REPORT ON BASELINE DATA FOR IDENTIFYING SITUATIONAL ANALYSIS OF FOOD SECURITY AT WEATHERCOAST VULNERABLE AREAS – 2012

STRONGEM WOAKA LONG COMMUNITY FOR KAIKAI (SWOCK)
[Enhancing Resilience of Communities in Solomon Islands to the Adverse Effects of Climate Change in Agriculture and Food Security]

(16 – 20 January, 2012)

RESEARCH TEAM

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Introduction
The research team left Honiara to Kumar village, Weather Coast on 21st January 2012 via out board motor (OBM). The trip took roughly about four hours. Logistical arrangements were made to implement sampling method resulting in four villages which were randomly selected. This was further used for the multi-stage sampling methods to identify the villages, the number of households and finally the number of farmers. The randomly selected villages and the number of households with number of farmers were varied as follows: (i) 8 households and 18 farmers at Kumar village; (ii) 6 households and 15 farmers at village; (iii) 5 household and 10 farmers at village; and (iv) 5 household and 10 farmers at village. There were nine research variables strongly emphasized in the study. These include (i) Farm Variables; (ii) Farming System Variables; (iii) Processing and Preserving Food Variables; (iv) Sources of Credit Variables; (v) Climate Change/Weather Effects on Food Security; (vi) Demographic Variables; (vii) Fixed Factors; (viii) Description of Area Variables and (ix) Interviewee Variables. The team spent four days to collect the necessary data under wet and dry weather condition.

1: FIXED FACTORS

1.1 AREA DEFINITION

Boundaries:
The boundaries covered in this area include Vatukulau - Kumar, Raevu, Maraho, and Veramoho.

District: Kumar District

Area Available for Agriculture:
The arable area is very limited due to the steepness and ruggedness of the topography. The current arable area is limited because of the geographical nature of the area

1.2 CLIMATE

Rainfall:
Very high all year round. Normally heavy at times and occasionally runs for several months. Rainfall data not available.

Temperature:
Temperature range from 25 – 30 degrees Celsius

Wind:
There is a South Westerly wind/Seasonal winds. Region prone to tropical storms and cyclone.

Solar:
Sunlight is all year round but can be influenced by seasonal continuous rain.

1.3 GEOLOGY AND SOILS
Geological Origin of Soils:
Metamorphic soil and Sedimentary origin.

Physical Description of Soil Types:
Most soil at the area is alluvial and sandy loam.

Nutrition Status of Soil:
Soil fertility is high in virgin forest but continuous cropping can deplete soil nutrients.

Areas of Main Occurrence:
Virgin forest and steep hills may subject to nutrient depletion and erosion.

Amount of Land Suitable for Agriculture:
Only 25% of land is suitable for Agriculture or arable land.

1.4 TOPOGRAPHY

General Elevation and Slopes:
General elevation of land is Steep and mountainous. It is subject to erosion when clearing is done.

Major Hills and Rivers:
There is a main river that runs through three villages.

Catchment Areas and Drainage Patterns:
The catchment area lies in the virgin forest and is quite a distance from the villages.

1.5 NATURAL VEGETATION

Description of Major Types and Distribution:
The natural vegetation is natural forestry with coconuts, breadfruit, and other food crops especially those areas closer to the villages and households.

Agricultural Importance:
There is a high potential for contour farming system because of the topography of the land.

1.6 WATER SUPPLIES

Underground, surface and artificial:
A river which provides water for the basic needs of the people runs through three of the villages. Apart from this Kumar village also has piped water which is made available to its households.

2. VARIABLE FACTORS

2.1 PHYSICAL

Agricultural Production:
Agriculture production is mainly subsistence and very limited produce is being sold either to the villages or outside of the local region. The most common farming system used is mixed cropping. Other crops such as taro are currently seasonal as it only grows well towards the end of the year. Most crops that are grown are geared towards subsistence and therefore this has influenced the level of production and yield of crops.

