

Inclusive and resilient shelter guide: accounting for the needs of informal settlements in Solomon Islands

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Abstract. Rapid urbanisation in the Global South is leading to the growth of informal settlements in urban areas, commonly characterised by inadequate housing and a lack of essential services. It is estimated that nearly one-third of the world's population is living in unsafe and unhygienic conditions and experiencing considerable socio-economic disadvantage. What's more, natural hazards exacerbated by climate change, pose increasing risks to the integrity of the housing. Solomon Islands, a Small Island Developing States (SIDS) in the Pacific region, is a case in point. The country is rapidly urbanising, has a high rate of poverty, limited governance capacity, and poor living conditions. In Honiara, the capital city, an estimated 40% of its residents now live in urban informal settlements, with urbanisation and climate challenges further compounded by land conflicts, ethnic tensions, and insecure land tenure. Given the unique challenges facing urban informal settlers are often overlooked by shelter guides, this paper aims to address this identified gap by developing a gender and disability-inclusive guide that considers the complete lifecycle of a disaster (pre-, during- and post-); informed by the needs, values and aspirations of communities living in the informal settlements of Honiara. Qualitative data was gathered through 5 community workshops and stakeholder interviews. With an emphasis on self-response, the identified shelter needs were then matched with the roles and responsibilities of the Government to support a process of 'assisted' self-preparedness and recovery.

1. Introduction

The purpose of this paper is to examine the unique challenges and potential solutions to fulfil adequate, disaster-resilient, and inclusive housing needs of the people living in urban informal settlements of Honiara, the capital of Solomon Islands in the South-Pacific region of the planet.

The paper is structured to provide an overview of the significance of adequate housing and what global efforts have been put in place to address the challenge. It is followed by a focus on the context of Solomon Islands to understand what the key barriers and opportunities facing those living in informal settlements are, and to address the challenges at the intersection of adequate, inclusive and resilient housing. The research methodology used to collect and analyse data is presented following a discussion on key findings and concluding notes, including the way forward.

2. Literature Review

2.1. *Inadequate housing, socio-economic inequality, and environmental injustice*

A lot of global effort has been put into addressing the adequate housing needs of all. In 1948, adequate housing was recognised in the Universal Declaration of Human Rights Article 25(1). Later, in 1966, it

was included in the International Covenant on Economic, Social and Cultural Rights (UN-Habitat, 2021). In 1978, a dedicated authority, UN-Habitat, was formed to ensure adequate housing for all. According to the UN-Habitat (2015, 2021) the right to adequate housing include i) **freedoms**: protection from forced eviction, privacy, choosing location and freedom of movement; ii) **entitlements**: security of tenure, non-discriminatory access and participatory decision-making; and iii) **meets minimum adequacy criteria**: security of land title, proximity to livelihood, access to basic services and social amenities, affordability etc. These criteria suggest that the right to adequate housing for ‘all’ is reliant on more than the physical supply of housing.

Housing is much more than merely four walls and a roof. There is ample evidence to prove that housing catalyses to its resident’s health, education, and social and economic progress (Ahmed 2015; Barakat 2003; Charlesworth and Ahmed 2015; Davis et al. 2015; Schilderman and Parker 2014). Empirical evidence in the town of Ekwendeni, Malawi demonstrates a 44% reduction in diseases in children under 5 years of age through improvements in the physical condition of housing, showing linkages between housing and health (Wolff et al. 2001). There are clear linkages between inadequate housing and negative effects on “urban equality and inclusion, health and safety, and livelihood opportunities” (United Nations, 2022).

Informal settlements and housing poverty are an outcome of socio-economic inequality. Statistical data suggests that the gross domestic product (GDP) per capita per year rose from an estimated 1,102 in 1820 to 15,212 international dollar in 2018, i.e. 15 times the past international average (Roser 2020a). However, prosperity from such economic growth has not been shared equally across the world. Globally, approximately 30% of the urban population lives in inadequate housing in urban informal or squatter settlements (World Bank, 2021). In absolute numbers, this equates to over one billion people and is estimated to increase to three billion people by 2030, that is, triple the number of people in the next decade (United Nations, 2022). Inadequate housing in a dense, dilapidated, and patchy serviced informal urban settlement adds to the health, education, social and economic disadvantage of its occupants.

