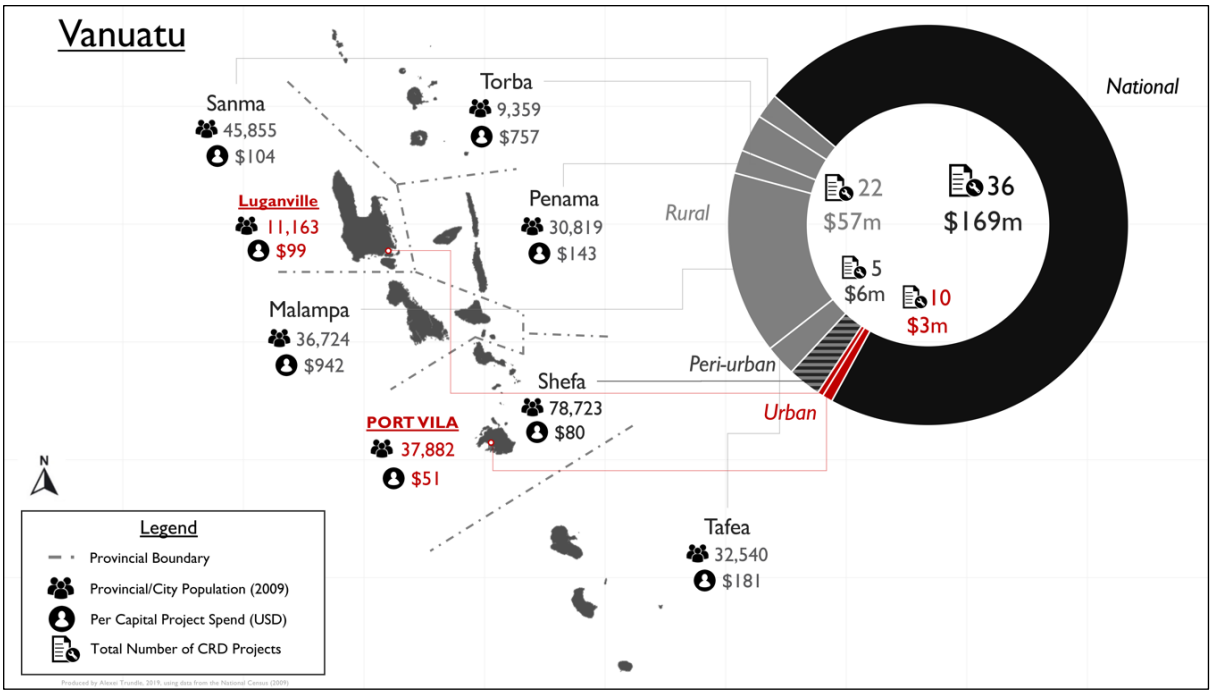


**FIGURE 5.4:** CLIMATE RESILIENT DEVELOPMENT PROJECTS BY VANUATU PROVINCE (2010-2018)

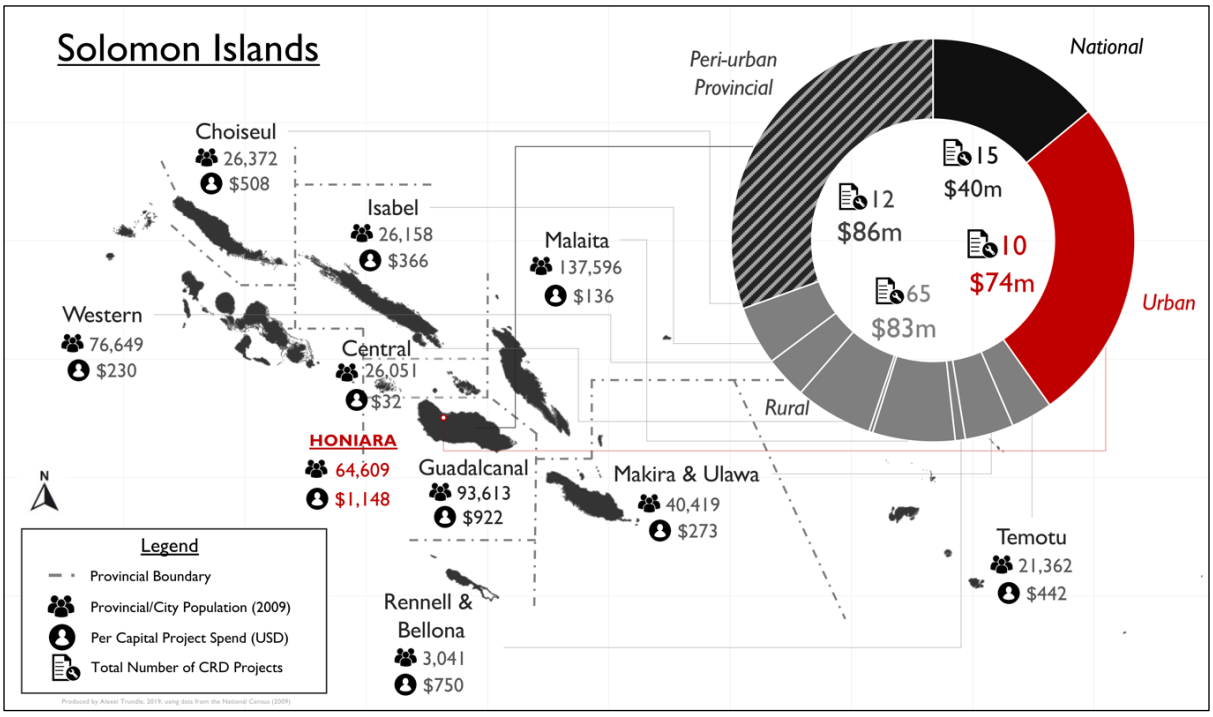


**FIGURE 5.5:** CLIMATE RESILIENT DEVELOPMENT PROJECTS BY SOLOMON ISLANDS PROVINCE (2010-2018)

(Sources: Author, developed using data Vanuatu and Solomon Islands Government data)

Port Vila received less climate-related funding on a per capita basis than any of Vanuatu's rural areas. In contrast Honiara received more per citizen than elsewhere in Solomon Islands, however this figure

and that of 'peri-urban' Guadalcanal include finance for the incomplete 'rural' Tina hydropower project, which is examined in more detail below. The concentration of climate finance in national projects in Vanuatu was also a marked difference between the two case studies, with investments in centralised facilities such as early warning systems, climate governance capacity building, and post-disaster reconstruction of national infrastructure accounting for much of this variance.

Of the eighteen projects that either explicitly referenced urban objectives or focused directly on Port Vila or Honiara only half used the term 'resilience'. In Port Vila three of these projects were part of wider national initiatives: an electrification project (World Bank), a disaster risk management project (JICA/Japan), and a tourism adaptation initiative (GIZ/Germany). A fourth was a small NGO-led project on food security (ADRA). In Honiara, a 'risk resilience' programme (DFAT/Australia), a hazardous waste management scheme (European Union) and a solid waste technical project (JICA/Japan) were part of Pacific regional projects, while a food security initiative (Adaptation Fund) and the aforementioned Tina hydropower project (DFAT/Australia and the Green Climate Fund) also extended beyond the greater Honiara area. One government-led 'river clean-up and rehabilitation project' was listed in the Solomon Islands Government registry, not supported by donor financing.

Despite numerous urban-focused projects being identified in both countries informal settlements and their occupants were found to have had limited consideration within these climate resilient development activities. This finding was consistent with a lack of engagement with informal settlements more broadly across the development sector. For example, major infrastructure projects active in both Port Vila and Honiara, including road, bridge, and drainage reconstruction, comprise a large share of the development finance that each city receives. However, these projects generally lacked activities that aimed to benefit or directly engage informal settlements or their inhabitants.

In the case of Honiara this was exemplified by the aforementioned Tina Hydropower Project, an initiative primarily financed through the Green Climate Fund (GCF) and supported by both the World Bank and the Australian Government. This project accounted for approximately four-fifths of Honiara's urban allocation of SIG-registered climate finance between 2010-2018, as well as three-quarters of that received by Guadalcanal Province (see Figure 5.5).[9] The project is one of the largest climate resilient development initiatives not only in Honiara, but also in any of the Pacific SIDS to date.

Although primarily focused on the GCF's various emissions reduction criteria, 'increasing resilience through improvements to infrastructure and the built environment' was designated in the proposal to be a key secondary criterion that the project aimed to address (The World Bank, 2015, p. 4). The rationale for this inclusion stemmed primarily from an argument that "equitable access to basic services including electricity [can] alleviate poverty and … develop the economy" (The World Bank, 2015, p. 13). However, while the project proposal noted that the national grid-connection rate was around 12 percent of households (ibid), no direct consideration was given in the project proposal to the role of land tenure in enabling or preventing formal electricity access. The issues in not accounting for this widespread informality – and its associated implications for project governance, have been explored further here through supplementary analysis of secondary data relating to spatial patterns of electrification across the Greater Honiara Area, the outputs of which are shown in Figure 5.6 below.

[9] Although registered as an US $120 million project with the Solomon Islands Government, the total project value registered with the Green Climate Fund is US $233 million, making the project's share of climate finance for both Honiara and Guadalcanal even higher.

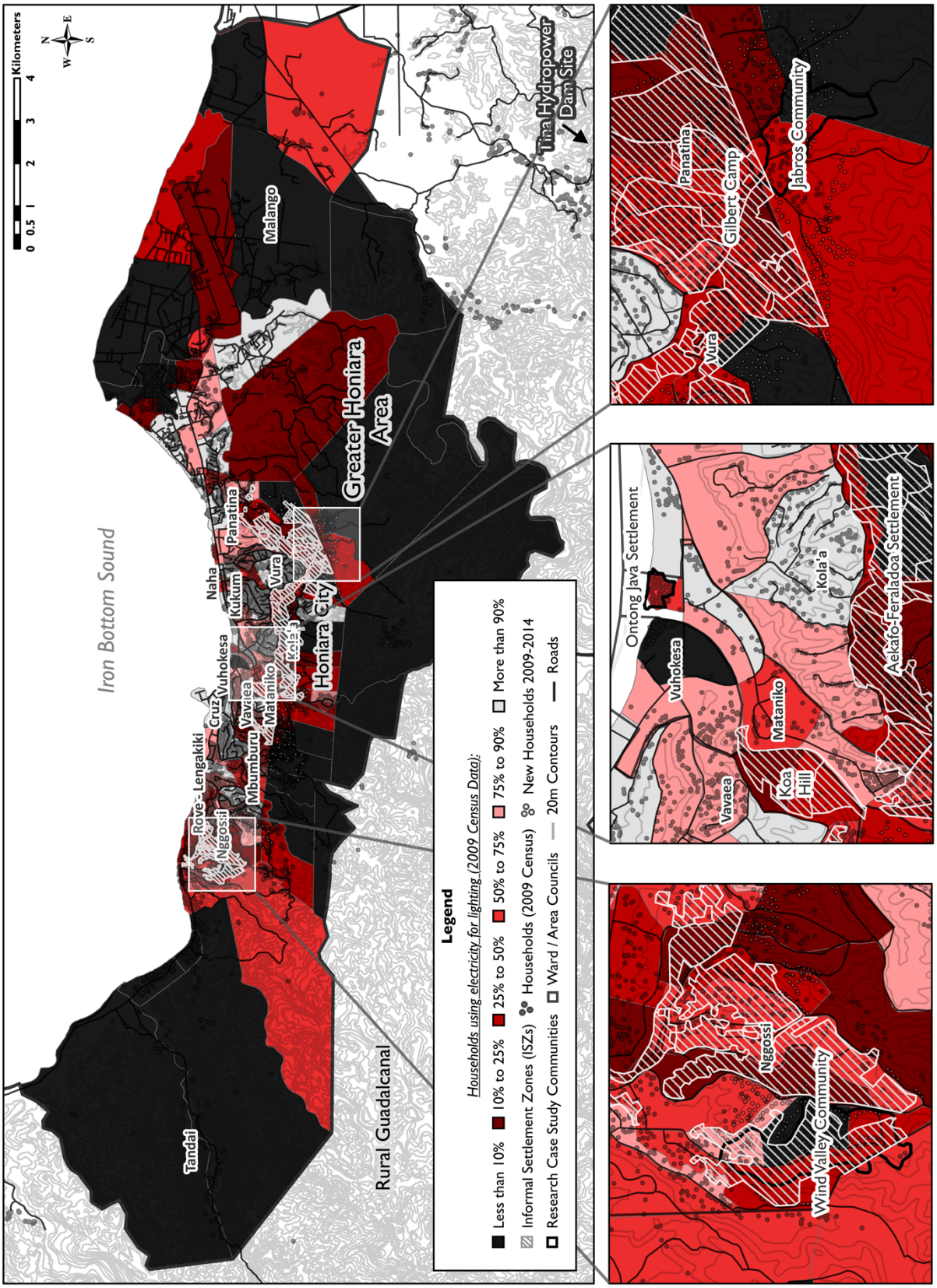


**FIGURE 5.6:** 2009 USE OF ELECTRICITY FOR HOUSEHOLD LIGHTING ACROSS GREATER HONIARA AND THE THREE INFORMAL CASE STUDY COMMUNITIES

(Source: Author, developed using Solomon Islands Government spatial and socio-demographic data)

Detailed examination of electrification rates within the Greater Honiara Area was conducted as part of this research. This sub-ward analysis of 2009 census data was primarily used to contextualise each case study community; however, it also highlights why a lack of engagement with informal communities can prevent achievement of equitable climate resilient development. As Figure 5.6 shows, officially recognised informal settlement zones, peri-urban informal settlements, and the three communities under examination here all exhibit electrification rates well under 50 percent, with many areas having less than one-in-ten households connected to Solomon Power.

Although steps to allow grid access for informal settlements have been initiated by some smaller World Bank projects, the lack of legal title prevents most of the city's poorest and most climate vulnerable from benefiting from this major project, thereby contradicting the claim above (McEvoy, Mitchell and Trundle, 2020). A 2018 directive by the Commissioner for Lands to permit electricity connections for occupants of government owned land without valid legal title is likely to allow some uptake in informal settlements going forward, however the risk of eviction, as well as occupancy of land outside of these government-held areas, will continue to limit more widespread benefit from the project (The World Bank, 2018, p. 18).

If the Tina Hydropower project is excluded from the sub-national climate resilient development finance figures shown in see Figure 5.5, per capita funding over the 2010-2018 period in Honiara and Guadalcanal Province drops to US $220 and US $281 respectively, a level below the median level of the other eight provinces. With the project yet to begin physical works due to delays resulting from landowner agreements, these funding levels arguably would more accurately reflect climate resilient development finance over the 2010-2018 period.

Only six internationally supported climate resilient development projects were found to be focused on the two case studies at a city-wide scale. Four of these were coordinated through UN-Habitat (the largest of which was financed by the UNFCCC Adaptation Fund), with the remaining two constituting discrete urban case studies as part of SPREP's regional 'Pacific Ecosystem-Based Adaptation to Climate Change' (PEBACC) initiative, funded by the German Government. Five of these six projects were partnered with external academic institutions, including Griffith University, the University of New South Wales, RMIT University and the University of Queensland from Australia, as well as Victoria University of Wellington from New Zealand. Two-thirds of these projects were also explicitly partnered with local civil society organisations in comparison with 39 percent of urban projects overall.

As noted in Chapter 2 the inadequate consideration of resilience "for whom?" and of "what to what?" has resulted in widespread criticism of the concept by social theorists, particularly in relation to its normative application through development and to socially-contested settings such as cities (Meerow, Newell and Stults, 2016). This active rather than observational use can be seen in Table 5.1 below, which summarises extracts relating to the term found in documentation associated with the projects identified in the two government registries.

Of the 32 projects referring directly to resilience 56 percent preface its use with an aim to 'strengthen', 'increase', or 'enhance' the existing system state, while a further 16 percent set out an objective to 'build' or 'create' resilience within their focal areas. This normative and active use of the term demonstrated a need for the additional analysis of 'how' this resilience building or enhancement was being rationalised, and the way that these decisions were being framed. This additional analytical step was put by Ziervogel *et al.* as critiquing resilience "under what circumstances, and through what processes?", as articulated in Chapter 2 (2017, p. 4). Each of the references above have therefore been reviewed in relation to the resilience 'of what', 'to what', and 'how?', following the advice of Meerow, Newell and Stults as well as Ziervogel and her colleagues (2016; 2017).

**TABLE 5.1:** RESILIENCE USE IN CLIMATE RESILIENT DEVELOPMENT PROJECTS (2010-2018)

| Registered Projects - Vanuatu | Registered Projects - Solomon Islands |
|---|---|
| "to build more inclusive, sustainable, and **resilient cities**, by strengthening the capacity of key public, private and civil society stakeholders to measure, make decisions, and plan actions for building **resilience**" | "through the example set by these partner-communities, and through information sharing NDRF will develop **climate-resilient** models for sustainable natural resource management" |
| "the programme aligns with the Framework for **Resilient** Development in the Pacific (FRDP)" | " to improve existing infrastructures in communities to be **resilient** to withstand the impacts of **climate** change" |
| "to create effective **city** coalitions on community **resilience**, targeting **climate** smart resilience and coastal risk reduction" | "strengthening the capacity of local community to be more **resilient** and adaptive to the effects of **climate** change across all sectors" |
| "to strengthen outer island **resilience** and linkages between local/provincial and national governments" | "to increase the **resilience** of selected rural communities to the impacts of **climate** change and natural hazards" |
| "working to build **resilience** through improved infrastructure, sustained livelihoods, and increased food production" | "to increase **resilience** to **climate** change for the people of the Pacific island countries through adaptative co-management of mangroves and associated ecosystems" |
| "to improve the **resilience** of the coastal zone in Vanuatu to the impacts of **climate** change in order to sustain livelihoods, food production and preserve/improve the quality of life in targeted vulnerable areas" | "means for local governments to respond to the challenges and increased expenses of ensuring that the services and infrastructures they provide are **resilient** to **climate** change" |
| "to increase the ability of national, regional and community-level stakeholders to work together to enhance disaster and **climate resilience** in rural communities through two linked sub-components." | "enhance the **resilience** of **Honiara** and its inhabitants to current and future **climate** impacts and natural disasters with a focus on pro-poor adaptation actions that involve and benefit the most vulnerable communities" |
| "strengthen the **resilience** of Pacific island communities to disasters and **climate** change related risk" | "increase the **resilience** and enhance adaptive capacity of communities, socio-economic activities and infrastructure" |
| "to improve the **resilience** of road assets" | "promoting natural solutions for island **resilience**" |
| "to reduce long-term impacts associated with **climate** change and achieve sustainable **climate-resilient** development" | "enhance the capacity of farmers to use suitable technologies in **climatic** conditions to become more **resilient**" |
| "to increase the **resilience** of at-risk communities and schools to the impacts of natural disasters in Vanuatu." | "building the **resilience** of communities and their ecosystems to the impacts of **climate** change" |
| "implementing projects on ecosystem services and enhanced **resilience** to **climate** change in Vanuatu" | "strengthening community **resilience** through targeted and inclusive community-based DRM and **CCA**" |
| "tourism initiatives at community level are proven to be **resilient** against the effects of **climate** change and contribute to the protection of natural resources" | "safe and **resilient** communities in which children and young people contribute to managing and reducing the risks associated with changes in the **climate**" |
| "increasing **resilience** to **climate** change worldwide through integration of indigenous management strategies" | "together becoming **resilient'** |
| "to disaster-proof the new development and raise the community level of **resiliency** to disasters" | |
| "improving food security for building **resilience** to a changing **climate** in Pacific island communities" | |
| "to increase **resilience** to these **climate** change related risks" | |
| "increasing **resilience** to **climate** change and natural hazards" | |

The subject – resilience 'of what'? – in each of these projects varies. However, documentation relating to half of the projects was found to refer to communities or livelihoods at a household or community level. A further 28 percent targeted ecosystems and food production, while a quarter emphasised coastal, rural, or island focal areas. Infrastructure was an explicit focus in six projects (19 percent), while vulnerable communities and individuals were referenced in only one project in each national database.

Sixty percent of the excerpts in Table 5.1 identified climate-related shocks and stresses as the object of their resilience-enhancing efforts ('to what?'), with 38 percent referring to climate only, and a further 22 percent citing climate and other natural disasters or hazards. Only six percent referred to natural disasters without noting climate or climate change. 'Community resilience" was also used either discretely or in reference to climate and disaster related shocks and stresses in 22 percent of the project summaries, reflecting its wider prevalence in the literature (as shown in Figure 2.4).

The processes and circumstances for enacting resilient development were not dealt with in detail in these high-level summaries, beyond a consistent emphasis on reinforcing existing forms of resilience as discussed above. A quarter of the projects cited forms of cross-sectoral or cross-government engagement and mainstreaming, while sustainability and sustainable development were referenced in a further 19 percent of cases. A focus on risk and risk management was also evident in some projects, linking to conventional disaster risk management processes (16 percent). Language referencing 'transformation' and more substantive system change – a focus of the wider normatively-focused resilience literature – was, however, noticeably absent.

Building on the analysis of regional climate finance and official development assistance in Section 5.2, the national analysis provided here shows a continuation of the discursive impact of climate resilience, particularly as reflected in internationally-funded exogenous development programs. However, it is notable that these national and sub-national applications align more closely with the broader characterisations of Pacific urbanisation put forward in Chapter 3. Specifically, they reflect an ongoing rural bias disproportionate to population distribution, and a lack of consideration of the unique vulnerability and development considerations associated with informality and cities more broadly. Textual analysis of policy and project documents also demonstrated a focus on climate resilience. The term's capacity to integrate other fields (such as disaster management) and a range of subject systems (from communities to infrastructure) is evident in this documentation. However, these uses do little to demonstrate how the term itself is being applied in practice, nor do they demonstrate a rationale in most cases for whose resilience is being improved or the approaches through which this is intended to be achieved. As such the following section draws on the experiences and perspectives of the exogenous actors and development practitioners themselves in order to more fully address RQ1, drawing on primary, empirical evidence from each of the two case study cities.

## 5.4 *Institutional Perspectives: Exogenous Actors in Vanuatu and Solomon Islands*

A series of semi-structured interviews were conducted with representatives of institutions actively engaged in climate resilient development projects in Port Vila and Honiara. These exogenous actors were asked to reflect on their familiarity with and use of the term resilience itself, as well as its use in projects that their institutions were involved in or that they were aware of across each city. The findings from these two sets of primary data have been presented in tandem throughout the remainder of this chapter, with points of comparison drawn out across the two city-systems and six community case studies in Chapter 8. The rationale for this parallel approach is based upon the comparable socio-cultural conditions, rates of urbanisation, levels of climate exposure and access to climate resilient development initiatives and finance (as set out in Chapter 2 and evidenced in the secondary data analysis provided above).

As detailed in Chapter 4 respondents were recruited from across each of the nested scales set out in this research's conceptual framework (Figure 3.8), reflecting the range of scales and institutions engaged in climate resilient development in each city. Four interviewees represented branches of the United Nations, while a further five were either employees of, or in roles supported by, regional (CROP) organisations. Two interviewees were local representatives of international non-government humanitarian organisations (INGOs), with another four leading local civil society organisations (CSOs) or peak bodies. Six interviewees staffed various national government agencies or statutory organisations, while a further six represented branches of local government (including the two peri-urban provincial governments). In total, 13 institutional stakeholders (4F,9M) were interviewed in Port Vila, with a further 13 (3F,10M) interviewed in Honiara.

Although these interviewees did not account for all of the institutions engaged in climate resilient development activities across the two case study cities, a section of the interview protocol elicited each participant's general awareness of any such projects, whether external to or within the interviewee's organisation. These responses – along with any other references over the course of each interview – were compiled for each of the two case studies, with the organisations behind each of these projects categorised according to their nested scale within or beyond each city.

The outputs of this coding activity can be found in Figure 5.7 and Figure 5.8, which provide actor-based diagrams of the institutions engaged in climate resilient development activities in Port Vila and Honiara. Each diagram, or 'actor map', has been categorised following Gunderson and Holling's Panarchy heuristic as set out in Chapter 2, with the y-axis aligning with the nested adaptive cycles set out in the conceptual framework for this research. A list of organisational acronyms referred to in these figures is provided in Table 5.2, while the data behind these figures can be found in Appendix L.

As can be seen in the figures below, the outputs from this activity differ slightly from the conceptual framework set out in the initial research methodology (Figure 3.8), in that two significant actor groups were found to operate from beyond – and often independently of – the directly nested scales that Gunderson and Holling propose. Specifically, international humanitarian non-government organisations and bilateral aid programs were unable to 'fit' directly within a linear Panarchy heuristic. These parallel sub-systems, while at the same scale, were noted to operate somewhat independently, for example transitioning through growth or collapse phases at different points in time and driven by their own civil or state-based regimes (particularly during shock or stress events).

Bilateral assistance, while often negotiated through national government agencies, was noted as being driven primarily by external interests and agendas, as discussed earlier in this chapter, having further secondary influence over regional and global organisations. Similarly, although international non-government humanitarian organisations were often well connected with local community activities, they were noted by multiple civil society actors as being distinct from local organisations, being referred to variously as 'INGOs' or 'BINGOs' (Big International NGOs), referencing their primary accountability to wider international agendas, organisational structures, and funding demands. These bodies had a minimal level of activity in both cities, reflecting the rural bias in these international agendas.

A second key variation in the figures below is the division between 'civil' and 'state' actors, with the former being depicted to the right of the vertical sequence of nested scales in each diagram, and the latter positioned to its left. Although some actor groups straddle both (or sit across multiple scales within the nested systems), the distinction between formal institutions operated directly by the state and those institutions sanctioned to engage within in it provided further insight into the nature of formal-informal interactions. This has particular relevance during climate-related shock and stress events, as discussed later in this chapter.

**Port Vila, Vanuatu**

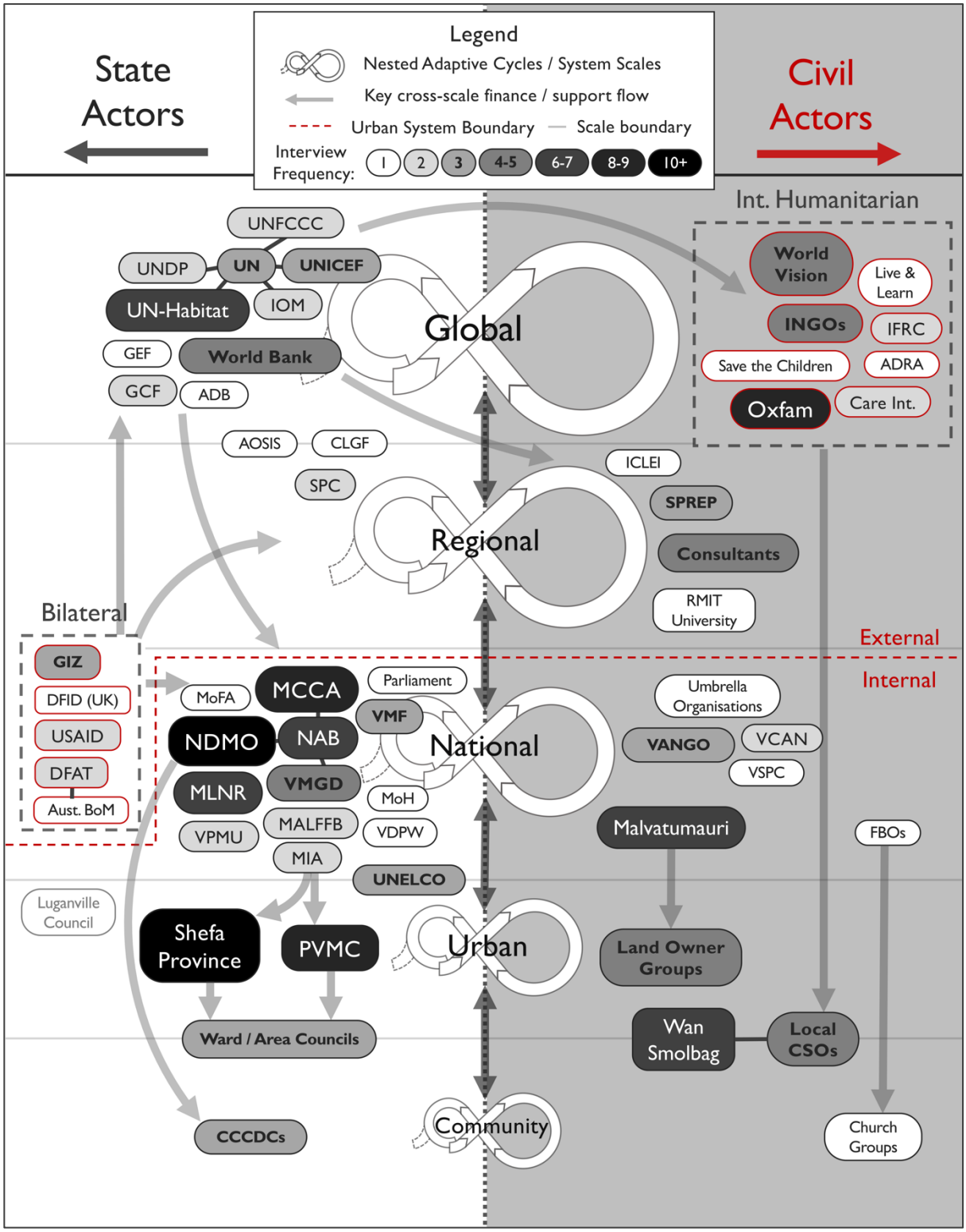


**FIGURE 5.7:** RESPONDENT-IDENTIFIED CLIMATE RESILIENT DEVELOPMENT ACTOR MAP – VANUATU

(Source: Author)

**Honiara, Solomon Islands**

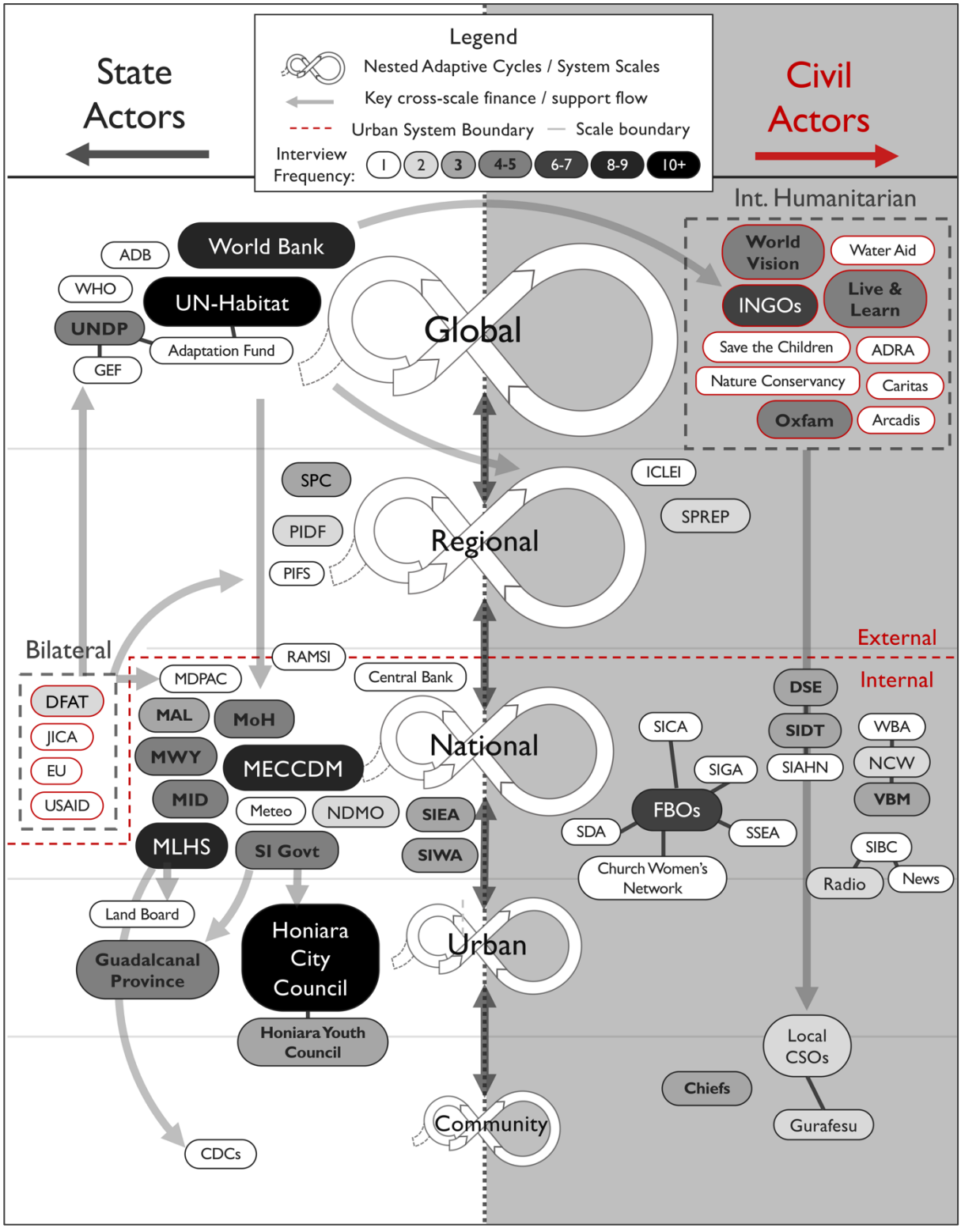


**FIGURE 5.8:** RESPONDENT-IDENTIFIED CLIMATE RESILIENT DEVELOPMENT ACTOR MAP – SOLOMON ISLANDS

(Source: Author)

**TABLE 5.2:** GLOSSARY OF INSTITUTIONAL ACRONYMS FOR FIGURE 5.7 & FIGURE 5.8

| Regional and Global Actors | |
|---|---|
| ADRA | Adventist Development and Relief Agency |
| AOSIS | Alliance of Small Island States |
| ADB | Asian Development Bank |
| DFAT | Australian Department of Foreign Affairs and Trade |
| CLGF | Commonwealth Local Government Forum Secretariat |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit |
| GEF | Global Environmental Facility |
| GCF | Green Climate Fund |
| ICLEI | ICLEI - Local Governments for Sustainability |
| IFRC | International Federation of Red Cross and Red Crescent Societies |
| IOM | International Office for Migration |
| JICA | Japan International Cooperation Agency |
| PIDF | Pacific Island Development Forum |
| PIFS | Pacific Island Forum Secretariat |
| RAMSI | Regional Assistance Mission Solomon Islands |
| SPREP | Secretariat of the Pacific Regional Environment Programme |
| TVET | Technical and Vocational Education and Training Pacific Programme |
| SPC | The Pacific Community (formerly Secretariat of the Pacific Community) |
| DFID | United Kingdom Department for International Development |
| UN | United Nations |
| UNICEF | United Nations Children's Fund |
| UNDP | United Nations Development Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UN-Habitat | United Nations Human Settlements Programme |
| USAID | United States Agency for International Development |
| WHO | World Health Organisation |

| General Local Actor Group Categories | |
|---|---|
| CSOs | Civil Society Organisations |
| FBOs | Faith-Based Organisations |
| NGOs | Non-Government Organisations |

| National & Urban - Vanuatu | |
|---|---|
| CCCDCs | Community Climate Change and Disaster Committees |
| MALFFB | Ministry of Agriculture, Livestock, Forestry, Fisheries, and Biosecurity |
| MCCA | Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Environ. |
| MIA | Ministry of Internal Affairs |
| MLNR | Vanuatu Ministry of Lands and Natural Resources |
| MoFA | Vanuatu Ministry of Foreign Affairs |
| MoH | Ministry of Health |
| NAB | National Advisory Board on Climate Change & Disaster Risk Reduction |
| NDMO | National Disaster Management Office (MCCA) |
| PVMC | Port Vila Municipal Council |
| UNELCO | Union Electrique Du Vanuatu |
| VANGO | Vanuatu Association of Non-Government Organisations |
| VCAN | Vanuatu Climate Adaptation Network |
| VDWA | Vanuatu Dept. of Women's Affairs, Ministry of Justice & Community Service |
| VMF | Vanuatu Mobile Force |
| VMGD | Vanuatu Meteorological and Geohazards Department (MCCA) |
| VPMU | Vanuatu Project Management Unit, Prime Minister's Office |
| VPWD | Vanuatu Public Works Department, Ministry of Infrastructure & Public Utilities |
| VSPC | Vanuatu Social Protection Committee |

| National & Urban - Solomon Islands | |
|---|---|
| CDCs | Community Development Committees |
| DSE | Development Services Exchange |
| HCC | Honaira City Council |
| MAL | Ministry of Agriculture and Livestock |
| MDI | Ministry of Infrastructure Development |
| MDPAC | Ministry of Development Planning and Aid Coordination |
| MECCDM | Ministry of Environment, Climate Change, Disaster Management & Meteorology |
| Meteo | Solomon Islands Meteorological Services (MECCDM) |
| MLHS | Ministry of Land, Housing and Survey |
| MoH | Ministry of Health |
| MWY | Ministry of Women and Youth |
| NCW | National Council of Women |
| NDMO | National Disaster Management Office (MECCDM) |
| SDA | Seventh Day Adventists Church |
| SIAHN | Solomon Islands Association of Humanitarian Networks |
| SIBC | Solomon Islands Broadcasting Corporation |
| SICA | Solomon Islands Christian Association |
| SIDT | Solomon Islands Development Trust |
| SIEA | Solomon Islands Electricity Authority / Solomon Power |
| SIGA | Solomon Islands Gospel Association |
| SIWA | Solomon Islands Water Authority / Solomon Water |
| SSEC | South Seas Evangelical Church |
| VBM | Vois Blong Mere |
| WBA | Women's Business Association |

The differentiation of both INGOs and bilateral donors was more than a general observation by interview participants. Rather, their classification as 'outsiders' had distinct implications for the power exerted in cross-institutional interactions, reflective of their primary function being to serve global and extra-national policy agendas. Awareness of this division was also evident in references to regional and global actors by those locally based interviewees. One key functional difference related to respective capacities for transformative change, as a senior local government representative in Honiara explained:

> My strategy here is … the little money we collect is to go to service delivery. But I'm depending on external projects to help me in the technical areas that council can't afford. That's why I have these big projects like the World Bank, JICA, HEDSUP, and then this Adaptation Fund project.
>
> **– Local Government Representative, Solomon Islands (SIE10)**

In order to highlight this divide, a respondent informed 'internal' system boundary has been delineated in each of the two figures above, with 'external' actors – both at regional and global scales, as well as those characterised as international humanitarian organisations and foreign development programs – separated from those that primarily operate from within each case study setting. Two 'external' examples are shown in Figure 5.9, which depict different scales of development (community-level and city-wide) being operated through major ADB and Australian Government funded projects in Port Vila.


**FIGURE 5.9:** COMMUNITY SANITATION FACILITY DEVELOPMENT WORK IN SEASIDE (LEFT) & TRUNK DRAINAGE INFRASTRUCTURE UPGRADING (RIGHT) IN CENTRAL WARD

(Sources: Author, 2017)

The asymmetry of this interaction was found to extend beyond financial influence into the discursive engagement with 'resilience' itself, with the negotiation of this technical language being reflected upon by several of the interview respondents. A national-level public servant, for instance, expressed the contingency of the emergence of 'resilience' language in Solomon Islands on these external actors, similarly to the local government representative's reflection on project interactions quoted above:

> [Resilience] is probably only becoming more common amongst outsiders who are coming in, like yourself, or like UN-Habitat, or World Bank. When they're looking to deliver some projects with that component to it. But it's not something that you'll hear locals talk about as something that they want to sort of project. Even though it might be something that they are familiar with, the terminology is something quite new.
>
> **– National Government Representative, Solomon Islands (SIE3)**

These quotes demonstrate a key finding of the research, being that the discourse of resilience cannot be understood as something that is simply disseminated 'downward' from international institutions, global frameworks, and academic theory. Although the financial flows are primarily (although not exclusively) moving external support into each city system (as highlighted by the grey arrows shown in Figure 5.7 and Figure 5.8), uptake of this terminology is not passive on the part of internal agents and institutions. Rather, it is a term that local institutional actors are actively and consciously 'projecting' in order to access external support for their own local agendas and development needs.

Conversely, this agency and adaptation adds additional normative considerations, beyond that of regime-level actors seeking to improve the function of the city system itself. As put by one respondent:

> I think it's a really useful term, but I think it's also at great risk of being abused, just like climate change is being abused, and sort of using it as a political vehicle, a development vehicle. Is this a climate change fund? Okay, it's climate resilience. Is this a disaster fund? Okay it's disaster resilience. That's why I was saying it's become a political term, from the sit-at-the-desk perspective.
>
> **– International Agency Representative, Vanuatu (VUE1)**

The effectiveness of local actor uptake of resilience language can also be seen to be a substantial point of difference between the two countries in terms of levels of access to climate finance; a comparative point discussed later in this chapter illustrating the power of resilience discourse as a political tool.

## 5.5 *'Resilience of What?' Actor Groups and Cross-Scale Institutional Interactions*

Despite the focus on projects at city and sub-city scales, both Figure 5.13 and Figure 5.8 are notable for the prevalence of actors categorised at levels either above, or external to, each city system. For example, more than one-fifth of the institutions identified as being engaged in climate resilient development across the two cities comprised branches of national government. In both countries the line ministry responsible for climate change and their respective subsidiary departments (such as National Disaster Management and Meteorological Offices) were particularly prominent, along with those responsible for lands and housing. Two such national government led projects are shown in the two photographs contained in Figure 5.10.


**FIGURE 5.10:** MID SIGNAGE FOR THE 'APRIL RIDGE' FLOOD VICTIM RELOCATION PROJECT IN HONIARA (LEFT) & EVACUATION ROUTE ADVISORY SIGNS BY MECCDM IN PORT VILA (RIGHT)

(Sources: Author, 2017)

International agencies and humanitarian organisations were also frequently referred to as critical urban actors in climate resilient development activities. INGOs were referenced 51 times (10.9 percent of the coded instances shown across the two figures), with World Vision and Oxfam both particularly prominent across the two case studies. Global intergovernmental institutions such as UN subsidiaries were referred to at a similar frequency (12.8 percent), with the World Bank, UN-Habitat and UNDP repeatedly cited by interviewees.

While the two municipal councils and their peri-urban provincial counterparts were also referred to regularly the absence of municipal and state-based community-level structures for driving climate resilient development activities strongly contrasted the levels of awareness of 'external' actors. Many references to these four city-scale state institutions positioned them as necessary, rather than proactive, partners to resilience-building efforts. In several cases respondents were also critical of their lack of internal capacity to engage effectively with externally driven climate resilient development initiatives. This was particularly evident with regards to Port Vila Municipality as summarised by one interview respondent:

> If one cog fails, and it negatively impacts one of the others, you're not resilient. Take one part out, the system falls apart … and I think that would be Port Vila Municipal Council. Even when all the systems are together, it's not functioning.
>
> **– International Agency Representative, Vanuatu (VUE1)**

These city governance issues were noted to not only be internal, but also to extend 'upward', with the interaction between urban institutions and national government structures consistently noted to be problematic:

> The municipalities are not part of the NAB [National Advisory Board]. There is no link between NDMO, VMGD, climate disaster into the municipality. It doesn't exist. There is a link to the DLA, but nothing down to the peri-urban, the sub-urban.
>
> **– International Agency Representative, Vanuatu (VUE1)**

A lack of internal capacity within the council was also often cited as a key reason for this lack of engagement, rather than a specific exclusion from these national processes. However, there was nonetheless evidence of a rural 'bias' in climate resilient development considerations within Vanuatu's national institutions, consistent with the literary observations made in Chapter 3.

In contrast Honiara City Council was viewed as relatively well-supported by Solomon Islands' national government. Cross-boundary governance between Honiara and Guadalcanal province was considered a key issue by many respondents, however this was due to Guadalcanal Province exhibiting similar institutional shortcomings to Port Vila Municipality, rather than the city council itself:

> Outside the city boundary belongs to the people of Guadalcanal, and [informal settlements] there caused the friction last time, but people are still flocking in … Guadalcanal Province is not strong enough.
>
> **– Local Government Representative, Solomon Islands (SIE10)**

Although portrayed more positively than its Solomon Islands counterpart, Shefa Provincial Government was seen as being similarly limited in its capacity to govern Port Vila's peri-urban areas, a limitation even acknowledged by its own employees. The lack of legislative frameworks and cross-boundary governance bodies meant that planning for Port Vila's peri-urban growth and development was unable to be supported effectively by the national government, nor jurisdictionally administered by Shefa Province.

In Port Vila, Community Climate Change and Disaster Committees (CCCDCs) were the only state-based institutional structures identified as being actively involved with climate resilient development efforts

at the community level, with representation on these committees linked to chiefly structures as well as peri-urban area councils. Within the city boundary the effectiveness and presence of both CCCDCs and the ward committees themselves was seen to be variable. Despite peri-urban governance through Shefa Province being generally perceived to be more effective than that within the municipality itself, the lack of state-based frameworks for engaging communities living in informal settlements across the greater metropolitan area was argued by numerous respondents to be a key limitation of this mechanism:

> The informal settlements in the urban areas are completely left out when it comes to the institutional arrangements for climate and disaster. So like Seaside for example, how do they link into the CCCDR committee thing? I just don't know. They're probably completely left out of discussions, planning, support …
>
> There is a training going on right now, all the CCCDC chairman from around Efate are in there, all 40 of them. But I'm sure that there's no-one from these informal settlements there … these are from villages, that's it.
>
> **– Regional Organisation Representative, Vanuatu (VUE6)**

As the quote above demonstrates, this institutional gap presented a critical absence of effective formal engagement with endogenous informal structures. However, it also highlighted a critical boundary of climate resilience discourse more broadly, which continued to lack mechanisms to engage with community level structures in these settings.

In Honiara state-based community structures were even less evident. Only one participant referred to Community Development Committees (CDCs); a structure similar to Vanuatu's CCCDCs, but specific to an UN-Habitat informal settlement upgrading project conducted through the Ministry of Lands, Housing and Survey. Youth groups were one area where effective cross-scale engagement was able to be elaborated on, with the city council facilitating community-level engagement through the centralised Honiara Youth Council, being also linked to the national Ministry of Women, Youth, Children and Family Affairs. However, these structures had limited involvement with climate resilient development. As a youth organisation representative stated, "when you attach climate change it's about climate change, but we see resilience as youth empowerment, a specific problem. But for us it's a new thing to see resilience linked with climate change" (SIE8).

One rationale for this lack of state-based engagement with urban communities across the two case studies – beyond the institutional limitations of urban governance set out above – was the difference between urban community cohesiveness and the more prevalent rural norms found elsewhere, as evident in the reference to 'villages' in the quote above. The concept of 'urban villages', an expression used by Jones in reference to kin-based, spatially discrete urban areas across the Pacific (2016b, p. 2), is undoubtedly applicable to some areas of each city. This was viewed as being particularly the case in more homogenous, established informal settlements, as one government representative explained:

> Informal settlements [are] somewhere in between the village and the urban life here … it's like bringing the village life in the urban setting.
>
> **– National Government Representative, Solomon Islands (SIE12)**

However, many parts of each city – including their respective informal settlements – could not be characterised as hybrid or modified versions of rural village settings. Instead these settings were referred to as 'mixed communities'; a term reflecting a diversity of island and language origins within a single spatial area. This was in addition to more fragmented formal areas consistent with Western norms of urban inhabitation, which did not have notable community structures. This formed a key consideration during the conduct of community interviews as discussed in Chapter 6, with implications for improving the engagement of endogenous resilience capacities through climate resilient development practice (the focus of Chapter 8).

Views on the capacity for the state to engage more effectively with these mixed communities were varied. Some respondents, for instance, emphasised the differences between some island-based cultural norms and customs as an irreconcilable point of conflict:

> In towns it's a mixture of people with different interests … fragmented in some ways, not very cohesive … in terms of culture, the social fabric. in the village it is different, it's community life. It's a little bit different in the [informal] settlements in some areas; they will have a bigger grouping that belongs to the same island of origin, or same language. That will make it more homogenous … otherwise these people are totally independent, the social cohesion is weak.
>
> **– International Agency Representative, Solomon Islands (SIE1)**

One respondent provided a tangible example of this cultural conflict being enacted in a peri-urban community in Port Vila; an area further complicated by the cultural differences between rural-to-urban migrants and the customary landowner group:

> There are levels of conflict within the cultures. Ifira is one of the traditional man-Efate formal communities and is also the landowner of an [informal] area called Blacksands. The chief in Ifira puts *tabu* on the use of certain resources. The community members of Blacksands, who may come from Tanna, or from Malekula, or wherever, do not necessarily respect those *tabus*, because it's not within their culture to have a *tabu* on that particular resource.
>
> **– Regional Organisation Representative, Vanuatu (VUE5)**

Others, however, put forward alternative community-level frameworks, based upon novel structures reflective of this customary, cultural and linguistic diversity:

> Erakor has got a lot of areas, but the Paramount Chief of Erakor has different chiefs in [other] urban areas. So, I think that people could look at that. So, like one chief for Erakor, one chief for Erakor Half Road, one for Eman … I'm trying to do that for Blacksands as well, because there are people from different provinces there. So, one looks after Blacksands, but the network will cover each of the sub-groups.
>
> **– Provincial Government Representative, Vanuatu (VUE10)**

Institutional norms of engaging with culturally homogenous communities were consistently acknowledged to be a barrier to effective engagement within urban settings. As one respondent noted, "I think you'll find the more resilient communities are the smaller ones, and the homogenous ones." (VUE1). The consequences of this disengagement for both exogenous and endogenous resilience were consequently explored further in the relevant case study communities, as discussed in Chapter 8.

## 5.6 *'Resilience How?': Civil Society, Customary Owners, Chiefs and the Church*

In lieu of an effective state-based institutional framework for engaging urban and informal communities it was evident that non-government actors were fulfilling significant substitutive roles at these sub-city scales in both Port Vila and Honiara. Following Helmke and Levitsky's classification, these non-government organisations and their functions are primarily formal and thus argued here to be enacted exogenously, through "rules and procedures that are created, communicated, and enforced through channels widely accepted as official" (2004, p. 727). These functions were often supported through cross-scale non-government networks, with local Civil Society Organisations (CSOs) regularly partnering with INGOs – often through peak national humanitarian and development bodies – in order to access climate resilient development finance. One such example of this bridging capacity was the Development Services Exchange (DSE) in Honiara, as shown in Figure 5.11.


**FIGURE 5.11:** ENTRANCE SIGNAGE TO DSE HIGHLIGHTING 'CAPACITY BUILDING' AND 'ORGANISATIONAL SUSTAINABILITY' (LEFT) & DSE'S PROVINCIAL NGO COORDINATION EFFORTS (RIGHT)

(Sources: Author, 2017)

The flexibility of climate resilience criteria was argued by respondents to allow associated ODA to support a wide range of activities such as Water, Sanitation and Hygiene (WASH) initiatives, climate change training, awareness raising, and youth engagement. Internally, the term 'climate resilience' was also often used to bridge across more specific or localised institutional agendas:

> DSE is just trying to facilitate how its members come on board and be part of, you know, accessing those funds … The Nature Conservancy for example, their work is mainly mandated to look at environmental stuff, so it's linking [to] climate resilience with Live and Learn.
>
> **– Peak Body NGO Representative, Solomon Islands (SIE4)**

Although categorised as formal institutions, the prominence of these non-state actors in urban governance was a key point of difference from Western norms where civil society would support, but not direct, the function of the urban system (D'Alisa and Kallis, 2016).

In Port Vila this was best illustrated in the case of one civil society organisation, Wan Smolbag Theatre Company, which featured prominently at the community level (as evident in Figure 5.7). Wan Smolbag was founded in 1989 with a creative arts focus, but has subsequently grown into one of Vanuatu's largest local non-government organisations with more than one hundred staff across a range of different program areas including health, the environment, youth and community engagement and governance (WSB, 2017). Their activities now range from weekly household rubbish collection for the major informal settlement area of Blacksands, to the provision of health services for more than 16,000 patients annually, financially supported by regional and bilateral aid programmes as well as INGOs (ibid). It was also actively involved in setting up five CCCDCs across Port Vila, and had run a series of community workshops on "resilience, climate change, sanitation, disaster preparedness, resilient gardening techniques, food preservation and gender" (WSB, 2017, p. 8).

The wide-reaching nature of these activities was summarised by one INGO representative in relation to their organisation's collaboration with Wan Smolbag in Port Vila's peri-urban informal communities:

> These communities don't have access to land for food. So Wan Smolbag is providing food for them. They also have several activities they run with them including after TC Pam they've opened up their Health Centre to

provide general health services. We've also developed a resilience play with them, they're taking that play to all the communities [and] we've built community stalls, it's like there is small hut where communities can sell their food to earn extra income … to support the community to prepare a disaster fund.

**– Institutional Representative, Vanuatu (VUE9)**

As local institutions such as Wan Smolbag are formally sanctioned to act within the city by the state (being accredited charitable organisations), they have not been classified here as 'informal' structures. However, their characterisation by these institutional representatives closely paralleled Helmke and Levitsky's categorisation of substitutive informality, wherein institutional and informal values align but actors operate within an ineffective formal institutional domain. The additional complication of resourcing through the external actors mentioned above – a process that generally bypasses state-based municipal and national structures – further differentiates civil society from both informality and more widely recognised formal urban governance.

While PVMC sustained consistent criticism for its lack of effective engagement with climate resilient development, the absence of substantive involvement of INGOs and even local CSOs within the municipal boundary was also equally evident. This was despite extensive national coordination and spatial delineation of INGO activities through peak bodies such as the Vanuatu Association of Non-Government Organisations (VANGO) and the Vanuatu Climate Adaptation Network (VCAN). As one INGO respondent observed:

**VUE9:** With other NGOs that are working in Vanuatu, we've kind of separated or divided provinces among NGOs, so Oxfam is taking care of [peri-urban] Shefa Province …

**Interviewer:** is there an NGO for Port Vila Municipal Council?

**VUE9:** No. So I guess one area that we need for all these NGOs to identify is who is going to work with the municipality. We haven't come up with that.

This observation was consistent with Vanuatu' provincial climate finance flows, depicted in Figure 5.4, which showed little engagement by INGOs, bilateral donors or major finance organisations within the city itself.

In addition to civil society the most prevalently referenced organisation at a community level was "the church", a term used in general reference to the range of Christian denominational groupings present across each archipelago, with varying degrees of ethnic and island alignment. Within each city differing faith-based organisations (FBOs) were observed, generally correlating to the denominational and island-based spatial distributions of migrants across each city. As one respondent from Solomon Islands related:

Within towns it's a whole mixture of people, with different interests … in terms of culture, the social fabric, they have different aspects. [It is] church groups which somehow links the others together … the church is the most powerful thing that I think most people on the outskirts would be aligned to.

**– Intergovernmental Representative, Solomon Islands (SIE1)**

The connectivity of church structures varied to both global denominational organisations (including faith-based development actors), and state governance structures varied substantially. For instance, two examples of formal involvement of church organisations in development projects highlighted in the photographs shown in Figure 5.12. To the left of the figure is a demonstration of a direct substitutive capacity for the emergency management functions of the national government. To the right is an articulation of a process of suburban development – 1) Church, 2) Clinic, 3) School – entirely controlled by the local Seventh-Day Adventist Church organisation.


**FIGURE 5.12:** NDMO-SUPPORTED DISASTER WARNING SYSTEM ATTACHED TO ONTONG JAVA SETTLEMENT'S CHURCH (LEFT) & A SEVENTH DAY ADVENTIST DEVELOPMENT SIGN IN GILBERT CAMP

(Sources: Author, 2017)

Although FBOs were most frequently referenced by institutional representatives from the Solomon Islands, the role of the church in a more general sense was also noted by interviewees from Vanuatu where it was flagged as a provider of land, services, and a community-level 'gatekeeper' for INGOs and other civil society actors. In total, the church was referenced by eight of the thirteen respondents from the latter, in contrast with six interviews in the former. Church organisations were also viewed as providing a critical cross-boundary 'bridge' for peri-urban communities, as related by one respondent:

> When you do have hardships, like when there is the flooding, it was really good to see the city wards look out for each other. I was really surprised, because the Blacksands people were evacuated to churches in Port Vila.
>
> **– International Agency Representative, Vanuatu (VUE1)**

Other community-level sub-groups were also formed through church affiliations, with denominational alignment determining the composition of women's and youth groups, as well as other local associations. With the informal economy being heavily gendered (Keen *et al.,* 2017), these church women's networks formed the basis of Savings Clubs and training activities at a community level; a key mechanism for empowerment and gender equality in each city.

