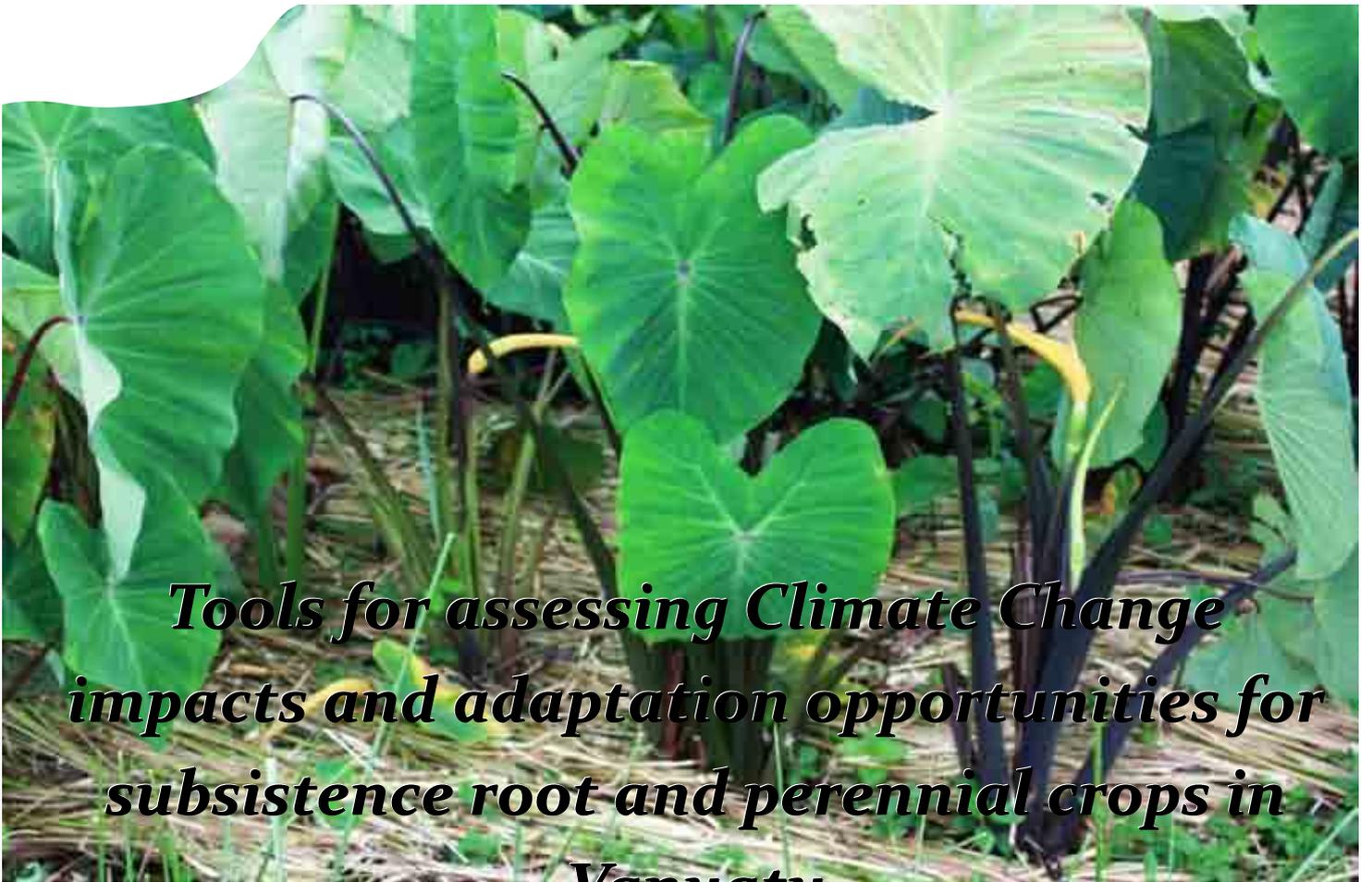


Agriculture & Climate Change Assessment



*Tools for assessing Climate Change
impacts and adaptation opportunities for
subsistence root and perennial crops in
Vanuatu*



giz



*SPC-GIZ Adaptation to Climate Change in the
Pacific Islands Region Project*



These tools were developed in Vanuatu by:

- Cocoa Growers Association
- CIRAD/Vanuatu Agriculture Research and Technical Centre
- Farm Support Association
- Vanuatu Agriculture College
- Department of Agriculture and Rural Development
- Department of Livestock and Quarantine

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When doing the full assessment the facilitator will need to prepare photocopies ahead of time, specifically of the household interview and garden visit sections.