Climate change and increasing frequency and intensity of natural hazards have exposed environmental fragility. While natural hazards are categorized as per their occurrence, such as geophysical, hydrological, meteorological, climatological, and biological; climate change as witnessed today is not a natural climatological occurrence. The *Intergovernmental Panel on Climate Change* (IPCC, 2021) has provided overwhelming evidence that human activities have led to global warming at an unprecedented rate in at least the last 2000 years. Scenarios suggest a rise in intensity, frequency, and complexity of climate-related hazards, with human-induced climate change the reason why our current era is termed Anthropocene (IPCC, 2021). Furthermore, data by the *Centre for Research on the Epidemiology of Disasters Events Database* (CRED EM-DAT and UNISDR 2018, p.3) states that 91% of all disasters in two decades from 1998-2017 were caused by extreme weather events. The same report warns of an increase in economic loss from climate-related hazards by 151% between two twenty-year periods of 1978-1997 and 1998-2017.

Through differential vulnerabilities and disaster impacts, disaster injustice and climate injustice are exposed. For example, informal settlers in the Global South, commonly living in poor quality housing, are disproportionately impacted by disasters. Data suggests that Asia and Oceania region face 67% of world disasters, 70% of deaths and more than 80% of overall economic losses (CRED EM-DAT and UNISDR 2018). The same report confirms that for disasters since 2000, “an average of 130 people [in low-income countries have] died per million living in disaster-affected areas, compared to just 18 in high-income countries”. This equates to seven times more impact, in terms of lives lost, on one community than another, exposed to the same magnitude of a natural hazard (Iyer-Raniga & Vahanvati, 2020). The reasons for differences in disaster impact is related to pre-existing vulnerabilities in physical (unplanned, unserviced and poorly built housing), social (lack of access to resources) and financial (lack

of safety nets) situation. What's more, limited resources and the lack of a housing insurance safety net makes recovery nearly impossible. Disasters are, thus, caused by unsustainable development patterns and governance failure, as much as natural events.

Housing constitutes a large share of economic loss from disasters, on an individual as well as a national scale. Disaster-resilient and inclusive housing not only benefits socially and ecologically but also makes economic sense. Thus, a house saved from disaster impact can pay for itself many times over in the form of disaster avoided, economic loss and lives saved.

2.2. The case of Honiara, Solomon Islands

Solomon Islands, located in the South Pacific region, faces complex challenges to fulfilling disaster-resilient and inclusive housing needs for all. The country is ranked 2nd in the world (after Vanuatu) for disaster risk by the World Risk Report (Aleksandrova et al. 2021). The Small Island Developing States (SIDS) and the atoll nations of the Pacific Ocean region are among the most vulnerable to climate change, seasonal-to-interannual climate variability and sea-level rise, as highlighted by the IPCC (2014). By 2090, Solomon Islands is estimated to witness up to 3.1-degree centigrade rise in temperature, 0.6meter rise in sea level, 2-11% increase in wind speed and rainfall increase (PACCSAP and Solomon Islands Meteorological Services 2015). Cyclones are twice as likely to pass close to Honiara during El Nino conditions as they are during a La Nina event. It is also located in the 'Pacific Ring of Fire'.

Disaster impacts in the Pacific are exaggerated due to cascading disasters and often, unexpected flow-on effects. Some of the direct impacts of disaster include loss of lives, affected people, damage to houses and infrastructure and economic loss. Indirect impacts from disaster include psycho-social issues and reduced livelihood means, among others. An example of a complex disaster is Tropical Cyclone Harold in December 2020, which occurred at a time when the country was vulnerable to the Covid-19 pandemic lockdown that made emergency management and coordination challenging. In the Pacific, often, a heavy downpour can lead to other hazards such as landslide, with a flow-on effect on reduced availability of food, water and livelihood means, as well as associated mosquito-borne disease and other water/food borne diseases (e.g., diarrhea) (Trundle and McEvoy, 2016). This is what makes disaster risk reduction and climate adaptation in the Pacific very challenging.