Despite this community-level prevalence, state-based and international actors were consistently noted as operating at arm's length from church-based structures (with the exception of international FBOs such as ADRA). Respondents were unclear as to whether this 'separation of power' was a structural necessity, or an ideological barrier that inhibited the function and climate resilience of the city and its communities. As a representative of a regional organisation explained:

> The majority of the country operates outside of government systems. But the only institution that reaches to these villages are churches. Even in Honiara. So they are always a good entry point … if you want to get an organisation that is present in the community, you talk to the church. But they have not been fully utilised in terms of the climate change discussions. In many ways I think the church has been kept aside for their own good, maybe. Because there are a lot of governance issues within communities, church sometimes have to manage, you know in a Melanesian context, in terms of power, the church is …. Its neutrality is its strength.
>
> **– Regional Organisation Representative, Solomon Islands (SIE5)**

Nonetheless, faith-based organisations were widely recognised as a critical component of social fabric at a community level, both within and beyond climate resilient development initiatives.

Views on the strength and centrality of chiefly structures differed between the two case study cities. As demonstrated in Figure 5.7, the clear delineation of a national chiefly council – the Malvatumauri – coupled with recognition of the pre-eminence of customary law (as discussed in Chapter 3), strengthened the status of chiefs as a bridge between communities, civil society, and the state in Vanuatu. This was also specifically recognised in the context of climate resilient development projects:

> It's important that for the sustainability of projects for everyone to … start looking and having more relationships with our chiefs. Because the chiefs are the directors of their own villages, and sometimes a lot of projects don't happen because of disputes … land disputes or political interference within each community.
>
> With a very small amount of money, how do I make sure that these people at the grass roots, the people in the community benefit from these projects? … that's where the chief comes in. Because the chief already has a really good system that works … He gets a hammer and goes there and starts building, he gets an axe and starts cutting.
>
> **– Local Civil Society Representative, Vanuatu (VUE7)**

In Solomon Islands the role of the chief and that of the church were often portrayed as being intertwined, with community leaders often being church pastors and ministers, as well as titled community 'chiefs', with chairmen also being noted as the leader in some areas. One respondent, familiar with both cities, noted this difference directly:

> Here in Port Vila traditional structures are also part of the city structure as well. So you have chiefs for different locations, like in Freshwota, Nambatu. That's not like in Honiara. In Honiara they have chiefs, but they are not being I guess engaged more in these kinds of discussions.
>
> **– Regional Organisation Representative, Vanuatu (VUE8)**

Familiarity with these community-level structures were specific to representatives who either worked directly within these urban settlements, or who had personal experience with these parts of each city (either through their own accommodation or due to relations residing within them).

It was widely acknowledged that the role of chief was considered to be even more male-dominated than that of state-governance across both of the case studies, with only rare exceptions (for instance in Port Vila where communities from Pentecost had island-based norms of women holding chiefly leadership). Although community committees were noted as often including a women's representative, more widespread recognition and acceptance of the need for gender balance in leadership roles was at best formative:

> After a lot of advocacy on gender a lot of the chiefs now are coming to realise [that] the roles that are being played by women or can be played by women [but] a big percentage of women comes from a family where once you are married off that's it. You don't have any right to speak of your father's name, your brother's properties.
>
> **– Local Civil Society Representative, Vanuatu (VUE7)**

As the above quote demonstrates, exogenous development efforts and discursive structures had varying levels of influence over or capacity to modify these long-established, local institutions, with climate resilience more readily absorbed than other propositions such as gender equity.

In combination, however, the lack of women's voices in government and their inequality more broadly was observed to be doubly problematic for the effective deployment of climate resilient development programmes. One respondent noted this lack of consideration in reference to evacuation centres that had been set up in Port Vila during Tropical Cyclone Pam:

> When you're thinking about the whole concept even though it's about survival, culturally you need to understand it. You cannot take the paramount chief into a building with all the women and children, it's insensitive. here are the buildings where you just dump people and there is only one toilet, and then there is a lot of gender violence that takes place during evacuation … government, they're not sensitised to pick that up.
>
> **– Civil Society Representative, Vanuatu (VUE13)**

The lack of consideration of women's viewpoints, differentiated roles and needs also echoed the criticisms of resilience thinking's failure to consider social values such as equality and diversity, as highlighted in the assessment of urban climate resilience characteristics in Chapter 2.

Customary landowners of peri-urban areas and the elected representatives for both provincial and municipal informal settlements were viewed as having the highest risk of conflicting with the goals of climate resilient development within these migrant communities. One recurrent example of this was in the interaction between electoral candidates, the incentivisation of settlement within their electoral domains, and the distribution of funding:

> They've arranged with communities, with the old people, that if you live here, and you increase the number to this required number, and I've given you the land to live here [for] your vote. These guys voted, then they went to the parliament, made several votes and never materialised, but they used it as a way of getting people in.
>
> **– International Non-Government Representative, Vanuatu (VUE9)**

This was despite both customary owner groups and even the politically aligned 'Constituency Development Funds' being recognised and legitimised by the state.

Although almost all of the land surrounding Honiara is both leased and titled to the government claimant land 'owners', with differing levels of customary recognition in the three peri-urban Guale tribal groups were noted to continue to extract payments from informal settlements both beyond and within the Honiara city boundary:

> It's basically a free for all. It's quite complex though. There can be various permissions given for somebody to build a house … it may be that there are customary or what are the original customary landowners of that area, might be still trying to have an influence over certain areas even if they are not the legal land title holder of that area, they'll still exert some influence, to say 'this is our land, this is our customary land, give us money and we'll allow you to settle here'. The people who have actually got the legal land title might also be doing that. Or alternatively … even though there is no actual land title being granted informal permission might be given.
>
> **– Regional Organisation Representative, Solomon Islands (SIE3)**

Much of this confusion related to the historical factors outlined in Chapter 3, with large areas of land acquired under contested circumstances for agricultural use (Allan, 1957). Many of these leases were repatriated following independence but are titled to the government, with freehold remaining with the customary owners.

Beyond the wider disruption to community-level structures and tenure security that arose from this 'land confusion' – referred to as *bigfala konfius* in local Solomon Islands Pidgin (Maggio, 2017) – the differing values were also noted to inhibit efforts to implement climate resilient development. As one provincial government representative in Port Vila explained:

> For decision-making then it's not easy. Because you can talk from the provincial perspective, but we are individual people who've got their own rights, we cannot take over that right. When we talk about the resilience, there is a disaster, we mark them out, but we've got to be able to touch them because the land owners they give this land to these people … it is very difficult for the provincial government to go in and make decisions over those areas because [other] people own their land.
>
> **– Provincial Government Representative, Vanuatu (VUE10)**

State institutions were therefore not only viewed as being ineffective, but in some cases were directly competing for legitimacy with the more established, traditional customary structures that pre-dated not only the state, but also the colonial administrations upon which its post-Independence structures were based. As another provincial respondent explained:

> There is freedom of movement when it comes to a person, but when you come in a group you have a sort of government system where you have laws that guide you, how to go with movements like if you are going to settle there, or if the custom owners are going to say how you can use the land. The zoning act, the displacement act … all these things are like a Western system, whereas in our cultural system we have our own ways of doing things, and that's where, that's the conflict between the two.
>
> **– Provincial Government Representative, Vanuatu (VUE11)**

In this sense informality was not only being assessed against the values of state-based institutions (the premise of Helmke and Levitsky's typology), but also those of customary and traditional cultural practice; a conceptual finding that is further explored in Chapter 8.

Despite the effective removal of customary title over municipal land, the reconciliation of these state and customary structures was argued to also be of relevance within the city boundary:

> How do you take the best of the constitutional framework, the best of the customary framework, and merge them to end up with a legal system, a land tenure system … that works for the people? Because municipality here has been so inefficient, ineffective, they just can't win.
>
> **– Regional Organisation Representative, Vanuatu (VUE5)**

These findings reinforced the arguments set out in Chapter 3 by Connell (2003), McDonnell (2013), and others that although the vacuum of formal urban governance enabled the transference of cultural and customary community characteristics into the urban domain, it also enabled and empowered urban elites to the disadvantage of more vulnerable urban inhabitants.

In contrast where community, state and civil governance values were able to align climate resilient development initiatives were being more readily and frequently deployed. As one respondent reflected:

> In 1995 I was the only person doing research [here]. Now you're in 2017 and woha! Everyone is going to Blacksands. Why? … Some of it is the proximity, some of it is that Wan Smolbag has developed a relationship … civil society and the church groups certainly have a say in it. But also, I think because the families have been there since the 60s. Some have come and gone, but they're largely still there, they're established, and they are a community now from different islands and they know how to work together to benefit from research or programs.
>
> **– International Non-Government Organisation Representative, Vanuatu (VUE1)**

Importantly, this cross-scale 'alignment' is itself a normative product of international development discourse, with participatory and community engagement through civil society and faith-based organisations being promoted as 'best practice' by global development organisations and programs.

Even in areas less directly recognised or interlinked with external organisations, there was recognition that more organised communities were absorbing and addressing wider messaging related to climate resilient development, albeit independently of financial and technical support:

> Even though they don't access formal funding the contributions that they make, it's perhaps a fundraising drive, which goes straight for building up a proper water source [or] steps that children can walk and access to the main road. These kind of silent but very powerful things are having great impact. I'm sure they improve the way they are doing things, even though it's in the settlements, but they tried their best to make sure they live in the, ah, healthy manner. Especially in terms of the houses. [but] I think that part is not visible.
>
> **– Peak Body Representative, Solomon Islands (SIE4)**

In each consideration of 'resilience of what?' identified a system characterised by weak city-level state actors, a lack of connectivity of climate resilient development projects with communities, and – at a national level – a lack of overall lack of focus on each city relative to their rural counterparts. However, there was clear consensus that by aligning values and interests across these different actor scales and groups significantly more could be done to improve the climate resilience of each city system.

## 5.7 *'Resilience to What?' in Discourse: Climate Resilient Development*

Each of the institutional actors mapped out in Figure 5.7 and Figure 5.8 were derived directly from interview data, in reference to climate resilient development initiatives across the two cities. However, respondents were also asked to reflect on their own awareness and use of the term 'resilience'. This aspect of the interviews provided a local institutional perspective on the term's recent emergence in development practice, as well as its proliferation through intergovernmental and regional structures, building upon the policy and ODA analysis outlined earlier in this chapter.

All 26 institutional representatives expressed a general level of awareness of the term resilience (although two local government respondents – VUE4 and SIE10 – stated that they were unclear as to the meaning of word itself). However, most interviewees either did not feel that they could clearly define the concept or – where they did have a particular definition in mind – emphasised the need for different framing depending upon how and where was being used. As one representative attached to Vanuatu's climate change ministry explained:

> I mean I can quote, I can spout Resilience Alliance definitions and things, but for Vanuatu I don't know that we'll ever have a high-level national definition of resilience. [It] makes more sense to keep it at that real practical, tangible level. Focused on the specific aspects for a sector, or geographical area … the climate folks will probably never come out and say 'this is what climate resilience means', because we're trying to make it much more realistic and appropriate for the Vanuatu context.
>
> **– Regional Organisation Representative, Vanuatu (VUE6)**

In all, half of the respondents referenced the need to contextualise the meaning of resilience (five Vanuatu respondents, six Solomon Islands respondents). Only two interviewees explicitly warned of the risk of this fluidity leading to the term's manipulation and misuse however, despite this being a prevalent criticism in critical peer reviewed literature.

Although flexibility in interpretation was consistently acknowledged across the two countries, the level of use of 'resilience' across urban and national development programmes differed markedly. Roughly two-thirds of respondents from Solomon Islands viewed resilience as an 'emergent' term, compared with less than a third of those from Vanuatu. In the latter a further third instead suggested that it was used widely, in contrast with none in the former.

As concisely summarised by a respondent from Vanuatu's Ministry of Climate Change and Adaptation, "climate change resilience is very much a term that is used regularly" (VUE2). In contrast, an institutional representative positioned within Solomon Islands' equivalent ministry noted that "the term climate resilience has … for myself, came up just recently when we are dealing with issues of adaptation to climate change, or climate variability, or any disaster risks like that" (SIE11). This paralleled differences in the use of resilience language in registered climate-related projects, as demonstrated earlier in this chapter, with a significantly larger number of projects referencing 'climate resilience' having been registered in Vanuatu since 2013 (see Figure 5.2 and Figure 5.3).

Based on the analysis of the primary and secondary sets out data outlined throughout this chapter I attribute the more prevalent use of 'resilience' in Vanuatu two main factors. Firstly, a more heavily coordinated national government and civil society sector were expressly – and effectively – targeting

climate finance, including through use of resilience language and framing in the way that projects were developed. As one respondent reflected:

> Vanuatu is a bit on the leading edge of the use of the term resilience. So, the first time that resilience really became an entity in Vanuatu was with this NGO consortium that we started back in 2013.
>
> **– Umbrella Organisation Representative, Vanuatu (VUE6)**

The recently-completed *Vanuatu Climate Change Finance Review* further reinforced this observation, noting that Vanuatu had "very strong INGOs leading on climate change, resilience building and inter-related development work at the local and community level [with] a larger number of local NGOs and CSOs" (GIZ, 2018). This was argued to have provided the basis for much of the early uptake of the term.

Secondly, the impact of Tropical Cyclone Pam occurred subsequent to an accelerated uptake of the term globally. This not only heightened exposure to 'resilience' during the globally supported relief effort that centred upon Port Vila, but also allowed the meaning of the term to be contextualised in relation to community-level disaster response mechanisms:

> I think the word resilience is coming after TC Pam. I think the word is becoming more, people are getting to know the meaning of what is resilient. Because we've never, we've had big cyclones in the past but those words we've never heard, but we've seen what they mean.
>
> **– Provincial Government Representative (VUE10)**

This was of particular relevance to actors within provincial and municipal governments, who had not previously been engaged in climate- or disaster-related resilience-building activities.

In contrast, the April 2014 Flood event in Honiara occurred prior to much of the growth in the use of 'climate resilience' and 'disaster resilience' in peer-reviewed literature (as demonstrated in Figure 2.4), as well as more generally in development practice. This difference is further evidenced through comparison of the two Humanitarian Action Plans that were developed in response to each of these disaster events. The Government of Vanuatu's Tropical Cyclone Pam response included eleven references to resilience, including a statement that "it is crucial that in addition to restoration and rehabilitation of communities a resilience based approach is promoted" (GoV, 2015, p. 56). The plan for Honiara and Guadalcanal following the April 2014 floods, however, included only one reference to resilience, which was specific to the psychological resilience of teachers rather than the more general state of either urban or community systems (MECCDM, 2014).

Honiara's most recent major disaster event also preceded the consultation process for the Framework for Resilient Development in the Pacific (FRDP), which was originally intended to be approved at the 2015 Pacific Islands Forum (and was consequently undergoing national consultations prior to the impact of Tropical Cyclone Pam). The FRDP replaced – and integrated – two earlier regional disaster and climate change focused policy frameworks: the Pacific Disaster Risk Reduction and Disaster Management Framework for Action (2005-2015), and the Pacific Islands Framework for Action on Climate Change (2006-2015) (Hay and Pratt, 2013). It therefore played a critical role in integrating disaster and climate resilience at a regional level.

In all, half of the interview respondents referred to 'climate resilience' directly, with only 15.4 percent referring to only 'disaster resilience'. A further third referred to climate and disaster resilience jointly. Climate-focused resilience thinking was notably more prevalent in Solomon Islands, where 92.3 percent of respondents included climate change related language in their references to the term. In Vanuatu 61.5 percent of references to resilience thinking, however, referenced natural disasters. The more recent emergence of resilience language in Solomon Islands appear to be particularly driven by a shift in the language around climate change adaptation. As one respondent explained:

> Increasingly the concept of adaptation, I've noticed that increasingly the idea of resilience is becoming more up front, as opposed to climate change adaptation.
>
> **– Regional Organisation Representative, Solomon Islands (SIE05)**

Critically, 57.7 percent of respondents viewed the emergence of 'resilience' as a term to be either donor or project driven (nine Solomon Islands respondents, six Vanuatu respondents); reflective of the influence of climate finance and ODA over the use of the term in each case study setting.

## 5.8 *'Resilience to What'? in Practice: Shocks and Stresses*

A more practical understanding of institutional actor perceptions of 'resilience to what?' was also able to be demonstrated through respondent references to specific shocks and stressors. A summary of the outcomes of this analysis is shown in Figure 5.13, with climate-specific shocks and stressors depicted in red, non-climate natural disaster events shown in grey, and those driven by other aspects of urban development shaded black. These findings were also contextualised – and compared with – a review of published scientific literature on the current and future climate of each city. This included national-level climatic records, observed trends, and the downscaled projections that were developed as part of the Pacific-Australia Climate Change Science and Adaptation Planning (PACCSAP) program, as well as each of the city-specific climate vulnerability assessments developed by UN-Habitat as part of their *Planning for Climate Change* programme (BoM & CSIRO, 2011; Rodil and Mias-Cea, 2014; Trundle and McEvoy, 2015). This research output was also used as a point of comparison with the perspectives of households in each informal settlement, as discussed further in Chapters 6 and 8.

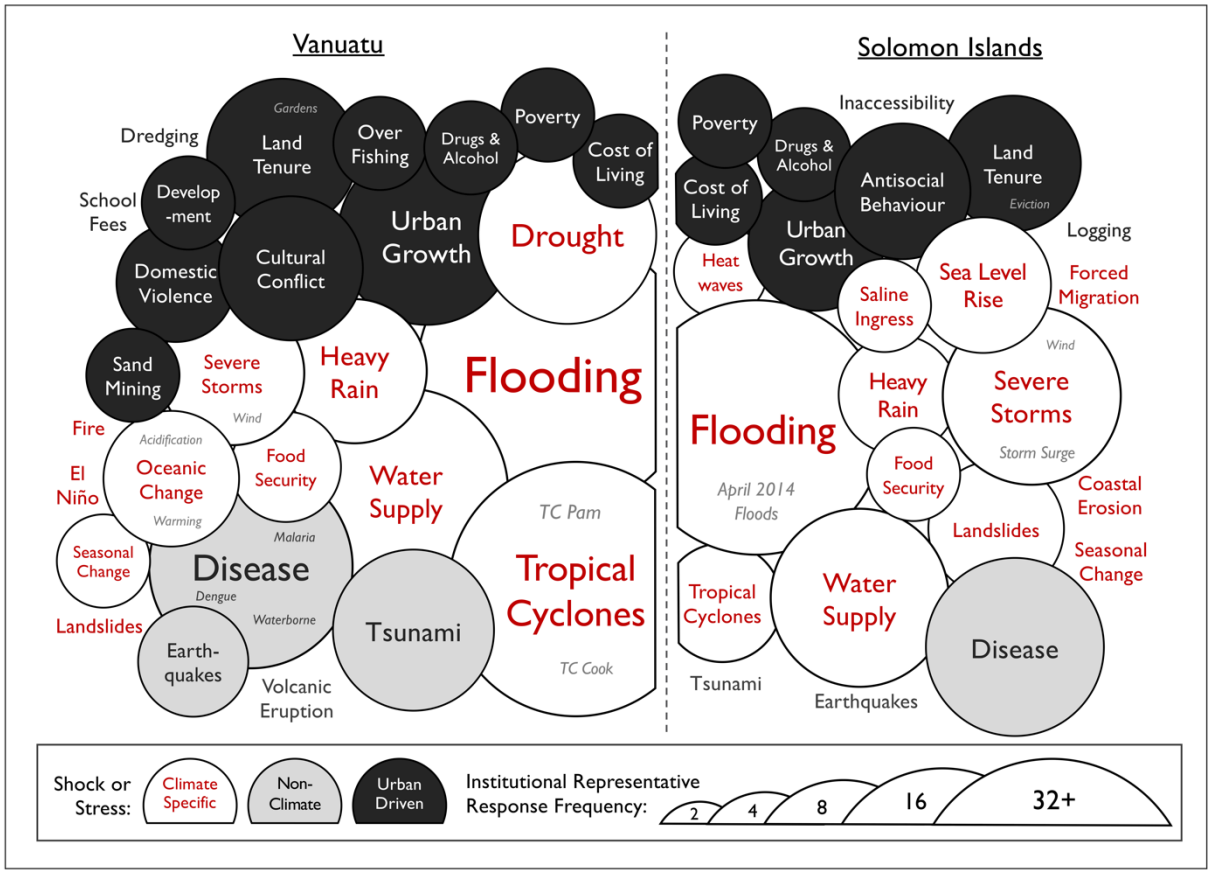


**FIGURE 5.13:** INSTITUTIONAL ACTOR IDENTIFICATION OF SHOCKS AND STRESSORS

(Source: Author)

Honiara and Port Vila both have two season (wet-dry) tropical climates with reasonably comparable mean annual temperature ranges and rainfall patterns. In each city highly variable inter- and intra-annual rainfall variation correlates with a high frequency of precipitation-driven shock and stress climate events; characteristics visible the figure above. This fluctuation is largely attributable to the El Niño Southern-Oscillation (ENSO), with their location on the edge of the South Pacific Convergence Zone (SPCZ) frequently resulting in delayed wet season rainfall during El Niño and above average rainfall during La Niña events.

Port Vila's location approximately 1,290km to the south-east of Honiara, however, results in it having a higher and more variable level of wet season rainfall, as well as milder dry-season average temperatures; the former a product of higher exposure to shifts in the relative positioning of the SPCZ (BoM & CSIRO, 2011). Analysis of the last 65 years of seasonal data show Port Vila's annual dry season rainfall can vary substantially; from 1509 mm in 1999 to only 141 mm in 1987 (Trundle and McEvoy, 2015). Wet season rainfall records show smaller – but nonetheless substantial – fluctuation, resulting in combined rainfall having an interannual range from one to more than four thousand millimetres (ibid). Honiara's rainfall records vary by slightly less year-to-year, with annual rainfall ranging from 1070 mm to 3379 mm over the same period (Trundle and McEvoy, 2016, p. 14).

Despite both countries facing a one-in-twenty year average return period for severe drought (BoM & CSIRO, 2014, pp. 209, 255), this particular stressor was only mentioned by Vanuatu interviewees. These references were often specific to the extended dry period that followed Tropical Cyclone Pam, which was associated with a strong El Niño event that severely impacted much of the region at that time. As one respondent noted, "the drought last year, none of us had seen a drought in our lifetimes, certainly not a big drought" (INGO Representative, Vanuatu - VUE1). This observation, and the lack of any comparable considerations in Honiara, demonstrates the limitations of using observed climate as a proxy for potential climate risk, with high impact, low frequency events and non-linear future changes not observable through trends often being underrepresented, despite the higher levels of awareness exhibited by these institutional representatives.

Port Vila has been more frequently impacted by tropical cyclones than any other capital in the South Pacific since regional records began in 1969, with an average of 23 cyclone tracks having passed within 400 km of the city over the subsequent four decades (BoM & CSIRO, 2011). This is more than double that of Honiara, which was affected by an average of one cyclone per year over the same period (ibid). This factor, coupled with the recent impact of Tropical Cyclone Pam, could be argued to account for much of the contrast in country-specific references to cyclones between the two interviewee groups. However, it was noted by a number of Solomon Islands interview participants that Honiara was ill-prepared for a severe or direct cyclone impact, with three decades having passed since the last major landfall (Cyclone Namu in 1986) (SIG, 2014).

Other key differences in referenced shocks and stressors between the two countries included the more frequent discussion of the impacts of sea level rise in Solomon Islands, including secondary impacts such as saline ingress into water tables and cropping areas, coastal erosion and forced migration (see Figure 5.13). Regional data shows Solomon Islands to be a 'hotspot' for observed sea level rise, with satellite records from 1993 to 2010 showing that most of country's coastal areas have experienced an increase of 8-11 mm per year, well above both the global average annual increase of 3.2 (±0.4) mm and that experienced in Vanuatu over the same period (5-7 mm) (BoM & CSIRO, 2011). Exposure at the city's costal fringe, as well as in the home atolls of some prominent migrant communities, may also have contributed to the more frequent referencing of these slow-onset stresses.

High-risk, longer-term impacts such as ocean acidification and temperature-driven coral bleaching, as well as the introduction of previously unexperienced hazards such as bushfires and heatwaves, weren't a strong feature of either set of responses. Even the more immediately evident impacts of seasonal changes – a key risk for subsistence food crops – were referenced a total of three times across the interviews. This contrasted with the 'forward-thinking' aspirational characteristic of urban climate resilience that featured prominently in literary references to resilience's normative use. As one respondent observed:

> We've realised that in the previous climate change project we were working the majority of activities were based mainly on absorptive capacity. The other two areas that we haven't done a lot on were more on adaptive capacity and also on transformative capacity. It's a new thing and [the] community are flexible to absorb new activities … where the community can, then it will continue with long-lasting change.
>
> **– International NGO Representative, Vanuatu (VUE9)**

The lack of consideration of future climate scenarios is also interlinked to the absence of effective pathways for transformative change, which requires consideration of the prospective shocks and stresses that a modified system might face.

Where future changes were mentioned their consideration centred upon localised urban change rather than shocks that were derived more abstract global forces such as climate change. These ranged from urban growth and land tenure issues, to concerns about cultural transitions and social fragmentation:

> It's going to be a huge problem in the future, because most of the people [who] live in town, and especially government workers, they own land. But imagine in this town when the kids grow up, they won't even know how to hold a [bush] knife. They won't even be able to speak their own dialect. They are strangers in their own villages.
>
> **– Provincial Government Representative, Vanuatu (VUE11)**

These more tangible futures and localised urban concerns reflected the interconnectivity between not only disaster and climate issues but also the locally induced urbanisations pressures faced by cities with already substantive governance and infrastructure deficits. As one Solomon Island respondent pointed out:

> [It's] just basic urban planning … there is a whole range of issues that comes with it. So, resilience must be approached with that in mind … increasingly the use of resilience is [as] a more broad, encompassing concept.
>
> **– Regional Organisation Representative, Solomon Islands (SIE5)**

The capacity for 'resilience' to bridge climate-, disaster-, and urban-related shocks and stresses can therefore be seen to be the strongest motive for its discursive proliferation in these two case studies. Its dissemination from theory through to policy and development practice was consequently driving cooperation between practitioners from across these discrete organisations and fields that would otherwise not have occurred.

## 5.9 *Conclusion: Exogenous Expressions of Climate Resilience in Port Vila and Honiara*

This chapter addressed the first of this project's three research questions, restated below, by examining the spread of resilience language and thinking from global policy frameworks into climate finance mechanisms, regional frameworks, and development organisations active in Honiara and Port Vila:

> 1. In what ways is the discourse of climate resilience being expressed and applied in exogenous development practice in Vanuatu and Solomon Islands?

This question was approached by traversing the nested scales of urban governance structures set out in this research's conceptual framework, as shown in Figure 3.8. Two key sources were drawn upon: policy

and project content relating to climate resilient development within each of the two case studies' national contexts; and primary interviews with in-country representatives of the formal institutions that oversaw these climate resilient development initiatives.

Discursive elements of the attributes and theoretical qualities of climate resilience highlighted in Chapter 2 were clearly present within exogenous climate resilient development practice in the two case studies. The flexibility and fluidity of the term was shown to be enabling the bridging of programmatic areas and policies, particularly those relating to disaster risk reduction and climate change adaptation. 'Resilience' was also being applied to a diverse range of ecological, social and manufactured systems. A trend towards integrating the language of resilience into a growing share of international development projects was also clearly evident. This was particularly the case in Vanuatu, where a sharp rise in climate resilience projects and finance could be observed following the impact of Tropical Cyclone Pam, reflecting the importance of understanding the dynamic nature of not only systems, but also the uptake of resilience discourse, following contemporary disaster events.

Much of this climate resilient development finance was found to be being directed through multilateral bodies explicitly linked to global programs and policies that set out climate resilience as a core objective, thus providing a clear framework for engaging with this global discourse. However bilateral ODA into the Pacific was also shown to be using 'resilience' as an umbrella term to link recipient country prioritisations of climate change with more general – and in some cases existing – development programs. The latter applications lacked clear consideration of both resilience theory and international best practice, instead aligning more closely with Weichselgartner and Kelman's "old wine in new bottles" critique (2015, p. 259).

Regional bodies – particularly those accredited to the Council of Regional Organisations in the Pacific – were found to play a substantial 'gatekeeping' role in both climate finance and the discursive disbursement of resilience language. With many SIDS lacking the state-level capacities and securities to easily access global climate finance, these bodies were evidently enhancing the region's access to development finance. However, it was also evident that the external positioning of these organisations also risked hindering the improvement of equivalent capacities (both structural and in terms of personnel) at a country level. Notably, very little regionally accessed finance was explicitly focused on sustainable urban development, in contrast with nationally directed aid.

Sub-national analysis showed climate resilient development initiatives varied significantly across provinces in both Vanuatu and Solomon Islands – both in terms of the number of projects and finance distributed on a per capita basis. Two notable differences emerged between the case studies through this analysis. Firstly, resilience discourse – and language relating to 'climate resilience' directly – was far more prevalent in Vanuatu than Solomon Islands. Secondly, provincial level analysis in Vanuatu showed that very little urban climate resilient activity was being undertaken in Port Vila, relative to the disbursement of climate resilient development finance to rural areas. In Solomon Islands, however, Honiara and the surrounding peri-urban areas of Guadalcanal Province received a much higher share of nationally registered climate resilient development support on a per capital basis.

Further investigation of the breakdown of climate resilient development in Solomon Islands highlighted the disproportionate impact of one initiative – the GCF supported Tina Hydropower Project – on these sub-national figures. Content analysis of project documentation showed, however, that the consortium was yet to 'break ground' on the project, due predominantly to a lack of consideration of rural and peri-urban land tenure complexities relating to the customary owner groups in Guadalcanal. Further, although the hydropower project nominally addressed 'climate resilience' through electrification and thus a reduction in vulnerability of the urban poor, it was found that there was little consideration of

the barriers to electrification in Honiara's extensive informal settlement areas (foremost among which was a lack of legal tenure). This illustrated a wider observation across both case studies, with only a handful of projects were focusing on informal climate resilience within the two cities.

Interviews with institutional stakeholders provided further granularity to the nested scales relevant to each city, with two clear divides evident: firstly, between civil- and state-based institutions, and secondly between organisations and individuals considered to be 'external' and 'internal' to the urban system (as shown in Figure 5.7 and Figure 5.8). The absence of formal structures at sub-city levels strongly contrasted that of other nested scales, while city-level state institutions were observed to have limited capacity and disjointed functional connectivity; particularly in the cases of Port Vila Municipal Council and Guadalcanal Provincial Government.

Interactions between these nested scales were found to be frequently non-hierarchical in nature, supporting a key rationale for deploying the Panarchy heuristic both in this research and more broadly in resilience thinking to address cross-scale issues. For instance, in lieu of effective state systems at a sub-city level, several 'sanctioned' civil institutions were found to be performing substitutive roles across both Port Vila and Honiara with support of both national-level peak bodies and international partner organisations. However, institutions not directly 'nested' within or above each city system were also found to be engaging extensively within each city without substantive levels of local connectivity, particularly bilateral development agencies and international non-government organisations. With both of the latter being answerable to normative ideals and priorities outside of the system in question, this raised important considerations relating to system agency, citizen rights and transformative decision-making not effectively addressed within resilience theorisations to date.

In summary, despite the fragility of state-based urban governance and the disjuncture of 'external' institutional values and interests, resilience discourse pervaded the 'internal' institutions within each case study in a number of ways. This was particularly the case in Vanuatu, where state actors were found to be actively deploying resilience language to gain access to climate finance, but also to integrate otherwise indirectly climate related agendas into this increasingly substantial global funding resource. This observation, alongside the lack of a similar level of discursive engagement in Solomon Islands, was consistent with findings from secondary data analysis in the first half of this chapter.

This 'performative' deployment of climate resilience discourse paralleled observations by Webber of performative climate vulnerability (2013). Beyond this, however, the use of 'resilience' did appear to have significant value as a convening concept that could bridge groups of shocks and stresses, as well as their respective institutional response, prevention and management mechanisms and personnel. This was particularly the case with climate, urban and non-climate natural disasters and pressures. I therefore argue that in the case of rapidly growing, less developed cities, the interplay between these shocks and stressors enhances the value of the term and its theoretical constructs. This is because 'resilience' can be more closely reflective of the 'realities' being faced by their urban inhabitants, while avoiding the complexities of attribution in complex and dynamic urban systems.

It was clear that across the two cases climate and urban related shocks and stresses were considerable. Despite the weakness of exogenous urban climate resilient development efforts and the aforementioned limitations sub-system structures, both Port Vila and Honiara were broadly viewed by institutional stakeholders as maintaining a generally acceptable level of functionality, even in light of the relatively recent impacts of Tropical Cyclone Pam and the April 2014 Floods. A clear rural bias was also evident not only in funding distribution, but also in the lack of institutional understanding of urban informality. These observations, consistent with the original research hypothesis set out in Chapter 1, are further explored in the following two results chapters.

# 6 'HOME' IN A SEA OF ISLANDS: SITUATING INFORMAL COMMUNITIES

> She said some other relatives were working here during that time, it was around the 1970s, they were working for the farm here … they were working but they don't have anywhere to sleep, so they came here and stayed with his father, their relatives, who owned this place during that time.
>
> They were their family, relatives, and when they come, they ask him if they could stay here. Because they are family, they can't say no, they just accept them, and they live together. It's part of their culture.
>
> They are not really recognised by the government, or council, that this is a community, an established community.
>
> So, they think, if [the government] can recognise this place, this community, maybe they can help channel some funds or something so they can organise themselves.
>
> **Translation of a Household Representative – Blacksands Community, Port Vila (BSHH3)**

## *6.1 Introduction*

This chapter contextualises the six informal communities that are analysed in Chapter 7 within their respective national and city systems. In doing so it provides a framework for addressing RQ2, in order that the exhibitions and enactments of endogenous forms of climate resilience within these communities can be compared and understood as part of the nested systems within which they operate.

I first establish the nature of the Melanesian migrant dialectic through the integration of findings from both secondary and primary data relating to each city's rapid growth, the nature of each settlement's informality, and the positionality of the members of the households that have transitioned into these urban systems. These parameters not only form the basis for analysing the interaction of these sub-city systems with the city scale, but also allow comparative analysis across each of the different informal settlements (following the typology set out in Figure 4.1), enabling a wider consideration of these findings beyond the case study cities under examination (RQ3).

In order to develop this definition both sets of interviews (institutional and community-based) are also drawn upon, as well as secondary sociodemographic and urban planning data, legislative documentation and land records. The city scale is first considered through the re-analysis of national census data, which is used to profile patterns of rural-to-urban migration in the two countries. This secondary analysis has been integrated with perspectives of 'home' and differences between rural and urban settings, as evidenced in primary interviews with migrant households across the two cities. These two datasets form the basis for consideration of other propositions put forward in the literature related to the migrant dialectic, such as circular migration and the composition of urban villages.

Findings demonstrate that the two cities and their inhabitants exhibit shared sociodemographic, cultural, and spatial characteristics to the extent that I argue a common 'Melanesian' migrant dialectic is evident across the two case study countries. The analysis here therefore synthesises evidence from across the six case study communities in order to compare and contrast cross-national settlement similarities such as shared informal tenure type alongside those across the two case study cities.

An overview of tenure at the city scale is then used to define and differentiate each community's 'informality', as related to the typology set out in Chapter 4. Community profiles – drawing upon the narratives and documents provided by community leaders, as well as observations from transect walks, secondary spatial data, and institutional records – are then provided in order to contextualise the analysis of endogenous resilience provided in Chapter 7, as well as to provide the basis for differential analysis and wider theoretical and practical considerations as elaborated on in Chapter 8.

## *6.2 Defining a Melanesian Migrant Dialectic: Island Identities in Port Vila and Honiara*

As demonstrated in Chapter 3, the strength of island identities and the associated continuation of *wantok* and familial systems is widely referenced in the literature on urbanisation in the Pacific. Their prevalence was also confirmed by the institutional interview responses set out in Chapter 5. As put by one institutional respondent:

> These people largely settle in their language or ethnic groupings. Very important point. Because they settle in such ethnic clusters, they have their own governance structures … that are not recorded. The social structure.
>
> **– Intergovernmental Representative, Solomon Islands (SIE2)**

As this respondent noted at an institutional level the ways in which these systems extended into informal settlements – and how they differed between settlement types – are poorly documented and are therefore rarely understood. This was despite empirical evidence and institutional awareness that these factors significantly influenced levels of community co-operation and self-organisation (Mitchell *et al.*, 2016; Gero, Kohlitz and Willetts, 2017). For instance, similarities in customary structures and practice were argued to enhance community cohesion, while affiliations to wider *wantok* and church denominations had been found to enhance links between language and island groups (McDonald, 2013; Flexner, 2016).

This variance from more transitional notions of rural-to-urban migrant 'otherness', meant that patterns of inter-provincial migration into the city required additional precursory consideration. Building on this research's archival analysis of census data records and the spatial re-analysis of GPS-based household data points (as used in Figure 3.4 and Figure 3.5), recent inter-provincial movement and urban distributions by place of birth were therefore also examined in order to better understand the nature of the Pacific urban migrant dialectic. The outputs of this additional secondary data analysis are summarised below, providing new insights into the patterns of rural-to-urban migration in each city.

My analysis of inter-provincial migration found that only a third of Port Vila's 43,275 residents[10] enumerated at the 2009 census were born within the city, with a further 20.8 percent having emigrated from elsewhere in Shefa Province. As such, inter-island migrants were estimated to account for at least half of Port Vila's population, with the metropolitan area accommodating an additional 11,897 migrants from islands within Shefa Province other than Efate. By way of comparison, the total number of inter-provincial migrants living in the rural areas of Shefa Province was found to be only 7.4 percent, while the share in the archipelago's third most populous island, Tanna, was 14.5 percent (VNSO, 2010, p. 51).

Findings relating to the patterns of lifetime migration to and from Shefa Province as of 2009 are shown in Figure 6.1. Although data was not able to be fully disaggregated for Port Vila itself, most inbound migrants represented in this figure lived in the city and its immediate surrounds[11]. As the figure demonstrates, the rural-to-urban migration into Port Vila is reasonably balanced in terms of respective provincial populations, with the lowest share of migrants coming from the most spatially remote province, Torba. The location of Luganville on Santo Island is also likely to have contributed to the slightly lower levels of migration from Sanma Province to Shefa, with Vanuatu's second city offering similar urban opportunities in closer proximity to both Samna and Torba Province. Relatedly, the strongest out-migration from Shefa Province is to Sanma, in which 62.2 percent of Shefa-born migrants were found to live in the urban-classified area of Luganville.

---

[10] 1,956 people enumerated in Port Vila in 2009 were not in their usual place of residence and are therefore excluded from this figure.

[11] Only 1,505 of the 12,715 inhabitants of Shefa Province located on islands other than Efate were found to have migrated away from their place of birth, a total that also includes occupants of the metropolitan area of Port Vila not formally urban classified.

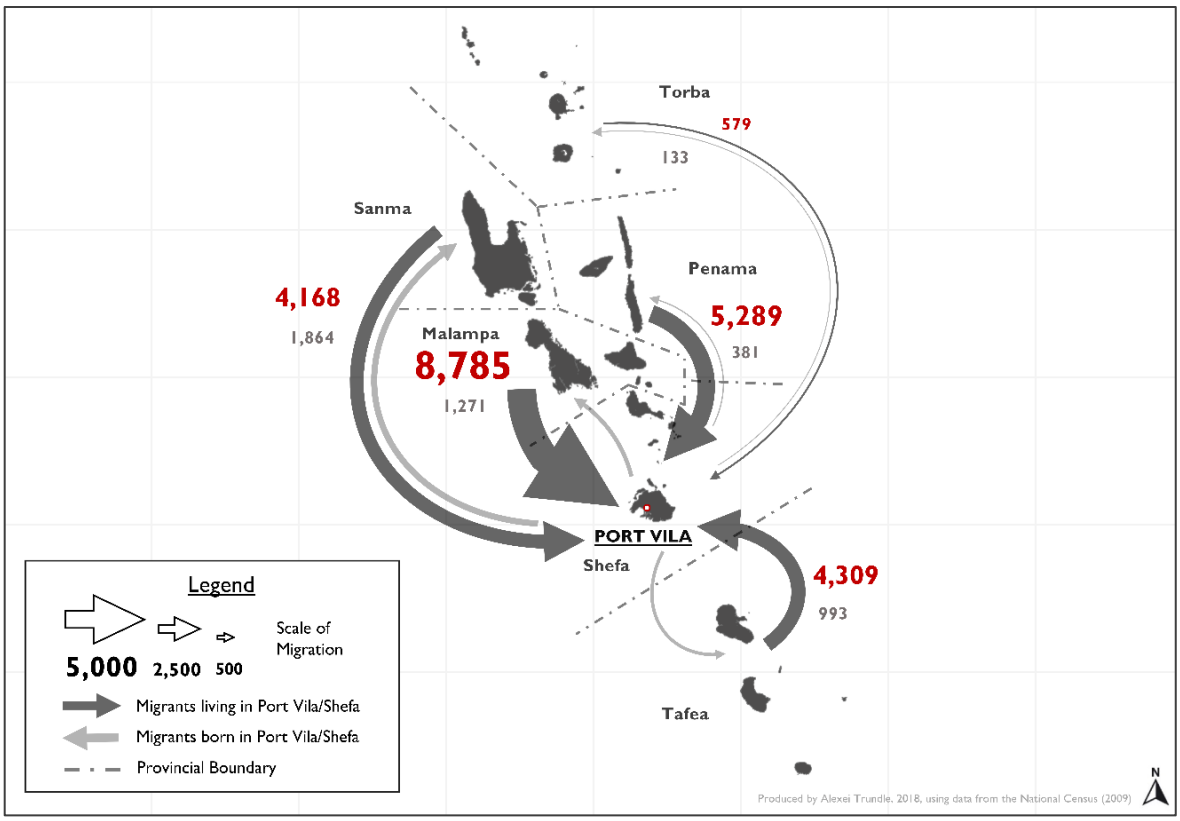


**FIGURE 6.1:** LIFETIME PROVINCIAL MIGRATION TO / FROM PORT VILA & SHEFA BY BIRTHPLACE, 2009

(Source: Author, developed using VNSO 2009 Census Data)

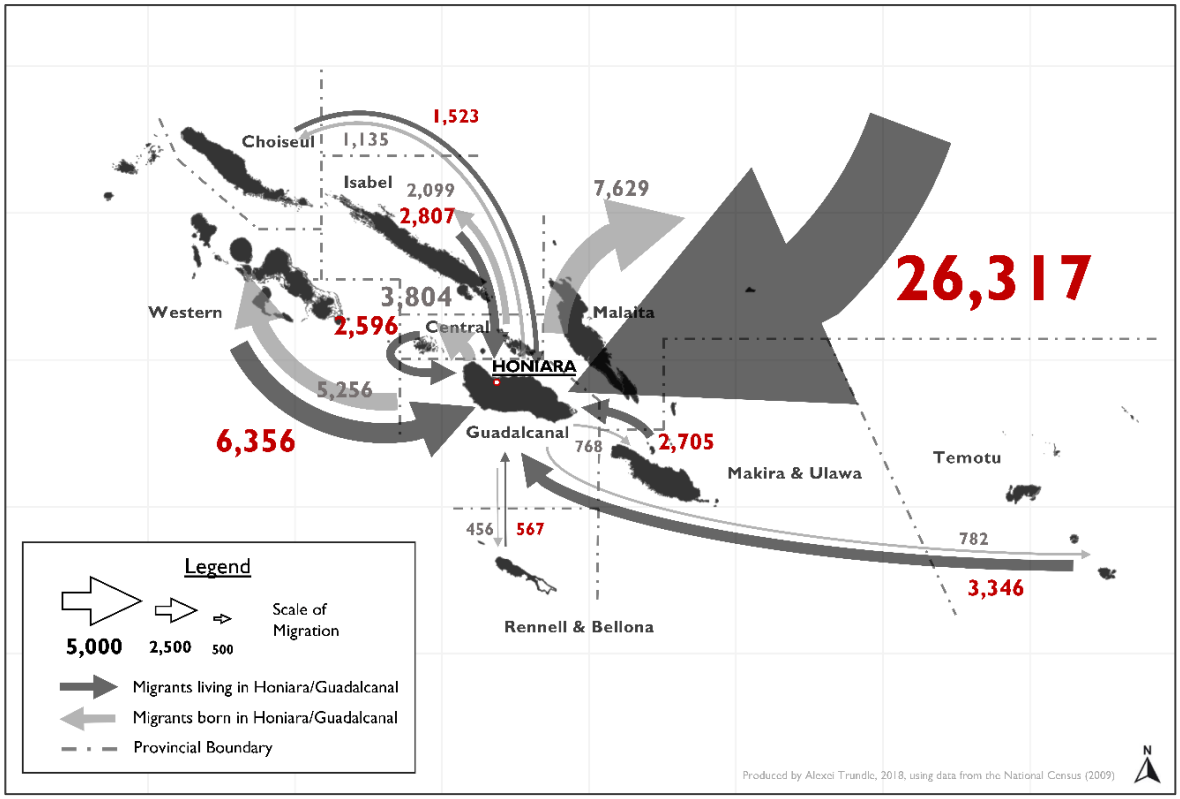


**FIGURE 6.2:** LIFETIME PROVINCIAL MIGRATION TO / FROM HONIARA & GUADALCANAL, 2009

(Source: Author, developed using SINSO 2009 Census Data)

Analysis of data from the Solomon Islands 2009 census showed that Honiara's migrant population is dominated by those born in the province of Malaita, as can be seen above in Figure 6.2. Although this imbalance is partially reflective of the uneven population distribution between the nine provinces (with Malaita accounting for 26.7 percent of the national population in 2009), Malaitan-born residents of Honiara accounted for more inhabitants – 31.0 percent – than all other eight provinces combined (22.9 percent). Rural-to-urban migration into the city by those born elsewhere on the island of Guadalcanal, however, accounted for only 2.7 percent of Honiara's population. Those residents born within the city boundary also accounted for a higher proportion of the populous than in Port Vila, accounting for 44.5 percent of Honiara's 64,609 residents.

Migration of those born in either Port Vila or Shefa Province to elsewhere in Vanuatu was found to be in stark contrast to the large-scale movement into the city, with only 4,642 ni-Vanuatu born in the capital city area found to have migrated out of the province. In Solomon Islands, however, 21,929 persons born in Guadalcanal had migrated elsewhere in the country. Further, 90.5 percent of these migrants had been born in Honiara itself. One-third of interprovincial migrants had moved to Malaita, as shown in Figure 6.2. This difference is therefore likely to be driven largely by the Ethnic Tensions 'pushing' second-generation rural-to-urban migrants back to their home islands, as well as the wider maintenance of links to custom and *wantok* networks discussed in more detail in Chapter 7.

Despite the variation in tenure types and island origins between the six case study communities the significance of each household's island-based *wantok* network, as well as their own personal home island identities, was evident across all of the household interviews. This was reflected in the wantok system being referred to by almost every household across the six communities (n=64), as well as relatively evenly across each city (as shown in more detail in Appendix I). This extended beyond the migrant dialectic posed by Silvey and Lawson (1999) into a broader functional component of the informal settlements that juxtaposed – but was at the same time contingent upon – the notion of a distinct urban identity.

In the case of Honiara, 32 of the 35 household-level research participants identified themselves as being 'from' islands other than Guadalcanal. Reflective of the dominance of Malaitan in-migration (as shown in Figure 6.2), 28 of the respondents identified island origins within Malaita province. Of these, however, nine referenced Ontong Java Atoll, a culturally discrete spatially remote sub-provincial area. Two respondents were from Western Province, one of which noted that they had migrated from the township of Gizo. A final interviewee was from Pentecost in Vanuatu's Penama Province, with the island name being emphasised without any mention of their difference in nationality, demonstrating the prominence of these identities within the Melanesian region.

In Vanuatu 38 of the 42 household interview participants identified as having a 'home' origin outside of Port Vila, with the spread of these island locations representative of the country's historically more diverse rural-to-urban migration patterns (as demonstrated in Figure 6.1). Almost half of the respondents described themselves as being from Tanna Island in Tafea Province (n=17). However, this was reflective of Blacksands – one of the three informal settlement sites – being home to a large *man*-Tanna population (the province's largest island), and several of these participants living within a homogenous sub-area of Blacksands known as Tanna Village.

A further thirteen islands were referenced by household representatives from the three Port Vila case study communities, two of which are located elsewhere in Tafea Province; Futuna (three) and Erromango (one). Malampa Province accounted for a quarter of participant island-origins (Paama, five; Malekula, three; and Ambrym, two). Four migrants originated from islands in Penama Province (Pentecost, three; and Ambae, one), two were from Banks in Torba Province, while one had recently

arrived from Malo, an island in Sanma. Only one participant identified as being from Efate Island itself, although two were from elsewhere in Shefa Province (both *man*-Tongoa). A final participant had emigrated internationally from Makira in Solomon Islands.

The strength of these island identities was particularly well demonstrated in one exchange with a self-identifying 'Malaitan' interview participant in Honiara's peri-urban Jabros community:

**JBHH10:** *Mifela* live *lo* Guadalcanal customary land. So, then, customary land *tok* come *mifela* go *sayem* customary land for ground here. So *hem* now *mifela* stay *olsem*, so *mifela smol* come stay *lo* here, *mifela* live *lo* local community *lo* Malaita, *mifela* from Malaita. So come stay *lo* here, mifela live *olsem* Island *lo* here.

**Interviewer:** Ah I see. And this house … how long have you lived here in Jabros community?

**JBHH10:** Ehh, *mifela* born *lo* here.

**Interviewer:** Ahh. But Malaita is still home?

**JBHH10:** Yeah.

**Interviewer:** So you've lived here all your life?

**JBHH10:** Mmhmm

**Interviewer:** Have you ever lived in Malaita, for even a short time?

**JBHH10:** No.

As the community member explained, although they have been born in the settlement they identified as being 'from' Malaita; a location that was referred to as 'home' despite them having never lived there.

This entrenched 'otherness' formed a powerful basis for both personal and shared identities in many of these communities. This was demonstrated in the example given above by the characterisation of Jabros as being a "local Malaitan community", despite being located on Guadalcanal customary land. It was also reflected in the names of many of the communities themselves, which often aligned to sub-island language or tribal groups as one intergovernmental organisational representative from Honiara explained:

**SIE2:** The ethnic groupings, tribal groupings, language groupings … these are very important social characteristics. For example, Ontong Java belongs to the Ontong Java people. These community names are not given by the government but [are] given by themselves. They call these places, indicate the groupings and which place they come from regionally … government has nothing to do with defining them. Most of these places are settled largely by Kwara'ae people, from Kwara'ae in Malaita. So the names are from Kwara'ae region of Malaita. Lau Valley for example, the name itself means that it is the people from Lau in North Malaita who are largely the settlers in those areas.

**Interviewer:** And in terms of how the social structures operate it varies by home village?

**SIE2:** Exactly. The Lau people have their own structure generally, and they apply them wherever they settle in Honiara, and so do the Kwara'ae.

This naming pattern could also be observed in some of the more established settlements in Port Vila, with the Seaside sub-areas of Futuna, Tongoa and Paama reflecting the island origins of the communal leaseholders and original occupants of the sub-areas within this informal settlement.

Another Jabros interviewee, also born in the community in the 1980s, explained that Malaita was not only their 'home', but that they would also consider it to be that of their Honiara-born children, and their "children's children also" (JBHH4). In this sense, island-based identity – reinforced through intergenerational identification with an external customary *ples* [place] – held pre-eminence over the relationship of these settlers with the land being physically occupied. Relatedly, it also acted as a

substitute for household-level tenure security and rights usually associated with the state; with the latter having been ineffective at establishing a cohesive urban identity, while the former the community-based structures informally authorised prospective household access to land.

At a city scale the continuation of these island structures was therefore found to be a critical factor 'competing' with the values of the state; counteracting the establishment of a cohesive or shared urban identity, the more general resistance to which is discussed in Chapter 3. This classification reflects Helmke and Levitsky's fourth category of informal-institutional engagement (as shown in Table 3.1), whereby an ineffective state appears to be in conflict with the informal values that are being enacted within it (2004). However, as the post-disaster narratives below demonstrate, for households the maintenance of island linkages within the city provided a crucial, decentralised, 'extra-urban' redundancy when the city was directly impacted by a climate-related shock or stress. This sub-system cultural diversity provided a source of innovation in coping mechanisms, while also ensuring inclusivity for newcomers to the city domain. These four attributes – decentralisation, redundancy, diversity and inclusivity – are critical urban climate resilience characteristics, as set out in Chapter 2.

### *6.3 Beyond Circular Migration: Household Transcention of the Urban System*

Analysis of more recent movement to and from each capital provided additional insight into both current rates and patterns of urban growth, and other functions of the migrant dialectic; in particular, the notion of circular migration. This was made possible through the inclusion of a question in both of the most recent national censuses relating to the location of a person's residence five years prior to the census date; which, in both cases, equated to 2004 (VNSO, 2011, p. 61; SINSO, 2013, p. 11).

The outputs of this further secondary analysis are shown in Figure 6.3 and Figure 6.4. In Vanuatu, Torba and Sanma provinces experienced return migration equivalent to one-third of the movement to the capital, while the rate in the southerly Tafea Province was 54.8 percent. In Solomon Islands the evidence for circular migration was even stronger. Choiseul, Western, and Makira and Ulawa Provinces all experienced in-migration equivalent to more than half of that lost to Honiara over the 2004-2009 period, while Central and Isobel saw return migration equal to 70.0 percent and 83.8 percent respectively. Rennell & Bellona, the smallest province, experienced a net gain in migrants over the period. However, Malaitans returning to the province from the capital accounted for only one-fifth of those migrating to it.

Irrespective of this circularity there was agreement amongst the household interviewees that rural-to-urban migration constituted a fundamental restructuring of the household 'system'. Rather than a more simplistic spatial consideration of relative income opportunity nested in broadly similar socio-ecological conditions, rural-to-urban transitions in the two case studies represented a shift from an ecosystem-centric 'subsistence' livelihood to a capital-centric, cash-based one. This juxtaposition was explained by one respondent from Honiara's Wind Valley community in relation to their own recent experience of urban in-migration:

> **WVHH10:** Oh, Malaita [is] nice. Life here, everything … we are living in a world of money. Everything is money. When you go to town you have to have money, for bus fare, drink water, everything is money.
>
> **Interviewer:** But in Malaita?
>
> **WVHH10:** Malaita everything free. You don't pay anything. You want coconut, or [whatever] you just takem … here if you don't have money, oh, you hungry.

The expression that 'at home everything is free' recurred frequently across each of the communities, irrespective of each interviewee's first-hand familiarity with living a rural livelihood. This highlighted the polarised nature of these alternative ways of living in the two case study countries.

