



## Participatory Rural Appraisal of eight vulnerable communities in Choiseul Province

Nuatabu, Malangono (Panarui), Pangoe, Posarae, Sasamunga, Sube Sube, Voruvoru, and Vurago

SPC/GIZ Coping with Climate Change in the Pacific Island Region

March 2015



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Zusammenarbeit (GIZ) GmbH

# Choiseul Province



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Compiled by Aliti Vunisea



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Report compiled by Aliti Vunisea





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Aliti Vunisea  
PRA consultant and trainer



## List of Abbreviations

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|                |   |
|----------------|---|
| <b>CBD</b>     | Convention on Biological Diversity  |
| <b>CBM</b>     | Community-based management  |
| <b>CCA</b>     | Climate Change Adaptation   |
| <b>CPG</b>     | Choiseul Provincial Government  |
| <b>FADs</b>    | Fish aggregating devices  |
| <b>GIZ</b>     | Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)   |
| <b>LLTC</b>    | Lauru Land Conference of Tribal Community   |
| <b>MPAS</b>    | Members of Provincial Assembly  |
| <b>NDS</b>     | National Development Strategy   |
| <b>NGOs</b>    | Non-governmental organisations  |
| <b>ODA</b>     | Overseas Development Assistance   |
| <b>PRA</b>     | Participatory Rural Appraisal   |
| <b>REDD+</b>   | Reducing emissions from deforestation and degradation, and the role of forest conservation, sustainable forest management, and carbon stock enhancement |
| <b>SDA</b>     | Seventh Day Adventist   |
| <b>SIG</b>     | Solomon Islands Government  |
| <b>SLR</b>     | Sea level rise  |
| <b>SPC</b>     | Secretariat of the Pacific Community  |
| <b>SPREP</b>   | Secretariat of the Pacific Regional Environment Programme   |
| <b>TNC</b>     | The Nature Conservancy  |
| <b>UNCCD</b>   | United Nations Convention to Combat Desertification   |
| <b>UNDP</b>    | United Nations Development Programme  |
| <b>UNFCCC</b>  | United Nations Framework Convention on Climate Change   |
| <b>USAID</b>   | United States Agency for International Development  |
| <b>V&amp;A</b> | Vulnerability and Adaptation  |



## Executive summary

---

This participatory rural appraisal (PRA) conducted in eight communities in Choiseul further strengthened the findings of the vulnerability and adaptation (V&A) assessment conducted in 27 communities in Choiseul in 2012

The residents of these communities have started to experience negative impacts resulting from climate change. These include an increase in rainfall and invasive species, longer periods of drought as well as more frequent storms and storm surges. The resulting changes in planting and harvesting seasons have started to affect household food production. The women and men in these communities can no longer fully rely on their traditional knowledge of known weather patterns and the availability and abundance of resources. Increased flooding coupled with higher tides and storm surges have resulted in accelerated coastal erosion in Posarae, Voruvoru, Malangono and Pangoe communities. In the fisheries sector there are indications of certain fish and shellfish species depleting in near shore areas and a decrease in the abundance of shellfish and fish species in the usual fishing locations. A range of factors contribute to these changes and land based activities like logging and unsustainable gardening practices are compounded by climate change impacts such as drier seasons and more intense rainfall and storms. Changes in seasons and gardening practices have resulted in the associated loss of traditional knowledge and skills that people have used over generations to sustain their livelihoods. The long-term consequence of this will be the loss of food security and people's increased reliance on imported food, the use of new methods of gardening and newer, introduced crops. Where known coping strategies become insufficient, people will start to degrade available land and marine resources in the attempt to provide food for their families.

Gender roles in communities are defined by customary norms and expectations. For women this means engagement in all forms of responsibilities and tasks in agriculture, forestry and fisheries. Women are primarily responsible for household gardens and the provision of household food needs. This means daily foraging, planting and harvesting from gardens and forests and fishing or gleaning from coastal fishing areas. Gender roles exercises conducted in the communities revealed the huge workloads women have to deal with on a daily basis. The gender norm of allocation of more physical labour to men is not the case in these communities as women cut down trees, carry timber, weed, dig, plant and harvest in gardens, collect and carry house building materials. In the fisheries sector women engage in trawling and diving for bêche-de-mer and trochus, tasks that were only done by men in the past. The change in the division of labour has not favoured or lightened women's workload.

Given the changes brought about by climate change and the projected changes that will happen in the future, the social institutions, traditional systems, organisations and groupings in existence at the community level that currently provide a safety net for people will start to erode.

These institutions are great entry points for strategic climate change interventions at the community level. Action plans for communities provide a guideline on what people at community level see as important. The need to manage and protect existing land and marine resources came through strongly in proposed activities. Improved regulations and policies relating to land and marine resource use are needed to strengthen community based management interventions. The importance of collaboration and working with all stakeholders in communities is vital for the success of projects. The partnership through the Choiseul Integrated Climate Change Adaptation Programme (CHICCHAP) provides an opportunity for collaborative work at community level with several key partners working together to progress work on climate change adaptation. The residents of Nuatabu, Pangoe, Posarae, Sasamunga, Vurago and Voruvoru have started to move inland. Most of this re-settlement happened after the 2007 tsunami, which affected some parts of Choiseul. This indicates that communities have their own coping and adaptation mechanisms that need to be understood and used as starting points for the adaptation strategies proposed in community action plans. These coping mechanisms already take cultural and social issues into account and the lessons learnt could be used to model new adaptation approaches or modify existing strategies used in communities.

The communities have their own institutions and protocols, and climate change adaptation (like all other community-based interventions) has to work with these institutions and systems to ensure ownership and long-term sustainability when partners exit.

# 1 Introduction

---

Most, if not all, rural villages in Solomon Islands are located on communal lands owned by tribes (Solomon Island Census, 1999). There are more than 300 tribal land owning groups in the whole of Choiseul Province. Thus resource sovereignty of customary landowners is the dominant practice and this creates a culture in which government regulation of customary-held land, resources, and climate adaptation strategies is limited and customary landowners have most decision-making rights (CHICCHAP Synthesis Report, 2012). The exact roles and responsibilities and levels of accountability of these customary landowners vary significantly across the country with different customary laws (Guidelines on the Development of REDD+ Safeguards within the Solomon Islands, 2014, Draft).

In 2012, a multi-sectoral and inter-agency team conducted a Vulnerability and Adaptation (V & A) assessment in twenty-seven communities in Choiseul Province. The V & A assessment identified various climate and non-climate threats and the vulnerabilities and adaptive capacities of the communities against these threats. Drawing from this information, measures to address the adverse effects of climate change and disasters were recommended. From the 2012 V&A assessment, the following eight communities were ranked as highly vulnerable to climate change impacts - Malangono, Nuatabu, Pangoe, Posarae, Sasamunga, Sube-Sube, Voruvoru and Vurago.

In April 2014, the United States Agency for International Development (USAID), as part of their support to the Choiseul Integrated Climate Change Adaptation Programme (CHICCHAP) committed to support the eight communities in their efforts to reduce their vulnerabilities. These efforts also respond to the Choiseul Mid-term Development Plan; Goal 7: Facilitate improvements in livelihoods through supporting the work on climate change adaptation (Choiseul Provincial Government, 2012). This initiative is implemented through the SPC/GIZ Programme- Coping with Climate Change in the Pacific Island Region (CCCPIR).

The USAID/CCCPIR initiative commenced with a detailed assessment of the eight communities undertaken from 26 May – 26 June 2014. Participatory rural appraisal (PRA) tools were utilised and comprehensive community adaptation plans, with gender considerations, developed. In-depth appraisals to identify practical, culturally and socially appropriate adaptation strategies the communities' priorities, perceptions and views on climate change impacts and adaptation alternatives were carried out.

PRA is an approach where local people determine the outcome of the discussions. In a PRA the community has a lot more accountability and responsibility to see the success of the community plans because it is something they own, having participated in developing the plan themselves. Please refer to the report – "Participatory Rural Appraisal Tools used in Nuatabu, Malangono (Panarui), Pangoe, Posarae, Sasamunga, Sube Sube, Voruvoru, and Vurago" for more information.

## 1.1 Background

The eight targeted communities - Nuatabu, Malangono (Panarui), Pangoe, Posarae, Sasamunga, Sube Sube, Voruvoru, and Vurago, are all coastal villages situated on flatlands 70 to 200 metres from the shoreline. With the exception of Sube Sube, all the communities face continuous coastal erosion of their immediate shoreline. In all communities, there has been ongoing relocation and movement of people further inland. Farming and fishing are the primary sources of livelihood for the Choiseul village communities with villagers depending on marine and land resources as primary food sources and forest resources for building materials and firewood. More recently, logging has become a major source of income. But this sector presents new challenges like the lack of good governance, which results in conflict and mistrust amongst community members.

The 2012 V & A assessment revealed poor sanitation as a major issue in all eight communities. This includes the lack of toilets and proper water supply. The surrounding mangroves, rivers, sea are commonly used by villagers as toilets and during the dry season there is lack of fresh water. The assessment also revealed ongoing land degradation due to poor land use practices that contribute to soil erosion and increased sedimentation.

The need for more education and awareness for communities and stakeholders is one of the main themes of the Pacific Islands Framework for Action on Climate Change 2006 – 2015 (SPREP, 2011) and is very pertinent for Choiseul. While men and women in the communities declare that they are aware of climate change impacts, the 2012 V&A assessment revealed a general lack of understanding on climate change and the various associated impacts. In some cases for instance, natural events like earthquakes and tsunamis were attributed to climate change.



## 1.2 National context

Figures from the Solomon Islands National Census Report (2009) indicate high dependence on subsistence livelihoods with 96% of all rural households in Solomon Islands involved in growing crops. Because people live a subsistence lifestyle with high dependence on land and marine resources the impact of climate change will be more pronounced (FAO, 1996). The national census reveals that only 43% of all households have access to improved sanitation facilities such as a public sewer connection, a flush or pour-flush toilet; a water sealed toilet or pit latrine. Of this, 89% are in urban areas. This means that 57% of the country's population have no access to proper sanitation facilities. Over half of the people living in Honiara's poorest communities defecate in the open and cannot access or do not use latrines or toilets. In rural areas the situation is even worse with four out of five people not having access to a safe toilet or latrine. In addition, it is estimated that 70% of all schools in Solomon Islands do not offer students safe water supply, toilets or hand washing facilities (UNICEF 2013). The lack of toilets, although not a direct climate change issue, threatens food security when mangrove, river and sea areas are used as toilets and no longer fished.

The 2009 Census also highlighted that 75% of all households in Solomon Islands used a kerosene lamp as their main artificial light source. It found that only 4% of rural households were connected to the electronic grid. 93% of all households used wood and/or coconut shells as their main energy for cooking. These figures show the inaccessibility of most basic amenities to the rural areas of the Solomon Islands including Choiseul.

The high dependence on subsistence gardens for food, and firewood for energy, and the lack of proper toilet facilities, make rural communities highly vulnerable to the impacts of climate change but more especially for women. Women are primarily responsible for providing food, cooking and for the sanitation and health of the household.

The Solomon Islands Code of Logging Practice emphasises (under key standard Number 4) that drains must not flow directly to watercourses or onto landings nor run into flat areas or into forested areas. However, numerous cases of concern linking logging areas to increased sedimentation and erosion continue to be raised and discussed by people (Ministry of Forests, Environment and Conservation, 2002). Included in the guidelines for Forest Management is the Forest Stewardship Council (FSC) Certification Checklist for Forest Management Enterprise which includes customary land verification, sorting out existing disputes and requirement of a land use plan for the whole family or clan that clearly identifies the buffer zones, protected and taboo areas, conservation areas (at least 10%) and garden plantation and village area (ibid 2002). Thus, the implementation of the Code of Logging Practice should also support adaptation efforts.

The management of marine resources is more complex given the difficulty in clear demarcation of fishing areas and the practice of fishing in neighbouring village areas.

### Women as potential change agents

There is a whole range of literature covering the differential impact of climate change on men and women and how women's potential as agents of change for climate mitigation and adaptation remains untapped. The literature also highlights that women's extensive knowledge of the environment and resource conservation is not being fully maximised in resource use planning or management (GIZ, 2010; UNDP, 2010; European Institute of Gender Equality, 2012). Gender dynamics in many Pacific Island countries show that women's roles and responsibilities far outweigh that of men in food production, in sustaining livelihoods and in caring for families. This means that women's use of land and marine resources for subsistence livelihoods throughout the generations has resulted in the build-up of skill sets needed for coping with disasters and for long adaptation as a result of climate change (UNDP 2010).

Women's roles and status as defined by traditions and customary law in the Pacific generally obstructs women's ability to challenge harmful practices against them. Even where conventional laws provide some measure of gender equality, there are tensions between the two systems of law, which have a harmful impact on women's empowerment (Jalal, 2009). Under the MDG report of Solomon Islands 2010, progress on gender equality and empowerment is reported as mixed. The report also makes reference to root causes of gender disadvantage and oppression as often based on societal attitudes, norms and power structures (MDG 2010). Local cultural values show little sign of changing under pressures of colonialism or (now) globalisation. Marshall Sahlins has analysed the way Pacific Islanders use introduced materials to amplify their indigenous ways of life rather than abandon them, although he concedes they may eventually do the latter (Sahlins, 1999). The challenge as in this case is how positive cultural values can be maximised to help people adapt to climate change impacts and at

the same time find entry points to effectively lessen the hardships women face because of cultural norms and practices.

Gender inequalities can only be addressed effectively if the rights, responsibilities and opportunities of both women and men are recognised and their priorities and needs considered (Sechrest, 2010). Gender considerations have to be contextualised as highlighted by Sechrest (ibid, 2010), "rights to property ownership in Western society is a sign of equality but in the context of Solomon Islands, the rights to ownership of property, land in particular, does not translate to "women's rights and equality" in modern society". Thus, any effective approach to gender mainstreaming must address the situation of women and men by taking into account not only the customary and cultural constraints but also the practical meaning of equality and empowerment

## 2 Objectives and expected outcomes

---

The objectives of the PRAs for Malangono, Nuatabu, Pangoe, Posarae, Sasamunga, Sube Sube, Voruvoru and Vuraqo villages are:

1. To determine the cultural, social, environmental and economic issues relating to climate change
2. To draft with the local communities a simple action plan to help address the various vulnerabilities of the community and identify feasible adaptation actions.
3. To determine gender vulnerabilities and responding adaptation measures in the vulnerable communities. In assessing the most practical adaptation alternatives, all efforts will be made to ascertain how climate change affect men and women and the entry points for interventions to increase the adaptive capacity of women.
4. To develop a tool kit of PRA tools and approaches that will help guide a participatory process for conducting assessments in local communities

The expected outputs with respect to the objectives include:

1. A report of each of the eight communities detailing the main cultural, social, environmental and economic issues faced by the communities as a result of current and impending climate change effects
2. A draft matrix of the various adaptation measures identified in the PRA of the eight communities
3. The adaptation measures to include the counteractions for gender vulnerabilities
4. A documentation of the PRA approach and tools utilised

### 3 Methodology

The work included an initial desk survey to provide the background to the intended work. This included consultation of both primary and secondary sources.

Climate change adaptation activities in the region need to utilise an open, transparent and highly-participatory process that engages the community in the exploration of options to reduce vulnerability and effectively balance the needs and interests of a variety of stakeholders (Regional Hub for the Asia Pacific Adaptation Network, 2011). Community-based approaches have been used in different provinces in the Solomon Islands for resource management purposes (Govan, 2009; Live & Learn, 2008; Worldfish, 2013). In these cases community participation has ensured the success of the community interventions. Community-based interventions have been further strengthened by the National Protected Area Act (2010). The National Act devolves responsibility to communities and provides a mechanism for community-based management efforts to be recognised under national legislation. However, areas of customary land and sea can only be formally protected if landowners agree to it, and the establishment of a protected area does not affect land ownership (The Nature Conservancy, 2010).

A range of PRA tools were discussed and six tools were identified as appropriate and selected for use. The tools selected were: i) seasonal calendars (harvest, planting); ii) stakeholder analysis; iii) gender roles and gender division of labour; iv) social mapping; v) problem ranking; and vi) problem solution tree and community action plan.

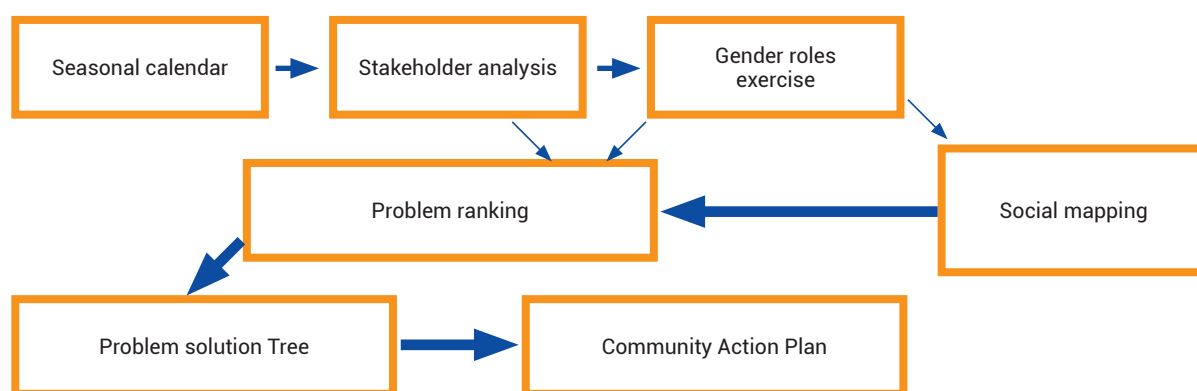


Figure 1: PRA tools used

A two-day training was conducted for GIZ in Taro staff who were part of the resource team. This included the use of the identified PRA tools, facilitation skills, reporting and field observations.

Five to six PRA tools were used in each community depending on attendance at the sessions and the gender and age make up.

If there were enough representations of all groups in the community then the sessions included various group works, otherwise brainstorming / plenary exercises were carried out when all sections of the community were not adequately represented. Debriefing with the resource team was done after daily PRA sessions. Field observations were part of the verification process, especially relating to concerns raised by the community. Informal discussions were also held with key people in communities to verify information collected from the larger group exercises.