**Land use and Location of Villages:**

(i) Area Cleared: About 20% of available land is cleared for subsistence farming.
(ii) Arable Area: About 10% of land is said to be arable otherwise 80% of land is steep and rugged.
(iii) Number of Holdings: Approx. 246 households
(iv) Farm Sizes and Numbers: ½ - 1 ha.
(v) Villages: Kumar, Raeavu, Maraho, and Veramoho.
(vi) Roads and Bridges: Nil
(vii) Dry Season: Nil

**Inputs and Production Costs:**

(i) Fertilizer (Chemical Use): Not use, Use organic matter
(ii) Crop Types: A variety of crops, see Table 3
(iii) Stock Types and Numbers: Pigs – 100 Chicken – 200 – 300
(iv) Farm Equipments: A variety, see 4.1.9 Tools and Equipment
(v) Input Use : Low inputs due to subsistence level of production

**Outputs and Production**

(i) Crop Production: In virgin areas yield is relatively high, level of technology is low, production is low, subsistence production with mixed cropping
(ii) Animal Production: Subsistence level of production, level of production is low and use of technology is low.
(iii) Gross Value of Production: Gross value is not recorded and vary from season to season, lack of market to provide real figures
(iv) Production: Overall production is low as it is influenced by market and level of technology used.

**Description**

(i) Areas of Crops: Cropping is mainly done on slopes and steep hills; some terracing is practiced to control erosion of top soil.
(ii) Capital Developments: Capital developments not seen in the area due to isolation and fundings.
(iii) Area of Recent Drought or Cyclone: All three areas recently hit by a cyclone and a landslide
(iv) Fires: Not a problem
(v) Multiple Cropping: Not practiced
(vi) Crop Rotations: Fallowing method used
Mixed Farming: Mixed cropping system practiced

2.2 TECHNICAL

Agricultural Practices:
Mixed cropping, shifting cultivation and fallowing are practiced by farmers.

Mixed cropping:
Different crops have its own pests and diseases, see Table 5.

Unsolved Technical Problems:
Taro leaf blight, watery comb in taro and caterpillar in sweet potato

Existing Research: Nil

Mechanical:
No mechanisation in the area.

2.3 SOCIAL/CULTURAL

Demography:
About 3,000 people in four villages excluding 2 villages

Number of Villages:
6 villages

Farm Population Characteristics:
Most farmers are older folks and women driven

Social Factors:
Cultural activities affect agricultural production. Church main institution for socialization

Leadership:
Chiefly system in place with a number of village elders and church elders

Groups:
Women groups including dorcas, women ministry, youth, and sports clubs

Commercial Services:
No commercial services available

Government Services:
Village clinic

Results of Social Studies:
No results from social studies for the area available during this study

2.4 ECONOMIC

Labour:
Labour type – family labour, community labour

Finance:
Not available to the villages

Markets:
Lack of market outlets, most food sold are in the village

Government Policies:
Government policies drafted but not implemented to this effect

3. EXTENSION STRATEGY FACTORS

3.1 ACCESS TO FARMERS AND RURAL WOMEN
- Dorcas groups
- Women’s groups
- Women’s ministry
- Youth groups

3.2 GROUPS WITH AGRICULTURAL PRODUCTION AS (PART OF) THEIR GOALS IN EACH VILLAGE
- Youth groups
- Women’s groups
- Farmers groups

3.3 DEMONSTRATION AND FARM VISIT SITES
- No demonstration plots
- No farm visits

3.4 POTENTIAL FOR USE OF MASS MEDIA
- No radio
- No TV
- No Mobile phone
- No newspaper

4. RESULTS OF BASELINE DATA AT WEATHER COAST, GUADALCANAL
The survey was conducted at Weather Coast area in four villages namely Kumar village. The villages were randomly selected out of the six villages. A multi-stage sampling method was used to identify households and the number of farmers interviewed in this study. The survey instrument was divided into nine sections including (i) Farm Variables (ii) Farming System Variables (iii) Processing and
4. 1 FARM VARIABLES

4.1.1 Farm Size
According to data collected most farm sizes are relatively small. Ninety one (91%) percent of farms are between 1 – 3 hectares. Though the majority of farm sizes are in this range, observations revealed that the majority of farms lie within one (1) hectare size and others (8%) within half to one hectare as indicated in Table 1.

<table>
<thead>
<tr>
<th>Size of Farm</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ ha</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>1 – 3 ha</td>
<td>48</td>
<td>91</td>
</tr>
<tr>
<td>4 – 6 ha</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7 – 9 ha</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

4.1.2 Distance to Farms
Data revealed that most farms in all four villages range at ½ km away from farmers houses. The main reason for such a distance is due to the steep and ruggedness of the topography and the farming system basically adopted and practised. Most farmers in this region practised shifting cultivation and so by doing this has caused their farms to be at this distance. Sporadically, there are some farms which are more closer to farmers residences but such farms would normally resulted in low yield due to over-cultivation and low soil fertility. Table 2 provides the different distances of farms from farmers in all four villages.