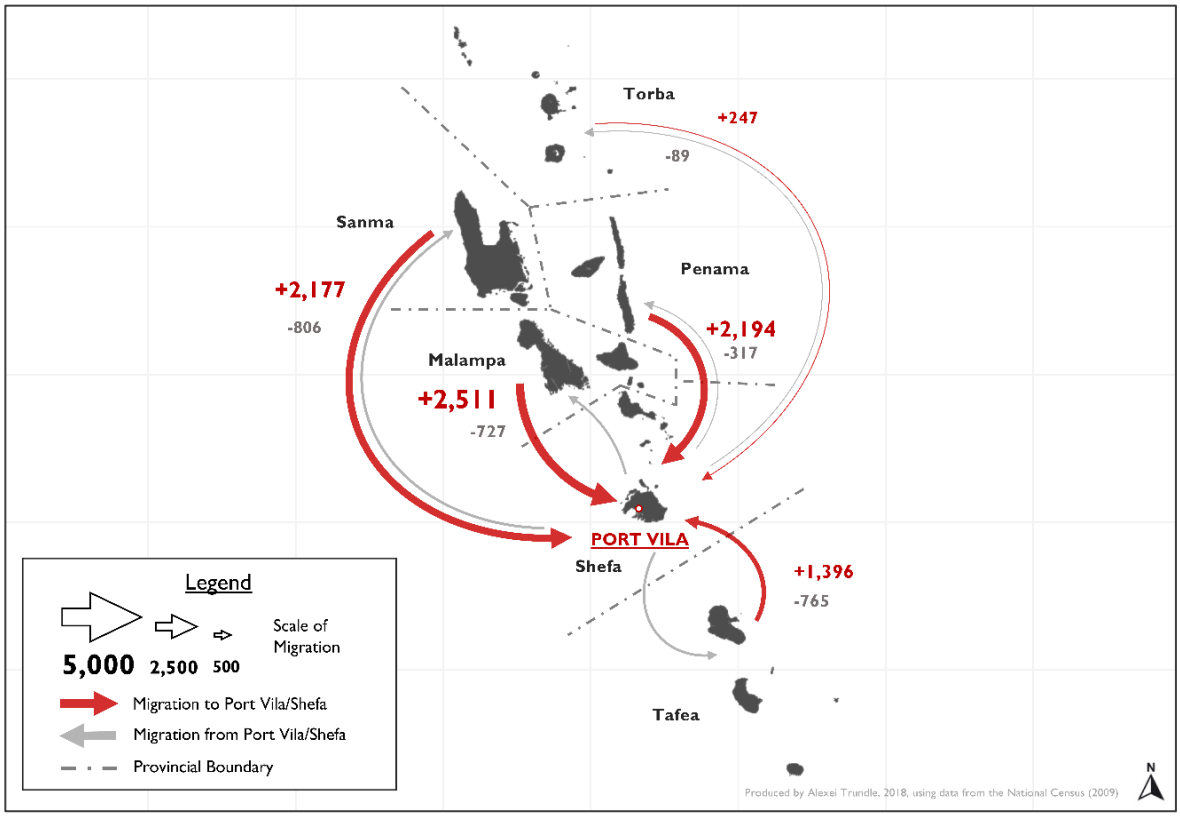


**FIGURE 6.3:** MIGRATION TO / FROM PORT VILA & SHEFA PROVINCE 2004-2009

(Source: Author, developed using data from the VNSO 2009 Census)

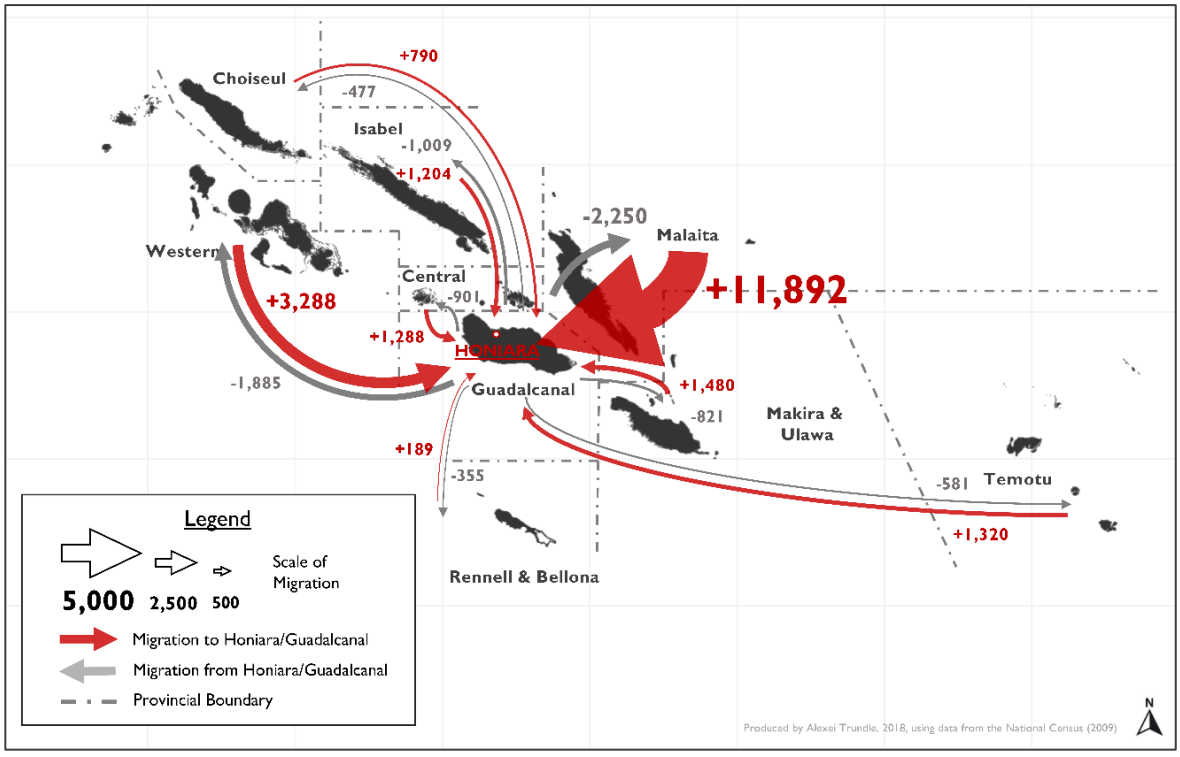


**FIGURE 6.4:** MIGRATION TO / FROM HONIARA & GUADALCANAL PROVINCE 2004-2009

(Source: Author, developed using data from the SINSO 2009 Census)

Many respondents also reflected reluctance and hardship in their transition into these cash-based livelihoods, as demonstrated by the disdain for the cash economy expressed by one respondent from Etas, Port Vila:

**ETHH8:** *Lo* place here, *hem* say *yu* no live without money *nomo*. You work, but you live in the island, you *stap lo* island you *makem karem*, some *kakai mi* free and *lo* place here, *em* say hard. *Em* say something *hem lo* store. Must work, must work *blo* money, and *em* buy to *savee* live now.

**Translator:** She says that in Pentecost, life, it's more easy. Because they eat free, they sleep free, they do anything free. But here, it costs money. To have food, anything.

**Interviewer:** If the life was better there would you move back to Pentecost?

**ETHH8:** Yes.

Where cash income was able to be generated in rural areas this often related to specific crops and harvestable goods capable of generating significant income, such as copra, kava and *bêche-de-mer* (a large sea cucumber exported to parts of Asia). Wage-based income opportunities were rare, as explained by one Ontong Javanese interviewee from Honiara:

**Interviewer:** The cash economy … that's quite different in the islands?

**OJHH6:** Yeah, it's quite different because the island is too far, it only depend on fish … but we can't sell anything from there, unless we do business, harvest copra, that's when you get money. But when we lived there my father really worked hard, we went to one island and then we do some copra and that helped us.

As OJHH6 demonstrates, even income from cash crops such as copra required substantial business transactions, as well as inter-island trade and the movement of goods to or through each capital city. The most fundamental characterisation of the Melanesian migrant dialectic was therefore found to not be one of cultural and spatial dislocation, but instead that of the monetisation and formalisation of day-to-day ways of living. Further, these livelihood needs were not necessarily mutually exclusive from the cultural and social structures of their rural origins.

The final critical component of the migrant dialectic evidenced across these two cities related to the hypothesised differences between 'mixed' and 'village-like' urban communities, a variance proposed to have an impact on the capacity to maintain the culture and practices of households' migratory origins. One notable finding from the different case study communities was that home island structures often transcended physical settlement typologies by engaging with a wider 'urban island diaspora' across the city. In the case of homogenous island-origin communities, such as Seaside Futuna, these often operated to draw in those who lived elsewhere:

**SSHH9:** Yeah, place here only centre *blo* Futuna, for whole Futuna. Every something event, *everywan* inside *lo* community *hia*. Death, time *lo mi stap* away, you never no *savee* you *hia*. You married, you *fright*, people come.

**Translator:** Whenever there is a funeral service or there is a wedding, it is hosted here. Here, they come together as a community.

Conversely, for those living in mixed informal settlements such as Blacksands, customary structures extend across multiple settlements, as one cross-settlement paramount chief explained:

**Interviewer:** So, you are the chief of all the people from Malekula?

**BSHH2:** Yes.

**Translator:** Chief *blo* man *lo* Blacksands, or …

**BSHH2:** Pango, Freshwota … seven communities *lo* Malekula that live in Port Vila. South East Malekula *nomo*.

**Translator:** Because there is a North West Malekula, and there is South East Malekula. They have different chiefs, and different communities, so he is looking after the seven communities for the South East Malekula

This continuity of island networks in spite of physical segregation provided a final but critical insight into the persistence of island culture, customary laws and social structures despite multiple generations of urban in-migration. Although this was not a universal observation – with some interviewees nonetheless expressing isolation from their fellow *wantoks* and related cultural and customary practice, these intraurban diasporas were found to be central to both the enactment of endogenous resilience and the variance in settlement structure and tenure across these informal communities, as elaborated on in the section below.

## *6.4 Urban Informality: Research Communities in Context*

As Barbara and Keen observe "even basic land use planning is rare in the Pacific" (2017, p. 8), a situation particularly evident in Port Vila, which "has not had a gazetted zoning plan since before independence" (Trundle, Barth and McEvoy, 2019, p. 59). In order to understand and contextualise the nature of the informality exhibited by the six case study communities being engaged in this research, a critical first step was therefore assessing the patterns of tenure and settlement at a city scale.

City-wide analysis has drawn primarily upon spatial data extracted from both the Solomon Islands Government and the Government of Vanuatu. It was also informed by the findings of interviews with relevant institutional representatives, as well as additional informal consultations with informants from within respective lands ministries and provincial and local governments.

At a community-level these same spatial datasets have been also analysed (as shown in the three focal plates set out in the two figures below), however profiles draw more prominently on community interviews and workshops. In the case of two settlements with more complex governance arrangements – Blacksands and Jabros – information was also gathered through secondary sources and a workshop held with the customary owners of the land due south of the Honiara city boundary. More complete profiles – as supplied during community workshops – are attached in Appendix G.

### ***Honiara, Solomon Islands***

#### 6.1.1 Greater Honiara - Overview

Tenure arrangements relating to the Greater Honiara Area and the Honiara City Council are shown in Figure 6.5 below. The central plate of this figure is scaled to highlight the complex – but extensive – mosaic of unleased government, as discussed in the context settler reinterpretations of the colonial-era Waste Lands Regulation in Chapter 3. The bottom three plates of this figure depict the three case study communities and their immediate surrounds, which are discussed further following the city-wide analysis below.

Analysis conducted for this research using the secondary spatial data shown above found that 34.4 percent of the land within the Honiara City Council boundary was directly held by the government, with 8.4 km$^2$ lacking direct title and a further 0.1 km$^2$ being held by the Commissioner of Lands on behalf of the government. Along the urban fringe almost all peri-urban land was found to be leased, other than the steep foothills extending south-west from the banks of the Mataniko River (an area claimed by the Tandai customary landowner group).

Although the boundaries of customary land owner groups adjacent to the city were explained by senior MLHS staff to follow the paths of the Mataniko and Lungga Rivers (as shown in the top frame of Figure 6.5), the rights to allow both customarily agreed settlement and subdivision within these groups remain

highly contested. Alienated land pre-dating is also often a source of contention for customary owner groups, rather occupation by informal settlers directly. Disagreement over the location of the city boundary was noted by interview respondents to have led to customary payment claims from settlers within the municipality itself, with landowners alleged to have removed boundary markers by government representatives in consultations.

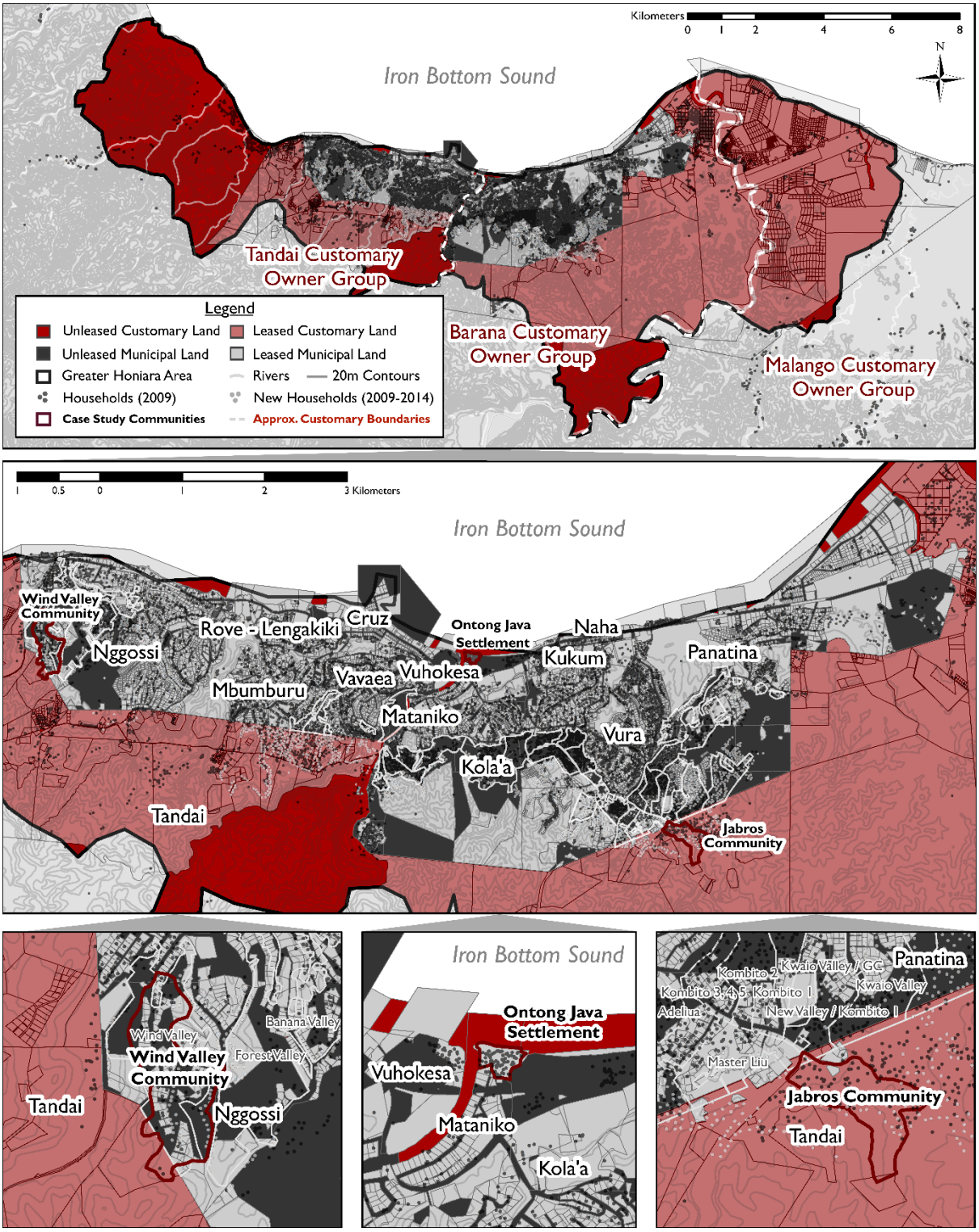


**FIGURE 6.5:** LAND TENURE IN HONIARA AND THE CASE STUDY COMMUNITIES OF WIND VALLEY, ONTONG JAVA SETTLEMENT AND JABROS

(Source: Author, developed using data from the Solomon Islands Government)

In other peri-urban cases differences in customary law have led to disputes over earlier custom agreements of occupation. As Allen observes, "the principles of Guale customary land tenure dictate that people from outside the matrilineal landowning clan can only ever be granted usufructuary rights, even when *chupu* [a customary process for exchanging rights of occupation] has been paid, and that these rights are not automatically passed on at death" (2016, p. 169). The classification of many of these informal settlement areas is therefore contingent on whether settler, customary owner, or government perspectives are given pre-eminence.

Within the city boundary perceived informal tenure security was generally viewed as being so high that government representatives noted that some settlers were actively seeking out compensation by pre-emptively building in proposed urban growth zones:

> Ideally you want to do a greenfield subdivision where there is nothing there yet and you can properly design all the roads, parklands, areas for public infrastructure, before anyone has moved in. But it seems that as soon as the word gets out that there is a new subdivision being planned by the ministry everyone will move into that area before you've had a chance to go through all that infrastructure, provision of roads and everything
>
> **– National Government Representative, Solomon Islands (SIE3)**

However, to the west and east of the city – areas with more negotiable terrain and road access – new subdivisions were found to be coming into more direct conflict with informal occupants. Eviction efforts were consequently being driven by developers. As one institutional respondent noted:

> The new trend of informal settlement if I may say is, they are not occupying lands that are not subdivided, but they are occupying land that is already, has already been subdivided. It's already registered. We have I think three or four cases, four areas now … like in Tandai, in west of Honiara, these are prime sites. And it's a big chunk of land that informal settlements are living inside, but the title is held by another person.
>
> There was even a recent case between, a real estate [developer] … they bought a big area, but an informal settlement occupied part of the area. Just last month they burned [property]. Like, there's conflict there.
>
> **– National Government Representative, Solomon Islands (SIE7)**

The underlying tensions between settler groups, the state, and the customary owners thus very much remain in the peri-urban areas of the city, which are once again coming under pressure from urban expansion and development.

### 6.1.2 Wind Valley Community, Nggossi Ward, City of Honiara

Wind Valley Community is a predominantly Malaitan community located on the western boundary of Honiara. Interviewees could recall the first six households moving into the valley around 1990, settling initially without title on "spare land" held by the government. The community has a strong and well-established community structure, with earlier migrants able to recall the names of two former community chairman from the pre-Tensions period of settlement (1997-2000). The community elects a new committee every four years and has a community constitution that is registered under the *Charitable Trusts Act*.

Despite being located within the city boundary, in 2000 most of the settlement's inhabitants left the area because of the Ethnic Tension, predominantly returning to Malaita. Most of these earlier inhabitants were noted to have moved back and 'reclaimed' their former settlement areas following the intervention of the RAMSI peacekeeping force. Reanalysis of 2009 national census data conducted as part of this research showed that Wind Valley had a population of around 420, however growth over the subsequent decade in the area has been substantial. Based on an average of 7.6 occupants per household – an estimate derived from interviewee responses that is consistent with secondary census data – there are likely to be approximately 1,150 community members at present. Although allotment

boundaries are evident in the city cadastre as shown in Figure 6.5, most respondents did not have legal title over the land they occupied. Consultations with representatives from the Ministry of Lands, Housing and Survey identified that this was due to the surveying being conducted before the Ethnic Tension, which resulted in its disruption and non-payment of the surveyor (with much of the detailed survey data being subsequently lost). A number of these surveyed – but unregistered – areas now contain multiple households, established through kinship arrangements.

The community runs along a north-south valley, covering an area of approximately 171,000m$^2$. A creek running through the centre of the valley provides a source of washing/bathing, but also floods regularly. The initial drinking water source for the community, at its southern-most extent, is no longer considered safe due to upstream development. Bathing facilities for the community are communal in the form of diverted wells adjacent to the creek. Examples of housing at the valley floor and along the sloped escarpment that extends to the city boundary are shown in Figure 6.6.

**FIGURE 6.6:** TWO EXAMPLES OF HOUSE SITING IN WIND VALLEY, HONIARA

(Sources: Author, 2017)

### 6.1.3 Ontong Java Settlement, Mataniko Ward, City of Honiara

Ontong Java Settlement was one of the first non-customary communities to be established in the Honiara area. Men first arrived from Ontong Java Atoll during the 1950s seeking employment and trading fish, before being joined by their families over subsequent decades. As of 2009 the settlement had more than 550 permanent residents, based on re-analysis of spatial data from the national census. Although part of Malaita Province, Ontong Java Atoll is more than 300km north of Malaita island in the most remote part of Solomon Islands, and is inhabited by a distinct cultural and linguistic population of Polynesian descent (Birk and Rasmussen, 2014). As such, the settlement acts as both a temporary base for Ontong Javanese visiting the capital as well as acting as a ceremonial and meeting area for Ontong Javanese located elsewhere in the city.

Permanent inhabitants occupy the area through a community lease, run by the settlement's trustees. These roles are inscribed in a community constitution, which is registered under the *Charitable Trust Act*. The constitution provides for a settlement-wide board, with representatives elected through a four-year election cycle. The settlement has constituted sub-committees for disaster management, youth,

women, church, sport, and 'People and Culture' (traditional/*kastom* activities). A customary chief also sits in parallel to the board.

Households in the settlement are large, with an average of fifteen residing in a single building based on the interviews, reflecting relatively high level of density in the settlement (31,556 persons per square kilometre) and community observations that the area is 'full'. Additional issues relate to coastal and riverine hazard exposure (resulting in localised flooding, erosion and septic and material pollution from upstream), as well a lack of basic infrastructure and services (particularly sanitation and bathing facilities), as evident in the two photographs shown in Figure 6.7.

**FIGURE 6.7:** OUTDOOR SHOWER AND LAUNDRY FACILITIES (LEFT) AND RIVERBANK EROSION IN ONTONG JAVA SETTLEMENT, HONIARA

(Sources: Author, 2017)

### 6.1.4 Jabros Community, Gilbert Camp, Peri-Urban Guadalcanal Province

Jabros Community was settled as early as the 1980s but was disbanded during the Ethnic Tensions, with the area a hotspot for violence between peri-urban settlers from the 'Malaitan Eagle Force' and the Guale armed militia. Following the Ethnic Tension the community has regrown, with the 2009 Census showing 577 people residing within the community-identified boundary. The area covers approximately 114,000m$^2$, and is adjacent to the southern perimeter of Honiara's Panatina Ward. Community members are almost all from Malaita but are from different villages and areas within the province. *Kwara'ae* – the most common Malaitan language – is widely used to communicate, reflecting this cohesiveness. Interviewees estimated that the community consisted of 50-60 households at present. Although Jabros lacked a structured committee and any formalised representation/election process at the time of the interviews, the community had established itself around the local Pastor and community elders (some of whom remained during the tensions, gaining additional community status).

Tenure over the area is contested by several parties. Community leaders claim that an arrangement with landowners was reached by their forebears through *chupu*; however the customary law associated with this process – in particular, whether such rights can be inherited – varies across different tribal groups (Allan, 1957). This particular *chupu* exchange was explained by elders in the community to consist of a large custom feast (consisting of pigs, beetlenut, and other subsistence products), which was provided to the inhabitants of Barana Village, located on Mount Austin (to the south-west of the community).

Interviewees claimed that *chupu* continued to be maintained by the community through provision of pigs and crops at special events such as weddings and funerals.

The currency of this arrangement (which dated back to the 1980s), however, was disputed during a workshop Barana Village that was run as part of the second phase of research fieldwork in November 2017. Consultations with government representatives and comparison with spatial data also confirmed that the settlement was located within a large registered land parcel. Although this title was believed to be held by the government, neither the author nor staff from UN-Habitat or MLHS were unable to uncover the title deed to confirm this during the fieldwork phase of this research. Other customary claimants had also been recorded as asking settlers for payment both within the Jabros area and within the adjacent municipal area of Gilbert Camp (Maggio, 2017). Access to and through the community was limited, as shown in Figure 6.8.

**FIGURE 6.8:** RIVER CROSSING (LEFT) & HOUSING ACCESS (RIGHT) IN JABROS, HONIARA

(Sources: Author, 2017)

### *Port Vila, Vanuatu*

#### 6.1.5 Greater Port Vila - Overview

In contrast to Honiara the customary landowners surrounding Port Vila have historically been heavily engaged in the processes of formal subdivision, as well as the establishment of both customarily and informally agreed settlements across the peri-urban area of the city. This was a product of not only the constitutional recognition of customary land ownership (as discussed in Chapter 1), but also the consolidation of financial and political power by peri-urban land owner groups through Land Trust associations.

This approach has gradually become commonplace since Vanuatu gained independence in 1980, spearheaded by the powerful *man-Ifira* customary group. The Ifira Land Trust was established through a substantial compensatory payment for a lease over much of Iririki island, located adjacent to the Port Vila CBD. As Fingleton, Naupa & Ballard note, this initial payment has subsequently been built on, with the Trust having grown into a major financial organisation:

> In 1983 a protracted land dispute was settled with a payment of US$1 million by Iririki Resort, the lessee of part of Iririki Island, in return for a lease over the balance of the island. With this as capital, and with a steady

> flow of rents from its other properties, the [Ifira Land] trust built up its assets. By 1991 it had ten subsidiary companies with interests in stevedoring, shipping, waterfront development and many other businesses.
>
> The total value of its assets in that year was Vt281.5 million (US$2.5 million). Its trading account showed that Vt219.6 million (US$2.0 million) was made in 1990 from premiums on transferring leases, while the profit on rental property was Vt20.3 million (US$0.2 million). (Fingleton, Naupa and Ballard, 2008).

Similar arrangements can now be found across the Greater Port Vila Area in other customary landowner groups, including the Eratap Land Council, the Eton Land Committee, the Erakor Land Trust, and the Mele Land Trust.

Despite the codification of these customary structures the specific boundaries between these groups remained a point of contention. Although each customary group corresponds with a similarly named 'Area Council' the state-defined boundaries of the latter, shown in Figure 6.9, were found during the research to incorrectly align with that of the former. For instance, the people of Eratap village were recognised by settlers, institutional stakeholders, and representatives from Erakor village as having customary land ownership over the Port Vila Bouffa landfill site, as well as the adjacent settlement area of Etas. However, as the figure below demonstrates Etas is located within Erakor Area Council's administrative boundary. Other urban-classified areas such as Blacksands lack a formal relationship with either a legislated area council or the municipality, but nonetheless fall under customary domain (in Blacksands' case, that of Ifira).

As can be seen in Figure 6.9 almost all of Port Vila's 12.2 square kilometres of municipal land is leased. The few exceptions to this are a series of large areas already used for government services, including the national hospital and some of the city's schools and colleges. Outside of the municipal boundary, however, more than half of the Greater Port Vila area remains entirely under customary title, with only 47.7 percent leased as of 2014. Although much of the former is used directly by the customary landowner groups themselves, large areas are also occupied by informal settlers with varying levels of customary consent. Due to the strength of these landowner groups organisationally and legally most settlements do have some form of agreement in place.

Unlike Honiara, however, no formalisation process is currently underway. As one institutional respondent noted:

> At the moment I think the current policy is really focused on rural communities and none on peri-urban. We've started to talk to government about having lessons from Blacksands to influence government to look at developing a settlement, and informal settlement policy. Because at the moment this community, they've been informal for the last thirty-seven years.
>
> **– International NGO Representative, Vanuatu (VUE9)**

Changes in informal settlement patterns subsequent to the 1997 mapping conducted by the Asian Development Bank have therefore largely relate to the removal of inner-city areas for urban development, with peri-urban expansion driving most of the informal settlement growth.

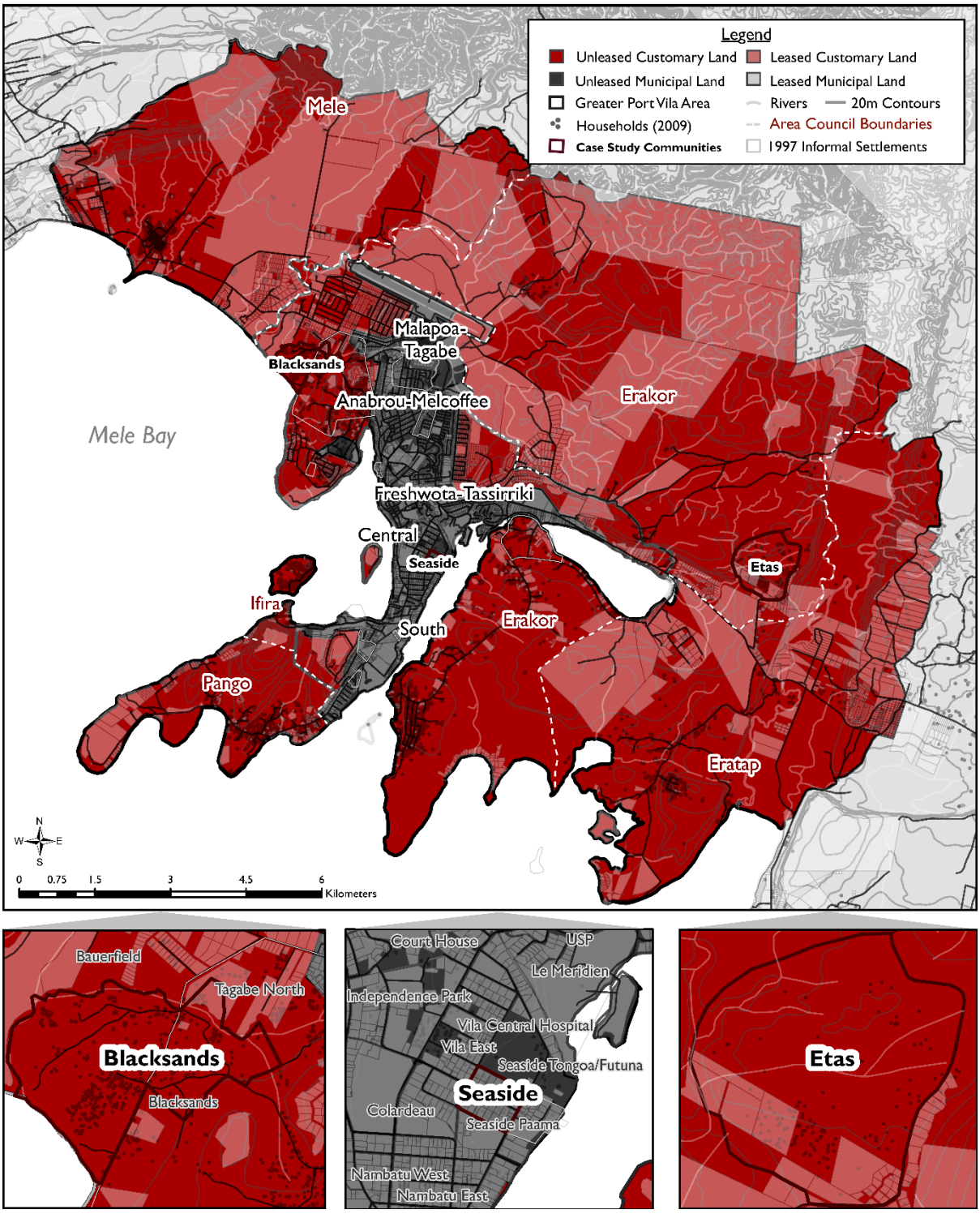


**FIGURE 6.9:** LAND TENURE IN PORT VILA & BLACKSANDS, SEASIDE AND ETAS COMMUNITIES

(Source: Author, developed using data from the Government of Vanuatu)

### 6.1.6 Blacksands Community, Tanvasoko Area Council, Peri-Urban Shefa Province

Blacksands settlement was established in the 1960s and is one of Port Vila's oldest informal settlement areas, covering 931,000m² and containing approximately 2,569 inhabitants in 2009. Located outside of the town boundary in Shefa Province, the area is classified as customary land of the Ifira community. The land is managed through the Ifira Land Trust, who have negotiated a range of different occupancy

conditions (both formal and informal) with residents and community sub-groups. In turn a number of settlers sub-let their areas to short-term and seasonal migrants. Most of the area's inhabitants are Tannese, however many occupants are from other provinces, with distinct language-based divides also evident within the Tannese population itself.

Although not formally legislated Shefa Province has formed an area council, Tanvasoko, to administer the Blacksands area. The Tanvasoko Area Secretary acts as the community leader and government focal point outside of the customary system. A local council of chiefs, consisting of representatives from different migrant sub-communities and island groups, also presides over the settlement, and elects a paramount chief for the area.

Access to facilities and services is varied, particularly potable water, with some communities having formal connections to the national water utility, UNELCO, but others dependant on wells. Sanitation is comprised of a variety of sealed, composting and pit toilets. The river was a common source for washing clothes and food items, however pollution was noted to be causing health issues, particularly for children (who continued to swim in the river). Coastal communities also used the ocean for washing and fishing, while most interviewees had family *Bush Gardens* elsewhere in the foothills north of Port Vila. Both housing and community infrastructure is of a poor quality (as evident in Figure 6.10), and was subsequently severely damaged during Tropical Cyclone Pam.

**FIGURE 6.10:** HOUSING (LEFT) & A MEETING AREA (RIGHT) IN BLACKSANDS, PORT VILA

(Sources: Author, 2017)

### 6.1.7 Seaside Paama & Futuna Communities, Central Ward, Port Vila Municipality

Seaside consists of two blocks of inner-city communally leased land, which are divided into three areas named after the home islands of the original leaseholders: Futuna, Paama and Tongoa (the Tongoan community was not engaged in this research). Despite similar original lease arrangements in the early 1970s the social structures of each community have subsequently diverged. Seaside Futuna continues to provide a cultural focal point for the Futunese across the city, hosting festivals, funerals and weddings for the island-based diaspora. Seaside Paama, however, has become a mix of 'rent-houses' (which are leased out by one of the original Paamese families), *wantok* households, occupancy by the descendants of the original leaseholders (who also operate the renthouses). The area is densely inhabited with single

storey housing, having an average density of 26,008 persons per square kilometre and a joint population of 645 in 2009 according to data from the National Census.

Conflicting accounts were provided by interviewees relating to the leadership structure within Seaside Paama, with contention as to the effectiveness of the designated chief and a lack of community structures other than those based around external church groups. Seaside Futuna, however, had a formalised electoral system based on four internal zones. A chairperson was elected every four years; a role that rotated through these four areas, while sub-committees for sanitation, church and women were also elected through this process.

Both areas were severely damaged during Tropical Cyclone Pam, with most houses being constructed with corrugated iron sheeting over wooden frames and little formal design input (as shown in Figure 6.11). Water was provided through standpipes that were shared between three-to-five households while much of Seaside Paama's community facilities (including cooking areas, the toilet/shower block, recycling collection and rubbish disposal) were located within the adjacent public park.

**FIGURE 6.11:** KITCHEN AREAS (LEFT) & A RENT HOUSE (RIGHT): SEASIDE, PORT VILA

(Sources: Author, 2017)

### 6.1.8 Etas Community, Eratap Area Council, Peri-Urban Shefa Province

Etas is one of Port Vila's largest and fastest growing informal settlements, being located at the periphery of the metropolitan area along the Bouffa Landfill access road. The area is owned by the Bouffa Land Trust, which represents the customary landowners from Eratap Village (located to the south-east of Port Vila). However, as shown in Figure 6.9, the settlement administratively falls within the boundaries of Erakor, despite no direct attempts to claim jurisdiction (with both of the latter two administrative groups aligning with distinct tribal allegiances).

Several community members arrived in the area in the late 1990s, through agreement with the customary owners. An additional ten households were given leases to subdivided land at the settlement's southern boundary in 2007 as part of a deal to relocate an informal settlement in the municipal suburb Nambatri. Subsequent settlement has been more haphazard, with growth occurring through a mixture of Land Trust allocations and other arrangements with intermediaries claiming to hold customary rights (including political candidates for the area).

The settlement covers an area of approximately 975,000m² and in 2009 had a population of 736. Despite being 'mixed', the community is well-structured, being organised into 16 distinct zones, with a community committee and parallel chiefly body (including a paramount chief for the area). Infrastructure access was determined by zone membership, with less than half of the community zones having a water tank and others needing to walk an estimated two hours to reach a river with drinkable water. Bush gardens were also identified as being under pressure due to limited space, and the expansion of the municipal landfill site onto informal gardens. Examples of an informal pharmacy and a partially constructed community hall are shown in Figure 6.12.


**FIGURE 6.12:** INFORMAL SHOP (LEFT) & COMMUNITY HALL (RIGHT) IN ETAS, PORT VILA

(Sources: Author, 2017)

## *6.5 Conclusions: Traditional-Capital Pluralism at the Centre of Informality*

This chapter presented new analysis of city-scale tenure arrangements and informality in both Port Vila and Honiara, with these static spatial representations linked to wider national migrant flows derived from the re-analysis of national census records in the two countries. These secondary data findings have been integrated with primary findings from the six case study communities in order to define the nature of – and differences between – the informal communities being examined to address RQ2. A distinct 'Melanesian Migrant Dialectic' is also identified, with notable distinctions from the 'otherness' posed by Lawson in her theories of migrant movement (2000), consistent with the hypothesis put forward in Chapter 3. These considerations also have implications for RQ3, as discussed further in Chapter 8.

Although the process of bounding cities and urban agglomerations is fundamentally fraught, the inhabitants of Port Vila and Honiara's informal settlements have a uniquely 'networked' urban identity within their respective national environments. This is argued to be a function of not only their wider cultural contexts – a positionality related to Hau'ofa's notion of a 'Sea of Islands' (1993) – but also the more specific geographies of productive opportunity (both capital and traditional), that exist in these diverse archipelagos. This is interrelated to the economic primacy of these two capital cities – sites characterised by concentrations of institutions, consumer goods, trade, and transit – being directly juxtaposed by the lack of migrant access to land for housing, means of production, and ecosystem and cultural functions more broadly.

The 'MIRAB' economic theory of Pacific SIDS proposes migration, remittances, aid and bureaucracy to be the fundamental pillars of capital flows in the South Pacific (Barnett and Waters, 2016). However, in many cases migration itself is demonstrated to be also enacted to maintain island-based socio-cultural attributes, identities and functional networks. These enactments – related, but not exclusively derived from circularity in migration patterns – are at the same time being deployed to gain necessary access to the formal state-based institutions and associated economic opportunities contained within the urban environment.

I argue, based on analysis of interview data from across with these six informal settlement areas, that the traditional-capital dialectic should be more holistically positioned as one of seeking access to Services, Health, Education, Livelihoods (including subsistence), Trade, Employment, and Recreation, or 'SHELTER'. Although this should not be considered to applied beyond these informal domains, it provides a series of critical categorisations explored further in relation to endogenous resilience, as explained further in Chapter 7.

Lawson's concept of the migrant dialectic was nonetheless found to be being validated in these case study communities, despite some of their inhabitants professing to have never truly migrated to the city at all. Drawing on the observation above, these 'plural identities' were less grounded in physical transition and more in the physical origins and legitimacies associated with spatially-defined rights, resources and relationships. In both Port Vila and Honiara these communities are therefore continuing to occupy marginal positions in relation to both the state – as the physical 'owner' of the land on which these settlements reside – and, customary landowner groups. Although the latter is of more direct relevance to the marginalisation of peri-urban communities than the former, the lack of customary legitimacy of the urban system itself – as a consequence of colonial urbanisation and the nascency of the state – also defines the migrant dialect as a whole, both within and outside of each municipal boundary.

As Section 6.4 demonstrates the six case study communities exhibit a range of different forms of informality in relation to the typology developed as part of Chapter 4 (see Figure 4.1). Parallels can be closely drawn between sets of sites across the two cities. Seaside Futuna and Ontong Java Settlement represent homogenous settlements with legal tenure but contain housing and facilities that do not conform to state-based norms and regulations and are both heavily over-crowded (a key classification of informality). Households within Jabros and Etas contend to have arrangements with the customary owners whose land they occupy, with some contestation over this occupancy by differing 'landowner' groups. Blacksands and Wind Valley, despite being peri-urban and municipal respectively, are interspersed with legally recognised allotments, extended family arrangements, and both have heightened levels of engagement by both state and civil society organisations. Findings from these case studies have therefore been presented in tandem throughout Chapter 7 in order to highlight the influence of these different tenure arrangements on endogenous climate resilience, a critical consideration in the discussion relating to the third research question contained in Chapter 8.

# 7 ENDOGENOUS CLIMATE RESILIENCE: EVIDENCE AT THE URBAN PERIPHERY

> We have twenty-one communities in this area. We, Zone Four, built this shelter by our own money, not money from the government, not donation. Just ask anybody to come and help. But [without] government help or town planning.
>
> When something happens they don't stay, they move out and stay with relatives. So, if there is a cyclone, like there was a cyclone last year, they won't stay in their house, because it's not really strong. So they move to a relative's where the house was very comfortable and strong.
>
> **Community Representative – Etas Informal Settlement, Port Vila (ETHH1)**

## *7.1 Introduction*

This chapter further addresses the second of this thesis' three research questions by demonstrating the ways that informal communities within the two case studies exhibit and enact endogenous climate resilience. It does so by presenting findings from interviews with 57 households across six of Port Vila and Honiara's informal settlement communities. This primary research has been supplemented with analysis of secondary sociodemographic and urban planning data, legislative and land records, as well as excerpts from interviews with institutional representatives.

The chapter begins by establishing the peripheral nature of these case study communities, relative to each city's state and civil institutions, drawing upon household recollections of local interactions with exogenous climate resilient development initiatives. These responses are used to triangulate findings from both secondary data and the institutional interviews outlined in Chapter 5. At the same time, they also provide perspectives on the nature and effectiveness of the albeit limited engagement of these communities by different institutional groups.

Evidence of community-level experiences and perceptions of the shocks and stresses are used to frame evidence of endogenous climate resilience. These phenomena are shown to draw primarily on informal capabilities and structures both within and beyond each settlement area. These enactments of resilience are related to the characteristics of urban climate resilience set out in Chapter 2, as well as the nature of their interaction with the urban institutions that they are nested within (following Helmke & Levitsky's typology set out in Chapter 3).

Additional findings relating to 'negative informality' and the manipulation of the absence of formal governance are demonstrated to have the potential to undermine resilience where functional objectives and values diverge. This final consideration prefaces further discussion of the interplay between endogenous and exogenous resilience – and the implications of this for resilience practice and theory – in Chapter 8.

## *7.2 At the Exogenous Periphery: Deconstructing Urban Climate Vulnerability*

The initial hypothesis that informal settlements exhibit endogenous climate resilience – set out in Chapter 1 – was based upon empirical evidence of a disproportionate ability to cope with climate-related shocks and stresses despite a lack of institutionally-assessed adaptive capacity. Although this chapter focuses primarily on evidencing an alternative source of resilience *beyond* these institutionally formulated and supported structures, an important precursory step was to establish existing levels of institutional engagement in each of the six settlements under examination. This preliminary aspect of household-level interviews also allowed institutional perspectives to be grounded in the experiences of the intended recipients of these exogenous sub-city efforts.

A sample from each household interview relating to institutional engagement is provided in Table 7.1. These statements were extracted through the coding process and reflect each household's response to the question relating to institutional engagement both generally, and where relevant in relation to either Tropical Cyclone Pam or the April 2014 floods. Across the 57 interviews only three households did not express a view in response to these questions.

As these quotes demonstrate, findings in each community strongly supported empirical evidence of a lack of effective engagement based on the analysis institutional interviews, financial records, and policy and project documentation (as set out in Chapter 5). Of the 54 household interviews where institutional engagement was discussed, 63.3 percent of interviewees responded that engagement was either absent or inadequate, as designated by a red "[-]" symbol in Table 7.1.

Almost two-thirds of these negative responses emphasised an absence of engagement by the state, while seven expressed frustration at a lack of action (noting that only surveying or awareness raising had been conducted). Other key themes related to political promises during elections not being subsequently upheld, or only being targeted at the winning candidates' constituents. This was bluntly put by one respondent: "if you votem for him lo lose, em winner him no help you" (WVHH7). Notably the weight of these expectations was focused on the government, despite interviewer questions referring to general assistance. This contrasted with many of the positive references to institutional engagement which referred to a mixture of government and civil society actors.

An additional sub-theme relating to perceptions of a level of government disregard for informal settlement areas can also be seen in Table 7.1. This absence was particularly acute in relation to the two disaster events that focused the interview questions – Tropical Cyclone Pam and the April 2014 floods – despite the former event having a national impact (and therefore resulting in a secondary discussion of rural Vanuatu having a much greater focus than Port Vila as a whole in relief efforts). A number of respondents also referenced the temporary nature of disaster relief (including resources such as food and tarpaulins), with institutional actors disengaging further still following the conclusion of the recovery phase ('α' or reorganisation as considered within the Panarchy heuristic).

Some communities, however, did appear to be more effective at garnering institutional support. More than half of the households in Ontong Java Settlement (5+/4-) and Wind Valley (5+/4-), two of the better coordinated settlement areas, noted a range of initiatives supported by International NGOs and Government Ministries. Etas (1+/8-) and Jabros (1+/9-), however, were particularly strong in voicing their frustrations with a lack of institutional engagement. These two, peripheral peri-urban communities were facing substantial issues relating to water supply, road access and other basic infrastructure, with institutional frustrations compounded by unkept political promises to address these needs.

**TABLE 7.1:** COMMUNITY PERSPECTIVES ON INSTITUTIONAL CLIMATE RESILIENT DEVELOPMENT EFFORTS

| Blacksands, Port Vila | Wind Valley, Honiara |
|---|---|
| They came and gave out reliefs, and at the same time they gave awareness about climate change. [+] | We can do the drain, and along the roadside, we have direct funding coming from the government. [+] |
| Government came and give them food and clothes. [+] | Wind Valley community is the best community that works with the Commissioner of Lands. [+] |
| They *givem* tarpaulin, rice *nomo*, tin, tarpaulin cover mi but … *nomo* [no more]. [–] | MID, them come and support stream drain. [+] |
| *Mi ting ting* [think] NDMO government must *givem* [help], Forestry [Ministry], everyone. Them no come place here. [–] | Honourable, in the time landslide, *mi takem* go school campus, and lots of people like *mifela*. [+] |
| Place here *hemi olsem* the government no look look. [–] | *Mi* remember April Flood Honourable supply *kakae.* [+] |
| *Mifela* no *garem* man *lo* government, lo place *yumi makem olsem* no *gat* any something. [–] | Honourables give the tanks. Apart from that I'm not sure, maybe before I came, projects from NGOs. [–] |
| *Mi askem* question *blo mi* say, you need government, you no *gat* one government. [–] | Come *nomo*. Didn't talk through [climate change]. [–] |
| The government come and do assessment, but at the end of the day, nothing. [–] | if you *votem* for him *lo* lose, *em* winner him no help you. So, you no power to .. ah, anything *lo* help. [–] |
| | For myself, *mi* no *tellem* anything for that one. [–] |
| **Etas, Port Vila** | **Jabros, Honiara** |
| Some people, maybe from Oxfam, only Oxfam help us. [+] | Yeah, sometimes they come, Health. Come give awareness. More awareness *nomo*. [+] |
| Pam, visit, then bringing foods, tarpaulin, water to drink, buckets. They only give us things but should give us advice. We don't have any government help or town planning. [–] | No more government they campaign then go away. [–] |
| After Pam they receive tanks, ropes, food, tarpaulin, water. But what they really want that the government should give them is a good road, water supply and light. [–] | No man. No-one. [–] |
| VNSO come ask questions, how it is when the Cyclone Pam [hit]. They just take photo and then nothing. [–] | Campaign for membership in the parliament, they always come tell us bullshit stories. [–] |
| They had a project coming up to supply water and roads, but … until now, nothing. [–] | No, only Live and Learn, WASH something. With Save the Children, no more come talk. [–] |
| Can't remember anyone, but she knows that Oxfam, did a bit of .. a previous thing. [–] | There are times honourables, people of government, but those things ... what now promises *lo* government? [–] |
| They just give the form to us with some of the ladies, to pick up with the bottom of. Something to do with the municipal … they never, no response. [–] | No, no, no, no … the big government, them *savee* anything about inside *lo* community. [–] |
| *Emi* no, *hemi* help or not? No, no-one. [–] | No, we never receive any one from the government out here. [–] |
| Government don't help us, because so many people. [–] | Don't give money to the government of Solomon Islands. *Thatfela* money *hem* no *reachem* community. [–] |
| | We talked to the government, but they can't do anything. [–] |
| **Seaside, Port Vila** | **Ontong Java Settlement, Honiara** |
| Type *lo* government, I think cam bring all rice for sometimes … vegetables, seed for *plantem* back. [+] | Oh yeah. Like, they come every time, every day, talk to us about the climate, about the issues that we face. [+] |
| Water *hemi ia* honourable. *Hemi* tap *lo graon* [ground]. [+] | Land where we can resettle *lo* Malaita, government and the church are looking for … *mifala relocatem*. [+] |
| No, awareness *nomo*. Health, *na, hemi* Wan Smol Bag. [–] | NDMO they talked to us, checked the houses that were destroyed in the flood. [+] |
| The government is under the concerns of investors, rather than the local communities. [–] | We're so privileged because Environment, NDMO, Red Cross come and train our disaster committee. [+] |
| Depends on the chairman asking the government to help. [–] | When disaster happens they have an evacuation location, like in here they move up. [+] |
| Some of them, come talking but not to us, only the people who own the houses. [–] | *Mifala* no receiving anything from the government. The government is no help. [–] |
| Better to have the council of chiefs to fix the problem … they can fix the problem quicker. [–] | No. Time something happen, *go finis*, Organisations come look at the village, but then nothing. [–] |
| The government? Not too much. Sometimes, if people are good from the government … we ask them and then they provide. If we don't, they don't. [–] | In 2014, or 2015 they come and do drainage, like cleaning the drain. And after, they just stop. [–] |
| Community *linkem* help, *askem*, government *blo* help. But government, *helpem* us less. [–] | Honourable no *likem* to assist us [–] |

In addition to a lack of institutional adaptive capacity these informal settlements also faced issues relating to the two other determinants of climate vulnerability commonly considered in assessment frameworks: i) sensitivity; and ii) exposure to climate shocks and stressors (Adger, 2006). While the sensitivity of such settlements is well established (with many by definition lacking basic infrastructure), the correlation with high levels of climate exposure was less well understood, as put by one institutional respondent who worked closely with the Solomon Islands Government formalisation program:

> One very prominent characteristic of informal settlements is they are in climate hazard zones. Climate change hazard areas if you like. For example … although Ontong Java is in a registered parcel of land, the location is still not safe if I may use that phrase. Because they are on a peninsula, coastline, river delta, and next to a hospital.
>
> Why is it … a question that, you know I have, I don't have an answer to it yet, and neither does anyone else in the planning area, and that is 'why do these people choose slopes, valleys'? Why do they select those places? Is it because the government … do they perceive that the government won't be able to develop those areas, therefore 'oh we go and settle in places that are not prime sites', for development, or investors?
>
> Why do these people choose those places? One of the characteristics there is they are in valleys, susceptible to landslides, flooding of course, that's very obvious, and, inaccessible by infrastructure in terms of vehicle access.
>
> **– Intergovernmental Representative, Solomon Islands (SIE2)**

This general observation was supported by analysis within institutional climate assessments such as the *Honiara Urban Climate Resilience Action Plan* (HURCAP), which spatially modelled vulnerability across the city (see Trundle and McEvoy, 2016, pp. 27–28). All of the six identified 'climate vulnerability hotspots' identified within the plan met one or more of UN-Habitat's criteria for informality, including the three areas mentioned by the interview respondent above (Koa Hill, Ontong Java Settlement, and the Aekafo-Feraladoa informal settlement area along the Vara Creek Valley). As Trundle *et al.* note in their review of the HURCAP process, this city-wide assessment demonstrated "a high level of correlation between the city's extensive informal settlement zones and key thresholds for hazard exposure, climate sensitivity, and limited institutional adaptive capacity" (2019, p. 66).

However, the lack of secure *state-based* tenure was found to instead be substituted by a broader understanding of institutional limitations on the development of these hazard zones. This resulted in a perceived level of informal tenure security, as one interviewee from Ontong Java Settlement explained:

> **Interviewer:** When you first wanted to build this house, and I know that was a little while ago now, but how did you get permission to build a house here, what is the process you went through?
>
> **OJHH1:** Oh, so land here, you know where the fence is here? Before, it was owned by the government. This land before, lands department they acknowledged that this land is a, what's that, is loose land. Loose land where you cannot build anything, you cannot develop … land that has no value.
>
> So, the government they said that this land is prone to climate problems, so they told us not to live here. But then because, because we've been brought up – you know our home – we live in the same situation, we are prone to the climate … so we are happy to live here, we build our houses.

An inversion of Olsson *et al.*'s proposition that "one person's resilience may be another person's vulnerability" (2015, p. 6) was therefore evident in the logic of the settlers themselves, with institutional perceptions of high climate vulnerability being argued to enhance the robustness of informal tenure in the face of a non-climate pressure: urban development. It is this interconnectivity between climate and non-climate related shocks and stresses that is argued here to evidence resilience discursively bridging its terminological predecessors (such as climate change adaptation and disaster risk management).

Finally, as the second last sentence of the quote from an Ontong Javanese respondent above demonstrates, household understandings of their own capacity to cope with climate related shocks and

stresses were being contextualised relative to their migratory origins as much as alternative environments within the urban system itself. This went beyond drawing on tradition knowledge of coping with heightened levels of climate pressure, into a more complex consideration of 'rational vulnerability'; a concept discussed further in Chapter 8.

### *7.3 Resilience of What, to What? II: Informal Prioritisation of Shocks, Stressors & Impacts*

Household perspectives on the shocks and stresses that their communities were facing provided an important point of reference for understanding how and where endogenous resilience was being enacted. A visualisation comparable to that used in Chapter 5 was therefore developed as part of this research, provided below in Figure 7.1. Consistent with its institutional counterpart (Figure 5.13), shocks and stressors have been grouped in the figure below by country (amalgamating responses across the three communities in each city), and then categorised by the origin of the impact itself (whether driven by climatic systems and change, other natural disasters, or urban development pressures). Also consistent with Figure 5.13 is the size of each circle, which indicates the frequency of the response in household interviews. A full listed of coded shocks and stresses broken down by community is provided in Appendix H, with some specific community-level examples elaborated upon below.

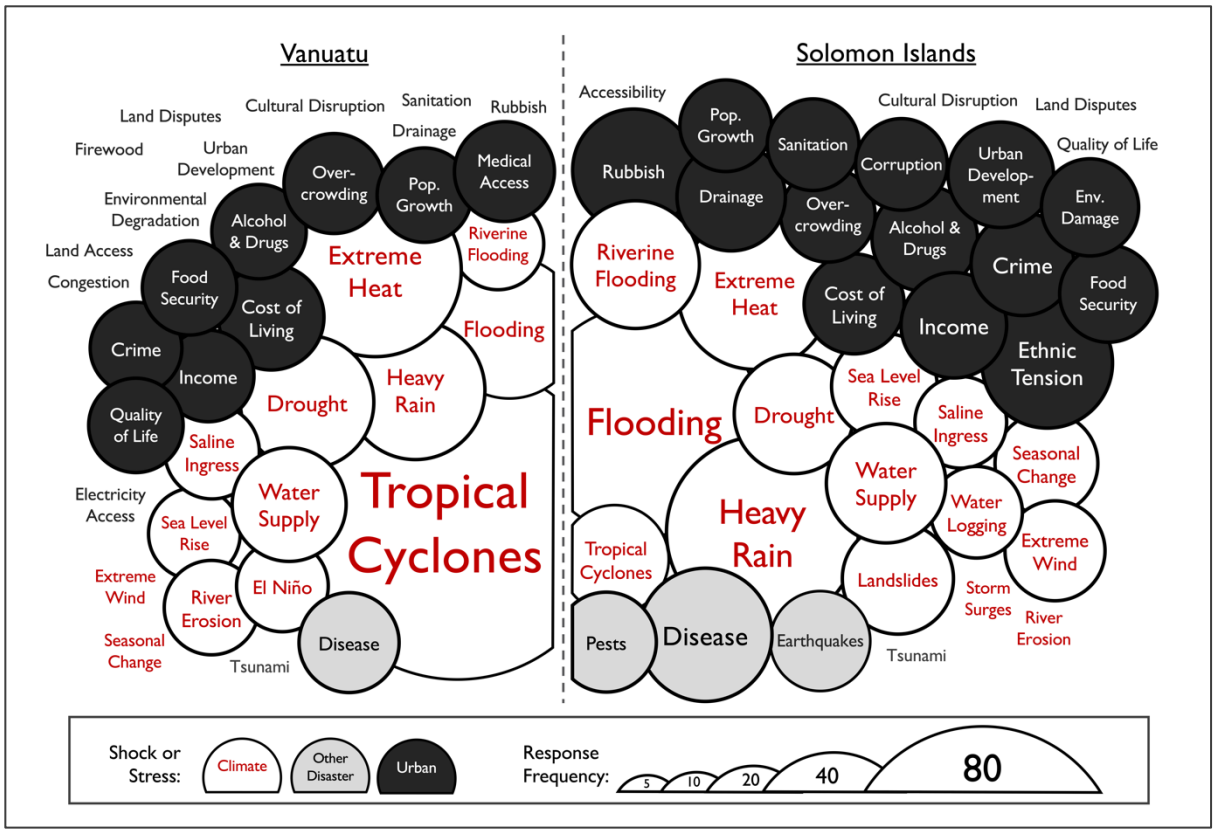


**FIGURE 7.1:** HOUSEHOLD REFERENCES TO SHOCKS AND STRESSORS – VANUATU & SOLOMON ISLANDS

(Source: Author)

Although household responses were generally consistent with those of institutional representatives some key differences are noticeable between the data shown above and that visualised in Figure 5.13. One such difference was the prioritisation of extreme heat, which was a far more prevalent concern at a household level. This was consistent across all six settlements, with an average of seven references per settlement (equivalent to one-in-ten of the shock and stress related references across the 57 households). Seventeen of these responses were from the Seaside Paama and Futuna communities alone, with one Seaside Paama respondent explaining:

**SSHH5:** [in Bislama] … *olsem* corner, same area, place here hot, too hot.

**Translator:** The side of their place is really hot some times. Like the houses in front are much better, but here is at the pathway, and when it gets hot it's really hot in here.