#### 3.1 Challenges faced

The PRA exercise involved two to four days of work in each village. The times allocated for each community differed and sometimes time or the unavailability of the appropriate people did not allow for a complete collection of information.

The initial programme of work had to be changed several times due to the difficulty in communicating the intended work to the target communities and aligning the work programme with the community's availability.



Four communities were visited more than twice during fieldwork as they were engaged in religious or sporting events and the team had to return when it was more convenient for them. The seasonal calendar exercises tried to capture this aspect of community life with villagers, highlighting important annual events and obligations. In Sasamunga, PRA work could not be conducted in the whole community due to a misunderstanding with the church representatives who were the contact points. Instead, the work was carried out in one of five zones and this became the more practical option given the large size of the community. The action plan for the targeted zone can be used to set up models of work that could later be replicated to the other zones in the village. Night sessions were required in Pangoe, Voruvoru, Sube Sube as the communities were engaged in fundraising activities and sports. In Malangono, villagers had just emerged from a big church celebration and were still engaged in thanksgiving feasts and services.

These are realities that will be faced during the implementation stage of the projects and activities identified under the Community Action Plans.

## 4 Results and discussions of the PRAs

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This chapter has eight sections. Each section focuses on one community and features a summary of outcomes of the PRA exercises conducted. A matrix of community actions that the residents identified during consultations is annexed as a separate report. The matrix lists all issues and concerns raised and what the communities see as important for adaptation. The action plans developed can be used to progress work by other partners working in these communities.

### 4.1 Nuatabu Village

*Appraisal dates: 09 – 11 June 2014*

Nuatabu Village sits on a thin strip of flat land about 50 meters from the shoreline on an island, the land rising gradually behind the village to a steep hill. Homes are located at the base of the hill. The village has a total population of about 200 residents, some of whom live on the mainland. Today, only half of the original village area remains. The other half eroded into the sea during the 2007 tsunami. Nuatabu residents started relocating a few years before the tsunami due to the rising sea level. As Nuatabu is in an active tectonic area, the rapid rise in sea-level could have been a result of subsidence (Burns, 2010). Next to the old village site is another steep hill where some of the villagers have relocated. The two major denominations in Nuatabu are the Seventh Day Adventist (SDA) and United Church. The separation of residents by their denominations is distinct with two separate schools and settlements on the mainland. The PRA was carried out with the SDA community, most of whom still live at the old village site.



Figure 2 Nuatabu local market



Figure 3: Old Nuatabu village site



Figure 4: Older women watching selling activities at the market

Nuatabu is well known for its shell money, which was used in the past as bride price. This is sometimes practised and people still keep this money.

Residents farm and fish to sustain their basic livelihoods and traditional knowledge and skills are applied in their farming practice. Around one third of houses are built from timber and roofing iron while the remaining homes are built from local forest materials. A few households have solar lights in Nuatabu, however, as in other sites, most use kerosene lamps for light and cook over open fires. There are a few stores in the village which sell basic food items like tinned tuna, sugar, tea, biscuits and other household supplies. Due to the low purchasing power of the villagers, there is little scope of expansion for the shops or for the small scale selling activities currently carried out weekly by women.



**Figure 5: Shell money**

#### 4.1.1 Process and tools

The PRA in Nuatabu was arranged through the chief and the SDA church pastor. Most of the exercises were carried out with the SDA community. The first session included meeting with the chief and the elders to explain the purpose of the PRA. A village meeting was called the next day where sessions were held while informal discussions were held at night.

**Table 1. Tools used in the Nuatabu participatory exercises**

| Tools                 | Description   |
|-----------------------|---|
| Seasonal Calendar     | Group work by gender and age groups                     |
| Stakeholder Exercise  | Group work by sex (male/female) and age or status group |
| Gender Roles          | Group work by male/female and age groups                |
| Social mapping        | Groups can vary by sex/age/interest groups              |
| Problem Ranking       | Ranking of in groups and brainstorming to finalise      |
| Problem Solution Tree | Root cause analysis and solutions in gender groups      |
| Brainstorming         | Discussion on findings and solutions                    |
| Action Plan           | In groups, brainstorming session to finalise            |

The following exercises were carried out from 09 – 10 June 2014

#### 4.1.2 Nuatabu seasonal calendar

Information on the seasonality of crops and marine species varied amongst the groups with group members not being able to agree on the seasonality of some crops and reef fish. Some crops and vegetables like slippery cabbage, potato, pana, cassava and taro are planted and harvested throughout the year and times of harvest depend on planting times. Discussions highlighted that the proper times for planting have changed as sometimes there is too much rain to start planting or too much sun to plant, thus there is variation in harvest seasons. Due to the high reliance on crops that are planted throughout the year there is little knowledge on seasonal crops. Young men had little knowledge of seasons and crops and this could be an indication of the lack of experience with gardening activities and/or weak transfer of knowledge from the elders.



**Table 2. Nuatabu seasonal calendar**

| January                                     | February         | March                    | April            | May   | June  |
|---|------------------|--------------------------|------------------|---|---|
| Temi baitfish<br>(migrate up the<br>swamps) | breadfruit       | slippery cabbage         | bush apple       | nut small   | nuts- big and<br>small                      |
| pitpit                                      | slippery cabbage |                          |                  | bonito  | wild yam                                    |
| vizuri bonito                               | vizuri bonito    |                          |                  | bush apple  | king fish                                   |
| bush apple                                  | Province Day     | bonito                   | bonito           | red fish  | tomi nuts                                   |
| sisu planted                                | sisu planted     |                          |                  | harvest/pana yam.                                   | Good Harvest<br>taro and yams               |
| breadfruit, pitpit                          | pitpit           |                          | red fish         | king fish   | dove  |
| pineapple, mango                            |                  |                          | alite            | custom mango  | Primary School<br>Holidays                  |
| July  | August           | September                | October          | November  | December                                    |
| nuts- big, small                            | nuts- big, small | melon                    | slippery cabbage |   |   |
| breadfruit                                  | slippery cabbage | slippery cabbage         | nuts             | bush apple, nuts,<br>slippery cabbage,<br>pineapple | temi baitfish,<br>bush apple,<br>breadfruit |
| slippery cabbage                            |                  |                          |                  |   |   |
| plant yams                                  |                  |                          |                  |   |   |
| king fish                                   | pawpaw, melon    | Women's<br>Congress      |                  | mango   | mango                                       |
| tomi nuts                                   | pana             | Annual Church<br>Meeting | mango            | melon mango   | melon                                       |
| small and big nuts                          |                  |                          |                  |   |   |
| dove  | tomi nuts        |                          | cut nut          | pineapple   | pineapple                                   |
| Independence Day                            | dove             |                          |                  |   |   |
| church meeting                              |                  |                          |                  |   |   |

- Since the majority of Nuatabu residents belong to the SDA Church, there is no harvest of shellfish for consumption due to religious beliefs
- Both men and women dive for beche-de-mer and trochus, which are harvested for sale
- In addition to the problems caused by the loss of fertile soil, villagers are having to deal with an increase in pests and invasive species.
- There was little knowledge of the seasonality of reef fish species and this could be attributed to the high reliance on bonito and other migratory species



**Figure 6: Nuatabu men's group working on their seasonal calendar**

### 4.1.3 Nuatabu stakeholder analysis

The stakeholder analysis was carried out in gender and age groups on 09 June 2014. The elders, chief, pastor and parliamentarians were placed in one group while the rest of the participants were divided into gender and age groups. This exercise allowed villagers to identify the people, organisations and institutions that work within and outside the community.

The residents of Nuatabu knew the various stakeholders within their community and their respective roles. They were also clear on processes and how things were done within the community. However, the residents have little experience on collaborative efforts or linking up with stakeholders

outside their community such as their provincial representative or sector experts. There was also little knowledge of the development partners working on the ground, indicating poor awareness of the work being done by external agencies. This was the case in all eight communities studied. Since land is tribally owned in the community, tribal chiefs (who have a lot of influence on the use of land) play an important role in projects relating to land. Likewise, the pastor also has a very influential role and could play a key role during awareness, training and adaptation work. It is envisaged that collaborating and working with the right partners on the ground will result in long-term sustainability of projects.

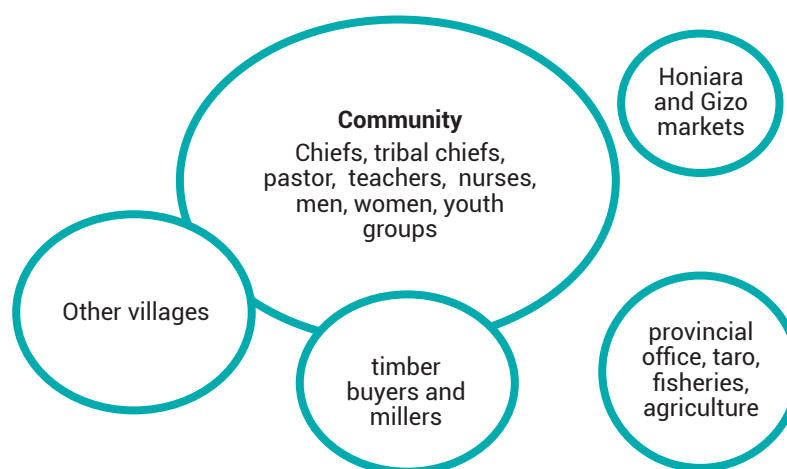


Figure 7: Nuatabu Stakeholder Analysis

### 4.1.4 Gender roles in Nuatabu

Women are primarily responsible for keeping food gardens, which involve cutting down of trees for land preparation, clearing of bush areas, hoeing (digging the ground using sticks), planting, weeding and harvesting. A number of factors including changes in the climate, heavy rainfall and drier weather are affecting gardening and crop production. The loss of topsoil through erosion results in poor crops, thereby doubling the efforts of women. The gardens are located on the sides of steep hills located inland and women walk long distances to reach the gardens. In addition to gardening, their day is also spent foraging in the forest for wild fruits, nuts and ferns. Women return at the end of the day carrying heavy loads of food crops in traditional string bags slung over their heads. Once they reach home, they attend to food preparation and other household chores. There is a weekly market where raw and cooked food is sold on a sandy beach next to the original village site. The women paddle out in canoes to this beach market to sell their produce. Unfortunately, purchasing power in these communities is low and so the money derived from the sale of the produce sometimes makes these efforts economically unviable.

**Table 3. Gender roles in the different sectors**

| Men  | Women   |
|--|---|
| <b>Agriculture</b><br>Tree felling<br>Brushing<br>Stripping before women clean<br>Clearing and digging drains<br>Hoeing, planting, weeding, harvesting             | Weeding, planting<br>Planning use of gardens<br>Hoeing, brushing, clearing, harvest<br>Foraging for wild foods - sold at the local market   |
| <b>Fisheries</b><br>Trawling<br>Deep sea fishing<br>Poison leaf<br>Selling fish to nearby villages   | Reef fishing<br>Deep sea fishing- trawling<br>Diving for trochus<br>Selling seafood<br>Poison leaf  |
| <b>Forestry</b><br>Timber milling<br>Logging, employment<br>Tree planting<br>Firewood collection, collection of house building materials.<br>Canoe making, carving | Tree planting<br>Collecting firewood<br>Collecting building materials and local medicine<br>Weaving material<br>In addition, women use forests as hiding places, taboo sites, to smoke and meet. There are incidents of suicides as well. |

Women in Nuatabu traditionally fish in coastal reefs and along mangrove areas but a changing coastal environment now means they have to travel further in canoes in order to fish.

With mangroves being used as toilets, there is a continuing depletion of marine species in near coastal areas due to mangrove pollution. Soil erosion and sedimentation on coastal reef areas are also having an impact on coastal marine resources. Women are now engaged in deep-sea fishing, trawling and diving for bêche-de-mer and trochus. Trawling and diving for commercial species are not the traditional tasks of women. Women's involvement in deep-sea fishing is an example of the increasing types of roles women are taking on for income generation. In addition to the daily activities of gardening and fishing, women also sell food at the village market.

Women in Nuatabu forage for food in the forests and also help carry timber during milling season. Therefore, the usual distribution of labour where men undertake the more physical tasks and women lighter work is no longer valid. Other forest-related tasks include collecting building materials for homes such as timber and sago leaves. In these cases, customary expectations play a huge part in confining women to the many tasks that they are assigned. During discussions in Nuatabu, it was stated that the forests are also places where women run away to when abused by their husbands or when there is a fight in the family. These were also said to be common places to commit suicide. Although this was discussed jokingly in groups, the realities of women in such situations are serious.

Women's primary role in gardening, fishing and running households means that they are storehouses of knowledge and skills which should be maximised when planning and implementing community-based adaptation strategies. For example, their extensive gardening and foraging experiences means they will know the different places to plant different types of crops, where to forage for wild yams, and search for nuts and ferns. They also know the variations in weather conditions and how this affects crop planting, harvest and productivity.

This activity was useful in allowing men and women to take stock of what the women and the men were responsible for on a daily basis. With this critical thinking of roles, the men realised the heavy burden women shoulder. An elderly man said that in the past women in Nuatabu did not trawl or participate in offshore fishing but now women were fishing beyond the reefs because men were not doing their work. It was acknowledged that women were carrying out tasks that men normally carried out in the past or which they thought men should be doing.

#### 4.1.5 Nuatabu social mapping

For this exercise the participants drew social maps marking significant settlement sites, cultural sites and areas they perceived to have been affected by climate change. In Nuatabu the elders were thankful the exercises allowed them to see the need for proper sanitation and pipes as well as the plight of women who have to go far to the taboo sites (toilets).

Social mapping allowed villagers in Nuatabu to have a better understanding of the resources they own, where things were located and what has changed. This enabled them to start asking questions on the impacts of climate change, the role they played in resource degradation, and how they can contribute to management and adaptation strategies.

The following problems were identified from the mapping exercise:

- Loss of village site to sea level rise and forced relocation of people. Sea level rise, higher waves and storm surges occurred just before the tsunami in 2007 that completely inundated half the village. This could be due to sea level rise or subsidence. Bigger waves and storm surges continue to affect Nuatabu.
- Loss of marine resources. Villagers are finding it harder to fish and are moving further away to do so. Mangrove areas close to the village are used as toilets (taboo places) and thus no fishing takes place in these areas.
- Loss of forests through logging and timber milling. Timber milling in areas in the immediate vicinity of garden areas contributes to soil erosion and loss of good soil for gardening.
- Loss of garden areas through erosion and loss of topsoil
- Wild pigs damaging gardens. Marijuana was planted around the garden to help stop pigs from destroying gardens. (The use of drugs was discussed informally).
- Water supply. The old Nuatabu village, Masi, changed completely from 2004 to 2006 and before the tsunami of 2007. Since the tsunami there has been no piped water on the old village site and villagers walk long distances to fetch water.
- Coastal erosion on mainland

#### 4.1.6 Nuatabu problems identified

Problems were identified through a brainstorming session with all participants, and were ranked by importance and priority. The issues were discussed thoroughly with both women and men providing inputs. The village elders also discussed each problem and their priorities.

There was consensus on most other problems and solutions.

*Ranked problems (in order of highest to lowest priority)*

1. Water supply and sanitation needs
2. Loss of marine resources, decreasing catches
3. Soil erosion, loss of good garden areas, loss of topsoil
4. Unsustainable farming methods
5. Pigs, invasive species becoming more problematic
6. Loss of forests through timber milling and logging in nearby areas

After the problems were ranked, the main issues and concerns were listed and the groups carried out a root cause analysis for each problem and identifying possible solutions and adaptation strategies. Some of the problems identified were non-climate related, however they exacerbate climate change impacts.



**Table 4. Nuatabu problem solution tree**

| Problem  | Solution   |
|--|--|
| Coastal erosion, sea level rise, increasing waves  | Relocation (this means water and sanitation to be part of the relocation plans)        |
| Cutting down of coastal trees  | Reforestation  |
| Human collection of rocks and gravel   |  |
| Coastal gardening  |  |
| Earthquake (natural)   | Evacuation in times of disaster; disaster budget to be in place                        |
| Loss of forest   | Introduce alternative activities and some form of forest protection                    |
| Logging activities (major loss)  | Reforestation of indigenous trees/commercial trees                                     |
| Natural disasters such as cyclones   | More education and awareness needed  |
| Reforestation using foreign trees, cutting down natural trees                            | Reforestation of indigenous trees/commercial trees                                     |
| Gardening on slopes  | Sustainable farming practices to be introduced   |
| Milling operation activities   | Good and fair planning of logging and milling operations                               |
| Loss of garden areas on ridges   | Discourage slash and burn method   |
| Loss of soil fertility   | Contour farming to be explored   |
| Soil erosion due to heavy rainfall, cut and burn method of farming                       |  |
| Poor gardening planning (areas planted with coconuts- for income)                        | Plan farming areas, replant coconuts and other types of fruit trees.                   |
| Logging disturbs pigs habitat, migrating to garden areas of ridges                       | Fence gardens and hunt pigs<br>Supsup gardens<br>Education and awareness for community |
| Loss of marine resources   | Set up a Marine Protected Area   |
| Weather variation and increased erosion- soil end up in coastal reefs and other habitats | Training and awareness on setting up of MPA  |
| Resource depletion result also from population increase and the need for money           | Explore better buyers of seafood   |
| Methods of fishing: nets, vines  | Have regulations for fishing methods   |
| Sea pollution: taboo areas, rubbish  | Address problem of toilets and access to water   |
| Logging: diesel, oil and soil loss ending up in the sea                                  | Code of practice for logging to be followed and community to be aware of the policies  |

The young men at the discussion brought up relocation as a solution to the ongoing coastal erosion. However the loss this will bring to the greater community will have to be taken into account. The remaining portion of the original Nuatabu village represents the community's identity, and a place of cultural significance where shell money was once manufactured. Due to land tenure, any relocation of people to tribal lands will further fragment the community. Nuatabu is already divided into two parts with the SDA and United Church having built separate communities.

#### 4.1.7 Nuatabu Community Action Plan

The problems were discussed after the root cause analysis and a range of solutions and activities were identified. These form the basis of the Action Plan which is under Report Annex 1.