Solomon Islands also faces ongoing developmental challenges, such as rapid population growth, urbanisation, and unplanned housing developments. Challenges unique to the Pacific region include the small size of the economy, limited resources, spatial isolation and most importantly, limited governance capacities. The challenges of unplanned urban growth in the Pacific region are often overlooked due to the country/ region's relatively smaller size (of population, economy), despite the impacts of urbanisation manifesting in similar challenges as in Asian megacities (Trundle et al. 2018).

Expansion of informal settlements is one of the manifestations of urbanisation in Solomon Islands. The population of Solomon Islands has increased at an annual rate of 2.7% over the 2009 – 2019 period to reach 721,000 people, which is far higher than any other SIDS in the Pacific (Solomon Islands National Statistics Office, 2020). In the same duration, in Honiara, the capital city of Solomon Islands, the population has increased at a much faster rate of 5.8% per year, reaching 130,000 people (Solomon Islands National Statistics Office, 2020). The city's median age is 19.9 years, reflecting a predominantly younger population. The growth in informal settlements is a consequence of this rapid and unplanned growth. In Honiara, the capital city of Solomon Islands, approximately 35-40% or more than a third of its population is estimated to live in informal settlements (Trundle & McEvoy, 2016). The actual number is likely to be higher than this estimate since the expansion of informal settlements into peri-urban zones is not included in census data.

Access to greater economic, health and education opportunities is what attracts most people to move to Honiara from rural areas or atolls. However, a lack of access to affordable land and housing has led to an expansion of informal settlements. An estimated 20% of youth are unemployed (Trundle & McEvoy, 2016) further contributing to the issue. As per the 2009 Solomon Islands census, the so-called affordable homes being sold by Solomon Islands Home Finance Limited (SIHFL) cost SBD495,000 (AUD 83,100) to SBD 735,000 (AUD 123,500), which is over 50 times the annual median wage (Keen and Mcneil 2016; Kiddle and Hay 2017). These houses are not affordable to the vast majority, and therefore, people do not have any choice, other than to live in informal settlements. These informal settlements are characterised by physical aspects including illegal occupancy, unplanned urban development, inadequate housing, and a lack of universal access to basic services, as well as economic aspects including living in hazardous environments to allow proximity to livelihood and economic opportunities.

The uniqueness of informal settlements in Honiara is the fact that they are characterised more by the social and environmental aspects, not just physical and economic aspects, as discussed above. The *wantok* system or socio-cultural hierarchies, kinship connection and a relationship of reciprocal obligation, typically evident in rural areas, are evident in the urban informal settlements of Honiara. Customary land rights and informal governance are examples of the intersection of rural systems in urban living. Environmental aspects include people's close connection to the place (of the origin and residence) and with nature (land, water, mountains, forests, corals, and wetlands). A village-like organic settlement layout, subsistence activities, and food gardens alongside houses are all manifestations of socio-ecological aspects in the urban morphology (Jones 2011). These characteristics have led some to term the informal settlements as 'urban villages' (Trundle and McEvoy 2016).

However, the *wantok* system also has some negative consequences. Since people like to live close to their community, informal settlers accommodate their extended families leading to overcrowding. As per the estimates of UN-Habitat (2015), these informal settlements can have a population density of up to 2,953 people/sq.km. and an average of 7 people per household. Additionally, job opportunities are also skewed favourably towards those who are one's *wantok*, rather than those with qualifications. The rising cost of living has led to changes in gender roles with men no longer being the sole breadwinners. However, women continue to face significant gender inequalities, anti-social behaviour and violence. The decline in living standards, gender inequalities and the high poverty rate have placed the country 151st out of 189 countries and territories (UNDP, 2020) and the Human Development Index value of 0.567. Thus, understanding the complex, and changing, social dynamics within Honiara, is very important.