<table>
<thead>
<tr>
<th>Distance to Farms</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ Km</td>
<td>26</td>
<td>49</td>
</tr>
<tr>
<td>½ Km – 1 km</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>1 km</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>2 km</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>3 km</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>
4.1.3 Food Crops Grown by Farmers
In all four villages farmers grow a number of food crops. These range from root crops, fruit crops, leafy crops and leguminous crops. When asked about the food crops they grow, farmers responded with a number of food crops. These include sweet potatoes, cassava, taro, yam, xanthosoma, alocaseae, swamp taro, beans tomatoes Chinese cabbage, egg plants, capsicum and many others. The main root crops are sweet potatoes, cassava, and taro. The main vegetable crops grown are beans, tomatoes, and egg plants. Table 3 shows the type of crops grown by farmers.

<table>
<thead>
<tr>
<th>Crops Grown</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet Potatoes</td>
<td>51</td>
<td>96</td>
</tr>
<tr>
<td>Cassava</td>
<td>49</td>
<td>92</td>
</tr>
<tr>
<td>Taro (colocaseae)</td>
<td>45</td>
<td>85</td>
</tr>
<tr>
<td>Xanthosoma</td>
<td>31</td>
<td>54</td>
</tr>
<tr>
<td>Alocaseae</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Pana</td>
<td>33</td>
<td>62</td>
</tr>
<tr>
<td>Yam</td>
<td>27</td>
<td>50</td>
</tr>
<tr>
<td>Swamp taro</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Beans</td>
<td>50</td>
<td>94</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>47</td>
<td>89</td>
</tr>
<tr>
<td>Chinese cabbage</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>Egg plant</td>
<td>44</td>
<td>84</td>
</tr>
<tr>
<td>Capsicum</td>
<td>18</td>
<td>34</td>
</tr>
<tr>
<td>Others</td>
<td>12</td>
<td>23</td>
</tr>
</tbody>
</table>
4.1.4 Three Most Important Food Crops
The three most important food crops in all four villages are (i) Sweet potato, (ii) Cassava and (iii) Taro. The study also revealed that the three food crops are also the main food eaten during natural disaster such as cyclone, earthquake, landslide and flooding.

Table 4. Three Most Important Food Crops

<table>
<thead>
<tr>
<th>Food Crops</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet Potato</td>
<td>49</td>
<td>92</td>
</tr>
<tr>
<td>Cassava</td>
<td>50</td>
<td>94</td>
</tr>
<tr>
<td>Yam</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>Taro</td>
<td>37</td>
<td>70</td>
</tr>
<tr>
<td>Alocaseae</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Xanthosoma</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Pana</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Swamp Taro</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Beans</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>Tomato</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Chinese Cabbage</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Egg Plant</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Capsicum</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

4.1.5 Three Most Important Crops and their Pests and Diseases
According to data collected sweet potato has a number of pests and diseases. These include pigs, rat, beetle, caterpillar, birds, earthworm, grasshopper, fungus, frog and fruitfly. Rat and caterpillar are the most serious pests. In cassava rotten stem and tubers, rat, pigs, weevil, mealy bugs are common pests while rotten stem and tubers, rat and weevil are the most serious pests and diseases. Taro has the following pests and diseases; taro leaf blight, taro beetle, watery comb, pigs, earthworm, fungus and wild bird. The most serious are taro leaf blight, taro beetle and watery comb. See table 5 for pests and diseases.
Table 5. Pests and diseases of three important crops

<table>
<thead>
<tr>
<th>Important Food Crops</th>
<th>Pests and Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet Potatoes</td>
<td>Pigs, Rat, Caterpillar, Birds, Earthworm, Grasshopper, Fungus, Frog, Fruit fly</td>
</tr>
<tr>
<td>Cassava</td>
<td>Rotten stem and tuber, Rat, Pig, Weevil, Lady/Mealy bug</td>
</tr>
<tr>
<td>Taro</td>
<td>Taro leaf blight, Taro beetle, Watery comb, Pig, Earthworm, Fungus/Virus, Wild bird</td>
</tr>
</tbody>
</table>

4.1.6 Other Important Food Crops
When asked to indicate other important food crops farmers indicated the following crops: (i) breadfruit, (ii) sago palm, (iii) wild fruit and (iv) wild yam. Table 6 indicated that farmers turned to breadfruit when the main staple food becomes scarce.