## 4.2 Malangono (Panarui)

Appraisal dates: 16 – 17 June 2014

Malangono is a provincial sub-station within the Panarui community. The village is situated some 70 to 100 meters from the shore on a slightly raised coastline. The coastal area is covered with littoral forest including coconuts and mangroves. Since the 2007 tsunami, there has been an inland movement of people with most relocating to tribal lands.

Almost half the houses have aluminium roofs while the other half are built from local materials. Timber for the homes is sourced from the large forest area surrounding the village. There is no electricity and there are only a few communal standpipes for the whole community. Malangono is a small provincial centre which will house agriculture and forestry offices in future. The provincial houses have their own tanks and also have access to piped water supply from the village.

### 4.2.1 Process and tools

The PRA in Panarui was arranged through the provincial administrator based at the Malangono sub-station. Most of the work involved those around the station and a few representatives of the four zones of the community. Meetings were only conducted at night as residents were busy with other village activities during the day. Since the chief and zone leaders were not present at the meetings, the action plan and report will have to be endorsed by them prior to implementation of activities. Tools used were the same as those used in other communities.



Figure 8: Young men working on the social map

Table 5. Tools used in the Malangono participatory exercise

| Tools                 | Description   |
|-----------------------|---|
| Seasonal Calendar     | Group work by gender and age groups                     |
| Stakeholder Exercise  | Group work by sex (male/female) and age or status group |
| Gender Roles          | Group work by sex and age groups                        |
| Social mapping        | Groups can vary - sex/age/interest groups               |
| Problem Ranking       | Ranking in groups and brainstorming to finalise         |
| Problem Solution Tree | Root cause analysis and solutions by male/female groups |
| Brainstorming         | Discussion on findings and solutions                    |
| Action Plan           | In groups and brainstorming session to finalise         |

### 4.2.2 Seasonal calendar for Malangono

Crops like potatoes, yams, pana, cassava, taro, slippery cabbage are planted and harvested throughout the year. This means that seasonality only applies to fruits, nuts and certain species of reef fish. Young men had very limited knowledge of seasons and this can be an indication of their not being involved in gardening or fishing.

During discussions it became evident that the best times for planting were no longer certain because of changes in weather patterns and seasons. There is a lot more rain during the dry seasons. April is usually a calm month but this is no longer the case. With these changes to planting and harvest times, villagers are starting to lose the traditional knowledge and skills associated with the use of these resources.

**Table 6. Seasonal calendar for Malangono**

| January  | February   | March   | April                         | May   | June   |
|--|--|---|-------------------------------|---|--|
| pineapple                                      | coconut, a lot                                   | coconut a lot<br>harvest yam,<br>pana and<br>banana | coconut, a lot<br>Harvest yam | All Choiseul- All<br>United Church<br>Celebration | Provincial United<br>Church Centenary<br>Celebrations and<br>annual celebrations |
| plant kakake,<br>banana                        | pana harvest                                     |   | mango                         | Harvest yam                                       | nuts, mango  |
| harvest pana<br>banana                         | harvest pana<br>and banana                       | kingfish  | kingfish                      | kingfish, buma-<br>small fish                     | plant yam  |
| melon  |  | bonito  | bonito                        | bonito  | local apple  |
| mango  | pavoma<br>cucumber                               | zuzuri  | wild yam harvest              | wild yam harvest                                  | ngali nut harvest  |
| water melon                                    | zuzuri   | pane  | barracuda                     | ngali nut harvest                                 | vego- small silver fish  |
|  |  | sirobani fish                                       | reef fish                     | mango   | buma   |
|  |  |   |                               | Mothers' Day                                      | bonito   |
|  |  |   |                               |   | mango, Tahitian<br>chestnut  |
| July   | August   | September   | October                       | November  | December   |
| nuts   | kingfish   | kingfish  | pineapple                     | pineapple   | pineapple  |
| Plant yam                                      |  |   | a lot of reef fish            | abundant reef<br>fish                             | a lot of reef fish   |
| reef fish                                      |  |   |                               | ngali nut   | ngali nut  |
| buma   |  |   |                               |   | watermelon   |
| mamula   |  |   |                               |   | Children's Day   |
| honey harvest                                  | honey harvest                                    | honey harvest                                       | honey harvest                 | honey harvest                                     | honey harvest  |
| ngali nut harvest                              | cabbage,<br>tomatoes and<br>pepper- 6-8<br>weeks |   |                               |   |  |
| local apple<br>Tahitian chestnut<br>breadfruit |  | cabbage,<br>tomatoes and<br>pepper- 6-8<br>weeks    | bean harvest                  |   |  |
| local apple                                    | local apple                                      |   | ngali nut                     |   |  |
| vego-flat silver fish                          | Tahitian<br>chestnut                             | Tahitian<br>chestnut                                |                               |   |  |
|  | breadfruit                                       | Fathers' Day  |                               |   |  |
| Independence<br>celebrations                   | ngali nut  | ngali nut   |                               |   |  |

Beekeeping is done on a very small scale in Malangono and the best time for large harvests of honey is when trees flower. There is an abundance of fish at the new moon and during the last quarter of the moon. Women are primarily involved in gardening, foraging for food in the forest, fishing and collecting from coastal reefs and mangrove areas. Climate change means they will face more hardships given the change in seasons, weather and the impact on natural resources. There was disagreement during the seasonal exercise as younger and older men as well as women could not agree on the seasons for certain fruits and the best times for fishing. This could be attributed to the changes in harvest seasons and known crop cycles.

### 4.2.3 Stakeholder analysis for Malangono

The stakeholder analysis is an assessment of stakeholders in and outside the community. It also shows the relationship between external partners, and the villagers. The exercise helps identify channels of protocol to be followed in the community and which partner is working or has worked in which sector. Through this exercise participants identify the various partners working within the community.

Stakeholders within the village were well known to the participants. There are village committees in the four different zones with zone leaders acting as contact points for the chief and pastors when work needs to be done. Along with tribal chiefs, the zone leaders have a lot of influence in the community. In cases where people have settled on their tribal lands, they have the first say over resources in their settled area. Pastors also hold very influential roles that are almost equal to chiefs. Given the influence that the church has on the village, the proposed work could be conducted via church groupings already in existence.

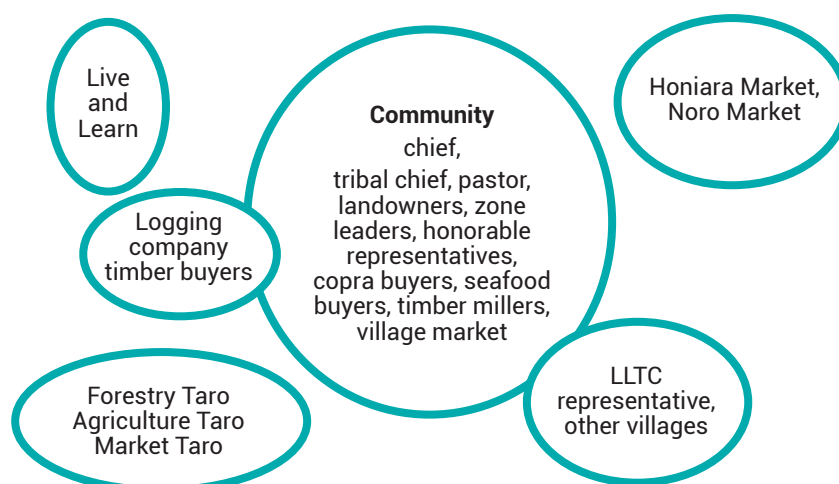


Figure 9: Malangono stakeholder analysis

There is timber milling within the village and the millers secure buyers in Honiara before cutting down trees to meet the required amount of timber ordered. The selling of fish has created close relationships with neighbouring villages. Since men usually sell fish to other communities, they work in and outside the community.

There was little understanding and knowledge of outside partners and stakeholders working in the various sectors of climate change or other areas. A better understanding of the various stakeholders and their different roles and interest in the communities will help in future collaborative work.

The results of the PRA in this case have to be endorsed by the chief and zone leaders.

### 4.2.4 Malangono gender roles

In Malangono, women's roles are still primarily defined by customary norms and protocols. For example, the designated roles of young women and married women may differ in many aspects. Women are usually expected to play a certain role and to take over defined responsibilities as soon as they are married. Women's groups focus on church activities or catering when there are visitors to the villages.

Gardening is one of the primary responsibilities of women. This includes the clearing and cutting down of secondary trees and shrubs, digging with sticks to plant yams, potatoes and other crops, weeding and harvesting. This work is not confined to certain months or seasons as livelihoods and food security depend on daily gardening and fishing activities. Since the residents of these communities do not have the luxury of buying food substitutes, putting food on the table means working daily to ensure there is always a consistent supply.

Women walk over an hour to get to their gardens and most of these gardens are on sloping land. At the end of each day women are responsible for cooking which is done on open fires. In the event of heavy rain, tending their gardens and harvesting food and firewood is made more difficult.

Women presently carry out many of the tasks that men also do. They are acutely aware of climate change impacts and have adopted their own coping mechanisms when it comes to providing daily food and sustenance needs. For instance, women in Malangono are constantly in search of more fertile land to grow crops due to soil erosion and the loss of topsoil.

Women are now fishing further away from the immediate coastal areas as the cumulative impact of sedimentation resulting from heavy downpours has adversely affected reefs and other coastal habitats. Warmer seas, stronger winds and more frequent storms add to the hardship of collecting seafood. Added to this is the practice of using mangroves as toilets so the more accessible areas where they can fish are no longer fished because of pollution.

Women carry timber where there is local timber milling and this involves manually carrying timber from the mill to construction sites or to where the timber will be loaded on canoes or boats. Garden work, fishing, collecting firewood and domestic chores are mostly tasks of women. Men make canoes and paddles and furniture for their own use and sell if money is needed, largely to meet education, religious or traditional needs.

As discussed previously, the hardship women face relates to the customary role of women. Exacerbating women's disadvantaged position is the practice of bride price which is still practiced although the repercussions may not be as harsh as in the past. Even though various changes are seen in village life, women's roles and traditional expectations of them remain almost unchanged.

**Table 7. Malangono gender roles**

| Men   | Women  |
|---|--|
| <b>Agriculture</b><br>Brushing, clearing<br>Tree felling<br>Hoeing<br>Planting, harvesting<br>Copra collection/cutting<br>Livestock-chickens, pigs<br>Beekeeping  | Brushing, hoeing<br>Weeding, clearing<br>Planting<br>Secondary tree felling<br>Copra collection/cutting<br>Livestock- pig, chicken   |
| <b>Forestry</b><br>Timber cutting<br>House building<br>Cubic selling<br>Collection of materials for local houses<br>Firewood (large), herbal medicine<br>Furniture, chair, table, canoes, paddles, axe handle<br>Hunting wild pigs and birds<br>Collection of wild foods<br>Traditional clay pot making (in the past)<br>Nursery: tree planting | Firewood<br>Collection of materials for craft: baskets, mats, etc.<br>Timber carrying- when there is timber milling<br>Forage for wild foods: yams, wild ferns, nuts, etc.<br>collect leaves for house materials and out<br>Traditional clothes: tuba<br>Traditional clay pot making with soil from forest<br>Nursery<br>Tree planting |
| <b>Fisheries</b><br>Trawling<br>Strike line<br>Diving for trochus, bêche-de-mer, fish<br>Net fishing<br>Poison vine<br>Torch fishing at night<br>Collecting lime coral for betelnut<br>Small scale clam farming, shellfish  | Coastal fishing<br>Net fishing<br>Gleaning for shellfish<br>Collecting crabs, seaweed<br>Shell craft- macrame<br>collecting lime coral for betelnut<br>Small scale clam farming, shellfish   |

#### 4.2.5 Malangono social maps

For this exercise participants drew social maps marking significant settlements cultural sites and areas they observe to be affected by climate change.

A marked difference in the social maps in Panarui was that the older men marked where the coastline used to be while the younger women and men drew the current state of the coastal area. The social map allowed the community to understand the resources they own, where things were and what has changed.

Panarui is divided into four zones and participants were able to draw old sites and where people have moved. Discussions on the maps and brainstorming sessions on the problems related to climate change were held by the various groupings. Taboo sites were only known through discussions of the drawings.

#### 4.2.6 Malangono problem identification

Using the social maps, the participants discussed the problems and issues that they have experienced. The maps helped them to see the wealth of resources they have, where changes have occurred and what is no longer there.

- The map showed coastal erosion and land retreat.
- The inshore reefs that are very close to shore are susceptible to sediment build up and overflow from regular heavy rainfall. During heavy downpour the bay is covered in silt and people no longer fish in near coastal reefs.
- Movement of settlement inland: the relocation and moving inland to higher ground started before the tsunami in 2007. People moving to areas with sloping land will increase unplanned gardening, felling of trees and put water sources at risk.
- Reef areas all around the island: communities use the sea as taboo sites (toilets) as there are no proper toilets so sanitation is a big need.
- There is still a lot of vegetation, however there is need for some protection measures for the remaining littoral forest.
- Graves near the sea area are threatened by coastal erosion.
- Bridge was swept away by the tsunami.
- Garden areas are situated on hills and sloping lands and around the water source.



Figure 10: Social Map of Malangono (Panarui)

The projects to be undertaken need to have a clear target and vision so that they have meaning. For example, the replanting of trees and nurseries needs to have target numbers so people have something to work towards.

Information, awareness work and training needs to be carried out via the proper community channel to ensure wider impact and that the long-term strategic goals of the village are met.

The lack of sanitation and toilets for the community had led to the immediate beach and sea areas being used as toilets. As a result, these areas are becoming polluted and are also not safe for children, women and the elderly at night.

There is a need for tanks and other alternative water sources as current water sources become muddy during heavy rain.

Heavy rainfall is contributing to constant flooding and sedimentation in the bay, which affects immediate coastal reefs and associated marine habitats and results in loss of fish and shellfish.

#### 4.2.7 Malangono ranking of problems

Following discussions, problems were ranked in order of importance, including:

1. Coastal erosion and land retreat, loss of mangroves, and the loss of gabion structures.
2. Flatland gardens becoming waterlogged due to heavy rains, which leads to the loss of soil productivity, soil erosion and topsoil.
3. An increase in pest crops and diseases.
4. Water supply problems during droughts and protection of water catchment area. Water supply becomes dirty during heavy rainfall.
5. Changes in planting and crop harvest seasons.
6. Sedimentation of coastal areas which destroys reefs and other marine habitats.
7. Stronger winds and changes in seasons of strong winds.



8. Gardens being damaged by pigs.
9. The lack of proper sanitation and toilets (not discussed/ranked)

After the problems were ranked, the main issues and concerns were listed and a root cause analysis was carried out for each problem in groups, resulting in possible solutions and adaptation strategies. Some of the problems identified were non-climate related, however these issues accelerate climate change impacts.

**Table 8. Malangono problem solutions tree**

| Problem                                  | Causes   | Solutions  |
|--|--|--|
| Coastal erosion, land retreat, trees     | Loss of trees and gabion structures, waves larger and moving in    | Replanting programme<br>Mangrove replanting                        |
| Scarcity in water supply                 | Gardening around water sources, tap water dries up during droughts | Protection of water sources  |
| Loss in productivity of soil, poor crops | Loss of top soil, erosion, heavy rains                             | Sustainable farming practices, both traditional and modern methods |
| Changing fishing and farming seasons     | Change in rainfall, hot days                                       | Contour farming<br>Sustainable fishing practices                   |

#### 4.2.8 Malangono (Panarui) Community Action Plan

Problems were discussed after the root cause analysis and a range of solutions and activities were identified. These form the basis of the Action Plan, which is under Report Annex 1.

There was only a small representation of the community during the appraisal. The action plan and identified solutions need to be discussed again with the Malangono community as the chief and church leader were not present. This would ensure better support for the implementation of adaptation strategies identified.

### 4.3 Pangoe

*Appraisal dates: 4 - 7 June 2014*

Pangoe Village is one of the largest communities in Choiseul Province. It has a population of more than 1000 people with homes spread over large coastal flatlands at the foothills of gradually sloping lands. The village is divided into six zones – Zones 1, 2, 3, 4, 5, and 6.

Three streams flow through Zones 3 to 6 and a river runs through Zones 1 and 2. There is a large swamp area running through the back of the village in Zones 3 and 4.

Most houses are less than 70 meters from the shoreline while gardens are located behind the village on hillsides and sloping land. While most houses are built from traditional housing materials, there are a number of homes built with timber and roofing iron. Newly married couples have been provided with solar lights, roofing iron and other building materials under a recent project of the political representative to the province.

Each zone has a traditional chief or zone leader and there is a paramount chief who oversees the affairs of the whole village. Pangoe is traditionally organised with people living in clan groupings. However, some have moved out to tribal lands to settle and farm. People live a subsistence lifestyle, farming, foraging in the forests and fishing to provide for their livelihoods. The community has a few canteens, a rest house and other forms of small income generating ventures. A market was set up in the village recently where women sell garden and fisheries products weekly. Cash crops are being grown but opportunities for sales are limited.



**Figure 11: Two Pangoe women leaders**



### 4.3.1 Process and tools

Work in Pangoe was arranged through the chief and the pastor. Most of the people that attended were from Zones 2 to 5. The work was conducted during the day and at night. Tools used were the same as those used in the other communities.

**Table 9. Tools used in the Pangoe participatory exercises**

| Tools                 | Description   |
|-----------------------|---|
| Seasonal Calendar     | Group work by gender and age groups                     |
| Stakeholder Exercise  | Group work by sex (male/female) and age or status group |
| Gender Roles          | Group work by sex and age groups                        |
| Social mapping        | Groups can vary - sex/age/interest groups               |
| Problem Ranking       | Ranking in groups and brainstorming to finalise         |
| Problem Solution Tree | Root cause analysis and solutions by male/female groups |
| Brainstorming         | Discussion on findings and solutions                    |
| Action Plan           | In groups and brainstorming session to finalise         |

### 4.3.2 Pangoe seasonal calendar

The seasonal calendar exercise was done in groups with people working in men's and women's groups. Young people and older men had separate groupings.

