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HELPER Community Support Manual

for Sustainable and Resilient South Pacific Villages

- H** Health, Nutrition and Food Security
- E** Education and Training
- L** Lifestyle Aspirations, Stakeholder Engagement and Human Rights
- P** Planning and Land Use
- E** Environment, Water and Sanitation
- R** Resilient Building Design



Kopeng Community Health Building, Papua New Guinea Highlands

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Introduction

Vision

Partner Housing Australasia¹ is an entirely voluntary organisation, which aims to transform the lives of people living in Asia-Pacific villages by improving the cyclone, earthquake and tsunami resistance of their houses, clinics, schools and community buildings; and by providing clean water supplies and hygienic sanitation.

Mission

Partner Housing Australasia works with local communities and governments to build safe and healthy villages. We offer four basic services:

1. Pro-bono “Design and Help-Desk” Engineering Services to other Non-governmental Organisations (NGOs) and governments of South Pacific countries.
2. Finance, design, materials supply, supervision, mentoring and training for village infrastructure, clinics schools, water, sanitation and housing projects.
3. Development of village building systems with enhanced cyclone, earthquake and tsunami resistance and sustainable rural water supply and sanitation systems.
4. Training programs for the design, construction and maintenance of improved village buildings, rural water supply and sanitation.

Scope

This “Helper Manual” provides introductory material and references, in six parts, in support of Partner Housing Australasia programs of sustainable and resilient South Pacific village development.

- H Health, Nutrition and Food Security** provides a variety of references, ranging from practical healthy recipes to academic research papers, and regional strategies on improving South Pacific village health, nutrition and food security.
- E Education and Training** lists web-based training packages, including presentations and manuals, on a village planning, water reticulation, sanitation and building-related subjects.
- L Lifestyle Aspirations, Stakeholder Engagement and Human Rights** introduces guidelines for clear communications between South Pacific village residents and non-governmental organisations (NGOs) seeking to provide aid assistance in the form of donations or pro bono professional services.
- P Planning and Land Use** are critical factors that must be considered by non-governmental organisations (NGOs), when considering the design and construction of village infrastructure.
- E Environment, Water and Sanitation** interact in balance to ensure that the health of village residents can be maintained.
- R Resilient Building Design**, capable of resisting cyclonic wind, earthquakes and tsunamis, is essential for safe and secure village life.

¹ Partner Housing Australasia (Building) Incorporated, referred to herein as Partner Housing Australasia and PHA, is a fully voluntary charitable organisation.

Definitions

Although closely related, there is a subtle difference between “sustainability” and “resilience”.²

- **Sustainability** is defined as “... the ability to be maintained at a certain rate or level, for example avoidance of the depletion of natural resources in order to maintain an ecological balance...”
- **Resilience** is defined as “... the capacity to recover quickly from difficulties; toughness. In the fields of engineering and construction, resilience is the ability to absorb or avoid damage without suffering complete failure ...”

In other words, a sustainable undertaking (or structure) has minimum negative impact on its environment; while a resilient undertaking (or structure) suffers minimum damage when subjected to a natural disaster, thus continuing to function with minimal repairs and therefore is also relatively sustainable.

This **HELPER** Community Support Manual deals with both sustainability and resilience issues.

Purpose

The purpose of this HELPER manual is to provide context and guidance for the formulation of meaningful stakeholder engagement when establishing village infrastructure programs and during the infrastructure design phase.

To use the manual, click on the various links to training packages and other resources associated with the particular subject.³

This manual provides –

- A “roadmap” to the various services offered by Partner Housing Australasia and Quasar Management Services⁴ and its Partner Organisations⁵;
- Links to background material, academic papers and strategy documents, which provide background and context for stakeholder consultation, when establishing practical infrastructure aid projects in South Pacific villages; and
- Links to detailed design manuals, construction guides, specifications and training material (on the Partner Housing Australasia website, <https://www.partnerhousing.org>) dealing with specific design considerations for the provision of village clean water supply, healthy sanitation, and resilient building design for South Pacific villages.

² <https://www.bing.com/search?q=define+sustainability>, <https://www.bing.com/search?q=define+resilience>

³ The referencing convention, adopted in this HELPER manual for academic papers and similar documents, is as follows. The title of the paper is highlighted and listed first, followed by the author(s) if known, and then the publisher and date. This order has been chosen to assist users to first consider whether the subject of each publication relates to their particular task.

⁴ Quasar Management Services Pty Limited is referred to herein as Quasar or QMS, is a consulting engineering firm, wholly owned by Partner Housing Australasia.

⁵ Vision for Homes (PNG) is referred to herein as VFH. The South Ranongga Community Association (Solomon Islands) is referred to herein as SRCA.

Model Resilience Improvement Program and Submission

This section sets out the broad framework of a model program for improving the resilience of South Pacific villages subject to natural disasters in the context of climate change. Considerations include threats to village infrastructure (clinics, schools, community buildings, village houses, water services and sanitation) and threats to food security resulting from –

- Cyclones of increasing intensity and frequency;
- Earthquakes, and the resulting landslip influenced by increased rainfall;
- Tsunamis, influenced by rise in sea levels.

The Model Resilience Improvement Program is based on a submission to UNDP for a “low-value grant to support the strengthening of provincial resilience through climate and disaster risk management” in Solomon Islands. The headings are adapted from the UNDP template.

PROJECT: “Community-led Climate Resilience (CLCR) – Learning and Planning for Disasters”

The Organisation! will support 10 village communities and one school, to develop and record their understanding of the risk and their preparedness to cope with natural disasters; and will develop and implement a range of learning and mitigation programs (including some initial funding) for climate-change and disaster resilience initiatives.

Project Summary

This project will improve the climate resilience of the selected communities, principally by facilitating a community-led approach to provide responses to climate impacts that reflect local circumstances, local risks and local opportunities.

The key stakeholders in the communities are those most vulnerable to housing, food, and water security: women, children, elderly and mobility impaired people. Other stakeholders include the national and provincial governments, and their departments.

Each selected community will provide their permission and enrolment in the process and solutions (short and long-term) and an agreed set of actions and a community-level governance structure for implementation. A small amount of seed funding will be provided for achieving the short-term objectives.

General Information About Applicant Organization

This is to be provided by the organisation submitting the application, describing the main competencies, especially concerning support to the vulnerable groups of people, mission, main types of activity, main target audiences and partners, in-house or outside experts, a brief list of projects supported by international or local organizations and donors, number of staff, office space, and equipment.

Relevant Experience

This is to be provided by the organisation submitting the application, describing the experience, demonstrating its capability to represent the interests and protect the rights of vulnerable groups of persons, specific results achieved in providing support to the vulnerable groups of persons, and relate this to the project objectives.

Problem Analysis

The South Pacific region is home to a diverse range of people, many of whom live in small villages. Their built infrastructure (housing, clinics, schools, community buildings, water reticulation and sanitation) are regularly ravaged by cyclonic wind, earthquake and (in some cases) tsunamis, exacerbated by global climate change and rise in sea level. Their principal food sources are often produced in small vegetable gardens, which are prone to cyclone or landslip damage, or from the sea, which is subject to warming, reef and marine life destruction and seismic disruption.

The most vulnerable groups are the residents of small isolated villages, with poor communications and (in general) poorly built infrastructure. Maintenance is often unfunded and therefore not carried out, resulting in rapid deterioration in built infrastructure. When natural disasters strike, usually without warning, it is the women, children, elderly and the infirm who are the most vulnerable.

This project seeks to create an awareness and to focus community resolve to improving village resilience, commencing with a series of simple and proven community-led actions such as

- the development and documentation of simple village strategies,
- identifying, improving and maintaining escape paths;
- adapting community shelters (in existing public buildings)
- providing simple bracing and/or cyclone anchorages for vulnerable buildings; and
- a focused education program.

Once the project has proven to be successful in the pilot stage, and subject to the availability of funds, it will be extended to the wider region.

Project Objectives

- a) Consult with the people of selected village communities to determine and document their understanding and preparedness to cope with natural disasters, which are increasing in frequency and intensity due to climate change.
- b) In consultation with the selected communities, develop and implement a range of disaster mitigation measures to improve the community resilience to withstand natural disasters. The measures to be implemented will be practical and cost effective, given the relatively small budget to be shared amongst the participating villages.
- c) Using the process described above, develop and document a model with broad range of strategies and supporting material, which can be implemented in other parts of the province and country.
- d) Promote the dissemination of this support material throughout the region via websites of multiple agencies and other media platforms, giving due acknowledgement to the funding organisations.