Introduction

Agriculture practices and traditional knowledge have been passed down through many generations of Ni-Vanuatu and are particular to different areas of the country. However, these methods may need to be shifted. Predicted changes to rainfall, temperature, storms and sea level linked to climate change may result in changes to planting, fruiting and harvesting times, pests and diseases, location of gardens, soil fertility and other inputs of agriculture products.

This agriculture field assessment guide is designed to be used with communities or farmers to identify changes to agriculture that may be a result of climate change. The methods included to identify issues and possible solutions are based on participatory rural appraisal techniques (PRAs). The tools found in this field guide were compiled and refined over a 2 day meeting of Vanuatu government and NGO agriculture field workers. While an individual can facilitate the assessment, the ideal assessment facilitation process would include a team of experts from many relevant fields (agriculture, health, environment, meteorology, etc.)

The assessment within this field guide should be led by a facilitator (or facilitation team) who will ask agriculture-focused questions and then listen and record the responses from the community members. By using each of the tools provided, a comprehensive assessment can be made of the community's agriculture situation. The goal of these tools is to identify 3 themes:

1. Observed changes to subsistence agriculture
2. Adaptive strategies being employed in response to these agricultural changes, specifically in relation to climate change



3. Community agricultural vulnerability to any expected changes (climatic or otherwise)

The tools are intended to focus on root and perennial crops. However, because each Ni-Vanuatu community and island utilizes different crops and agriculture systems, the facilitator may see a need to assess other areas of the agriculture sector.

When identifying the communities or areas for this assessment, facilitators should consider the selected areas vulnerability to possible climate change impacts. Those areas the facilitators feel are more likely to face impacts before other areas should be assessed. Also look at areas where possible solutions can be implemented. The area of observation should be agriculture, however if the facilitator sees the need, other areas can be included.

What does the Facilitator do?

The individuals working on these assessments are facilitators. A facilitator is not working as a teacher or expert in the field. The facilitator's work is to:

Lead the meeting: The facilitator must make sure that the participants meet the objective of the meeting and focus on the topic that is to be discussed.

Ask questions: The facilitator must ask plenty of questions to the participants to find out all the needed information. One question that the facilitator will ask a lot is “why?” or “can you please tell me more about this?” to find out the reason behind some of the participants comments. Some-



times the facilitator may need to ask the same question, but with different wording two or three times in order to collect the information.

The facilitator needs to make sure you ask questions that do not lead the participant to an answer. For example, the facilitator should not ask “This peanut isn’t good, right?” But he can ask “What do you think of this peanut?”

Gather information: The goal of the facilitator is to gather the information needed. This assessment is not a time for teaching new topics. While doing the assessment the facilitator should note down the participants answers so that they can understand the information when they look at it again. When the participants are answering the questions, try not to stop them so that you can write down the answers.

Help the group: When the groups face a problem with answering one of the questions, the facilitator must work with the group to lead them to an answer.

“Be flexible”: Sometime the facilitator must change their plan on the spot if the group needs to talk about some different topics or are having trouble answering the questions. If there are participants that are not able to read and write well, try to make some activities that everyone can participate in and understand.

Listen: During these assessments, the facilitator should not be giving their opinions. They should listen and be neutral on topics. If there are some questions the facilitator can help the group by giving some facts. The facilitator should not give a comment if they do not agree with some of the comments of the participants. The purpose of this assessment is to find out what the participants think.



While doing the assessments, the facilitator should give neutral answers to the participants.

For example, instead of saying “yes, I like your answer” the facilitator can say “okay, thank you for your answer.”

One technique for gathering good information is to respond to the participants by repeating to them what they just told you, to ensure that you have a good understanding of what they are telling you.

Have a good attitude: The facilitator is the leader of the meeting, so they must lead with a good attitude to have a good meeting. The facilitator must enjoy the assessment time to make the participants enjoy the time and work well.

Prepare: The facilitator is the leader of the meeting, therefore they must be ready to lead. They need to prepare by having a good understanding of what is going to happen, know what work they need to do and prepare any tools that are going to be used. If there are any presentations to be made the facilitator should prepare these ahead of time.

Respect the participants opinions and comments and encourage participation from everyone.