**Table 10. Pangoe Seasonal Calendar**

| January   | February | March     | April     | May       | June      |
|-----------|----------|-----------|-----------|-----------|-----------|
| pineapple | melon    | melon     | pitako    | aputchu   | potato    |
| mangoes   |          |           | kasava    |           | pineapple |
|           |          |           | taro      |           | nuts      |
| July      | August   | September | October   | November  | December  |
| alite     | alite    | potato    | potato    | pineapple | pineapple |
| ngali nut |          | kasava    | pineapple | mangoes   | mangoes   |
|           |          | pineapple | orange    |           |           |
|           |          | orange    |           |           |           |

Similar to other sites studied, there is little knowledge of seasonal crops or marine species. This is because of the high dependence on crops and vegetables that are planted and harvested year round. Vegetables like bananas, pumpkins and crops such as potatoes, cassava, taro and pana are planted and harvested throughout the year. Seasonality was only related to fruits, nuts and some fish and shellfish. Reef fish seasons were also not discussed and this could be because of the high reliance on migratory fish species like bonito.

Extreme weather and climatic variability is affecting planting and harvesting seasons. Too much rainfall and too much sun affects planting seasons and crops sometimes die before maturity. Intense dry seasons has resulted in changing soil texture and in garden productivity.

The change in seasonality can result in loss in knowledge of land and marine resources and the associated loss of traditional skills. Young people had very little knowledge of seasonality characteristics for land and marine resources. This reflects their minimal engagement in farming and fishing activities. Women are primarily responsible for working on and maintaining family gardens. Their current knowledge and skills may not be sufficient to cope with variations in weather, seasons and other climate –related changes. They will need to adapt to new crops and new cycles of planting. Given the role women play in providing for the family's livelihood, learning from their knowledge and skills should be maximised when planning adaptation alternatives.

### 4.3.3 Pangoe stakeholder analysis

The stakeholder analysis exercises were carried out in gender and age groups. The elders, chief and pastor formed one group while the other participants were grouped according to sex and age. This exercise allowed villagers to identify people, organisations and institutions they can use within and outside the community. The exercise also allowed communities to see who is using which resource and for what purpose.

The villagers have a good knowledge of institutions and groups within the community. Because it is a large community everything is done in zones and each zone has a leader. The leaders and chiefs from each zone then come together to discuss community issues when needed. Villagers did not have much knowledge of outside partners. During discussions, they indicated that there was very little communication and work with the province and also the government (Ministry of Environment). Internal structures and their different functions were well set up and the channel to use when working on community-based interventions clearly defined. Because Pangoe is a sizeable community, work here should be targeted in the six different zones.

Within the six zones, tribal land issues, setting up of contour farms and nurseries will need proper discussions with the different zone leaders to get the support for the intended work and also to ensure that the work is at a level where it can be replicated and where people have some type of ownership.

### 4.3.4 Pangoe gender roles

Gender roles are primarily defined by customary norms and expectations. Women carry out the major tasks in all aspects of community life. Gender equity is hardly discussed and women in these communities are a long way from thinking about equality. Women's roles are determined by traditional norms. In these communities married women have the primary task of feeding their families and this can involve strenuous work such as daily foraging, planting, harvesting and fishing.

Men and women almost have the same tasks in the agriculture, forestry and fisheries sectors. Women are responsible for developing and maintaining gardens for the family's daily needs. This includes walking for hours to get to and from the gardens, clearing secondary forests and shrubs, cutting trees, digging using sticks, planting and weeding. Elderly men and women have different roles.

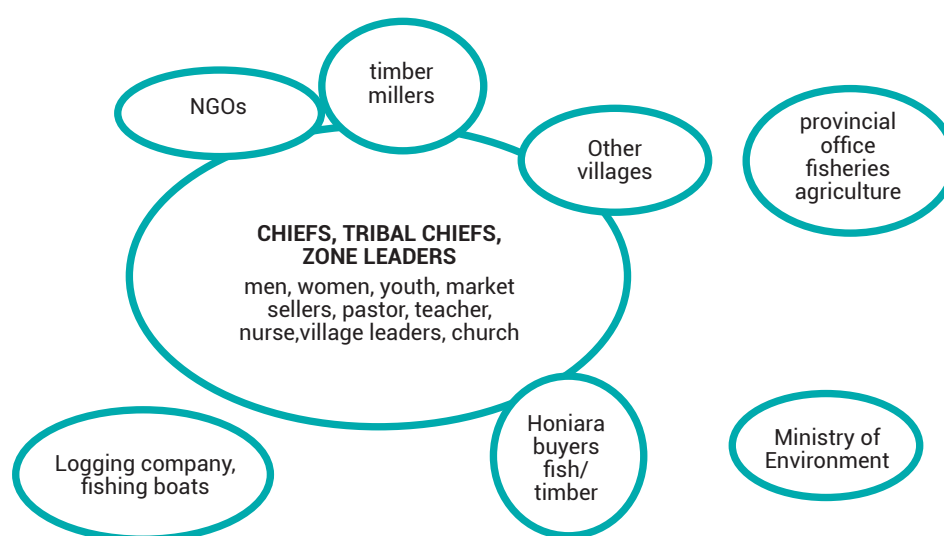


Figure 12: Pangoe stakeholder analysis

It must be noted that the women's gardening tasks are done daily as gardens need to be continually developed and managed to ensure a steady source of food supply for the households. In these rural locations canteens are available but most families cannot afford food substitutes because of the lack of purchasing power. Many families have only two meals a day because they are out all day in the gardens and at sea.

**Table 11. Pangoe gender roles**

| Men  | Women   |
|--|---|
| <b>Agriculture</b><br>Cutting down trees/tree felling<br>Digging<br>Brushing<br>Planting/gardening<br>Clearing cut trees/ clearing<br>Harvesting<br>Weeding<br>Livestock, feeding of pigs and chickens                       | Clearing / brushing of smaller trees<br>Planting<br>Weeding<br>Hoeing<br>Harvesting<br>Feeding pigs and chickens  |
| <b>Fisheries</b><br>Coastal fishing<br>Deep sea fishing<br>Fishing, canoe making<br>Local line fishing<br>Diving for fish/spearing<br>Netting<br>Trawling<br>Long line fishing<br>Fish poison                                | Coastal fishing<br>Diving for trochus and other shellfish<br>Cooking<br>Selling<br>Local line fishing<br>Netting fish<br>Collecting seaweed and shellfish<br>Bêche-de-mer diving<br>Seaweed planting<br>Vine fishing, method of fishing by poisoning fish |
| <b>Forestry</b><br>Cutting timber/felling of timber/logging<br>Making furniture<br>Selling timber<br>Hunting<br>Milling of timber<br>Gathering building materials<br>Custom medicine, collecting nuts<br>Collecting firewood | Planting trees<br>Nursery<br>Gathering fruits, nuts and building materials<br>Brushing<br>Custom medicine<br>Collecting materials for weaving<br>Carrying sawn timber<br>Collecting medicine<br>Collecting house materials<br>Collecting firewood         |



**Figure 13: A woman makes a basket to carry crops, fruits and nuts**



In addition to gardening tasks, women collect firewood, help carry timber when there is timber milling in the community and cut and collect building materials. Given that women are engaged in all these activities, most planned adaptation interventions for replanting trees, contour farming and other such activities should include women. From their intimate knowledge of forests, gardens and coastal fisheries women have a wealth of knowledge of resources and impacts of climate change that need to be taken into account.

In the fisheries sector women glean and fish in coastal reefs and near shore habitats. Gleaning includes shell collection and foraging on the coastal flats for all sorts of invertebrates. More recently women have started to move out to the deep sea and some trawl for bonito and other migratory species.

In Pangoe, the need for proper sanitation (toilets) was raised by women and supported by young men. This activity was very useful in making men and women realise and take stock of what the women were responsible for. The exercise allowed participant to think critically of the various roles played by men and women. The young men came up with comments like "women even carry timber after milling, women even do trawling for bonito, women carry house materials" implying that women were now carrying out tasks that are normally assigned to men or which they thought men should be doing. The community is undergoing significant changes with men involved in logging ventures, technology like mobile phones is starting to infiltrate the village, gender roles however are deeply entrenched in tradition and will take some time before there can be any real change in women's roles. There are some changes happening through the church where women take some leadership positions and educated women (teachers, nurses) are more vocal during meetings.

#### 4.3.5 Pangoe social mapping

For this exercise the participants drew social maps marking significant settlement sites, cultural sites and areas they perceive to have been affected by climate change. The groups of men, women and youths drew maps of the six zones with some concentrating only on one or two zones. The three streams that run through zones 3 to 6 are used as taboo places (toilets for both men and women). A mangrove patch at the end of zone 6 is also a men's taboo place.



Figure 14: Social map of Pangoe showing the six zones

Some households have solar power and there are a few small generators in the village. People have started to relocate inland over the last few years. From discussions the concern is that people continue to use the river and sea as toilets and moving inland means that pollution of water will happen further upstream. Unsustainable gardening practices will now expand to the hill areas surrounding the community.

#### 4.3.6 Pangoe problem ranking

Following presentations of group maps, there was a brainstorming session where the problems identified were ranked. Ranked concerns and problems (from highest to lowest) were as follow;

1. Less fish in coastal reef areas, harder to find fish. Less shellfish in near coastal areas
2. Lack of proper sanitation and pollution of rivers and mangroves areas used as toilets
3. Loss of mangrove areas
4. Pollution of coastal areas with plastic bags, tins, etc.
5. Loss of soil fertility, land not productive, loss of crops
6. Landslides, soil erosion and sediment covering near coastal reefs and other marine habitats
7. Less timber for building and people now have to go far away to find timber and other forest products. Harder to find building materials like sago and different types of vine

A root cause analysis was conducted after identifying the main concerns and problems that villagers face. Following this possible solutions and strategic activities were discussed.

**Table 12. Pangoe problem solution tree**

| Problem   | Solution   |
|---|--|
| Decrease in fish and shellfish from coastal reef areas<br><br>The mangrove areas at the end of Zone 6 used to be one of the main shell collection areas and fishing area for women but this area has become the main taboo or toilet area for men | Set reef areas on reserve for four years<br><br>Stop using harmful fishing practices including poison vine, do not pollute the sea with all sorts of rubbish (plastic, house waste, batteries)<br><br>Early education of young people and children |
| Both women and men have to go far to fish now and most shell fishing is done on a nearby island   | Use Marine Protected Areas Act to set up a marine protected area   |
| Over harvest due to increasing population and use of modern technology for fishing, e.g. scuba diving, nets, the use of poison plants   | Replanting<br><br>Include harvest of commercial species like trochus, shark fin, bêche-de-mer in the plans for fisheries management.   |
| Loss of topsoil, logging, unsustainable timber milling, no replanting of trees and higher rainfall is resulting in a lot of soil erosion and landslides   | Contour planting and other sustainable farming methods to be introduced  |
| Less timber for building. People walk far to go to the forest, logging, unsustainable timber cutting, no replanting, money  | Planting of trees. start a nursery, then have a planned forest-replanting programme for the community  |
| Use of mangrove areas, rivers and coastal areas as taboo places or toilets, pollution of fishing areas and water sources.   | Work on building proper toilets. Need to have education and awareness work first   |

#### 4.3.7 Pangoe Community Action Plan

The solutions discussed under the Problem Solution Tree exercise form the basis of the action plan. The activities outlined in the solutions column are further discussed taking into account who is responsible for the actions, partners they are going to work with, time frame, expected outcomes and monitoring time guidelines.

Please refer to Report Annex 1 for the community action plan

## 4.4 Posarae

*Appraisal dates: 27 - 29 May 2014*

Posarae Village is situated on a thin strip of coastal land with homes about 50 to 100 meters from the shoreline. There is a steep incline behind the village, restricting expansion beyond the current village area. Any movement or relocation of people will be to higher areas about eight km from the current location. Posarae has a population of around 200 which includes villagers who have moved to other areas. More than a third of the homes are made of timber and roofing iron while the rest are built from traditional materials. Kerosene lanterns are in wide use along with a few solar lights while cooking is done over open wood fires.

The chief holds traditional authority and has the most say over land and customary issues while the pastor of the SDA church has similar influence over village obligations, functions and commitments. People depend on subsistence farming and fishing activities for their basic livelihoods. Because of the steep topography surrounding the village, regular heavy rainfalls have led to increased erosion, landslides and loss of topsoil. Three streams run right through the village and increasing rainfall and soil erosion means that the main village area remains waterlogged for long periods of time. Other parts of the village also flood from overflowing streams and seawater at high tide. The front of the village suffers continuous coastal erosion with land gradually retreating and the sea slowly moving in.

Most villagers are Seventh Day Adventists and do not eat shellfish and crabs. However, trochus is collected for income. Most seafood references in this section are to fish. Tribes own land and any relocation, replanting, contour farming and adaptation strategies have to be agreed to by them. There is a paramount chief and five tribal chiefs in the community. There is limited economic opportunity and selling is only within the community, with the occasional sale to the logging company, the fishing boats and visitors to the community. Opportunities to sell are limited by transportation difficulties and the high cost of fuel.

For the most part, villagers in Posarae sustain their traditional livelihoods such as gardening and fishing through customary practice and norms. Women, men, young people and the elderly have designated roles and responsibilities but these social structures are beginning to change with the erosion of traditional culture as well as the impending loss of culturally relevant sites and landmarks. The changes to the natural environment are also affecting the traditional knowledge and skills relating to gardening and fishing which helped sustain the community for generations. Village leadership is also starting to come under scrutiny, especially with regards to issues like logging and the distribution of funds received from logging activities.

### 4.4.1 Process and tools

Work in Posarae was arranged through the chief and the Seventh Day Adventist (SDA) Church pastor according to village protocol. The first day was spent on a field survey. Work started on the second day when all the members of the community were available. Tools used were similar to those used in other communities.

### 4.4.2 Tools used in the Posarae participatory exercises

| Tools                 | Description   |
|-----------------------|---|
| Seasonal Calendar     | Group work by gender and age groups                     |
| Stakeholder Exercise  | Group work by sex (male/female) and age or status group |
| Gender Roles          | Group work by sex and age groups                        |
| Social mapping        | Groups can vary - sex/age/interest groups               |
| Problem Ranking       | Ranking in groups and brainstorming to finalise         |
| Problem Solution Tree | Root cause analysis and solutions by male/female groups |
| Brainstorming         | Discussion on findings and solutions                    |
| Action Plan           | In groups and brainstorming session to finalise         |

#### 4.4.3 Posarae seasonal calendar

This exercise was done in gender groups. There was a group for older men and a group for older women.

**Table 13. Posarae Seasonal Calendar**

| January  | February               | March                            | April  | May  | June  |
|--|------------------------|----------------------------------|--|--|---|
| reef fish<br>cassava<br>potato<br>plant taro<br>pitpit | reef fish              | alite<br>harvest pitpit<br>viori | alite<br>red fish  | alite  | reef fish<br>nuts<br>yam  |
| July   | August                 | September                        | October  | November   | December  |
| pana<br>cassava, potato<br>small nuts                  | reef fish<br>king fish | reef fish<br>district meeting    | ngali nut<br>breadfruit<br>big nuts<br>red fish<br>melon | pineapple<br>kakake<br>snapper<br>reef fish<br>melon | snapper<br>reef fish<br>kakake<br>taro<br>banana<br>mango<br>pineapple<br>melon |

Knowledge of seasonal harvests of crops was not clear and not well explained. This is because the usual crops, like taro, bananas, potato (sweet potato) and cassava are planted and harvested all year round. Added to this are weather changes affecting planting and harvesting seasons. Posarae villagers explained that changes in the wet and dry seasons are affecting the planting cycles of certain crops. There was variation also in the identification of fruit and nut seasons and this also showed change from the normal patterns villagers were used to. Young people had little idea of seasonal crops or fruits due to their minimal participation or lack of interest in farming activities.

For fisheries, there was not much knowledge of reef fish seasons because the villagers' favoured migratory offshore species like bonito. The villagers rely to a large extent on traditional knowledge and skills to sustain livelihoods. With increased rainfall, drier seasons, more storms and winds, current coping and survival mechanisms may not be adequate. This will result in more hardships and food security will be affected.

Women have the primary responsibility for developing and maintaining gardens and changes to planting and harvesting cycles mean they have to work extra hard to ensure consistent food supply. Since villagers do not have the purchasing power to buy food substitutes, there is total reliance on subsistence farming and fishing. People eat two meals a day because they are either gardening or fishing the whole day. Meals consist mostly of root crops and vegetables. Whilst fish is the main source of protein, it is not an everyday food.

#### 4.4.4 Posarae stakeholder analysis

The stakeholder analysis was done in gender and age groups. The elders, chief, pastor and parliamentarians were in one group while the rest of the participants were divided into sex and age groups. This was to allow participants to speak freely and share views openly. Working on this exercise allowed people to identify people, organisations and institutions they can work within and outside the community. It also enabled the people to see the different areas of involvement of stakeholders.

While the participants were aware of the stakeholders within the community and who to go to for development purposes, they were not too familiar with external partners. The logging company was considered close to the community because they often buy food from the villagers and there were some villagers who worked in the company. The fishing boat crews that visit also buy food from the villagers. These are opportunities where women can sell products outside the community.

Communication and coordination between and among the community members and external partners need to be strengthened.