Expected Results

The resulting positive changes in the lives of the people in the selected communities and the wider region are:

- An actual tangible reduction in risk of injury and death in the event of future natural disasters; and
- An increase in the practical use of existing village infrastructure.

Within the selected village communities–

- The short-term outcomes will be a well-documented and widely-distributed plan identifying the specific village risks and recommended immediate responses in the event of a range of natural disasters (earthquake, tsunami, cyclone, landslide etc.)
- The long-term outcomes (subject to budget restraints and on-going funding) will be the planning, funding and implementation of progressive improvement in structural resilience of existing community buildings [acting as emergency shelters and food distribution depots] and water services.

Within the wider region –

- The long-term outcomes (subject to budget restraints and on-going funding) will be the planning of progressive improvement in structural resilience of existing community buildings [acting as emergency shelters and food distribution depots] and existing water services. The wide dissemination of the support material (including due acknowledgement to the funding organisations) via the internet and other media, throughout the region, will help promote long-term awareness of increasing climate change hazards and will provide practical guidance to cost-effective resilience improvements.

Target Audience

While all village residents are at risk, women, children, the mobility impaired and the elderly are less capable of fleeing to safe locations. Therefore, mitigation strategies will incorporate the appropriate gender-lens and other elements to accommodate these specific groups. For example, structural resilience of school buildings will be prioritized, and escape paths will be suitable for women, children and those who are less mobile.

Based on the records and lived experience of previous earthquakes, tsunamis, land slips and reef damages, personnel have a detailed understanding of which villages are vulnerable and the nature of the risk. This understanding is crucial to determining which mitigation strategies are appropriate to which villages.

The initial preparation phase of the program includes stakeholder liaison, in the context of the funding organisation's goals and reporting requirements.

Project Activities

Preparation – The initial activity will be a desktop research exercise reviewing known risks and previous work on disaster and climate resilience. The program will include three phases for each client community.

Phase 1 – Introduction and Background. The goal of the initial introduction visit will be to gain permission and enrolment from the community. To the extent possible, women and youth will take a leadership role in the process. We know this can be difficult, so we have selected communities where we already have a connection to key female leaders and influencers.

Phase 2 – Risk Workshop and Action Plan. The main workshop will be convened with community representatives and leaders, ideally from existing governance structures such as church or water committees. The process is basically a risk assessment covering events; probabilities, consequences and exposures. The workshop will be facilitated by our trainers and, to assist with wider thinking, will be structured on an adapted version of Partner Housing Australasia's **HELPER** system covering health, education, lifestyle, planning and land use, environment water and sanitation, and resilient building design. The structure of the workshop will be based on [The Solomon Islands Rural WASH Community Engagement Guidelines](#) (a process with which our team is familiar). The outcome will be a table of rated risks with mitigation actions that can be prioritized. We will use the BIG EASY system to decide on the order of actions, including the first steps and their resourcing, including cash and community in-kind contributions

Phase 3 – Follow Up. Approximately 6-8 weeks after the risk workshop, our team will follow up with a third visit to the village. The purpose of the visit is to verify the community has met its commitments towards the action plan and will be an adapted version of the [Village WASH Committee Monitoring Guide](#). If it has, SRCA will provide its cash or materials contribution to the plan.

Communication Strategy

Existing personal relationships and contacts facilitate make initial contact with the village leaders of the selected village communities. Communication with the residents will be via village meetings, supported by banners and laminated posters, each bearing the appropriate website links. It is recognised that many villages do not yet have reliable internet communications, but some do, and in the future, many will. Communication across the region will be via website links and internet posts.

The Organisation will embark on a strategy of linking the technical manuals (e.g. **HELPER** Manual) to other organisations, NGOs and agencies.

The "**HELPER** Community Support Manual for Sustainable and Resilient South Pacific Villages" (available from PHA website) provides generic guidelines and indexed further reference in the context of **H** (Health, Nutrition and Food Security), **E** (Education and Training), **L** (Lifestyle Aspirations, Stakeholder Engagement and Human Rights), **P** (Planning and Land Use), **E** (Environment, Water and Sanitation) and **R** (Resilient Building Design). Refer to website – www.PartnerHousing.org

Organizational Capacity Improvement

The aim of the Organisation! includes ensuring local involvement in the program design, stakeholder consultation and construction of village water and sanitation infrastructure. The Organisation! has progressively increased its managerial and construction skills, and is fully capable of administering training and construction programs in the region. This program will be the latest in a continuum of successful development programs. All local stakeholder consultation, all face-to-face training and all physical construction will be carried out by the Organisation! personnel and contractors. Capacity and confidence to carry out such work increase with each program undertaken.

Work Plan

CLCR Work Plan				
1 month preparation , 6 months implementation				
Month	Activity, Location	Topic	Implementers	Planned Results
1	Preparation of workshop materials			Guidelines and materials ready for implementation
1	Organisational planning			
	Recruitment, kick-off, logistics, finance, UNDP reporting			Org! systems prepared for implementation
2	8x CLCR introductory visits at each village	Permission, enrolment	Org! , village rep	Agreed MOU with community/school on goals, people and commitments
3	3x CLCR introductory visits at each village	Permission, enrolment	Org! , village rep	Agreed MOU with community/school on goals, people and commitments
	4x CLCR workshops	Risk and actions	Org! , village rep	Prioritised plan including action, responsible person, resources required and timing
4	4x CLCR workshops	Risk and actions	Org! village rep	Prioritised plan including action, responsible person, resources required and timing
5	3x CLCR workshops	Risk and actions	Org! , village rep	Prioritised plan including action, responsible person, resources required and timing
6	3x CLCR follow up visits	Validation, accountability	Org!	Community's commitments to next steps verified. Certification achieved.
	3x Supply of promised materials and resources	Resourcing	Org!	Org! supplies promised resources
7	8x CLCR follow up visits	Validation, accountability	Org!	Community's commitments to next steps verified. Certification achieved.
	8x Supply of promised materials and resources	Resourcing	Org!	Org! supplies promised resources

Events

VWC COACHING GUIDE

Overview:
This note explains how you will organise short meetings with Village Water Committees (VWCs) which need your support.

Objectives:

- To help the VWC do problem analysis, problem solving, and action planning to improve their performance in key areas.
- To help the VWC develop practical ideas to improve their skills and system for managing each of their responsibilities

Process:

- During the ASSESSMENT/MONITORING VISIT you helped the VWC to analyse their situation and identify areas of weakness eg high levels of dropout, no system for regular maintenance, poor handling of money, low involvement of women, etc.
- Those VWCs who were performing poorly were rated "LOW" in certain areas eg organisation, meetings, women's involvement, management of maintenance, management of money, etc.
- This visit is to help the VWC look at the identified areas of weakness and make improvements.
- Your job is to facilitate discussion on the key areas of weakness – helping the VWC to analyse why there is a problem and work out how to solve the problem and strengthen management

Timing and Duration:

- Each coaching session will be roughly two hours in length. The duration will depend on the number of topics to be covered – and how much time you spend on each topic.

In planning the timing and duration for these coaching sessions –

- Ask the VWC what time is convenient for all members.
- Make sure that the timing suits female VWC members who have many other responsibilities.
- Many VWC members are farmers so choose dates and times that don't disrupt their farming activities. Avoid harvest time when farmers are very busy.
- Evening sessions may work better than sessions during the day – people may be more available.

Topic Guides

You will organise coaching sessions on those weak areas of management practice which were identified during the Assessment/Monitoring Visit.

Each area has a TOPIC GUIDE – a set of questions to help you discuss the topic with the VWC and help them discuss the causes of each problem (or weakness) and how to solve the problem. Each topic covers one area of management responsibility – organisation and meetings, how to

CE MONITORING GUIDE

What is the CE MONITORING GUIDE?