Introducing your community to these activities

When the facilitators go to introduce the activities to the community and farmers, they will need some information about these activities. This is a brief summary of the activities to share with them:

Agriculture practices and traditional knowledge have been passed down through many generations of Ni-Vanuatu and are particular to different areas of the country. However, these methods may need to be shifted. Predicted changes to rainfall, temperature, storms and sea level linked to climate change may result in changes to planting, fruiting and harvesting times, pests and diseases, location of gardens, soil fertility and other inputs of agriculture products.



These changes will impact other parts of our lives too such as the economy and health. But we have a choice. We can sit and watch these changes happen, or we can prepare ourselves for the future.

Today we hear plenty of talk about climate change. This meeting is not to teach you about climate change, but for us to hear what you think. You have been here for a long time and have a lot of experience with this ground. We want to hear about what you are witnessing in your gardens. What changes do you see in the weather? How have changes in the weather impacted other areas of your lives? What have you been doing about these changes in the weather? We want to hear about what has worked out well for you when adapting to these changes.

After our community meeting we will take the information that you share with us and study it to get a picture of what changes are happening and how we can help Ni-Vanuatu to be ready for climate change impacts so that we are all prepared for these changes. We need to be prepared





Site Background Information

The first step for assessing the community is to gather background information. This information helps the facilitators to better understand the community and will be taken into account when analyzing the outcomes of the other assessment tools. An Assistant Agriculture Officer (AAO) should complete this information with the help of 2 community representatives, such as chiefs, pastors or association presidents.

Date: _____

Survey completed by:

| Name | Title | Group | Contact (mobile) |
|------|-------|-------|------------------|
| | | | |
| | | | |
| | | | |
| | | | |

General Information

Island _____

Community _____

Location of Community on the island:
Circle the appropriate answer(s)

North
West

South
Central

East

Community Population: _____

List the churches in the community:

List the associations in the community and their work:

List the organizations of overseas volunteers in the community: (Peace Corps, Australian Youth Ambassador, etc.)

List the Non-Government Organizations (NGOs) working in the community:

List the Government departments working in the community:

ACCESS TO INFRASTRUCTURE

Write the number of each infrastructure that the community can access and draw them on a community map

Road Paved

Road Bush

Road (White)

Small Boats

Trucks

Ships

Electricity (Unelco)

Solar Power

Generator

Mobile Phone Provider

Land Line Telephone

AM Radio

FM Radio

Television & DVD

Television blong Vanuatu

Benzene/Mazut

Stoa



Write the name and distance to the closest . . .(AAO please estimate the distance)

| | <u>Name</u> | <u>Estimate Distance (KM)</u> |
|-----------------------------|----------------|-------------------------------|
| Urban Area | _____ | _____ |
| Provincial Centre | _____ | _____ |
| Airport | _____ | _____ |
| Ocean | ----- _____ | _____ |
| Wharf | _____ | _____ |
| Clinic/Aid Post/ Dispensary | _____ | _____ |
| Hospital | _____ | _____ |
| Primary School | _____ | _____ |
| Secondary School | _____ | _____ |
| Rural Training Centre | _____ | _____ |
| Agriculture Officer | _____ | _____ |
| Market | _____ | _____ |

INCOME GENERATION

tick the box for the activities most community members are involved in and give more details on this activity, i.e. which crops, handicrafts, etc.

| <u>Activity</u> | <u>Details</u> |
|--|----------------|
| <input type="checkbox"/> Cash Crops | _____ |
| <input type="checkbox"/> Market/ Road Market | _____ |
| <input type="checkbox"/> Fishing | _____ |
| <input type="checkbox"/> Tourism | _____ |
| <input type="checkbox"/> Handicrafts | _____ |
| <input type="checkbox"/> Transport | _____ |
| <input type="checkbox"/> Forestry | _____ |
| <input type="checkbox"/> Livestock | _____ |
| <input type="checkbox"/> Nakamal | _____ |
| <input type="checkbox"/> Other | _____ |

WATER

Write the number of each source and draw them on a community map

| | | |
|--|--|--|
| <input type="checkbox"/> Well (Underground) | <input type="checkbox"/> Ground (Pump) | <input type="checkbox"/> River |
| <input type="checkbox"/> Spring | <input type="checkbox"/> Rain (Water tank) | <input type="checkbox"/> Supply (Unelco) |
| <input type="checkbox"/> Pipe (Local Supply) | <input type="checkbox"/> Other: _____ | |

FOOD

tick the box for the food(s) that are consumed most in the community

Staple Food:

- | | | |
|------------------------------------|--------------------------------------|---------------------------------|
| <input type="checkbox"/> Fiji Taro | <input type="checkbox"/> Water Taro | <input type="checkbox"/> Manioc |
| <input type="checkbox"/> Yam | <input type="checkbox"/> Kumala | <input type="checkbox"/> Rice |
| <input type="checkbox"/> Banana | <input type="checkbox"/> Other _____ | |

Meat:

- | | | |
|--------------------------------------|-------------------------------|--|
| <input type="checkbox"/> Fish | <input type="checkbox"/> Beef | <input type="checkbox"/> Local Chicken |
| <input type="checkbox"/> Shellfish | <input type="checkbox"/> Pig | <input type="checkbox"/> Tin Meat |
| <input type="checkbox"/> Other _____ | | |

MAJOR EVENTS

tick the box for the event that has happened in the last 5 years and write down the year(s)

- | | |
|---|--|
| <input type="checkbox"/> Large Earthquake _____ | <input type="checkbox"/> Tsunami _____ |
| <input type="checkbox"/> Landslide _____ | <input type="checkbox"/> Cyclone _____ |
| <input type="checkbox"/> Heavy Rain _____ | <input type="checkbox"/> Flood _____ |
| <input type="checkbox"/> Drought _____ | <input type="checkbox"/> Volcanic Eruption _____ |
| <input type="checkbox"/> Acid Rain _____ | |
| <input type="checkbox"/> Other major event: _____ | |



COMMUNITY GOVERNANCE

Describe how the community makes decisions and the leadership system

NEEDS

What does the community feel are their biggest needs

COMMUNITY PROJECTS

Provide the following information about major community projects in the last 5 years

| Project Name and year(s) | To address what problem: | To help who: | Activities carried out: | Organization that provided funding & amount of funding: |
|--------------------------|--------------------------|--------------|-------------------------|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

COMMUNITY INTERVIEW

Ask the local store(s):

How much rice do you purchase a month for sale in your store?

How much tin meat do you purchase a month for sale in your store?

How much flour do you purchase a month for sale in your store?

How much sugar do you purchase a month for sale in your store?

COMMUNITY INTERVIEW

Ask the local healthworker(s)

What are the most common illnesses in the community?

Do you think the weather influences these illnesses? Why or why not?



Community Meeting

Organize a community meeting. The group of participants should be representative of different groups in the community including men and women, youth boys and girls 15 years and above, community leaders and key farmers. Keep a list of the participants names because some participants will be involved in other parts of this assessment. The facilitator will also need to note the number of men, women and youth that come to the meeting to report.

The facilitators will need to prepare the activities before the meeting. They should prepare flip chart, or butcher paper ahead of time for recording the information from the participants. They also will need to prepare small cards for the participants to score the answers to some activities. Each participant should hold three cards, about the size of a mobile phone refill card, that should have a 1,2 or 3 on them so the participants can choose one.

When you have completed the activities, make a plan with the community for you to return and share the results.

Activity 1: What has changed?

Theme: To identify observed changes to subsistence agriculture

Objective: To identify the agricultural related changes that have been observed.

1. Introduce the objective of the activity.
2. Divide the participants into groups. There should be about 3 or 4 groups, or about 10 to 15 people per group. The facilitator should make the decision about the best breakdown for the groups. They can be divided into men, women and youth, or mixed.
3. Ask the groups to select one of them as the secretary if needed.
4. Give each group the handout Group Activity 1-1 “Changes” that is attached or prepare and lead the group through this activity. Read through the activity with them to make sure they understand what to do and give them time to work. The facilitators should remain with the groups to make sure they are working well.

This is the end of activity 1. After the community meeting the facilitators should carry out some field observations to verify the answers that the participants gave. If needed the facilitator should make some followup visits with the community to look at their concerns.

Activity 2: What is in the gardens and plantations?

Theme: To identify community agricultural vulnerability to any expected changes (climatic or otherwise)

Objective: To identify the most important crops in the community and level of diversification

1. Introduce the objective of the activity to be carried out.
2. Divide the participants into groups. There should be about 3 or 4 groups, or about 10 to 15 people per group. The facilitator should make the decision about the best breakdown for the groups. They can be divided into men, women and youth, or mixed. They can use the same groups as Activity 1.
3. Ask the groups to select one of them as the secretary if needed.
4. Give each group the handout Group Activity 2-1 “Gardens and Plantations” that is attached or prepare and lead the group through this activity. Read through the activity with them to make sure they understand what to do and give them time to work. The facilitators should remain with the groups to make sure they are working well.