Table 6. Other Important Food Crops

<table>
<thead>
<tr>
<th>Name of Crops</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breadfruit</td>
<td>47</td>
<td>89</td>
</tr>
<tr>
<td>Sago palm</td>
<td>27</td>
<td>51</td>
</tr>
<tr>
<td>Wild fruits</td>
<td>16</td>
<td>30</td>
</tr>
<tr>
<td>Wild yam</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

4.1.7 Fertilizers
In regards to fertilizer, 100% of farmers do not use fertilizers. However, 32 percent of farmers use organic fertilizers. One main reason for not using fertilizers is the fact that they are very expensive and that farmers cannot afford to buy them. In regards to organic fertilizers, farmers used composts or dead humus to apply to newly cultivated farms.

4.1.8 Pesticides
One hundred percent (100%) of farmers do not use pesticides. This is because pesticides are expensive and not readily available to their area.

4.1.9 Tools and Equipment
According to data collected the following tools and equipments are used by farmers: (i) Hoe/pick/mattock (96%); (ii) Axe (94%); (iii) Fork (13%); (iv) Wheel barrow (2%); (v) Fishing boat (25%); (vi) Fishing net (0%) (vii) Bush knife (100%); (viii) Power tiller (0%); (ix) Chain saw (6%); (x) Spade (57%); and (xi) Stick (6%).

4.1.9 Fruits and Nuts
Fruits and nuts are essential diet to the people of weather coast. The study shows that 92% of farmers grow cut nuts, 87% grow ngali nuts, 92% grow bread fruit, 85% grow coconut, 91% grow banana, and 92% grow pawpaw. Other fruits grown in the area include avocado, island apple, and sugarcane.

4.1.10 Animals Raised
A number of animals are kept by farmers in the area. These include chickens, ducks, pigs and fish. Most farmers in this areas raised chicken. The slowness of keeping such innovation is due to the fact that very little extension work is done in the area.

4.2 Farming System Variables
Data indicated that the most common farming system practised in the area is mixed cropping. When asked why use their selected farming systems, farmers indicated the following:

4.2.1 Mixed Cropping:
- Normal practice for decades
- Harvesting of different crops from one garden
- A form of weed and pest control
- Limited garden area
- Continuous supply of crop
- Less labour work
- Lack of agriculture knowledge
- Land dispute
- Saves travel time to garden
• A way of soil testing to see what soil is suitable for what crops
• Different crops sustain farm for different food crops

Land clearing for subsistence farming near a residential home

4.2.2 Mono cropping:
• Normal practice for certain food crops such as taro, pane and yam
• Crops thrive and yield better with no disturbance
• Hillside suit such farming practice
• System suits crops that take up one year to harvest
• A normal practice for decades

4.2.3 Intercropping:
• Set out is easy to manage and activities easily carried out including harvesting

Intercropping sweet potato with cassava

4.2.4 Tier Farming:
• Mainly used for cocoa and coconut
• Practice introduced with these cash crops

4.2.2 Problems Faced by Farming Systems:
4.2.2.1 Mono Cropping
• Soil becomes infertile
• Poor yield
4.2.2.2 Mixed Cropping
- Competition between crops for water and nutrients
- Tendency to poorly space plants
- Yield may reduced
- Early harvesting can cause damage to late harvest crops
- Over-cultivation

4.2.2.3 Tier farming
- Falling coconut branches can damage cocoa trees and fruits

4.3 Farming System Employed During Natural Disaster
4.3.1 Mono Cropping
- None

4.3.2 Mixed Cropping
- Mixed cropping means that those crops that do well during the disaster sustain farmers source of food
- Some crops e.g. banana can stand dry and wet

4.3.3 Tier Farming
- None

5. PROCESSING & PRESERVING FOOD VARIABLES
When asked about crops that are processed farmers indicated the following methods and tools (see Table 7.) are used:

<table>
<thead>
<tr>
<th>Crops</th>
<th>Methods of Preservation</th>
<th>Tools Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taro, Cassava, and Sweet potato</td>
<td>Dry baking and sun drying</td>
<td>Firewood, stone, banana leaf, tongs</td>
</tr>
<tr>
<td>Sago palm</td>
<td>Baking, smoking and drying</td>
<td>Bush knife, axe, grater, bucket, dish, fire-smoke</td>
</tr>
<tr>
<td>Breadfruit</td>
<td>Dry baking, sun drying</td>
<td>Coconut basket, stone, firewood, banana leaves, tong</td>
</tr>
<tr>
<td>Ngali nut</td>
<td>Sun drying, smoke drying</td>
<td>Flat iron sheet</td>
</tr>
<tr>
<td>Peanut</td>
<td>Sun drying</td>
<td>Flat iron sheet</td>
</tr>
<tr>
<td>Sweet potato, Yam, Pana, Taro and xanthosoma</td>
<td>Sun drying, Frying</td>
<td>Small dry hut, Flat iron sheet, Cooking oil</td>
</tr>
</tbody>
</table>
6. CREDIT VARIABLES

6.1 Crops Marketed:
According to data collected the following crops are marketed; potato, cassava, pana, yam, taro, beans, cabbages, slippery cabbage, capsicum, chilli, tomatoes, spring onion, cocoa and coconut. See Table 8 below.