- CE MONITORING GUIDE is a list of questions which you will discuss with Village WASH Committee (VWC) members in a **1-2 hour meeting**. It covers all aspects of the VWC's WASH Committee's work – organisation and meetings, women's involvement, maintenance, management of O&M money, WASH behaviour change/hygiene, and relations with community and community leaders.
- You will use this tool to conduct assessment visits to VWCs in your province.
- Through asking the assessment questions you will help VWC members think about how they are working as a group and how they are managing each of their tasks.
- On the basis of their responses, you will make an assessment of the VWC for each category** – an assessment which you will share with the VWC. Through the assessment process you are telling the VWC that they are strong in certain areas, and weak in others.
- The results of this assessment will help you plan followup coaching visits**, and the results will help the VWC strengthen its organisation and management.

Objectives:

- To help you assess how members of the Village WASH Committee work together and how they manage each of their key tasks – so you can help them improve.
- To identify key problems or weaknesses of the Village WASH Committee which can then be used as the focus for followup coaching or training.

Assessment and Coaching Process

The Assessment meeting is the first step in a series of three steps:

- Step 1: Assessment Visit:** Visit to assess the Village WASH Committee on 5 important areas of their work – this helps you and VWC define things which need to be improved
- Step 2: Workplanning:** On the basis of the assessment of different VWCs you will develop a workplan for followup visits to VWCs which need improvement. The workplan will list VWCs to be visited, what problems to be addressed, and on what dates.
- Step 3: Followup Coaching Visits:** Visits to help VWCs to improve their performance in areas where they are weak

During the assessment visit you will: a) visit and assess each part of the water system (dam, tank, pipeline, tapstands), along with VWC members, and b) hold a meeting with the VWC.

During the Village WASH Committee meeting you will ask VWC members a series of questions and for each question you will write a response. The questions will help you and the VWC assess if the VWC has achieved the 'quality standard' in management. For each question you will record one of the following possible answers:

- "Yes" - means that the VWC has achieved the standard.
- "No" - means that the VWC has not achieved the standard. "No" responses are clear signs that the VWC needs to improve its organisation and performance.

Example Village Committee Coaching and Monitoring Guide

CLCR Risk Recording Sheet							
Community Name:				Issue:		Attendees:	
Population:				Workshop Date:			
Risk	Possible Cause/s	Potential Consequence/s	Existing Safeguards	Recommended Action	Item No	By	Actual Implementation
Earthquake							
Widespread building collapse	Inadequate structural design	Widespread homelessness and exposure	Some homes have cross-bracing	Conduct survey of all buildings for appropriate bracing	1.1		Open
Tsunami							
Destruction of low-lying gardens	Tsunami wave or saltwater intrusion to groundwater	Loss of 20% of village food supply for up to 6 months	Most food is grown in higher ground	Consider gift, lease or agreement for use of addition high level land to be used for community garden	2.1		Closed

Community Engagement Monitoring

Publications

SRCA will create the following training materials. All flyers, working papers, posters, videos and manuals will be prepared for repeated use in other locations, as an extended program is rolled out to other regions.

- A one-page flyer will be prepared, outlining the village resilience objectives of the project, and inviting village-based community consultation. These will be used to facilitate the initial consultations.
- A more detailed working paper will be prepared and circulated to the selected villages, outlining a range of resilience options (of varying cost), to assist in focusing conversations on practical initiatives.
- A video of the first village meeting will be taken (with the written permission of the participants) and edited to form an introductory video to be used in other village consultation meetings.
- Detailed “how to” training presentations for each agreed resilience improvement initiative will be prepared and posted on the PHA website. Links will be provided to other government agencies and NGOs.
- The “HELPER Community Support Manual for Sustainable and Resilient South Pacific Villages” and all of the numerous building skills training packages described therein will be available from the PHA website. Links will be provided to other government agencies and NGOs.

www.PartnerHousing.org/engineering

Project Monitoring and Evaluation

The outcome of each workshop will include a public commitment to the actions and responsibilities agreed. The actions will be structured such that the funding from SRCA to the village is contingent on the community filling one or more “trigger” commitments. These trigger commitments should be BIG-EASY items, and will include the establishment of a governance structure (if one does not already exist). Their purpose is not to make funding difficult but to create ownership of the other actions — we tend to place a higher value on things we have sacrificed something to get. Each village will receive a follow-up visit to hold them accountable to their trigger commitments. Assuming the commitments are fulfilled, the financial contribution will be made. Lastly, a public certification will be issued, including a sign, indicating the community’s attainment.

Future Activities

The workshop will almost certainly produce a long wish-list of actions that will far exceed the modest funding available. A logical next step would be to support the community to implement further actions. However, in the long-term, climate resilience cannot rely on outside donors funding physical projects. It must be driven by lasting behaviour change. Top-down policy making is unlikely to create lasting change at the community level. More likely it will be done with effective bottom-up community-led marketing-style change. To this end, local champions and influencers who are happy to be “early adopters” will need to be identified and supported.

Budget

Result Level	Workplan/Budget			a	b	c	d=bx+c	
	Result/Activity	Q1	Q2					Q3
OUTCOME	Improve the level of climate and disaster resilience in 10 Western Province communities and 1 school by: firstly, facilitating the community to prepare its own plan of action for key risks; and secondly, supporting them in commencing the plan.							
Progr. Output 1:	10 communities have a climate resilience action plan							
Act.1.1	Provision of 5 facilitators and direct project personnel to support CLCR in 10 communities in Ranongga Island							
1	Program Manager	X	X	X	nth	1	7	
2	Senior Trainer	X	X	X	nth	1	7	
3	Trainer (x2)	X	X	X	nth	2	7	
5	Boat Driver / Program Assistant	X	X	X	nth	1	7	
Act.1.2	Provision of logistical support to enable delivery of CLCR activities for 10 communities in Ranongga Island							
1	Boat (OBM) c/w 2-stroke 40hp engine	X	X	X	nth	1	7	
2	Boat moorage & security	X	X	X	nth	1	7	
3	Fuel & boat maintenance	X	X	X	nth	1	7	
4	Essential programatic Inter-islands travels	X	X	X	trip/nth	2	7	
5	Personal Safety Devices (PLBs & life jackets)	X	X	X	set	5	1	
Act.1.3	Implementation of CLCR activities in 10 selected communities in Ranongga Island							
1	Conduct CLCR Introduction (Leaders Meetings)		X		village	10	1	
2	Conduct CLCR workshop (Community Meeting)	X			village	10	1	
3	Provision of seed budget for CLCR implementation		X		village	10	1	
4	Conduct CLCR follow-up visits	X	X	X	village	10	1	
5	Conduct verifications with UNDP and donor officers			X	cluster/trip	5	1	
6	Procure and transport CLCR Signboard			X	Signboard	10	1	
7	Support Community CLCR celebrations		X	X	village	10	1	
Progr. Output 2:	Key school has improved climate resilience							
Act.2.1	Support implementation of selected CLCR in schools activities							
1	Conduct CLCR Introduction (Leaders Meetings)		X		school	1	1	
2	Conduct CLCR workshop (Community Meeting)		X		school	1	1	
3	Provision of seed budget for CLCR implementation			X	school	1	1	
4	Conduct CLCR follow-up visits			X	school	1	1	
Sub-total for the Programme Outputs (Total Direct Programme Cost)								
Progr. Support Output	Effective and Efficient Programme Management [Standard Output]							
2.1	Field office support (utilities,internet etc)		X	X	office/month	1	9	
2.2	Not used							
2.3	Not used							
2.4	Mobile phone service	X	X	X	phone/nth	4	3	
2.5	Not used							
2.6	Printer consumables	X	X	X	nth	1	3	
Sub-total for the Overhead Expenditures (Effective & Efficient Programme Mgmt + HQ Support Cost)								
Total Programme Document Budget								

Personnel

This is to be provided by the organisation.

Part 1 – Health, Nutrition and Food Security



Previously productive abandoned gardens on Mangaia, Cook Islands

Introduction

This part provides an overview and links to high-level policy initiatives and training packages for South Pacific village community health, nutrition and food security, initiated by various governments, United Nations, NGOs and other agencies. Due consideration should be given to the resources available, the social pressures that influence diet within the region, and threats to village food security including climate change, sea-level rise, soil degradation and competing land use practices.

Overview

In both developed and developing cultures, there exist a general lack of understanding of the values of traditional foods, as there is an accelerated trend towards western diets and fast foods. While this manual focuses on this issue in the context of South Pacific villages, it is also acknowledged that broadly similar issues arise in all cultures.