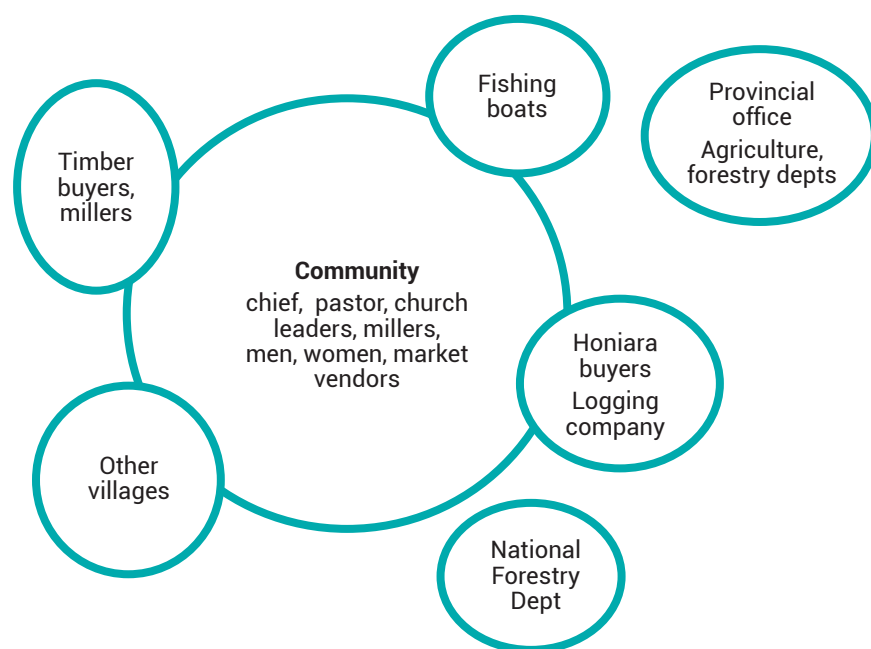


Figure 15: Posarae stakeholder analysis

#### 4.4.5 Gender roles in Posarae

Women's roles are still defined by customary norms and expectations. There are a lot of stereotypes associated with the roles of women. Women have certain designations or roles when young which change when they marry. Not much has changed in the status of women and they are still a long way from achieving gender equity. Women are not part of the decision-making process in the community but in church meetings they are sometimes invited to speak. Women carry out most of the manual and difficult physical activities in gardening, working in the forests and fishing.

The agriculture, fisheries and forestry activities involve both men and women. They garden, forage and work in the forest and fish daily to sustain livelihoods. Women however, are primarily responsible for preparing and maintaining the family food gardens which involve cutting down trees, clearing of bush areas, digging using sticks, planting, weeding and harvesting. Women also have to plan gardens to ensure that there is always something to harvest all year around. Gardening and fishing are continuous throughout the year to ensure sustained food supply. Since the villagers have a very weak purchasing power to buy food substitutes, there is almost a total reliance on gardens, the forest and fisheries for food.

Soil erosion has led to an increase in sedimentation in coastal reefs and habitats, forcing women to move to fishing areas away from the immediate community fishing grounds. Women also engage in diving for trochus and beche-de-mer, which is mostly for commercial purposes.

Where pigs have become a major problem, many women had shifted their family gardens to the small island directly opposite the village in which case they have to take canoes to work on their gardens. Women are going to be severely disadvantaged with the increased rainfall and the projected increase in storms and intensity of cyclones resulting from climate change,

**Table 14. Posarae Gender Roles**

| Men  | Women  |
|--|--|
| <b>Agriculture</b><br>Cutting down trees/tree felling<br>Digging<br>Brushing<br>Planting/gardening<br>Clearing cut trees, clearing, harvesting<br>Weeding<br>Livestock, feeding pigs and chickens  | Brushing of smaller trees<br>Planting<br>Weeding, hoeing<br>Digging<br>Harvesting<br>Feeding pigs and chickens   |
| <b>Fisheries</b><br>Coastal fishing<br>Deep sea fishing<br>Fishing, canoe making<br>Local line fishing<br>Diving for fish/spearing/trawling<br>Long line fishing<br>Fish poison<br>Beche-de-mer diving (sell locally and Honiara)<br>Trochus diving ( sold also)<br>Line fishing   | Coastal fishing<br>Cooking<br>Marketing<br>Diving for trochus/shells<br>Seaweed and shellfish<br>Netting fish<br>Vine fishing (poisoning)<br>Beche-de-mer diving<br>Seaweed planting, needed<br>Line fishing   |
| <b>Forestry</b><br>Cutting timber/felling of timber/logging<br>Making furniture<br>Selling timber<br>Hunting<br>Milling of timber<br>Gathering building materials from the bush<br>Custom medicine<br>Collecting nuts<br>Collecting palm leaves and building materials<br>Collecting firewood<br>Employment to get food<br>Gardening | Planting trees<br>Nursery<br>Gathering fruits<br>Brushing<br>Custom medicine<br>Collecting nuts<br>Custom medicine<br>Collecting building materials, pal leaves<br>Collecting firewood<br>Harvesting food<br>Responsible for feeding family<br>Selling and buying at the market<br>Gardening, employed |

Most farms are near the major river about six kilometres from the village and heavy downpours result in more frequent flooding and damage to crops and gardens. During the fieldwork a young girl drowned when a canoe she was travelling in with her grandmother overturned and she was swept away by strong currents. Her body was found the next day half eaten by a crocodile (refer to Annex 3). The risk associated with gardening and flooding is very high and women face these risks on a regular basis.

There is a village market day in the week where women sell mostly cooked food, fisheries produce and land produce like yams and vegetables. Some women also sell food to the logging company workers and there is barter of food crops and fruits for fish with the crew of fishing vessels that come into the Posarae waters to catch baitfish.

In the forestry sector, women collect firewood, carry timber where there is local milling and forage for wild foods in the forest on almost daily basis. Given their extensive roles, most planned activities for replanting of trees, contour farming and other such activities should include women. Barter and food exchange still exist and during natural disasters those whose gardens are damaged get food from those whose gardens are safe. This is the traditional safety net for ensuring food security in the face of natural disasters and extreme weather events when crops and vegetables are either destroyed or rot before harvest. Some traditional roles have changed - women did not fish in the past but they fish now; only women used to plant taro but men now plant as well.

#### 4.4.6 Posarae time use surveys

The time use survey exercise was conducted in Posarae after the discussion and group work on gender roles. The results showed women take on a substantial part of farming, forest and fishing activities. This is apart from their traditional domestic roles and being caregivers for the family. Although activity columns for men and women were filled there were gaps in the morning, afternoon and evening where men's activities ceased while women started early and finished late at night. For example, women said that after breakfast men can sleep or lie around for several hours if they do not go fishing or to the garden while women have to clean and tend to children.

#### 4.4.7 Posarae social mapping

The participants were divided into gender and age groups and drew maps showing their houses, gardens and other significant landmarks and social and cultural sites. They also marked areas that they perceived to be affected by the impacts of climate change.

#### 4.4.8 Posarae problems identified

The following are discussions around the social maps and concerns and problems raised by the community.

- Coastal erosion and land retreat: the front of the village is gradually eroding and the sea is moving in. The previous village boundary is now underwater.
- More frequent and intense rainfall is resulting in sediment accumulation in creeks and river systems.
- The immediate coastal area of Posarae is completely covered with sediment on rainy days. This has resulted in damage to reefs and other coastal marine habitats. Women have difficulty finding fish in near coastal areas as rocks and reefs are covered with soil. Soil erosion is a major problem resulting from loss of topsoil from gardens on sloping land and hillsides.
- Use of mangroves and the sea as taboo places (toilets). Only three houses in the community have proper toilets.
- Mangrove areas have also been lost through removal for firewood and medicine and due to natural causes.
- Pollution of coastal area with plastics, tins and all forms of rubbish. Sea used for rubbish disposal. Litter like plastic, tins, batteries and old household goods are scattered all over the beaches and shoreline.
- Most of the village is on the flat area near the sea and this is completely inundated during rainy weather, especially during high tide. Crops planted around houses are also destroyed as the plots become waterlogged.
- There are three creeks that run through the middle of the village and there are other waterways formed by frequent rainfall and run-off from the steep mountains surrounding the village. The creeks cut across the playing field, which is permanently waterlogged from rain and inundated from incoming seawater when the tide comes in. Landslides commonly occur at two points behind the village.
- Depletion of fish from coastal areas.
- Loss of knowledge of farming and fisheries seasons, especially among young men and women.
- Contour planting and nursery started, however, there are internal conflicts over land use. This highlights the importance of talking to all stakeholders before project implementation.

The problems were ranked after identification. Ranking was carried out according to sex and age.

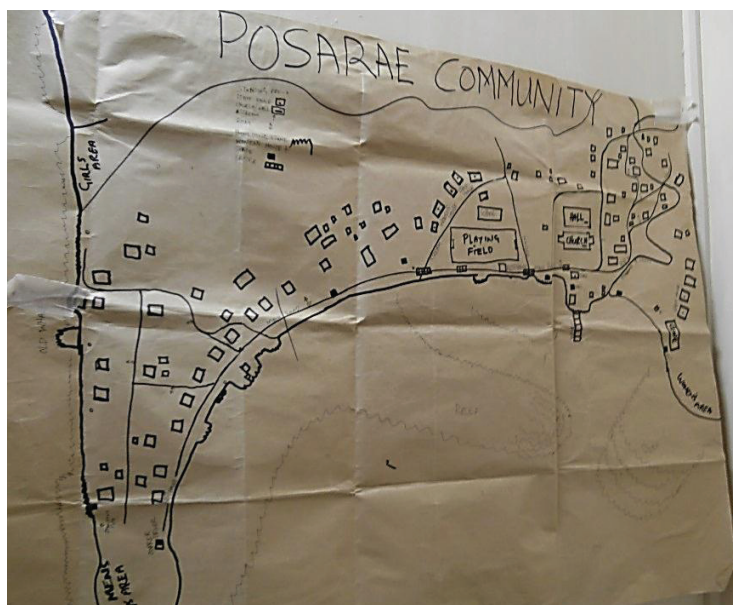


Figure 16: Social map drawn by a group in Posarae

**Table 15. Posarae problem ranking**

|    | Men  | Women   | Young women  | Young men  |
|----|--|---|--|--|
| 1  | Coastal erosion; wharf destroyed and inland movement of immediate shoreline area | No proper sanitation, need for proper toilets/water supply (taps) runs out during heavy rains, only one tank in the village | No proper sanitation and need for proper toilets, women's taboo place far and not safe from crocodiles, etc. Too far for older women | No proper sanitation, need for proper toilets, water supply need to be improved and there is a need for more standing pipes. |
| 2  | Soil erosion, farming on hills   | Coastal erosion   | Coastal erosion and visible loss of where road used to be, loss of mangroves and forest by the sea                                   | Coastal erosion and loss of immediate coastal area   |
| 3  | Landslides, regular loss of top soil   | Consistent soil erosion (creeks and inundation of village)  | Soil erosion from regular and more frequent and heavier rainfalls  | Logging activities resulting in increased sedimentation which affect near coastal areas                                      |
| 4  | No proper sanitation, need for proper toilets                                    | Landslides on immediate steep slopes surrounding village  | Landslides during heavy rains  | Forest and mangrove loss from the front of the village   |
| 5  | Coastal bush and mangrove loss   | Building of new houses not properly planned   | Village area inundated and water logged consistently   | Building of homes should have proper roofing plans to catch water  |
| 6  | Proper standing pipes, need for water supply to be addressed                     | Wild pigs damaging crops  | Logging activities and unsustainable farming result in sediment build-up in near coastal area affecting reef and marine species      | Increased erosion due to increased heavy rains   |
| 7  | Unsustainable farming and fishing practices                                      | Far end of the village point becoming narrower from erosion   | Collecting stone and coral to make seawalls  | Landslides, also associated with earthquake  |
| 8  | Wild pigs destroying crops   | Logging activities and impact on near coastal areas   |  | Complicated reef system at entry to the village bay (has caused accidents)   |
| 9  | Increased flooding and gardens destroyed more frequently                         | Loss of farms from floods and more frequent floods  |  | Decreasing fish, harder and longer to fish   |
| 10 | Complicated reef, need for markers to avoid accidents                            | Reef damage from gathering of stones for seawalls   |  | Collecting stones for building seawall can damage reefs  |
| 11 |  |   |  | Sea pollution; tins, plastics and home refuse in the immediate coastal areas   |

Following the ranking exercise, the main concerns and problems identified were discussed in groups. A root cause analysis was carried out in groups to identify possible solutions and strategies to address the concerns.

**Table 16. Posarae problem solution tree**

| Problem   | Root causes   | Solutions  |
|---|---|--|
| Decreasing fish catches in coastal areas  | Catching more fish, catching small fish through use of nets, population increase, marketing, feasting, net fishing<br><br>Reef spoil and degradation through the removal of live stones, use of poison leaf and logging, erosion, unsustainable farming practices | Village regulations and legislations<br><br>Proper sanitation and stopping using of mangroves for toilets<br><br>Stopping overharvest<br><br>Stopping use of poison leaves<br><br>Setting up a marine protected area (request outside assistance)<br><br>Ban, closure, conservation area |
| Pollution of coastal areas<br><br>Lack of disposal areas<br><br>Removing stones to build sea walls<br><br>Loss of mangroves | The sea used as a rubbish dump over a long time<br><br>Collecting from live coral reefs<br><br>From coastal erosion and cutting for firewood  | Proper disposal areas to be set up to put rubbish, tins, plastics<br><br>Stop removing stones, to be restricted to dead coral only<br><br>Mangrove rehabilitation, start replanting programme  |
| Coastal erosion<br><br>Waterlogged village green and no playing ground  | Removing of coral, collecting stones for wharf and sea walls<br><br>Removal of forest through logging and unsustainable farming practices<br><br>Removal of mangroves<br><br>Creeks going through village, inundation from tide of the immediate village area     | Replant mangroves along coastal area especially in front of the village<br><br>Restrict removal of coral<br><br>Build seawalls with Gibbon wires<br><br>Need for reclamation of community grounds  |

#### 4.4.9 Posarae Community Action Plan

The solutions and activities from the problem solution tree exercise were transferred to the activities in the Action Plan. This work was done in groups with each group going through the suggested solutions and looking at who will carry out the activities, which partner and stakeholder the community can work with, the timeframe which can realistically be used to ensure the work is done, indicators of success and the monitoring timeline. Specific monitoring tools will be developed by the technical expertise in each field once the work is implemented.

Please refer to Annex 1 report for the Community Action Plan.

## 4.5 Sasamunga

*Appraisal dates: 18 - 20 June 2014*

Sasamunga is one of the biggest villages in Choiseul Province with a population of more than 1000 people. It is an hour by boat from Taro and is developed in many ways with mobile internet access, a health centre and school. The village is traditionally organised with people living in tribal groupings. Sasamunga Village is divided into five zones, each with a traditional chief or zone leader and there is a paramount chief who oversees the affairs of the whole village. Villagers still farm, fish and forage the forests for crops, fruits and vegetables to meet food needs. A market has been set up in the village where women sell garden and fisheries products. Like the other communities appraised, women have the



**Figure 17: Sasamunga supsup garden**

primary responsibility of developing and keeping food gardens and foraging for food. With increasing challenges posed by climate change, gardening and fishing practices as well as forest use will change. There will be more hardships faced because of increased rainfall, drier seasons, increased storms and stronger winds. Traditional skills and knowledge, which have sustained people for generations, will no longer be enough as they will need to make some modifications to how things are done to be able to adapt to climate change.

The first trip to conduct the PRA coincided with the centenary celebration of the church so the PRA could not take place. The PRA work in Sasamunga was done in one zone in the community with 60 households. The developed Community Action Plan for Sasamunga is from this zone.

Most houses are less than 70 meters from the shoreline. Sasamunga was badly affected by the 2007 tsunami and since then some households have relocated inland. While most houses in the community are built from traditional materials, many also have roofing iron and modern amenities. Kerosene light is used by most households while some use solar.

#### 4.5.1 Process and tools

The PRA work in Sasamunga was arranged through the pastor and conducted over two visits with one zone in the community. Each zone has a zone leader and chief. The church elders have a lot of influence in community affairs and all decision making regarding community development or work with any external partner go through the pastor who then calls the chiefs and zone leaders together. The church also has a six month plan where all intended activities are included.

**Table 17. Tools used in the Sasamunga participatory exercises**

| Tools                 | Description   |
|-----------------------|---|
| Seasonal Calendar     | Group work by gender and age groups                     |
| Stakeholder Exercise  | Group work by sex (male/female) and age or status group |
| Gender Roles          | Group work by sex and age groups                        |
| Social mapping        | Groups can vary - sex/age/interest groups               |
| Problem Ranking       | Ranking in groups and brainstorming to finalise         |
| Problem Solution Tree | Root cause analysis and solutions by male/female groups |
| Brainstorming         | Discussion on findings and solutions                    |
| Action Plan           | In groups and brainstorming session to finalise         |

#### 4.5.2 Sasamunga seasonal calendar

The seasonal calendar was put together by male/female and age groups. The participants discussed the seasonality of crops, fruits, nuts and other land resources as well as marine resources. From the discussions it was obvious that participants did not agree on the seasons. This could indicate the start of the loss of knowledge on the seasons when local crops are planted and harvested. It could also show that there is high reliance on crops that are planted throughout the year which would explain the little knowledge of seasonal cropping patterns. There was, however, distinct consensus that weather variations have been affecting planting and harvests including seasons of very dry weather and seasons of very heavy rainfall. This has impacted planting and harvest seasons where people were unclear on the right times to plant or harvest. For example, the long dry seasons resulted in crops not being planted in time, indicating changes to harvesting cycles. Participants said it was not easy for them to fill in monthly harvests because a lot has changed. What they used to know, when they used to plant and harvest may no longer apply. With the variation in the weather most of food is what can be planted throughout the year. Crops and vegetables like bananas, potatoes, pana, peanuts, melon and most other vegetables and crops are planted all year round. The shift and variation in seasons are affecting the planting and harvesting cycles of crops, fruits and vegetables. This is the same for fisheries where traditional fishing practices relied heavily on their knowledge of the seasons, moon and tides. Bigger waves, storm surges, winds and changing coastal habitats mean that the fall back option and support knowledge and systems that people depended on in the past have changed and in the process put food security at greater risk.