Table 8: Crops sold at market

<table>
<thead>
<tr>
<th>Crops</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potato</td>
<td>49</td>
<td>92</td>
</tr>
<tr>
<td>Cassava</td>
<td>46</td>
<td>87</td>
</tr>
<tr>
<td>Pana</td>
<td>29</td>
<td>55</td>
</tr>
<tr>
<td>Yam</td>
<td>24</td>
<td>45</td>
</tr>
<tr>
<td>Taro</td>
<td>44</td>
<td>83</td>
</tr>
<tr>
<td>Beans</td>
<td>41</td>
<td>77</td>
</tr>
<tr>
<td>Chinese Cabbage</td>
<td>26</td>
<td>49</td>
</tr>
<tr>
<td>Slippery Cabbage</td>
<td>23</td>
<td>43</td>
</tr>
<tr>
<td>Capsicum</td>
<td>16</td>
<td>30</td>
</tr>
<tr>
<td>Chilli</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>37</td>
<td>70</td>
</tr>
<tr>
<td>Spring Onion</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>Cocoa</td>
<td>27</td>
<td>51</td>
</tr>
<tr>
<td>Coconut</td>
<td>32</td>
<td>60</td>
</tr>
</tbody>
</table>

6.2 Types of Market Used
The study shows that the following types of market were used by farmers to market their farm produce: (i) Village market (92%), (ii) Next village (19%), and (iii) Honiara market (8%). There was no overseas market at present. Farmers indicated that the lack of market is the biggest problem. About 90% indicated the lack of market in the area.

6.3 Important and Largest Source of Income
When asked about the most important source of income, 58% indicated their farm. There are other sources as well but the income sources are relatively small. When asked about the largest source of income, 66% of farmers indicated their farms. This showed that farmers at this area are totally dependent on their farm for source of income. This also shows that when there is not market for their produce, they cannot make any income for the families.

7. CLIMATE CHANGE AND WEATHER EFFECTS ON FOOD SECURITY

7.1 Natural Disaster in the Community
When asked about the type of natural disaster which affects their community the following were indicated: (i) cyclone, (ii) flooding, (iii) landslides and (iv) Strong waves.

7.8 Crops Normally Affected During Natural Disaster
When asked about the crops that normally affected by natural disaster, farmers indicated that for landslides taro becomes affected or buried out. For floods, farmers indicated sweet potatoes and cassava while for cyclone farmers indicated bananas, cassava and taro.

7.9 Crops Family Normally Grow and Eat During Natural Disaster
Data collected indicated that (90%) of families depend on cassava, banana, sweet potatoes, taro, coconuts and wild ferns to sustain family food.

7.10 Occurrence of Natural Disasters
When asked about the time and seasons of natural disaster, farmers indicated that floods and landslides normally occur on July –September or during November – March each year. They have indicated that continuous heavy rain causes landslides.

7.11 Crops Tolerant to Natural Disaster
Farmers indicated that during natural disaster crops like banana, cassava, coconut, sweet potatoes continuous to be reliable food. It was evident that most root crops are more tolerant to natural disaster than leafy and fruit crops.

8: DEMOGRAPHY VARIABLES

8.1 Gender, Age Groups, Education level and Occupation:
About 80% of farmers interviewed are male farmers while 20% are female. In the age group, 87% of farmers are in the age of 30 to 50 years and that 80% of them received education at the primary level. Most (76%) of farmers interviewed are farmers while 15% of them are housewives.

8.2 Religion and Denomination:
When asked about their religion and denominations, farmers indicated the following: (i) about 100% of farmers are Christian while 50% of farmers are SDA members, 40% Catholics, 10% come from other denomination.