**SSHH5:** [in Bislama]

**Translator:** And the houses in front, they are blocking the fresh wind from coming to. Now, because it is raining it feels a little bit cool but if we come during the hot day, it will be really hot.

Similar observations were found not only in Ontong Java Settlement (the highest density settlement in Honiara), but also in Etas, Jabros and Wind Valley. A Blacksands respondent also noted that disease spread more easily through the settlement during periods of prolonged heat, compounding this primary shock event. In contrast, heatwaves were mentioned twice by institutional stakeholders in Solomon Islands and not once by their counterparts Vanuatu. This lack of awareness of an issue driven particularly by sensitivities specific to the informal built form further supported the argument that institutional actors generally lacked a strong understanding of the day-to-day pressures that many informal city-dwellers faced.

A critical point of difference not immediately visible in Figure 7.1 was the physical distribution of where these shocks and stressors were being felt. Institutional stakeholders tended to focus on the informal settlements themselves, centred upon household areas and associated infrastructure assets such as roads and utilities. At a household level, however, references to saline ingress, drought, seasonal change and waterlogging were predominantly related to impacts upon each household's informal garden allotments and transport routes, rather than their residences.

The locations of garden areas varied depending largely on land availability, but more substantive food production was mostly conducted at or beyond the urban boundary. It was impacts on these areas of not only shocks, but also stresses such as seasonal change and water availability, that respondents were most attuned to, as reflected by one household interviewee from the community of Blacksands, Port Vila:

**BSHH5:** *Yumi* … plant here, *plantem mi* first. From before time *mi stap* here, you plant *olsem* here you grow, you grow, you grow. *Wanem* you *stap* [whatever you want], you *gat* everything.

But now, in Blacksands, no grow. No Pawpaw … after, sun you come strong. Manioc, you no *gat*, *holdem* small. All the manioc you *gat,* no stand up. Before, you just plant and you *stap*. Dry. And the kumala*, moi moi*!.

*Yumi* look hand *blo* God, give *yumi* life, *yumi* man Vanuatu no *gat* money to pay. From *Hem nomo*. *Mi gat* sun, it hot, pawpaw drop side, *makem* crops grow .. so *yumi facem* hard time, *mi* start *facem* hard time. All this *stap makem* overseas, *mi blessem*. *Em stap .. lo* place here, may come *lo* saltwater.

Man *lo* Blacksands vulnerable. Life is still *go*, no normal. *Mi* fright, future *blo yumi*. *Yumi* no *kakai* for *yumi*. *Mi lo* Blacksands, *mi no* .. lots of saltwater too. Some *nomo* climate change is time, *yumi facem* plant, sometime *kakai* dry bed *nomo, papai i* no *gud*. *Yumi facem* but *yumi* life. No matter *yumi facem yumi* life. *Mi gat* God *blo yumi*.

As the respondent explained, many informal households were heavily dependent on these gardens for both subsistence food production and also earning income through cash crops, compounding impacts to their livelihoods if they failed (raw data relating to garden use by community respondents have been provided in Appendix M). In the case of Blacksands – a rich floodplain area traditionally well suited to crop growth – the combination of heat, drought and saline ingress were reducing crop yields, increasingly pushing residents into poverty and reducing their overall climate resilience.

Although institutional engagement in climate resilient development initiatives within the settlements themselves was generally poor (often occurring intermittently in the aftermath of disaster events),

assistance directed to these even less visible parts of each city's informal fabric was even more scarce, as one respondent from Jabros community declared:

**JBHH10:** Sometimes *em* hot sun, sometimes big rain *spoilem* garden … kakai too. Garden *em* full water.

**Interviewer:** Does it cause any problems for the house here?

**JBHH10:** No man … *Em* good.

**Interviewer:** Does anyone from the government, or NGOs, or anything like that come and talk to you about the problems in the gardens?

**JBHH10:** No man. No-one.

In all, 39 of the 57 households that took part in this research actively used a garden, with one additional respondent from Wind Valley, Honiara having stopped gardening since their plot was washed out during the April 2014 Floods. Even in the 'inner city' communities of Ontong Java Settlement one-third of households used a garden to supplement their food or income. Rates in the other five settlements were much higher; between 60 and 88 percent of respondents from these communities generating garden produce regularly, consistent with survey results from Komugabe-Dixon *et al.* (2019).

The interconnectedness between climate, urban and non-climate shocks and stresses was another recurrent theme across all six informal settlements. These impacts were particularly acute for the urban poor within these settlements, as one Ontong Javanese household member explained:

> Climate change *makem*, people *findem* hard time for earning money too. Just last time, mi experienced mum *blo* me, dad *blo* me, *tufala* no more worker. But *tufala* manage for *payem* work *lo* bill, *kakai lo* house, and *olsem* school fees. But now, *olsem* earnings *lo* business they're *olsem*, spouse *blo* me *hem* worker, now very hard man. *Olsem*, *mi* say that run a small business, *mi earnem* money, but for *payem* all the bill *ya*, and school fees, and all something loans on *lo* house, *hem olsem* hard.
>
> "*Hem* hard man. Why now *olsem*? And some our people *olsem* inside *lo* community, *hem* earning money … climate change *em* changing everything yeah. Inside our life. *Mi garem* stuck, something *mi garem, mi sharem* all them *garem* anything, like *olsem* sometimes you still *lo* house, your *kakai* good, but other people no *garem* money for example, *yumi garem* breakfast, some people *no garem* breakfast. But last time, oooh yeah, all people. So, some shortage of food, everything.
>
> **– Ontong Java Settlement Representative (OJHH9)**

In summary observed changes ranged from financial pressures, to the disruption of the garden economy, to social pressures derived from wider family obligations. The diversity of these community concerns further highlights the practical appeal of a 'climate resilience' approach, which allows these and other considerations to be taken into account. In particular, the institutional framings of 'climate resilience' could be seen to be enabling wider access to climate finance than those where a more explicit causal attribution is required linking actions to the impacts of climate change.

## *7.4 Endogenous Capabilities: Hidden Structures & Unseen Functions*

A systematic approach was taken to understanding evidence for endogenous climate resilience, with references to community, state and civil society aspects of this phenomenon coded across the 57 household interviews. These features were then classified as either: i) structures, ii) actors or iii) enactments. Structures (36 types, 579 occurrences) were defined as either physical or conceptual features that lacked any direct agency in and of themselves, such as an evacuation centre, or a formal lease agreement. Actors (44 types, 440 occurrences) were considered in a manner consistent with the approach taken in Chapter 5 (see Figure 5.7 and Figure 5.8); being engaged institutions or individuals within the urban environment. Enactments (15 types, 248 occurrences) focused on temporally explicit

features of the informal system, such as a *kastom* ceremonies, elections, rubbish collection, and community fundraising. A tabulated list of these coded community-level features sorted by settlement, category and type is appended to this thesis (see Appendix I).

This array of system features and functions – as perceived at the community and household level – was further refined into six thematic domains: i) Household Production & Function; ii) Community Systems; iii) the Urban / State Regime; iv) *Kastom*, Culture & Religion; v) Foreign Aid & Assistance; and vi) Elites, Patrons & Land Owners. Some of the key interactions between these six domains – as well as the most prevalent structures, actors and enactments found to occur within them – are depicted in Figure 7.2. Four critical functional interactions between the informal aspects of some of these six groupings are also elaborated on throughout the remainder of this chapter, referenced by the numbers demarcated in the figure below.

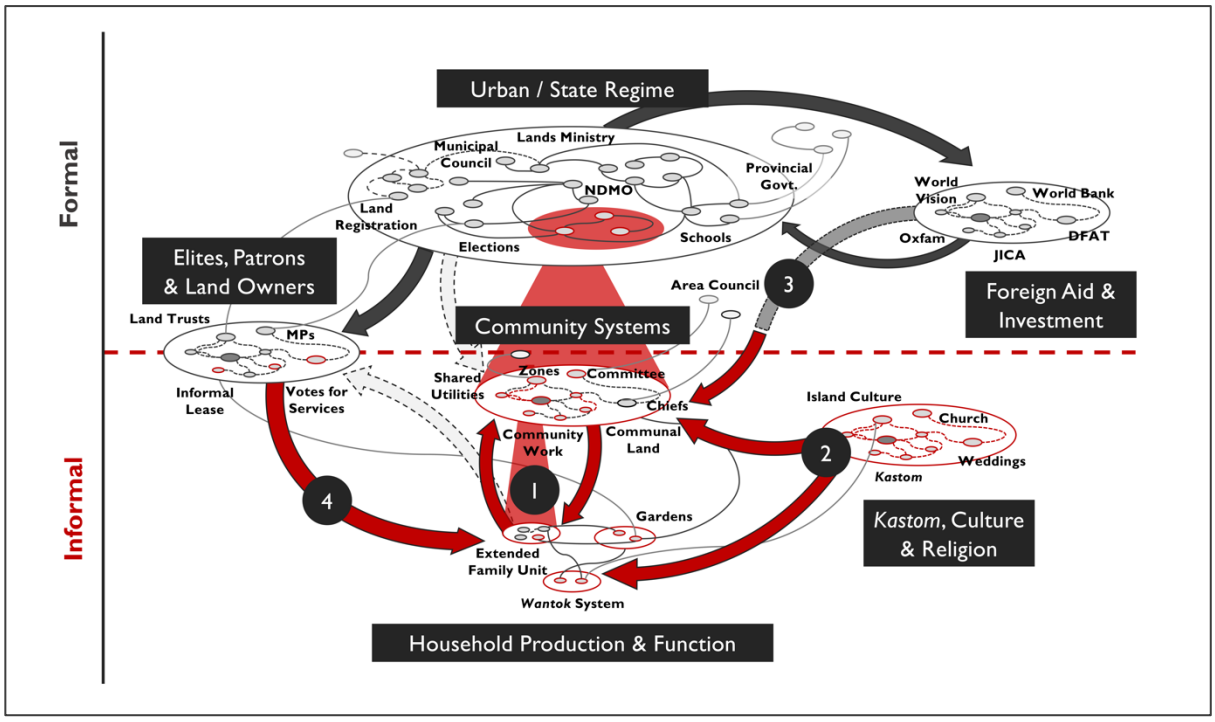


**FIGURE 7.2:** CATEGORISED HOUSEHOLD-LEVEL ENDOGENOUS (RED) AND EXOGENOUS (GREY) FUNCTIONS

(Source: Author)

As this diagram demonstrates, although informal communities are nested within the city-scale system they are by definition functioning largely outside of the formal domain. Other thematic groupings have varying levels of informality, as reflected in the informal / formal vertical axis, and the red demarcation of particular system nodes, clusters and connections in the figure above.

Informal gardens were the most frequently referenced of these components across the 57 interviews, comprising 12.2 percent of all coded responses (n=155). Although these enterprises were usually specific to an individual household, some functioned on a communal basis (see '1' in Figure 7.2). In Wind Valley, Honiara, for instance, customary access to land across the municipal boundary was attained through negotiation by the customary chief, who was married to a member of the adjacent, and matrilineal, Guale landowner group. Shared garden allotments were also found to function for the purpose of community production in some instances, as explained by one elder from the peri-urban settlement of Jabros in Honiara:

> Me *garem* garden. Cassava, stay, usually … during those years back like I've told you already I'm a farmer, I farm cassava, potato … then those gardens at the moment I'm not really maintaining. I still continue maintain, but you know who eats? We – *everywan* – eats my garden.
>
> If church groups needs cassava, then I say, you go to my garden and you harvest. Just for, church funds. So at the moment I'm doing that one. The cassava, they stay there. If they need cassava, take your hoe and go and harvest, but you replant it back. So I farm cassava, yam, banana. But now, only cassava stay. That's how my garden, everybody in. I call it nation garden.
>
> **– Jabros Informal Settlement Representative, Honiara (JBHH1)**

The enactment of community work was also referred to frequently, accounting for 3.3 percent of all features. However, these references varied significantly between settlements, ranging from eighteen in Wind Valley and thirteen in Seaside to less than five elsewhere.

Households were found to draw heavily upon customs, cultural practices and spiritual structures that not only existed beyond the state, but were often derived from beyond the urban domain (as shown in Figure 7.2). References to these features were split evenly between church (4.3 percent) and *kastom* practice (4.2 percent), with more general aspects of island culture accounting for a further 3.1 percent of coded household references. These structures also enabled much of the interplay between community and household scales ('2' in Figure 7.2).

As outlined in Chapter 6, island origins and cultures were a key factor in determining whether a community self-organised through a singular island structure or a series of sub-structures based upon mixed-island origins. However, the pre-eminence of these translocated *kastom* features was a key point of difference between Honiara and Port Vila. Although chiefly leadership accounted for 6.3 percent of the total coded structures across the six communities, of 57 of these 80 references occurred Port Vila's three communities. Conversely, of the 43 references to community committees (3.4 percent of all coded structures) two-thirds occurred in Honiara.

This divergence between chiefly and non-traditional community leadership aligned with two legitimising state-based structures specific to each case study context: the registration of community constitutions under the Solomon Islands Government's *Charitable Act*, and the constitutionally-recognised National Council of Chiefs – the *Malvatumauri* – and its associated chiefly sub-structures in Vanuatu. In the case of the latter, Solomon Islands lacked an equivalent body for urban representation, as noted by one peak body representative based in Honiara:

> **Interviewer:** Do they have a council of chiefs across the different ethnic groups?
>
> **SIE9:** They are supposed to but … in Honiara they don't, I don't think so … the chiefs I know there are leaders, but with due respect they are limited. They do other things in the community, that's why they are chiefs, but they also do other things to help the people who elect them to be chiefs.

In Port Vila, however, sophisticated island-based chiefly structures were found to not only operate within each of the settlement areas, but also to extend beyond them through island diasporas across the metropolitan area.

Only one respondent from Port Vila noted that their community, Seaside Futuna, had a recognised constitution and associated election processes. In Honiara, however, respondents from Wind Valley and Ontong Java Settlement emphasised the formal registration of the community structures, while in Jabros this process was put forward as a key community action during workshop activities. The sophistication of these organising features is demonstrated in Figure 7.3, which depicts Ontong Java Settlement's community structure as identified through interviews and the community workshop conducted as part of this research. Clearly delineated zones were also mapped out, forming the basis for

community elections. This structure was further supported through a constitution lodged with the national government, an extract from which is provided in Appendix J.

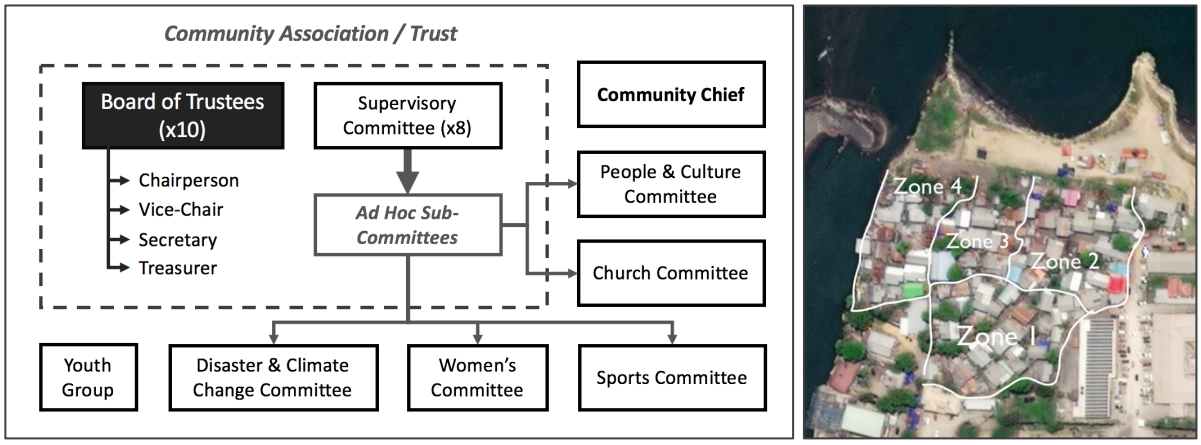


**FIGURE 7.3:** ONTONG JAVA SETTLEMENT COMMUNITY STRUCTURES & COMMITTEE ELECTORAL ZONES

(Source: Author, based on interview outputs & the Ontong Java Community Association Constitution)

Engagement in the six settlements by civil society was at best found to be ad hoc – consistent with institutional observations – and often specific to a limited pilot project within an individual settlement. Fifteen of the seventeen references to Oxfam, for instance, related to Etas, where they had been particularly active establishing community water tanks (1.3 percent). A similar situation was evident with World Vision, with eighteen of the 21 coded responses occurred in Wind Valley and Ontong Java Settlement (1.7 percent). In the case of the two settlements engaged by World Vision, the International NGO's Solomon Islands office had engaged explicitly with informal community governance structures). In all these aid-based features comprised only nine percent of the total references coded as part of the community interview assessment exercise.

It was notable that by working with these communities civil society institutions were necessarily operating beyond the formal domain, a process that required some level of acknowledgement – and legitimisation – of the community structures discussed above and shown in Figure 7.2 (see '3'). In the case of Ontong Java Settlement this relationship was particularly strong, with a community leader being directly employed through World Vision's Solomon Islands office. In other instances, however, a lack of understanding of these local structures by external actors was found to be resulting in friction within communities relating to resource allocation and access. In Etas, for instance, the provision of tanks within some community zones, but not others, was explained to be preventing households from accessing these nominally 'communal' resources:

> The water tanks I think the help already come but to give one a little too … hmm. [pauses]
>
> Yes, so we in this area, we call us Zone Eight, but we don't have any water tank in this area. We just preserve our own water when it's raining. It's the only thing. But the other, other community [zones], they are, they have tanks.
>
> Sometimes it's hard to go to, if the tank, if communities is available, we can go and get water, but … we just respect not to go there and get water from, especially this water for drinking. So, we plenty people in Etas we reserve our own water for drinking when it is raining in containers.
>
> **– Etas Informal Settlement Representative, Port Vila (ETHH2)**

As this quote demonstrated these forays into the endogenous domain by civil society were generally short-lived, and often lacked either a sufficient understanding of the local context or resourcing to sustain or upscale these projects in an effective and equitable manner.

Although formal governance structures accounted for one-fifth of all coded structural references across the household interviews, they were often framed as being disruptive, rather than supportive, of endogenous climate resilience. These included unmet commitments from local (1.2 percent) or national government (2.8 percent). Notably, no reference was made to ward-level secretariats or other related municipal structures by household respondents from any of the three municipal communities across the two cities, further highlighting the absence of effective. formal sub-system urban governance institutional structures in each setting. Etas was similarly silent regarding Shefa Provincial Government, however local provincial area council structures were mentioned in Blacksands.

A direct relationship between Wind Valley and their local councillor positioned the municipal government much more favourably than was evident in the other settlements. However, the role of this form of semi-formal political patronage (see '4' in Figure 7.2) was also problematic in a wider governance sense, as explained in more detail later in this chapter. The most consistently positive reference to state institutions related to education facilities (2.7 percent), however the availability and cost of these institutions had additional impacts on households at a national level with implications for urbanisation as a whole, discussed at length in Chapter 8.

### *7.5 Resilience in 'Mixed Church Communities': A Parallel Social Structure*

References to 'church' and church groups were one of the most frequently cited components of not only the enactment of endogenous climate resilience but also day-to-day community communications, planning and problem-solving across the six communities. Many of these local church structures were positioned either alongside or within community organisational committees (as was the case with Ontong Java Settlement, shown in Figure 7.3). However, despite lacking an equivalent focus in the literature assessed in Chapter 3, these church groups were also confined to particular denominational alignments, similarly – but not always congruently – to island-based cultural and *wantok* structures. As one respondent from Jabros community explained:

> **Interviewer:** So, the church links everyone together?
>
> **JBHH4:** Yeah. How you come *bai hem* good, you *checkem* things in the community [with local leaders]. Especially when you go back *workem lo* place from here you go down, and it's a community.
>
> From here, valley inside *lo* … community has different churches. The church for one community, so they *controlem olsem* people, how they live.
>
> The church pastors, when things, problems, *em* different *lo* every community but you mention at church and they go 'oh, lets meet after prayer', bell, *em* ring and community talk about this, it's good. How we *respectem* every people of the community, *pikinini* [children], the women, elderly people in the community too.

Church networks and capacities therefore had similar implications for inclusiveness and spatial distribution to 'mixed' island-origin communities; namely, that they were generally contingent upon wider denominational structures, and a dependence upon them risked excluding some members of a particular community.

Despite this limitation it was clear that the church and related church organisations played a critical role during and subsequent to Tropical Cyclone Pam, with a number of respondents from all three communities explaining that they sought refuge in church halls due to the structural weakness of their own informal dwellings:

> **Interviewer:** So after [Tropical Cyclone Pam] the house was destroyed as well?
>
> **SSHH2:** Yes, *mi* house destroyed, copper [sheet iron roofing] blow out. *Mifela* go and sleep under the church, *em* strong. Everyone go *sleepem*, no *gat* something, no water. But dry.

**Translator:** All the houses were destroyed, and they went to the Presbyterian Church as an evacuation centre.

**Interviewer:** So, you were in the church when Cyclone Pam came through?

**SSHH2:** Yes.

Even within the relatively close-knit settlement of Seaside Paama these capacities were found to diverge along denominational lines, with another respondent explaining they were evacuated by a different church organisation:

**Interviewer:** With Cyclone Pam, did you guys stay here in the house?

**SSHH4-1:** No.

**SSHH4-2:** We went out *lo* church.

**SSHH4-3:** Nambatu Mormon Church.

**SSHH4-1:** Because *lo* house *hemi* safe *nomo*.

**SSHH4-2:** Yes, after the third warning they come and take us. [But] many people went to other churches.

As these two excerpts highlight, although these informal responses through church structures improved the safety of these congregants, the lack of a coordinated response left non-denominational individuals within each community at risk of being isolated. It was these more vulnerable community members that instead hid under public buildings and sheltered with relatives, demonstrating the critical and at times intersecting roles of both formal and informal social structures.

A secondary consideration was the interface between socially derived, informal church structures and the formal faith-based organisations that aligned with these denominations at a national or global scale. The latter appear variously in the institutional diagrams in Chapter 5, including faith-based development organisations such as the Adventist Development and Relief Agency (ADRA). The additional capacity to draw on international fundraising and global organisational structures further highlighted the fuzzy boundaries between formal and informal in each city. However, mixed and 'local' churches, while often highly integrated into informal settlement communities, were found to be at a significant disadvantage due to their lack of 'nesting' within these national and global scales.

The importance of these links in influencing endogenous climate resilience was best demonstrated by one interviewee who was the pastor of a locally founded church in Blacksands, Port Vila. The non-denominational congregation had grown organically from informal settlers of mixed island backgrounds, as they explained:

**Interviewer:** So, your church is not linked to a bigger church group?

**BSHH5:** No. Local church. Big big church only got … foundation. *Mi* local, *mi* no *gat* foundation.

Church group, *hemi* big one. But, ah, equal *lo* people, equal people with no schools. Ah, *makem* say, only *plantem lo* church, church here *lo stap gat* Banks, Santo, Malekula … church here *i* build up quick, from spirit *lo* God. Physical, *i* poor. But spiritually … [laughs].

As the pastor, a widely recognised chief and elder within the Blacksands Tannese community, continued, despite a long-standing *kastom* agreement the Ifiran landowners would only permit a 'temporary' structure on the site. This was preventing construction of a more permanent, climate resilient, building, which he argued could double as an evacuation centre:

**BSHH5:** *Yumi triem* best. From the old thing, they say it's easy *blo yumi*. You *gat* 10,000 [vatu], you *buyem*. Ahh, only no *wantem*. *Mi askem, buildem* just houses *blo* bricks. From *mifela* small money *lo church*, from offering, you *makem* say *mi* try and *tellem mi makem* for sometimes cyclone *wanem*. But … *no gat*.

As a result of these construction limitations Tropical Cyclone Pam had destroyed the church building. Further, without connections to institutional church structures this key piece of community infrastructure remained little more than a timber frame covered by a donated tarpaulin two years later, as can be seen in Figure 7.4.

**FIGURE 7.4:** WILLIE ROMA CHURCH BUILDING, BLACKSANDS COMMUNITY, PORT VILA

(Source: Author, 2017)

## *7.6 Reframing the 'Household': Resilience Wantok / Kastom Urban Planning*

The *wantok* system was one of the most frequently referenced aspects of household functioning and production, as highlighted in Figure 7.2. Direct references to *wantok* obligations and support across the six informal settlements comprised 5.0 percent (n=64) of all 1267 coded features of these household systems. However, additional *wantok*-based enactments of this informal 'safety net' further added to this figure. In particular, it was found to be contributing to a distinctive physical 'household' typology across these informal settlement areas.

A regularly cited component of the *wantok* system was the expectation for settlers to house extended family members. These arrangements were often temporary, as part of 'circular' migration processes or in some cases to accommodate family members who had fallen on hard times (including those affected by Tropical Cyclone Pam and the April Floods). However, over time many of these obligations became more permanent, resulting in family-based 'infill' of informal settlement areas, as one respondent from Jabros community in Honiara explained:

> **JBHH4:** *Mi buildem*, this area *blo* family my brother, my big bro, brother another side.
>
> **Interviewer:** So, three houses *olgeta*. How many in each house, roughly, including *pikinini* [children]?
>
> **JBHH4:** This one, another big bro, *hem* stay home, *hem* with family this time. If you go *lo* Malaita, *hem* now *olsem* village in central Kwarai. *Hem* for family *em* still home so *em withim* ah, brother-in-law, *hem* now stay inside. *Hemfela* come *lo* Honiara but *hem garem* no house, so he stays inside.
>
> Another bro still there. *Hem garem* like say four children *olsem*, *hem garem* school fees, if in a year, $50 one year Kindy, 'cause *hem* community-based high school, so if any member inside the community *bai* you just pay $10, [but] you must attend work so I'd go home … *Mifela* go another *twofela*, *mi* go back home.

This pattern was observed in all six settlements across the two cities to varying degrees, with extended family allotment arrangements accounting for a further 28 coded community-level structural references (2.2 percent of the features identified in Figure 7.2). In the case of Jabros, the more spacious peri-urban built form allowed a more traditional form of 'multi-dwelling' expansion whereby additional, but physically separated, houses were built to accommodate extended family members within the community. A representation of a similar arrangement in Wind Valley occupying, unusually, a single formally subdivided allotment was sketched during the fieldwork, and is depicted in Figure 7.5.

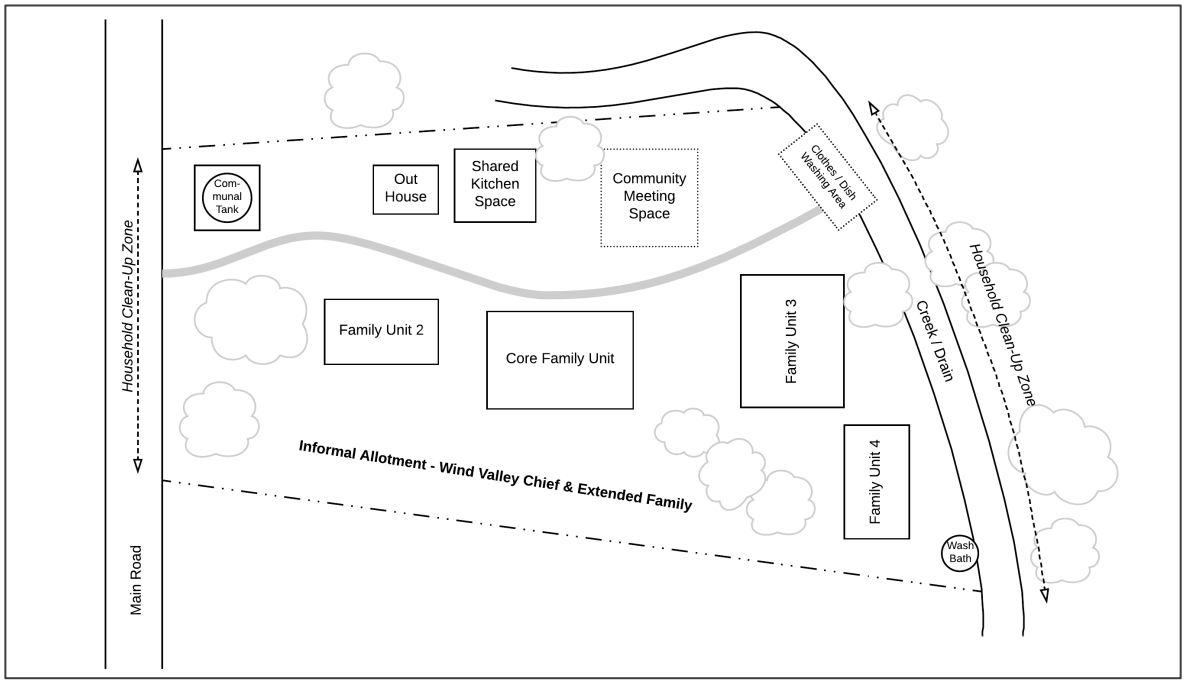


**FIGURE 7.5:** EXTENDED FAMILY LIVING ARRANGEMENTS, WIND VALLEY, HONIARA

(Source: Author, developed from community transect walks and workshop discussions – schematic not to scale)

In more space-constrained communities *wantok* newcomers were often accommodated within extended or existing structures, with buildings being extended to accommodate relatives who remained in the city for longer periods. As one Ontong Javanese respondent from Honiara explained:

> At the moment this place is full. It's just there's no space for everyone to share a house. Only those who live here … can build, but no new purchases. Those who live here, they can expand our houses. Each family here has relatives. When they come from home, they have to accommodate them. There's no other place for them to go, so they have to come, and they have to look after them. That's the normal process … we can't just leave them."
>
> **– Ontong Java Settlement Representative, Honiara (OJHH1)**

This pattern was evident in the household characteristics of Ontong Java Settlement in particular, with dwellings within the community having an average of fifteen inhabitants,[12] double that of the city as a whole, which as of 2009 had an average household size of slightly more than seven (SINSO, 2013). The communal lease and semi-formalised tenure – supported through a state-recognised constitutional – also supported community efforts to regulate newcomers and future growth. Two contrasting examples of these extended family dwelling arrangements are shown in Figure 7.6, which visually demonstrates how the different typologies can enable and constrain the built expression of these cultural practices.

[12] Interviewed households ranged from 9 to 24 but averaged the same number of inhabitants (15) as national census data for the Ontong Java Settlement enumeration area.

**FIGURE 7.6:** ADJACENT DETACHED EXTENDED FAMILY HOUSEHOLD DWELLINGS, WIND VALLEY (LEFT) & AN EXTENSION AS PART OF A MULTI-FAMILY DWELLING, ONTONG JAVA SETTLEMENT (RIGHT)

(Sources: Author, 2017)

Outside of shock events these informal norms were found to facilitate 'generalised resilience' through access to communal resources and the ongoing provision of capital for basic urban services. Households frequently shared kitchen spaces (as shown in Figure 7.8), as well as access to water utilities through standpipes, and in some instances on-sold electricity, as depicted in Figure 7.7 below. Although the process for gaining access to utilities varied (with different levels of formal recognition and legality between the case study communities and cities), the ability to share bills and infrastructure investments with extended family offered households additional security in the face of the stresses associated with cost of living and income, as depicted in Figure 7.1.

**FIGURE 7.7:** SHARED WASHING FACILITIES, HONIARA & A SHARED METER, PORT VILA

(Sources: Author, 2017)

Considered through the paradigm of resilience thinking these familial and *wantok* networks, both within and beyond the city, provided robust adaptive capacities at a sub-system scale. To follow the characteristics set out by Tyler & Moench (Tyler and Moench, 2012), they also provided a critical source of redundancy that could be drawn upon in the event of a climate-related shock or stress. An example of this was articulated by one interviewee from Port Vila's peri-urban settlement of Blacksands, who had only moved to the city from the island of Tanna shortly before it was hit by Tropical Cyclone Pam in 2015:

> **BSHH6:** *Mifela facem* two hurricanes. Pam. *Mifela facem* other problems *lo* place here. After *lo* time *mifela* run short *lo* … everything. Sometimes *kakai* [food], housing no good, *mifela* try *buildem* up, and then *mi* cost money too - *mifela stap* work *lo* something because hurricane *lo spoilem,* wind *i* blow *em* out.
>
> **Interviewer:** Did anyone come to help you, or talk to you about your house, and the damage? Or *kakai*?
>
> **BSHH6:** *Mifela* no *garem* man *lo government*, *lo* place *yumi makem olsem* no *gat* any something.
>
> **Interviewer:** How did you cope with the disaster to rebuild your house, and to feed yourself? Did you have savings, or money, or did you talk to family, *wantoks*?
>
> **BSHH6:** *Mi* no *savee lo* Hurricane Pam, *yumi stap lo* other side. *Mi* go *lookem* one family, then *mifela* safe *lo* house *blo hem*, time hurricane *spoilem mi stap* bother him about three weeks, then *mi* come. *Mi, mi payem* tin [sheet roofing], *mi payem* timber, no *gat* no man helping me.

As the respondent explains, although they were provided with no institutional assistance in relation to the event (a common refrain from Blacksands household members), the ineffective institutional support was largely substituted by their informal 'social support system'. This not only afforded them safe shelter during the cyclone itself but also allowed them to remain in the city following the disaster so that they could save money to rebuild their home. This was despite the respondent having migrated to the city only shortly before Cyclone Pam and therefore having limited financial resources and familiarity with formal disaster response systems. Instead, they enacted climate directly through the *wantok* networks that exist within, but originate outside of, the city.

### *7.7 Adapting the City: Resilience Enactments through Transience & Hybridity*

While urban climate resilience is necessarily defined in relation to the city itself, its enactment at the household level was observed to not only traverse these boundaries, but also to be engaged by households deliberately through the process of migration. In the case of rural-to-urban migrants, this was clearly evident in efforts to attain capital. This was of particular relevance to these case studies, with SIDS being characterised by their limited economic opportunities, particularly outside of the urban domain, as discussed in Chapter 3. The urban-centricity of this economic opportunity was especially evident in the analysis of secondary data for this research. For example, the most recent Solomon Islands Household Income and Expenditure Survey (2012/13) showed that households outside of Honiara earn on average one-quarter of the annual cash income of those living in the capital; SB$32,112 (US$3,886) and SB$133,932 (US$16,206) respectively (SINSO, 2015, p. xvi).

In each of the six case study settlements more than half of the research participants stated that they had migrated to the city for the primary purpose of earning an income (at an average of 56.1 percent across the 57 households). As a number of household respondents had been born in the city or had arrived as children, this figure represented the majority of those interviewees who had chosen to migrate themselves. A second smaller group of household representatives had moved for secondary, tertiary or theological studies (n=5), while other responses related to the use of the respective national hospitals, accessing government services, and be in transit temporarily while seeking overseas employment through international seasonal workers programmes.

Eight household respondents noted more substantial personal difficulties in maintaining sufficient income to sustain their urban livelihoods, although a more general issue that was expressed by a wider group of interviewees was the 'lock-in' to the cash system while living within the city:

> **JBHH2:** We find big problem here. If you don't work, that's the problem. You will find it hard to find food for these people, feed these, your family or something like that. At home, at Malaita, because even though you don't go to work you still have something to eat. But in here, in town, it's quite different. You have to work. To find money, to earn, earn a living. Every one of us here, in each family, there always somebody work. In this, in town. To earn money. And the rest, some of them must go to the garden. Because money, salary here is not enough.

The cash incomes of respondents were generally derived from the informal economy. These sources ranged from construction, to production of peri-urban garden produce, to the running of informal shops and canteens within the settlements themselves (such as the two shown in Figure 7.8).

This difficulty in attaining cash income was further supported by secondary sociodemographic data, with Vanuatu's Household Income and Expenditure Survey from 2010, for instance, showing that 18.4 percent of Port Vila's population had an income below the city's Basic Need Poverty Line (BNPL) of 2,866vt – equivalent to US$25 – per week (VNSO, 2012, p. 34). This contrasted a rate of 10.0 percent in rural areas of the country where, despite lower income levels, two-thirds of the lower rural BNPL could be met through subsistence (with 1,375vt of the 2,065vt rural poverty line constituting the cost of food needs, which could be met non-monetarily) (VNSO, 2012, p. 33).


**FIGURE 7.8:** INFORMAL SHOP, HONIARA (LEFT) & A '20 VATU' FOOD STALL, PORT VILA (RIGHT)

(Sources: Author, 2017)

Despite these figures evidencing the prevalence of households living in poverty, expressions of financial hardship across the interviews themselves were surprisingly limited, particularly given the targeted selection of nominally vulnerable, low income migratory settlements. One argument for this put by several respondents was that the 'hybrid' nature of the informal settlements themselves facilitated a level of social support that prevented deeper inequality and poverty entrenchment:

> **WVHH10:** In Solomon Islands still, if you don't have money, not big problem no? But in other countries overseas, if you don't have money you struggle for your life.
>
> **Interviewer:** It's a different sort of poverty here?

**WVHH10:** Yeah. Here in Solomon you don't see anybody poor. Not the same way. We look after each other. Because white people, when you come to your sister's house or brother's house you have to contact them, appointment yeah? But here in Solomon, people know. No appointment, you just come. Everything just works. So you don't know who is poor. Everybody same … in Solomon [they] stand in front of the door. We can't chase them out, we say come in have some food. But white people if you go like that, you have to phone up. [laughs]

You don't see anybody rich, everyone just same level. When you see your neighbours come, you don't chase them out you say 'come, come'. Even water if they need water we don't demand them with money, we say 'here's some water for you'. We just work together. Try to help our neighbours, our *wantoks*.

This observation further evidenced the existence and enactment of endogenous forms of resilience that were otherwise obscured in external modelling of vulnerability, with adaptive capacities being drawn from materials and networks outside of institutional measures of formal capital and household 'wealth'. Thus, although BNPL calculations accounted for the monetary value of food needs, as well as quantified cash income sourced from extended family members in the form of remittances, the wider material and nutritional support available through *wantok* networks was not factored into these calculations.

The hybridisation and translocation of traditional, rurally derived knowledge was also found to occur in a range of different ways (and with differing levels of success) within each city to support endogenous climate resilient efforts. One example of 'hybrid' enactments of traditional knowledge was provided by a representative from Etas community, who sought shelter in a cave during Tropical Cyclone Pam:

Before Cyclone came last time, a lot of people from Banks they were hiding in caves when the cyclone hit. So, we started looking for caves too here like … to me, I felt the cave was much safer [than the evacuation centre]. We didn't hear any effects of like wind …it was quiet inside. We got solar, we watched laptops, movies.

**– Etas Informal Settlement Representative, Port Vila (ETHH3)**

As this respondent explained, these traditional approaches were being not only shared between home island groups but had also been adapted to integrate new aspects of urban livelihoods. In this case endogenous resilience was being enacted by combining traditional disaster management with the decentralised modern technologies being taken up in informal settlements: solar, laptops and batteries.

**FIGURE 7.9:** TRADITIONAL 'A-FRAME' ROOF TO WHICH BAMBOO STRAPPING COULD BE APPLIED (LEFT) & CASSAVA STRIPPED TO COPE WITH CYCLONIC WINDS, (RIGHT) IN BLACKSANDS , PORT VILA

(Sources: Author, 2017)

Some of the more conventional applications of traditional knowledge related to natural disaster management techniques. Two such approaches are evident in Figure 7.9 above, as applied by a household respondent in Blacksands, Port Vila. To the left of the figure are two buildings, one of which was destroyed during the cyclone, while the other – built in traditional 'a-frame' style – was able to be strapped down using a traditional coping strategy applying a brace made of bamboo. As preparations were being made for Tropical Cyclone Donna during the research fieldwork the community member was also able to show the author how they had stripped back crops to minimise wind damage (to the right of the figure); a technique they had also applied during Cyclone Pam.

Notably, the respondent referenced above was an atypical informal occupant in the Blacksands settlement area. Their agreement with the customary landowners not only included designated space for gardening, but also allowed for use of other ecosystem services such as the bamboo required for the traditional bracing referenced above. Other households in the community, however, found gaining access to these materials more difficult:

> **BSHH1:** Some traditional *buildem* one house, where one house, one ah, long house where *hemi*, mainly *lo* hurricane, only come *lo* traditional way so must *makem* continue. *Kastom lo* Tanna.
>
> **Translator:** They have traditional buildings for a cyclone proof house, and there are [development/government] people encouraging them to continue with this. Continue building those traditional houses. So, they gave out nails, and hurricane straps so that they can use it to build the traditional cyclone proof houses.
>
> **Interviewer:** So, some bits are new, but some bits are custom?
>
> **Translator:** Some way *lo* white man, some *lo kastom*?
>
> **BSHH1:** Only different nail *lo* hurricane strap, if you want, go.
>
> **Translator:** So only the outside stuff was the strap and the nails. But all the rest were traditional materials.
>
> **Interviewer:** And can you use those traditional ways here, in somewhere like Blacksands?
>
> **BSHH1:** [in Bislama]
>
> **Translator:** It's hard to find the appropriate, materials.
>
> **BSHH1:** Must go *lo* bush, other side.

These less successful translocations and hybridisations were also evident in Honiara, where one respondent from Jabros community wanted advice about whether traditional or Western building techniques were better at dealing with the increasing daily temperatures that they had been observing:

> Me *garem smol* question *nomo*. *Smol* one maybe, about this, ah copper and glass. Because these things, when the sun, here climate very hot yeah? When the sun heats the copper [corrugated iron], it flashes back into the air, and then it causes something from the air and then it's hot. Very hot. From the glass, flashes back. In the air and then, come back. Then what now we're experiencing, bit hot than before.
>
> In the community that we live, some buildings this one, some buildings are traditional palm leaves. Palm leaves for us, didn't get any heat from .. it's normal. So what is your advice? That we can maintain our traditional way of building houses, or we change it over with these iron roofs?
>
> **– Jabros Community Representative, Honiara (JBHH9)**

Urban- and climate-related shocks and stresses were therefore found to be impacting these endogenous climate resilience capabilities in a number of secondary ways, with some respondents also noting that seasonal changes were reducing their ability to grow and preserve crops that would otherwise be used as key redundancies in the event of a drought, flooding, or the impact of a major cyclone.

### *7.8 Divergent Functions: Negative Informality, Urban Elites & Gender*

The final functional group shown in Figure 7.2 consists of the urban elites, political patrons and landowners. Although these actor groups were rarely discussed in the institutional interviews (and thus lack reflection in the actor maps shown in Figure 5.7 and Figure 5.8), they were found to play a critical role as either facilitators or inhibitors of enactments of endogenous climate resilience in each of the six communities. By positioning themselves outside of the nested adaptive cycles of each city system, these individuals and organisations were able to negotiate informal and formal domains for their own benefit. By occupying spaces vacated by formal urban governance, these 'masters of modernity', as referred to by McDonnell (2017), not only intimately excluded other legitimate actors with authority in these areas (thereby performing their own 'gatekeeper' function), but in many instances also diverged in purpose from the functional goals of the urban system itself.

The most frequently referenced group of urban elites were the 'Honourables', a term used to describe elected officials in city council, provincial government and national parliament elected from across each city. Interactions with members of this group were evident in all six case study settlements (n=51). However, these references ranged substantially in number between each community, with little mention of them in the two inner-city communities of Ontong Java Settlement and Seaside. Further mentions of the formal roles of these actors were also evident (as reflected in Table 7.1), however these specific coded uses related only to informal acts of political 'patronage', such as requests for a commitment for votes at a forthcoming election in order to generate community outcomes.

While the formally-endorsed structure of 'Constituency Development Funds' is well known and has been reported as a problematic issue for governance in the Pacific elsewhere (see, for example, Batley, 2015), this 'patronage' was heavily based on expectation and promises rather than structured development processes. It was also heavily correlated to not only community-level, but even personal and household level voting patterns, as one respondent explained:

> For *olsem* city, neighbours *olsem* … so here, *mi ifem workem* anyone, you no *gettem* anything lo government or town, or town *helpem* you. *Olsem* you no *gettem* … if you *votem* for him *lo* lose, *em* winner him no help you. Coz town help them who vote for *hem*. So, you no power to … ah, anything *lo* help.
>
> So, since *mi findem* out *m*i winning side, *mi* no go *approachem* member. My husband *hem lo* winning side, vote for member, so *hem* now go *approachem* him, because *hem* no *receivem* anything until today. *Mi gettem* school *pikinini*, market *nomo*. Mi for *helpem* market, mi struggle, no anything we can receive from the Honourable.
>
> All the member, all now *votem, em* win. Even the town council, *em* win, and the parliamentary, husband *blo mi* win. But if you lose, you get nothing.
>
> **–Wind Valley Community Representative (WVHH7)**

As the quote above demonstrates, although from a formal perspective electoral processes were intended to be anonymous, there was a widely held view that both the candidates and one's fellow community members knew who had been voted for by whom. Although the author was not able to clarify how this informal awareness was generated, the repercussions for constituents who failed to appoint their chosen political representative were explained by interview participants to be substantial.

One example of the significance of these political alignments was conveyed during interviews in Honiara, with particular households in Jabros claiming to have been provided with private water tanks based on whether or not they had voted for the locally elected Member of Parliament:

> **Interviewer:** What about things like rainwater tanks for the community, that sort of thing? We saw in Wind Valley they have an iron roof over the top, then a pipe, and a big tank underneath. The community shares two tanks, for drinking water not for washing.

**JBHH2-1:** Water, honourable give the tank. *Mifela* no any member *hem* give anything *lo* anything. You like a water tank you have to pay for your own tank.

**Interviewer:** Would the community chip in, fund altogether, to fund a tank?

**JBHH2-2**: To get water tanks I think only member of parliament, they provide for their constituents.

**Interviewer**: This one was funded by World Vision and AusAID. But I don't know how they chose that community,

**JBHH2-1:** Maybe they've got a lot of support there. They go for their supporters, MPs.

The interests of these 'political elites' could thus be seen to be diverging from those of the community as a whole. As a result, efforts to achieve city-scale climate resilient development objectives through other means were made more difficult, with the contributions by the latter lacking grounding in values such as equity and transparency. In effect this counterproductive or 'negative' informality constituted an inversion of Helmke and Levitsky's typology, where the formal sustainable development values of the state were being exhibited by informal settlers but were instead undermined by the self-interest of institutional representatives.

Customary owners, as discussed in Chapters 3 and 6, also occupied a complex position of power that transcended both formal and informal domains. This state-legitimised mode of informality, functioning through *kastom* land agreements and other informal land-based interactions, accounted for a combined 4.7 percent of the functional components of endogenous climate resilience shown in Figure 7.2. Despite the less structured approach to informal occupancy arrangements in Honiara, as another respondent from Jabros explained:

**JBHH5:** Ah, you're talking about the land. Land *lo* here, customary land. And when we get here, we talk with the landowners, then, let's say, we do it with custom yeah? … both side we exchange with foods and pigs, and sell moneys, exchange. Then we buy it. Then you stay.

But … money hard yeah? This for a little bit of time, but when a year is past, all the years that come … one fine day, sold a big amount for landowner, I pay no more. Then from that, custom from both side, *em* no more. *Em* say useless. From both parties, landowners doing *exchangem kastom*, but then big money come, *olsem washem* out *lo* brain.

**Interviewer:** So, then they cancel the custom?

**JBHH5:** Yeah.

**Interviewer:** So, you're worried about that happening?

**JBHH5:** Yeah! It will happen, I know it will happen. So, the good, best ways, you have to do registration. Register. Piece land yeah, you stay, you *payem*, same time they stop. *Hem* now only way.

As with the example relating to political patronage, formality of tenure in this instance was viewed as a desirable attribute that would enhance the community's resilience to the non-climate stresses associated with urban development. However, informality was also understood to be being used by customary landowners for their own purposes, to the detriment of the informal occupants themselves.

Urban elites outside of the political sphere were also interacting in a number of ways with these sites of informality, with more complex alignments of values and interactions with endogenous forms of climate resilience. One instance of 'private endogenous climate resilience' was evident in Ontong Java Settlement, where a local businessman had recently reclaimed land and built a seawall along the settlement's coastal boundary through a complicated legal loophole whereby 'land' below the high watermark along the city edge is owned by the customary land owner groups. In the community

interviews conducted as part of the first phase of fieldwork household participants were broadly supportive of this land reclamation (shown in Figure 7.10):

> **OJHH1:** Climate change, we have a very difficult climate. We have constant, when this house here was built, we have the weather, the weather patterns, the cycle it's bombarding our house. There [pointing] that's where the end of the sea goes. Now, we're lucky to have that sea wall at the back. So our, he's kind enough to build that wall, so we are safe from climate, cyclones, sea, big waves. So, it will protect us.
>
> **Interviewer:** So that's a private development but it's protecting the settlement?
>
> **OJHH1:** Yes.
>
> **Interviewer**: So how did he, did the council say it protects the settlement so you can build it?
>
> **OJHH1:** No, he just built it himself. He's Ontong Java[nese], he built it to protect us, he's very kind.
>
> **Interviewer:** So, it's a sea wall, but he's building on it as well?
>
> **OJHH1:** Yes, he's building this sea wall here, he wanted to protect the whole village from the flood, from the river, from the sea.

Responses during the follow-up workshop six months later, however, were less positive. At that stage the site, which was originally proposed to be used as a logging export facility, had been fenced off, preventing the community from accessing the ocean (which was used for washing, recreation, and for some households defecation), forcing them to use the heavily polluted Mataniko River instead.

**FIGURE 7.10:** PRIVATELY CONSTRUCTED SEAWALL (LEFT) & FENCED OFF RECLAIMED COASTAL LAND (RIGHT) ADJACENT TO ONTONG JAVA SETTLEMENT

(Sources: Author, 2017)

A critical final aspect of the manipulation of these informal systems with particular relevance to land, but also to wider relationships with *wantok* networks and other sources of resilience, was that of gender equality, or lack thereof. Although many of the community committees had women's representatives or associated women's groups, they were often in subsidiary roles and in many instances lacked customary authority, as the below exchange with one household from Etas demonstrated:

> **ETHH9:** Mi think say time they come, chief they tok tok lo community, whatem old man lo community.

**Translator:** Okay, she says that if they come, they should talk with chiefs yeah? Because chiefs led the community, with the councils. Yes.

**Interviewer:** Are all the chiefs men?

**ETHH9:** Yes.

**Interviewer:** So, how do women get a voice with the government if it's just men? Sorry, tricky question, but… because I know there are some women chiefs in Pentecost, is it Pentecost?

**Translator**: I don't think so but… [exchange in Bislama].

**ETHH9:** Chief *hem* woman *lo olgeta*.

**Translator:** No. They can't.

**Interviewer:** Ah okay. It's the custom?

**ETHH9:** [laughs, nodding]

A similar situation could be observed in Honiara, as one respondent from Jabros confirmed:

**Interviewer:** I was wondering if there are strong women's groups, or things like that in the community here?

**JBHH3:** Only with church group, women's band. But for any women in the community, anything? No. Only church.

**Interviewer:** And for the community here in Jabros, are there women's representatives on the committee?

**JBHH3:** No, hem no more that one. If all the talk about something with land, only with the men all talk about. After they talk, they say oh the community talk. Then they come in.

**Interviewer:** But not on the committee?

**JBHH3:** Not on the committee yeah.

As the quote above demonstrated, this was particularly the case with negotiations relating to land and tenure, with the matrilineal land ownership system of Guadalcanal conflicting with that of the Malaitan migrants. As was observed in the literature cited in Chapter 3, the result of this was men 'speaking for' the women who customarily had rights to the land. This had critical implications for the capacity for understandings of endogenous climate resilience within the institutional frameworks that did – or could – engage with these community leadership structures, as discussed further in Chapter 8.

## *7.9 Conclusion*

The primary purpose of this chapter was to address the second of this thesis' three research questions:

> 2. How do informal communities within the two capital cities of these Small Island Developing States exhibit and enact endogenous forms of climate resilience at a sub-city scale?

The observations of endogenous forms of climate resilience provided here are presented as the central contribution to knowledge by this research. In settings such as informal settlements these sub-city systems have been demonstrated here to provide critical resources and capacities for coping with climate-related shocks and stressors beyond the formal institutional functions of each case study city.

In all six communities these informal structures, actors and enactments were found to be far more functionally prevalent than those based within the formal institutional structures of each city, accounting for 898 of the 1267 total coded components mapped across these 57 interviews (70.9 percent). Despite their differences in community structure, tenure type and physical typology this level was extremely consistent across the six settlements, with disaggregated references ranging from 65.8 percent (Ontong Java Settlement, Honiara) to 77.7 percent (Seaside, Port Vila). Even when formal

institutions were identified in these household interviews, they were often referred to negatively, as summarised in Table 7.1. The level of dependency on endogenous climate resilience attributes was therefore likely to be even higher than these figures suggest.

Endogenous forms of climate resilience were found to draw heavily on island-based identities, social structures, and associated traditional forms of knowledge; attributes that were being sustained despite being dislocated from their rural origins. This was enabled through the unorthodox intergenerational resistance to urban naturalisation, which characterised the Melanesian migrant dialectic as set out in Chapter 6. These island-based attributes were operationalised in a number of ways, with the *wantok* system in particular providing the basis for both movement and the sharing of urban resources, including land and labour within the settlements themselves.

Important spatial considerations that characterised endogenous climate resilience *within* each city were, however, demonstrated to transcend the boundaries of the informal settlements themselves. These included connections not only with '*wantoks*' across the city, but also with structures that moved beyond these island affiliations, particularly those related to the church. However, extensive networks of unmapped informal gardens were consistently noted to be the most critical *physical* source of endogenous climate resilience beyond the settlement boundary, playing a fundamental role in sustaining many of these informal households through both provision of subsistence food and supplementary cash income. These gardens – as well as other primary production processes such as the collection of firewood, piggeries and harvesting of ocean resources – also formed the basis for an extensive informal economy.

As noted in Chapter 1, this research has used the two recent climate shock events that impacted Port Vila and Honiara in 2015 and 2014 respectively to gain an understanding specifically of how these endogenous forms of climate resilience are deployed in response to a specific shock or stress event, rather than in the establishment of more generalised forms of climate resilience. In many examples provided by interview respondents these same attributes were found to be drawn upon endogenously in informal settlements. For instance, recurrent themes related to impromptu appropriation of church structures, community-based fundraising and reconstruction drives, and the use of traditional knowledge.