Research specific to the South Pacific generally highlights this gap in knowledge about traditional foods between older and younger generations. There are also misunderstandings between generations around young people's expressed interest in learning more about traditional foods.

The cited references indicate that often village residents are not eating enough fruit and vegetables, and have low intakes of some essential minerals, specifically calcium and vitamins. These deficits can be improved through eating more dark green leafy vegetables, orange sweet potato, papayas and mangos.

Training Packages

Set out below are links to various training packages, guidelines and other resources associated with village nutrition and diet on the internet. The resources are intended for use by NGOs and village elders, with the task of implementing village nutrition and food security programs.

- **“Five keys to safer food poster”**, World Health Organisation
<https://www.who.int/teams/nutrition-and-food-safety/multisectoral-actions-in-food-systems/five-keys-to-safer-food-poster>
- **“Pacific Islands Cookbook”**, ADAP Instructional Material ADAP 94-4
https://www.ctahr.hawaii.edu/adap/Publications/ADAP_pubs/1994-4.pdf

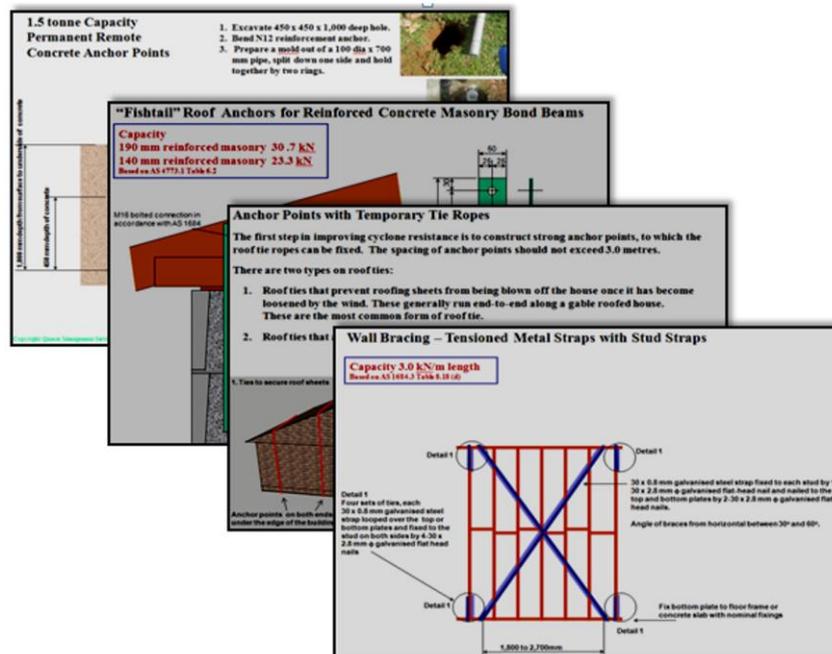
- **“Pasifika Plates”**, Pacific Community
<https://www.spc.int/sites/default/files/wordpresscontent/wp-content/uploads/2017/01/Pasifika-plates.pdf>
- **“Local Vegetable Food ‘Kaikai’ - Recipes in Solomon Islands”**, Maelaua, J.J., Ravindra C.J., Ho’ota, M., Tutuo Wate, J., Mapolu, E, Harunari, J.M., November 2009, World Vision, Ministry of Health, Honiara, Solomon Islands, Ministry of Agriculture & Livestock, Honiara, Solomon Islands
http://kastomgaden.org/wp-content/uploads/2010/06/Local-Vegetable-Food_Kaikai_Recipes-in-Solomon-Islands.pdf
- **“Fruit and Nuts in Solomon Islands”**, French, R., Rotary Club of Devonport North, District 9830, District 9600 & Food Plants International
<https://foodplantsolutions.org/wp-content/uploads/2018/05/Fruit-and-Nuts-in-Solomon-Islands.pdf>

Policy Documents and Academic Papers

Set out below are links to a limited selection of academic papers, conference proceedings and other documents and other resources, associated with high-level policy initiatives for village community health, nutrition and food security.

- **“Pacific nutrition workshop report, 28–30 November, 2017, Nadi, Fiji”**, 2018, Suva, Fiji, Pacific Community
<https://www.spc.int/resource-centre/publications/pacific-nutrition-workshop-report-nadi-fiji>
- **“Pacific Workshop on Nutrition, Noncommunicable Diseases and the Role of Codex”**, 20-22 April, 2015, Nadi, Fiji, World Health Organization and Food and Agriculture Organization of the United Nations
https://iris.wpro.who.int/bitstream/handle/10665.1/11395/RS_2015_GE_13_FJI_eng.pdf
- **“Food and nutrition security policy effectiveness analysis for the Solomon Islands”**, 2016, Food and Nutrition Security Impact, Resilience, Sustainability and Transformation (FIRST) programme, a strategic partnership comprising the European Union, the Food and Agriculture Organization of the United Nations (FAO) and the Government of the Solomon Islands, working together since 2016
https://www.foodsecurityportal.org/sites/default/files/2021-01/PEAR_Solomon_island.pdf
- **“Food Security in Solomon Islands: A Survey of Honiara Central Market”**, N. Georgeou, C. Hawksley, J. Monks, A Ride, M. Ki’i, L. Barratt, 2018, HADRI/Western Sydney University.
https://www.westernsydney.edu.au/_data/assets/pdf_file/0010/1465453/Food_Security_in_Solomon_Islands.pdf
- **“Dietary agrobiodiversity for improved nutrition and health outcomes within a transitioning indigenous Solomon Island food system”**, Vogliano, C., Raneri, J.E., Coad, J. et al., Food Security. 13, 819–847 (2021). <https://doi.org/10.1007/s12571-021-01167-7>
<https://link.springer.com/article/10.1007/s12571-021-01167-7>
- **“Malnutrition in rural Solomon Islands: An analysis of the problem and its drivers”**, Albert, J., Bogard, J., Siota, F., McCarter, J., Diatalau, S., Maelaua, J., Brewer, T., Andrew, N., 31 January 2020
<https://onlinelibrary.wiley.com/doi/full/10.1111/mcn.12921>
- **“Dietary Diversity of an Adult Solomon Islands Population”**, Horsey, B., Swanepoel, L., Underhill, S., Aliakbari, J., Burkhart, S., Nutrients. 2019 Jul; 11(7): 1622, Published online 17 July 2019, doi: 10.3390/nu11071622, PMCID: PMC6683259, PMID: 31319480
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6683259/>

Part 2 – Education and Training



Material forming part of the Partner Housing Australasia “Village Building Skills” Training Package

Scope

This part of the “Helper Manual” provides an index for the Partner Housing Australasia technical manuals and training packages, which are accessible from www.PartnerHousing.org. These technical manuals and training packages provide resource material for the other parts of the **HELPER** Support Package.

Technical Manuals

This section of the website provides technical manuals and other reference material to assist in the planning and the execution of programs aimed at improving the built infrastructure in South Pacific villages.

<https://www.partnerhousing.org/technicalmanuals>

GOVERNANCE

[Partner Housing Australasia Consolidated Procedures](#)

HELPER Community Support

H [Health, Nutrition and Food Security](#)

E [Education and Training](#)

L [Lifestyle Aspirations, Stakeholder Engagement and Human Rights](#)

P [Planning and Land Use](#)

E [Environment, Water and Sanitation](#)

R [Resilient Building Design](#)

VILLAGE AQUA Water and Sanitation System

[VILLAGE AQUA Design Manual](#)

[VILLAGE AQUA Water & Sanitation Design \(Workbook\)](#)

DANCER Building System

[DANCER Design Manual](#)

[DANCER Building Design \(Workbook\)](#)

[Structural Design Actions for South Pacific Village Buildings](#)

Other Publications

[Australian Involvement in Constructing Affordable Housing in Developing Countries](#)

Training Packages

This section of the website provides training packages for people involved in the planning and execution of programs aimed at improving the built infrastructure in South Pacific villages.