9. CONCLUSIONS
It can be concluded from this study that:
farms are relative small and their size ranges from 1-3 hectares. This is because farmers have two to three farms in both steep hills and on lower portion of land, mostly around their residential;

most farms are half a kilometre away from the farmers houses;

most common food crops grown by farmers are sweet potatoes, cassava, taro, yam, xanthosoma, alocaseae, swamp taro, beans tomatoes Chinese cabbage, egg plants, and capsicum;

the three most important food crops are sweet potatoes, cassava and taro;

the most common pests and diseases of sweet potatoes are pigs, rat, beetle, caterpillar, birds, earthworm, grasshopper, fungus, frog and fruitfully;

the most common pests and diseases of cassava are rotten stem and tubers, rat, pigs, weevil, and mealy bugs while rotten stem and tubers, rat and weevil are the most serious pests and diseases;

other important food crops include (i) breadfruit, (ii) sago palm, (iii) wild fruit and (iv) wild yam;

all farmers in the area do not use chemical fertilizers and pesticides. The reasons give are that

farmers in Weather Coast area use the following tools and equipments for farming (i) hoe or pick (ii) axe (iii) fork (iv) Bush knife, and (v) Spade;

farmers grow cut nuts, ngali nuts, bread fruit, coconut, banana, and pawpaw;

farmers raise chickens, ducks, pigs and fish;

the most common farming system practised in the area is mixed cropping;

farmers use other cropping systems such as mono cropping and tier cropping system;

mixed cropping is the most common cropping system used during natural disasters;

sweet potatoes, cassava, taro, bread fruit, ngali nuts, peanuts, sago palm, yam, pana and xanthosoma are processed and preserved using traditional methods such as sun drying, baking, smoking and frying;

the following crops are marketed; potato, cassava, pana, yam, taro, beans, cabbages, slippery cabbage, capsicum, chilli, tomatoes, spring onion, cocoa and coconut;

farmers sold their farm produce using (i) village market, (ii) Next village market, and (iii) Honiara market;

the most common type of market used by farmers is village market;

the most important source of income is farm and the largest source of income to their families still comes from their farms;

the Weather Coast communities are prone to cyclones, landslides, flooding, tidal waves and earth quakes;

taro becomes prone to landslides; sweet potatoes, cassava and a number of leafy, fruit and leguminous food crops are prone to flooding, while bananas, cassava and taro are prone to cyclones;

farmers are dependent on cassava, banana, sweet potatoes, taro, coconuts and wild ferns during time s of natural disasters because of their tolerance to such natural disasters;

most farmers are male and are between the age 30 – 50 years of age and

the two most common denominations in the area are Seventh Day Adventist Church and the Roman Catholic Church.
10. RECOMMENDATIONS

It can be recommended from this study that:

(i) Farmers need to improve their farming system such as mixed cropping and farm production in order to secure food all year round. This may include sustainable farming methods and using improved genetic materials which are resistance to certain pests and diseases.

(ii) Research trials on farming systems are needed to be carried out in this part of the region especially in steep and sloppy rugged areas. These farming systems can include terracing methods, soil conservation techniques and pests and diseases control techniques.

(iii) Farmers need to be equipped with appropriate farming tools and equipment. Such tools and equipments should be used to increase production.

(iv) Farmers should be taught how to use organic matter as a means of improving soil fertility. Alternative source of organic matter includes the use of composts, green manure or alley cropping.

(v) Food processing and preservation be improved using improved and efficient methods, tools and equipments.

(vi) Market outlets and transportation to deliver farmers produce to Honiara should be monitored.

(vii) A crop improvement project to identify and test alternative food crops that are more tolerant to natural disaster should be considered for research.
APPENDIX 1

SWOCK QUESTIONNAIRE

STRONGEM WOAKA LONG COMMUNITY FOR KAIAKI (SWOCK)

QUESTIONNAIRE

[Enhancing Resilience of Communities in Solomon Islands to the Adverse Effects of Climate Change in Agriculture and Food Security]

INTRODUCTION

Solomon Islands agriculture and food security level is threatened by global changes and its effects are much more serious in countries like Solomon Islands. The School of Natural Resources (SNR) in partnership with the Ministry of Agriculture and Livestock (MAL), Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM), Nut Growers Association Solomon Islands (NGASI) and Kastom Garden Association (KGA), is collecting information to address food security issues in the most vulnerable identified communities in the country. Therefore, our team members are coming to your communities to collect primary information that will help us identify, plan and develop ways that will prepare communities address food security issues in your communities. Data collected from this interview will strictly kept secret and will not be disclose to anyone.

I: SECTION ONE: FARM VARIABLES

Please circle the letter or letters which correspond to your opinion or situation.

1. What is the size of your farm land?
   A. 1 – 3 hectares
   B. 4 – 6 hectares
   C. 7 – 9 hectares
   D. 10 – 12 hectares
   E. > 12 hectares

2. How far is your garden?
   A. < ½ KM
   B. 1 KM
   C. 2 KM
   D. 3KM
   E. > 3KM

3. What food crops do you grow in your farm?
   A. Sweet potatoes
B. Cassava
C. Yam
D. Taro (Colocaseae)
E. Taro (Alocaseae)
F. Taro (Xanthosoma)
G. Pana
H. Swamp Taro
I. Beans
J. Tomatoes
K. Chinese cabbage
L. Egg plants
M. Capsicum (green pepper)
N. Others, list: ..........................................................................................................................