Activity 3: Seasonal Calendar

Theme: To identify community agricultural vulnerability to any expected changes (climatic or otherwise)

Objective: To identify changes to the seasonal calendar for agriculture related activities

1. Introduce the objective of the activity to be carried out.
2. Divide the participants into groups. There should be about 3 or 4 groups, or about 10 to 15 people per group. The facilitator should make the decision about the best breakdown for the groups. They can be divided into men, women and youth, or mixed. They can use the same groups as Activity 1.
3. Ask the groups to select one of them as the secretary if needed.
4. Give each group the handout Group Activity 3-1 “Weather 30 years ago” and Group Activity 3-2 “Weather calendar now” that is attached or prepare and lead the group through this activity. Read through the activity with them to make sure they understand what to do and give them time to work. The facilitators should remain with the groups to make sure they are working well.
5. When they are finished, give each group the handout Group Activity 3-3 “What has changed” that is attached or prepare and lead the group through this activity. Read through the activity with them to make sure they understand what to do and give them time to work. The facilitators should remain with the groups to make sure they are working well.
6. When they are finished, give each group the handout Group Activity 3-4 “Agriculture Calendar” that is attached or prepare and lead the group through this activity. Read through the activity with them to make sure they understand what to do and give them time to work. The facilitators should remain with the groups to make sure they are working well.

Group Activity 1-1 Changes

The group needs to select a secretary to write down the information.

1. Your group will talk about what changes you have seen in agriculture in your community.
2. Write your answers in column 1.
3. Now look at the list you have put together. We need to know how big you think these changes are. Everyone should have three small pieces of paper that say 1, 2 or 3.
4. You will all vote. Go through the list and for each one, give your score:
Big change = score 3
Medium change = score 2
Small change = score 1
5. Add up and total the score for each change and write in in column 2.
6. Now look over the list again. Why do you think these changes are happening?
7. In column 3 write if you think this change is from too much rain or not enough rain. If rain does not contribute to this change, write "N/A"
8. Now in column 4 write if you think this change is from too much sun or not enough sun. If sun does not contribute to ths change, write "N/A"



Group Activity 3-1 Weather 30 years ago

The group needs to select a secretary to write down the information.

Your group will mark the months of the year that the weather was observed about 30 years ago. Some kinds of weather are listed below, the group can add more.

| WEATHER | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <i>Rainy time</i> | | | | | | | | | | | | |
| <i>Dry time</i> | | | | | | | | | | | | |
| <i>Cyclone</i> | | | | | | | | | | | | |
| <i>Cold weather</i> | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Group Activity 3-3 What has changed?

Your group will look at the calendars from activities 3-1 and 3-2 . . .

What is different in these 2 calendars:

What is the reason for these differences?



Household Interview

Activity: Household Interview

Theme: Community agricultural vulnerability to any expected changes (climatic or otherwise)

Objective: To identify access to land, number of crop species planted and amount of time spent working in the gardens.

For this interview, a household is a group that shares a cooking area or kitchen. This interview should focus on food crop gardens only. Ideally, 10% of community farmers should be observed, however if this is not possible, the facilitators should aim for 10 families that represent different groups in the community based on income level, family size, education, etc.

| Family Name | Community & Island | Facilitator(s) | Date |
|--------------------------------|--------------------|-----------------|-------------------|
| | | | |
| How many household members are | 0-15 years old | 16-40 years old | Over 40 years old |
| Man | | | |
| Woman | | | |

How many gardens does the household have?

- 0 1 2-3 4-6 7-10
 More than 10

How long does it take you to walk to your garden? (Facilitator to estimate an average)

- Less than 15 minutes 15-30 minutes 30 minutes – 1 hour Over 1 hour

How many days a week do you work in your gardens?

- 1 2-3 4-5 6-7

How many hours do you usually spend working in the garden on the days you work? (Facilitator to ask for each day and figure the average)

- 1-2 3 4 5 or more

How many times per week do you go to your garden to:

- | | 1 | 2-3 | 4-5 | 6-7 |
|-------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Plant | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Weed | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Harvest | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Visit | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

What are you doing on the days you do not visit the garden and how many days a week are you involved in these activities?