Despite these more positive endogenous contributions to endogenous climate resilience, the vacuum left by weak urban governance was also shown to be enabling informal structures to emerge that detracted from the functionality and development of these informal communities. These societally counterproductive activities were predominantly being driven by actors who were able to transcend informal and formal domains, ranging from customary land trusts to individual elected representatives. Instead these state-sanctioned actors were able to create advantage by reducing the resilience of both informal communities and the city as a whole, generating a mode of 'negative informality' that counteracted endogenous enactments of climate resilience. Additionally, actions that reduced overall urban climate resilience were also observed to be more endemically embodied within distributed household-level interactions, such as those that disempowered women and isolated minorities. It is these interactions between city-scale functions and sustainable development ideas and the more direct application of needs, interests and power that are the focus of the following chapter; analysis that is guided by Helmke and Levitsky's typological classification (as shown in Table 3.1).

# 8 ENGAGING INFORMALITY IN CLIMATE VULNERABLE CITIES: IMPLICATIONS FOR RESILIENCE THEORY & DEVELOPMENT PRACTICE

> I think we need to ask the government for a new site for us to live, seeing that the community would never move out individually. We don't have the strong mind as independent families. We just need to be moved there.
>
> The government [gave] us optional places to move, but [they] are further inland. So, that's why these people remain here, and we try to encourage people to try to move out, seek a place for yourself.
>
> So that where you stay you can manage your own and look after yourself. They stay together. Whatever place they secure … knowing at least you've got a [communal] place to stay.
>
> **Community Representative – Ontong Java Settlement, Honiara (OJHH8)**

## 8.1 *Introduction*

In this chapter I discuss the interactions between the endogenous enactments of resilience elaborated on in Chapter 7 and the exogenous climate resilient development efforts set out in Chapter 5. In doing so I demonstrate how the newly identified informal forms of endogenous climate resilience can be better addressed in the wider body of urban climate resilience theorisation and practice. These potential extrapolations of my empirical case study findings are grounded through the theoretical and regional considerations of resilience, urbanisation and informality set out in Chapters 2 and 3. I also address more specific comparative aspects of the research results, structured through the precursory analysis of community-, city- and national-level settings, as articulated in Chapter 6. Through these deliberations I address this study's closing research question:

3) What do the interactions between these endogenous and exogenous modes of resilience mean for climate resilient development and the application of resilience theory in cities?

The first half of this chapter focuses on the practiced aspects of these interactions; namely the impact of the alignment, or lack thereof, of exogenous and endogenous resilience on the overall capacity of the two cities in question to cope with, recover from, adapt to and/or transform in response to climate shocks and stresses. First, I apply Helmke and Levitsky's functional typology to the informal components of the endogenous climate resilience structures outlined in Chapter 7 (2004). In this analysis I integrate the exogenous state and civil society institutions set out in Chapter 5 with the endogenous household- and community-level values and functions outlined in Chapter 7. Two further areas of findings are then examined comparatively across the six communities and two city systems: the contributions of institutionally excluded endogenous resilience attributes and characteristics; and the critical role of differentiated informality in determining endogenous climate resilience capabilities and transformative pathways.

The second half of this chapter addresses the latter part of RQ3, discussing how these identified informal contributions to urban climate resilience can be better considered within resilience thinking and theory. This centres upon the proposition to adapt Gunderson and Holling's Panarchy heuristic as a mechanism for negotiating social values, power and inequality within urban systems. This contribution to the theoretical literature has a particular focus on potential cross-scale transformations in the adaptive cycle's 'Reorganisation' (α) post shock/stress phase. I also argue that there are critical thresholds, or limits, to informal endogenous resilience, both in terms of capacities and the potential for inequitable manipulation of these structures in the absence of effective urban governance. Through this final consideration I demonstrate that by accounting for these hidden system qualities many of the wider critiques of the social injustices of resilience thinking can be addressed.

## 8.2 *Exogenous and Endogenous Climate Resilience Interactions:An Informal Typology*

As outlined in Chapter 4, the analysis of the interaction between endogenous and exogenous modes of resilience carried out in this research was structured through Helmke and Levitsky's Typology of Informal Structures and Systems. This framework sets out four categories of formal-informal interaction, based on the alignment of values and the effectiveness of related formal institutions (as defined in Table 3.1). Of the 94 forms of endogenous climate resilience a total of 30 were classified as informal. Although these features accounted for only a third of all unique features, they represented 70.7 percent of individual references, reflecting the critical role of these particular informal resources for respondents from these communities. This section discusses the categorisation of these interactions synthesised across the six case study communities and two city contexts, setting the foundations for more general considerations of informal endogenous climate resilience in development practice and resilience theory.

Slightly more than half of the informal features set out in Chapter 7 related to community-level organisational structures, while one-fifth were based on traditional, spiritual, or cultural attributes. A further 16.7 percent centred upon household production, while ten percent related to urban elites and patronage. No informal features were classified as either development assistance or formal governance (the two remaining thematic categories), with both of the latter by definition being exclusively 'formal'. Each of these unique codes was assessed in relation to Helmke and Levitsky's typology, the outputs of which are shown in Figure 8.1 (the raw data behind this figure can be found in Appendix I). A critical consideration in this classification process was the 'fuzzy' nature of boundaries between each of these four categories, with several features either differing between the two cities or varying within them, as reflected in the shading of the figure below.

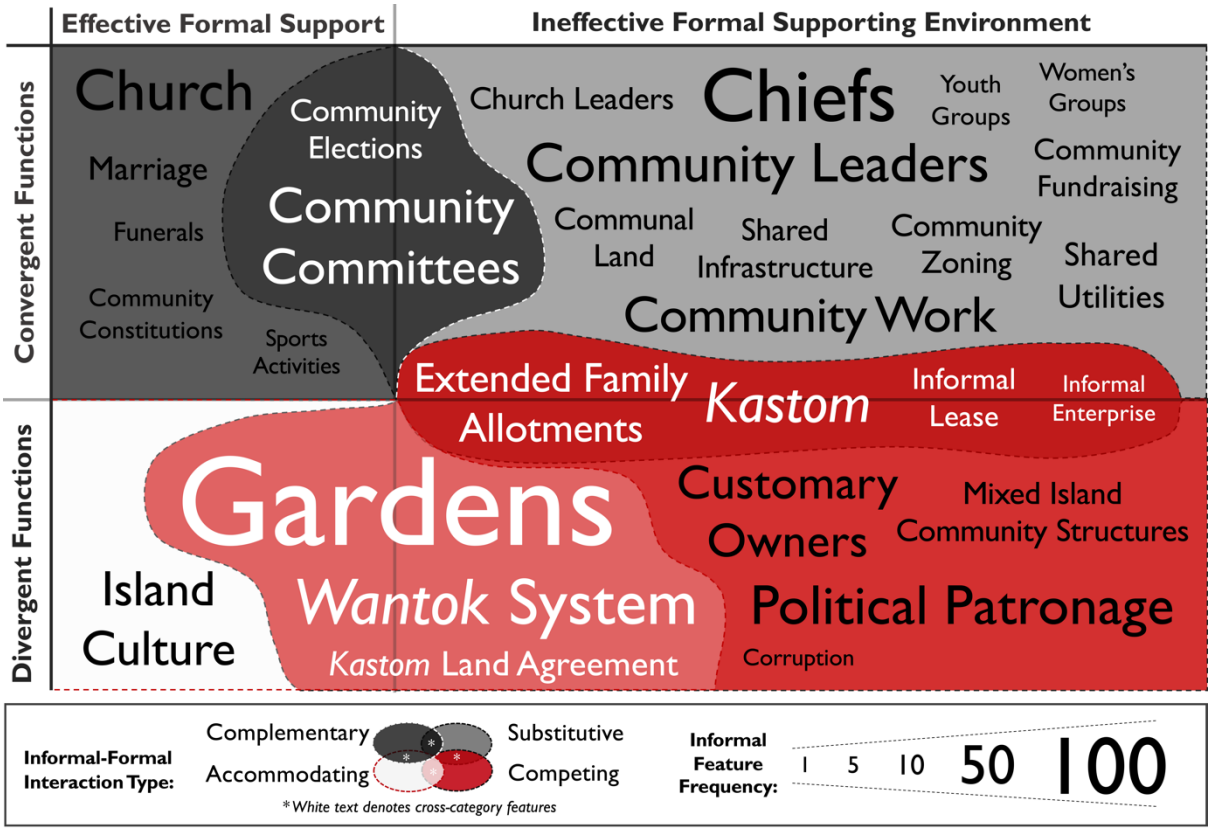


**FIGURE 8.1:** ENDOGENOUS CLIMATE RESILIENCE CONTRIBUTORS CLASSIFIED BY FORMAL FUNCTIONAL COMPATIBILITY & INSTITUTIONAL EFFECTIVENESS

(Source: Author, developed based upon analysis of interviews with informal households and institutional representatives)

The skewed distribution to the right of the figure's vertical axis demonstrates that most of these features were found operate in lieu of effective urban formal institutional environments. This reflected a general lack of internal capacity and resourcing allocated to urban governance in each national context, as evidenced in Chapters 3 and 5. For instance, 'Shared Utilities' reflected a lack of widespread state provision of electricity and water infrastructure, while as discussed elsewhere community leadership lacked government support in terms of both resourcing and policy. Those attributes that did align with formal institutional functional strengths (five features, 87 references) related primarily to areas with supportive intermediary institutions; particularly those associated with the church. The formal frameworks for recognising community constitutions (and through them, electoral processes and committees) were, however, almost exclusively derived from effective aspects of the state.

All of the 'complementary' features depicted in Figure 8.1 were not evident in each of the six communities, with some requiring a level of existing cohesiveness that was suggested to be lacking in a number of informal settlement areas not engaged in this research. However, where they were present, they did offer a strong platform on which to build climate resilient development efforts with minimal institutional adjustment, as a community leader from Wind Valley, Honiara explained:

> Me *doim* with Commissioner of Lands, *hem* step in, then *recognisem* people, and *takem* house number. That give us legality. Then me *takem* [SB$] 10,000, *doim* manpower work. After *mi* register community *lo* Honiara City Council, then me *garem* thirty-eight more months for member for *gettem* workers, then *olgeta* support for *mifela*, the council support *lo* what *callem*, JICA, [SB$] 28,000, go bag *lo* tools. For wheelbarrow, for shovel, for knife, for axe. From JICA. Then after we *callem* out, World Vision come in. *Lo* 2007, I think 2008.
>
> Now today, we go back, everything no *olsem*. So *mi* go JICA and the City Council, they go back *lo* MID, then MID *hemi doim onefela* big project *lo hem lo* [SB$] three million.
>
> So, that's how Wind Valley go yeah. So part of our, especially land *lo hem* left for … inside *lo* Wind Valley, now has *lo* community. Strong this time.
>
> – **Wind Valley Household Representative, Honiara (WVHH1)**

As this example of a mutually beneficial 'exogenous-endogenous interaction' demonstrates, where climate resilient development actors – in this case, a bilateral donor, the municipal government and the national lands commissioner – are able to provide a formal framework for recognising the community structure a range of mutual benefits were able to be gained that increased the climate resilience of the community overall. Funds were able to be leveraged through international donors, who had a reduced level of risk of project failure due to the legitimisation of the community structures. At the same time, the community contributed "manpower", ongoing maintenance and local project management at a minimal cost. Payments at a household level were also generating additional adaptive capacity by providing a source of income.

In contrast to the example above community committees that were either project-driven, unrecognised by government, or poorly coordinated across departments were categorised as being reflective of an 'ineffective' institutional environment. Subsequently they were less able to generate community-level climate resilience, as one institutional representative from Vanuatu explained:

> That's why CDCs fall apart, you know, Community Disaster Climate Change Committees. Because they stand alone by NDMO, and then maybe Geohazard goes in and talks about tsunami, and then they create a tsunami committee with no linkages, you know SPREP is doing this tsunami thing and CDC is Oxfam through the Vanuatu Humanitarian Crisis Funding, and it's not linking.

> And then, whenever something strikes – earthquake or cyclone – everybody is doing their own, trying to get information, addressing their own committees. But it's such a small place! 290,000 people. But … people come in with their own agenda.
>
> **– International NGO Representative, Vanuatu (VUE13)**

These two examples of community-level engagement by exogenous development actors demonstrate how informal-formal interactions can vary substantially within a single community-level functional feature. This observation is critical, as the nature of these relationships can have drastically different outcomes in terms of how informal communities are impacted by climate-related shocks and stressors. Community committees and elections were therefore defined as sitting across both complementary and substitutive typological categories (n=57), as shown in Figure 8.1.

In general those community-level features that had functional values aligned with those of the state, classified as 'substitutive' and coloured light grey in Figure 8.1, were able to be supported through the maintenance or strengthening of governance. Many such efforts were also core components of existing international development practice, with little perceived risk of disrupting state-level structures by development actors. However, for those classified as operating in a divergent manner a more nuanced approach was needed, particularly where the functions of already ineffective institutions were being actively undermined and contradicted.

Most problematic amongst the latter were 'competing' aspects of the informal domain, demarcated in Figure 8.1 in red. These included the issues of corruption (n=3) and political patronage (n=51); functions of the political urban elites discussed in Chapter 7. Although conventional development approaches would centre upon improving good governance in a similar manner to that used to consider the convergent functions discussed above, it was notable that at a community level most propositions to address these issues generally involved a characteristic of urban climate resilience hardly referenced by institutional actors; local transparency of funding:

> **BSHH8:** People here depend *lo* government, and government it depend *lo* people. They talk about issues, people and government. Suppose NGO or donor partner [come to the community] … you talk about *lo* local … local, it depend, it rely *lo* government. And the government, *mi tellem* say, before government, should look people first time. The end *blo* them, *yumi* think say all funding where donor partners wanna *givem* come inside *lo* country, only should *givem* one, one planning. Like, *olsem, bai yumi tellem* say all Vanuatu *savee lo* … how much money, world money *givem*. *Lo* national government. To *addressem* issue *blo* climate. All for nothing *lo savee* all government lo Vanuatu.
>
> So *hemi* must *providem* one public ah, report, *tellem* out amount *lo* money, say yes, true. World Bank *i givem* how much, $10 billion, use *blo* $10 billion, first structure. *Onem onem, onem … listem* out. Otherwise, *bai yumi* start play up. Play *lo* government, government play *lo* politician. Politician play *lo* fund …
>
> **Interviewer:** And the money just disappears.
>
> **BSHH8:** So, *mi* think one issue, must cut … transparency *lo* funding. Otherwise, whoever where same *mi* look *lo* side *lo* donor partner, no willing *lo* come support.

As the respondent from Port Vila's Blacksands settlement articulated in the quote above the strength of these informal community structures was generally viewed as a more effective avenue for engaging in climate resilient development than the government itself. This also paralleled the use of regional bodies to facilitate major projects by a number of climate finance mechanisms, with state government institutions often unable to meet their strict safeguard requirements. However, as discussed in Chapter 5, these regional bodies generally lacked sufficient awareness of community-level informal structures to engage with them in an effective manner, and were beholden to national government structures and politicians for community-level access and approvals.

*Kastom* – ranging from land ownership, to island-based cultural identities, to the differing compositions and tenure arrangements of communities themselves – represented a much more complex issue that was interrelated with the ineffectiveness of urban governance itself. As the multiple categorisations of these informal – or in many ways *pre*-formal – features in Figure 8.1 demonstrate, their roles in determining urban climate resilience are both varied and operate across multiple nested scales within each national setting.

With *kastom* central to the nascent identities of Melanesian countries, which "place great store on the continuing role of customary land in support of national values" (Mecartney and Connell, 2017, p. 61), it is evidently inextricable from the endogenous forms of both climate and generalised resilience in the region's cities. I therefore argue that "Island Culture", despite diverging from the urban function of the state (as shown in Figure 8.1), should be 'accommodated' by urban governance (following Helmke and Levitsky's classification), and therefore excluded from negotiation as part of urban climate resilience efforts. The rationale for this position can be found in nascent concepts such as *kastom* urban planning, diasporic traditional knowledge and hybrid ecosystem-based adaptation technologies, which presented avenues for accommodating urban systems *within* broader non-state cultural practice, without necessarily drawing on the colonial legacies and Global North modalities that fundamentally underpin urban governance processes.

## 8.3 *Power and the need for a Framework for Negotiating Urban Climate Resilience*

As the previous section demonstrated, endogenous climate resilience functions that 'compete' with the state are prevalent across all six case study communities. Of the total number of informal community functions depicted in Figure 8.1 just under half (49.5 percent) were classified within the 'fuzzy' boundaries of the 'competing' category of Helmke and Levitsky's typology (2004), with the equivalent figures for Port Vila and Honiara being 49.2 and 49.9 percent respectively. Responses from individual communities had a slightly wider range. The two legally tenured settlements of Ontong Java, Honiara and Seaside, Port Vila had lower rates of competing endogenous responses (41.5 and 31.3 percent respectively), while 46.6 percent of responses from the partially sub-divided Wind Valley community in Honiara were functionally competing with institutions.

However, in Port Vila's Blacksands and Etas, as well as Jabros in peri-urban Honiara, competing functions accounted for around two-thirds of the informal sources of endogenous resilience (61.8 percent, 66.0 percent and 59.2 percent respectively). Given the prevalence of competition between these community-level functions and those of the state at a city scale, I argue that a framework for determining which values are considered 'core' to the resilience of the system overall is needed. As a basis of this response I propose that a process of negotiation by the state and associated climate resilient development actors with community-level informal inhabitants is critical if endogenous climate resilience attributes are to be preserved or strengthened. These endogenous capacities underpin urban climate resilience at a sub-system level across a growing and significant proportion of the urban population globally. Therefore, this approach presents a critical opportunity for improving the interaction between exogenous and endogenous forms of climate resilience. It also parallels 'slum upgrading' efforts more broadly, whereby informality is proactively integrated into urban systems rather than forcefully disbanded or supressed (Roy, 2002).

Negotiated resilience, as put forward by Harris *et al.*, is based on an "assumption of 'multiplicity'" in what resilience is or can be, and "draws attention to processes through which this multiplicity might be managed or 'negotiated'" (2017, p. 9). Endogenous climate resilience is in this instance primarily being examined through the multiplicity of 'formal' and 'informal'. However, in the Melanesian context customary law, culture and identity forms a distinct third category, as demonstrated in Chapter 6. This

rurally defined source of informal governance and endogenous resilience is therefore demonstrative of the importance of understanding un-nested 'horizontal' flows of resources, knowledge and remembering when negotiating resilience within defined systems such as cities.

As the Ethnic Tension in Honiara demonstrated the encroachment of informal urban areas into customary land and associated *kastom* rights poses as much – if not more – of a threat to the function of these urban systems as any competition between informal settlements and the state-based release of urban land for 'formal' development. Similar to the notion of 'remembering', Gunderson and Hollings proposition of 'revolt' can thus also be seen to be driven from outside of the vertically nested urban system under consideration, with the Guale landowner groups being resourced from and identifying with surrounding rural areas of the island.

Although the municipalities of both Port Vila and Honiara are themselves products of the colonial exclusion and alienation of customary land rights, the inter-island movement and cultural accommodation within these domains is very much a continuation of cultural processes and negotiations that preceded these recent Western introductions of urban property and function. As Hau'ofa argues in *Our Sea of Islands*, the formative essay referenced earlier in Chapter 3:

> So much of the welfare of ordinary people of Oceania depends on an informal movement along ancient routes drawn in bloodlines invisible to the enforces of the laws of confinement and regulated movement. (1993, p. 11)

This sentiment still carries weight today, as informality itself evolves alongside and customs of exchange, relation and traditional law (Keen and Connell, 2019). In this sense, enabling urban climate resilience through characteristics such as equity, a principle enshrined in global frameworks through concepts such as Lefebvre's *The Right to the City* (Parnell and Pieterse, 2010), is more likely to succeed if facilitated through the support of national customary bodies, such as Vanuatu's *Malvatumauri*.

The need to support these characteristics of urban climate resilience through actors and organisations outside of conventional urban institutional domains is further evidenced by the analysis of the responses by institutional actors undertaken as part of this research. Specifically, interview responses were coded for each of Tyler and Moench's urban climate resilience attributes, with the total number of references and example quotes shown in Table 8.1.

As this coding and set of interview extracts demonstrates, characteristics more closely associated with critical consideration of divergent values, such as equity, inclusivity and transparency, were far less frequently cited than those related to institutional norms and existing development discourse (such as adaptive capacity, integration, environmental sensitivity and integration). Despite the inherent normative nature of climate resilient development, it is striking that these core social values continue to be excluded from resilience practice in such vulnerable and at-risk settings. At the same time, there was little evidence of consideration of substantive transformative, forward-thinking applications, despite settings such as SIDS receiving heightened focus in global frameworks of a result of the immediacy and severity of the climate risks that they face.

Less transformative in its scope was consideration of the divergent values present in extended family allotments, as well as the more general shared functions that were facilitated through them (such as the communal water tanks evident in Wind Valley). These arrangements – along with associated informal modes of subletting – conflicted more superficially with Westernised regulatory requirements, rather than more fundamental institutional values or functions (with these regulations broadly unenforced). As such, legislative changes could be seen to easily 'formalise' these existing informal sources of household-level resilience.

**TABLE 8.1:** FREQUENCY OF INSTITUTIONAL ACTOR REFERENCES TO KEY RESILIENCE ATTRIBUTES

| Characteristics | VU | SI | Total | Example Quote | Source |
|---|---|---|---|---|---|
| Adaptive Capacity | 13 | 10 | 23 | Resilience [is to] have the capacities in place to, ah, prepare, plan, ah, to mitigate the impacts or make best use of opportunities that climate change or climate impacts present. | VUE2 |
| Decentralisation | 9 | 7 | 16 | I think, one of the things in terms of building resilience for Port Vila is to build resilience in the outer islands. | VUE5 |
| Diversity | 2 | 1 | 3 | These are diverse cultured countries. So they have their own way of doing things, Kiribati settlement in Solomon Islands, compared with Choiseul, Malaita … in planning you have to really know who you are working with. | SIE9 |
| Environmental Sensitivity | 8 | 15 | 23 | We've been working closely with ... the two urban centres [reviewing] the hazard and risk maps, looking into the urban planning, and also ... in terms of the impact of climate change. | VUE11 |
| Equity | 14 | 1 | 15 | When we talk about disbursement of resources right down to the grass roots, there is still a lot of inequality in terms of sharing of resources … because people are so used to not complaining, because they can say they are resilient! | VUE7 |
| Feedback | 6 | 2 | 8 | The connectivity between an action and its consequences … they're really disconnected in Vanuatu, it doesn't matter if you're in government, local government or community. | VUE1 |
| Flexibility | 10 | 1 | 11 | The community are flexible to absorb new activities ... so with the CDCs it's like a new intervention, and the community are flexible to take on board | VUE9 |
| Forward-thinking | 4 | 1 | 5 | Shefa and Port Vila … they can do things together when there is a need [but] thinking forward, or assessing, analysing … what could happen or what you have, that's the big black hole. | VUE1 |
| Inclusivity | 7 | 6 | 13 | 'Climate resilience' gives the opportunity for those that've never really been part of any development discussions to be included, so I think there's a certain degree of inclusion that climate change brings. | VUE1 |
| Integration | 11 | 9 | 19 | I think when people are thinking resilience, they're not thinking climate resilience only or disaster resilience only, but they're thinking multi-hazard, multi-scale, multi-stakeholder. | VUE6 |
| Iterative Process | 10 | 2 | 12 | [Resilience] is like after TC Pam like the lessons learnt about ... how they go about after a cyclone, what do we do before cyclone, during cyclone. | VUE10 |
| Predictability | 6 | 4 | 10 | Whenever the warnings of cyclones are given out people will actually do everything to prepare themselves to mitigate the impacts that will come. It's becoming part and parcel of our society. | VUE12 |
| Redundancy | 5 | 5 | 10 | They have resilient crops such as taro, yams, kumala, manioc that will spring back to life straight after a cyclone and yield faster. So people still have the stock of food and food security doesn't suffer. | VUE13 |
| Robustness | 12 | 3 | 15 | It's got to be sold in a climate resilient way [so] the language changes ... they'll be talking about the ability to cope with climate extremes, and prepare for climate extremes, and integrate the changes into livelihoods, and robustness. | VUE6 |
| Transparency | 4 | 2 | 6 | SPREP project was good [it] actually came in through us with an organisation and then we gave some youth volunteers to work with, and I think it was very transparent, the work. | VUE7 |

In many ways such an approach would be consistent with the community-scale regulatory arrangements that facilitated the tenure of the two inner-urban informal settlement case study communities examined here: Seaside Futuna/Paama, Port Vila and Ontong Java Settlement, Honiara. One elder from the latter site explained how this hybrid, semi-traditional approach to urban living arrangements had become strongly supported by the community:

> In 1980, I came here since then. That time, there were few houses. 2006, I was elected as the Chairman for this place. And then, that's when I worked towards, to secure this settlement with the government, to register the settlement. There were some talk that according to the government policy this should be subdivided here.
>
> I have a meeting with the community and say, 'if we say, according to the town and country planning act, our place should be subdivided', so that every house should be in their individual lot. But again, we'd be having a problem with spill over, where they don't register. So, we have to make them options. We came to one understanding that if we live just one parcel … and then we respect those who have their residence, and then this place could be Trust place for us. We are pro-Honiara, we can stay here a little bit of time with our relative, *wantok*, until we have a place to reside, then we can go out. So we had that, ah, understanding, and that's how this place came into being.
>
> **– Ontong Java Settlement Representative (OJHH8)**

Enabling these spaces for urban diasporas to function and maintain island culture and wantok practice also supported many of the complementary components of urban informality such as weddings, funerals, and cultural practices, which underpinned generalised resilience at a community level. However, formal subdivisions were found to be priced well beyond the capabilities of most communities (and too small to allow such living arrangements). As such the only avenue for establishing contemporary equivalents of these colonial-era settlements was through peri-urban informal arrangements on land located beyond the current urban boundary.

## 8.4 *Excluded Resilience: The (Hidden) Case for Urban Ecosystem-Based Adaptation*

This research has necessarily focused on the interface between community-scale endogenous resilience and exogenous climate resilient development efforts, with an emphasis on community perceptions of these institutional interventions (or lack thereof). However, a recurrent issue that emerged through the research process was where there was a lack of formal consideration of critical functional aspects of the informal domain; in effect, an institutional obliviousness to the intersections as they occurred.

Although this could be seen in some instances to be a direct function of ineffective formal institutions, a more systematic exclusion of key aspects of these informal capacities and resources was also evident. This institutional 'illiteracy' in endogenous informal resilience represented a secondary barrier to negotiating urban climate resilience, particularly in cases where adaptation or transformation was required. This was no more evident than in urban ecosystem services; resources heavily used by informal communities but classically undervalued by urban governance and discourse in the Global North (Colding and Barthel, 2013).

The most prominent informal feature in Figure 8.1 as already partially discussed in Chapter 7 was 'gardens', whereby land and associated ecosystem services were used for household food production and cash crops. Gardens accounted for 17.3 percent (n=155) of all references to informal community-level features across the 57 household interviews. Despite encompassing a variety of tenure types and garden typologies (ranging from backyard *sup sup* gardens to small scale agriculture in peri-urban '*bush* garden' areas), these sources of food production and informal income operated almost exclusively outside of the recognised functional purposes of both of the two cities irrespective of their municipal or peri-urban classification, consequently falling within the red shading of accommodating and competing categorisations in Figure 8.1.

The recognition of the potential for the state to support traditional subsistence practice was widespread amongst institutional respondents, as well as the literature more generally. One example of this can be found in the writing of Ralph Regenvanu, Vanuatu's Minister of Foreign Affairs at the time of writing, and the Minister for Lands and Housing during the fieldwork phase of this research. Reflecting on the traditional economy as "a source of resilience in Vanuatu", Regenvanu reflected that:

> Vanuatu, along with our two immediate neighbours, Papua New Guinea and the Solomon Islands, is among the last places in the world where the "subsistence economy" – which I prefer to call the "traditional economy" – still outweighs the cash economy in terms of providing livelihoods for the population. (2010, p. 30)

Strategies for encouraging urban gardening were also put forward during the primary interviews by other institutional stakeholders. One intergovernmental respondent, for example, speculated that planning regulations and strategies could better integrate gardens into urban development:

> It comes to the question about what should be the minimum lot size, so that we give them a little bit more vegetable, or coverage, for the … floor coverage, also space outside. So at least, 20 or 30 percent should be left empty, so that there is some grass, lawns, things like that. So that, that is also building resilience.
>
> **– Intergovernmental Representative, Solomon Islands (SIE1)**

It is notable also that garden cultivation was even formally regulated by the British Solomon Islands colonial government within the Honiara town boundary, as noted by Tedder in the 1960s:

> Some three hundred permits have been granted to Solomon Islanders to work food crops on Crown Land within the town boundaries. These permits grant a marked area to the holder for his use on condition that large trees are not destroyed and that good husbandry is practised; six months' notice will be given with the Government requires the land. (1966, p. 40)

The continued pressure on this critical source of urban climate resilience despite evidence of a general level of awareness of its value was therefore something that warranted further consideration in this research. Specifically, the failure of contemporary governance frameworks to engage with and support urban ecosystem services brought into question the capacity of the city's 'regime' level to support this widespread practice, particularly in the face of ongoing development pressure.

Part of the answer was found in the neglect of urban governance more broadly. As these informal features remained 'unmapped', spatially and legislatively, by the state, they remained obscured from the agendas of the external actors depicted in Figure 5.7 and Figure 5.8. This lack of conceptualisation and quantification was compounded by the general ineffectiveness of urban governance focused institutions, with agriculturally-focused state and civil society organisations also tending to exhibit a rural bias consistent with the urban disinterest outlined in Chapter 3.

However, the overriding factor is argued here to have been a confluence of disparate interests and values in urban garden impermanence. For instance, the traditional practice of low-intensity rotation cropping aligns cultural norms with fluid property boundaries and variable land uses. However, in the peri-urban areas of Honiara gardens were also seen as a low-risk strategy for settlers to identify the potential for informal housing, as one government official explained:

> It's gardens that usually get people to occupy land. So, if they set up a garden that's an indication that they are going to settle there. That's how they test, if you go to the, if you plan to make your garden and there is not dispute around there, then you know you can more seriously invest.
>
> **– National Government Representative, Solomon Islands (SIE7)**

Primarily, however, it was clear that the resistance to recognising informal gardens stemmed from the potential of these areas to generate profit from urban development and expansion, a continuation of Tedder's colonial-era observation quoted above.

The issues with the commodification of land that would otherwise be used to generate either subsidence produce or basic cash crops for low income households were explained by another representative of an International NGO in Vanuatu:

> We know that one of the communities that, we're working with them, had issues with food security because the previous landowner sold out the land [that] the community used [under a] previous arrangement for their gardening purposes to grow their food. So, land is sold out, the garden has been bulldozed, and the community is facing issues with food.
>
> in terms of income from those communities it's very small. I think this is one thing that landowners are not realising, and for them not accessing services, it becomes … they're vulnerable to spending all their monies, all of their income, to address their issues. Because they collected their water from the river to do washing, cooking, everything, from the river. And water-borne diseases is also very high, so all the money they raise has to meet their other needs. The majority is basically to address water-borne diseases.
>
> **– International NGO Representative, Vanuatu (VUE9)**

Identification of these 'knock-on' effects provided two critical lessons for climate resilient development practice and theory more broadly. Firstly, without recognising the multiplicity of values and actor-level agendas within these nested urban sub-systems, a key source of climate resilience at a community level could easily go ignored in city-scale resilience planning and climate resilient development initiatives. Secondly, it is not only the dislocation of unmonetized and informal system externalities that can undermine resilience, it is also the prospective anticipation of these values by informed and institutionally-empowered actors – in this case, urban elites and customary land owner groups – that can reduce urban climate resilience in the shorter-term.

Key terms used across the community level interviews conducted for this research were also coded collectively to identify any themes that may not have emerged through targeted coding strategies (as shown in Appendix K). Although 'garden' was the ninth most frequently referenced descriptor the fifth such term – water – revealed a more fundamental informal dependency across the two cities. Water was referred to 456 times across these 57 interviews, relating to access, use, and its role in shocks and stresses such as flooding (24$^{th}$) and rainfall (30$^{th}$), demonstrated a wider externalisation of ecosystem services across each city that was impacting on urban climate resilience as a whole.

This interface between ecosystem-dependent informal communities and the encroachment of formalisation was best illustrated in the case of the peri-urban community of Jabros, Honiara. This settlement had an unusual access issue, as explained by a community elder:

> **JBHH1-1:** Water source, that's one big problem in this community. We have pipes, but that was done by 60 to 70 households, one standpipe … from the main pipeline.
>
> *Stori* is, first, when we first settled here, we have our stream here. And then, the Solomon Water come and then, Solomon Water come and pipe it and take it from us. Then we struggle with water now… It is from the main pipeline that Solomon Water pipe into their tank. When we arrived here we used to use our stream, then they take it from us. So now, they're not kindly give us free, we go and then pay.
>
> **Interviewer:** How do you pay for the standpipe? Is it like a bill for each house?
>
> **JBHH1-2:** $30 or $50 for one household, depends on the people using, how much of the community.
>
> **JBHH1-1:** Along *thisfela* main pipeline, we, this community we've got our own standpipe. For example, this community here, plus the other side, our standpipe is there. Each day about six, seven, women just sit and wait your turn. Washing, and then look. When chance come, space, you push yourself there.

As the interviewee details above, despite the settlement having an abundant source of water when it was originally settled, the spring had become a municipal supply point for the city, resulting in a reduction

in their access to a previously free 'natural' resource (as shown in Figure 8.2). Although a community facility – in the form of a standpipe – had been provided, this was explained during interviews with Solomon Water to be run at a loss from the water utility's perspective, while the community themselves were frustrated at the pressure that this facility was under due to the community's subsequent growth.

**FIGURE 8.2:** SOLOMON WATER BOREHOLE ACCESS POINT, JABROS COMMUNITY (LEFT) & URBAN STORAGE TANK AT THE NEARBY TOWN BOUNDARY IN GILBERT CAMP (RIGHT)

(Sources: Author, 2017)

Across each case study city, the monetisation of ecosystem services was not exclusively being driven by the state. Even individual informal households were found to be literally capitalising their adjacent resources, as a respondent from Wind Valley Community in Honiara explained:

> From *mifela diggem* well. After flooding *hem* come, *mi* normally *diggem* inside *lo* hole, and *pikinini puttim* inside. *Em keepem* rubbish out. When Tension happen, water *mifela* go *lo* place, and .. so *mifela thinkem* one of the Japanese [JICA] water, *em* come out *lo* ground *em* live water. So woman *hem puttem* sell water. Water pay yeah. Before, you *garem* free water. So water *hem lo* household, *em* come own the place yeah, *mifela usem* no more, *em* well *lo* there. 50 [Solomon] dollars. For washing, wash. But really water *blo* full community.
>
> **– Wind Valley Community Representative (WVHH5)**

In both of these two examples a community-scale outcome was heightened water insecurity and the increasing use of polluted water sources for washing, drinking and personal hygiene. With increasing rainfall variability being both observed and projected for the city and growing demand for these informal services, the result was a reduction in climate resilience overall (BoM & CSIRO, 2014).

In Port Vila the critical role of variations in community typology and informal settlement tenure type was evident in two different approaches to water access in Seaside Futuna and Etas. The latter, as discussed in Chapter 7, had extremely limited access to water tanks in only a few community zones, with the majority of the settlement required to walk two-and-a-half hours to a river to collect safe drinking water. To resolve this key vulnerability an international donor had attempted to supply piped water to the settlement area, conditional on regular payments by the community. However, as various community members explained a lack of consideration of community sub-structures by the donor, coupled with fragmented endogenous capabilities within the community itself, led to the infrastructure being destroyed:

**ETHH3-1:** You know, what we are really facing is water [issues]. First when we came, we have to go down to the river, fetch water. And then its, it depends on the rain. And we have rainy seasons, fetch it from the buckets, then … I mean the spouts, when there is dry season, we have to go down to the river to fetch water.

**Interviewer:** So, there is no infrastructure?

**ETHH3-1:** We did have ah, down the road … he supplied water with the pipes here, this pipe here. He died already. He put water here, piped, pipe it come, but then … like we have to pay yeah? But we have to pay 500 vatu a month. But then some didn't contribute, and then some people got angry, and they started cutting up the pipes. So that was … then the water was out again.

This 'revolt' response at a household level to what was perceived as an inequitable exogenous input of climate resilient development resourcing, coupled with an inability of the community itself to address these internal, endogenously-based distributive issues, highlighted the potential for the re-organisation or transformation of community system to fail if the existing context isn't properly understood.

Conversely, a different outcome was observed in Seaside Futuna, where members of the culturally homogenous community viewed the support that was able to be provided to those who could not afford to pay bills as a positive community-level function:

**Interviewer:** Do you think it's better for the community that they live this way?

**SSHH10:** Yeah, *mi* think *gud* place, not *tumas* from some, only come, *livim hemi* hard *ya*? Yes. So *mi* look say, *mifela* work together, lo got to when full, say must contribute.

**Translator:** She said it's good in some ways because they are cooperating together. In another way it's not because a lot of them don't have jobs, so when they go to share the bill those who have jobs have to pay.

**Interviewer:** And does that create tension, because some pay all the time, and some don't?

**SSHH10:** Yes. Some ways. Mmm. So *bai mifela* … one big plan, *mi ting ting blo* town, say *mi* look nice. One way … from *mifela*, you no *savee* .. *mifela* first time inside, *mifela* must *tok* closer.

**Translator:** She's saying that … they want the government to come and help them, because they want to change the buildings of the houses to more concrete buildings, but they can't do much because they are represented by the chairman. If the chairman can maybe write letters to the government, asking them to help out with the house buildings.

**Interviewer:** And the main thing stopping the buildings being turned to concrete is the price of the concrete, or skills, or … it's too expensive?

**SSHH10:** No, *em* no problem for somebody, *em* free *em* no work… hard *blo* you one try *blo* place you *workem*..

**Translator:** It's because they are living as a community, and some of them are not working. Some can afford to pay, but because they are living as a community, they'd have to do for everyone. So, it's much better if all of them they work, and then they have enough income to buy cement and other house materials.

In the case of Etas, it was noted by one institutional informant that as a result of the destruction of the exogenous climate resilient development initiative much of the donor community was unwilling to develop projects in this community despite its size and vulnerability. In contrast, during consultations in Seaside Futuna a sanitation block was being constructed, funded by the Asian Development Bank and the Australian Government, reflecting the willingness of exogenous actors to work with this more legible and cohesive informal community.

## 8.5 *Differentiating Tenure: A Foundation for Negotiating Urban Climate Resilience*

Variations in informal modes of land tenure have been observed to critically impact on the viability of different climate change adaptation pathways at a community-level, both in and beyond the Pacific as discussed in Chapter 3. However, the relationships between different forms of informal tenure

arrangements and resilience are not yet well understood (McEvoy, Mitchell and Trundle, 2020). The discussion below addresses this particular aspect of the interaction between endogenous and exogenous climate resilience through the typology set out in Chapter 4 (Figure 4.1). These differences draw out research findings relating to the different potential approaches that can be taken to negotiating endogenous resilience in specific informal domains, both within and beyond the South Pacific.

All six of the city-scale climate resilient development projects identified in Chapter 5 included components that targeted communities that lacked either access to critical government services or legal land tenure. As one institutional respondent noted, reflecting on SPREP's *Ecosystem and Socio-economic Resilience Analysis and Mapping* initiative, "we looked at ten communities, and I'm trying to think … I think half of those were informal communities" (VUE5). In the case of UN-Habitat's *Honiara Urban Resilience and Climate Action Plan*, the assessment of climate vulnerability at a sub-city scale also identified six 'hotspot' communities, all of which correlated to either government-classified informal settlement zones or communities that would otherwise be classified as being informal due to meeting the criteria set out in Chapter 1.

Nonetheless it was clear that the community-level mechanisms that prevailed within informal settlements were at the periphery of the understanding of most of these institutional actors. This was particularly the case for representatives of organisations external to the city system:

> I don't know, is there a way that we can start bringing some of this informal settlement planning and thinking into the NAB [National Advisory Board] government planning and thinking? Ah, the DLA [Department of Local Authorities], or I don't know. It just seems so isolated.
>
> **– Regional Organisation Representative, Vanuatu (VUE6)**

Those individuals that had a personal level of awareness of sub-city informal systems also noted that this knowledge was not reflected in programs and institutional structures, with the urban dwellers who occupied these spaces generally lacking agency or engagement in the projects themselves. As another institutional respondent explained, "people in informal settlements see [climate resilience] as something that is … driven by mainly government actors, and NGOs, but not informal settlers" (VUE8).

In some cases, institutional respondents noted that tenure was ignored due to the potential for it to disrupt donor project progress, with one International NGO representative explaining that "if we take the land issue with us it's going to be a long process and it's costly" (VUE9). As the same respondent continued, reflecting on the issues associated with not addressing land tenure:

> For communities in peri-urban, their main issue is in land, land issues. They cannot, they're not secure to build a stronger house to meet a cyclone, they're not secure to have a garden.
>
> **– International NGO Representative, Vanuatu (VUE9)**

This observation was consistent with numerous international studies, as well as a number conducted within the two case study cities, demonstrating that variance in land rights and security of tenure has critical implications for the viability and effectiveness of different adaptation options, as well as community-level vulnerability (Usamah *et al.*, 2014; Komugabe-Dixson *et al.*, 2019; Trundle, Barth and McEvoy, 2019).I therefore argue here that addressing this shortcoming is a fundamental prerequisite to improving urban climate resilience not only in the two case study contexts, but also more widely in climate resilient development practice. Although this applies more generally, this is especially critical when negotiating common functions and transformative adaptation pathways that build on informal capacities, rights, and functions.

Table 8.2 sets out some of the key tenure-related urban climate resilience attributes identified in each of the six communities, categorised by the four decision-tree stages set out in the Informal Settlement

Typology in Chapter 4 (Figure 4.1). As evidenced in the table, many of these critical attributes, such as the ability to access utilities or practice *kastom*, correlate across tenure type, irrespective of which case study city they are located in. Exceptions relate largely to the differences in the capacities of the respective municipal and provincial governments that hold jurisdiction in the two cities, as well as the more proactive engagement of the National Government in informal settlements in Honiara.

Relatedly, all three peri-urban informal communities were clearly less able to cope with and respond to climate-related shocks and stressors as a result of their correspondingly weak peri-urban formal governance structures, with limiting or negative resilience outcomes shown in red. Even in Port Vila, where the Provincial Government was viewed as being an effective state institution, Shefa Council was limited in its capacity to exogenously improve climate resilience, as one employee explained:

> We need a [Zoning] Act, and then we can designate areas where we can use it. And also like [VUE10] says most of the people are settling illegally. They find space, and they give themselves a house to live in, and that's why we have these issues where we have urban drift and living off the land where the custom owners didn't realise.
>
> So, we need to have controlled processes. Because there is freedom of movement when it comes to a person, but when you come into like a group you have a sort of government system where you have laws that guide you, how to go with movements like if you are going to settle there. Or if the custom owners are going to say how you can use the land, these are the things that governments need to do, to have acts in place.
>
> The Zoning Act … the Displacement Act … all these things are like a Western system, whereas in our cultural system we have our own ways of doing things, and that's where, that's the conflict between the two.
>
> **– Provincial Government Representative, Vanuatu (VUE11)**

As the respondent continued, the issue was less that the state institutional frameworks were not being effectively enforced but rather that new models of peri-urban, hybridised customary governance were needed; structures that were more reflective of the real functional strengths at a national scale. Potential points for 'negotiating' the development of these hybrids of both exogenous and endogenous resilience were also evident:

> **VUE11:** If the government could allow the custom chiefs leeway to have some say in the laws of the government. Whereas now the *Malvatumauri* barely has any say on the laws, it's only the politicians.
>
> **Interviewer:** I mean that was one of the questions that I had in terms of what Shefa's plans are. When I broke that down, of the 26 percent of the country in Vila only half of that lives within the municipal boundary, almost half of that, 30,000 people, are in Shefa, and that was in 2009. So, is there any effort … to create an urban plan?
>
> **VUE11:** It all comes back to the chiefs. Maybe, we could have some sort of *kastom* Vila, but if the government acquired the land, what would they get out of it?

Questioning the pre-eminence of state-associated institutions was therefore a prerequisite condition for negotiating resilience in such peri-urban settings, reflective of existing capacities and organically developed informal governance systems. The responsibility for initiating this process of negotiation necessarily lies with those empowered at a 'regime', whole-of-city system scale; institutional actors that in the case of developing cities can include national and municipal governments, but also powerful international development actors and financiers. I argue that this approach is necessary if exogenous interventions and development initiatives are to effectively and equitably improve the overall capacity of these increasingly informal and rapidly growing Melanesian cities to cope with climate change.

**TABLE 8.2:** INFORMAL SETTLEMENT TENURE TYPES: IMPLICATIONS FOR ENDOGENOUS URBAN CLIMATE RESILENCE & ADAPTATION PATHWAYS

| Community | Type | 1. Jurisdictional Impacts | 2. Legal Impacts | 3. Regulatory Impacts | 4. Societal Impacts |
|---|---|---|---|---|---|
| **Port Vila, Vanuatu** | | | | | |
| Seaside Futuna/Paama<br>*Inner city, high density, single/mixed island origins* | 4 | ➢ Strong internal community processes linked to urban govt.<br>➢ Potential to maintain island community structures<br>➢ Limited space for gardens | ➢ Potential for exogenous climate resilient development investment in community infrastructure<br>➢ Legally supported tenure security, voting rights & utilities | ➢ Strengthened enforcement of urban governance & regulations risks non-compliance with use conditions (building standards, renthouses, overcrowding, etc.) | ➢ No competing landowner claims<br>➢ Tension between urban *wantok* obligations, *kastom* maintenance & urban identities / cash economy engagement |
| Blacksands<br>*Peri-urban, medium density mixed island origins* | 11<br>(9) | ➢ Customary landowner rights overrule provincial governance<br>➢ Limited national legislation for urban planning outside of municipalities | ➢ Relocation easier due to short-term occupation arrangements<br>➢ Risk of eviction due to land development pressures | ➢ Flexibility in non-government substitutive CRD initiatives<br>➢ Lack of legal access to utilities & urban services increasing sensitivity to climate impacts | ➢ Facilitation of diverse 'home island' *kastom* practice & inter-island exchange<br>➢ Landowner *kastom* to be supported by migrant chiefs |
| Etas<br>*Peri-urban, low density, mixed island origin* | 11<br>(9)<br>(10) | ➢ Isolated from both municipal and provincial governance structures<br>➢ Disjuncture between customary landowners and government-defined Area Council boundaries | ➢ Affordable informal land agreements assist low-income household savings<br>➢ Risk of eviction due to contested occupation/owner arrangements | ➢ Dependence on informal gardens pressured by competing land<br>➢ No provision of basic utilities or services | ➢ Facilitation of diverse 'home island' *kastom* practice & inter-island exchange<br>➢ Community structures emerging to fight institutional neglect |
| **Honiara, Solomon Islands** | | | | | |
| Ontong Java Settlement<br>*Inner city, high density, single island origin* | 2 | ➢ Community Trust a legal entity linked to national & urban govt.<br>➢ Maintenance of island community structures & circular migration<br>➢ Limited space for gardens | ➢ Potential for exogenous climate resilient development investment in community infrastructure<br>➢ Legally supported tenure security, voting rights & utilities | ➢ Potential to enforce legal rights to below-water leased areas<br>➢ Strengthened enforcement of urban governance & regulations risks non-compliance | ➢ Use of shared space for *kastom* provides social safety net for diaspora across Honiara<br>➢ Provides an adaptation pathway for climate-induced migration |
| Wind Valley<br>*Suburban, medium density, mixed island origin* | 5<br>(6) | ➢ Cross-boundary access to bush gardens providing redundancy<br>➢ Peri-urban development reducing community ecosystem services<br>➢ Powerful electoral block | ➢ Small CRD initiatives on TOL<br>➢ Extended family *wantok* support within subdivisions<br>➢ Internal relocation out of key hazard zones observed | ➢ Capacity to draw on urban facilities (school, clinic, etc.)<br>➢ Interdependency of ecosystem services with neighbouring city utility expansion | ➢ Strong mixed *wantok* support<br>➢ Lack of tenure clarity & shared / community assets damaged due to a lack of government support<br>➢ Dependence on 'Honourables' |
| Jabros<br>*Peri-urban, low density, one dominant island origin* | 13<br>(11) | ➢ Strong internal governance linked to church structures<br>➢ Minimal Provincial Government oversight, only National Govt. | ➢ Endogenous development of community facilities on specific church-leased land<br>➢ Risk of land development | ➢ Community zoning for piggeries, poultry & larger garden crops<br>➢ Loss of ecosystems services for city utility extraction purposes | ➢ Strong commitment of communal labour and resources<br>➢ Extended household structure enabling temporary urban access |

## 8.6 *Lateral Adaptive Cycles: Reconceptualising Panarchy through the Migrant Dialectic*

The second half of this chapter addresses the wider theoretical implications of this research, as conceptualised through two critical alternations to Gunderson and Holling's Panarchy heuristic (Gunderson and Holling, 2002). As I argue in Chapter 2, Panarchy provides a powerful model for examining the interactions between nested system scales over time. This is particularly the case in relation to the shifts in system state related to the impacts of shock and stress events. However, its application to sociocentric systems such as cities has been limited, with most case study examples centring upon either ecological or ecologically dominated systems (such as forest types or agriculture).

One critical consideration when applying the Panarchy heuristic to cities is the fluid nature of boundaries; a permeability particularly evident in the two case studies here, but that also characterises many of the rapidly growing cities of the Global South. Below, I specifically examine the role of these cross-boundary flows in light of endogenous urban climate resilience; beginning with the migrant themselves (as profiled through the establishment of a Melanesian migrant dialectic in Chapter 6). This is then considered with reference to the exogenous efforts to establish a more resilient 'city-scale' system, with implications for the international development structures and climate finance mechanisms outlined in Chapter 5.

Access to capital, as discussed in Chapter 7, was predictably the most prevalent immediate driver for rural-to-urban migration. However, household interviews also revealed that participation in the cash economy was not viewed to be a desirable outcome in-and-of-itself. Instead, living in 'town' was rationalised as a trade-off between a preferred rural livelihood and the opportunities associated with access to markets and services. As one respondent in Wind Valley explained, "*Em* town, quite hard life, but … time you doing own market, *em* better than time you spend at home … easy for you to *sellem* all the products" (WVHH7). Conversely, as one transitory migrant explained when asked whether they would move to Honiara more permanently from Ontong Java Atoll, "I would come for work, but I want to stay at home" (OJHH2). With urban population growth being a critical stress on the resilience of the urban system at a city scale (as set out in Chapter 5), and the households occupying informal settlements expressing hardship within and a reluctance to occupy these urban environments, the interaction between these – and other – nested adaptive cycles warranted further exploration.

A recurrent – but unexpected – theme that emerged from this migratory rationale centred upon the need to generate income for 'school fees', with formal education being driven by both national-level literacy and development goals and household-level objectives (Prasad and Kausimae, 2012, p. 73). The strength of this secondary driver of rural-to-urban migration was demonstrated by the Blacksands respondent who lost their house and possessions due to Tropical Cyclone Pam, as discussed in Section 6.3. When asked why they didn't return to their home island of Tanna they responded:

> No *bai mi stap* here, *Twofela* boy *blo* me secondary, so *mi stap lo completem* school. Suppose mi go back to Tanna, *mi* work where? So *mi* must *stap* here so many years, until they *completem* school, then *mi* go back.
>
> **– Blacksands Community Representative (BSHH6)**

Payment of 'school fees' was the most prevalent response to interview questions relating to the need to engage with the cash economy in each of the case study communities, with a total of 33 households (57.9 percent) referring to 'school fees' directly as a motivator for their migration into each city in search of a job. Thus, while these urban migrants were occupying land and in many cases earning a cash income informally, they were often doing so as part of a wider rationale of improving their households' longer-term livelihood prospects; in this instance through explicit engagement in formal education.

This conscious decision to invest in household adaptive capacity through temporary migration demonstrated the trade-offs and nuances that underpinned enactments of resilience at the household level. Although many participants expressed hardship and a consciousness of their vulnerability within these informal urban domains (including that related to tenure insecurity), the flexibility that these informally acquired spaces afforded was often rationalised against the wider household benefits associated with the urban economy. As one household member from Wind Valley explained:

> We always say that in Honiara, if it was at home, like for toilet paper, it is just a leaf and whatever. But you come to live in Honiara, even that leaf, you have to pay for it. [But] living in Honiara there is good opportunities that we can get money out of it and something like that compared to home. At home even earning [SB]$10 a day, or [SB]$30 or [SB]$50 a day. It's quite hard. In Honiara, it's easy to earn money. Education is the main thing … everyone [is] looking for quite a good school, so most of the people come to Honiara. The reason I live [in Wind Valley] is not that I'm choosing to live here but because in Honiara land is quite hard to get. So, when I see this opportunity, I must get this one because if I missed this opportunity maybe I'll not find another.
>
> **– Wind Valley Community Representative (WVHH6)**

The prevalence of informality, from a household perspective, was therefore found to be both a product of the centralisation of the capital economy, as well that of the policy frameworks that have led to urban concentrations of other state institutions, including health and government administrative services (such as passport provisioning). With no clear alternative to address the highly dispersed archipelagic populations that characterised each of these Pacific SIDS, informal settlements are instead providing a substitutive function that enables, rather than undermines, the function of the national system, despite having values that 'compete' with a highly ineffectual city-scale approach to urban development and land release.

Drawing on Gunderson and Holling's Panarchy heuristic, a depiction of these cross-scale interactions and their associated feedbacks within the two case studies was developed in order to demonstrate their impact on the city system as a whole, as shown in Figure 8.3. Although 'school fees' is one of a number of migratory drivers evident across the six communities, its prevalence and clarity of purpose in relation to global development efforts allows a clear demonstration of the interaction of formal and informal sectors across these nested scales, as well as that of the different stages of the adaptive cycle itself. In this diagram the key cross-scale interactions across these nested and lateral adaptive cycles are depicted in red. The active 'phase' of each cycle is also highlighted by its respective symbol being shaded red (growth – $r$, conservation – $K$, collapse $\Omega$, and reorganisation – $\alpha$).

Two potential 'stable' household-scale system states – as either a permanently 'urbanised' household, or that of a re-established traditional rural one – are also shown as dashed adaptive cycles in Figure 8.3. These two, alternative household-level functional states represent two 'basins of attraction', which are being active resisted by the transience of temporary urban occupancy. The tension represented by the migrant dialectic, positioned as a persistent urban feature, but characterised by instability, echoes Holling's original observation of resilience nearly half-a-century ago (1973).

Widespread participation in formal education is a relatively recent development in Vanuatu and Solomon Islands, with 2009 census data showing 64.5 percent and 73.4 percent of each country's population had completed no higher than a primary school level of education (SINSO, 2011, p. 97; VNSO, 2011, p. 93). The introduction of a model for universal access to education therefore constituted a significant structural reorganisation ($\alpha$) at a national scale (Stage 1 in the figure above), through the implementation of a formalised education system, associated participation requirements, and critically in both case studies cash-based school fees (Stage 2).