<https://www.partnerhousing.org/trainingpackages>

GOVERNANCE TRAINING

- [Constitution, Policies and Code of Conduct - Training](#)
- [Consolidated Procedures - Training](#)
- [Gender Equality and Diversity Policy - Training](#)
- [HR Professional Conduct and Training Policy - Training](#)
- [Sexual Harassment and Bullying Policy - Training](#)
- [Whistleblowing Policy - Training](#)
- [Incident Reporting Policy - Training](#)
- [Staff Safety and Security Policy - Training](#)
- [Child Protection Policy - Training](#)
- [Non-Development Activity Policy - Training](#)
- [Responsibilities, Authorities and Delegations Policy - Training](#)
- [Environmental Sustainability Policy - Training](#)
- [Financial Control, Banking, Auditing, Records and Procurement Policy - Training](#)
- [Human Rights Manual - Training](#)
- [Anti-terrorism Policy - Training](#)
- [Governance Monitoring - Training](#)
- [Training Program for Directors and Volunteers - Training](#)

WATER AND SANITATION TRAINING

- [Rural Water Supply Training Workbook](#)
- [Rural Sanitation Training Workbook](#)

BUILDING TRAINING

- [Introduction to Building Skills Training Workbook](#)
- [Structural Problems](#)
- [Basic Structure](#)
- [DANCER Building System Training](#)
- [DANCER Principles](#)
- [Elevated Timber Buildings](#)

- [Design and Setting Out Training Handbook](#)
- [Interpretation of Technical Designs](#)
- [Setting Out](#)
- [Timber Sub-floors, Floors, Stairs and Verandas Training Handbook](#)
- [Wall Bracing and Roof Anchorage Training Handbook](#)
- [Timber Wall Frames Training Handbook](#)
- [Timber Roof Frames and Trusses Training Handbook](#)
- [Timber Direct Anchoring System Training Handbook](#)
- [Timber Quality and Specification](#)
- [Concrete Training Workbook](#)
- [Concrete Slab on Ground Training Workbook](#)
- [Steel Framing Training Handbook](#)
- [Reinforced Concrete Block Walls Training Handbook](#)
- [Concrete Block Manufacture Training Workbook](#)
- [Design, Estimating, Costing and Quoting Training Handbook](#)

Part 3 – Lifestyle Aspirations, Stakeholder Engagement and Human Rights



Stakeholder meeting, Mount Hagen, Papua New Guinea

Introduction

This part of the “Helper Manual” provides an overview, links to training packages and other resources, and links to various references associated with stakeholder engagement, and the communication of lifestyle aspirations, and human rights policies relevant to South Pacific villages.

Overview

“Although governments of both donor and recipient countries have access to a broad range of resources, they must deliver a package of initiatives that benefit the majority of their constituents from whom they draw support, including the wealthy and influential. On the other hand, NGOs may focus on particular target groups, i.e., the poor, concentrating all of their resources and efforts in that area. Whilst it has been argued that we all benefit from a world where there is reduced differential between rich and poor, the affluent who finance and control governments in both the developed and less developed countries do not necessarily agree. Therefore, it is difficult for governments to divert resources to any projects associated with poverty reduction, unless there is a direct tangible benefit accruing to the elites who are in control. However, the constituents of NGOs are the donors and supporters, who usually act out of altruism. The major criticisms of NGOs usually relate to efficiency rather than focus. In such a climate, NGOs are free to apply all efforts to achieving their stated objectives. In such circumstances, it is clear that NGOs are in the best position to deliver focussed poverty relief and the resulting international development. Governments of both donor and recipient countries should provide funding to major NGOs, with broad objectives clearly spelt out in briefs which are negotiated by all interested parties. The most efficient means of raising and dispersing funds to relieve poverty is through a system of partnering or networking, where NGOs in developing countries manage projects using funds provided by other NGOs based in developed countries. This results in a move from project funding” by NGOs of developed countries in favour of “organisation funding”. (Johnston, 2000)

Partner Housing Australasia operates two program streams –

- (i) Practical design and construction of particular South Pacific village buildings, water and sanitation infrastructure; and
- (ii) High level research and advice to government agencies (and similar) relating to design standards and regulations for village buildings, water and sanitation infrastructure.

To ensure that both streams are informed by human rights considerations (including [but not limited to] gender, disability, and health issues) Partner Housing Australasia conducts an on-going research program, augmented by regular site observations and discussions with Partner Organisations. The on-going research program includes the following elements –

- (i) Human Rights Issues – Definition of the issues relevant to Partner Housing South Pacific village programs;
- (ii) Population Statistics – Collection and analysis of available gender, disability, health and other statistics for each country serviced by Partner Housing Australasia.
- (iii) Building Regulations – Collection and analysis of building regulations (including those that relate to gender, disability, health and other human right provisions) for each country serviced by Partner Housing Australasia.
- (iv) Collaborative Research - Partnerships with one or more Australian university, to research building practices (including consideration of human rights in village building).
- (v) Design Outcomes – Description of various design options resulting from the previous part of this research program.
- (vi) Partner Housing Australasia Analysis – Analysis of Partner Housing’s activities in the context of the human rights criteria and other key policies of the organisation.
- (vii) In-country monitoring of Human Rights – Partner Housing Australasia conducts on-going in-country monitoring to detect any obvious breaches of human rights.

Lifestyle Aspirations

Partner Housing Australasia offers its services on the principle of mutual respect amongst all stakeholders. We believe that our role is simply to facilitate the cost-effective fulfilment of the lifestyle aspirations (including health and safety) of our South Pacific neighbours, by offering pro bono professional services, which would otherwise be beyond their reach.

Stakeholder Engagement

Reflecting the principle of mutual respect amongst all stakeholders, stakeholder engagement by Partner Housing Australasia is based on established Participatory Rural Appraisal (PRA) principles as described below.

“PRA is about ‘bottom up’ group learning rather than ‘top down’ teaching. The history of the world has been a bottom-up process. No one ‘taught’ the people of developed nations how to make modern machines or cultivate prolific crops ... [but] we should not deny poor people the acquired knowledge of developed societies, simply because in the past that knowledge has not been skilfully transferred. [However] no one would suggest that aspiring “brain surgeons” and “rocket scientists” should learn their skills through by participatory methods...” (Johnston 2000)

Translating these comments into policies, Partner Housing Australasia uses PRA principles of stakeholder engagement to determine the social requirements of programs (for example, the size and floor plan of village buildings), while expert knowledge is used to source the funds and to provide specialised design.

Human Rights Policies

The Partner Housing Australasia “Constitution, Policies and Code of Conduct” Policy No 98 sets out the organization’s approach to human rights in aid development.

These policies are based on the background material set out in the manual, “Human Rights Considerations in South Pacific Village – Buildings, Water Reticulation and Sanitation” (Ref: B3.5b P20080801-2).

Partner Housing construction projects are in poor rural villages in the Asia-Pacific region, with the major focus on the South Pacific. Major work is currently concentrated in Papua New Guinea and Vanuatu, and there is a small latrine construction program in Philippines. The human rights issues considered are considered within the context of these locations. The assembly of statistical data and corresponding analyses are therefore limited to Papua New Guinea, Solomon Islands and Vanuatu. A separate research project is considered for Philippines in Part 4 Collaborative Research.

Racial or ethnic discrimination – Buildings, water reticulation and sanitary facilities constructed by Partner Housing are for use by all people, irrespective of race or ethnicity, and reflect culture of all potential users.

Religious or caste discrimination – Buildings, water reticulation and sanitary facilities constructed by Partner Housing are for use by all people, irrespective of religion or caste, and reflect culture of all potential users.

Gender, gender identity, sexuality or sexual orientation discrimination – Buildings, water reticulation and sanitary facilities constructed by Partner Housing are for use by all people, irrespective of gender, gender identity, sexuality or sexual orientation, and reflect culture of all potential users.

Poverty, class or socio-economic status – Buildings, water reticulation and sanitary facilities constructed by Partner Housing are for use by all people, irrespective of poverty, class or socio-economic status, and reflect culture of all potential users. Notwithstanding, all Partner Housing construction projects are in poor rural villages in the Asia-Pacific region.

Genocide – Partner Housing Australasia and its Partner Organisations do not tolerate genocide. There is no reported genocide in the places where Partner Housing operates.

Torture and cruelty – Partner Housing Australasia and its Partner Organisations do not tolerate torture or cruelty. There is no reported torture or cruelty in the places where Partner Housing operates.

Statelessness – Partner Housing Australasia and its Partner Organisations are compassionate to stateless people. There is no significant statelessness where Partner Housing operates.