**Table 18. Sasamunga seasonal calendar**

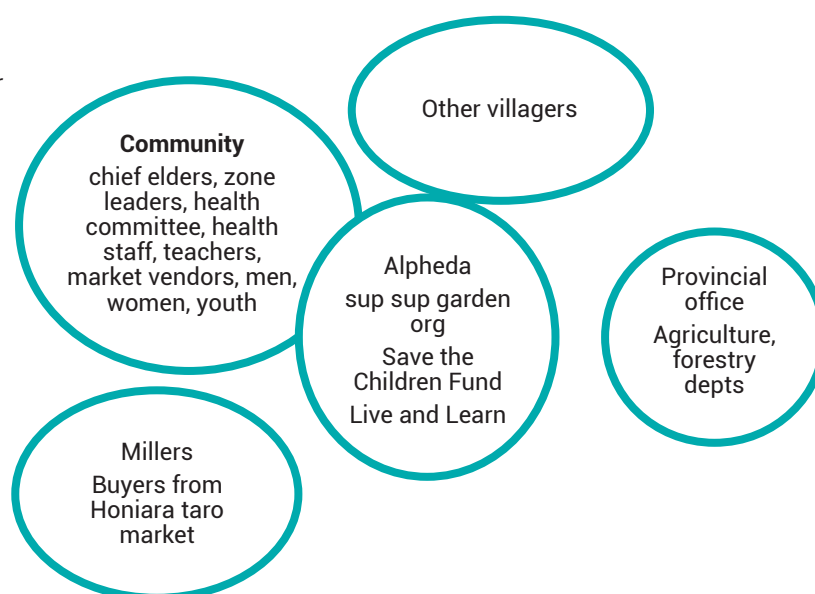
| January                         | February          | March             | April                 | May                  | June                         |
|---------------------------------|-------------------|-------------------|-----------------------|----------------------|------------------------------|
| New year                        | potatoes planting | potatoes planting | Easter                | arrival 5-day bonito | bonito                       |
| Master plan for January to June |                   |                   |                       |                      | kingfish                     |
| crabs                           |                   |                   |                       |                      | melon planting               |
|                                 |                   |                   |                       |                      | potato, yam and pana harvest |
| July                            | August            | September         | October               | November             | December                     |
| bonito/potato, kingfish         |                   |                   | yam and pana planting | crab                 | crab                         |
| melon planting                  |                   |                   | pineapple             | pineapple            | pineapple                    |
| yam and pana, potato harvest    |                   |                   |                       |                      |                              |

### 4.5.3 Sasamunga stakeholder analysis

The stakeholder analysis exercises were done in gender and age groups. The elders, chief and pastor were in one group while the rest of the participants were divided into male/female and age groups. Working on this exercise allowed participants to identify people, organisations and institutions they work with, in and outside the community.

Projects ranging from disaster risk management to gardening techniques through the supsup garden projects have been carried out in Sasamunga by external stakeholders, mostly locally-based NGOs. However, while the roles of internal stakeholders and the protocols for working with each other were clear, there was a lack of understanding of external stakeholders and what their roles were. One of the concerns raised was that there are many partners working on climate change with different messages and the residents are not clear on the correct information. While the community has received a lot of outside assistance, there was no clear indication on what each development partner was responsible for. Information dissemination by partners needs to be improved so that the community can have a better idea of the different types of work being carried out.

At the presentations and discussions following this session, participants expressed they felt a loss of power and control over the management of their own resources. This was related to there being many development partners that had done work with the community with differing messages and no coordination of information on climate change. There was confusion about climate change, its impacts and adaptation and mitigation. The community wanted the action plan and any proposed activities to be included in the six monthly master plan developed by the church. Public relations work on CHICCHAP for example will assist in verifying climate change work and the different roles of partners working on the ground.



**Figure 18: Sasamunga stakeholder analysis**



#### 4.5.4 Sasamunga gender roles in the different sectors

Women's roles are still defined by customary norms and expectations. There are a lot of stereotypes associated with the roles of women. Women have assigned roles when young, which change when they marry. Not much has changed in the status of women and they are still a long way from achieving gender equity.

**Table 19. Sasamunga gender roles**

| Men  | Women   |
|--|---|
| <b>Agriculture</b><br>Brushing<br>Clearing<br>Weeding<br>Sometimes planting when women are sick<br>Sometimes harvesting if women are sick or not able to do this                               | Brushing<br>Clearing<br>Weeding<br>Planting<br>Harvesting<br>Foraging for vegetables and wild foods<br>Sup sup gardens  |
| <b>Fisheries</b><br>Deep sea fishing<br>Trawling<br>Diving beche-de-mer and trochus diving<br>Reef fishing   | Reef fishing<br>River fishing<br>Shell fishing<br>Crab fishing  |
| <b>Forestry</b><br>Tree felling<br>Timber milling<br>Working in logging companies<br>Collecting big firewood<br>Collecting traditional medicine and household materials<br>Collecting medicine | Carrying milled timber<br>Collecting medicine<br>Collecting nuts<br>Foraging for wild yams and other fruits<br>Collecting small firewood<br>Collecting building materials for traditional houses<br>Collecting medicine |

Women have the primary role of developing and maintaining gardens for household needs and are the main foragers for food on land and in coastal areas. Men sometimes help with weeding, planting and harvesting; gardening but the provision of household food remains the responsibility of women.

During the brainstorming session on gender roles, one man stated: "Women have been more disadvantaged by climate change because they have taken on more of the garden and forest related work." The bulk of these activities are now also carried out far from the village. In many cases, women walk long distances and over hills to get to their gardens or forests where they forage for food, returning with heavy burdens after a long day. They strap a string bag or sack loaded with crops and fruits to their heads. The discussion was mostly on how men have not stepped up to help women in this regard and how many young men have not taken to gardening to help ease the heavy burden carried by . The difficulties associated with food harvest and foraging brought about by extreme weather events and climatic variability and the search for fresh water sources and safe water supplies will increase the vulnerability of women.

Most of the tasks that women perform are similar to men and the many roles they play in gardening, forest use and fisheries are customary roles. Once women are married they immediately take over the primary role of food providers and caregivers of the family. With increasing challenges posed by climate change, gardening practices, forest use and fishing practices will change.

In gardening women are responsible for felling secondary forests, brushing and clearing, digging with sticks, planting and harvest. Planting is a year round activity to ensure food supply for the household is not affected. With increase in rainfall, storms, drier periods and invasive species, women face greater hardships in ensuring food security. The main source of protein is fish and shellfish so increased storms and winds will make it difficult to fish for family needs. Women are also moving further away from the village to fish because of the pollution of rivers and the beach (used as toilets). The high load of sediment carried down to the coastal areas during heavy downpours damages reefs and other coastal habitats.

The designated toilet sites or taboo places for women are far from the village or they use the river. This means women have to walk through swamps and muddy mangroves to access these areas. This session made men realise how much work the women were carrying out. A lot of men acknowledged that the women were now doing tasks normally assigned to men or which men should be doing.

#### 4.5.5 *Sasamunga social mapping*

For this exercise the participants drew social maps marking significant settlement sites, cultural sites and areas they perceive to be affected by climate change. Following presentations of group maps, there was a plenary discussion on the maps and the climate change related problems identified.

#### 4.5.6 *Sasamunga problems identified.*

The presentations on social maps helped identify common problems and issues.

##### *Problems in ranked order*

The identified problems were ranked according to what the participants considered important or priority for their community (from highest to lowest priority).

1. Garden being swept away through increased rainfall leading to a loss of food
2. Variation in seasons leading to a change in planting and harvest seasons and maturing, fruiting
3. Who to go to when affected by floods? Letters have been written but no help has been received to date.
4. Interest in organisations that could conduct workshops for declining marine resources. It is now harder to catch fish and villagers are spending more time fishing. In addition, rivers, mangroves and sea are being used as toilets which is affecting marine resources.
5. Coastal erosion.
6. Lack of sanitation and toilets; mangroves, rivers and sea used as toilets. Malaria is also on the rise.
7. Problems with the swamp at the back of the village
8. Problem with water source which usually dries up during drought and not enough water for the increasing population

In this exercise, groups worked on problem solution trees to identify the root causes of problems and then look at solutions.

**Table 20. Sasamunga root cause analysis and solutions**

| Problem  | Causes   | Root causes   | Solution  |
|--|--|---|---|
| Coastal erosion  | Sea level rise   | Removal of rocks and coral from reefs   | No rock removal, village regulation to be part of reef reserve, conserve reefs for a few months |
| Logging and unsustainable timber cutting practices   | No selective logging<br>Heavy rains and erosion of soil increases,<br>Flooding makes it worse                              | Heavy rains, unplanned cutting of trees, no replanting  | Replanting of trees by tribes and households, both men and women                                |
| Cutting timber without selection<br>(as above)   | Soil loss<br>Rainfall leads to erosion   | No replanting   | Have a nursery to breed seedlings to be planted   |
|  | Sediment end up in coastal areas leading reefs to die and affecting other habitats resulting in loss of fish and shellfish | Tree cutting for money  | Plant mangrove and coastal trees to be buffer zones   |
| Past plantations near the sea  | Removal of coastal trees and forests   | Clearing for settlement   | Replanting coastal trees (as above)   |
|  |  | Cyclones and rains lead to loss of soil and sedimentation   |   |
| Loss of crops, poor crops<br>Loss of top soil through timber milling and logging, gardening activities on the slopes | Loss of forest and soil easily eroded. Heavy rains leads to floods   | Shifting cultivation and burning<br>no replanting<br>Gardening on slopes without planting buffers | Find different ways to farm, need the technical assistance<br>Contour planting                  |
| Pigs eat the garden, increase in insects and invasive species  | Logging and loss of forest habitats, heavy rains and floods, new insects   |   | Replant commercial and indigenous trees for building materials (homes)                          |
|  |  |   | Establish a seed nursery  |
|  |  |   | Increase the number of traps  |
| Declining fish and shellfish stocks  |  |   | An MPA is not possible due to a single zone   |
| Cutting of mangroves to build homes  | Household needs such as firewood, forest is far  | A lot of cutting of timber for money  | Replant mangroves   |
| Use of mangrove as taboo place or toilets  | With a growing population, villagers are now using mangroves and rivers  | Way of life which people are used to  | Building proper toilets   |
| Destroy coral  | Lime for betel nut, human activities   | The coastline reclamation leads to the build-up of sediment which in turn kills reefs             | Need for awareness and education on coral and reefs   |
| Logging, milling   | Loss of topsoil, erosion, flooding, siltation of reefs   | Unsustainable timber milling practices  |   |
| Lack of sanitation   | Population increase Lack of awareness  | A lack of space and money to address this   | Education and awareness needed  |
| Water source usually dries up  | Gardening close to water sources   | Forest around water source not protected  | Need for land use planning, consider tanks  |

#### 4.5.7 Sasamunga Community Action Plan

After identifying the issues and problems through the social mapping exercise, then finding their root causes and solutions, the community is then ready to work on an action plan.

Please refer to the Annex 1 report for the community action plan

### 4.6 Sube Sube

Appraisal dates: 14, 21, 25 June 2014

The village of Sube Sube consists of four small settlements of about 100 people. It is located on raised coastal flatland some 200 to 300 metres from the coastline. There is a large littoral forest area between the village and the coast. Although there are signs of coastal erosion on the immediate coastal area, this poses no immediate threat to the current village location.

More than half the homes are wooden structures with aluminium roofs and about the same amount have solar lights. Because this is a small community which has access to Taro, the capital of Choiseul, modern amenities are easier to access compared to the other sites.

There are no rivers or running water sources close to the village so well water is used for drinking. The well water is brackish and at risk of saltwater intrusion and the availability of water will be a major concern in the future. Other sources of fresh water are little springs which men and women know that are in the area and these are accessed when well water is dirty or when there is no drinking water.

The main livelihoods are subsistence farming and fishing. Farmland is on a large area of flatland while the forested area is far from the village.



Figure 19: Sube Sube children sitting quietly on the floor while the adults work on the PRA exercises

#### 4.6.1 Process and tools

Work in Sube Sube was arranged through one of the on-the-ground partners of the SPC –GIZ project. Because of provincial sports and church engagements the PRA had to be conducted at night. Tools used were similar to those used in other the villages but because the population of Sube Sube is very small, some exercises were done in one whole group rather than small groups.

**Table 21. Tools used in the Sube Sube participatory exercises**

| Tools                 | Description   |
|-----------------------|---|
| Seasonal Calendar     | Group work by gender and age groups                     |
| Stakeholder Exercise  | Group work by sex (male/female) and age or status group |
| Gender Roles          | Group work by sex and age groups                        |
| Social mapping        | Groups can vary - sex/age/interest groups               |
| Problem Ranking       | Ranking in groups and brainstorming to finalise         |
| Problem Solution Tree | Root cause analysis and solutions by male/female groups |
| Brainstorming         | Discussion on findings and solutions                    |
| Action Plan           | In groups and brainstorming session to finalise         |

#### 4.6.2 Sube Sube seasonal calendar

The seasonal calendar exercise was carried out in two groups due to the small size of the community. Since this was the first exercise, participants held long discussions until they came to an agreement.

**Table 22. Sube Sube seasonal calendar**

| January              | February | March                            | April     | May                     | June      |
|----------------------|----------|----------------------------------|-----------|-------------------------|-----------|
| plant peanut, potato | cabbage  | harvest peanut<br>harvest potato | kingfish  | kumara (harvest potato) | reef fish |
| July                 | August   | September                        | October   | November                | December  |
| potato               | potato   | slippery cabbage                 | pineapple | pineapple               | pineapple |

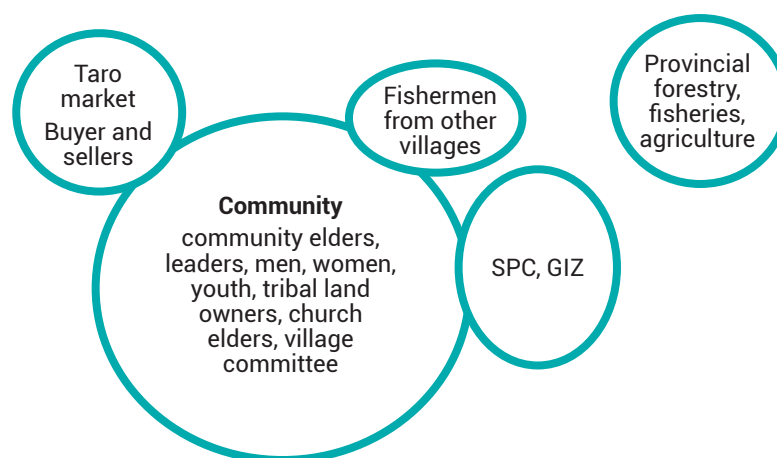
There was very little knowledge of the seasonality of crops or fish. Most of the crops grown are planted and harvested year round. Only fruits and nuts mature during certain seasons and because they do not have large forest areas near the village, fruits and nuts of the forest are not collected on a regular basis. Since the village has not been at this location for long, there is no historical or institutional understanding of crops or fisheries in the area.

#### 4.6.3 Sube Sube stakeholder analysis

Sube Sube is a small community which consists of 20 extended households, therefore the protocols and arrangements present in other villages are not found here. The people live in four small settlements and there is a chief. People know the internal stakeholders but there is little knowledge of outside partners except for SPC when they set up a nursery in the community.



**Figure 20: Sube Sube villagers going through their action plan**



**Figure 21: Sube Sube stakeholder analysis**

#### 4.6.4 Sube Sube gender roles in the different sectors

Gender roles are defined by customary norms and expectations. Women do not have much say in the running of the community and are not part of the decision making in most areas. The practice of bride price is common and women take on most of the work in the family as a way of "earning" the bride price her husband paid for her.

**Table 23. Sube Sube gender roles**

| Men  | Women   |
|--|---|
| <b>Agriculture</b><br>Tree Felling (large trees)<br>Clearing, hoeing<br>Weeding, planting and harvesting   | Clearing<br>Tree felling (small trees)<br>Harvest, hoeing<br>Weeding, planting and harvesting   |
| <b>Fisheries</b><br>Fishing in outer reef areas (day, night)<br>Diving (day, night)<br>Net fishing using large nets<br>Sometimes collecting shells | Reef fishing (day, night)<br>Net fishing<br>Gleaning<br>Collecting seaweed, catching crabs  |
| <b>Forestry</b><br>Timber milling<br>Cutting trees for house building and gardening<br>Collecting firewood (large)<br>Collecting herbal medicine   | Collecting firewood<br>Planting trees<br>Collection and cutting house building materials<br>Collecting fruits<br>Collecting herbal medicine |

As in the other communities, women in Sube Sube are primarily responsible for securing food for the household. They are responsible for working in the gardens which include felling of secondary forests, brushing or clearing of bush and trees, clearing, digging, planting, weeding and harvesting. They have first-hand experience with changing seasons and extreme weather events such as crops dying from too much rain and drier seasons and changes in soil texture resulting in fewer crops. There has also been an increase in invasive species and new pests found in the gardens. Since the gardens are on flatlands close to the village, the women do not go to higher areas to work. But because the land is flat, it gets waterlogged during the rainy season, affecting crop productivity. With the proximity to Taro, women occasionally sell vegetables and potatoes at the market.

#### 4.6.5 Sube Sube social mapping

After social maps were drawn in groups, there was a discussion on land and marine resources and any changes that may have occurred over the years.

Land is elevated above sea level and the village is farther away from the coastline compared to the other communities studied. These were the main concerns and points raised:

1. Lack of dependable water supply
2. Use of groundwater for washing clothes at the seaside
3. Use of wells and springs
4. Changing soil texture and loss of crops
5. Land unproductive and water logged during periods of heavy rain
6. Lack of sanitation, toilets and a fresh water source
7. Cost of construction
8. Population increase, people now using mangroves

#### 4.6.6 Sube Sube problems identified

Following this exercise problems were ranked and discussed in a plenary session due to the small size of the group.



#### Problems ranked

1. Gardens have a lower crop yield and crops rot and die before harvest
2. Water logged gardens from heavy rains, crops rot before harvest, crops smaller in size, crops dying
3. Increased pests and disease
4. Lack of sanitation
5. Lack of good and reliable source of water
6. Depleting marine resource; too many people fishing in the community fishing area.

After problems were ranked, each problem or concern was examined and their root causes were analysed. After the causes have been established, solutions are identified and discussed.