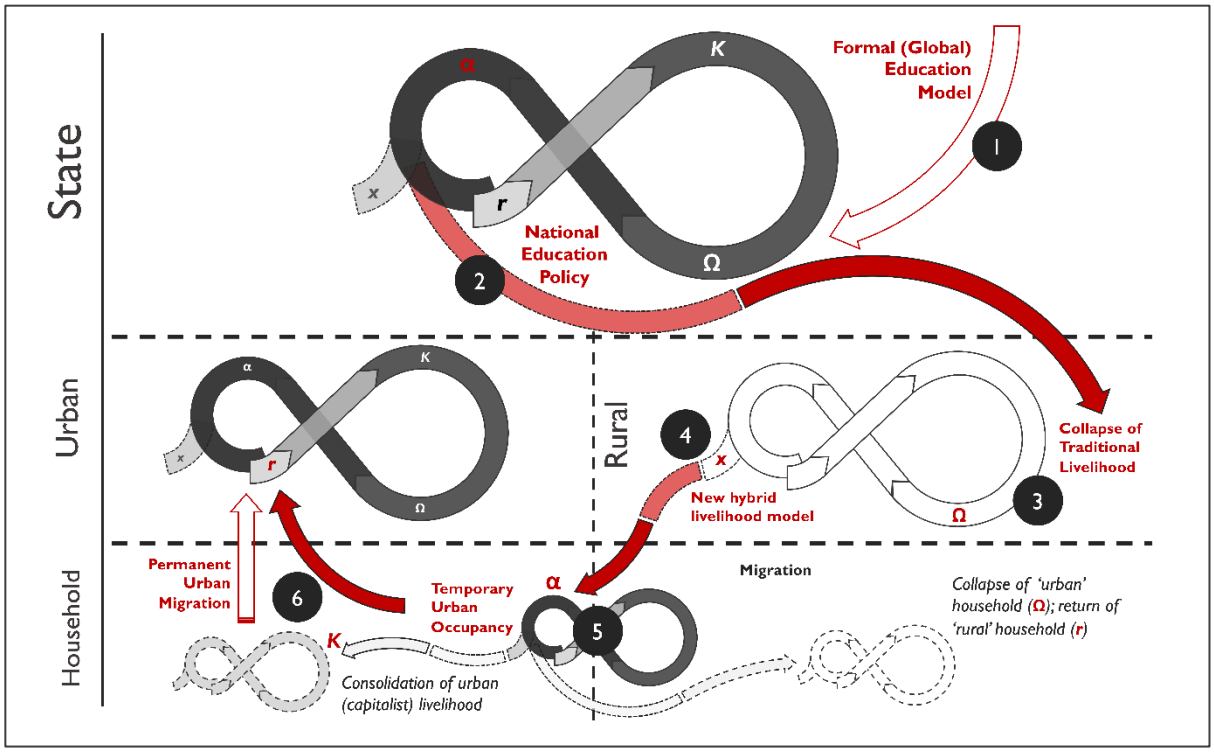


**FIGURE 8.3:** CROSS-SCALE DRIVERS OF INFORMAL URBAN MIGRATION PATTERNS IN PORT VILA & HONIARA

(Source: Author)

These national-scale shifts were evidently significantly disruptive for the traditional, subsistence based rural livelihood system, to the point that engagement with the cash economy has come to be viewed as a pre-requisite for households with school-aged children. Although operating in parallel with other factors these national policies can be seen to have contributed to the previously stable, subsistence-based, rural livelihood system reaching the point of collapse (Ω); 'Stage 3' of the figure above. As a result, new 'hybrid' models of circular, semi-subsistence livelihoods have emerged. 'Stage 4' demonstrates this at a household scale, showing the transformation – or system shift (*x*) – of these traditional, rural systems into a 'hybrid' system facilitated by urban informality. This observation is consistent with both the published literature examined in Chapter 3 (e.g. Moore, 2015b; Jones, 2016b), as well as the expressions of 'in betweenness' by institutional representatives discussed in Chapter 5.

At a household level, as the interview responses above demonstrate, this could be seen to be being enabled through a transience and multiplicity of place; specifically, through households, or heads-of-household, 'reorganising' (α) into a partial or temporary position within the urban domain. In addition to confounding state-based understandings of occupancy, this also had 'upward' implications, with even temporary migrants exerting pressure on the urban systems in the form of urban growth ('*r*'), as depicted by Stage 6.

Although several interview respondents expressed a desire to move back to the rural domain following the completion of their children's schooling, it was clear that many were breaking from these processes of 'circular migration' and remaining in each city. This was evidenced by both more established migrant interviewees and the continual growth of each city's population at rates well above those seen in rural areas over the last three decades (as shown in Chapter 3). Thus, rather than returning to the rural livelihoods and structures that constituted the rural system shown in Figure 8.3 (a 'collapse' of the new urban household system that could alternately be construed as a 'bounce back' to the rural livelihood state), these households were shifting to a new, urban structure.

More permanent urban transitions, however, also had longer term implications for the maintenance of cultural links and therefore for household-level endogenous resilience capabilities. The implications of this at a city level were noted by one senior local government official in Honiara (who also happened to live within one of the case study informal settlements):

> Honiara is a small, growing, attractive, beautiful city where people from all over the country, especially young people, they come looking for jobs, opportunity, some for health, some for education, some for business, they all come here.
>
> Normally they will stay with relatives. But the relative system has changed, it has shifted. I have so many people coming in, staying in my house now. You have to feed them, they use your water, electricity, TV, fridge, everything, but you meet that cost. So sometimes, people are starting to throw away culture [and say] 'go find somewhere else to stay'.
>
> **– Local Government Representative, Solomon Islands (SI10)**

Household level consolidation – enacted through the conservation capital and material associated with urban livelihoods – thus comes at a cultural cost, as depicted in the bottom left of Figure 8.3 (and expressed by Gunderson and Holling's adaptive cycle state of '*K*').

In many ways the multiplicity of 'home' and 'place' expressed by those living in 'urban villages' was itself an appropriation of established rural modes of resilience, reflective of traditions of movement and circulation as highlighted in Chapter 3 (through reference to the works of Hau'ofa, Bedford, Jones and others). As an institutional respondent explained:

> One [rural] household will have about three houses. Their explanation is 'we have a house at the coast, and then we have a house at the village, and then we have another last house at the garden'. I asked them, so how does this work?
>
> So, they were saying when there is a traditional ceremony we come to the village. When there is need for us to grow peanuts and kava and cocoa, we move to a third house in the gardens, we live there, and then we grow our gardens. When our peanuts are ready, kava, or cash crops are ready, we take all these down to a third house at the coast where we trade. We make money.
>
> And we also use it in dry time, drought, we move to the garden because that's where our food and where we can access water because at the village the water source is dry. In times of rainy season we also moved away from the village because of the river flooding, we moved out from the village, moved inland, because that's where it's safer. And in terms of cyclone we move up to the bigger village, the last house, where it's … that's more a rural setting.
>
> But for communities in peri-urban, their main issue is in land, land issues. They cannot, they're not secure to build a stronger house to meet cyclone, they're not secure to have a garden.
>
> **– International NGO Representative, Vanuatu (VEU9)**

This rural housing model effectively decentralised the household while maintaining redundancies across this network of locations; a process that is sensitive to environmental shocks and stresses (another key urban climate resilience characteristic). However, with the confines of the urban land tenure system, this 'movement' was constrained by both space and expense, placing a greater dependency on the *wantok* networks rather than the accumulated resources of the household itself.

In Gunderson and Holling's Panarchy heuristic the levels of resilience peaks during the α phase, but reduces as the system shifts from growth (*r*) to conservation (*K*); reaching a point of "accumulated rigidity" before the system collapses (Ω) (Holling, 2001, p. 395). The only system component or scale exhibiting this characteristic in the example shown in Figure 8.3 is the household shifting into a state of urban permanence, and thus losing the flexibility and connectivity associated with the *wantok* networks and multiplicity of place discussed above. This effect was noted directly by one respondent:

> In our context, our people are resilient in the sense that whenever the cyclone strikes or the there is a natural disaster people pick up and move on. They don't wait for government to come. And that's something that Vanuatu as a country and the indigenous communities in the rural and remote villages, but including the urban areas as well, have developed.
>
> In urban areas [however] a lot of people are becoming more dependent on the government … that there will be an evacuation centre, maybe at the school in the area that they are in, so they won't have prepared their house as well because they know there will be evacuation troops or police. [But] they don't have the means, the economic empowerment to go into the supermarket and buy the rope or to reinforce their houses … there are a lot of people living in urban and peri-urban areas on or below the poverty line, they are just barely making ends meet.
>
> **– Peak Body Representative, Vanuatu (VUE13)**

As the quote above demonstrates, some institutional representatives were not only aware of the dependence of many urban inhabitants on these endogenous forms of resilience but were also concerned that these capacities were being lost over time, further pressuring already limited exogenous efforts and urban institutions.

This more permanent urban transition, although not especially evident in the migratory households engaged across the six informal settlements that took part in this research, was nonetheless something that interviewees were aware of, and in many cases were actively resisting. One respondent, a Chief in the informal settlement of Blacksands who had moved to Efate from Tanna in the 1960s, summarised this from the perspective of a longstanding urban dweller who was held in high regard in both Port Vila and his home island of Tanna:

> **BSHH5:** Ah, yes, *mi tellem olsem*. You pull *no lo* island, *kastom blo* you *hemi* culture, culture *blo* you. You must *givem* them all time *lo* here, or you must … you no *wastem* or tomorrow you no *kastom*. So every *kastom blo* you, boy blessed *blo* you *makem kastom* culture. *Pikinini* grow up *wanem kastom*, *yumi* must, strong help. Because no culture lo town, no more say *lo got*, no more *say* no culture too. You must give them culture.
>
> **Translator:** He's saying the customs and traditions back from his island, he's still trying to practice it here, so that the children cannot lose their identities and know where they came from. What he is doing is trying to continuously do the custom here. He feels it's very important …
>
> **BSHH5:** From, one day *mi tellem*, it's impossible for *pikinini* learn *kastom lo* Tanna, only go back *lo* Tanna they say you *blo* where? … They question you, saying what a mystery, you must all time *keepem*, remember all time.
>
> **Interviewer:** So, they're always *man*-Tanna, not *man*-Blacksands?
>
> **BSHH4:** [laughs] Mhmm.

Underlying the quote above was a recurrent fear amongst urban dwellers of losing the capacity to migrate home again, as expressed in terms of both *kastom* rights and identity ("you *blo* [from] where?"). This reflected the significance of not only these cultural networks and practices within the urban environment, but the need to maintain the option of re-engaging them more fully should the household, or its members, chose to return to their rural ancestral home.

The rural focus of climate resilient development did little to account for this mobility, and in particular the critical role of the city in enabling access to cash opportunities. Similarly, the international climate finance structures driving resilience thinking's uptake across the two countries, as evidenced in Chapter 5, emphasised 'in situ' resilience, without broad consideration of lateral connectivity and dynamics outside of climate-related shock and stress events themselves. By deploying a modified Panarchy heuristic – examining the dynamic interactions of adaptive cycles across spatial, as well as nested, scales – these exogenous efforts have an opportunity to more usefully deploy the concept to build generalised resilience in the face of uncertain climatic and non-climatic change.

## 8.7 *Negotiating Divergent Normative 'Resiliences' – A Theoretical Perspective*

In addition to the descriptive attributes set out in the section above, these lateral interconnections are even more important when theorising the fundamentally normative nature of climate resilient development. These findings, discussed below, build on the more practical attributes of the interface between exogenous and endogenous modes of resilience by addressing the critiques of resilience set out in Chapter 2. Specifically, key points for negotiating divergent functions are demonstrated where "agency, conflict, knowledge and power" must be taken into account in order to equitably enhance a city's climate resilience (Olsson *et al.*, 2015, p. 2).

In both of the two case study cities examined in this research the evidence for endogenous climate resilience capabilities identified highly differentiated informal urban sub-systems, as illustrated in Figure 8.4. Examples of unsuccessful exogenous climate resilient development efforts centred upon a lack of sensitivity to these structures, as discussed in Chapter 5. However, these unsuccessful efforts also failed to capitalise on the strengths and existing capacities within the settlements themselves (as elaborated on in Chapter 7); resources that would have improved the efficiency and reach of these institutions.

Many of these resources were linked laterally rather than hierarchically, drawing from areas outside of the urban domain boundary, as the figure demonstrates. Although for simplicity Gunderson and Holling's nested adaptive cycles are not visualised below, the same dynamic considerations of Panarchy should also be understood to be operating across the systems and sub-systems in question (2004). Similarly, consistent with the conceptual framework put forward as part of this research in Chapter 3, the subsystems themselves operate and exist across fuzzy boundaries between formal, informal and rural/traditional domains; for instance, the traditional wantok networks that persist within each city.

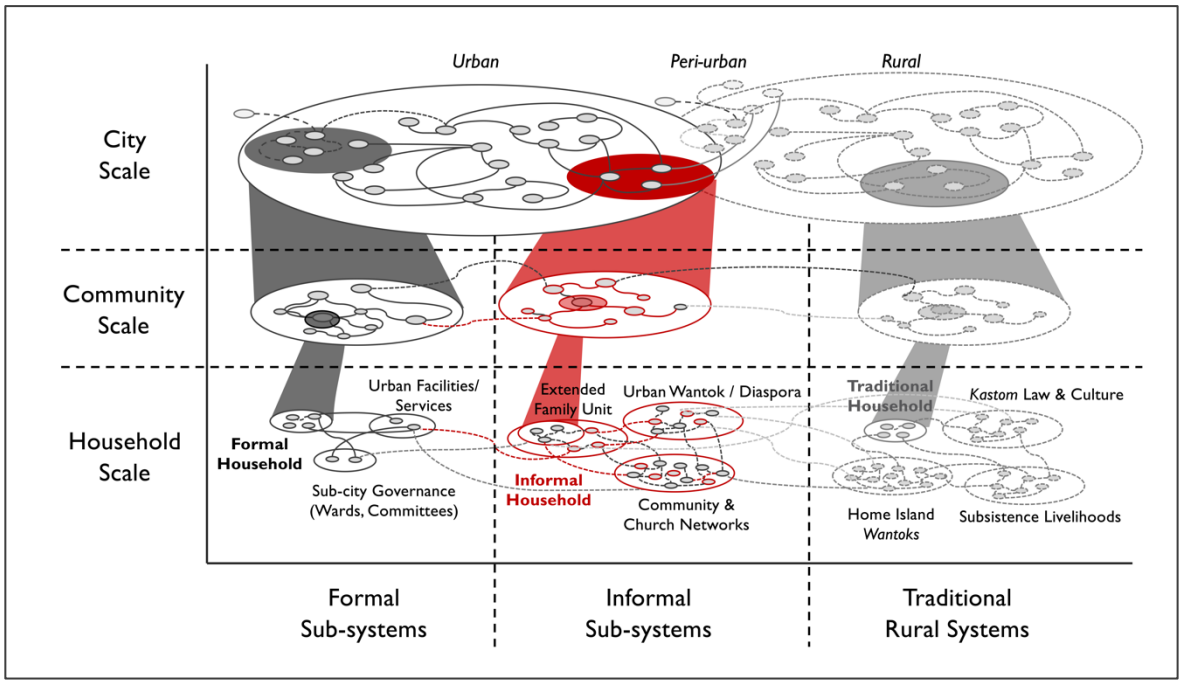


**FIGURE 8.4:** INFORMALITY NESTED WITHIN AND IN PARALLEL TO MELANESIAN SYSTEMS

(Source: Author)

A consequence of the implicitly normative framing of climate resilient development is that varying degrees of transformation are inherent in the "α" phase of reorganisation; a process that commonly follows the collapse triggered by a climate-related shock or stress event. Examples of these

'transformative' changes were evident in both of the two case study cities following the impacts of the April 2014 Floods and Tropical Cyclone Pam. However, I argue here that their alignment with both the vertical and horizontal system structures shown in Figure 8.4 is problematic for a number of reasons.

One example of misaligned exogenous efforts that was identified through this research was a city-level proposal to create a 200-metre exclusion zone along either side of the Mataniko River in response to the April 2014 floods in Honiara. This proposition by city council would have required the relocation of not only Ontong Java Settlement, but also most of the commercial 'Chinatown' area, and a large settlement further upstream referred to earlier in this thesis known as 'Koa Hill'. Although not legislated, it was in part this determination that contributed to Koa Hill being declared a 'hazardous' zone by the Ministry of Lands, Housing and Survey, and therefore being excluded from formalisation planning processes. This was despite much of the settlement being located on land elevated above the flood risk zone, and the community using church and other social structures to prevent reconstruction of the settlement in the hazardous areas destroyed in 2014 (Trundle, Barth and McEvoy, 2019, p. 64).

In contrast, the manipulation of formal structures by urban elites could be demonstrated by the subdivision and infill of the floodplains between Koa Hill and Ontong Java Settlement at the Mataniko river mouth, with the reinforcement of the riverbank being used to justify commercial subdivisions and profiteering (as shown in Figure 8.5). Even the reconstruction of the main bridge across the river, a donor-funded 'transformative' effort in response to the damage to this critical infrastructure caused by the April Floods, appeared to be contributing to a shift in the river's trajectory that was accelerating riverine erosion along the western edge of the Ontong Java community. An estimated six houses had been abandoned by the time of the community workshop held as part of this research in November 2017, while one of the community's shared standpipes had broken off into the path of the river.


**FIGURE 8.5:** COMMERCIAL SUBDIVISIONS ON THE MATANIKO RIVER FLOODPLAIN (LEFT) & A WATER TANK ATTACHED TO AN ABANDONED HOUSE DOWNSTREAM IN ONTONG JAVA SETTLEMENT (RIGHT)

(Sources: Author, 2017)

As these examples demonstrate, by ignoring the informal structures that exist within urban systems transformative efforts to enhance the climate resilience of cities can either fail or have a net effect of undermining the resilience of some of their poorest and most vulnerable inhabitants. In the case of Koa Hill, an opportunity to support or formalise community structures capable of regulating settlement within a flood risk area was lost, with the legitimacy of these structures instead being brought into

question. The informal capacities of urban elites – McDonnell's 'masters of modernity, as elaborated on in Section 7.8 of the previous chapter – to develop land within these hazardous areas also undermined the potential to reduce the risk of the city overall through regulatory means (2013). Meanwhile, the lack of consideration of critical informal infrastructure (Ontong Java Settlement's standpipe, water tank, and loss of legally-tenured land) in the process of formal 'resilience-enhancing' bridge upgrading and riverbank reinforcement worsened the hazard exposure of one of the city's most vulnerable – but internally coherent and functional – informal settlements.

In the case of Port Vila, community-level frustrations with exogenous climate resilient development efforts centred squarely upon the 'external' actors who were deployed in the city subsequent to Tropical Cyclone Pam. The inability of state-based institutional actors and global humanitarian agencies to understand informal, community-level structures and endogenous resilience features was amplified by the transient humanitarian response community that was deployed to Port Vila subsequent to the cyclone hitting Vanuatu in March 2015. As one respondent from Etas community noted:

> For the Cyclone Pam they come over and supply some things like containers, maybe come and give water, and plastic bottles, and medicine … But since then we don't see anything. We just live, nothing. Like medicals, we must … like if we any sickness, we just go over to town for the big hospitals for treatments or whatever.
>
> The water, we run out of water, that the dry seasons we've been through last year, last years. We have to find our own transport to go help and get some water, some wells, and then come here. What else. Yeah. We just try our best to live, we don't even see anything like they provide for us, I don't know where it goes.
>
> **– Etas Community Representative, Port Vila (ETHH6)**

This failure by exogenous actors to connect with the reorganizational needs of sub-city, informal scales reflected three key factors, which I argue collectively demonstrate the need for a dynamic, negotiated and laterally connected understanding of climate resilient development. Considered through the Panarchy heuristic, the inability of regime-level state institutions to 'remember' the needs of these informal urban areas hindered the city's recovery from this shock event, lowering the resilience of the city generally.

These observations were not limited to the 'fly-in, fly-out' humanitarian workers who were deployed as part of the relief efforts in response to Tropical Cyclone Pam. As one institutional representative noted:

> "The only time people's safety comes into play is when there is an approaching disaster, say for example a cyclone or tsunami. Then, the government flexes it's muscles. But, during peace time there should also be something telling people you can come live in town, however you need to understand that you are becoming more vulnerable moving away from what you have access to, and what you don't have access to.
>
> Responding to a humanitarian crisis shouldn't be only after a crisis has happened, it's about preparing to prevent the crisis, exacerbating from the natural calamity"
>
> **– Peak Body Representative, Vanuatu (VUE13)**

As the quote above demonstrates, embedding a broader understanding of urban sub-systems is not only critical during shock or stress triggered collapse and subsequent reorganisation efforts, but also enables sustainable urban development during phases of growth and conservation. Notably, this rhetoric aligned strongly with that of 'preparedness' cycles of disaster risk management frameworks, and the overall principles that underpin long-term climate change adaptation planning; the two fields most noted to be successfully deploying the discourse of resilience in the region (as explained in Chapters 2 and 5). However, even with the substantial increase in climate resilient development funding observed in Vanuatu since 2013 (as shown in Figure 5.4), it was evident that mechanisms for enacting climate resilient development were failing to address the substantial and disproportionately vulnerable share of these two city's populations living in informal settlements.

## 8.8 *Reorganisation (α): From Normative to Transformative Resilience*

As Keen and Kiddle conclude in their reflections on the most recent fifth Pacific Urban Forum, "for practitioners, securing transformational change in cities means changing the dominant narratives from dichotomous urban versus rural to one which sees connectivity and pathways for balance and complementarity", while "diversity in [Pacific] cities needs to be acknowledged and accommodated" (Keen and Kiddle, 2019). As has been demonstrated throughout this thesis, transformative applications of resilience are thus inherently more complicated, and require not only the consideration of multiple inputs, but also a multiplicity of transformed outcomes.

In this final section I argue that not only can a multiplicity of post shock/stress states be normatively understood to be resilient (as in Figure 2.1), but that these regime-level outcomes have varying levels of sub-system desirability and even functional compatibility with different sub-system groups. The compatibility of these whole-of-system outcomes with these subsidiaries – such as informal communities – can in turn modify the levels of endogenous resilience within the system, with both negative and positive possible outcomes for the system overall. Some of these reorganizational possibilities are shown in Figure 8.6, with each of the cross-scale implications of these alternatives elaborated on below.

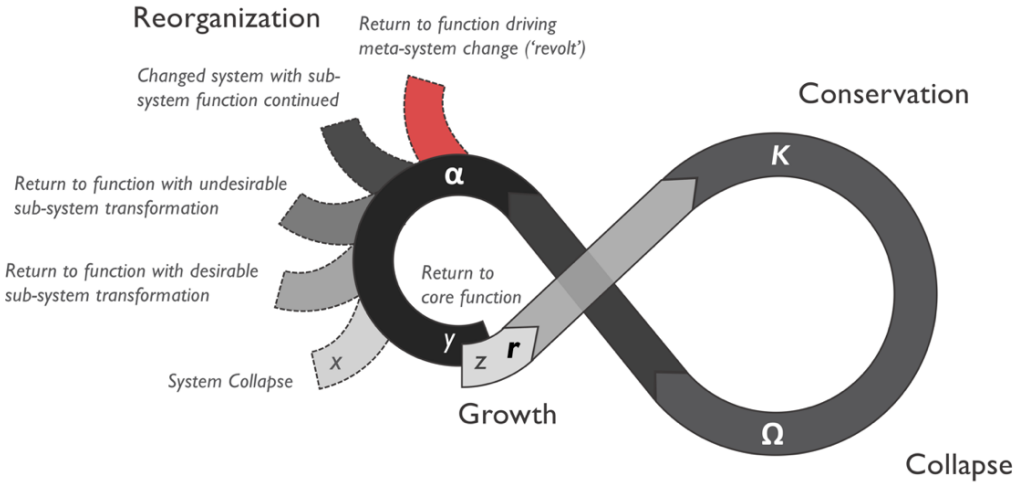


**FIGURE 8.6:** SUB-SYSTEM REORGANIZATION – ALTERNATIVE ADAPTIVE PATHWAYS

(Source: Author, building on Gunderson & Holling's Adaptive Cycle (2004))

Already considered elsewhere in the works of Gunderson and Holling (and others), are the prospect of sub-system collapse, and that of revolt. The former is an outcome that is often observed in relation to informal settlements, whereby the area will collapse of its own accord as an outcome of a shock or stress and be unable to return to a growth (*r*) phase. The latter, 'revolt', could be seen to have occurred in the case of Etas Community in Port Vila (as discussed in Chapter 7), whereby a climate resilient development intervention in the form of a piped waterline was destroyed by the community.

If the sub-system is itself considered to constitute a core function within an urban regime it could also be observed to return, or 'bounce-back', to its previous structure within a transformed city system, without itself undergoing transformative change. This additional consideration could be observed, for instance, if a large scale relocation of a low-lying township was to occur due to the slow onset of sea level rise, but a sub-community or household remained to maintain land title and custom (as was observed in the case of some of the rural households who remained in Ontong Java Atoll).

Negotiated resilience, however, is required wherever transformation of a sociocentric sub-system is required as part of the process of reorganisation. As was evidenced in Chapter 7, negotiation does not

necessarily imply a desirable outcome at a sub-system level, with some community-level actors also engaged in activities that are in conflict with wider societal values or the development objectives of the state. However, by engaging in a process of negotiation exogenous efforts to conduct climate resilient development will go some way to ensuring that the rights and values of actors such as informal settlers and migrant households are accounted for in major phases of reorganisation.

Although the above references focus on the community scale, it is also important to note that these considerations equally apply to other nested scales, including that of ward-level and municipal government, as one representative of a CROP organisation explained:

> We, from a government … are trying to push this constitutional legal framework in an environment that quite frankly is not ready to receive [it]. So, how do you take the best of the constitutional framework, the best of the customary framework, and merge them to end up with a legal system, a land tenure system … the number of different areas that fall into that works for the people?
>
> Because municipality here has been so inefficient, ineffective, they just can't win. Because they are following constitutional law – property rights, whatever – but at the end of the day, the chief of Ifira, Pango, wherever, will override the constitutional law. So, the municipal government is having its legs cut out from underneath it in many cases.
>
> **– Regional Organisation Representative, Vanuatu (VUE5)**

As the quote above demonstrates, potential targets for transformation that result in a more climate resilient city can include not only the city government itself, but also the assumed norms associated with imposed forms of urban governance and law. With the strength of customary systems that prevail outside of the two municipal domains examined here, a key observation from this research is that the hybridised customary systems prevalent in these two case studies appear to be more effective at enabling endogenous climate resilience than those contained within formal urban governance. A potential transformation, therefore, could be enabling customary governance *within* these municipal domains, and transforming the regime while maintaining the core functions within these informal spaces.

Finally, Holling's initial rationale for developing 'Panarchy' was particularly centred upon the interaction between adaptive cycles and those larger or smaller scales nested adjacently to the scale in question (similar to the three levels of interactions shown in Figure 2.3). A more transformative interpretation of Panarchy, however, further broadens Holling's original objective of challenging "the notion of hierarchy as a system of vertical authority and control", 'skipping' nested cycles where functions and values align. Such an approach, for instance, could avoid ineffective urban governance, as one community member proposed:

> Government, *i* come inside. *Yumi* willing *blo hemi*, but planning *hemi* come inside direct. Like, *smol smol mi tellem* Oxfam Vanuatu, you *budgetem* no more, *makem* planning *lo* budget.
>
> Okay you, Oxfam Vanuatu, you look after whole Tafea province. You, Live and Learn, or whoever, Save the Children or whoever, you look after Shefa community. You just *givem* no more planning, direct. You just follow up, no more government. *Takem* out. Step out and the donor come and go through.
>
> **– Blacksands Community Representative, Port Vila (BSHH8)**

Further analysis of the potential outcomes of this 'leapfrogging' would, however, be required to more fully understand the implications for the interaction between endogenous and exogenous resilience. In particular the potential for secondary effects on those interim scales (for instance, undermining the long-term capacity of municipal government) is likely to be substantial. However, where sustained efforts to improve climate resilience through these intermediaries have failed, more radical approaches may be required.

## 8.9 *Conclusion*

This chapter addressed the final of this research's three guiding questions by identifying what the interactions between the forms of endogenous and exogenous modes of resilience mean for climate resilient development and the application of resilience theory in cities more generally. It did so in two parts: the first, drawing on the intersection between those informally derived endogenous climate resilient attributes within the six case study cities and the exogenously deployed climate resilient development initiatives identified through analysis of program, policy and finance documentation, as well as key institutional representatives.

Across all six informal settlement communities it was found that endogenous modes of climate resilience were the dominant contributors to households' abilities to respond to climate-related shocks and stressors. Many of these informal functions and structures were accommodated by weak or ineffective formal institutions, however an even larger number had some level of functional conflict with the city system as a whole. Central to this was *kastom*, reflective of the continuity of home island identities within these informal communities; a notion that contrasted observations of urban informal migrant dialectics elsewhere. Its prevalence – dislocated spatially from its island origins – challenged not only notions of system boundaries, but also of (Western) urban governance, with direct repercussions during reorganisation and recovery efforts to respond to a climate-related shock or stress event. From a household perspective, it was clear that the lack of both government and development partner support for these capacities within the urban environment was leading to a general disdain for these institutions. Despite a willingness to engage or 'formalise' these modes of occupation, production and consumption, the long histories of persistent informality had effectively led to a duality of modes of urbanisation; a situation by no means limited to the Pacific.

Equally striking was the lack of visibility or understanding of many of the most critical informal sources of endogenous climate resilience within institutional domains. I argue that this was reflective emergence of resilience thinking from within the external, formal institutional structures, with uptake by national institutional actors focused on deployment for development finance access, rather than as a function of its conceptual capacity to 'convene' a broad array of formal and informal local actors.

This absence of interaction was found to be worsened by the lack of general awareness or planning for urban informality in the two case study settings, as reflected upon in Chapters 3 and 6. This included considerations in the impact of varying forms of informal land tenure; the most contentious of the five attributes used in UN-Habitat's definition of informal settlement areas. The different tenure types reflected in the six case study communities were demonstrated to have a significant impact on both their endogenous climate resilience attributes, and their capacity to interact with exogenous climate resilient development programs. More similarities in these attributes were evident in comparable communities across the two case study cities than there were able to be identified within them, suggesting that the relationship between land tenure and climate resilience warrants further research.

The implications of the interactions of these modes of resilience across urban scales were then examined through Gunderson and Holling's Panarchy heuristic (2004). I proposed two major modifications to this theorisation of resilience: the inclusion of lateral interactions between spatially differentiated systems to account for fluxes in and out of sociocentric systems; and the consideration of different scales of transformation that include differentiated normative outcomes based on the viewpoints of actors both within and outside of the system in question. I argue that this latter consideration provides the key to negotiating transformative forms of urban climate resilience, in which divergent values, differences in power, and more fundamental attributes such as justice and equity must be considered to address the shortcomings of resilience thinking identified by social scientists (as set out in Chapter 2).

# 9 CONCLUSION

> *Lo* home now, *em* climate change. The islands seeing sea rise, wash houses out from the village, serious, yeah? Climate change *hemi wanfela* issues *falla lo* home, damage from climate change. House *mifala*, islands are small, nowhere to go.
>
> ***Interviewer:*** *Would impacts back home be enough that you would have to move to somewhere like Honiara?*
>
> Oh yeah … government and the church are looking for, working for *mifala relocatem*.
>
> **Community Representative – Ontong Java Settlement, Honiara (OJHH1)**

## 9.1 *Introduction*

The aim of this research was to understand how the endogenous forms of climate resilience that are prevalent in informal settlements interact with donor-driven, exogenous climate resilient development initiatives, with particular consideration of rapidly growing climate vulnerable, small island developing cities. The rationale for focusing on this interface was that efforts to build climate resilience in urban systems have been shown to lack effective mechanisms for engaging with informality; a condition that defines urban occupation, consumption and production for an estimated 880 million people worldwide.

This problem is of relevance across and beyond the Global South. However, this particular research has been conducted through targeted case study analysis of six communities across two Pacific Island cities: Port Vila, Vanuatu and Honiara, Solomon Islands. These two cases were selected in response to the hypothesis that endogenous informal resilience would be heightened due to their above average climate exposure, fragile urban governance structures, and peripheral positioning relative to global capital and trade.

Findings are summarised in this concluding chapter, highlighting their implications for the two case studies in question, resilience theory, and the application of climate resilient development initiatives elsewhere. These more general observations build upon the extensive literature review set out in Chapters 2 and 3, which situates these two case studies within the global processes of urbanisation, informality, and climate resilient development. I argue that endogenous urban climate resilience can play a critical role in the way that cities respond to climate-related shocks and stressors. The need to capitalise on this capacity, particularly in the cities of the Global South, is made all the more urgent by the accelerating exceedance of key earth system thresholds. As the world continues to urbanise, states, cities and communities must identify new ways to address the impacts of a growing and diverse array of climate and other shocks and stressors, as set out in the introduction of this thesis.

## 9.2 *The Discourse of Climate Resilience: From Ecological Theory to Informal Settlements*

The first of the three research questions that this research set out to address was stated as follows:

> 1) In what ways is the discourse of climate resilience being expressed and applied in exogenous development practice in Vanuatu and Solomon Islands?

In Chapters 2, 3 and 5 I demonstrated that the discourse of resilience has been acutely shaped and driven by donor programs and projects. I argued that its uptake by these institutions and their implementation frameworks has been driven by resilience's malleability, which has enabled cross-sectoral ownership and collaboration. In order that this could be further evidenced, the findings from analysis of secondary project and policy documents were integrated with primary data from interviews with local institutional representatives; a process which highlighted complex power dynamics and agencies across different nested scales, as well as between civil society, government, and a range of external development actors. Climate finance in particular was found to be a critical discursive influence

that was frequently distributed through, and often absorbed by, institutional actors not directly situated within the nested adaptive cycles of the urban systems in question.

A conscious deployment of resilience terminology by these institutional groups was identified in both countries, as well as through critical regional 'peak bodies', with interview respondents noting that this approach was advantageous in gaining access to international development programs and climate finance. This finding was supported by analysis of secondary data relating to Official Development Assistance and international and regional policies and programs. Comparison of the two countries also highlighted the competitive advantage gained by this discursive engagement in Vanuatu in contrast with the more limited engagement of institutions in Solomon Islands. This was all the more significant given the wider similarities evident across these two urban systems in terms of sociocultural, geographical and demographic positioning as capitals of two archipelagic, 'least developed', Pacific SIDS.

Findings from interviews conducted with a broad range of institutional stakeholders also highlighted the need for resilience theory to actively address the internal agency within sociocentric systems. I argue that these considerations also highlighted the need to consider resilience simultaneously through Vale's other two resilience paradigms; conceptualised as a planning practice applied across space, and as an analytical tool for understanding responses to disruption (2014). This approach ensures a reflexivity in the term's use, with differences in levels of normative awareness and intent potentially comprising the benefits of its 'fuzzy' convening power by misaligning functional values and system ideals.

Many of McGreavy's observations of 'resilience as discourse' were clearly evident in both the secondary and primary data analysed through this research; particularly her argument that if resilience "ignores its own discursivity [it] constrains how we might come to know and do resilience differently" (2016, p. 105). One finding that had critical implications for exogenous forms of climate resilient development was the 'un-nested' nature of many of institutions, whose actors were central to the development of resilience interventions within the city systems in question.

By including these 'external' institutions, this research was able to demonstrate a more holistic understanding of the nested scales of actors active in each city's climate resilient development programs. This meant that the abilities, or lack thereof, of different actor groups to enact change within each urban system was clearly visible. In both cities, for example, it was evident that external organisations and their financial and technical resources were needed to underpin any transformative shifts in urban climate resilience, with existing urban governance frameworks under-resourced and limited in their legal capacity relative to a range of non-state interests.

Conversely, these external agents – as well as the expressions of climate resilience that they deployed – remained disconnected from those aspects of Port Vila and Honiara's functions that did not conform with Western urban norms. Alignment of these differing strengths and weaknesses was demonstrated in some instances to lead to effective engagement across nested scales, particularly where civil and state values and objectives were able to align (as was the case with Wan Smolbag in Port Vila's peri-urban community of Blacksands).

Overall, the lack of focus of both state and civil society institutions on each urban domain limited the effectiveness of any potential collaborations, with key gaps in urban and peri-urban governance exacerbated by a lack of urban programming by international non-government organisations. This absence was further reinforced by the limited consideration of urban climate resilience in regional policy frameworks and global climate finance mechanisms. By analysing sub-national flows of climate finance, as well as regional and national donor initiatives, I was able to consider the influence of these discursive traits beyond the two case studies in question. This highlighted the critical role that these

international development structures play in shaping resilience's exogenous application and discursive influence in the cities of the Global South.

Formal institutions at the community-level in Port Vila and Honiara were broadly organised around actors not conventionally engaged in climate resilient development. While organisations such as church groups were viewed to be supportive of community values, the absence of state control also exposed less structured communities to manipulation by powerful landowner groups and corporate interests. The risk of divergent stakeholder values leading to conflict, particularly in lieu of an effective state-based arbitrator, was particularly evident in Honiara, given the recent history of 'revolt' in the form of the Ethnic Tension and the subsequent regional peacekeeping effort, which formally concluded during the fieldwork for this research.

Some key points of difference between the two cities were found within exogenous expressions of climate resilience discourse, beyond differing levels of climate finance access. Firstly, the impact of the Ethnic Tension in Honiara had resulted in a generally higher form of tenure security in informal settlements that overrode more formal land ownership arrangements. The heightened level of internal capacity within urban governance was also reflective of these earlier exogenous efforts, albeit outside of the field of climate change or resilience per se. Conversely, the institutionalisation of *kastom* law in Vanuatu, including the National Council of Chiefs, provided a clearer avenue for formal engagement outside of the Western conventions of urban governance, particularly within peri-urban areas of Port Vila. As both of these differences highlighted, support for informality through national, state-based avenues had a substantive impact on the willingness for development actors to engage outside of formally recognised areas within each city system.

An additional environmental variation that I argue contributed to the differences in discursive uptake related to the recency and accelerating nature of the responsiveness of actors to resilience discourse, with a confluence evident between bilateral and other donor programs, national government agendas and policy, and a broad array of in-country development actors. This was especially the case in Vanuatu, where the occurrence of Tropical Cyclone Pam in 2015 triggered a much more widespread use and awareness of the term, including in the song used to open this thesis. Further research into the role of the deployment of humanitarian actors as a discursive 'vector' in the use of climate resilience terminology would broaden the scope of this finding, beyond the limitations of the case study research conducted here.

Outside of these 'reorganizational' (α) phases, the two case study cities were found to be broadly similar in terms of the nested institutional frameworks that enabled exogenous climate resilient development interventions; and formally supported climate resilience within the urban system (as shown in Figure 5.7 and Figure 5.8). Accounting for the variance in exposure to recent events, institutional respondents also identified a similar distribution and emphasis on climate and non-climate shocks and stressors (Figure 5.13), reflective of the comparable environmental conditions facing the capitals of the two neighbouring countries. Comparative analysis therefore focused especially on the typological, socio-demographic and tenure-related variables across the six case study communities, as discussed further in response to RQ2.

In Chapter 2 I proposed that the current discourse of climate resilience is fundamentally normative, representing a distinct break from earlier iterations of the concept which were constrained to either 'bounce-back' or 'multi-state' heuristics. By analysing sub-fields within resilience thinking, including key paired resilience terminology, I distinguish key subject systems and shock and stress groupings within this field of normative applications, with urban, climate, and disaster resilience having emerged in the literature at a similar point in time. I argue that the trajectory *choice* inherent in normative

resilience practice – as is the case in urban climate resilience and climate resilient development – is the source of much criticism of resilience theory and thinking from the social sciences. To this end, my conceptualisation of resilience differs from those that argue it to be an "inappropriate extension of concepts from the natural sciences to society" (Olsson *et al.*, 2015, p. 9). Instead, I argue that by deploying Gunderson and Holling's Panarchy heuristic in a meaningful way across multiple scales and diverse social groupings within a city system, mechanisms for engaging with the "conflicting interests between groups in society" can be developed (ibid, p. 5).

Seeliger and Turok advocate for resilience practice and theory to integrate models of vulnerability and transition through the consideration of networks and social innovations (2014). Similarly, Wolf *et al.* identify a need within the analytical processes used for understanding the role of social capital in community responses to climate shocks to "draw on techniques that map and characterise social networks", taking into account cognitive dissonance, availability heuristics and biased assimilation, all of which play out uniquely within the migrant experience (2010, p. 51). This juncture is described by Jones in reference to Pacific Island Countries (PICs) as being "not only a result of exclusion by the formal regulated systems … it is also a consequence of traditional socio-cultural orders, actors and their systems" (2016b, p. 180).

Within the field of international development, the application and practice of climate resilience has been more critically argued to be the next in a series of iterations of development paradigms with little reflection of 'on-ground' concerns and priorities (Leichenko, 2011). Structural compatibility with neoliberalism sees some authors take this further, proposing that deployment of resilience in development is enabling ideologies such as self-sufficiency to reduce the role of the state in disaster response. I argue, however, that this is an overgeneralisation, evidenced by the multiplicity of origins and modes of application as shown in Chapter 2 (Simon and Randalls, 2016).

In literature drawing on findings elsewhere, including within the Pacific, climate vulnerability has been demonstrated to be 'performative', whereby compliance with suppressive narratives is required for access to climate resilience funding (Webber, 2013). While not especially prominent in the findings within this research, I argue that the positioning of climate vulnerability and its deployment within climate resilient development itself should be viewed critically due to the potential for it being a mutually beneficial performative device. Specifically, conceptual inconsistencies could be being disregarded in practice due to divergent *positive* outcomes, whereby climate change was "a good victim card … [wherein] 'climate resilience' gives the opportunity for those that've never really been part of any development discussions to be included" as noted by one intergovernmental representative (VUE1). Tensions therefore remain in the broader theoretical understanding of the relationship between these two terms, which are echoed in development practice in the Pacific. However, the 'convening' capacity of resilience discourse was consistently noted and supported in institutional interviews; an ability that generally appeared to outweigh these points of divergence.

## 9.3 *Endogenous Climate Resilience: Urban Function for an Informal Migrant Household*

The second research question examined in this thesis focused on the evidence of endogenous forms of climate resilience in six informal settlements across the two cities:

> 2) How do informal communities within the two capital cities of these Pacific Small Island Developing States exhibit and enact endogenous forms of climate resilience at a sub-city scale?

Before directly assessing RQ2, the nature and spatial distribution of informal tenure, as well as wider patterns of migration and urbanisation, was analysed across the two case study cities. These efforts, derived from a combination of secondary spatial data, archival analysis, and first-hand account from

informal migrant households, were used to characterise a 'Melanesian' migrant dialectic, while also establishing an understanding of the different forms of informality that were present within each city system. Although critical to RQ2, identification of these attributes also enabled the comparison of each of the six case study communities across the two cities, thus providing critical insights into the generalisability of these findings beyond the Pacific and into more conceptual aspects of resilience thinking and theory (RQ3).

The development of a decision-tree based informal settlement typology, built upon jurisdictional, legal, regulatory and societal characterisations of tenure, provided a novel contribution to the consideration of informality in other settings, with relevance beyond the field of climate resilience. Additional research outputs provided in Chapter 6 that supported the focus on a migrant dialectic include contemporary spatial analysis of informal tenure and inter-island rural-to-urban migratory movements. A detailed analysis of informal tenure types and extents in both cities is argued to be another area requiring substantive future research, with both urbanisation and informality found to be severely underestimated in each of these cities; further reinforcing urban neglect and disinterest by international donors and development actors.

Through her work in Latin America, Lawson identifies a 'migrant dialectic', wherein informal migrants are able to provide a unique positionality that allows deeper understanding of processes of belonging, exclusion and affiliation" (2000, p. 174). Although this attribute is very much evident in my research, I argue that the Melanesian migrant dialectic differed substantially from that identified by Lawson. Instead of migration as a transitional phase, a sustained, instable Transurban identity has been found, consistent with Hau'ofa's identification of an overarching narrative of connectivity and movement across Oceania, including within and through its cities, in his seminal essay 'Our Sea of Islands' (1993).

This conceptual finding gains particular relevance when considering endogenous resilience and capacities, with connections to language, tradition and social networks outside of the urban domain persisting through generations of urban 'migrant' families. These cultural norms were shown to be reinforced by the colonial legacies inherent in the alienation of many Pacific cities from cultural practice and even at times Indigenous access. In a contemporary setting these remnants have been further reinforced by neo-colonial forms of urban land capture and control, as noted in the literature analysis set out in Chapter 3, to the benefit of the urban elites identified in Chapter 5.

Having established the positionality of the six case study communities, as well as that of the migrant household representatives engaged within them, I was then able to examine findings relating to the modes of endogenous climate resilience evident within these informal domains in depth. These were mapped thematically against six functional domains: household production; *kastom,* culture and religion; foreign aid and investment; community system; government regimes; and elites, patrons and landowners. In each instance, the enactment of endogenous climate resilience varied significantly. For instance, household production of food – a widespread practice – formed a critical social safety-net and household-level redundancy in the event of a shock or stress event.

In contrast, the informal practices of elites, patrons and landowners was largely divisive; while a select few benefited from informal relationships with these actors, it had an overall effect of increasing inequality and reducing transparency, thus diminishing the climate resilience of each city as a whole. As these two examples demonstrate, by using Tyler and Moench's characterisation of urban climate resilience attributes (Tyler and Moench, 2012), I was able to critically analyse the trade-offs in resilience properties within these two case studies. These attributes were there considered further in addressing RQ3, as explained in the section below.

The hybridisation of traditional techniques, knowledges and resources for generating endogenous climate resilience within the city itself was reflective of the dual positionality of many of the migrant households engaged in this research, as outlined above. Ranging from the use of caves and laptops to shelter from cyclonic winds, to the modification of allotments to encompass extended family housing complexes, these appropriations of 'island culture' were observed recurrently in all six case study communities. A correlation could therefore be observed between the endogenous resilience generated through the transience that these urban inhabitants were able to exhibit, and their efforts to maintain direct sociocultural links beyond the urban system itself, irrespective of its locally contested spatial delineation (as highlighted in Chapter 3).

Some key differences emerged across the different settlements. Physical constraints – such as access to land for gardening, water sources and density – significantly limited the ability of some settlements to enact endogenous modes of climate resilience. Less straight forward, however, was the impact of 'mixed island' settlements, with some exhibiting and strong sense of social cohesion, while others lacked the community structures to provide a cross-cultural endogenous resilience capacity. In other instances, the combination of different island cultures and traditional knowledges enabled the sharing of resilience-building techniques, particularly with reference to the hybrid approaches discussed above. Informal settlements from a single cultural background were, however, not only more socially cohesive internally, but were found to provide focal points for a wider *wantok* urban diaspora in both Port Vila and Honiara.

## 9.4 *Negotiating Transformative Resilience through Exogenous-Endogenous Interactions*

The third and final research question examined in this thesis synthesised the findings from RQ1 and RQ2, before considering their implications for climate resilient development practice more generally, and the deeper contributions that this research was able to make to resilience theory:

> 3) What do the interactions between these endogenous and exogenous modes of resilience mean for climate resilient development and the application of resilience theory in cities?

Central to addressing RQ3 was Helmke and Levitsky's Typology of Informal-Formal Interactions, which was deployed as a tool to map the interactions between exogenous and endogenous forms of climate resilience (2004). Across the six informal settlements the vast majority of resilience enactments were classified as being predominantly endogenous; a finding consistent with observations of a lack of engagement in these areas by climate resilient development initiatives, and a lack of effective urban governance structures at a sub-city scale. Relatedly, the weak urban institutional engagement and ineffective urban governance structures meant most of these interactions fell into the categories of being either substitutive of or competing with the state.

The divergence of functional values between institutional and informal systems demonstrated the need for negotiating effective climate resilience outcomes. In the case of substitutive endogenous resilience features (where functional values aligned with the state), the primary outcome of climate resilient development efforts could be focused on strengthening urban governance, with improved consideration or formalisation of existing informal sub-systems. However, in the case of those features categorised as 'competing' (i.e. where functional values were in conflict with state systems), a more complex structure of negotiation was required.

Ziervogel *et al.* propose that resilience "requires that people's lived entitlements be brought into closer alignment with their ideal rights- and justice-based claims", an aim that they argue can be addressed through consideration of rights and justice in the face of existing relatively vulnerability, as well as identification of "the underlying causes of poor alignment between … ideal justice and rights, and …

people's actual lived entitlements" (2017, p. 6). Informality wholly captures the 'poor alignment' proposed in the latter part of the quote above, while also heightening and aligning with climate vulnerability, a representation of their initial attribute. If wider ideals such as the *Right to the City* are to guide sustainable urban development (Purcell, 2014), I argue that negotiating new governance approaches that incorporate these endogenous forms of climate resilience presents one of the most viable pathways for addressing the continuing growth in informality in cities globally.

The individualisation of urban rights, however, does little to support the wider community-level and societal attributes evident in the case studies here, which were found to be more fundamental to endogenous climate resilience than household-level resources, tenure, or other adaptive capacities. The need for more widespread consideration of and support for these informal assets – both within physical space and that of policy and governance – was evident not only in the case study cities in question, but also that of the wider academic discourse relating to urban informality and climate change resilience more broadly.

The continued exclusion of many of these endogenous forms of resilience from formal urban governance systems, as well as exogenous disaster response and climate finance structures, was shown here in some cases to reduce the resilience of cities overall. By ignoring or actively obscuring attributes such as informal gardens, spaces of cultural activity and exchange, and socially compatible housing typologies, as conceptually demonstrated in Chapter 8, climate resilient development can risk actively undermine not only these inherent endogenous capacities, but also the exogenous initiatives themselves through sub-system 'revolt' at a community level (as acutely demonstrated in the case of Etas settlement's destruction of water supply infrastructure in Port Vila).

I argue that this is especially the case when normative resilience is applied transformatively, with critical differences between this mode of resilience and those relating to coping, recovery and adaptation (following the definition of resilience set out in Chapter 1). This observation goes beyond Carpenter *et al.'s* provocation of "resilience of what, to what?" (2001), and the advancement of this by Meerow *et al.* into questions of "how, why and for whom?" (Meerow, Newell and Stults, 2016). I propose that two additional questions must be considered in resilience's transformative applications: "resilience at what cost?" and "a cost to whom?". This directly challenges the assumption of universally agreed 'core' functionality; system components are instead defined as inherently having value, even if not immediately recognised by the state, or other exogenous actors. Consequently, I argue that transformation must be considered as having an inevitable cost that must be accounted for as part of any redistributive action.

Application of Gunderson and Holling's Panarchy heuristic framed the analysis of evidence of both exogenous and endogenous climate resilience (Gunderson and Holling, 2002). This provided a critical focal lens for this research, particularly in relation to the two climate-related shock events that were reflected upon heavily by respondents. However, it also defined the characteristics of climate resilient development projects that were deployed with more generalised resilience qualities, independent of the two climate shock events of most recent relevance to the two cities.

This analysis identified a correlation between the lack of consideration of societal values such as power, equity and justice in resilience's theoretical frameworks and the practice and policies in each case study context, epitomised by the assumptions relating to the most substantive climate resilient development project in the region; the Tina Hydropower Project outside of Honiara. The review of urban climate resilience literature set out in Chapter 2 similarly demonstrated that consideration of critical attributes within the Panarchy heuristic was inadequate, reflective of the wider criticism of resilience's application in sociocentric systems such as cities.

As such, I proposed two key modifications of the Panarchy heuristic. Firstly, I argued that considerations of nested adaptive cycles in sociocentric settings must also account for 'lateral' connections beyond and within the system under examination. In the case of the South Pacific, external cross-boundary capacities were demonstrated to not only underpin the reorganisation phase following the impact of a climate-related shock or stress, but also to have more general relevance in other adaptive cycle phases (such as the urban growth driven by the need for cash income to pay school fees). This observation demonstrated the importance of understanding not only these connections, but the interplay between adaptive cycle phases within and across systems. A critical example of this is where a collapse or resource limitations in an external system, such as those associated with international development, could limit the ability to support reorganizational efforts in response to the local impacts of a climate shock or stress event.

The second modification relates to the understanding of transformation *within* a regime scale, rather than at a whole-of-system level. This differentiation is significant as entire nested adaptive cycles – such as an informal settlement or community – have been previously left to 'collapse' as part of maintaining an acceptable level of city-scale socioecological function. As these two case study cities demonstrate the influx of external resources, coupled with the destruction of local structures and norms associated with the impact of a climate-related shock or stress event, provides a critical opportunity for positive reorganisation (Panarchy's 'α' phase).

Outside of the binary outcomes of continuing and disrupting the sub-system cycle, I propose that four additional outcomes are possible as a result of reorganisation at a sub-system scale. Firstly, eluded to by Gunderson and Holling (2002), is the potential for revolt; a concept proposed to be capable of generating whole-of-system change at the regime level. Secondly, a sub-system can be 'isolated' from whole-of-system transformation, which in itself may be a desirable outcome (for instance, where a heritage precinct or area of cultural significance is maintained in isolation from a city undergoing transformative reconstruction around it). The remaining two options add an important social perspective to transformation; whereby functional change may or may not be desirable to those constituents within the sub-system itself. It is this final consideration that is most critical when resilience is to be negotiated between community and regime levels, as demonstrated through the case study analysis in this research.

As Folke *et al.* observe, "in general, resilience derives from things that can be restored only slowly" (2002, p. 438); conversely, transformation necessarily implies drawing substantially on these reserves. In the cases examined here, many of the sources of endogenous resilience related to *kastom*, culture, *wantok* networks, and the widespread informal use of ecosystem services. These attributes are system characteristics not widely associated with cities; more commonly, they are set out as fringe, futuristic or fragile aspirations such as 'guerrilla' gardening, cultural diversity and community connectivity. Their existence and persistence in these settings should therefore draw out bigger questions about what resilience attributes have been lost through the process of urban development and formalisation, and demand a cautious approach is taken to expanding it further in such settings. Perhaps more optimistically, I argue that these sites at the periphery of the Anthropocene could present alternative modes of urbanisation, planning and development, that have lessons for sustainable urban development that can be taken up elsewhere, including in the cities of the Global North.

## 9.5 *Conclusion*

In the seminal article where he first defined the property of resilience in ecological systems Holling noted that "as man's numbers and economic demands increase, his use of resources shifts equilibrium states and moves [ecological] populations away from equilibria" (1973, p. 2). Urban climate resilience

encapsulates this sentiment better than almost any other use of the term to date, coupling the phenomenon of global urbanisation – and the associated concentration of populations, consumption and production – with the most fundament externality of this exponential increase in use of the Earth's resources: climate change. It is therefore unsurprising that, despite theoretical limitations and sustained literary criticism, the application of resilience thinking to cities, in order to address the shocks and stresses associated with climate change, is becoming commonplace.

Equally significant was Holling's differentiation of the concept of resilience from that of stability, with his observation of system persistence despite pervasive *instability* that led him to define the term:

> "instability, in the sense of large fluctuations, may introduce a resilience and a capacity to persist. It points out the very different view of the world that can be obtained if we concentrate on the boundaries to the domain of attraction rather than equilibrium states" (Holling, 1973).

Pacific cities provide model case studies for testing this proposition; settings at the edge of global capital, trade and resource networks that have historically sustained some of the highest exposures to climate and non-climate shocks and stresses anywhere in the world.

By focusing on the endogenous forms of climate resilience that exist within the two of the Pacific's rapidly growing cities, I identified critical informal capacities that are heavily drawn upon in the event of climate-related shocks and stresses. These endogenous attributes are, however, poorly linked to exogenous climate resilient development efforts, despite an increasing focus on the region through global development assistance and climate finance mechanisms. Much of this disconnection can be attributed to presumptions about the way that city systems operate, a lack of mechanisms for engaging with alternative sub-city systems, and an overarching discursive blindness to the normative attributes inherent in applying resilience thinking to sociocentric systems such as cities.

This thesis has demonstrated that development partners and governments alike would benefit from using the 'convening' power of resilience thinking to generate localised understandings of the forms of endogenous resilience. This can be done by examining those attributes that are drawn upon at a sub-system scale during and in the recovery from climate related shocks and stresses, with a particular emphasis on those communities and households that are considered most vulnerable or at risk. By using these focal points as a starting point for considering urban climate resilience, biases towards institutional preconceptions of critical networks and nodes can be avoided, while highlighting novel avenues for supporting new or otherwise unseen adaptation pathways.

These findings suggest that effective engagement with endogenous climate resilience could provide critical adaptation learnings well beyond the Pacific's small island developing cities. This is the case for both informal and formal urban inhabitants, as the world's urban population grows towards 4 billion, and the trajectory of global climate change similarly continues towards a peak of up to 4°C above pre-industrial temperatures (Robiou du Pont and Meinshausen, 2018; UNDESA, 2018). In the case of climate-exposed coastal areas, such as those that typify the Pacific, negotiating transformative resilience will be critical in identifying and agreeing to feasible climate adaptation pathways at regional, national and urban scales.