Housing provides a vital entry point to address the challenges of climate- and disaster- resilience, inclusive development, and urbanisation, in an integrated manner. Housing is also a representation of its resident's "culturally derived perceptions of [their] physical, cultural and social needs and desires" (Oliver-Smith 1990, p. 7). The emphasis on housing as a means to addressing multiple, interlinked challenges facing our society is also evident in the New Urban Agenda (UN-Habitat 2015), the Pacific Urban Agenda (UN-Habitat and CLGF 2015) and the regional 'Framework for Resilient Development' (FRDP, 2017-2030) (SPC, SPREP, PIFS, UNDP, UNISDR and USP 2016). These agendas position housing at the centre of national and local urban agendas to bring transformative change to address the challenges of disaster resilience, urbanisation, and social inequality.

Despite the many challenges being faced by informal settlers, shelter responders have tended to focus on rural areas to date. Possible reasons include shelter recovery in urban areas being resource-intensive (e.g., expensive materials and construction), complicated by land tenure and other issues which are often outside their professional experience (Vahanvati et al. 2022). Additionally, existing shelter guides do not provide a holistic grounding to their guidance. Limited governance capacity in Solomon Islands to

effectively manage the growth of the urban environment has also been cited as a key reason for persistent precarity, informality and vulnerability. As such, the country continues to rely heavily on international aid. Within this complex and unique setting of Honiara in the South Pacific region, localised approaches are needed to address the challenges at the intersection of disaster resilience, social inclusiveness, and informal settlement development. This paper aims to address the identified gap while ensuring the shelter recommendations are informed by community perspectives.

3. Research Methodology

A predominantly qualitative methodology and case-study method was adopted for this applied research. The study adhered to housing as a universal human right, rather than a commodity and was based on a deeper understanding of community's needs, desires, values and in their complex spatial and disaster context (also termed as an area-based approach) (Sanderson 2017, Urban Settlements Working Group 2019). A combination of social sciences and architectural methods were used for data collection. Qualitative data was gathered from those living in informal settlements as well as key stakeholders. Community workshops were held in five informal settlements from August and September 2021 (see Figure 1). Visual storyboards were used rather than written resources to assist the local team with any technical or language barriers (i.e. translating English into Pidgin). The local project partners based in Honiara were a vital resource given international travel restrictions in 2021 due to the Covid-19 pandemic.

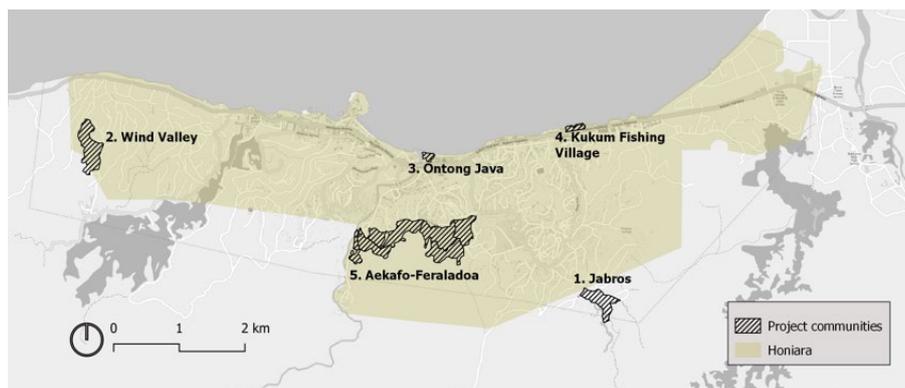


Figure 1: Municipal boundary of Greater Honiara and the five urban informal settlements as case studies. (UN-Habitat Climate Resilient Honiara research project)