Refugees – Partner Housing Australasia and its Partner Organisations have a compassionate approach to refugees. There are no reported refugees in the places where Partner Housing operates.

Slavery – Partner Housing Australasia and its Partner Organisations do not tolerate slavery. There is no reported slavery in the places where Partner Housing operates. This is notwithstanding some instances of exploitation.

Women's rights and discrimination against women – Buildings and sanitary facilities include appropriate privacy for women. Some communal standpipes in remote parts of Solomon Islands do not provide privacy for women (or men), but only where this is culturally acceptable, all showering is carried out fully clothed, and in the presence of others of the same gender.

Disabilities – It is recognised that in unpaved remote villages, people with disabilities are assisted to access buildings, communal standpipes and sanitary facilities.

Child protection – Partner Housing Australasia and its Partner Organisations ensure that there is no risk to children, including risks related to images and sex exploitation.

Child rights – Partner Housing Australasia and its Partner Organisations ensure that buildings are safely accessible to children.

Worker health & safety – Partner Housing Australasia and its Partner Organisations minimise the risk of injury or death occurring during the execution of construction projects, including the travel to and from the sites.

Privacy – Partner Housing Australasia and its Partner Organisations minimise the risk of private information being exposed as a result of Partner Housing activities.

Anti-terrorism and money laundering – Partner Housing Australasia and its Partner Organisations minimise the risk of facilitating terrorism through money laundering or sponsoring inappropriate activity.

Complaints Handling – Partner Housing Australasia and its Partner Organisations ensure that all complaints will be properly considered.

Non-development Activity – Partner Housing Australasia and its Partner Organisations ensure that non-development activity will not be undertaken during the project execution.

Bullying, Sexual Harassment & Misconduct – Partner Housing Australasia and its Partner Organisations ensure that there is no bullying, sexual harassment or misconduct.

Whistle Blowing – Partner Housing Australasia and its Partner Organisations facilitate the exposure of wrongdoing in all associated organisations.

Training Packages

Set out below are links to various training packages and other resources, associated with village stakeholder engagement and the design of culturally sensitive village buildings and houses. References are posted on the Partner Housing Australasia website, <https://www.partnerhousing.org>. The resources are intended for use by NGOs and village elders, with the task of implementing village building projects.

- PRA Stakeholder Engagement (Ref: P21101702-1)
<https://www.partnerhousing.org/building>
- DFAT & Stakeholder Reporting Template (B4.2a P21010131-1)
<https://www.partnerhousing.org/building>
- Monitoring & Evaluation Template (B4.1a P21010166-1)
<https://www.partnerhousing.org/building>

References

Set out below are links to various academic papers, conference proceedings and other documents and other resources, associated with village stakeholder engagement and the design of culturally sensitive village buildings and houses.

- Human Rights Considerations in South Pacific Village - Buildings, Water Reticulation and Sanitation (Ref: P20080801-2)
<https://www.partnerhousing.org/building>
- The Role of NGOs in International Development (Ref: P21101701-1)
<https://www.partnerhousing.org/building>
- Participatory rural appraisal, Wikipedia
https://en.wikipedia.org/wiki/Participatory_rural_appraisal
- Participatory rural appraisal, Book Review
<https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/participatory-rural-appraisal>

Part 4 – Planning and Land Use



Freshwin Green Living Community Master Plan, Ohlen, Port Vila, Vanuatu (Kaunitz Yeung Architects)

Scope

This part of the “Helper Manual” gives guidance and commentary on –

- Village and urban planning and land use; and
- Design and project management of suburban development and building.

Introduction

This part provides an overview, links to training packages and other resources, and links to various references associated with the design and construction of South Pacific village buildings, including community health buildings, schools and the like, giving due consideration to cost of construction, design criteria including cyclone, earthquake and tsunami risks within the region.

Overview⁶

Australians visiting many of our neighbouring countries often comment on the apparent “poverty”. However, poverty can be defined by many indicators, including:

- Disposable income, when compared to national and international averages and externally defined poverty levels;

⁶ The Overview is reproduced from parts of Johnston, R.K. (July 2001), *Australian Involvement in Constructing Affordable Housing in Developing Countries*, Deakin University, AID719 (reprinted 2022)

<http://www.PartnerHousing.org>

- Access to basic services including education, medical facilities, clean water and electricity;
- The quantity and quality (including nutritional value) of food intake;
- Availability of full employment balanced by the availability of leisure time;
- Pollution levels and the local environment; and
- The quality of housing.

Whilst the true position regarding some of these indicators can be illusive to a casual observer, one cannot help noticing the apparent poor quality of the housing stock. The general impression (to the average Australian) is one of poorly built and poorly maintained small houses or tiny high-rise apartments in crowded villages or cities, devoid of many of the modern conveniences to which we have become accustomed. However, we must be wary of translating our Australian pre-occupation with "the immaculate family home on the quarter acre block" into cultures that may have quite different aspirations and expectations in respect of their housing needs.

Urban growth of many cities in developing countries is characterised by an increase in slum settlements and/or squatter settlements. "Slum" is the term used to define a quality of housing that is inadequate to "contribute to human development", while "squatter settlement" indicates illegal occupation, resulting in uncertainty in tenure and a reluctance of the occupants to commit financial resources to affecting material improvements. The presence of either slums or squatter settlements indicates housing poverty

Scarce income resources of poor families are often diverted from the provision of housing to other needs such as food, health care and consumer goods. This cause a drop in housing quality and leads directly to poor health and an increased demand for health care. The objective of the paper is to explore the practical means of improving the quality of housing.

Housing in Urban and Adjacent Rural Areas

This paper concentrates on the provision of housing for the urban poor and generally uses as its model the largest cities in each of the selected countries. However, one must recognise the enormous population difference. In the smaller cities, the activities of the poor may focus on the centre, whilst in the larger cities focus will be more localised. For example, in Port Moresby, the poor may travel to the centre to work whilst in Johannesburg, many (although not all) of the poor who live in the dormitory townships, such as Soweto, work locally.

Notwithstanding these obvious differences, consideration of the larger cities must also include consideration of the dormitory suburbs. Friedmann comments, "... the relevant scale of economic life is the city region that extends outwards from the core cities up to a distance that may be roughly represented by a commuting radius of one to (at most) two hours." He states that, in Asian cities, this corresponds to a population range of five to twenty million. He further comments that it makes little sense to separate the urban from the rural in this context, adding, "Rural households in world city regions are now tightly integrated with an urban economy that is grounded in manufacturing and business services". (Friedmann 1998).

Is Housing Quality a Function of a County's Financial Health?

General poverty is sensitive to fluctuations in the financial health of a country. Healy notes that, as a result of the East Asian financial crisis, Indonesian poverty doubled from the pre-crisis levels to peak in August/September 1998 from which it then began to decline. (Healy 2000)

Because house building is a major undertaking in any country, a downturn in the economy adversely affects the *number* of houses under construction. However, it is incorrect to assume that *quality* of housing necessarily suffers as a result such short-term fluctuations, although prolonged deterioration in a currency's international purchasing power will result in difficulty in importing foreign manufactured building products.

Housing Sector Contribution to the General Economy

The construction of housing can help stimulate a sluggish economy, until other industries achieve a state of growth. Grimes states, "... for Columbia... [the] income multiplier is about 2 and about seven additional jobs are created for every US \$ 10,000 spent on the construction of dwelling units". (Grimes 1976) In Australia, the

importance of house construction to the general economy is indicated by the fact that the number of Building Approvals is seen as an indicator of growth or recession.

Affordable house construction, which permits construction to be staged, permits labour to be deployed gradually and, consistent with it, availability. (Grimes 1976) This contrasts with construction of large projects involving large labour forces for defined periods, leading to "boom and bust" building cycles, as demonstrated in the period before and after the Sydney 2000 Olympics.

Successful Affordable Housing Policies

The housing policies adopted in Singapore and Hong Kong are considered effective means of providing relatively low-cost housing to large numbers of people. In these cities, housing is "regarded as an instrument for shaping cities". Yeh & Laquian attribute this success to the following policies. (Yeh & Laquian 1979)

1. Housing standards are tailored for consistency with the prevailing income levels.
2. Buildings are designed with flexibility to meet changing demands.
3. Design and construction is technically sound and economically efficient.
4. Public housing is located near to employment.
5. Housing estates are large enough to include schools, markets, clinics and other facilities.
6. Planning includes transport considerations.
7. The community is encouraged to participate in estate management.