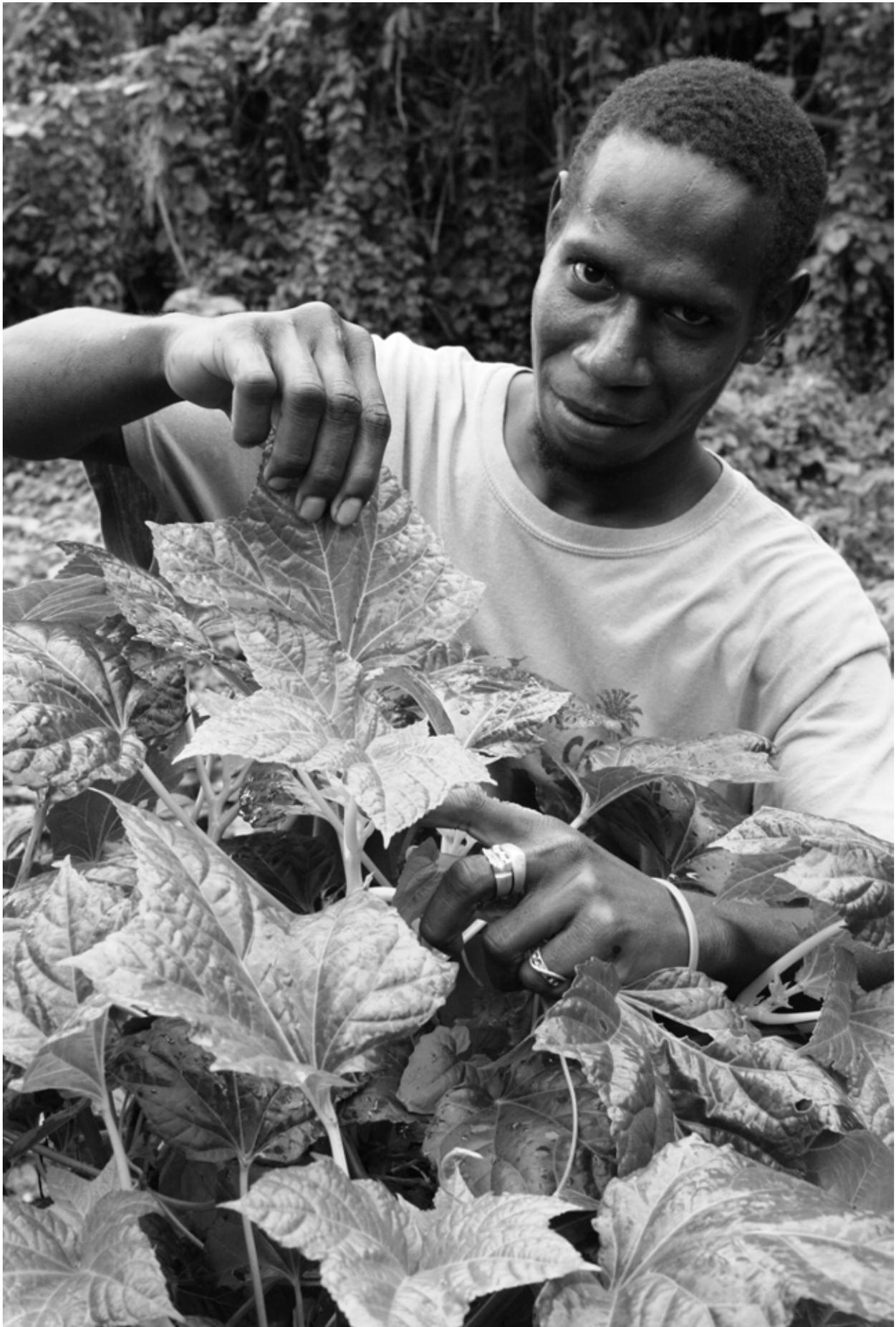
| | 1 | 2-3 | 4-5 | 6-7 |
|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Fishing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Church activities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Market activities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Working on cash crops | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Handicrafts | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community Work | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Housework | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other: _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

How many different crops have you planted this year? How many stampra of each crop?
(Facilitator should make an estimate of the stampra i.e. 0-50, 50-100, 100-150, etc.)

| CROP | # of stampra | CROP | # of stampra | CROP | # of stampra |
|------|--------------|------|--------------|------|--------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Facilitator comments:





Garden Visit

Activity 1: What has the farmer done?