4. Which of the above crops are your three most important food crops?
A. Sweet potatoes
B. Cassava
C. Yam
D. Taro (Colocaseae)
E. Taro (Alocaseae)
F. Taro (Xanthosoma)
G. Pana
H. Swamp Taro
I. Beans
J. Tomatoes
K. Chinese cabbage
L. Egg plants
M. Capsicum (green pepper)
N. Others, list: ..........................................................................................................................

5. Which of the above crops are your three most important cash crops?
A. Cocoa
B. Coconut
C. Vanilla
D. Kava
E. Other, list: ..........................................................................................................................

6. For the three most important food crops mentioned in question 3, list the main important pests and diseases for each crop?

6.1 Name of crop: ....................................................   Important Pests & Diseases
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
6.2 Name of crop: ...................................................

6.3 Name of crop: ...................................................

7. What other important food crops do you grow in your farm? Please circle letter(s).

A. Breadfruit
B. Sago palm
C. Wild fruits
D. Pandanus
E. Others, list: ..........................................................................................................................

8. Do you use chemical fertilizers in your farm?

A. Yes
B. No

If yes, name the chemical fertilizers you use?

________________________________________________________________________
________________________________________________________________________

9. Do you use natural fertilizers such as compost or other source of organic matter?

A. Yes
B. No

If yes, name the natural fertilizer you use?

________________________________________________________________________
________________________________________________________________________
10. Do you use pesticides in your farm?

A. Yes
B. No

If yes, name the pesticides you use?

_________________________________________________________________________
_________________________________________________________________________

11. Do you have the following tools & equipment?

A. Hoe/Pick/Mattock
B. Axe
C. Fork
D. Wheelbarrow
E. Fishing boat/Canoe
F. Fishing net
G. Bush knife
H. Power tiller
I. Chainsaw
J. Spade

12. Which of the following fruits & nuts do you grow?

A. Cut nut
B. Ngali nut
C. Bread fruit
D. Coconut
E. Banana
F. Avocado
G. Pawpaw
H. Others (List): ______________________________________________________________________

13. Do you have the following animals?

A. Chicken
B. Ducks
C. Goats
D. Pigs
E. Cattle
F. Fish

II: SECTION TWO
FARMING SYSTEM VARIABLES
14. Which of the following farming system do you practice? (Circle where necessary)

A. Monocropping  
B. Intercropping or Alley Cropping  
C. Mixed farming  
D. Tier farming  
E. Integrated farming (livestock, crops and fish)  
F. Aquaculture  
G. Agro-forestry

15. Give reasons for practicing the above farming systems:

A. ______________________________________________________________________
B. ______________________________________________________________________
C. ______________________________________________________________________
D. ______________________________________________________________________

16. For each of the above farming system, list two major problems faced by the system?

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<thead>
<tr>
<th>Farming Systems:</th>
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<td>Monocropping:</td>
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<td>Intercropping:</td>
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<td>Mixed Cropping:</td>
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<td>Tier Farming:</td>
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17. During a natural disaster (cyclone, earthquake, landslide or tsunami), which of the following farming systems were found useful in providing food for the community and give your reasons? (Circle if necessary)

A. Monocropping
B. Intercropping or Alley Cropping
C. Mixed farming
D. Tier farming
E. Integrated farming (livestock, crops and fish)
F. Aquaculture
G. Agro-forestry

Reasons:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

III. SECTION THREE: PROCESSING & PRESERVING FOOD VARIABLES

18. Name four crops you normally process and preserve for future use. List them below.

A. __________________________

B. __________________________

C. __________________________
19. Name four traditional ways you have practised in preserving or have processing your food?

A. __________________________

B. __________________________

C. __________________________

D. __________________________

20. Which of the above preservation and processing practices were most commonly used during natural disasters (Cyclone, Earthquake, Tsunami, or Landslide):

A. __________________________

B. __________________________

C. __________________________

D. __________________________

21. Name the processing unit (tool) you have used to process the above food crops.

A. ____________________________________________

B. ____________________________________________

C. ____________________________________________

D. ____________________________________________

IV: SECTION TWO

22. Which of the following crops do you sell at the market?

A. Potatoes
B. Cassava
C. Pana
D. Yam
E. Taro  
F. Beans  
G. Cabbage  
H. Slippery cabbage  
I. Capsicum  
J. Chilli  
K. Tomatoes  
L. Spring onion  
M. Cocoa  
N. Coconut  
O. Vanilla  
P. Kava  
Q. Other, specify: ....................................................................................................................