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# APPENDIX A: SEMI-STRUCTURED INTERVIEW SCHEDULES

**Expert Stakeholder Interviews**

- How would you define climate resilience?
  - *Follow up questions relating to any other terms that arise; examples where it is used by the organisation; and how it applies in an urban context.*
  - *If appropriate, explore understandings of key characteristics and measures of resilience, as well as divergent conceptual modes (e.g. transformative vs. bounce-back, etc.).*
- How does the idea of climate resilience get applied in the work of your organisation?
  - *Follow up questions regarding whether the term is used directly; what specific projects have been employed; whether particular frameworks are employed in measuring resilience*
- Does your organisation work with informal settlements in your city on these projects?
  - *Does the approach taken in these areas differ from what is applied elsewhere? Why does your organisation work in these areas in particular? Do the priorities and values of the inhabitants of these areas differ significantly from elsewhere in the city?*
- In what ways, if it all, does climate resilient development and resilience-building differ from other development approaches that have been undertaken by your organisation?
  - *Elaborate if needed in relation to relevant examples of sustainable development, gender development, focus on*
- Was your organisation involved during [Cyclone Pam/the April 2014 floods]?
  - *Questions about how responses differed from longer term planning, how informal settlements were involved, etc.*
  - *Separate assessment of any spatially specific interventions/actions*
- Do you have any other questions or comments about the project, or climate resilience or informal settlements more generally?

**Semi-Structured Household Interviews – Round 1**

- What does the term 'climate resilience' mean to you?
  - *Follow up questions relating to where they have heard the term, and/or an explanation of climate change and climate resilience if there is no understanding/awareness.*
  - *Additional discussion points around where they would see it being applied in their daily lives, livelihoods, and how it relates to their household, social network and the resources they depend on (ecosystem-based, financial and otherwise).*
  - *Optional questions around how long they have been familiar with the term, and when they first heard it.*
- What does your household depend upon to try to be climate resilient?
  - *Additional prompts around different forms of shocks and stressors, different dependencies such as government, customary and social resources – aim of this part of the discussion is to get a wide range of different types of networks, resources and coping mechanisms.*
  - *Follow up around whether they feel that the government is actively engaging in improving their climate resilience.*
- Are there any specific examples of these that were important or used by your household during [Cyclone Pam/the April 2014 floods]?
  - *Follow up questions elaborating on any specific locations of these resources, whether they feel that they are institutional or community-based, and whether these resources have changed since the event.*
- How does your ability to cope with climate-related events and stressors differ living in the city to how you would cope living rurally elsewhere in [Vanuatu/Solomon Islands]?
  - *Explore which of the above-mentioned networks/resources/coping mechanisms differ specifically, and why. Also discuss how they operate in informal spaces vs. perceptions of how they operate in the formal parts of the city.*
- Do you have any other questions or comments about the project, or climate resilience or informal settlements more generally?

# APPENDIX B: COMMUNITY PLAIN LANGUAGE & CONSENT FORM

## Plain Language Statement

Melbourne School of Design

Faculty of Architecture, Building and Planning

THE UNIVERSITY OF MELBOURNE

***Project:* Informal climate resilience: urban transitions in Melanesia's small island developing cities**

Professor Brendan Gleeson (Responsible Researcher)
Tel:
Mr Alexei Trundle (PhD student) Email:

### Introduction

Thank you for your interest in participating in this research project. The following few pages will provide you with further information about the project, so that you can decide if you would like to take part in this research.

Please take the time to read this information carefully. You may ask questions about anything you don't understand or want to know more about. Your participation is voluntary. If you don't wish to take part, you don't have to. If you begin participating, you can also stop at any time.

### What is this research about?

This PhD research project is trying to find out how informal settlements, inhabitants and spaces in Honiara and Port Vila are interacting with government, civil society, and donor initiatives to build climate resilience in each city. This includes both experiences of current day extreme weather events, as well as observed and projected climate change. It is engaging with both institutional stakeholders (such as government representatives, development workers and donor organisations) and households that live in informal areas to explore this interaction.

### What will I be asked to do?

If you agree to participate you will be asked to take part in a semi-structured interview, which will be audio-recorded and take 30-45 minutes. Photos will also be taken in some of the informal community areas.

Household interviews will relate to the nature of the social, resource and cultural networks that your household relies upon during times of environmental stress (such as drought), change (such as changing water levels) and shock (such as natural disaster events). If relevant, you will be asked about how these resources and networks were used to cope with Tropical Cyclone Pam (Port Vila) or the April 2014 floods (Honiara).

### What are the possible benefits?

It is intended that this research will find ways for climate resilient development programs and initiatives to engage with the informal, non-government systems in each city. This should be of direct benefit to the communities involved, and improve the effectiveness of development programs led by government and other organisations. More broadly, these findings should

improve understandings of how to apply climate resilient development assistance across cities, and build awareness of climate change in informal communities in Honiara and Port Vila.

### What are the possible risks?

It is recognised that both Tropical Cyclone Pam and Honiara's April 2014 floods led to significant trauma and will still be affecting many community members. If you are not comfortable discussing these events or experienced major trauma or hardship (such as the loss of a family member or significant property damage) it is recommended that you do not participate in this project. If you wish to pause or stop the interview at any stage you are also welcome to do so. The interviewer can provide you with the contact details of local support networks if desired.

### Do I have to take part?

No. Participation is completely voluntary. You can withdraw (quit) at any time, or withdraw any unprocessed interview data that you provided (unanalysed recordings, illustrations and transcripts would also be destroyed).

### Will I hear about the results of this project?

Yes. A presentation of the projects findings will be scheduled with each informal community. The results will also be summarised in writing, and a hard copy of the full PhD Thesis (the final report on the project) supplied for public access, to be located in the National Archive. Electronic copies of findings will also be made available to you and be provided freely online.

### What will happen to information about me?

Personal information will be separated once your interview process is complete and will not be disclosed in any project publications or presentations. Your information will be treated confidentially and safeguarded subject to any legal requirements, and kept securely at the university (accessible by the research team only). It will be kept for 5 years following completion of the project, after which the data will be destroyed.

### Where can I get further information?

If you would like more information about the project, please contact the researchers; Prof Brendan Gleeson ( ) or Mr Alexei Trundle ( ).

### Who can I contact if I have any concerns about the project?

This research project has been approved by the Human Research Ethics Committee of The University of Melbourne. If you have any concerns or complaints about this research project, which you do not wish to discuss with the research team, you should contact the Manager, Human Research Ethics, Office for Research Ethics and Integrity, University of Melbourne, VIC 3010. All complaints will be treated confidentially. In any correspondence please provide the name of the research team or the name or ethics ID number of the research project.

# Consent Form

Melbourne School of Design

**Faculty of Architecture, Building and Planning**

***Project:* *Informal climate resilience: urban transitions in Melanesia's small island developing cities***

**Primary Researcher:** Prof Brendan Gleeson

**Additional Researchers:** Mr Alexei Trundle (Research Student) & Prof Lesley Head (co-supervisor)

**Name of Participant:** _____

1. I consent to participate in this project, the details of which have been explained to me, and I have been provided with a written plain language statement to keep.
2. I understand that the purpose of this research is to investigate how informal social structures, resources and non-institutional networks are contributing to, and being engaged by, efforts to build climate resilience in my city.
3. I understand that my participation in this project is for research purposes only.
4. I acknowledge that the possible effects of participating in this research project have been explained to my satisfaction.
5. In this project I will be required to participate in a semi-structured interview relating to resources, initiatives and networks that contribute to the climate resilience of my household.
6. I understand that my interviews will be audio-taped.
7. I understand that my participation is voluntary and that I am free to withdraw from this project anytime without explanation or prejudice and to withdraw any unprocessed data that I have provided.
8. I understand that the data from this research will be stored at the University of Melbourne and will be destroyed after 5 years.
9. I have been informed that the confidentiality of the information I provide will be safeguarded subject to any legal requirements; my data will be password protected and accessible only by the named researchers.
10. I understand that given the small number of participants involved in the study, it may not be possible to guarantee my anonymity.
11. I understand that after I sign and return this consent form, it will be retained by the researcher.

**Participant Signature:** _____ **Date:** _____

HREC Number: 1748717.1 Project Start Date: 1/4/2017 Version 1 (2/2/2017)

# APPENDIX C INSTITUTIONAL REPRESENTATIVE PLS & CONSENT FORM

## Plain Language Statement

Melbourne School of Design

Faculty of Architecture, Building and Planning

THE UNIVERSITY OF MELBOURNE

***Project:* Informal climate resilience: urban transitions in Melanesia's small island developing cities**

Professor Brendan Gleeson (Responsible Researcher)
Tel: Email:
Mr Alexei Trundle (PhD student) Email:

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### Introduction

Thank you for your interest in participating in this research project. The following few pages will provide you with further information about the project, so that you can decide if you would like to take part in this research.

Please take the time to read this information carefully. You may ask questions about anything you don't understand or want to know more about.

Your participation is voluntary. If you don't wish to take part, you don't have to. If you begin participating, you can also stop at any time.

### What is this research about?

This PhD research project is trying to find out how informal settlements, inhabitants and spaces in Honiara and Port Vila are interacting with government, civil society, and donor initiatives to build climate resilience in each city. This includes both experiences of current day extreme weather events, as well as observed and projected climate change. It is engaging with both institutional stakeholders (such as yourself) and households that live in informal areas to explore this interaction.

### What will I be asked to do?

Should you agree to participate you will be asked to take part in a semi-structured interview, which will be audio-recorded and take roughly 30 minutes. You will be asked about your understanding of what climate resilience is, and any projects where it has been applied in your city. Spatial information (such as key resource areas, or resilience-building projects) may be asked to be annotated on a map or depicted visually.

### What are the possible benefits?

It is intended that this research will find ways for climate resilient development programs and initiatives to engage with the informal, non-government systems in each city. This should be of direct benefit to the communities involved, and improve the

effectiveness of development programs led by government and other organisations. More broadly, these findings should improve understandings of how to apply climate resilient development assistance across cities, and build awareness of climate change in informal communities in Honiara and Port Vila.

### What are the possible risks?

It is recognised that both Tropical Cyclone Pam and Honiara's April 2014 floods led to significant trauma and will still be affecting many community members.

If you are not comfortable discussing these events or experienced major trauma or hardship (such as the loss of a family member or significant property damage) it is recommended that you do not participate in this project. If you wish to pause or stop the interview at any stage you are also welcome to do so. The interviewer can provide you with the contact details of local support networks if desired.

### Do I have to take part?

No. Participation is completely voluntary. You can withdraw (quit) at any time, or withdraw any unprocessed interview data that you provided (unanalysed recordings, illustrations and transcripts would also be destroyed).

### Will I hear about the results of this project?

Yes. A presentation of the projects findings will be scheduled with each informal community, and a group briefing will be provided for all government stakeholders. The results will also be summarised in writing, and a hard copy of the full PhD Thesis (the final report on the project) supplied for public access, to be located in the National Archive. Electronic copies of findings will also be made available to you, the local city government, national government departments, and be provided freely online.

### What will happen to information about me?

Personal information will be separated once your interview process is complete and will not be disclosed in any project publications or presentations. It is noted that given the limited number of expert stakeholders and organisational affiliations it may not be possible to guarantee anonymity for non-household participants.

Your information will be treated confidentially and safeguarded subject to any legal requirements, and kept securely at the university (accessible by the research team only). It will be kept for 5 years following completion of the project, after which the data will be destroyed.

### Where can I get further information?

If you would like more information about the project, please contact the researchers; Prof Brendan Gleeson ( ) or Mr Alexei Trundle ( ).

### Who can I contact if I have any concerns about the project?

This research project has been approved by the Human Research Ethics Committee of The University of Melbourne. If you have any concerns or complaints about the conduct of this research project, which you do not wish to discuss with the research team, you should contact the Manager, Human Research Ethics, Office for Research Ethics and Integrity, University of Melbourne, VIC 3010. Tel: or Email: . All complaints will be treated confidentially. In any correspondence please provide the name of the research team or the name or ethics ID number of the research project.

## Consent Form

Melbourne School of Design

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THE UNIVERSITY OF MELBOURNE

***Project:* *Informal climate resilience: urban transitions in Melanesia's small island developing cities***

**Primary Researcher:** Prof Brendan Gleeson

**Additional Researchers:** Mr Alexei Trundle (Research Student) & Prof Lesley Head (co-supervisor)

**Name of Participant:** _____

1. I consent to participate in this project, the details of which have been explained to me, and I have been provided with a written plain language statement to keep.
2. I understand that the purpose of this research is to investigate how informal social structures, resources and non-institutional networks are contributing to, and being engaged by, efforts to build climate resilience in my city.
3. I understand that my participation in this project is for research purposes only.
4. I acknowledge that the possible effects of participating in this research project have been explained to my satisfaction.
5. In this project I will be required to participate in a semi-structured interview relating to resources, initiatives and networks that contribute to the climate resilience the city in my capacity as a representative of a key institution, expert stakeholder or government agency.
6. I understand that my interviews will be audio-taped.
7. I understand that my participation is voluntary and that I am free to withdraw from this project anytime without explanation or prejudice and to withdraw any unprocessed data that I have provided.
8. I understand that the data from this research will be stored at the University of Melbourne and will be destroyed after 5 years.
9. I have been informed that the confidentiality of the information I provide will be safeguarded subject to any legal requirements; my data will be password protected and accessible only by the named researchers.
10. I understand that given the small number of participants involved in the study, it may not be possible to guarantee my anonymity.
11. I understand that after I sign and return this consent form, it will be retained by the researcher.

**Participant Signature:** _____ **Date:** _____

HREC Number: 1748717.1 Project Start Date: 1/4/2017 Version 1 (2/2/2017)

# APPENDIX D: SAMPLE INVITATION EMAIL (INSTITUTIONAL ONLY)

## Sample Email

Dear XXXX,

I am a researcher from the University of Melbourne and am interested in interviewing you regarding your organisation's involvement in climate resilient development initiatives in [Port Vila/Honiara].

My project aims to find out how informal settlements, inhabitants and spaces in Honiara and Port Vila are interacting with government, civil society, and donor initiatives that aim to build climate resilience. I have attached further information about the project to this email for your information.

I was hoping to interview you about both your own understanding of how climate resilience applies to [Port Vila/Honiara], and also more specifically about any climate resilience related project or policies that your organisations is or was previously engaged in.

I will be in [Port Vila/Honiara] for [dates] and would very much appreciate half an hour of your time. Your responses will be kept anonymous and compile as part of an inventory of climate resilient development initiatives across the city.

If there is someone in your organisation more suited to discussing the above topic, it would be greatly appreciated if you could please pass on their contact details.

I look forward to your response.

Kind Regards,
Alexei Trundle

# APPENDIX E: RESEARCH PERMITS

**THE RESEARCH ACT 1982**
**(No. 9 of 1982)**

**RESEARCH PERMIT**

Permission is hereby given to:

1. Name (s): Alexei Trundle
2. Country: Australia
3. Research subject areas: This research project aims to understand how informal social structures, resources and non-institutional networks are contributing to and being engaged by efforts to build climate vulnerable, developing small Island cities.
4. Ward (s): Honiara and Lord Howe Settlement, Panatina Peri-Urban & Kola-ridge
5. Province: Guadalcanal
6. Conditions:
   a. To undertake research only in subject areas specified in 3 above.
   b. To undertake research only in the ward (s) and Province (s) specified in 4 and 5 above.
   c. To observe with respect at all times local customs and the way of life of people in the area in which the research is carried out.
   d. Not to take part at any time in any political or missionary activities or local disputes.
   e. To leave four (4) copies of your final research report in English with the Solomon islands Government Ministry responsible for research at your own expense.
   f. A research fee of SBD500.00 and deposit sum of SBD200.00 must be paid in full or the Research Permit will be cancelled. (See sec. 3 subject 7 of the Research Act).
   g. This permit is valid until **August 2019** provided all conditions are adhered to.
   h. No live species of plants and animals to be taken out of the country without approval from relevant authorities.
   i. A failure to observe the above conditions will result in automatic cancellation of this permit and the forfeit of your deposit.

Signed: .....
Minister of Education and Human Resources Development

Date: 25/05/17

**MINISTRY OF LANDS HOUSING & SURVEY**
**P O BOX G38**
**HONIARA**
**SOLOMON ISLANDS**

**Re: Letter of Support – Mr Alexei Trundle's PhD Research Project**

**16th May 2017**

To Whom It May Concern,

This letter is to confirm the support of the Ministry of Lands, Housing & Survey (MLHS) for Mr Alexei Trundle's PhD Research Project titled: **'Informal Climate Resilience: Urban Transitions in Melanesia's Small Island Developing Cities'.**

Alexei has previously worked in partnership with the Ministry in his capacity as a scientific advisor to the United Nations Human Settlements Programme (UN-Habitat) Cities and Climate Change Initiative's *Planning for Climate Change* project, and is well known to MLHS staff.

He is familiar with community engagement in Honiara's Informal Settlements Zones, and is being guided in his research in these communities by Mr Steve Likaveke, who has worked in these areas for over 3 decades in capacities with MLHS, UN-Habitat and other international organisations.

I wish to affirm our Ministry's support for the project and the student researcher Mr Alexei Trundle. If you have any further queries about his project, please contact either my Ministry or Mr Steve Likaveke directly (whose details have been provided in the enclosed application).

Kindest Regards,

Mr Stanley Waleanisia

Permanent Secretary
Ministry of Land, Housing & Survey

Ministry of Land, Housing & Survey
Hibiscus Avenue |P. O. Box G38 | Honiara | Solomon Islands
T: (677) 22750 | F: (677) 21514 | E: SWaleanisia@mlhs.gov.sb

VANUATU NASONAL KALJORAL KAONSEL
Vanuatu National Cultural Council
Conseil National Culturel du Vanuatu

VANUATU KALJORAL SENTA
Vanuatu Cultural Centre
Centre Culturel du Vanuatu

P.O. Box 184, Port Vila, Vanuatu, South Pacific Phone / Fax: (678) 26590 Email: vks@vanuatu.com.vu

# RESEARCH AGREEMENT

AN AGREEMENT made the day of, 25th April 2017

BETEWEEN: THE CULTURAL COUNCIL, representing the Government of the Republic of Vanuatu and the local community, (hereinafter called "the Council") of the one part.

AND: Alexi Trundle

of (institution) University of Melbourne

(hereinafter called "the Researcher") of the other part.

WHEREAS:

(1) The researcher has applied to the Council to do research work in the Republic of Vanuatu, and agrees to the conditions placed upon her/him in this document and to compliance with the intent of the ethics described in the Vanuatu Cultural Research Policy.

(2) The Council has agreed to allow the Researcher to do such research, and has agreed to the obligations placed upon it by this document and by the Vanuatu Cultural Research Policy.

AND THEREFORE THE PARTIES AGREED AS FOLLOWS:

(1) The Council hereby authorises the Researcher to undertake research work in Vanuatu on the subject of

with the communit(y/ies) of Blacksands, Etas & Seaside Paama

on the island/s of Efate, Port Vila Town

on the island/s of

in the capacity of (if more than one research is involved) One

for the period up until (Specify if research will involve more than one visit) April 2017 to August 2019

(2) The Research has paid an authorisation fee of **45,000 vatu to cover all administrative costs** incurred in the setting up and implementation of the research venture, or this fee has been waived by the Council.

(3) The right to the products of research shall belong to the Researcher shall be entitled to reproduce them for educational, academic or scientific purposes, provided that traditional copyrights are not compromised and the permission to use material has been obtained, through the Traditional Copyright Agreement, from copyright holders. The products of research shall not be reproduced or offered for sale or otherwise used for commercial purposes, unless specified under section 12 of this agreement.

(4) Copies of all non-artefact products of research are to be deposited without charge with the Cultural Centre and, where feasible, with the local community. Two copies of films and videos are to be provided, one for public screening and the other for deposit in the archives. In the case of films, a copy on video is also required. Any artefacts collected become the property of the Cultural Centre unless traditional ownership has been established in the Traditional Copyright Agreement. The carrying of any artefacts or speciments outside the country is prohibited as stipulated under cap.39 of the Laws of Vanuatu. Artefacts and specimens may be taken out of the Country for overseas study and analysis under cap.39(7). The conditions for the return of the following materials are:

*(Specify artefacts/specimens/other materials and conditions for return)*

The Researcher has either

(a) provided a letter from the institution to which they are affiliated guaranteeing the researcher's compliance with the above conditions, or
(b) provided a retrievable deposit of 40,000 vatu to ensure their compliance with these conditions.

(5) The Researcher will be responsible for the translation of a publication in a language other than a vernacular language or one of the three national languages of Vanuatu into a vernacular or one of the national languages, preferably the one used in education in the local community. They will also make the information in all products of research, subject to copyright restrictions, accessible to the local community through such means as audio cassettes or copies of recorded information, preferably in the vernacular. The Researcher will also submit an interim report of not less than 2000 words no later than 6 months after the research languages and in "layman's terms" so as to be of general use to all citizens.

(6) There will be maximum involvement of indigenous scholars, students and members of the community in research, full recognition of their collaboration, and training to enable their further contribution to country and community. The Council nominates the following individuals to be involved in research and/or trained, in the following capacities:

(7) A product of immediate benefit and use to the local community will be provided by the Researcher no later than 6 months after termination of the research period. This product is:

(8) In addition to their research work, the Researcher will, as a service to the nation of Vanuatu, undertake to: (section 3 (viii) of the Cultural Research Policy suggests possible services of benefit to the nation)

(9) In undertaking research the Researcher will:

a) recognise the rights of people being studied, including the right not to be studied, to privacy, to anonymity, and to confidentiality;

b) recognise the primary right of informants and suppliers of data and materials to the knowledge and use of that information and material, and respect traditional copyrights, which always remain with the local community;

c) assume a responsibility to make the subjects in research fully aware of their rights and the nature of the research and their involvement in it;

d) respect local customs and values and carry out research in a manner consistent with these;

e) contribute to the interests of the local community in whatever ways possible so as to maximise the return to the community for their cooperation in ther research work;

f) recognise their continuing obligations to the local community after the completion of field work, including returning materials as desired and providing support and continuing concern.

10) In all cases where information or material data is obtained by the Researcher, a Traditional Copyright Agreement will be completed by the Researcher and the supplier of data regarding this material. The Researcher has a responsibility to make such informants fully aware of their rights and obligations, and those of the Researcher, in the signing of the Traditional Copyright Agreement.

11) A breach of any part of this agreement by the Researcher or a decision by the local community that it no longer wishes to be involved in the researcher venture will result in the termination of the reseach project.

12)(Addition clauses/conditions) (This section will detail commercial ventures, extra costs incurred by the Vanuatu Cultural Centre, etc).

Signed:

(Alexei Trundle)

.....

**The Researcher**

.....

**On behalf of the National Cultural Council**

CULTURAL CENTRE CULTUREL
MUSEE MUSEUM
PORT-VILA-VANUATU

# APPENDIX F: RESEARCH INTERVIEW CODEBOOKS

## Household Interviews

| Group | Name | Files | References |
|---|---|---|---|
| Actors and Structures | General Reference / Evidence | | |
| | Civil Society Actors and Structures | 31 | 75 |
| | Community Actors and Structures | 47 | 512 |
| | State Actors and Structures | 42 | 269 |
| Informality | General Reference / Evidence | 2 | 2 |
| | Informal economy | 27 | 62 |
| | Ethnic Tension | 1 | 1 |
| | Tenure | 1 | 5 |
| | Custom | 1 | 4 |
| | Wantok / Extended Family Obligations | 1 | 1 |
| Migrant Dialectic | General Reference / Evidence | | |
| | Circular or Permanent | 1 | 1 |
| | Employment | 2 | 7 |
| | Household Size | 2 | 2 |
| | Household Structure | 2 | 2 |
| | Island Origin | 2 | 6 |
| | ISZ Selection Driver | 1 | 2 |
| | Length of Time in Community | 1 | 1 |
| | Urban Migration Rationale | 3 | 5 |
| | Urban-Rural Difference | 4 | 6 |
| Resilience | General Reference / Evidence | | |
| | Characteristics | 0 | 0 |
| | Community Vulnerabilities | 1 | 1 |
| Endogenous Resilience | General Reference / Evidence | | |
| | General Reference / Evidence | 21 | 36 |
| | Church | 1 | 1 |
| | Community Cohesion | 1 | 1 |
| | Community Resources | 1 | 1 |
| | Ecosystem Services | 2 | 2 |
| | Improvisation | 1 | 1 |
| | Island Custom Persistence | 1 | 2 |
| Exogenous Resilience | General Reference / Evidence | 32 | 69 |
| | Colonialism | 0 | 0 |
| | Development | 1 | 1 |
| | Urban transformation | 1 | 1 |
| | Engaging Resilience | 1 | 1 |
| Shocks and Stressors | General Reference / Evidence | 2 | 3 |
| | Climate Shock Stress | 46 | 336 |
| | Other Natural Disaster Shock Stress | 19 | 32 |
| | Urban Shock Stress | 39 | 176 |
| | Rural shock stress | 15 | 26 |
| Other Themes | General Reference / Evidence | | |
| | Gender | 9 | 12 |
| | Hybrid Traditions | 5 | 9 |
| Key Quotes | All References | 29 | 86 |

## Institutional Representative Interviews

| Group | Name | Files | References |
|---|---|---|---|
| Comparative - National/City Scale | General Reference | 0 | 0 |
| | Resilience Use Triggered by Recent Shock Stress | 2 | 2 |
| | Tourism v Tensions | 2 | 4 |
| | Explicit Cross Case Study Reference | 4 | 8 |
| Informality | General Reference | 2 | 2 |
| | Building Materials and Infrastructure | 4 | 12 |
| | Gardens and Ecosystems | 7 | 26 |
| | Hybrid Technology | 3 | 4 |
| | Informal governance | 9 | 32 |
| | Land Owners | 3 | 9 |
| | Mixed Origin Communities | 5 | 7 |
| | Tenure and Land Rights | 8 | 34 |
| | Traditional Knowledge | 8 | 18 |
| Pacific Urbanism | General Reference | 0 | 0 |
| | Capital v Subsistence | 7 | 31 |
| | Church and Religion | 3 | 3 |
| | Gender | 4 | 16 |
| | Island Links & Origins | 7 | 20 |
| | Maintaining Culture & Custom | 8 | 45 |
| | Peri-Urban Governance | 9 | 57 |
| | Political Manipulation | 2 | 5 |
| | Rural-to-Urban Transition | 9 | 39 |
| | WASH | 7 | 17 |
| | Waste | 4 | 5 |
| Resilience - Characteristics | General Reference | 1 | 1 |
| | Adaptive Capacity | 5 | 13 |
| | Decentralisation | 7 | 9 |
| | Diversity | 1 | 2 |
| | Environmental Sensitivity | 5 | 6 |
| | Equity | 5 | 14 |
| | Feedback | 5 | 6 |
| | Flexibility | 7 | 10 |
| | Forward-thinking | 2 | 4 |
| | Inclusivity | 5 | 7 |
| | Integration | 4 | 10 |
| | Iterative Process | 9 | 9 |
| | Predictability | 5 | 6 |
| | Redundancy | 4 | 5 |
| | Robustness | 5 | 9 |
| | Resilience\Characteristics\Transparency | 4 | 4 |
| Resilience - Nested Scales | General Reference | 8 | 24 |
| | City-Scale | 10 | 41 |
| | Community-Scale | 10 | 37 |
| | Household-Scale | 4 | 10 |
| | Individual Scale | 3 | 5 |
| | National Scale | 9 | 21 |
| | Regional Scale | 2 | 2 |
| | Rural Systems | 9 | 23 |
| | Shock Stress Interplay | 1 | 1 |
| Resilience - Definitions | General Reference | 8 | 18 |
| | Bounce-Back | 9 | 14 |
| | Climate Specific | 10 | 32 |
| | Contextual | 7 | 15 |
| | Cyclical | 2 | 2 |

| Group | Name | Files | References |
|---|---|---|---|
| | Disaster Specific | 8 | 18 |
| | Fluid | 5 | 7 |
| | From Academia and Int Policy | 2 | 2 |
| | Other Shocks Stresses | 4 | 8 |
| | Personal | 6 | 11 |
| | Risk | 3 | 3 |
| | Structural | 3 | 8 |
| | Sustainable Development Specific | 9 | 11 |
| | Transformative (Bounce-Forward) | 9 | 13 |
| | Used without Meaning | 7 | 10 |
| | Urban Resilience | 3 | 5 |
| Resilience Practice - Agency | General Reference | 3 | 4 |
| | Aiming to Practice Resilience | 4 | 5 |
| | Enabling Action | 3 | 4 |
| | Receipt of Funding | 10 | 31 |
| | Resilience in Policy | 6 | 22 |
| | Rights | 1 | 1 |
| RP - Bridging & Mainstreaming | General Reference | 2 | 2 |
| | Cross-Governmental | 5 | 12 |
| | Cross-Sectoral | 7 | 15 |
| | Linking to Mitigation | 1 | 1 |
| | Linking to Natural Disaster Management | 8 | 27 |
| | Linking to Risk | 5 | 14 |
| | Linking to Vulnerability | 1 | 4 |
| Attitude Towards Term Uptake | General Reference | 0 | 0 |
| | Negative Change to Practice | 3 | 4 |
| | No Change to Practice | 3 | 4 |
| | Positive Change to Practice | 4 | 5 |
| Informal / Formal Interactions | General Reference | 6 | 28 |
| | Accommodating | 2 | 4 |
| | Competing | 5 | 9 |
| | Complementary | 1 | 2 |
| | Substitutive | 3 | 3 |
| | Dysfunctional Institutions | 10 | 35 |
| | Functional Institutions | 2 | 3 |
| Observed or Intervened | General Reference | 0 | 0 |
| | Endogenous Cases | 6 | 16 |
| | Exogenous Cases | 7 | 13 |
| Panarchy Heuristic Attributes | General Reference | 0 | 0 |
| | Remember | 3 | 5 |
| | Reorganisation | 3 | 3 |
| | Revolt | 2 | 2 |
| | Shock or Stress Event | 9 | 77 |
| | Transformation | 4 | 4 |
| Key Quotes | All References | 11 | 118 |
| Urban Resilience Actors & Projects | All References | 11 | 209 |

# APPENDIX G: FIELDWORK REPORT EXTRACT: COMMUNITY PROFILES

Wind Valley, Honiara

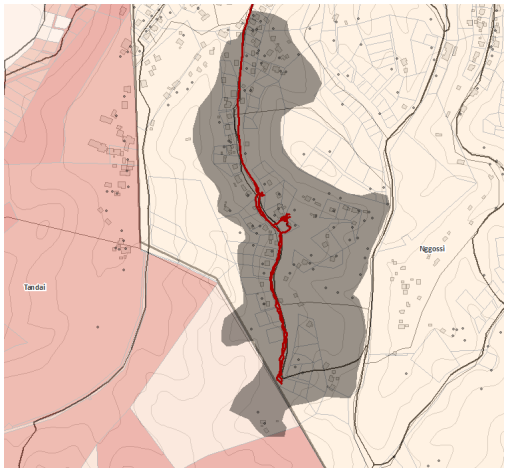
| **Wind Valley Community, Honiara** | |
|---|---|
| Satellite Image, Household Locations & Features | Cadastral Map, Walking Route & Community Boundary |
|  |  |

Figure 7 – Wind Valley Boundaries, Satellite Imagery, and Cadastral Information (Basemaps sourced from MLHS & Google Earth)

Wind Valley Community is a predominantly Malaitan community located on the western boundary of Honiara, as shown in Figure 7. The community is considered to reside wholly within the town boundary, however upon comparison of the community indicated boundary and government data it is evident that some of the households have now spread across the community and technically reside within Guadalcanal Province (see Figure 7). Interviewees could recall the first 5-6 households moving into the valley around 1990, settling initially without title on 'spare land' (i.e. as unauthorised occupants of government-owned land within the town boundary). The community has a strong and well-established community structure, with earlier migrants recalling two consecutive chairmen in the area from the pre-Tensions period of settlement (1997-2000). The community elects a new committee every 4 years and has a community constitution that is registered under the Charitable Trusts Act.

Despite being located within the city boundary, in 2000 most of the settlement's inhabitants left the area because of the Ethnic Tensions, predominantly returning to Malaita. Most of these earlier inhabitants were noted to have moved back and 'reclaimed' their land following the Tensions being resolved through the RAMSI peacekeeping intervention. Based on 2009 census numbers around 420 inhabit Wind Valley, however subsequent growth has been substantial with a community count identifying 151 households within the boundary by name, and the 10 interviewees having an average of 7.6 occupants in their households. The majority of households reside on defined allotments; however, many contain multiple houses as part of extended family arrangements (as discussed further in Section 4).

The community runs along a north-south valley, covering an area of approximately 171,000m$^2$. A creek running through the centre of the valley provides both a source of washing/bathing, as well as flood risk. The initial drinking water source for the community, at its southern-most extent, is no longer considered safe due to upstream development, however two community water tanks have recently been installed through a joint Australian Aid / World Vision WASH project. Bathing facilities for the community are communal (as shown in the left image in Figure 7), in the form of diverted wells adjacent to the creek. Community programs also exist to collect rubbish along the river area and the road, while the Ministry of Infrastructure and Development, supported by the Honiara City Council, recently provided material and technical support to a project of riverbank reinforcement and roadworks (with the community contributing labour). It was noted by a number of participants that the role of their local elected representatives was critical in this regard, with Nggossi Ward being represented by the city's Mayor, with the National Parliamentary Representative (West Honiara) providing funding through the West Honiara Constituency Office in early 2017.

Ontong Java Settlement, Honiara

| **Ontong Java Settlement, Honiara** | |
|---|---|
| Satellite Image, Household Locations & Features | Cadastral Map, Walking Route & Community Boundary |
|  |  |

Figure 8 – Ontong Java Settlement Boundaries, Satellite Imagery, and Cadastral Information (Basemaps sourced from MLHS and Google)

Ontong Java Settlement was one of the first non-customary communities to be established in the Honiara area following the development and subsequent dissolution of the United States Armed Forces base at Point Cruz during World War II. Initial migrants from Ontong Java Atoll arrived during the 1950s, and were men seeking employment and trading fish, providing labour and food for the newly established capital. It has subsequently grown to house over 550 permanent residents (2009 National Census data), as well as act as both a temporary base for Ontong Javanese visiting the capital, and a community focal point for the wider Ontong Javanese diaspora residing elsewhere in Honiara.

Permanent inhabitants reside in the area through a community lease, run by the settlement's trustees. These roles are inscribed in a community constitution, which is registered under the Charitable Trust Act. The constitution provides for a settlement-wide board, with representatives elected through a 4-year election cycle. The Settlement also has established sub-committees for disaster management, youth, women, church, People and Culture (traditional/*kastom* activities), and sport. A customary chief also sits in parallel to the board. Households are almost exclusively comprised of Ontong Javanese, with the one Malaitan taking part in the interview process married to a man from Ontong Java.

Households in the settlement are large, with an average of 15 residing in a single building based on the interviews, reflecting relatively high level of density in the settlement (31,556 persons per km2) and community observations that the area is 'full'. Additional issues relate to coastal and riverine hazard exposure (resulting in localised flooding, erosion and septic and material pollution from upstream), as well a lack of basic infrastructure and services (particularly sanitation and bathing facilities). Extreme heat issues were also noted with a lack of airflow in the community, building density and a lack of green space resulting in community members sleeping on the waterfront.

As shown in Figure 8 a local Ontong Javanese businessperson has recently developed a seawall along the coastal waterfront, with support of the city council, most community members and the customary owners (who claim rights to areas below the high-water mark within the city boundary). Community members interviewed were largely supportive of the initiative, which is primary designed as a logging export facility. Additional reinforcement of the riverbank upstream (including infill of the neighbouring floodplain, works to expand the main cross-town bridge, and a private development) were observed during site visits to be eroding the foundations of houses along the western riverside of the settlement, while the open drain was observed to contain raw effluent and heavy pollution that spread across the settlement during flood events, presenting a major health risk.

Jabros Community, Honiara

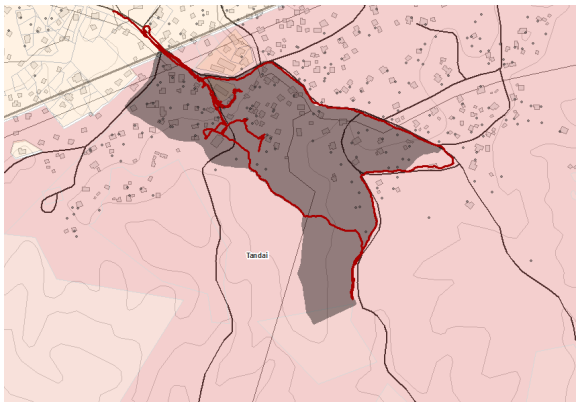
| Jabros Community, Honiara | |
|---|---|
| Satellite Image, Household Locations & Features | Cadastral Map, Walking Route & Boundary |
|  |  |

Figure 9 – Jabros Community Boundaries, Satellite Imagery, and Cadastral Information (Basemaps sourced from MLHS and Google)

Jabros Community was settled as early as the 1980s, however was effectively dissolved during the Ethnic Tensions due to its location being across the Honiara town boundary in Guadalcanal province on customary land (see Figure 9). Following the Tensions the community has regrown, with the 2009 Census showing 577 people residing within the community identified boundary. The area covers approximately 114,000m$^2$, and is adjacent to the southern boundary of Panatina Ward (the eastern-most in Honiara).

This area was established as a settlement through *chupu*, a customary land occupation rights process conducted by the forebears of the current inhabitants. This was explained by elders in the community to consist of a large custom feast (consisting of pigs, beetlenut, and food goods), which was provided to the inhabitants of Barana Village, located on Mount Austin (to the south-west of the community). *Chupu* continues to be maintained by the community through provision of pigs and crops at special events such as weddings and funerals. It was noted that there was some dispute over ownership of the land itself, which is leasehold but does not align with the community boundaries (which were delineated through the initial custom agreement and are based on natural/geographic features).

Community members are almost all from Malaita, but are from different villages and areas, using *kwarai* (the most common Malaitan language) to communicate. As noted by JBHH1, *"every kid is kwarai now, but when we go back home then the language start to change again"*. It was estimated by the community leader that the community has around 50-60 households at present, however the community does not have a structured committee or a formalised representation/election process. Instead, the community is structured around the local Pastor and community elders (some of whom remained during the tensions, gaining additional community status).

Key community issues related to water and garden access, with a lack of paved roads and footpaths limiting access during rain events. Drought, heat and seasonal changes were also observed as impacting subsistence gardens relied upon by the community. This dependency on ecosystem services – and juncture with formal urban service provision – was particularly evident in relation to the two standpipes that the community relied upon for drinking, washing and bathing water. These were a product of Solomon Water 'burying' and piping the creek that the community had previously relied upon to supply the city; initially the water was supplied for free as compensation, however the community is now required to pay and the utility is unwilling to install additional capacity without clear tenure arrangements. Additional community infrastructure included a community hall and a toilet/shower block that had been fundraised and constructed by community members independently of government. Private water tanks were observed to have been given to households that voted for the local elected representative but were only evident on a small number of houses near the town boundary.

Blacksands, Port Vila

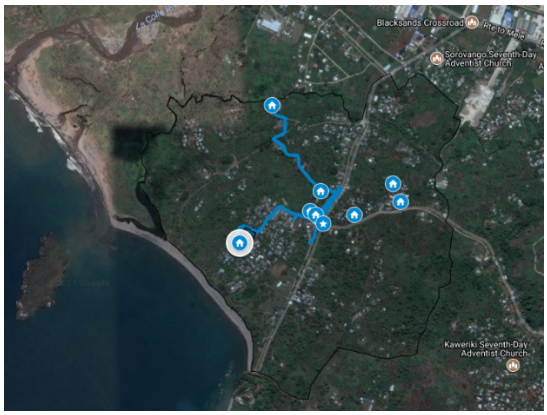
| **Blacksands Community, Port Vila** | |
|---|---|
| Satellite Image, Household Locations & Features | Cadastral Map, Walking Route & Community Boundary |
|  |  |

Figure 10 – Blacksands Community Boundaries, Satellite Imagery, and Cadastral Information (Basemaps sourced from MLHS and Google)

Blacksands was established in the 1960s and is one of Port Vila's largest and oldest informal settlement areas, covering 931,000m$^2$ and containing approximately 2569 inhabitants in 2009 (VNSO 2012). Located outside of the town boundary in Shefa Province, the area is classified as customary land of the Ifira community. Ifira manages the land through the Ifira Land Trust, who have negotiated a range of different lease conditions (both formal and informal) with residents and community sub-groups, a number of which sub-lease their areas to short-term and seasonal migrants. The largest share of the area's inhabitants are Tannese, however Blacksands is considered a mixed community with households from all of the provinces across Vanuatu. Reflecting this, social structures are varied. For example, one area (highlighted in the centre-left of Figure 10) containing a number of families in higher density arrangements (all of whom originated from the same part of Tanna), while other interviewees resided in single household allotments.

The Area Secretary for the Tanvasoko Area Council (which consists almost entirely of the Blacksands settlement) acts as the community leader outside of the customary system, providing the focal point for the provincial government. In parallel to the Area Secretary is a local council of chiefs, consisting of representatives from different sub-communities and island groups, who in turn appoint a paramount chief for the area.

Blacksands is bounded on its northern and north-western boundaries by the Tagabe River, with much of the land area being low-lying floodplains and coastal systems. As such the community faces an array of climate hazards, including riverine flooding, storm surges, coastal erosion, saline ingress and drought (with a number of interspersed *sup sup* gardens co-located with housing). The area was heavily damaged during Tropical Cyclone Pam, with most of the buildings destroyed due to extreme wind speeds. Relatedly, some respondents were providing custom payments for their land (such as food products and labour), but were being refused requests to formalise their payments through a state- and cash-based lease arrangement. It was believed by these participants that this refusal was due to their reduced rights if the land were to be more fully developed or on-sold to private interests, however it also limited their access to utilities and prevented them from building more permanent building structures.

Access to facilities and services similarly varied, particularly water (with some communities having formal connections to the national water utility, UNELCO, but others dependant on wells), and sanitation (with a variety of sealed, compositing and pit toilets existing across the community). The river was generally a common source for washing clothes and food items, however pollution was noted as causing health issues (particularly for children, who continued to swim in the river). Coastal communities also used the ocean for washing and conducted fishing, while a majority of the interviewees had family *Bush Gardens* elsewhere in the foothills north of Port Vila.

Seaside Paama & Futuna, Port Vila

| Seaside Paama/Futuna Communities Port Vila | |
|---|---|
| Satellite Image, Household Locations & Features | Cadastral Map, Walking Route & Community Boundary |
|  |  |

Figure 11 – Seaside Community Boundaries, Satellite Imagery, and Cadastral Information (Basemaps sourced from MLHS and Google)

Seaside consists of two blocks of inner-city communally leased land, located to the south of the Vila Central Hospital. These blocks are divided into three areas named after the home islands of the original leaseholders: Futuna, Paama and Tongoa (the Tongoa community was not engaged in this research). Despite similar initial lease arrangements when they were established in the early 1970s, the social structures of each community have subsequently diverged. Seaside Futuna continues to provide a cultural focal point for the Futunese across the city, hosting festivals, funerals and weddings for the island-based diaspora. Seaside Paama, however, has become a mix of 'rent-houses' (which are leased out by one of the original Paamese families), wantok households, and the descendants of the original leaseholders.

The two areas are both densely inhabited with single storey housing, having a combined density of 26,008 persons per square kilometre, and a joint population of 645 in 2009 (VNSO 2012). All households in Futuna were noted by community leaders as being occupied exclusively by Futunese, while the interview participants from Seaside Paama were from Paama (7), Tongoa (2), Ambrym (2), and Malo (1).

Community structures were similarity divergent: conflicting accounts were provided by interviewees relating to the leadership structure within Seaside Paama, with contention as to the effectiveness of the designated chief and a lack of community structures other than those based around external church groups. Seaside Futuna however had a structure electoral system, with four zones, from which a rotating chairperson was elected every four years, as well as sub-committees for sanitation, church and women.

Both areas were severely damaged during Tropical Cyclone Pam, with most houses being constructed with corrugated iron sheeting over wooden frames and little formal design input. Water was provided through standpipes that were shared between 3-5 households, while a single toilet and shower block provided sanitation for each community. A church and a communal space were maintained within the Seaside Futuna area, while much of the Seaside Paama community facilities (including cooking areas, the toilet/shower block, recycling collection and rubbish disposal) were located within the adjacent public park. Recent upgrades to sanitation facilities had been provided by the Asian Development Bank, while Australian Aid had provided many of the communities' standpipes, however it was noted that during the recovery from Tropical Cyclone Pam minimal government or NGO help was received in either area. Beyond emergency food supplies received through the Red Cross and the NDMO the communities ran fundraising drives to build back their houses, with contributions also coming through church groups. Additional climate hazards identified by interviewees related to extreme heat disrupting sleep in the community, and heat, drought and storm/cyclone damage to bush gardens in the city's peri-urban surrounds.

Etas Community, Port Vila

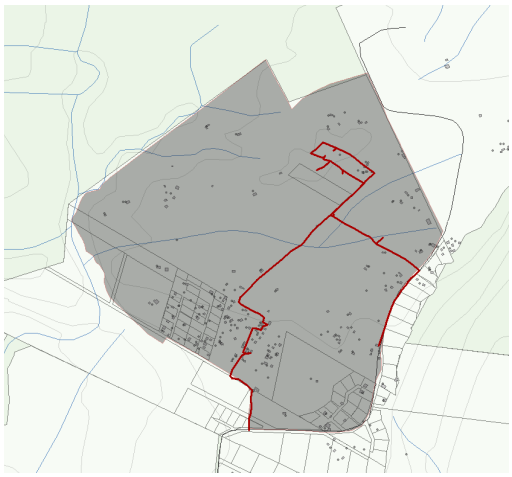
| **Etas Community, Port Vila** | |
|---|---|
| Satellite Image, Household Locations & Features | Cadastral Map, Walking Route & Community Boundary |
|  |  |

Figure 12 – Etas Community Boundaries, Satellite Imagery, and Cadastral Information (Basemaps sourced from MLHS and Google Earth)

Etas is one of Port Vila's newest and fastest growing informal settlements, being located at the periphery of the Greater Port Vila area along the Bouffa Landfill access road. The area is owned by the Bouffa Land Trust, which represents the customary landowners from Erakor Village (located to the south-east of Port Vila). A number of community members arrived in the area in the late 1990s, through agreement with the customary owners in Erakor Village. An additional 10 households were given leases to land on the settlement's southern boundary in 2007, as part of a deal to relocated an informal settlement in Nambatri (in the South Ward of Port Vila). As shown in Figure 12, subsequent settlement has been more haphazard, with growth occurring through a mixture of Land Trust allocations and disputed agreements of settlement in return for electoral votes.

The settlement covers an area of approximately 975,000m$^2$, and in 2009 had a population of 736, however this number is likely to have increased substantially. Interview participants were from a mix of island origins: Tanna (1); Pentecost (3); Malekula (2); Banks (2); Efate (1); Ambae (1); Erromango (1); Paama (1); and Makira (1). Despite being 'mixed', the community is well-structured, being organised into 16 distinct zones, with a community committee and parallel chiefly body (including a paramount chief for the area).

Key issues identified by the community members interviewed related to water access, with less than half of the community zones having a water tank and others needing to walk a considerable to reach the nearest major water source (in the bottom right of the satellite image in Figure 12). Bush gardens were also identified as being under pressure due to limited space, and the expansion of the landfill onto informal gardens.

Additional climate hazards included Tropical Cyclones, drought and seasonal changes affecting bush gardens, as well as localised issues relating to flooding in some parts of the community. Heat issues were also identified following Tropical Cyclone Pam, due to foliage being stripped from vegetation, removing natural shade from the area.

It was noted by a number of participants that the community had had almost no engagement with formal institutions other than assistance from the NDMO and Oxfam following Cyclone Pam (the former providing supplies, and the latter conducting some WASH projects in the area). Earlier efforts to build potable water infrastructure had been disrupted by disgruntled residents, who damaged the pipes when their supplies had been cut-off due to overdue bills.