Theme: Adaptive strategies being employed in response to these agricultural problems/changes, specifically in relation to climate change

This questionnaire is intended to be a rapid appraisal of the adaptation measures being undertaken to deal with changes experienced in Vanuatu's subsistence agriculture to identify what measures should be further developed to employ in the future. This tool should be done in the farmer's garden with the same farmers that completed the household interview.

For example, if a farmer identifies Invasive Species as a change, the interviewer will move to the Pests/Disease/Invasive Species section and enquire about the existence of each adaptation option, tick the box for those that have been used and rank their effectiveness. Notes should be made about perceived effectiveness and include interviewer observations. This information may be used to help identify some new adaptation methods for climate change impacts.

This tool is intended to be educational at the same time as inquisitive, giving the farmer ideas about possible solutions to the changes they have identified.

| Farmer Name | Community/Island | Facilitator(s) | Date |
|-------------|------------------|----------------|------|
| | | | |

Observed garden is used for: (You can choose more than one)

- Subsistence Market Cash Crops
 Ceremony Other:

| Farmer has identified a problem or change with | | | <u>Has s/he taken any actions</u> | |
|--|--------------------------|--------------------------|-----------------------------------|--------------------------|
| | YES | NO | YES | NO |
| Decreasing Yields and Productivity | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Soil Erosion | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| River Bank Erosion | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sea Level Rise/Coastal Erosion | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Pest/Disease/Invasive Species | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Salt Spray | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Flooding | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fire | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Drought | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Temperature/Heat | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

If the farmer has taken action in response to these problems or changes, find the problem or change on the list below and tick the box of the action taken. Find out how well this action has worked and give some comments about the method used.

| Adaptation Measure | Effectiveness (circle one) | | | Comments/Methods used |
|---|----------------------------|-----|------|-----------------------|
| | Low | Med | High | |
| Change: Decreasing Yields and Productivity | | | | |
| <input type="checkbox"/> Agroforestry | 1 | 2 | 3 | |
| <input type="checkbox"/> Cover crops | 1 | 2 | 3 | |
| <input type="checkbox"/> Environmental management (shading etc) | 1 | 2 | 3 | |
| <input type="checkbox"/> Fertilizers (local/imported) | 1 | 2 | 3 | |
| <input type="checkbox"/> Garden maintenance/ cleaning/pruning/weeding | 1 | 2 | 3 | |
| <input type="checkbox"/> Garden relocation | 1 | 2 | 3 | |
| <input type="checkbox"/> Get help/work in groups | 1 | 2 | 3 | |
| <input type="checkbox"/> Grafting | 1 | 2 | 3 | |
| <input type="checkbox"/> Improve drainage | 1 | 2 | 3 | |
| <input type="checkbox"/> Improve fallow periods | 1 | 2 | 3 | |
| <input type="checkbox"/> Irrigation | 1 | 2 | 3 | |
| <input type="checkbox"/> Mulching | 1 | 2 | 3 | |
| <input type="checkbox"/> Nitrogen-fixing legumes | 1 | 2 | 3 | |
| <input type="checkbox"/> Pest and disease control | 1 | 2 | 3 | |
| <input type="checkbox"/> Productive/Selective Crops | 1 | 2 | 3 | |
| <input type="checkbox"/> Rotational cropping | 1 | 2 | 3 | |
| <input type="checkbox"/> Seek technical assistance/ consultations | 1 | 2 | 3 | |
| <input type="checkbox"/> Other _____ | 1 | 2 | 3 | |

| | | | | |
|--|---|---|---|--|
| Change: Soil Erosion | | | | |
| <input type="checkbox"/> Agroforestry | 1 | 2 | 3 | |
| <input type="checkbox"/> Cover Crops/Groundcover | 1 | 2 | 3 | |
| <input type="checkbox"/> Forestry | 1 | 2 | 3 | |
| <input type="checkbox"/> Garden Relocation | 1 | 2 | 3 | |
| <input type="checkbox"/> Hedgerows | 1 | 2 | 3 | |
| <input type="checkbox"/> Terracing/Grading | 1 | 2 | 3 | |
| <input type="checkbox"/> Other _____ | 1 | 2 | 3 | |

