



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

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Acknowledgement & Purpose



What are the unique challenges and localised solutions to fulfil adequate, disaster-resilient, and inclusive housing needs of urban informal settlers in Honiara, the capital of Solomon Islands?

1. What does adequate housing mean?
2. What are the unique housing challenges facing urban informal settlers in Honiara?
3. What are locally-appropriate solutions to adequate, disaster-resilient, and inclusive housing, to support shelter responders to better support communities?

Table 1: AHP objectives to attain the goal of strengthening local humanitarian capability and community resilience to natural hazards.

1	Communities are better prepared for rapid and slow onset disasters.
2	The rights and needs of women, people with disabilities, youth and children, are being met in disaster preparedness and response at all levels.
3	Government, NGOs, the private sector and communities coordinate more effectively for inclusive disaster preparedness and response.
4	National NGOs and faith-based organisations have more influence and capacity in the country's humanitarian system.
5	AHP NGOs work effectively together and with other relevant stakeholders.

2. Unique housing challenges, Honiara

7500 islands

Grouped into three diverse social, cultural and geographic sub-areas, namely:

1. Melanesia
2. Micronesia and
3. Polynesia

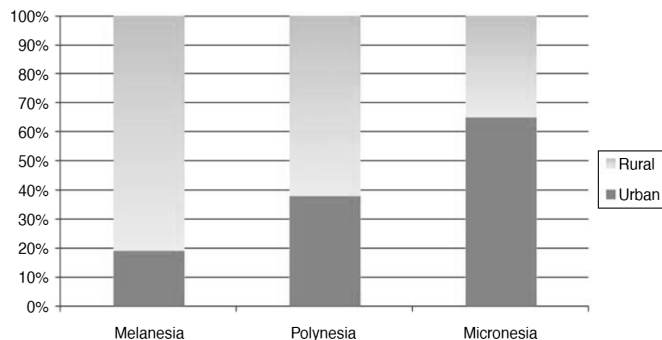


Figure 1. Urban share of population (per cent) by Pacific sub-region. *Source:* Adapted from Pacific Island population estimates and projections, Secretariat of the Pacific Community (September 2010).



Melanesia, Micronesia and Polynesia map (Source: World Atlas)

2. Unique housing challenges, Honiara – urbanisation

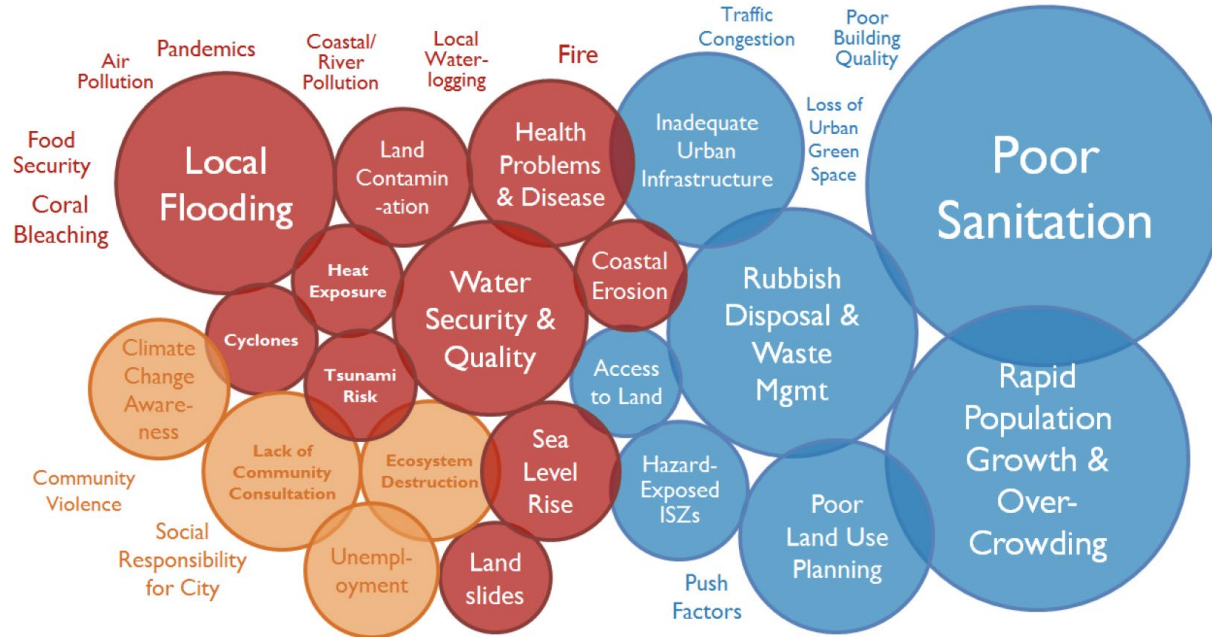


Rapid population growth, urbanisation and unplanned housing developments leading to:

- **Approximately 40 percent of city's population lives in informal settlements**, with declining living standard, a lack of sanitation, water and infrastructure (Trundle and McEvoy, 2016)
- **Approximately 1/3rd of city's population lives outside of government-tenured land**
 - 87 percent land = customary
 - 8 percent = state owned
 - 5 percent land = held under perpetual estate and fixed-term estate (Trundle and McEvoy, 2016)
- Development of land limited by road access, utilities and government release of land
- **Population density** = 2,953 people/sq.km. and average household size = 7 people (UN-Habitat, 2014)
- **Unemployment** = 20 percent of youth unemployed, a lot of women are self-employed
- **Inequality** = 1/3rd of children are stunted and significant gender inequalities (UN-Habitat, u.d.)

The country placed **151st out of 189 countries and territories** (UNDP, 2020) and the **Human Development Index** value of 0.567.

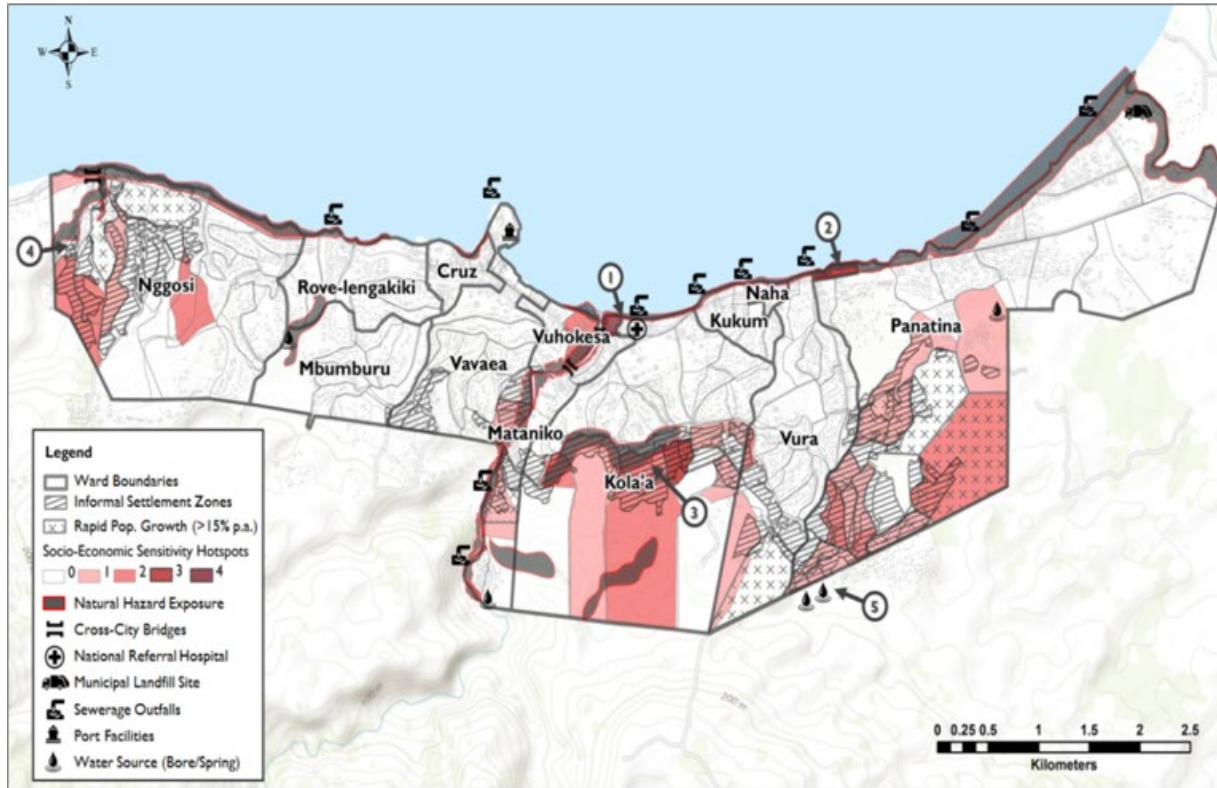
2. Unique housing challenges, Honiara - poverty