# APPENDIX H: SHOCKS & STRESSES - HOUSEHOLD INTERVIEW OUTPUTS

| Shock or Stress | BS | ET | SS | OJ | JB | WV | | Vanuatu | Solomon Isl. | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| **Climate** | | | | | | | | | | |
| Cyclone | 28 | 29 | 27 | 2 | 5 | 2 | | **84** | **9** | 93 |
| Flooding | 7 | 10 | 4 | 25 | 9 | 19 | | **21** | **53** | 74 |
| Heavy Rain | 4 | 9 | 7 | 6 | 19 | 14 | | **20** | **39** | 59 |
| Extreme Heat | 7 | 8 | 17 | 7 | 9 | 9 | | **32** | **25** | 57 |
| Drought | 3 | 14 | 1 | 3 | 7 | 3 | | **18** | **13** | 31 |
| Riverine Flooding | 2 | 1 | 0 | 7 | 3 | 6 | | **3** | **16** | 19 |
| Sea Level Rise | 3 | 0 | 0 | 7 | 1 | 0 | | **3** | **8** | 11 |
| Landslide | 0 | 0 | 0 | 0 | 0 | 10 | | **0** | **10** | 10 |
| Seasonal Change | 1 | 1 | 0 | 1 | 5 | 1 | | **2** | **7** | 9 |
| Extreme Wind | 0 | 1 | 1 | 0 | 3 | 3 | | **2** | **6** | 8 |
| Saline Ingress | 4 | 0 | 0 | 3 | 0 | 0 | | **4** | **3** | 7 |
| Riverine Erosion | 3 | 1 | 0 | 1 | 0 | 0 | | **4** | **1** | 5 |
| El Niño | 1 | 2 | 0 | 0 | 0 | 0 | | **3** | **0** | 3 |
| Waterlogging | 0 | 0 | 0 | 3 | 0 | 0 | | **0** | **3** | 3 |
| Storm Surge | 0 | 0 | 0 | 1 | 0 | 0 | | **0** | **1** | 1 |
| **Natural Disaster** | | | | | | | | | | |
| Disease | 3 | 1 | 2 | 10 | 2 | 6 | | **6** | **18** | 24 |
| Earthquake | 0 | 0 | 0 | 1 | 2 | 3 | | **0** | **6** | 6 |
| Pests | 0 | 0 | 0 | 0 | 2 | 2 | | **0** | **4** | 4 |
| Tsunami | 2 | 0 | 0 | 2 | 0 | 0 | | **2** | **2** | 4 |
| **Urban Development** | | | | | | | | | | |
| Water Supply | 2 | 10 | 0 | 3 | 7 | 3 | | **11** | **13** | 24 |
| Ethnic Tension | 0 | 0 | 0 | 2 | 10 | 5 | | **0** | **17** | 17 |
| Rubbish | 2 | 0 | 0 | 1 | 3 | 10 | | **2** | **14** | 16 |
| Cost of Living | 5 | 3 | 0 | 1 | 2 | 3 | | **8** | **6** | 14 |
| Alcohol & Drugs | 1 | 2 | 1 | 2 | 2 | 4 | | **4** | **8** | 12 |
| Income | 0 | 3 | 0 | 3 | 4 | 1 | | **3** | **8** | 11 |
| Overcrowding | 2 | 1 | 3 | 4 | 0 | 0 | | **6** | **4** | 10 |
| Crime | 1 | 0 | 2 | 3 | 2 | 3 | | **3** | **7** | 10 |
| Drainage | 1 | 0 | 0 | 5 | 1 | 3 | | **1** | **9** | 10 |
| Food Security | 0 | 3 | 1 | 2 | 1 | 2 | | **4** | **5** | 9 |
| Urban Development | 0 | 0 | 1 | 2 | 3 | 3 | | **1** | **8** | 9 |
| Environmental Degradation | 2 | 0 | 0 | 0 | 2 | 3 | | **2** | **5** | 7 |
| Population Growth | 2 | 0 | 2 | 2 | 1 | 0 | | **4** | **3** | 7 |
| Sanitation | 2 | 0 | 0 | 2 | 0 | 1 | | **2** | **3** | 5 |
| Quality of Life | 1 | 0 | 2 | 0 | 0 | 1 | | **3** | **1** | 4 |
| Corruption | 0 | 0 | 0 | 0 | 4 | 0 | | **0** | **4** | 4 |
| Cultural Disruption | 1 | 0 | 0 | 2 | 0 | 0 | | **1** | **2** | 3 |
| Medical Services | 0 | 2 | 1 | 0 | 0 | 0 | | **3** | **0** | 3 |
| Land Access | 1 | 1 | 0 | 0 | 0 | 0 | | **2** | **0** | **2** |
| Firewood Access | 2 | 0 | 0 | 0 | 0 | 0 | | **2** | **0** | **2** |
| Land Disputes | 1 | 0 | 0 | 0 | 1 | 0 | | **1** | **1** | **2** |
| Land Access | 1 | 1 | 0 | 0 | 0 | 0 | | **2** | **0** | **2** |
| Congestion | 1 | 0 | 0 | 0 | 0 | 0 | | **1** | **0** | **1** |
| Electricity Access | 0 | 1 | 0 | 0 | 0 | 0 | | **1** | **0** | **1** |
| Accessibility | 0 | 0 | 0 | 0 | 1 | 0 | | **0** | **1** | **1** |
| **Total Climate** | **64** | **76** | **57** | **66** | **61** | **67** | | **197** | **194** | **391** |
| **Total Urban** | **26** | **20** | **11** | **27** | **21** | **33** | | **57** | **81** | **138** |
| **Total Other Disaster** | **5** | **1** | **2** | **13** | **6** | **11** | | **8** | **30** | **38** |
| **TOTAL ALL** | **95** | **97** | **70** | **106** | **88** | **111** | | **262** | **305** | **567** |

# APPENDIX I: CODED COMMUNITY-LEVEL STRUCTURAL FEATURES

| Classification | BS | ET | SS | OJ | JB | WV | VU | SI | ALL | Share | Type | Origin | Nature | Category | H&L Typology |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chiefs | 14 | 20 | 23 | 1 | 7 | 15 | 57 | 23 | 80 | 6.3% | Actor | Community | Informal | Community Organisational | Substitutive |
| Church | 12 | 4 | 19 | 7 | 8 | 5 | 35 | 20 | 55 | 4.3% | Structure | Community | Informal | Customary, Cultural & Spiritual | Complementary |
| Church Leaders | 0 | 2 | 2 | 1 | 8 | 1 | 4 | 10 | 14 | 1.1% | Actor | Community | Informal | Community Organisational | Substitutive |
| Community Land | 2 | 2 | 8 | 1 | 0 | 1 | 12 | 2 | 14 | 1.1% | Structure | Community | Informal | Community Organisational | Substitutive |
| Community Committee | 5 | 2 | 9 | 9 | 4 | 14 | 16 | 27 | 43 | 3.4% | Structure | Community | Informal | Community Organisational | Complementary/Substitutive |
| Community Constitution | 0 | 0 | 1 | 2 | 3 | 1 | 1 | 5 | 6 | 0.5% | Structure | Community | Informal | Community Organisational | Complementary |
| Elections | 0 | 0 | 9 | 3 | 1 | 1 | 9 | 5 | 14 | 1.1% | Enactment | Community | Informal | Community Organisational | Complementary/Substitutive |
| Fundraising | 1 | 1 | 7 | 0 | 1 | 3 | 9 | 4 | 13 | 1.0% | Enactment | Community | Informal | Community Organisational | Substitutive |
| Gardens | 22 | 28 | 26 | 11 | 42 | 26 | 76 | 79 | 155 | 12.2% | Structure | Community | Informal | Household Production | Accommodating/Competing |
| Community Infrastructure | 1 | 3 | 3 | 0 | 3 | 4 | 7 | 7 | 14 | 1.1% | Structure | Community | Informal | Household Production | Substitutive |
| Community Leaders | 3 | 2 | 27 | 7 | 6 | 5 | 32 | 18 | 50 | 3.9% | Actor | Community | Informal | Community Organisational | Substitutive |
| Community Work/Labour | 2 | 3 | 13 | 5 | 1 | 18 | 18 | 24 | 42 | 3.3% | Enactment | Community | Informal | Household Production | Substitutive |
| Community Zoning | 1 | 6 | 2 | 3 | 0 | 0 | 9 | 3 | 12 | 0.9% | Structure | Community | Informal | Community Organisational | Substitutive |
| Custom Land Agreement | 10 | 3 | 1 | 0 | 4 | 2 | 14 | 6 | 20 | 1.6% | Structure | Community | Informal | Community Organisational | Accommodating/Competing |
| Custom Practices | 20 | 3 | 3 | 14 | 7 | 6 | 26 | 27 | 53 | 4.2% | Enactment | Community | Informal | Customary, Cultural & Spiritual | Substitutive/Competing |
| Customary Land Owners | 5 | 12 | 5 | 1 | 12 | 4 | 22 | 17 | 39 | 3.1% | Actor | Community | Informal | Urban Elites & Patronage | Competing |
| Extended Family Allotment | 3 | 7 | 8 | 5 | 1 | 4 | 18 | 10 | 28 | 2.2% | Structure | Community | Informal | Community Organisational | Substitutive/Competing |
| Funerals | 0 | 0 | 5 | 1 | 1 | 0 | 5 | 2 | 7 | 0.6% | Enactment | Community | Informal | Customary, Cultural & Spiritual | Complementary |
| Informal Lease | 3 | 3 | 6 | 0 | 1 | 0 | 12 | 1 | 13 | 1.0% | Structure | Community | Informal | Community Organisational | Substitutive/Competing |
| Informal Enterprise | 1 | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 4 | 0.3% | Structure | Community | Informal | Household Production | Substitutive/Competing |
| Island Culture | 8 | 2 | 4 | 9 | 10 | 7 | 14 | 26 | 40 | 3.1% | Enactment | Community | Informal | Customary, Cultural & Spiritual | Accomodating |
| Marriage | 0 | 1 | 4 | 6 | 3 | 3 | 5 | 12 | 17 | 1.3% | Structure | Community | Informal | Customary, Cultural & Spiritual | Complementary |
| Mixed Community | 1 | 6 | 3 | 1 | 1 | 2 | 10 | 4 | 14 | 1.1% | Structure | Community | Informal | Community Organisational | Competing |
| Peri-urban Allotment | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0.2% | Structure | Community | Formal | Household Production | |
| Shared Utilities | 1 | 0 | 16 | 1 | 0 | 0 | 17 | 1 | 18 | 1.4% | Structure | Community | Informal | Community Organisational | Substitutive |
| Sports | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 2 | 0.2% | Enactment | Community | Informal | Customary, Cultural & Spiritual | Complementary |
| Wantok System | 11 | 14 | 11 | 7 | 9 | 12 | 36 | 28 | 64 | 5.0% | Structure | Community | Informal | Household Production | Accomodating/Competing |
| Womens Groups | 0 | 0 | 2 | 0 | 3 | 0 | 2 | 3 | 5 | 0.4% | Actor | Community | Informal | Community Organisational | Substitutive |
| Youth Groups | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 6 | 6 | 0.5% | Actor | Community | Informal | Community Organisational | Substitutive |
| ADB | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0.2% | Actor | State | Formal | Development Assistance | |
| Area Councils | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0.3% | Actor | State | Formal | Formal Governance | |
| Awareness Raising | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0.1% | Enactment | State | Formal | Development Assistance | |
| Bilateral Donors | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0.1% | Actor | State | Formal | Development Assistance | |
| Charitable Act | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 4 | 4 | 0.3% | Structure | State | Formal | Formal Governance | |
| Commissioner for Lands | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 4 | 0.3% | Actor | State | Formal | Formal Governance | |

| Classification | BS | ET | SS | OJ | JB | WV | VU | SI | ALL | Share | Type | Origin | Nature | Category | H&L Typology |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Community Registration | 0 | 1 | 0 | 1 | 0 | 2 | 1 | 3 | 4 | 0.3% | Enactment | State | Formal | Formal Governance | |
| Community Trust | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0.1% | Structure | State | Formal | Formal Governance | |
| Corruption | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 2 | 3 | 0.2% | Enactment | State | Informal | Urban Elites & Patronage | Competing |
| Customary Land | 0 | 1 | 0 | 0 | 5 | 3 | 1 | 8 | 9 | 0.7% | Structure | State | Formal | Formal Governance | |
| Decentralisation Policy | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0.1% | Structure | State | Formal | Formal Governance | |
| DFAT | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 0.3% | Actor | State | Formal | Development Assistance | |
| Disaster Plan | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0.1% | Structure | State | Formal | Formal Governance | |
| Education Facilities | 12 | 3 | 7 | 5 | 0 | 7 | 22 | 12 | 34 | 2.7% | Structure | State | Formal | Formal Governance | |
| Evacuation Centre | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 2 | 3 | 0.2% | Structure | State | Formal | Formal Governance | |
| Formal Subdivision | 0 | 3 | 1 | 3 | 0 | 2 | 4 | 5 | 9 | 0.7% | Structure | State | Formal | Formal Governance | |
| Government Land | 0 | 2 | 1 | 0 | 1 | 1 | 3 | 2 | 5 | 0.4% | Structure | State | Formal | Formal Governance | |
| JICA | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 5 | 5 | 0.4% | Actor | State | Formal | Development Assistance | |
| Land Registration | 2 | 2 | 0 | 2 | 1 | 4 | 4 | 7 | 11 | 0.9% | Enactment | State | Formal | Formal Governance | |
| Medical Facilities | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 2 | 3 | 0.2% | Structure | State | Formal | Formal Governance | |
| Ministry of Agriculture | 0 | 0 | 2 | 1 | 0 | 0 | 2 | 1 | 3 | 0.2% | Actor | State | Formal | Formal Governance | |
| Ministry of Climate Change | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0.1% | Actor | State | Formal | Formal Governance | |
| Ministry of Environment | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0.1% | Actor | State | formal | Formal Governance | |
| Ministry of Health | 0 | 0 | 2 | 2 | 1 | 0 | 2 | 3 | 5 | 0.4% | Actor | State | Formal | Formal Governance | |
| Ministry of Infrastructure | 0 | 0 | 0 | 1 | 0 | 7 | 0 | 8 | 8 | 0.6% | Actor | State | Formal | Formal Governance | |
| Ministry of Lands | 0 | 0 | 0 | 4 | 1 | 7 | 0 | 12 | 12 | 0.9% | Actor | State | Formal | Formal Governance | |
| Municipal Boundary | 1 | 0 | 0 | 0 | 4 | 2 | 1 | 6 | 7 | 0.6% | Structure | State | Formal | Formal Governance | |
| Municipal Government | 1 | 2 | 1 | 3 | 1 | 7 | 4 | 11 | 15 | 1.2% | Actor | State | Formal | Formal Governance | |
| National Election | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0.1% | Enactment | State | Formal | Formal Governance | |
| National Government | 2 | 1 | 16 | 1 | 11 | 5 | 19 | 17 | 36 | 2.8% | Actor | State | Formal | Formal Governance | |
| National Statistics Office | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0.1% | Actor | State | Formal | Formal Governance | |
| NDMO | 6 | 8 | 6 | 5 | 0 | 0 | 20 | 5 | 25 | 2.0% | Actor | State | Formal | Formal Governance | |
| Police | 2 | 1 | 1 | 0 | 2 | 1 | 4 | 3 | 7 | 0.6% | Actor | State | Formal | Formal Governance | |
| Political Patronage | 5 | 17 | 3 | 5 | 8 | 13 | 25 | 26 | 51 | 4.0% | Enactment | State | Informal | Urban Elites & Patronage | Competing |
| Property Boundary | 0 | 0 | 0 | 3 | 2 | 1 | 0 | 6 | 6 | 0.5% | Structure | State | Formal | Formal Governance | |
| Provincial Government | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 4 | 0.3% | Actor | State | Formal | Formal Governance | |
| Rapid Employment Project | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0.1% | Actor | State | Formal | Development Assistance | |
| Rubbish Collection | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 0.2% | Enactment | State | Formal | Formal Governance | |
| Seasonal Worker Program | 2 | 1 | 2 | 0 | 0 | 0 | 5 | 0 | 5 | 0.4% | Structure | State | Formal | Development Assistance | |
| Solomon Water | 0 | 0 | 0 | 2 | 8 | 0 | 0 | 10 | 10 | 0.8% | Actor | State | Formal | Formal Governance | |
| SPC | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0.1% | Actor | State | Formal | Formal Governance | |
| Taxes | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0.2% | Structure | State | Formal | Formal Governance | |
| Temporary Occupation License | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 5 | 0.4% | Structure | State | Formal | Formal Governance | |

| Classification | BS | ET | SS | OJ | JB | WV | VU | SI | ALL | Share | Type | Origin | Nature | Category | H&L Typology |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Town and Country Planning Act | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0.1% | Structure | State | Formal | Formal Governance | |
| Training Programs | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0.1% | Structure | State | Formal | Development Assistance | |
| Transport Infrastructure | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0.1% | Structure | State | Formal | Formal Governance | |
| UNELCO | 1 | 1 | 2 | 0 | 0 | 0 | 4 | 0 | 4 | 0.3% | Actor | State | Formal | Formal Governance | |
| Urban Planning | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0.2% | Structure | State | Formal | Formal Governance | |
| World Bank | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 0.2% | Actor | State | Formal | Development Assistance | |
| New Life Assembly | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0.1% | Actor | Civil Society | Formal | Development Assistance | |
| Live and Learn | 1 | 0 | 0 | 0 | 5 | 0 | 1 | 5 | 6 | 0.5% | Actor | Civil Society | Formal | Development Assistance | |
| Save the Children | 1 | 0 | 0 | 0 | 4 | 0 | 1 | 4 | 5 | 0.4% | Actor | Civil Society | Formal | Development Assistance | |
| Monash University | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 0.2% | Actor | Civil Society | Formal | Development Assistance | |
| Taiwan University | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0.1% | Actor | Civil Society | Formal | Development Assistance | |
| NGOs | 1 | 2 | 1 | 1 | 3 | 1 | 4 | 5 | 9 | 0.7% | Actor | Civil Society | Formal | Development Assistance | |
| World Vision | 3 | 0 | 0 | 7 | 0 | 11 | 3 | 18 | 21 | 1.7% | Actor | Civil Society | Formal | Development Assistance | |
| Red Cross | 0 | 2 | 6 | 2 | 0 | 2 | 8 | 4 | 12 | 0.9% | Actor | Civil Society | Formal | Development Assistance | |
| Care International | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0.1% | Actor | Civil Society | Formal | Development Assistance | |
| Awareness Raising | 1 | 3 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0.3% | Enactment | Civil Society | Formal | Development Assistance | |
| Media | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0.2% | Actor | Civil Society | Formal | Customary, Cultural & Spiritual | |
| Oxfam | 2 | 15 | 0 | 0 | 0 | 0 | 17 | 0 | 17 | 1.3% | Actor | Civil Society | Formal | Development Assistance | |
| Medicine Sans Frontiers | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0.1% | Actor | Civil Society | Formal | Development Assistance | |
| Mormon Church | 0 | 2 | 7 | 0 | 0 | 0 | 9 | 0 | 9 | 0.7% | Actor | Civil Society | Formal | Development Assistance | |
| Presbyterian Church | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0.2% | Actor | Civil Society | Formal | Development Assistance | |
| Wan Smol Bag | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0.1% | Actor | Civil Society | Formal | Development Assistance | |
| Total Community | 126 | 127 | 221 | 99 | 141 | 135 | 474 | 375 | 849 | | | | | | |
| Total State | 50 | 43 | 50 | 50 | 53 | 75 | 143 | 178 | 323 | | | | | | |
| Total Civil | 11 | 25 | 20 | 12 | 16 | 14 | 56 | 42 | 98 | | | | | | |
| TOTAL - ALL STRUCTURES | 187 | 195 | 291 | 161 | 210 | 224 | 673 | 595 | 1270 | | | | | | |

# APPENDIX J: ONTONG JAVA SETTLEMENT COMMUNITY CONSTITUTION

## Constitution of the Ontong Java Community Association (Honiara)

**1. Recital**

1) Whereas the Ontong Java Community Association (Honiara) (hereafter referred to as "The Community"), which consists of residents from Luaniua and Pelau villages, living at Lord Howe Settlement on the Parcel number ..... or Lot No. ..... (hereinafter referred to as "The Land"), situated at the Eastern side of the Mataniko River Mouth, Honiara are desirous of the Land being managed and administered properly for the benefit of the members.

2) Whereas the members of the community are desirous to entrust in the Ontong Java Community Association (Honiara) Board of Trustees (hereinafter referred to as "The Board") the powers to properly manage and administer the Land for an on behalf of the community.

3) Whereas for the proper management and administration of the land, it is expedient for the Commissioner of Lands to vest in the board, the Fixed Term Estate Title of the Land.

**2. Citation**

1) In the exercise of the powers conferred upon the Board and with the approval of the community, these by-laws are made.

2) These by-laws may be cited as the constitution of the Ontong Java Community Association (Honiara).

**3. Interpretation**

1) In this constitution and any other supplementary by-laws, unless the context otherwise requires;
   a. "A Member" means a person who is 18 years old and resides permanently in the community.
   b. "A Trustee" means a member of the Ontong Java Community Association (Honiara) Board of Trustees

**4. General Meetings**

1) Every Member shall have a right to attend and vote at general meetings.

2) The quorum or minimum attendance at general meetings shall be at least fifty percent of the membership, and Members shall vote or such other number as the supplementary by-laws may provide.

3) Voting at general meetings shall be in person, unless the supplementary by-laws provide otherwise.

**5. Notice of General Meetings**

1) The Board shall give 7 clear days written notice of every general meeting (or such longer periods) as the supplementary by-laws may provide.

2) Notice of every general meeting shall state the date, time and place of the meeting and what business is to be dealt with.

3) Notice of every general meeting shall be:
   a. Fixed where it can be read by members;

      - or -

   b. Such procedure as may be provided in the supplementary by-laws.

4) If a general meeting is adjourned, the same procedure shall be followed except that the minimum period of notice shall be two complete days unless the supplementary by-laws provide otherwise.

**6. Annual General Meetings**

1) The annual general meetings shall be held in January each year and shall be as soon as possible after the accounts have been prepared.

2) The order of business at an annual general meeting shall be (unless otherwise provided in the supplementary by-laws:
    a. Call to order;
    b. Determination of quorum;
    c. Report of the Board of Trustees;
    d. Financial Report;
    e. Consideration for approval of financial report and approval of such if appropriate;
    f. Unfinished business; and
    g. New business.

**7. Special General Business**

1) The Board may call a special general meeting whenever there is special business for the members to consider.

2) A minimum of 25% of the Members may require the Board to call a special general meeting.

3) These members shall give the Board a written notice saying what special business is to be dealt with at the special general meetings. The Board shall call the special general meeting in the manner set out in by-law (5).

**8. Right to demand a vote**

At any general meeting, any ten percent of members attending the meeting may demand a vote on any proposed resolution.

**9. Nominating Committee**

1) At the first annual general meeting, Members may elect a nominating committee of 3 members.

2) The nomination committee shall receive nominations and conduct the election of the members of the Board.

3) Members may nominate and vote for any member of the Board in such elections.

**10. Minutes of the Meetings**

1) The Secretary shall take proper minutes of every meeting (that is every annual general meeting, special general meeting, meeting of the Board and meetings of committees).

2) If the Board consents, the Secretary may delegate the function specified in paragraph (1) to another Trustee or Board member, but it shall remain the responsibility of the Secretary to ensure that the minutes are properly recorded.

3) Minutes of all meetings shall be kept in a minute book. This minute book shall be kept in the Secretary's house and shall be available during day times for Members to inspect.

**OFFICERS**

**11. Establishment of the Ontong Java Community Association (Honiara) Board of Trustees and Supervisory Committee**

1) There shall be established for the purposes of this Constitution, a "Board", and a Supervisory Committee.

2) The provisions of Schedule (1) shall have effect as this Constitution or otherwise in relation thereto.

**12. Election of Trustees and Committees**

1) At the first Annual General Meeting, the "Community" shall elect a Board of Trustees of not more than 10 members and a Supervisory Committee of not more than 8 members.

2) One half of the members of the Board and of the Supervisory Committee shall go out of office in every Five (5) years for the Board and each year for the Supervisory Committee, and their successors, in the case of the Board, shall be elected in accordance with the Schedule to this Constitution, and for the Supervisory Committee, shall be elected at the Annual General Meeting, unless specifically provided for in this Constitution or any other supplementary by-laws.

3) The Board may appoint special select committee, to carry out any specific tasks on its behalf.

4) The special select committees so appointed shall report to the Board on the terms to be determined by the Board from time to time.

**13. Board of Trustees**

1) If a casual vacancy arises in the Board (for instance if a person dies or resigns) then the Board may co-opt or appoint a replacement from amongst their numbers to take his/her place until the position is put up for re-election at the next general meeting.

2) The Board shall meet at least in every 3 months, at a time and place, which it shall decide.

3) The chairman or at least 6 Trustees (upon notice to the Chairman) may call a special Board meeting at any time.

4) There shall be 10 Trustees and the quorum at Board meetings shall be 6.

5) The Board shall regulate its own proceedings.

6) The Secretary shall keep the minutes of all Board proceedings, annual general meetings, general meetings or any other special general meetings.

**14. Functions of the Board**

1) The "Board" shall have the general management of the affairs of the "Community" and its functions shall include but not limited to:

   a. Hold the Land in trust for the benefit of the Members;

   b. Manage and administer the Land in a prudent and skilled manner not detrimental to the welfare and interest of the Members;

   c. Manage funds belonging to the Land;

   d. Examination of the Treasurers financial statements and monthly inspection of the Board's cash in hand; securities; bank accounts; cheque books and books of accounts and shall produce such documents for inspection by members.

   e. Making contracts on behalf of the Community;

   f. Fixing the time of the 3 monthly Board meetings, the Annual General Meeting and any other general meeting;

   g. Filling casual vacancies in their own number until the election of successors;

   h. Carry on any developments or activities on the Land that is deemed beneficial to the Members;

   i. Carry on any other business necessary for or incidental to the proper management and administration of the Land;

   j. Act with prudence and diligence of good business practice and shall be responsible for any loss, which the Community or Members suggest through their acts or omissions, which are careless, negligent, or against the directions of the general meeting or against the Laws of Solomon Islands including this Constitution and any other supplementary by-laws.

**15. Qualifications for membership of Board**

1) A person shall be qualified for membership of the Board if he/she is:
   a. .....
   b. .....
   c. .....
   d. Over the age of twenty-one years

**16. A Trustee May Resign**

1) A Trustee may resign from the Board by giving 30 days notice of his intention to resign, in writing, to the Chairman or in his absence, the Secretary.

2) Where a Trustee has resigned, the Chairman of the Board or in the case of the Chairman resigning, the Secretary, shall call a special general meeting of the Members of the Community to elect a new Trustee or Chairman as the case may be.

**17. Termination of Membership from Board**

1) A Trustee may be terminated or dismissed from the Board on any of the following grounds:
    a. A Trustee who is absent from 3 consecutive meetings without good reason.
    b. Any act or omission that has brought the Board into disrepute;
    c. Any misappropriation or misuse of funds held by the Board for an on behalf of the Community;
    d. Any other acts of misconduct.

**18. Board not to make profits**

1) The Board shall not carry on or undertake to carry on, any development activity on the Land for profit unless such development or undertaking is approved by the Members.

2) Where approval has been given by the Members under Section 18(1) and a profit has been made, the Board shall account for such profit to the Members.

**19. Board or Committee members not to be remunerated**

The members of the Board or any other committees established under this Constitution, shall not charge any fees or claim any remuneration for any work done or performed in the exercise of their functions under this constitution except for claims for reimbursement of expenses necessarily incurred for the same.

**20. Employment of Persons**

The Board, where it thinks appropriate, may employ any person or appoint a committee or taskforce to perform any tasks, on its behalf, as it may determine from time to time.

**21. Rules and Regulations**

The Board, where it thinks appropriate, may make by-laws, rules or regulations or may issue any directives not inconsistent with this Constitution or the Laws of Solomon Islands.

**FINANCIAL MATTERS**

**22. Cheques and Contracts**

1) Cheques and Contracts made by the Board on behalf of the Community shall be signed by any three of the following:
    a. President
    b. Vice President
    c. Secretary; and
    d. Treasurer.

2) Cheques and contracts shall be valid regardless of any defects in the election or appointment of persons signing them.

**23. Dissolution**

This Constitution was agreed for adoption during a General Meeting held on 18th March 2007, a resolution was passed by a majority of 90% of the members of the Lord Howe Community.

**24. Amendments to the Constitution**

1) Subject to the provisions of this Section, the Members of the Community at a meeting called for that purpose, may amend this Constitution.

2) A motion to amend any part of the provisions of this constitution shall not be passed by the members of the Community unless it is supported by two thirds of all the qualified Members of the Community.

3) The schedule to this Constitution may be amended by the Members of the Community upon the election of new members of the Board

**Adopted this ..... day of ..... of the year .....**

**Chairman:**

**Vice Chairman:**

**Secretary:**

**Treasurer:**

**Member:**

# APPENDIX K: KEY TERMS – COMMUNITY INTERVIEWS

| Word | Count | Rank | Content | Included Similar Words | Coverage |
|---|---|---|---|---|---|
| **community** | **1008** | **1** | **1.57%** | communities, community | 4.72% |
| people | 823 | 2 | 1.28% | people, peoples | 3.85% |
| living | 719 | 3 | 1.12% | live, lived, lives, living | 3.37% |
| **housing** | **719** | **4** | **1.12%** | house, houses, house, housing | 3.37% |
| **water** | **456** | **5** | **0.71%** | water, waters | 2.13% |
| talks | 452 | 6 | 0.70% | talk, talked, talking, talks | 2.12% |
| problems | 440 | 7 | 0.68% | problem, problems | 2.06% |
| **government** | **432** | **8** | **0.67%** | government, governments | 2.02% |
| **garden** | **409** | **9** | **0.64%** | garden, gardening, gardens | 1.91% |
| bislama | 379 | 10 | 0.59% | bislama | 1.77% |
| climate | 378 | 11 | 0.59% | climate | 1.77% |
| **lands** | **373** | **12** | 0.58% | land, lands | 1.75% |
| thinking | 367 | 13 | 0.57% | think, thinking, thinks | 1.72% |
| helps | 353 | 14 | 0.55% | help, helped, helpful, helping, helps | 1.65% |
| places | 344 | 15 | 0.54% | place, places | 1.61% |
| stays | 326 | 16 | 0.51% | stay, stayed, staying, stays | 1.53% |
| moving | 316 | 17 | 0.49% | move, moved, moves, moving | 1.48% |
| changing | 306 | 18 | 0.48% | change, changed, changes, changing | 1.43% |
| **cyclone** | **270** | **19** | 0.42% | cyclone, cyclones | 1.26% |
| **family** | **233** | **20** | 0.36% | families, family, family | 1.09% |
| area | 230 | 21 | 0.36% | area, areas | 1.08% |
| **money** | **221** | **22** | 0.34% | money, moneys | 1.03% |
| years | 212 | 23 | 0.33% | year, years | 0.99% |
| **floods** | **212** | **24** | 0.33% | flood, flooded, flooding, floods | 0.99% |
| lot | 199 | 25 | 0.31% | lot, lots | 0.93% |
| project | 196 | 26 | 0.31% | project, projects | 0.92% |
| **chiefs** | **191** | **27** | 0.30% | chief, chiefs | 0.89% |
| buildings | 187 | 28 | 0.29% | build, building, buildings, builds | 0.88% |
| **island** | **187** | **29** | 0.29% | island, islanders, islands | 0.88% |
| **rain** | **180** | **30** | 0.28% | rain, raining, rains | 0.84% |
| home | 180 | 31 | 0.28% | home, homes | 0.84% |
| **hot** | **166** | **32** | 0.26% | hot | 0.78% |
| city | 164 | 33 | 0.26% | cities, city | 0.77% |
| household | 144 | 34 | 0.22% | household, householders, households | 0.67% |
| **church** | **140** | **35** | 0.22% | church, churches | 0.66% |
| **food** | **135** | **36** | 0.21% | food, foods | 0.63% |
| man | 132 | 37 | 0.21% | man, mans | 0.62% |
| pays | 127 | 38 | 0.20% | pay, paying, pays | 0.59% |
| **custom** | **126** | **39** | 0.20% | custom, customers, customs | 0.59% |
| **pam** | **123** | **40** | 0.19% | pam, pams | 0.58% |
| **savings** | **119** | **41** | 0.19% | save, saved, savee, saving, savings | 0.56% |
| **schools** | **117** | **42** | 0.18% | school, schooling, schools | 0.55% |
| honiara | 108 | 43 | 0.17% | honiara | 0.51% |
| **winds** | **107** | **44** | 0.17% | wind, winds | 0.50% |
| town | 105 | 45 | 0.16% | town | 0.49% |
| **malaita** | **102** | **46** | 0.16% | malaita | 0.48% |
| **river** | **98** | **47** | 0.15% | river, rivers | 0.46% |
| **village** | **95** | **48** | 0.15% | village, villager, villages | 0.44% |
| **tanks** | **94** | **49** | 0.15% | tank, tanks | 0.44% |
| links | 93 | 50 | 0.14% | link, linked, linking, links | 0.44% |
| **owners** | **89** | **51** | 0.14% | owner, owners | 0.42% |
| rented | 89 | 52 | 0.14% | rent, rented, renting, rents | 0.42% |
| structures | 88 | 53 | 0.14% | structure, structured, structures | 0.41% |
| valley | 87 | 54 | 0.14% | valley, valleys | 0.41% |
| **ngos** | **84** | **55** | 0.13% | ngos | 0.39% |
| impacts | 84 | 56 | 0.13% | impact, impacted, impacting, impacts | 0.39% |

| Word | Count | Rank | Content | Included Similar Words | Coverage |
|---|---|---|---|---|---|
| children | 81 | 57 | 0.13% | children | 0.38% |
| **committee** | **77** | **58** | 0.12% | committee, committees | 0.36% |
| blacksands | 77 | 59 | 0.12% | blacksand, blacksands | 0.36% |
| strong | 76 | 60 | 0.12% | strong, strongly | 0.36% |
| information | 76 | 61 | 0.12% | inform, informal, informally, information, informations | 0.36% |
| **relatives** | **75** | **62** | 0.12% | relate, related, relates, relating, relative, relatives | 0.35% |
| understanding | 75 | 63 | 0.12% | understand, understandable, understanding, understands | 0.35% |
| buying | 75 | 64 | 0.12% | buy, buying, buys | 0.35% |
| **kakai** | **74** | **65** | 0.12% | kakai | 0.35% |
| seaside | 74 | 66 | 0.12% | seaside | 0.35% |
| tanna | 74 | 67 | 0.12% | tanna | 0.35% |
| **plant** | **73** | **68** | 0.11% | plant, planted, planting, plants | 0.34% |
| **season** | **71** | **69** | 0.11% | season, seasonal, seasons | 0.33% |
| altogether | 71 | 70 | 0.11% | altogether | 0.33% |
| settlement | 71 | 71 | 0.11% | settlement, settlements | 0.33% |
| damage | 68 | 72 | 0.11% | damage, damaged, damaging | 0.32% |
| ontong | 68 | 73 | 0.11% | ontong | 0.32% |
| ground | 66 | 74 | 0.10% | ground | 0.31% |
| java | 66 | 75 | 0.10% | java | 0.31% |
| sea | 66 | 76 | 0.10% | sea | 0.31% |
| councils | 66 | 77 | 0.10% | council, councils | 0.31% |
| **markets** | **66** | **78** | 0.10% | market, marketing, markets, markettings | 0.31% |
| group | 64 | 79 | 0.10% | group, groups | 0.30% |
| etas | 63 | 80 | 0.10% | etas | 0.29% |
| world | 63 | 81 | 0.10% | world | 0.29% |
| **sun** | **62** | **82** | 0.10% | sun | 0.29% |
| supporting | 61 | 83 | 0.09% | support, supported, supporters, supporting, supportive, … | 0.29% |
| vila | 61 | 84 | 0.09% | vila | 0.29% |
| husband | 61 | 85 | 0.09% | husband, husbands | 0.29% |
| ideas | 60 | 86 | 0.09% | idea, ideas | 0.28% |
| month | 59 | 87 | 0.09% | month, months | 0.28% |
| call | 59 | 88 | 0.09% | call, called, calling, calls | 0.28% |
| **rubbish** | **58** | **89** | 0.09% | rubbish | 0.27% |
| heavy | 57 | 90 | 0.09% | heavy | 0.27% |
| life | 57 | 91 | 0.09% | life | 0.27% |
| grow | 56 | 92 | 0.09% | grow, growing, grows | 0.26% |
| laughs | 56 | 93 | 0.09% | laugh, laughing, laughs | 0.26% |
| sell | 56 | 94 | 0.09% | sell, selling, sells | 0.26% |
| wife | 55 | 95 | 0.09% | wife | 0.26% |
| dry | 54 | 96 | 0.08% | dried, dry, drying | 0.25% |
| **culture** | **54** | **97** | 0.08% | cultural, culture | 0.25% |
| pikinini | 53 | 98 | 0.08% | pikinini | 0.25% |
| vision | 53 | 99 | 0.08% | vision | 0.25% |
| customary | 52 | 100 | 0.08% | customary | 0.24% |
| paama | 52 | 101 | 0.08% | paama | 0.24% |
| **heats** | **51** | **102** | 0.08% | heat, heats | 0.24% |
| tok | 51 | 103 | 0.08% | tok | 0.24% |
| someone | 50 | 104 | 0.08% | someone | 0.23% |
| **women** | **50** | **105** | 0.08% | women, womens | 0.23% |
| away | 49 | 106 | 0.08% | away | 0.23% |
| **chairman** | **49** | **107** | 0.08% | chairman | 0.23% |
| old | 49 | 108 | 0.08% | old | 0.23% |
| outside | 49 | 109 | 0.08% | outside, outsider, outsiders | 0.23% |
| reason | 49 | 110 | 0.08% | reason, reasons | 0.23% |
| research | 49 | 111 | 0.08% | research, researcher, researching | 0.23% |
| finish | 48 | 112 | 0.07% | finish, finished, finishing | 0.22% |
| olgeta | 46 | 113 | 0.07% | olgeta | 0.22% |

| Word | Count | Rank | Content | Included Similar Words | Coverage |
|---|---|---|---|---|---|
| road | 46 | 114 | 0.07% | road, roads | 0.22% |
| roof | 45 | 115 | 0.07% | roof, roofing, roofs | 0.21% |
| **funds** | **45** | **116** | 0.07% | fund, funded, funding, funds | 0.21% |
| **free** | **45** | **117** | 0.07% | free | 0.21% |
| space | 44 | 118 | 0.07% | space, spaces | 0.21% |
| brother | 44 | 119 | 0.07% | brother, brothers | 0.21% |
| cleaning | 44 | 120 | 0.07% | clean, cleaned, cleaning, cleans | 0.21% |
| imported | 44 | 121 | 0.07% | import, importance, important, imported | 0.21% |
| solomon | 42 | 122 | 0.07% | solomon, solomons | 0.20% |
| supply | 42 | 123 | 0.07% | supplied, supplies, supply, supplying | 0.20% |
| **voting** | **42** | **124** | 0.07% | vote, voted, votes, voting | 0.20% |
| **drain** | **41** | **125** | 0.06% | drain, drains | 0.19% |
| **fishing** | **41** | **126** | 0.06% | fish, fishes, fishing | 0.19% |
| **youth** | **40** | **127** | 0.06% | youth, youths | 0.19% |
| stream | 40 | 128 | 0.06% | stream, streams | 0.19% |
| share | 40 | 129 | 0.06% | share, shared, shares, sharing | 0.19% |
| washing | 40 | 130 | 0.06% | wash, washed, washing | 0.19% |
| bought | 39 | 131 | 0.06% | bought | 0.18% |
| takem | 39 | 132 | 0.06% | takem | 0.18% |
| fees | 39 | 133 | 0.06% | fee, fees | 0.18% |
| business | 38 | 134 | 0.06% | business, businesses, busy | 0.18% |
| **cassava** | **38** | **135** | 0.06% | cassava, cassavas | 0.18% |
| australia | 37 | 136 | 0.06% | australia | 0.17% |
| members | 37 | 137 | 0.06% | member, members | 0.17% |
| disaster | 36 | 138 | 0.06% | disaster, disasters | 0.17% |
| donors | 36 | 139 | 0.06% | donor, donors | 0.17% |
| face | 36 | 140 | 0.06% | face, faced, faces, facing | 0.17% |
| learning | 36 | 141 | 0.06% | learn, learned, learning | 0.17% |
| pijin | 36 | 142 | 0.06% | pijin | 0.17% |
| married | 35 | 143 | 0.05% | married, marry | 0.16% |
| vanuatu | 35 | 144 | 0.05% | vanuatu | 0.16% |
| eat | 35 | 145 | 0.05% | eat, eating, eats | 0.16% |
| issues | 34 | 146 | 0.05% | issue, issues | 0.16% |
| pipes | 34 | 147 | 0.05% | pipe, piped, pipes | 0.16% |
| die | 34 | 148 | 0.05% | die, died, dies | 0.16% |
| father | 34 | 149 | 0.05% | father, fathers | 0.16% |
| guadalcanal | 33 | 150 | 0.05% | guadalcanal | 0.15% |
| weather | 33 | 151 | 0.05% | weather | 0.15% |
| workem | 33 | 152 | 0.05% | workem | 0.15% |
| deal | 33 | 153 | 0.05% | deal, dealing, deals | 0.15% |
| arrangements | 33 | 154 | 0.05% | arrange, arranged, arrangement, arrangements | 0.15% |
| boy | 33 | 155 | 0.05% | boy, boys | 0.15% |
| earning | 33 | 156 | 0.05% | earn, earning, earnings, earns | 0.15% |
| sister | 33 | 157 | 0.05% | sister, sisters | 0.15% |
| story | 33 | 158 | 0.05% | stori, stories, story | 0.15% |
| leaving | 32 | 159 | 0.05% | leave, leaves, leaving | 0.15% |
| oxfam | 32 | 160 | 0.05% | oxfam | 0.15% |
| tension | 32 | 161 | 0.05% | tension, tensions | 0.15% |
| built | 31 | 162 | 0.05% | built | 0.15% |
| local | 31 | 163 | 0.05% | local, locally | 0.15% |
| programs | 31 | 164 | 0.05% | program, programming, programs | 0.15% |
| province | 31 | 165 | 0.05% | province, provinces | 0.15% |
| worker | 31 | 166 | 0.05% | worker, workers | 0.15% |
| wall | 30 | 167 | 0.05% | wall, walling, walls | 0.14% |
| awareness | 30 | 168 | 0.05% | aware, awareness | 0.14% |
| country | 30 | 169 | 0.05% | countries, country | 0.14% |
| wait | 30 | 170 | 0.05% | wait, waited, waiting | 0.14% |

| Word | Count | Rank | Content | Included Similar Words | Coverage |
|---|---|---|---|---|---|
| workshop | 30 | 171 | 0.05% | workshop, workshops | 0.14% |
| born | 29 | 172 | 0.05% | born | 0.14% |
| difficult | 29 | 173 | 0.05% | difficult | 0.14% |
| friends | 29 | 174 | 0.05% | friend, friends | 0.14% |
| jabros | 29 | 175 | 0.05% | jabros | 0.14% |
| kids | 29 | 176 | 0.05% | kid, kids | 0.14% |
| tarpaulin | 29 | 177 | 0.05% | tarpaulin, tarpaulins | 0.14% |
| activity | 29 | 178 | 0.05% | active, activities, activity | 0.14% |
| drinking | 29 | 179 | 0.05% | drink, drinking | 0.14% |
| lease | 29 | 180 | 0.05% | lease, leased, leases, leasing | 0.14% |
| provide | 29 | 181 | 0.05% | provide, provided, providing | 0.14% |
| education | 28 | 182 | 0.04% | educate, educated, education | 0.13% |
| international | 28 | 183 | 0.04% | international, internationally | 0.13% |
| bush | 28 | 184 | 0.04% | bush | 0.13% |
| expensive | 28 | 185 | 0.04% | expensive | 0.13% |
| futuna | 28 | 186 | 0.04% | futuna | 0.13% |
| leaders | 28 | 187 | 0.04% | leader, leaders | 0.13% |
| ndmo | 28 | 188 | 0.04% | ndmo | 0.13% |
| sleeping | 28 | 189 | 0.04% | sleep, sleeping | 0.13% |
| cash | 27 | 190 | 0.04% | cash | 0.13% |
| meeting | 27 | 191 | 0.04% | meet, meeting, meetings | 0.13% |
| payem | 27 | 192 | 0.04% | payem | 0.13% |
| pentecost | 27 | 193 | 0.04% | pentecost | 0.13% |
| boundary | 27 | 194 | 0.04% | boundaries, boundary | 0.13% |
| crops | 27 | 195 | 0.04% | crop, crops | 0.13% |
| hurricane | 27 | 196 | 0.04% | hurricane, hurricanes | 0.13% |
| bad | 26 | 197 | 0.04% | bad, badly | 0.12% |
| landslide | 26 | 198 | 0.04% | landslide, landslides | 0.12% |
| rebuild | 26 | 199 | 0.04% | rebuild, rebuilding | 0.12% |
| sickness | 26 | 200 | 0.04% | sick, sickness, sicknesses | 0.12% |
| health | 25 | 201 | 0.04% | health | 0.12% |
| rely | 25 | 202 | 0.04% | relied, relies, rely, relying | 0.12% |
| studying | 25 | 203 | 0.04% | studies, study, studying | 0.12% |
| materials | 24 | 204 | 0.04% | material, materials | 0.11% |
| zone | 24 | 205 | 0.04% | zone, zones, zoning | 0.11% |
| buildem | 23 | 206 | 0.04% | buildem | 0.11% |
| copper | 23 | 207 | 0.04% | copper | 0.11% |
| tongoa | 23 | 208 | 0.04% | tongoa | 0.11% |
| agreement | 23 | 209 | 0.04% | agreement, agreements | 0.11% |
| bridge | 23 | 210 | 0.04% | bridge, bridges | 0.11% |
| employment | 23 | 211 | 0.04% | employ, employed, employers, employment | 0.11% |
| pigs | 23 | 212 | 0.04% | pig, pigs | 0.11% |
| vegetables | 23 | 213 | 0.04% | vegetable, vegetables | 0.11% |
| rise | 22 | 214 | 0.03% | rise, rises, rising | 0.10% |
| traditional | 22 | 215 | 0.03% | traditional, traditions | 0.10% |
| access | 22 | 216 | 0.03% | access | 0.10% |
| development | 22 | 217 | 0.03% | develop, developed, developer, development | 0.10% |
| honourable | 22 | 218 | 0.03% | honourable, honourables | 0.10% |
| **malekula** | 22 | 219 | 0.03% | malekula | 0.10% |
| **municipal** | 22 | 220 | 0.03% | municipal | 0.10% |
| **shops** | 22 | 221 | 0.03% | shop, shops | 0.10% |
| young | 22 | 222 | 0.03% | young | 0.10% |
| **election** | 21 | 223 | 0.03% | elect, elected, election, elections | 0.10% |
| **independence** | 21 | 224 | 0.03% | independence, independent | 0.10% |
| **register** | 21 | 225 | 0.03% | register, registered | 0.10% |
| **trees** | 21 | 226 | 0.03% | tree, trees | 0.10% |
| cleared | 20 | 227 | 0.03% | clear, cleared, clearly | 0.09% |

| Word | Count | Rank | Content | Included Similar Words | Coverage |
|---|---|---|---|---|---|
| **cooking** | 20 | 228 | 0.03% | cook, cooking | 0.09% |
| **drought** | 20 | 229 | 0.03% | drought, droughts | 0.09% |
| law | 20 | 230 | 0.03% | law, laws | 0.09% |
| light | 20 | 231 | 0.03% | light, lights | 0.09% |
| ministry | 20 | 232 | 0.03% | ministries, ministry | 0.09% |
| bank | 20 | 233 | 0.03% | bank, banks | 0.09% |
| **burning** | 20 | 234 | 0.03% | burn, burning, burns | 0.09% |
| **evacuation** | 20 | 235 | 0.03% | evacuate, evacuated, evacuation | 0.09% |
| **income** | 20 | 236 | 0.03% | income, incomes | 0.09% |
| safe | 20 | 237 | 0.03% | safe | 0.09% |
| **sanitation** | 20 | 238 | 0.03% | sanitation | 0.09% |

# APPENDIX L: CODED INTERVIEW ANALYSIS – INSTITUTIONAL ACTORS

| Unique Actors | Count | VU Count | SI Count | Community | City | Local CSO | National | Regional | International | Bilateral | Int. NGO | Int. Finance | Int. Research |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chiefs | 3 | 0 | 3 | 1 | | | | | | | | | |
| Church Groups | 1 | 1 | 0 | 1 | | | | | | | | | |
| Community Climate Change & Disaster Committees | 3 | 3 | 0 | 1 | | | | | | | | | |
| Community Development Committees (CDCs) | 1 | 0 | 1 | 1 | | | | | | | | | |
| Civil Society Organisations | 5 | 3 | 2 | | | 1 | | | | | | | |
| Faith-Based Organisations | 8 | 1 | 7 | | | 1 | | | | | | | |
| Gurafesu | 2 | 0 | 2 | | | 1 | | | | | | | |
| NGOs - Local | 1 | 1 | 0 | | | 1 | | | | | | | |
| Seventh Day Adventists Church (SDA) | 1 | 0 | 1 | | | 1 | | | | | | | |
| South Seas Evangelical Church | 1 | 0 | 1 | | | 1 | | | | | | | |
| Vois Blong Mere | 3 | 0 | 3 | | | 1 | | | | | | | |
| Wan Smolbag | 6 | 6 | 0 | | | 1 | | | | | | | |
| Youth Radio Station | 1 | 0 | 1 | | | 1 | | | | | | | |
| Area Councils | 3 | 3 | 0 | | 1 | | | | | | | | |
| Church Women's Network | 1 | 0 | 1 | | 1 | | | | | | | | |
| Guadalcanal Province | 5 | 0 | 5 | | 1 | | | | | | | | |
| Honiara City Council | 12 | 0 | 12 | | 1 | | | | | | | | |
| Honiara Youth Council | 1 | 0 | 1 | | 1 | | | | | | | | |
| Landowners | 4 | 4 | 0 | | 1 | | | | | | | | |
| Luganville Municipal Council | 1 | 1 | 0 | | 1 | | | | | | | | |
| Port Vila Municipal Council | 9 | 9 | 0 | | 1 | | | | | | | | |
| SHEFA Province | 14 | 14 | 0 | | 1 | | | | | | | | |
| Central Bank | 1 | 0 | 1 | | | | 1 | | | | | | |
| Department of Women's Affairs | 2 | 2 | 0 | | | | 1 | | | | | | |
| Development Services Exchange | 3 | 0 | 3 | | | | 1 | | | | | | |
| Land Board | 1 | 0 | 1 | | | | 1 | | | | | | |
| MALFFB - Department of Agriculture | 1 | 1 | 0 | | | | 1 | | | | | | |
| Malvatumauri | 6 | 6 | 0 | | | | 1 | | | | | | |
| MCCA | 9 | 9 | 0 | | | | 1 | | | | | | |
| MCCA - National Advisory Board | 7 | 7 | 0 | | | | 1 | | | | | | |
| MCCA - National Disaster Management Office | 15 | 15 | 0 | | | | 1 | | | | | | |
| MCCA - Vanuatu Met. and Geohazards Dept. | 5 | 5 | 0 | | | | 1 | | | | | | |
| MDPAC | 1 | 0 | 1 | | | | 1 | | | | | | |
| MECCDM | 8 | 0 | 8 | | | | 1 | | | | | | |
| MECCDM - National Disaster Management Office | 1 | 0 | 1 | | | | 1 | | | | | | |
| MECCDMM - SI Meteorological Services | 1 | 0 | 1 | | | | 1 | | | | | | |
| Media - Newspaper | 1 | 0 | 1 | | | | 1 | | | | | | |
| MID - Ministry of Infrastructure Development | 4 | 0 | 4 | | | | 1 | | | | | | |
| Ministry of Agriculture and Livestock (MAL) | 3 | 0 | 3 | | | | 1 | | | | | | |
| Ministry of Agriculture, Livestock, Forestry, Fisheries | 1 | 1 | 0 | | | | 1 | | | | | | |
| Ministry of Health | 4 | 1 | 3 | | | | 1 | | | | | | |
| Ministry of Internal Affairs Dept. of Local Authorities | 2 | 2 | 0 | | | | 1 | | | | | | |
| Ministry of Women and Youth | 4 | 0 | 4 | | | | 1 | | | | | | |
| Ministry of Lands, Housing and Survey (MLHS) | 6 | 0 | 6 | | | | 1 | | | | | | |
| MLHS - Physical Planning Division | 2 | 0 | 2 | | | | 1 | | | | | | |
| National Council of Women | 2 | 0 | 2 | | | | 1 | | | | | | |
| National Disaster Committee | 1 | 0 | 1 | | | | 1 | | | | | | |
| National Government | 1 | 0 | 1 | | | | 1 | | | | | | |
| National Government - Cabinet | 1 | 0 | 1 | | | | 1 | | | | | | |
| National Parliament | 2 | 1 | 1 | | | | 1 | | | | | | |
| PMO - Vanuatu Project Management Unit | 2 | 2 | 0 | | | | 1 | | | | | | |
| Prime Minister's Office | 1 | 0 | 1 | | | | 1 | | | | | | |
| Public Health and Emergency and Surveillance Unit | 1 | 0 | 1 | | | | 1 | | | | | | |
| Radio Programs | 1 | 0 | 1 | | | | 1 | | | | | | |
| SI Association of Humanitarian Networks (SIAHN) | 1 | 0 | 1 | | | | 1 | | | | | | |
| Solomon Islands Broadcasting Corporation (SIBC) | 1 | 0 | 1 | | | | 1 | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Solomon Islands Christian Association (SICA) | 1 | 0 | 1 | | | | 1 | | | | | | |
| Solomon Islands Development Trust (SIDT) | 3 | 0 | 3 | | | | 1 | | | | | | |
| Solomon Islands Gospel Association | 1 | 0 | 1 | | | | 1 | | | | | | |
| Solomon Power | 3 | 0 | 3 | | | | 1 | | | | | | |
| Solomon Water | 3 | 0 | 3 | | | | 1 | | | | | | |
| Umbrella Organisations | 1 | 1 | 0 | | | | 1 | | | | | | |
| UNELCO | 3 | 3 | 0 | | | | 1 | | | | | | |
| Vanuatu Association of NGOs | 3 | 3 | 0 | | | | 1 | | | | | | |
| Vanuatu Climate Action Network | 2 | 2 | 0 | | | | 1 | | | | | | |
| Vanuatu Ministry of Foreign Affairs | 1 | 1 | 0 | | | | 1 | | | | | | |
| Vanuatu Ministry of Lands and Natural Resources | 6 | 6 | 0 | | | | 1 | | | | | | |
| Vanuatu MLNR - Department of Water Resources | 1 | 1 | 0 | | | | 1 | | | | | | |
| Vanuatu Mobile Force | 3 | 3 | 0 | | | | 1 | | | | | | |
| Vanuatu Public Works Department | 1 | 1 | 0 | | | | 1 | | | | | | |
| Vanuatu Social Protection Committee | 1 | 1 | 0 | | | | 1 | | | | | | |
| Women's Business Association | 1 | 0 | 1 | | | | 1 | | | | | | |
| Youth Council | 2 | 0 | 2 | | | | 1 | | | | | | |
| Commonwealth Local Govt. Forum Secretariat | 1 | 1 | 0 | | | | | 1 | | | | | |
| Pacific Community (SPC) | 5 | 2 | 3 | | | | | 1 | | | | | |
| Pacific Island Development Forum (PIDF) | 2 | 0 | 2 | | | | | 1 | | | | | |
| Pacific Island Forum Secretariat | 1 | 0 | 1 | | | | | 1 | | | | | |
| Regional Assistance Mission Solomon Islands (RAMSI) | 1 | 0 | 1 | | | | | 1 | | | | | |
| SPREP | 5 | 3 | 2 | | | | | 1 | | | | | |
| AOSIS | 1 | 1 | 0 | | | | | 1 | | | | | |
| ICLEI | 2 | 1 | 1 | | | | | | 1 | | | | |
| IOM | 2 | 2 | 0 | | | | | | 1 | | | | |
| UN-Habitat | 20 | 7 | 13 | | | | | | 1 | | | | |
| UNDP | 7 | 2 | 5 | | | | | | 1 | | | | |
| UNFCCC | 2 | 2 | 0 | | | | | | 1 | | | | |
| UNICEF | 3 | 3 | 0 | | | | | | 1 | | | | |
| United Nations | 3 | 3 | 0 | | | | | | 1 | | | | |
| World Health Organisation | 1 | 0 | 1 | | | | | | 1 | | | | |
| Australia - DFAT | 4 | 2 | 2 | | | | | | | 1 | | | |
| DFID (UK) | 1 | 1 | 0 | | | | | | | 1 | | | |
| European Union | 1 | 0 | 1 | | | | | | | 1 | | | |
| GIZ | 3 | 3 | 0 | | | | | | | 1 | | | |
| JICA | 1 | 0 | 1 | | | | | | | 1 | | | |
| USAID | 3 | 2 | 1 | | | | | | | 1 | | | |
| ADRA | 2 | 1 | 1 | | | | | | | | 1 | | |
| Care International | 2 | 2 | 0 | | | | | | | | 1 | | |
| Caritas | 1 | 0 | 1 | | | | | | | | 1 | | |
| Live and Learn | 6 | 1 | 5 | | | | | | | | 1 | | |
| Margaret Enkage Foundation | 1 | 1 | 0 | | | | | | | | 1 | | |
| Nature Conservancy | 1 | 0 | 1 | | | | | | | | 1 | | |
| NGOs | 8 | 3 | 5 | | | | | | | | 1 | | |
| NGOs - International | 3 | 2 | 1 | | | | | | | | 1 | | |
| Oxfam | 13 | 8 | 5 | | | | | | | | 1 | | |
| Red Cross | 2 | 2 | 0 | | | | | | | | 1 | | |
| Save the Children | 2 | 1 | 1 | | | | | | | | 1 | | |
| WaterAid | 1 | 0 | 1 | | | | | | | | 1 | | |
| World Vision | 9 | 4 | 5 | | | | | | | | 1 | | |
| Adaptation Fund | 1 | 0 | 1 | | | | | | | | | 1 | |
| Asian Development Bank | 2 | 1 | 1 | | | | | | | | | 1 | |
| Global Environmental Facility | 2 | 1 | 1 | | | | | | | | | 1 | |
| Green Climate Fund | 2 | 2 | 0 | | | | | | | | | 1 | |
| The World Bank | 12 | 4 | 8 | | | | | | | | | 1 | |
| Australian Bureau of Meteorology | 1 | 1 | 0 | | | | | | | | | | 1 |
| RMIT University | 1 | 1 | 0 | | | | | | | | | | 1 |
| TVET | 1 | 1 | 0 | | | | | | | | | | 1 |
| Consultant - Arcadis | 1 | 0 | 1 | | | | | | | | | | |
| Consultant - BECA | 1 | 1 | 0 | | | | | | | | | | |
| Consultant - Genis Science | 1 | 1 | 0 | | | | | | | | | | |
| Consultants - Other | 2 | 2 | 0 | | | | | | | | | | |

# APPENDIX M: KEY THEMES – HOUSEHOLD & COMMUNITY FIGURES

| Household | School Fees Mentions | Jobs/Employment - Mentions | Job as Migration Driver | Study Migration | Income Difficulty Mention | Informal Business | Garden - Yes | Garden - No | Garden Unsure |
|---|---|---|---|---|---|---|---|---|---|
| **BSHH1** | 6 | 11 | 1 | | | | | 1 | |
| **BSHH2** | | 12 | 1 | | | | 1 | | |
| **BSHH3** | | 12 | 1 | | | | 1 | | |
| **BSHH4** | 3 | 3 | 1 | | | | 1 | | |
| **BSHH5** | 7 | 8 | | | | | 1 | | |
| **BSHH6** | 15 | 13 | 1 | | | | 1 | | |
| **BSHH7** | 7 | 2 | 1 | | | | 1 | | |
| **BSHH8** | 4 | 10 | 1 | | | | 1 | | |
| **ETHH1** | | 3 | | | | | 1 | | |
| **ETHH10** | | 6 | 1 | | | | 1 | | |
| **ETHH2** | | 3 | | | 1 | | 1 | | |
| **ETHH3** | 1 | 5 | 1 | | | | 1 | | |
| **ETHH4** | | 11 | 1 | | 1 | | 1 | | |
| **ETHH5** | 1 | 6 | 1 | | | | 1 | | |
| **ETHH6** | 3 | 31 | 1 | | | | | | 1 |
| **ETHH7** | | 4 | | | | | 1 | | |
| **ETHH8** | | 9 | | | 1 | | 1 | | |
| **ETHH9** | | 15 | | | | | | 1 | |
| **JBHH1** | 2 | 30 | | | | Builder | 1 | | |
| **JBHH10** | | 11 | | | | | 1 | | |
| **JBHH2** | 7 | 20 | 1 | | | | 1 | | |
| **JBHH3** | 1 | 9 | 1 | | 1 | | 1 | | |
| **JBHH4** | 4 | 13 | 1 | | | | 1 | | |
| **JBHH5** | 3 | 26 | 1 | | 1 | | 1 | | |
| **JBHH6** | | 14 | | | | | 1 | | |
| **JBHH7** | 2 | 23 | | | | | | 1 | |
| **JBHH8** | | 20 | | | | Builder | | | 1 |
| **JBHH9** | 1 | 33 | 1 | | 1 | | 1 | | |
| **OJHH1** | 3 | 13 | 1 | | | | 1 | | |
| **OJHH2** | | 5 | 1 | 1 | | | | 1 | |
| **OJHH3** | | 15 | | | | | | 1 | |
| **OJHH4** | 1 | 13 | 1 | | 1 | | | 1 | |
| **OJHH5** | 1 | 7 | 1 | | | | | 1 | |
| **OJHH6** | 4 | 32 | | | | | 1 | | |
| **OJHH7** | | 8 | 1 | | | | 1 | | |
| **OJHH8** | 3 | 11 | | 1 | | | | | 1 |
| **OJHH9** | 2 | 6 | | | | | | 1 | |
| **SSHH1** | 3 | 8 | | | | | 1 | | |
| **SSHH10** | | 21 | | | 1 | Baker | 1 | | |
| **SSHH2** | 3 | 13 | 1 | | | | 1 | | |
| **SSHH3** | | 12 | 1 | | | | 1 | | |
| **SSHH4** | | 4 | | 1 | | | 1 | | |
| **SSHH5** | 3 | 6 | 1 | | | | | 1 | |
| **SSHH6** | | 6 | 1 | | | | 1 | | |
| **SSHH7** | | 15 | 1 | | | | | 1 | |
| **SSHH8** | 5 | 20 | | | | | 1 | | |
| **SSHH9** | 3 | 17 | | 1 | | | 1 | | |
| **WVHH1** | 4 | 17 | 1 | | | | 1 | | |
| **WVHH10** | | 19 | 1 | | | | | 1 | |
| **WVHH2** | 3 | 8 | | | | Canteen | 1 | | |
| **WVHH3** | | 18 | | | | Cleaner | | | 1 |
| **WVHH4** | 2 | 18 | 1 | | | | 1 | | |
| **WVHH5** | | 9 | 1 | | | | 1 | | |
| **WVHH6** | | 18 | | | | | 1 | | |
| **WVHH7** | 5 | 19 | | 1 | | | 1 | | |
| **WVHH8** | 2 | 16 | 1 | | | Builder | | 1 | |
| **WVHH9** | 4 | 8 | | | | | | | 1 |