**Table 24. Sube Sube problem solution tree**

| Problems   | Solutions   |
|--|---|
| Gardens do not have as much crops and crops rot and die before harvest<br>Changing soil texture  | Technical assistance to be sought from Agriculture Taro and SPC-GIZ   |
| Water logged gardens from heavy rains; crops rot before harvest. Smaller crops, crops dying.   | Technical assistance from provincial agriculture needed   |
| Increase in pests and invasive species   | Use traditional ways of repelling pests. Technical advice from Agriculture Department needed                            |
| Water problems and lack of steady water sources<br>River source is too far and on flatland and therefore difficult to get the water from the source to the village<br>Well water is becoming more salty due to sea level rise and salt water entering the water source<br>Lack of funds to buy tanks | Assessment of water needs required<br>Alternatives to buying tanks  |
| A lack of toilets and sanitation.<br>Construction costs, no steady source of income and a lack of land and funds<br>An increasing population with few existing toilets<br>The custom of using mangroves, bushes and sea as taboo places (toilets)<br>Lack of exposure and limited education          | Toilets to be built<br>To seek funds<br>Education and training<br>Shift in lifestyle and attitudes                      |
| Decrease in fisheries resources<br>Too many people fishing in the marine area<br>Use of fishing methods like vine and large sized nets.<br>No proper regulations for marine resource use   | Fishing regulations to be in place<br>Net sizes to be controlled<br>Ban the use of vines for fishing<br>Consider an MPA |

#### 4.6.7 Sube Sube Community Action Plan

The solutions identified in the Problem Solution Tree exercise were transferred to the Community Action Plan. For each solution the person(s) responsible for the activity or strategy is identified, the timeframe to start the work is set, indicators of success are developed and a monitoring timeline is recommended. Monitoring tools will be developed by the experts who will work on the implementation of the activities.

Please refer to the Annex 1 report for the community action plan

## 4.7 Voruvoru

Appraisal dates: 12 - 14 June 2014

Voruvoru is a village of more than 200 people and is on coastal flatland about 70 meters from the shoreline. Recently people have started moving inland to the sloping lands at the back of the village. Most houses are traditional leaf houses and a few (have roofing iron. Most homes use kerosene lamps while a few have solar lights. Villagers cook mostly on open fires, with firewood as the main source of energy.

People are primarily dependent on subsistence farming and fishing to provide for their basic livelihoods. Basic amenities like clean and safe water and toilets are still not available. Since opportunities for income generation are minimal, forests are logged for money., However this usually does not translate to real income for the people in communities. Selling within the community is limited due to the low purchasing power of residents. As a result, there is a high demand to farm, forage and fish to meet the needs of individual families. Women have the primary role of gardening, providing food, water, firewood and other necessities for the family's daily needs.

The village is highly susceptible to the impact of extremely high tides and waves. Remnants of tree and coconut palm roots and stumps can be seen in the sea around the Voruvoru coastal area marking the old shoreline it once stood on.

### 4.7.1 Process and tools

Work in Voruvoru was arranged through the pastor but had to be deferred twice due to church obligations and district sporting events. The PRA was conducted mainly at night when people were back in the village.

**Table 25. Tools used in the Voruvoru participatory exercises**

| Tools                 | Description   |
|-----------------------|---|
| Seasonal Calendar     | Group work by gender and age groups                     |
| Stakeholder Exercise  | Group work by sex (male/female) and age or status group |
| Gender Roles          | Group work by sex and age groups                        |
| Social mapping        | Groups can vary - sex/age/interest groups               |
| Problem Ranking       | Ranking in groups and brainstorming to finalise         |
| Problem Solution Tree | Root cause analysis and solutions by male/female groups |
| Brainstorming         | Discussion on findings and solutions                    |
| Action Plan           | In groups and brainstorming session to finalise         |



**Figure 22: Voruvoru women's group work**

### 4.7.2 Voruvoru seasonal calendar

The seasonal calendar was done in in gender and age groups. Participants were to write under each month crops, fruits, nuts, and marine species and note seasonality if it was known.

**Table 26. Voruvoru seasonal calendar**

| January                     | February           | March                        | April   | May   | June   |
|-----------------------------|--------------------|------------------------------|---|---|--|
| plant pit pit<br>pineapple  | breadfruit         | Tahitian chestnut<br>seaweed | bonito<br>kazaru-red fish<br>sabuka<br>hornbill<br>Easter Day | melon planting<br>native mango<br>bonito<br>sabuka<br>king fish | mango<br>ngali nuts<br>big nuts<br>king fish<br>sabuka<br>baraccuda<br>School closed |
| July                        | August             | September                    | October   | November  | December   |
| big and small nuts<br>mango | big and small nuts | big and small nuts           | big and small nuts  | pineapple<br>big and small nuts                                 | pineapple<br>pana, yam, suri,<br>mataoka, iakor,<br>mangos                           |

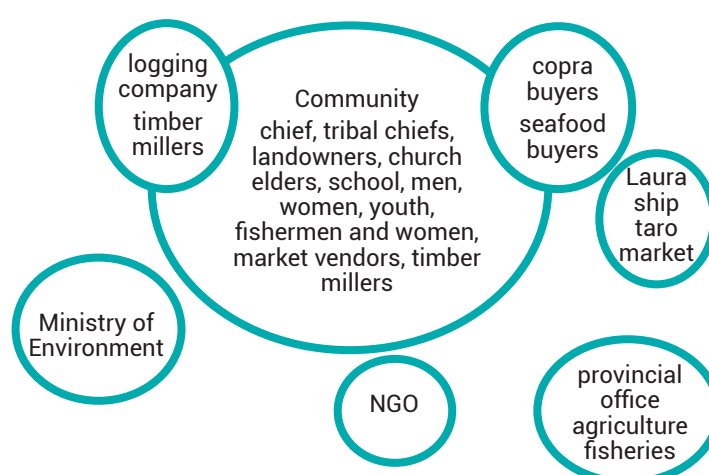
There was a lot of discussion on seasonality of crops, fruits, fish and shellfish with men and women not agreeing on some of the seasons. It showed that climatic variability is affecting existing knowledge of planting and harvesting seasons. There are a lot of crops and vegetables like taro, cassava, slippery cabbage which were planted throughout the year and were not seasonal in nature. Variation in weather and seasons has affected planting and harvest times, the flowering of trees and fruiting and maturing of nuts has changed. In situations where people have to forage, farm and fish daily, their livelihoods are at greater risk because of the lack of energy that could allow them to process and preserve food. The lack of electricity means that food cannot be kept longer than a day and the hot and humid weather of the Solomon Islands makes keeping food overnight challenging. People will need new sources of knowledge to be able to cope with these changes. They will also need to strengthen traditional systems which could provide for household livelihoods.

Sometimes crops rot before it is harvested. With the introduction of new vegetables and fruit trees people are not too sure about seasonal crops. Young people especially have little idea of crops and seafood harvesting seasons. Since climate change will bring more changes, villagers need to aware of planting and harvest seasons and why and how these will change and in turn impact food production and food security.

### 4.7.3 Voruvoru stakeholder analysis

Stakeholder analysis indicated that people knew the various stakeholders, their roles and status in the community. Chiefs oversee traditional and customary protocols while the pastor helps maintain the social lives of people. Most people were aware of development partners but not on what they do. The community is mostly Catholic and the priest has a lot of authority in the village.

As was the case in the other communities, the provincial officers were placed well away from the centre of the community indicating they have minimal contact with the people.



**Figure 23: Voruvoru stakeholder analysis**

For work to be implemented in Voruvoru there need to be more public relations work by partners and there needs to be more education and awareness so the community fully understands what the intended work entails. As in other communities timber millers are present inside the community and the buyers outside. This is when there is purchase of timber for a building project like a school in a village or when landowners receive an order for timber from Honiara. Timber is logged by the landowners and then shipped to Honiara.

#### 4.7.4 Voruvoru gender roles in the different sectors

Gender roles are defined by custom. In Voruvoru, the complexities of women's roles from the past and continue to be practiced today. In Choiseul as in other parts of the Solomon Islands women are responsible for household gardens, collecting firewood, as well as foraging in the forest and coastal areas for food.

**Table 27. Voruvoru gender roles**

| Men  | Women  |
|--|--|
| <b>Agriculture</b><br>Clearing<br>Hoeing<br>Harvesting<br>Some weeding<br>Some planting  | Clearing<br>Planting<br>Hoeing<br>Harvest<br>Post-harvest<br>Storage   |
| <b>Forestry</b><br>Cutting timber<br>Cutting sago palm and taking leaves and trunk<br>Collecting vines for making houses, canoes and paddles | Custom medicine<br>Firewood<br>Cut leaves for mats and sago leaves for house making<br>Timber carrying<br>Take bark to make local basket |
| <b>Fisheries</b><br>Deep sea fishing<br>Trawling<br>Net<br>Diving<br>Poison leaf   | Reef fishing<br>Near shore fishing<br>Net<br>Diving for trochus, shells<br>Poison leaf   |

Gardening in Voruvoru is difficult considering gardens are on hills and slopes on inland areas away from the village. Women take some two hours to walk to the gardens and back. Gardening consists of a range of activities including cutting down of secondary forests, clearing of brush and land for gardens, digging using sticks, planting, weeding and food harvests. Gardening is a year round activity as women cannot afford not to garden and not have any food for the family during the year. Women also forage the coastal reef areas to provide protein for the family. Women also carry timber where there is milling and help men collect building materials. Women trawl and fish in deep sea areas, tasks only men used to do in the past. Women also dive for trochus and beche-de-mer for commercial purposes. Given the many roles and responsibilities mentioned above, women will face increased hardship with the current and projected impacts of climate change. Crops will be harder to grow and women may need more time to familiarise themselves with new crops. Increased logging and timber milling is resulting in the loss of forest areas that is a source for firewood, fruit and nuts, and other wild foods. This will mean women will need to walk further to find food and garden areas will be subjected to increased soil erosion. Men also have assigned tasks but many of them are now engaged in logging, leaving the women to take over farming and food collection activities.

#### 4.7.5 Voruvoru social mapping

This exercise was carried out in groups and participants were required to map their community, marking settlement areas and infrastructure, resources and changes that have occurred in the last few years. Some of the points arising from the maps are listed below.

- Gardens are mainly on hills and slopes as there is very little flat land.
- Hills and slopes are where the main water sources come through so the risk of pollution of water sources is high. There is concern for the protection of water resources with the continued movement of people inland.
- Proper sanitation is needed with the river being used as a toilet (allocated taboo place for women). The river mouth used to be a place where women washed plates and children swam but this is no longer the case as sediment has built up around the river mouth.
- Flatlands are swamp areas and cannot be used for agriculture.

- Massive coastal erosion and land retreat with the sea gradually moving in along a shoreline area of about 3 km. The village playing field used to be at the back of the village about 20 years ago but is now at the front with the village retreating backwards.
- Trees taken down by huge swells about three to four years ago. River changing its course whenever there is a major flood; flooding is a problem.
- There is a need for protection of water source area as the standpipe dries up. Pipes will not be able to meet increasing community needs and tanks in certain locations around the village need to be considered.
- Logging and cutting of trees and unsustainable gardening practices result in increased erosion which affects coastal areas.
- Young people showed no knowledge of previous village sites.

#### 4.7.6 *Voruvoru problems identified*

- Less fish in coastal reef areas; harder to find fish
- Less shellfish in near coastal areas
- Loss of mangrove areas
- Pollution of coastal areas (plastic bags, tins, etc.)
- Loss of soil fertility
- Problems with water supply and pollution threaten water sources.
- Landslides lead to soil erosion and sediment covering near coastal reefs and other marine habitats.
- Less timber for building and people have to move far away. Harder to find building materials like sago and different types of vine.

#### *Timeline of activities*

|           |  |
|-----------|--|
| 2007      | Tsunami did not affect the village but huge swells were felt around the area |
| 2009      | Big flood led to a shift in river system and washing away of bridge          |
| 2010-2014 | Progressive land retreat and coastal erosion continuing                      |
| 2013      | Storm surge  |

The issues and problems highlighted and the timeline of activities show the continuous impact of climate change on the community.

#### *Voruvoru problem ranking*

1. Land retreat is continuing with progressive coastal erosion and trees going into the sea (1a)
2. Relocation upstream is impacting on streams and river. River mouth no longer used due to upstream use as toilets. The lack of toilets and proper sanitation is the primary problem of the community (1b)
3. Gardening continues uphill and further inland resulting in continued hardships faced by women (2)
4. Overharvesting of marine species is leading to decreasing resources and the need for conservation (2)
5. Loss of fertile soil in garden areas (3)
6. Population increase, poor planning of village and the need for proper land use planning for gardens and settlement (4)
7. Continuing loss of mangrove (4b)
8. Loss of traditional and historical sites (5)
9. Village front is being destroyed by big waves, tsunami waves and storm surges (6)
10. Pigs are damaging crops and gardens
11. Land retreat all along the coast and the playing field almost lost (youth)
12. Bridge washed away, river changing its course
13. Youth not aware of village problems which means they are no longer fully participating in gardening and forest use

After the problems and concerns were identified, a root cause analysis was carried out in groups before identifying solutions and adaptation strategies. At the end of the exercise, there is a list of suggested activities to be undertaken to address the problems identified.

**Table 28. Voruvoru problem solution**

| Problem  | Solution  | Comments   |
|--|---|--|
| Clearing of beachfront vegetation for village  | Land reclamation using gabion wires and stones, need for technical advice on where to have this and how                             | The idea of gabion wires for the whole coastal area that has been eroded needs a feasibility study and proper technical advice                                   |
| Removal of stones and coral through the collection of gravel for roads   | Conservation. No cutting of trees from coastal areas  |  |
| Cutting down of littoral forest  | Protection of coral, no collection  |  |
| Sea rise, logging, cutting down of trees for money   |   |  |
| Cutting of mangroves for house building and firewood   | Mangrove replanting   |  |
| Loss of fertile soil and decrease in usable flat soil (not enough for village needs)   | Selective cutting of trees, not to cut all trees  | Need for proper planning of gardens and long term focus on sup-sup gardens   |
| Land erosion, loss of top soil through heavy rain, logging for money   | Replanting of trees   |  |
| Garden practices such as burning   | Use other gardening techniques  |  |
| Over harvest of marine resources   |   |  |
| Increase in population, change in technology, overuse of nets, use of poisonous leaves, need for money<br>Cutting mangrove trees | Replanting mangroves,   | Also need to discuss reserves with traditional ways of conservation<br><br>Collecting wisely, setting times and seasons to limit collection of different species |
| Tsunami and big waves  | Conserve reefs, set up marine protected areas and regulations for fishing, setting controls on fishing technology and no take zones |  |

#### 4.7.7 Voruvoru Community Action Plan

After the problem solution tree exercise, the suggested solutions were then discussed as a group. There was a brainstorming session where each suggested activity was discussed and information was verified by the entire group.

Please refer Annex 1 for the community action plan



## 4.8 Vurago

Appraisal dates: 22 - 24 June 2014

Vurago is a village of more than 600 people and is divided into four zones. The village is situated about 100 meters from the shoreline and is in a protected bay. Most houses are on flat land and gardens are on the sloping lands behind the village. Large tracts of forest have been logged but there is currently no logging taking place. About one quarter of the village houses are made with dressed timber and aluminium roofing. Only a few houses have solar lights. Water is accessed through standpipes strategically located around the village for all the community to use. Piped water runs dry during dry spells.



Figure 24: PRA night sessions in Vurago

Villagers are dependent on subsistence farming and fishing to provide for their livelihoods. Because of the proximity to Taro (50 minutes by boat) the villagers sell agricultural crops and marine produce at the market there. There is also small scale marketing of doughnuts, buns, root crops like potatoes and vegetables in the village but because of limited purchasing power there is no potential for growth.

The priest holds a position of authority and influence. The contact and communication point for any community-based work to be done in Vurago will be the priest and chiefs from each zone.

### 4.8.1 Process and tools

Work in Vurago was arranged through the pastor but had to be deferred twice because of church obligations and district sporting events. The PRA work was mainly done at night when people were back in the village. Tools used were similar to tools used in other communities. Daytime sessions were not well attended because people had to go to the gardens or fishing and most of the villagers were engaged in the district soccer competition.

Table 29. Tools used in the Vurago participatory exercises

| Tools                 | Description  |
|-----------------------|--|
| Seasonal Calendar     | Group work by gender and age groups                            |
| Stakeholder Exercise  | Group work by sex, age or status group                         |
| Gender Roles          | Male/female and age groups                                     |
| Social Mapping        | Groups can vary by gender, age or interest                     |
| Problem Ranking       | Groups rank problems and brainstorm to finalise                |
| Problem Solution Tree | Root cause analysis and solutions carried out in gender groups |
| Brainstorming         | Discussion on findings and solutions                           |
| Action Plan           | Groups brainstorm to finalise                                  |

### 4.8.2 Vurago seasonal calendar

Working groups were organised by sex (male/female) and age. This was to capture the differences in priorities, knowledge and perceptions of women and men about resources. Discussion carried out in groups, then results were shared to the whole group and there was further discussion on the outcome of the discussions with all the participants at the workshop.

**Table 30. Vurago seasonal calendar**

| January  | February                         | March                            | April                               | May  | June  |
|--|----------------------------------|----------------------------------|-------------------------------------|--|---|
| nuts<br>pineapple<br>wild mango<br>plant peanut,<br>kumara<br>plant pana | cut nuts pineapple<br>wild mango | cut nuts                         | king fish<br>cut nuts melon<br>suri | king fish<br>melon<br>harvest kumara<br>suri<br>cut nuts | king fish<br>harvest pana,<br>guava, potato<br>local apples<br>suri<br>breadfruit<br>cut nuts, big nuts |
| July   | August                           | September                        | October                             | November   | December  |
| breadfruit,<br>local apples<br>harvest yam,<br>potato                    | breadfruit<br>potato harvest     | melon, yam, pana<br>buna harvest | pana harvest<br>melon               | pineapple harvest<br>taro harvest                        | wild mango  |

Most crops and vegetables are planted year round and there is no specific season for sweet potato, taro, cassava, bananas and vegetables like slippery cabbage. It is now harder to tell the maturing times for crops and sometimes they are already bad when they mature. Planting and harvest times are affected when there is too much rain or it is too dry. This is the same for reef fish as an increase in storms and rain and changes in the weather adversely affects fishing. Changes in harvest seasons and the introduction of climate resilient crops will also mean that people have to re-learn how they do things and the safety net of traditional knowledge and skills is at risk of being lost. Identifying and strengthening seasonal plants and crops and the knowledge associated with resource use will help people address the hardships associated with climate change. Hardships faced because of change in seasons will acutely affect women who are responsible for gardens and the provision of daily food for the family.