Private Housing Ownership and Income

In both rich and poor countries, it is difficult for the poorer strata of society to cross the boundary from rental accommodation to home ownership. Grimes suggests that for urban dwellers, a family can not afford to purchase a dwelling whose cost is more than 2.5 times the annual family income. This translates to repayments of approximately 15 percent of income, although he notes that this can vary upwards, depending on the circumstances. (Grimes 1976)

Overcrowding

Affordable housing policies seek to house as many people as practical at the lowest cost, leading in the past to overcrowding. As affluence increases, the size of houses increases and the number of persons per household decreases.

Burgess observes that in Papua New Guinea, the inhabitants of settlements recognised by the Government are better off than those in squatter settlements, who are subject to the whim of and customary eviction by the landlord. (Burgess 1998). Despite some luxurious housing for the wealthy, Indonesian housing is relatively overcrowded. Gall publishes the following analysis. The home of an affluent Indonesian family is similar in layout to a western house, with separate rooms for entertaining guests, eating etc. However, 6% of houses do not have separate bedrooms. Approximately 30% of houses have walls of bamboo, the cheapest material, whilst the remainder have walls of brick or wood. 66% of roofs are of tile and the remainder are steel sheet or thatch. Although most homes in Jakarta have electricity, the national figure is only 47.3%. Only 4.2% of homes cook with electricity or natural gas, and the remainder must use wood, charcoal, or kerosene. Approximately 13% of homes (mostly urban) have running water (generally undrinkable) with squat toilets and an open tank to scoop water out of for bathing and flushing. However, most people must draw water from streams, canals, ponds, and wells, commonly polluted to some degree. Approximately 11% of houses have garbage picked up by sanitation workers. The remainder dispose of garbage by burning, piling it in their yards or dumping in public dumps, gutters, canals or rivers. (Gall 1998)

Water and Sanitation

Adequate housing is an important factor in the general health and quality of life. In particular, the inclusion of water and sanitation within the housing infrastructure is critical.

Commenting on a range of studies on the reduction of diarrhoea affected by various aspects of water supply and excreta disposal, Tulchin concludes that previous studies had considerably underestimated the beneficial effects of adequate water supply. Harpham & Tanner state, " Quality of housing is closely linked to poverty ... [and a] high risk for diarrhoeal disease and acute respiratory infections (ARI) in South African children." They quote the following statistics by von Schrinnding et al (1991) and conclude from this data that the most important interventions for reducing childhood infections are "better access to water and sanitation, general environmental health services and probably improvements in access to electricity." The rapid improvements in the standard of living in Singapore and Hong Kong were coincident with the improvements in housing (particularly public housing) and the associated improvements in water-borne sewerage. By 1970, 64% of housing in Singapore had an inside flush toilet, 27% had a bucket flush system while only 9% relied on outdoor facilities. (Yeh 1975)

Various estimates of water demand have been made:

- In the United States, about 40% of total usage is for domestic purposes, corresponding to approximately 260 litres/head/day. (Metcalf and Eddy, 1974)
- The recommendations for supplies to small towns in developing countries are.
 - 10 litres per person from public taps
 - 190 litres per person per day for private connections
 - 65 litres/head/day for design and distribution(Wagner & Lanoix 1959)
- For basic water consumption by individuals allow 30 litres/capita/day (World Bank, 1976)

Possible improvements of water supply and sanitation for affordable housing include the supply of treated water to an inside kitchen, bathroom and toilet and efficient removal of waste. They fall into three broad categories:

- A return to the traditional values and methods of a simpler time,
- Modern treatment and reticulation systems,
- The development of systems that collect and treat water and sewage by modern methods, but within or local to the house.

Training Packages

Set out below are links to various training packages and other resources, associated with the design and construction of village community health buildings, on the Partner Housing Australasia website, <https://www.partnerhousing.org> . The resources are intended for use by NGOs and village elders, with the task of implementing the design and construction of village buildings.

- Integrated Rural and Urban Development (slideshare)
https://www.slideshare.net/gauravhtandon1/integrated-rural-and-urban-development?next_slideshow=31643334

References

Set out below are links to various academic papers, conference proceeding and other documents and other resources, associated with the design and construction of village community health buildings.

- Johnston, R.K. (July 2001), *Australian Involvement in Constructing Affordable Housing in Developing Countries*, Deakin University, AID719 (reprinted 2022)
<http://www.PartnerHousing.org>
- South Pacific Institute of Sustainable Agriculture and Rural Development (SPISARD) – PNG University of Technology
<https://www.unitech.ac.pg/departments/Department%20of%20Agriculture/Research/Community-Outreach/SPISARD>
- Junhang Lin, “Research on Village Planning and Rural Architectural Design Based on Discrete Dynamic Modeling Technology”, Research Article | Open Access Volume 2022 | Article ID 9031664 | <https://doi.org/10.1155/2022/9031664>
<https://www.hindawi.com/journals/sp/2022/9031664/>
- Ravi Kamboj & Ashok Anand, “Planning for Smart Village in Rural Development”, Vol-6 Issue-1 2020 IJARIE-ISSN(O)-2395-4396 11337 www.ijarie.com 680
https://ijarie.com/AdminUploadPdf/PLANNING_FOR_SMART_VILLAGE_IN_RURAL_DEVELOPMENT_ii_ariie11337.pdf
- Roghayeh Gilaninia, “Singaporean Journal of Business Economics and Management Studies”, VOL.3, NO.6, 2015 39 “Village, Villagers and Rural Development”
[http://www.singaporeanjbem.com/pdfs/SG_VOL_3_\(6\)/2.pdf](http://www.singaporeanjbem.com/pdfs/SG_VOL_3_(6)/2.pdf)

Part 5 – Environment, Water and Sanitation



Tanks forming part of the Buri Water Supply, Ranongga, Solomon Islands

Scope

This part of the “Helper Manual” gives guidance on the following Partner Housing Australasia Programs.

- Provide expert advice on achieving acceptable water and effluent quality.
- Provide the “Village Aqua” training package for village water and sanitation systems.
- Fund, design and audit the construction of village water supplies.
- Fund, design and audit the construction of village pit latrines and sanitation.

Introduction

This part provides an overview, links to training packages and other resources, and links to various references associated with the design and construction of South Pacific village water reticulation and sanitation schemes.

Overview

The South Pacific region is home to a diverse range of people, many of whom live in small villages, with associated practical problems associated with –

- capacity and quality of the water supply, and the reliability of any mechanical equipment; and
- contamination of fresh water supplies by poorly located latrines or septic systems.

Village Aqua is the system of village water supply and reticulation developed in the island nations of the South Pacific by PHA and its partner organisations. Also included are provisions for the design of VIP pit latrines and septic systems, and their siting to preserve the integrity of adjacent water supplies.

Training Packages

Set out below are links to various training packages and other resources, associated with the design and construction of village community water reticulation schemes and pit latrines, on the Partner Housing Australasia website, <https://www.partnerhousing.org>. The resources are intended for use by NGOs and village elders, with the task of implementing the design and construction of water reticulation and sanitation schemes.

- [Rural Water Supply Training Workbook](#)
- [Rural Sanitation Training Workbook](#)

References

Set out below are links to various academic papers, conference proceeding and other documents and other resources, associated with the design and construction of water and sanitation schemes.

Policy/Governance/Stakeholders/Community Training

- The Solomon Islands Rural Water Supply Policy
https://sirwash.weebly.com/uploads/4/2/7/6/42764129/rwash_policy_-_final.pdf
- Solomon Islands Government Strategic Plan RWASH
https://sirwash.weebly.com/uploads/4/2/7/6/42764129/si_rwash_strategic_plan_final_march_2015.pdf

Project Request Process and Forms

- Water Supply System Project Request Form
https://sirwash.weebly.com/uploads/4/2/7/6/42764129/request_form_-_water_supply.docx
- Sanitation System Project Request Form
https://sirwash.weebly.com/uploads/4/2/7/6/42764129/request_form_-_sanitation.docx

Design

- Rural Water Supply Training Workbook
https://be33fb5b-8431-4d16-800f-9c875ea4690e.filesusr.com/ugd/e6c2f3_33d203cfbb94434587dd159bc1277909.pdf
- Rural Sanitation Training Workbook
https://be33fb5b-8431-4d16-800f-9c875ea4690e.filesusr.com/ugd/e6c2f3_6adf27bc92664ca58041ec9c58fb6131.pdf
- Solomon Islands RWASH Design and Construction Standards - Technical requirements for rural WASH Projects
https://sirwash.weebly.com/uploads/4/2/7/6/42764129/sirwash_engineering_manual_2019.10.pdf
- Design report template
https://sirwash.weebly.com/uploads/4/2/7/6/42764129/template_-_design_report.docx
- Engineering standard drawings and bill of quantities
<https://sirwash.weebly.com/engineering.html>

Part 6 – Resilient Building Design



Five Police Houses, Partner Housing Australasia **DANCER** building system at Baiyer River, PNG

Introduction

This part of the “Helper Manual” gives guidance on the following Partner Housing Australasia Programs.