| Adaptation Measure | Effectiveness (circle one) | | | Comments/Methods used |
|--|----------------------------|-----|------|-----------------------|
| | Low | Med | High | |
| Change: River Bank Erosion | | | | |
| <input type="checkbox"/> Buffer Zones | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Forestry | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Groundcover | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Other _____ | 1 | 2 | 3 | _____ |
| Change: Sea Level Rise/Coastal Erosion | | | | |
| <input type="checkbox"/> Buffer Zones | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Forestry | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Groundcover | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Other _____ | 1 | 2 | 3 | _____ |
| Change: Pests/Disease/Invasive Species | | | | |
| <input type="checkbox"/> Bio-Control agents | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Garden maintenance/ cleaning/pruning/weeding | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Garden size/spacing management | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Intercropping/mixed cropping | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Pesticides (local/imported) | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Physical barriers between gardens/plants | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Removal/burning/killing diseased plants/pests | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Resistant or tolerant crops | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Other _____ | 1 | 2 | 3 | _____ |
| Change: Salt Spray | | | | |
| <input type="checkbox"/> Garden relocation | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Resistant/Tolerant Crops | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Windbreaks | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Other _____ | 1 | 2 | 3 | _____ |
| Change: Flooding | | | | |
| <input type="checkbox"/> Drainage | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Garden Relocation | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Resistant/Tolerant Crops | 1 | 2 | 3 | _____ |
| <input type="checkbox"/> Other _____ | 1 | 2 | 3 | _____ |

| Adaptation Measure | Effectiveness (circle one) | | | Comments/Methods used |
|---|----------------------------|-----|------|-----------------------|
| | Low | Med | High | |
| Change: Fire | | | | |
| <input type="checkbox"/> Firebreak | 1 | 2 | 3 | |
| <input type="checkbox"/> Garden maintenance/ cleaning/pruning/weeding | 1 | 2 | 3 | |
| <input type="checkbox"/> Garden Relocation | 1 | 2 | 3 | |
| <input type="checkbox"/> Other _____ | 1 | 2 | 3 | |
| Change: Drought | | | | |
| <input type="checkbox"/> Cover crops | 1 | 2 | 3 | |
| <input type="checkbox"/> Irrigation | 1 | 2 | 3 | |
| <input type="checkbox"/> Mulching | 1 | 2 | 3 | |
| <input type="checkbox"/> Nursery | 1 | 2 | 3 | |
| <input type="checkbox"/> Resistant/Tolerant Crops | 1 | 2 | 3 | |
| <input type="checkbox"/> Seasonal Planning | 1 | 2 | 3 | |
| <input type="checkbox"/> Other _____ | 1 | 2 | 3 | |
| Change: Temperature/Heat | | | | |
| <input type="checkbox"/> Environmental management (shading etc) | 1 | 2 | 3 | |
| <input type="checkbox"/> Garden relocation | 1 | 2 | 3 | |
| <input type="checkbox"/> Irrigation | 1 | 2 | 3 | |
| <input type="checkbox"/> Reforestation/Forestry/ Agro-forestry | 1 | 2 | 3 | |
| <input type="checkbox"/> Resistant/Tolerant Crops | 1 | 2 | 3 | |
| <input type="checkbox"/> Other _____ | 1 | 2 | 3 | |

Comments:

Activity 2: What has the farmer planted?

Theme: To identify community agricultural vulnerability and resistance to any expected changes (climatic or otherwise)

Objective: To observe agricultural diversification ,vulnerability and resistance

Observe the different crops and varieties in the garden, discuss with the farmer why they have planted these particular crops and note the following information. Write down the variety of the crop used by the farmer for each question.

| |
|--|
| Which varieties are more resistant to pests and disease? |
| Which varieties are more resistant to heavy rain and flooding? |
| Which varieties are more resistant to drought? |
| Which varieties are more resistant to hot weather? |
| Which varieties are more resistant to cold weather? |
| Which varieties are more resistant to salt spray? |
| Over the last 10 years, which crops have decreased their yield? |
| Over the last 10 years, which crops have increased their yield? |
| Over the last 10 years, which crops have you planted more of? Why? |

Observe the farming systems in place, discuss with the farmer why they are being used and note:

| |
|---|
| Which cover crops are being used, how long does the farmer leave this ground to fallow and why? |
| What farming systems method is being used for soil erosion control? |
| What method of irrigation is being used? |

Observe the garden. From your observation note the following:

| |
|--|
| Estimate the size of the garden, the total ground available to the family and the amount being used: |
| Note if it the located in a heavy, medium or low bush area |
| Review the other surveys that you have done with this farmer (household interview, group meeting) and confirm if you are seeing what he told you in those other sessions. Ask the farmer for more information. |

Facilitator comments and recommendations for this farmer:

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