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)



2. Unique housing challenges - hazard exposure



Vulnerability assessment in Greater Honiara, Solomon Islands (Source: Trundle & McEvoy, 2017)

The Solomon Islands face multiple natural hazards and climate extreme events:

- Prone to cyclones, earthquakes, coastal floods, landslides, tsunamis, urban floods, extreme heat, wildfires.
- Climate variability, sea-level rise
- Ranked 2nd in the world (after Vanuatu) for disaster risk (the World Risk Report, 2021).
- Located in the 'Pacific Ring of Fire'.



Honiara City view (Photo: Usha Iyer-Raniga)

2. Unique challenges facing Honiara

The **unique challenges** facing urban informal settlers in Honiara in addressing housing inadequacy and vulnerability or differential disaster impacts:

- Social aspect - insecure land tenure, *wantok* system (kinship connection), high density
- Environmental aspect – high exposure to hazards and climate change, people's close connection to the place (of origin/ atoll) and with nature.
- **Technical** – substandard and un-serviced housing, **village-like in urban environment**
- **Financial** – poverty, housing unaffordability, heavy reliance on international aid
- Governance aspect – informal governance, limited capacity

Methodology: Inclusive and disaster resilient shelter

Methodology and method: a predominantly qualitative methodology and case-study method was adopted for this applied research, developed over an eight-month period in 2021. It is informed by a series of engagement activities, including:

- **Five community workshops (representing 11 different settlements)**, conducted in August and September 2021
- **Two validation workshops**, one held with civil society organisations (CSOs), NGOs, faith based organisations (FBOs), and second with local and national Government in October 2021
- In total, 189 participants were involved in the workshops, including 90 women, 15 people living with disabilities, 26 young men and 43 young women. Among people with disabilities, 7 men (one blind man, one man with limited mobility, five deaf men) and 8 women (two blind women, five deaf women and one intellectually disabled woman) were involved in the workshops

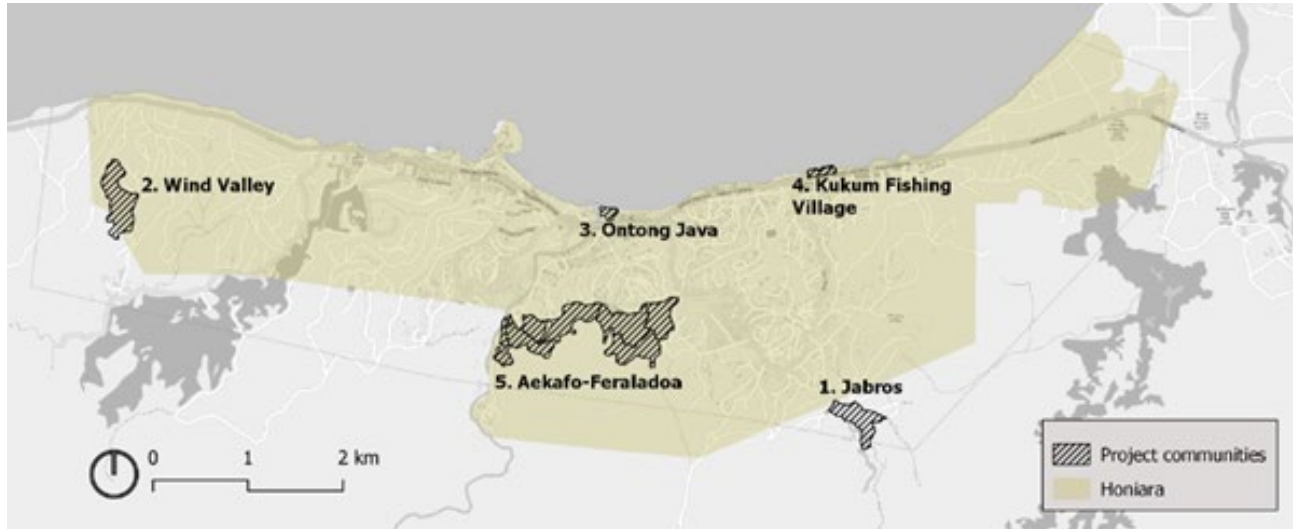


Figure 4: Validation workshop involving women, youth and people with disabilities.
(Photo credit: Solomon Yeo)