- Provision of expert advice on structural resilience of village buildings subject to extreme loads.
- Provision of the “**DANCER**” training package for structurally resilient village building systems.
- Funding, design and auditing of the construction of resilient village community health buildings, education and accommodation buildings.

Overview

The South Pacific region is home to a diverse range of people, many of whom live in small villages with housing, clinics, schools and community buildings that must withstand the ravages of cyclonic wind, earthquake and (in some cases) tsunamis. Previously these buildings were often destroyed by natural disasters, but today there is an expectation that, no matter how humble, these buildings should remain intact when subjected to cyclone, earthquake or tsunami.

Cyclonic Wind, Earthquake and Tsunami Loads in the South Pacific

As a first step to the construction of resilient village buildings (clinics, schools, community buildings and houses), a designer must first accurately determine the magnitude of the appropriate design cyclonic wind, earthquake and/or tsunami loads.

The appropriateness of the particular loads is a function of both the frequency and magnitude of the load AND the tolerance of the community of structural failure.

The manual “Structural Design Actions for South Pacific Village Buildings” suggests appropriate design loads for the South Pacific within the context of the building regulations current in the region. Refer to the link in “References” below.

“DANCER” Training Package for Structurally Resilient Village Building Systems

Partner Housing Australasia and its consultants have long considered the practical problems associated ensuring the cyclone, earthquake and tsunami resistance of village houses, schools and clinics in South Pacific villages, where supervision is lacking, the builders are relatively unskilled and steel fittings are either unavailable or very expensive. This situation has led us to the development of the **DANCER** Building System.

Unlike the cyclone resistant housing and small building systems developed for Australia, the **DANCER** Building System does not require screwed steel anchor rods, steel brackets, steel nailing plates, extensive steel strapping or large quantities of concrete.

The **DANCER** Building System is a simple timber framed house building system incorporating sawn timber framing fixed by a handful of bolts and nuts, steel posts, a small quantity of concrete for piers, steel roof cladding, sawn timber flooring and local or imported wall cladding.

The cyclone/earthquake/tsunami resistance is economically achieved by orienting the timber purlins such as to maximize the truss or rafter spacing and ensure that the uplift loads are transmitted to the ground via bolted connections directly between rafter/truss, anchorage studs, double bearers and posts. The key is in the name:

The **DANCER** building system consists of the following:

- Timber roof purlins, on edge (to maximize the span) are nailed horizontally to timber lacing members that are fixed between the double truss chords (or double rafters, as appropriate). They are fixed at 900 mm maximum centres to support corrugated steel roof sheeting.
- **DANCER** Trusses (or **DANCER** Rafters) consisting of double top chords and double bottom chords (enabling the lacing/purlin cleats to be nailed between from both sides and the anchorage studs bolted in double shear between).
- The **DANCER** Trusses (or **DANCER** Rafters) are bolted to timber Anchorage Studs between both pairs of chords.
- The timber Anchorage Studs are bolted in double shear between the Double Bearers, providing a direct load path from the roof system to the floor and subfloor
- Double Bearers are bolted to steel (or timber) posts, which are set in concrete piers.
- Diagonal timber and plywood wall bracing, together with diagonal timber sub-floor bracing provide racking resistance.
- Variations of the **DANCER** building system include:
 - o timber superstructures (roof and walls) anchored to concrete slab-on-ground; and
 - o timber roofs anchored to reinforced concrete masonry walls and concrete slab-on-ground.

Training Packages

Set out below are links to various training packages and other resources, associated with the design and construction of village community health buildings, on the Partner Housing Australasia website, <https://www.partnerhousing.org> . The resources are intended for use by NGOs and village elders, with the task of implementing the design and construction of village buildings.

- [Introduction to Building Skills Training Workbook](#)
- [Structural Problems](#)
- [Basic Structure](#)
- [DANCER Building System Training](#)
- [DANCER Principles](#)
- [Elevated Timber Buildings](#)
- [Design and Setting Out Training Handbook](#)

- [Interpretation of Technical Designs](#)
- [Setting Out](#)
- [Timber Sub-floors, Floors, Stairs and Verandas Training Handbook](#)
- [Wall Bracing and Roof Anchorage Training Handbook](#)
- [Timber Wall Frames Training Handbook](#)
- [Timber Roof Frames and Trusses Training Handbook](#)
- [Timber Direct Anchoring System Training Handbook](#)
- [Timber Quality and Specification](#)
- [Concrete Training Workbook](#)
- [Concrete Slab on Ground Training Workbook](#)
- [Steel Framing Training Handbook](#)
- [Reinforced Concrete Block Walls Training Handbook](#)
- [Concrete Block Manufacture Training Workbook](#)
- [Design, Estimating, Costing and Quoting Training Handbook](#)

References

Set out below are links to various academic papers, conference proceeding and other documents and other resources, associated with the design and construction of village community health buildings.

Also included are the relevant Partner Housing Australasia manuals related to design loads and the **DANCER** Building System on <https://www.partnerhousing.org/engineering>

- [DANCER Design Manual](#)
- [DANCER Building Design \(Workbook\)](#)
- [Structural Design Actions for South Pacific Village Buildings](#)

Appendix 1 – United Nations Sustainable Development Goals

Scope

Partner Housing Australasia is guided in its policy formation and program design by the relevant parts of a number of the 2030 United Nations Sustainable Development Goal (SDGs).

The following appendix reproduces those parts of the 2030 UN SDGs that are relevant to the formulation of particular PHA programs. Other UN principles are also invoked, including (but not limited to) those set out in parts of SDG No 5 (Gender Equalities), SDG No 10 (Reduced Inequality) and SDG No 13 (Climate Action).

For a complete description of the 2030 UN SDGs, refer to – <https://sdgs.un.org/>

UN SDG No 3 – Good Health and Well-being

UN Development Goals

- 3.1** By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births.
- 3.2** By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.
- 3.3** By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.
- 3.4** By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
- 3.5** Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.
- 3.6** By 2020, halve the number of global deaths and injuries from road traffic accidents.
- 3.7** By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.
- 3.8** Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.
- 3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
- 3.A** Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate.
- 3.B** Support the research and development of vaccines and medicines for the communicable and noncommunicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all.
- 3.C** Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States.
- 3.D** Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.

UN SDG No 3 – Quality Education

PHA Programs –

- Fund, design, supply materials and audit construction of village school buildings and teacher accommodation.
- Fund, design, supply materials and audit construction of school water reticulation.

UN Development Goals

4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes

4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.

4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.

4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.

4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.

4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all.

4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries.

4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States.

UN Program – Clean Water and Sanitation

PHA Programs –

- Fund, design, supply materials and audit construction of village water supplies.
- Fund, design, and audit construction of pit latrines and sanitation.
- Research and training for Village Aqua water and sanitation systems

UN Development Goals

6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all

6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity

6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

6.A By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies

6.B Support and strengthen the participation of local communities in improving water and sanitation management

UN Program – Sustainable Cities and Communities

PHA Program –

- Design and project manage suburban development and building
- Research and training into DANCER cyclone and earthquake resistant building construction

UN Development Goals

11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

11.4 Strengthen efforts to protect and safeguard the world’s cultural and natural heritage

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities

11.A Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning

11.B By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

11.C Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials

UN Program – Zero Hunger

PHA Program –

- Research and training into village nutrition and food production.

UN Development Goals

2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.

2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.

2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.

2.A Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.

2.B Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round.

2.C Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.