These engagement activities were followed by two validation workshops: one with civil society organisations (CSOs), NGOs, faith-based organisations (FBOs) and people with disabilities, and a second with local and national Government in October 2021. To ensure inclusion, out of a total of 189 community participants in workshops, 90 were women, 15 people living with disabilities, 26 young men and 43 young women. A sign language interpreter was also engaged for a stakeholder workshop to assist the project team with collecting stories and experiences from a group of young hearing-impaired students. The local project team used architectural discipline specific techniques such as photographs of houses, kitchens and toilets, construction joints, settlements and materials. Additionally, during workshops, community members were also asked to sketch their desired home, and stakeholders to draw the current material supply chain for building and construction, amongst other activities. The workshops included considerations for housing typologies (traditional and contemporary), materials (local, imported, supply chain issues), construction skills (quality, consistency), building regulations and the roles and responsibilities of shelter responders (including disaster-affected communities) as well as, considers the whole of the lifecycle of (pre-, during- and post-) disaster, gender-sensitivity, and disability-inclusiveness.

The informal settlements were selected as case studies to provide representation of diverse urban settings (urban or peri-urban; coastal or inland hilly settlement) and vulnerabilities to hazards. These five urban informal settlements were identified as vulnerable hot spots, based on extensive community-based workshops by Trundle and McEvoy (2016).

4. Findings and Discussion

Our engagement in this action-research project in Solomon Islands has provided critical insights into the particular needs, rights and aspirations of the people living in urban informal settlements. Key findings from the workshops are: (1) there is a lot of technical capacity to build, but it needs strengthening in technical principles and construction skills for shelter's multi-hazard resilience; (2) an emphasis on 'assisted' self-help approach, i.e., a combination of financial, material, and technical support; and (3) a political voice for the communities. The output was the Solomon Islands Shelter Guide, which is intended for both formal shelter responders and local community members who typically act as first responders.

First, a key message from the community perspective is that they have capacities, including building and carpentry skills (which they are proud of), housing design and traditional knowledge of weather forecasting and appropriate housing, though it is not widespread among all. Most communities sought further capacity building in technical principles and construction skills for multi-hazard resilience of housing. They would also like the skills to assess the quality or weaknesses in their house and be able to strengthen it, prior to an event. To a large extent, such a 'self-help' approach to shelter preparedness or shelter recovery reflects the local realities of communities often acting as 'first' responders.

A potential way to strengthen community capacity is by 'train the trainers' activities, which allows communities to share best practice examples and skills. Traditional skills, such as sago palm leaf weaving (mainly done by women) for wall and roof panels, are also disappearing. To some extent this is the case because of the local markets being flooded with cheap, imported materials, the quality of which is highly variable and construction techniques not yet well-established among all builders. Traditional knowledge, such as weather forecasting, is also gradually being lost, mainly because of rural to urban migration, which creates a people-place disconnect, and associated loss of environmental cues. Moreover, weather forecasting is becoming increasingly complex due to uncertain weather patterns emerging from climate change. The Women's Weather Watch are actively continuing to share traditional knowledge including understanding the lunar cycles; stars; wave patterns; clouds; birds and animal behaviour; plants; and such other types of holistic/nature-based approaches. This provides a unique opportunity for women to teach and train future generations. Furthermore, these trainings can be conducted at existing training organisations in collaboration with Solomon Islands Government. There is ample evidence to prove the failure of one-off skills training activities conducted during post-disaster recovery, to translate into capacity development or to get embedded in the local construction sector (IFRC 2012, O'Brien and Ahmed 2012, Schilderman and Parker 2014; Vahanvati 2018). Ongoing skills training and an enabling environment is essential to allow those skills to translate into disaster-resilient construction and livelihood improvement of the local community.

Second, communities emphasised a need for 'assisted' self-help to ensure the safety of their house, prior to, during and post-disaster. The fact that people living in informal settlements are entrenched in poverty, underscores their need for assistance. The experience of people living in the Kwa village, displaced by the 2014 floods, affirms that in absence of assistance (land and housing), they are unable to recover. They are still living in makeshift shelters or tents in April Valley, where they relocated willingly, nearly 8 years ago (Hawkins 2017). Such stories are not uncommon. For the informal settlers who have little or no safety net (e.g., monetary savings or housing insurance), assistance plays a huge role in determining whether they will recover. As one community member from the Aekafo-Feraladoa settlement said,