3. Solutions for disaster resilient & inclusive shelter

3.1 A strong presence of technical skills in construction

Traditional housing typology:



Coastal housing typology



Peri-urban housing typology



“80-90% of houses built in the community are without a proper house plan so may be in breach of relevant laws. It would be great for them [the building code] to explain the rules, why they exist. To raise awareness and train people how to build according to the code.”
(Wind Valley settlement resident)

3. Solutions for disaster resilient & inclusive shelter

3.1 A strong presence of technical skills in construction, but some technical guide for multi-hazard resilience

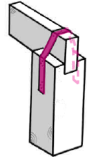


Figure 41: Galvanised steel strip for tying timber bearer to timber posts. (Adapted from Vanuatu Shelter Guide, 2019)

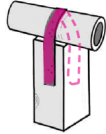


Figure 42: Galvanised steel strip for tying bamboo bearer to timber post.

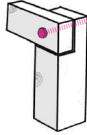


Figure 43: Bolt tying of timber bearer to timber posts. (Adapted from Kauniz Yeung Architecture, 2008)

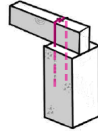


Figure 44: Reinforcement bar for tying timber to reinforced concrete column.

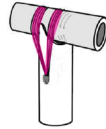


Figure 45: Tying bearer to posts. (Adapted from Vanuatu Shelter Guide, 2019)

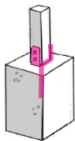


Figure 31: Pad footing with timber post, sitting on a galvanised steel shoe to elevate timber post to avoid timber decay.

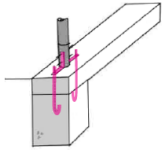


Figure 32: Pad footing with reinforced concrete plinth beam for bamboo post; threaded rods in concrete and angle bracket used to connect bamboo to beam.

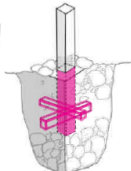


Figure 33: Crushed coral footing with timber post, which is painted with tar to protect from white ants and decay.

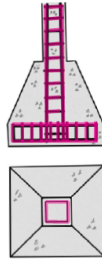


Figure 34: Stepped footing with reinforced concrete column with minimum 4 steel bars.

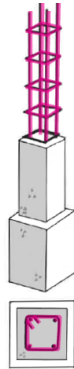


Figure 35: Sloped footing with reinforced concrete column with minimum 4 steel bars.

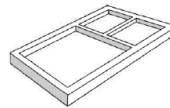


Figure 36: Strip footing from reinforced concrete.

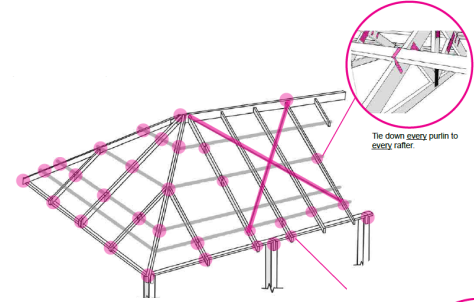


Figure 46: Short or floor-post detail with diagonal bracing at the corners of external walls.

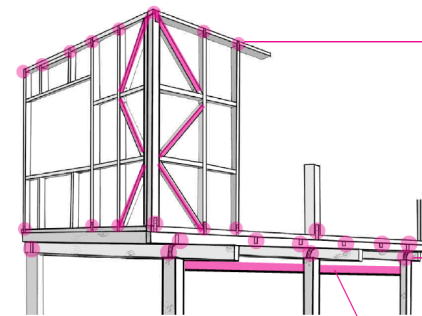
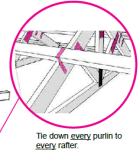
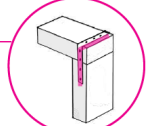


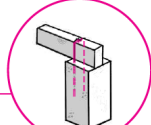
Figure 47: Showing bracing, column to bearer connections to demonstrate current good construction practice.



Tie down every purlin to every rafter.



Ties between top plate and post.



Reinforcement bar for tying timber to reinforced concrete column.



Cross bracing between timber posts.

3. Solutions for disaster resilient & inclusive shelter

3.2 An emphasis on 'assisted' self-recovery i.e. a combination of financial, material and technical support and housing strengthened incrementally, underpinned by principles of 'core space'

Tie Down from Bottom Up to best prepare your shelter.