#### 4.8.3 Vurago stakeholder analysis

In this exercise participants identify the various stakeholders inside and outside the community including external partners. The distance of the stakeholders from the community circle reflects the level of interaction with the community. This also shows the working relationships between the community and other institutions.

Systems are in place in communities that have been followed for a long time so villagers know the processes and the protocols associated with them. These systems are established to help sustain the community and also provide a safety net through traditional and religious customs. Decisions relating to land use, logging in forest areas, fishing areas to be put on reserve, taboos on certain fruit or fish seasons, ban on collection and fishing from certain reef or mangrove areas are made using this system. Women are not involved in most of these decision-making processes although they are the highest users of garden, forest and fisheries resources for subsistence and semi-subsistence needs.



**Figure 25: Vurago stakeholder analysis**

There was little understanding and interaction with outside stakeholders and they were not aware of any work done in the community on climate change.

#### 4.8.4 Vurago gender roles

Gender roles are defined by customary norms. Women shoulder a lot of responsibilities. At marriage a bride price is paid and women are expected to carry out tasks and responsibilities that extend beyond household chores. These include working the gardens, forests and coastal areas cutting down trees, clearing large areas of land, digging, planting and harvest, as well as carrying large amounts of food and firewood or house building materials over rough terrain. Not much has changed in the roles women play but their tasks are challenging due to the lack of marketing opportunities and infrastructure needed to help them progress.

**Table 31. Vurago gender roles**

| Men   | Women   |
|---|---|
| <b>Agriculture</b><br>Brushing and cutting big trees<br>Hoeing<br>Clearing<br>Planting<br>Weeding<br>Livestock fencing  | Weeding<br>Clean up, clearing<br>Hoeing<br>Planting<br>Harvesting<br>Livestock feeding  |
| <b>Forestry</b><br>Cutting large firewood<br>Hunting<br>Timber milling<br>Canoe making<br>Herbal medicine making<br>Collecting house materials<br>Tree planting<br>Climb trees for nuts | Collecting and carrying house building materials<br>Collecting firewood<br>Herbal medicine<br>Collecting wild food and fruits and nut<br>Carrying timber<br>Collecting house materials like ropes and sago<br>Tree planting |
| <b>Fisheries</b><br>Trawling<br>Diving<br>Night fishing, torching<br>Poison leaf<br>Deep sea fishing<br>Spearing<br>Bow and arrow, mangrove areas<br>Diving for trochus shells          | Coastal fishing, fishing lines<br>Collecting shells<br>Crabs, etc.<br>Poison leaf<br>Collecting seaweed<br>Netting<br>Night torch fishing<br>Dive shells  |

The women's primary role is gardening and foraging for daily food provision. In Vurago, gardens are on sloping lands so the gardening requires walking up hills, felling trees, brushing which includes cutting down of shrubs and clearing before gardening, hoeing using sticks to dig the soil for planting, then planting and weeding. Gardening is a daily activity that women carry out all year around. Fishing in nearby coastal areas is also an almost daily activity as is foraging for seafood for household needs. The sedimentation of near coastal areas is forcing women to walk long distances to fish.

Agriculture and fisheries remain the main sources of livelihoods. Villagers do not have the purchasing power to rely on imported food items although these have been introduced. The decrease in productivity of land because of the loss of topsoil, erosion, invasive species and pigs damaging gardens means that women especially have to work extra hard to put food on the table. In some cases the soil texture has changed so much that newer areas have to be sought for planting. Women also forage the forests for wild foods, fruits and nuts, cut and collect firewood and carry timber when there is local milling. Carrying timber through tough terrain is difficult and drains women of energy and most are exhausted by the time they come home. These problems are made worse by the lack of expert advice on soil types, land use and land use planning that could help the villagers cope with the changes occurring around them.

#### 4.8.5 Vurago social maps

For this exercise participants drew social maps marking significant settlement sites, cultural sites and areas they perceive to have been affected by climate change. The social map allowed villagers to have a better understanding of resources they own, where things were, what had changed and this enabled them to start to ask questions on the impacts of climate change and what role they played in resource degradation and how they can contribute to management and adaptation strategies.

The social maps helped identify the following:

- i) the four zones and the limitation in current water supply;
- ii) areas where a lot of mangroves have died from natural causes or were removed for firewood and building materials;
- iii) erosion of the coastline and damage to the wharf and seawalls sustained during the 2007 tsunami; and
- iv) how gardening is shifting to the sloping, hilly land behind the village.

An open plenary discussion on the community's concerns was held after the presentation and the following problems were identified:

- Lack of proper sanitation and the pollution of rivers, mangroves and immediate coastal areas which are used as toilets. Increasing population is making this worse.
- Water supply needs. When there is a drought, the water source dries up highlighting the need for an alternative source as well as the protection of the current watershed area.
- Increase in pests and invasive species.
- Too much rain is changing soil texture and crops are dying easily now. Increased flooding is also causing damage to crops and gardens as are wild pigs.
- A decline in fisheries resources and shellfish from immediate coastal areas. People are going out further to fish and have to look for new fishing grounds. Women and men are spending more time fishing as a result, with women having to walk or paddle long distances to do so.

After the problems and concerns were identified, a root cause analysis was carried out in groups and solutions and adaptation strategies were identified. At the end of the exercise, a list of suggested activities to be undertaken to address the problems was drawn up.

**Table 32. Vurago problem solution tree**

| Problem   | Root cause   | Solution   |
|---|--|--|
| Garden, invasive species                                  | Change in weather, new pests   | Technical advice from agriculture  |
| Changing soil texture                                     | Too much rainfall, removal of large trees and forest cover   | Soil analysis and farming practices  |
| Wild pigs, logging activities                             | Cutting down of timber for other purposes  | Increase hunting and put up traps and fences   |
| Increase in floods  | Increased rainfall, changing climate, unsustainable farming practices  | Sustainable farming methods to be introduced, traditional knowledge to be strengthened               |
| Decrease in fish and shellfish                            | Pollution of near coastal areas, loss of mangroves from natural causes, use as firewood, timber and other household purposes. Increased sedimentation through increased erosion.                           | Mangrove replanting<br>Re-planting of trees in garden land to slow down erosion and loss of top soil |
|   | Reef damage (2007 tsunami), continuous flooding and increased sedimentation of near coastal areas<br>overfishing, use of modern technology, fishing for sale at markets, access to markets, need for money | Consider having MPA and associated regulations to address problems                                   |
| Water supply need, water supply dries out during droughts | Water sources not enough for increasing population, lack of protection around catchment areas  | Land use plan to ensure protection of water source<br>Consider tanks                                 |



| Problem                               | Root cause  | Solution   |
|---------------------------------------|---|--|
| Loss of forest through timber milling | House building and gardening activities. A large portion of the primary forest had been removed through logging in the past but there is currently no logging | Include tree planting and reforestation as part of land use planning |

#### 4.8.6 Vurago Community Action Plan

After the problem solution tree exercise, the suggested solutions were then discussed as a group. There was a brainstorming session where each suggested activity was discussed and information was verified by the entire group.

Please refer Annex 1 for the Community Action Plan



Figure 26: The PRA team leaving Posarae



Figure 27: Posarae eroding coastline

## 5 Conclusions

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The action plans developed for the communities provide a guideline on what people at community level see as important. The need to manage and protect existing land and marine resources come through strongly in proposed activities. The need for improved regulations and policies relating to land and marine resources use is necessary to strengthen community based management interventions. The importance of collaboration and working with all stakeholders in communities is vital for the success of projects. The partnership through CHICCHAP provides an opportunity for collaboration work at community level with several key partners working together to progress work on climate change adaptation.

The PRA in the eight communities helped identify in-depth information on the villagers' perception of climate change and how they saw themselves coping with expected changes. An important component of the work was the identification of crops, vegetables, fruits and nuts currently consumed and what changes have taken place. People in communities are already experiencing changes to planting and harvesting seasons, fruits and nuts maturing seasons and variation in the availability and abundance of certain crops and vegetables.

For fisheries there is an indication of depletion of certain resources in near shore areas and a decrease in the abundance of shellfish and other marine species in near coastal areas. A range of factors such as land based activities like logging and unsustainable gardening practices contribute to these changes. It is also compounded by climate change impacts such as more intense rainfall, more storms and drier seasons which adversely affect marine life.

With the changes in seasons and gardening practices, there is the associated loss of traditional knowledge that people have used over generations as coping mechanisms. This can threaten food security as villagers will have to rely on new methods of gardening and newer, introduced crops. Where known coping strategies become insufficient, communities will resort to degrading available land and marine resources in the attempt to provide food for families. In all eight communities there was a distinct lack of interest and knowledge in gardening from the younger men and women. This trend could mean that households and communities will be more vulnerable to the impacts of climate change in the future, with less utilisation of traditional food sources and a dietary shift towards imported and processed food. With the lack of purchasing power basic food security will be further threatened.

Given the changes brought about by climate change and the projected changes that will happen in the future it is important to acknowledge and utilise social institutions, traditional systems and groupings in existence at the community level. These institutions provide a safety net for people in communities and are useful entry points for projects and community initiatives. The church is such an institution and has a lot of influence in all communities with varying degrees of authority on community affairs. Some aspects of customary management systems and norms are useful as starting points for climate change adaptation strategies.

### 5.1 Appraising adaptive capacity of communities

The adaptive capacity of these communities are restricted by the lack of roads, technological advancements, income generation opportunities and the limited knowledge of climate change risks and impacts. However, traditional knowledge and skills perfected over generations of resource use are assets or capacities that people possess. These assets are varied and stored in various forms with both men and women and include knowledge and skill sets that they have acquired over daily use of resources. These include traditional/indigenous knowledge and skills of farming and fishing, foraging in forests, knowledge of ecosystems and habitats and the different species that live in them. Survival and coping mechanisms include the types of crops eaten only during disasters e.g. kakake/swamp taro used to be eaten after disasters, community leadership and institutions and norms and various cultural practices like barter of goods and food which helped provide a safety net in times of disasters or when people lacked food after floods.

Discussions in Posarae, for example, highlighted that when gardens are flooded families that have lost their crops get their food from other households and there exists an informal/traditional understanding of these arrangements. Lack of rainfall or too much rainfall, and long periods without rain (droughts) completely change food production and harvest cycles, planting cycles and this in turn affects the total food security system for households and communities. Women will be greatly disadvantaged given their primary role to provide for the household's daily meals. The knowledge and skill sets that people possess, need to be tapped into when looking for practical adaptation strategies.



## 5.2 Appraising gender issues

The PRAs highlighted the disparity in gender roles with women shouldering heavy burdens in all sectors of work in the community. Highlighted throughout all communities were the crucial roles of women in the provision of food security and health for families. Women's roles are still largely defined by cultural norms where responsibilities of women are rooted in cultural practice and social expectations. Women are primarily responsible for domestic and household chores and maintaining the household gardens. Gardening is not an easy task as it usually requires walking long distances to reach the gardens, working the whole day in steep forest terrain, and carrying food and firewood on their backs when they return home in the evening. In some villages, women paddle dugout canoes to reach their gardens. Furthermore, in all farming, fishing and food collection activities women take little children and grandchildren with them. So aside from walking long distances to the gardens, working on farms and foraging for food, they have the added burden of being a caregiver.

Unlike women in the other parts of the Pacific, women in Choiseul undertake activities normally assigned to men, like carrying timber, felling trees, and trawling for bonito and other migratory species. During the PRA exercise on gender in Sasamunga, a few women said, "even men were helping out in brushing and weeding" implying that this is a task men do not usually engage in.

The burden of climate change and its impact will be mostly shouldered by women and the increasing changes will result in women undertaking more and more tasks related to food security. Complicating this is the fact that under customary arrangements women are not part of decision-making processes. Women and young people are usually left out of decision making processes relating to logging and forest use but they are usually the most affected as the increasing loss of topsoil, erosion and sedimentation adversely affects garden and coastal fishing areas.

There were a number of women leaders in some of the communities researched but they were too few to make an impact on the lives of women.

## 6 Recommendations

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The survey highlighted opportunities to strengthen work currently done in Choiseul. A stock take on the implementation of existing community and provincial plans to identify capacity gaps and strengthening coordination and collaboration amongst CHICCHAP partners to support the implementation of the community action plans are some measures to assist the eight vulnerable communities. Other more specific recommendations include:

1. Conduct a report back of the PRA reports and community action plans to all the villages. For villages requiring endorsement of the community actions plans, the resource team needs to conduct a workshop to present the draft community action plans to the chiefs, pastors, zone leaders and the local community for endorsement.
2. Where relevant, incorporate the community action plans to the church work programmes and plans
3. Present the results of the PRA and the drafted community action plans to the CHICCHAP implementing partners and identify areas for implementation support and collaboration
4. Improve interactions between the villages and the Provincial office (Taro). Most of the villagers indicated the need to strengthen communication with the Taro government offices.
5. Documentation of traditional knowledge, skills and systems and norms to assist community-based interventions.
6. Develop and/or disseminate education and awareness materials in English and in the local dialect to the local communities.
7. Collection of data to determine specific gender differences and will be useful in the design and implementation of future interventions. It is evident that gender differences in climate change impact and adaptation alternatives are known but there is a lack of sex-disaggregated data to verify these differences.
8. Education and training relating to gender should be part of future ground work in all communities. There is a great disparity in male and female roles with women carrying large responsibilities as providers of the household. Training of community groups in the monitoring of projects or interventions carried out in the different sites will ensure the sustainability of the project through empowerment of local people.
9. Marine resource management can be community specific and also province wide. Combining several fishing areas and having sub-regional approaches to management will have wider impacts and ensure that the areas marked for conservation are large enough to allow for regeneration of different species.
10. Review and implement local regulations and by-laws policies relating to land and marine resources to support the implementation of community-based resource management initiatives.

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## ANNEX 2: List of local crops, vegetables and marine species

### Local crops and vegetables

| Local Names in Babatana dialect | English           | Botanical name                                |
|---------------------------------|-------------------|---|
| zuzuri                          | pit pit           | <i>Alocasia</i>                               |
| kakake                          | swamp taro        | <i>Cyrtosperma</i>                            |
| tika                            | taro              | <i>Colocasia esculenta</i>                    |
| bariovudu                       | breadfruit        | <i>Artocarpus altilis</i>                     |
| tavioko                         | cassava           | <i>Manihot esculent</i>                       |
| pana                            | pana              | <i>Dioscorea esculenta</i>                    |
| yam                             | sweet potato      | <i>Ipomonea batata</i>                        |
| noba                            | yam               | <i>Dioscorea bulbifera and D. pentaphylla</i> |
| sisu                            | potatoes          | <i>Ipomonea batata</i>                        |
| kapika                          | wild apple        | <i>Eugenia malaccensis</i>                    |
| vele                            | cut nut           | <i>Barringtonia spp</i>                       |
| kaku                            | ngali nut         | <i>Canarium spp.</i>                          |
| talike                          | alite             |   |
| qiqiti                          | Tahitian chestnut | <i>Inocarpus fagiferus</i>                    |
| duru                            | pumpkin           | <i>Cucurbita pepo</i>                         |
| tomato                          | tomato            | <i>Lycopersicon esculentum</i>                |
| pinati                          | peanut            | <i>Arachis hypogaea</i>                       |
| pepa                            | pepper            | <i>Capsicum frutescens</i>                    |
| kimaku                          | mango             | <i>Eugenia malaccensis</i>                    |
| kanapu                          | pineapple         | <i>Annona sativus</i>                         |
|                                 | pawpaw            | <i>Carica papaya</i>                          |
| meleni/local melon              | water melon       |   |
| sliperi kabis, rasa             | slippery cabbage  | <i>Hibiscus manihot</i>                       |
| breadfruit                      |                   | <i>Artocarpus altilis</i>                     |

### Local marine species

| Local Names in Babatana dialect | English / Common Names |
|---------------------------------|------------------------|
| temi                            | baitfish               |
| meogo                           | bonito                 |
| tangire                         | kingfish               |
| malivarana                      | buma(small fish)       |
| baroko                          | trevallies/ mamula     |
| vui                             | snapper                |
| galu                            | barracuda              |
| pu                              | sea cucumbers          |
| gemere                          | sea weed               |
| lalava                          | trochus                |
| masiu                           | clam                   |

## ANNEX 3: A case study- vulnerability of women in Posarae

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29 May 2014

It rained very heavily for two days and the community green was covered with water. The small, nearby creeks had swelled up and runoff from the steep mountains near the village flooded the yards of nearly half the homes. Yet even under such conditions, most of the villagers were out on their remote riverbank gardens since they depend on subsistence farming and fisheries for their daily sustenance. Since these gardens, which are more than 20 km away from the village, are only accessible by water, men and women have to paddle in dugout canoes to weed, clear, collect brush or harvest for their daily needs.

The other farming area for the community lies on two pieces of land some three km away from the village and is again accessible only by canoes. With increased rainfall and flooding there has been regular damage to crops and gardens so many people have started to look for alternative gardening sites. On this occasion, a young 23-year-old mother had gone to the island with one of her twin daughters. The other daughter accompanied her grandmother on a canoe to the riverbank gardens.

On their return, the grandmother found it hard to navigate the canoe and it flipped over in the middle of the river. While she and another 13-year-old granddaughter were able to swim to shore, the younger twin girl was swept away by strong currents. By evening, the young girl has still not been found. Her body was discovered on a nearby island the next day, half eaten by a crocodile and slung over mangrove branches. Her mother only learnt of the tragedy when she returned from the gardens.

In communities like Posarae, women conduct all domestic chores including cooking over open fires, fetching water, collecting food, rearing children and caregiving. This case highlights the fact that women carry out these roles on their long hours of gardening or fishing, taking small children who are not at school with them. In doing so, they expose themselves and their children to danger.

During these heavy downpours, the village community taps are blocked or runs contaminated water. The women have to look for fresh water for cooking and cleaning. Additionally, with the coastal area being used as toilets, bathing in the sea presents sanitation problems that women have to deal with.