“Need to get the money first. You might ask your family for money if you need to have shelter immediately. Otherwise, it can take too long to sell things at the market”

The above example and local community’s perspectives suggest that shelter preparedness or recovery requires technical knowledge, materials, and finances. The concept of ‘assisted’ self-help and ‘assisted’ self-recovery has come a long way, since its first introduction in international development by pioneer John Turner (1976), and later, in disaster scholarship by Ian Davis, Ian Davis, Paul Thompson and Fred Krimgold (1978) through the first UN-led Shelter after disasters guidelines. This concept is now widely used in practice by CARE, World Vision and Habitat for Humanity, among others. This also lends itself to the concept of ‘incremental housing’ and the principle of a ‘core space’. Incremental housing means that housing is a process, and its residents add to their houses as and when money and resources became available. Core space relates to at least one room or minimum space (in new or existing houses), which communities can strengthen for multi-hazard resilience. The Guide also provides recommendations for accessibility within the house and in settlements for people with disabilities. However, given the constraints of resources and difficult terrain means that most people with disabilities are carried or assisted by their family members. Local communities urged for assistance to be tailored to the specific needs of an area-based community and be based on damage assessment. They noted that self-preparedness and self-recovery must be combined with a combination of technical knowledge, materials, and financial support. The Guide only provides one element of support, the other two (materials and finance) need to be provided by the relevant in-country authorities.



Figure 2: (left) A ‘strong’ house built by Kwara’ae man in Wind Valley settlement (peri-urban); (right) A typical timber house with timber posts, corrugated roof, and window shields for rain protection in Aekafo-Feraladoa settlement (hilly); dotted line shows improvement opportunities. (Source: Vahanvati et.al. 2022; Photo credit: John Clemo)



Figure 3: (left) a house which withstood Cyclone Namu (1986) with ‘copper’ roof added since, in Fishing Village settlement (coastal); (right) a ‘sturdy’ house in Ontong Java settlement (coastal) (Source: Vahanvati et.al. 2022; Photo credit: John Clemo)

The Guide serves as a ‘kit-of-parts’ of technical construction details and materials, for communities and shelter responders to choose and combine, to suit a particular context, budget, and hazard exposure. The Guide also provides best practice shelter exemplars from all the five informal settlements, especially those that have withstood previous disasters such as floods and cyclones (see Figures 2 and 3).

Third and one of the most vital issues community’s perspective is a need for improved governance. The presence of community disaster committees at the settlement scale is vital. These committees can become a conduit between communities and government, which is essential to help communities prepare for, and respond to emergencies and long-term recovery. In this regard, UN-Habitat advocates for community development committees (CDC) both in Honiara and in cities throughout the Global South. However, this requires government goodwill and their active collaboration with authorities, non-government organisations and communities to create an enabling environment. There is also a need for relevant building codes, policies, and enforcement from the government, however, it is beyond the scope of this paper to discuss those aspects of shelter resilience.

5. Conclusions and Further Research

This paper developed a gender and disability-inclusive Shelter Guide that considers the complete lifecycle of a disaster (pre-, during- and post-), for and with the communities living in informal settlements of Honiara. Qualitative data were gathered through 5 community workshops and stakeholder interviews. After nearly 7 months of local engagement, the project team has developed a deeper understanding of the community’s needs, aspirations, and values; within their complex spatial and disaster context. The output of the research was the Solomon Islands Shelter Guide. This paper draws from the Guide to present some of the findings. One of the key findings was an emphasis on shelter self-preparedness and self-recovery. However, in order for them to do that, they needed a combination of assistance – technical knowledge, materials, and financial support – which is tailored to their settlement’s specific needs and based on hazard damage assessment. While the Guide provides one of the assistances (i.e., technical), this paper is a call for action from the Solomon Islands Government and shelter responders to fulfil the rest of the community needs for shelter adequacy.

RMIT University’s team of researchers will continue working with the same five urban informal communities in 2022 to develop and operationalise local disaster plans and capacity building activities as part of the Climate Resilient Honiara project (funded by the UNFCCC Adaptation fund and administered by UN-Habitat).

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