23. Where do you sell your farm produce?

A. Village market  
B. Market at ext village  
C. Main market in Honiara  
D. Overseas market  
E. No marketing

24. Which is you most important source of income?

A. Money from relatives  
B. Money from overseas  
C. Money from farm  
D. Money from job  
E. Money from fishing

25. Which is your largest source of income?

A. Money from relatives  
B. Money from overseas  
C. Money from farm  
D. Money from job  
E. Money from fishing

V: SECTION FIVE

CLIMATE CHANGE/WEATHER EFFECTS ON FOOD SECURITY

26. What natural disasters have you experienced in your community?

A. Drought/prolonged dry spell  
B. Floods
C. Landslides
D. Cyclones
E. Earthquakes
F. Tsunami
G. Others (List): ____________________________

27. Name the food crops which normally affected when one of these natural disasters happens?

A. Drought: ________________________________
B. Floods: ________________________________
C. Landslides: ______________________________
D. Cyclones: ______________________________
E. Tsunami: ________________________________
F. Earthquakes: ____________________________

28. What crops does your family normally grow and eat during natural disasters?

A. Taro
B. Cassava
C. Yam
D. Banana
E. Pana
F. Saga palm
G. Swamp taro
H. Vegetables (Name): ____________________________
I. Fruits & Nuts (Name):
J. Others (List):

29. When do you normally have the following natural disasters, name the month(s)?

A. Drought: ________________________________
B. Floods: ________________________________
C. Cyclones: ____________________________________________

D. Landslides: __________________________________________

E. Tsunami:________________________________________________

F. Earth quakes:____________________________________________

30. Are there any resistance variety of crops do you have in times of natural disasters?

A. Yes
B. No

If yes, name the crops?

A. ______________________________________________________

B. ______________________________________________________

C. ______________________________________________________

VI: SECTION SIX

DEMOGRAPHIC VARIABLES

31. What is your gender?

A. Male
B. Female

32. What is your age group?

A. 20 – 25 yrs
B. 26 – 30 yrs
C. 31 – 35 yrs
D. 36 – 40 yrs
E. 41 – 45 yrs
F. 46 – 50 yrs
G. 51 - 55 yrs
H. 56 – 60 yrs
I. 61 – 65 yrs
J. >66 yrs

33. What is the highest level of education you have attained?

A. Primary School
B. High School
C. Rural Training Centre  
D. College  
E. University  
F. Others (list) ____________________________________________

34. What is your usual occupation?
A. Farmer  
B. House wife  
C. Fisherman  
D. Builder  
E. Others (List) ____________________________________________

35. What is your role in the community?
A. Village organizer  
B. Village elder  
C. Pastor  
D. Church Elder  
E. Church Deacon  
F. Church Deaconess  
G. Bishop  
H. Catechist  
I. Reverend  
J. Youth Leader  
K. Others(List)______________________________________________

36. What religion you belong to?
A. Christian  
B. Muslim  
C. Baha’i  
D. Buddhist  
E. Others(List)______________________________________________

37. Which denomination you belong to?
A. Roman Catholic  
B. United Church  
C. Anglican  
D. SSEC  
E. Assembly of God  
F. Others (List)______________________________________________
38. What are the existing fixed factors?

A. Soil type and Composition: 
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

B. Rivers and other sources of water: 
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

C. Vegetation: 
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

D. Weather (Rainfall & temperature): 
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

E. Boundaries & Number of Villages: 
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

F. Others (List): 
______________________________________________________________________
______________________________________________________________________

VIII: SECTION EIGHT

39. Describe the area visited?
A. Name of village: ________________________________________________________________

B. Name of ward: ______________________________________________________________

C. Ward number: ______________________________________________________________

D. Name of Province: ____________________________________________________________

E. Name of Constituency: _________________________________________________________

F. Name of Island(s):
   __________________________________________________________________________

 IX: SECTION NINE

INTERVIEWEE VARIABLES

40. What is the name of the interviewee?
   ____________________________________________________________

41. What is the date today?
   ____________________________________________________________

42. What is the status of the interviewee (Chief, Elder, etc)?
   ____________________________________________________________

 X: CONCLUSION

I would like to take this opportunity to thank you and your village to allow me to ask a few questions regarding yourself and the community. Thank very much for your time.