Figure 23: Only footings and posts constructed.
Location: Jabros settlement
(Photo credit: John Clemo)



Figure 24: Incremental addition of floor and wall frames.
Location: Jabros settlement
(Photo credit: John Clemo)



Figure 25: Incremental addition of wall finish (temporary) but structure built well.
Location: Ontong Java settlement
(Photo credit: John Clemo)

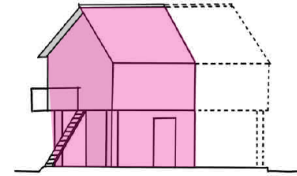
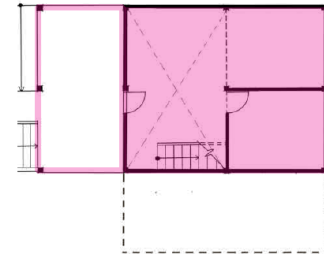
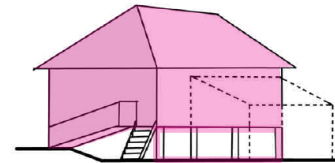
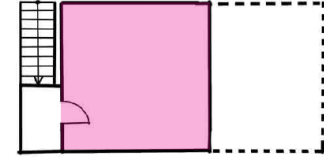


Figure 29: Core space arrangement (single room 4mx4m, floor raised to have ample space underneath for People with Disabilities, a gable roof, dotted line shows possibility for future extension).



Incremental housing as one of the pathways to permanence

3. Solutions for disaster resilient & inclusive shelter

3.2 An emphasis on 'assisted' self-recovery i.e. a combination of financial, material and technical support

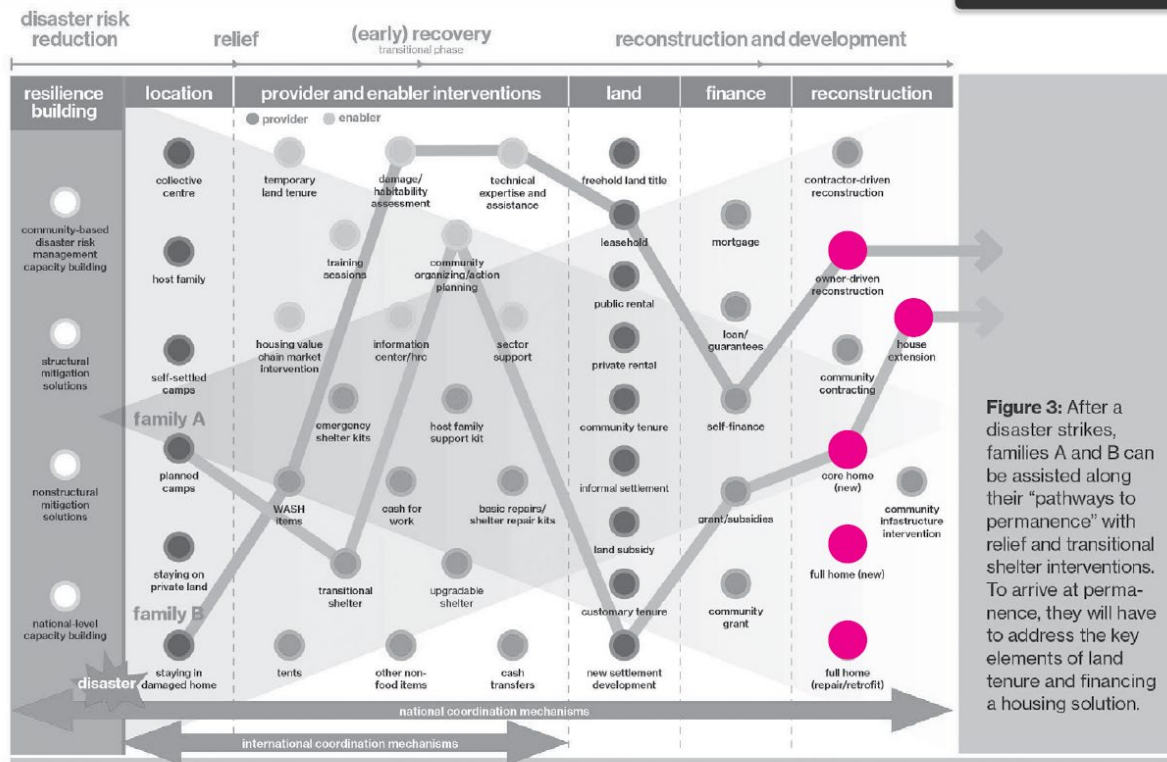


Figure 3: After a disaster strikes, families A and B can be assisted along their “pathways to permanence” with relief and transitional shelter interventions. To arrive at permanence, they will have to address the key elements of land tenure and financing a housing solution.

Figure 26: Pathways to permanence. (HfHF, 2016)

3. Solutions for disaster resilient & inclusive shelter

3.3 A positive role for Government and the international shelter community

SECTION 3 | INTRODUCTION | COORDINATION | **PREPAREDNESS** | RESPONSE | RECOVERY | LOGISTICS

Disaster preparedness refers to measures taken - knowledge and capacities development, actions – by the residents and responders, to prepare for and reduce the impacts of likely or current disasters. This includes actions taken in a timely and effective manner to maximise readiness to quickly and appropriately respond to and recover from the impacts of disasters, if required.

"Before an event, you do an assessment – is there any weakness in the house? If so, you must improve it." (Ontong Java settlement resident)
"At the family level, women said they had stores of clean water, matches, torches, and radio batteries for times of disaster." (Jabros settlement resident)

Community Members:

Always try and prepare well before the wet season, with more targeted efforts leading up to or at the beginning of a disaster.

What can community members do?

- Stay informed.
- Have a community and family disaster plan in place.
- Prepare shelter by tying down the house at every level from the roof to the ground.
- Clear the site around your house.
- Prepare your family by stocking up supplies and having a 'pick-n-go' bag (the local term) ready in case evacuation is necessary.
- Leave no one behind i.e. ensure people with disabilities, children and older people are evacuated earlier.
- Be prepared.

Shelter Responders:

Provide practical upgrading training and advice, appropriate for local budgets.

What can shelter responders do?

- Inform yourself on the context and appropriate assistance types and methodologies.
- Conduct disaster awareness training, education and drills on an ongoing basis, by employing a combination of technology and traditional knowledge.
- Conduct inclusive best practice construction training and advice for more resilient housing.
- Communicate using all available formats for early warning.
- Actively seek out and understand your organisation's roles and responsibilities.
- Stay updated by maintaining regular contact and knowledge sharing with:
 - Relevant government agencies and contact points at national, provincial and municipal levels.
 - CSOs and community groups such as women, youth and People with Disabilities.
 - Community Development Committees (CDCs), or village committees especially those within your operational area.

SOLOMON ISLANDS RECOVERY COORDINATION STRUCTURE

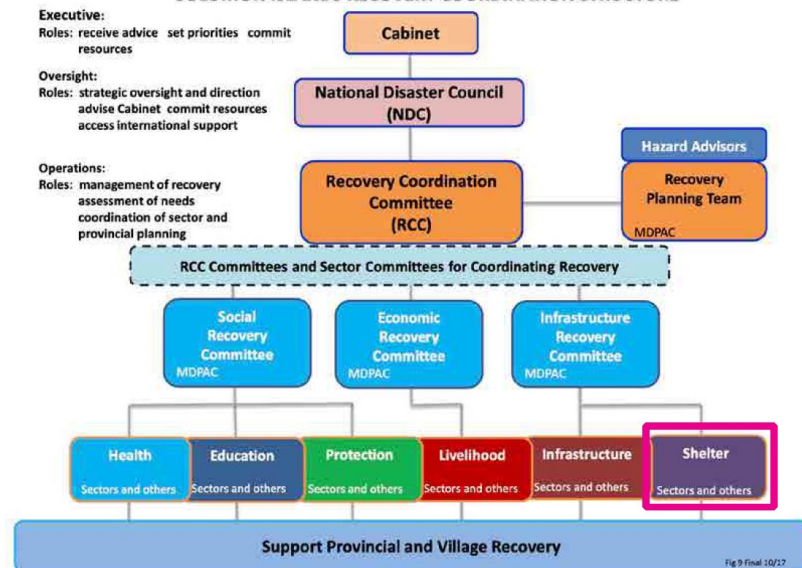


Figure 8: Solomon Islands Recovery Coordination Structure. (Source: NDMO, 2018 p. 62)



Thank you

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