

NTQF Level: 1

Learner Guide

Certificate I in Climate Change and
Disaster Risk Reduction

CCDRR06

Demonstrate how traditional
knowledge helps
communities to become
more resilient to disasters
and climate change



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Cover photo: A taboo leaf indicator found on Emau island, North Efate, indicating that the reef is closed to all fishing

(SPC/GIZ CCCPIR, 2013)

Copyright information



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Introduction

This Learner Guide supports the unit of competency CCDRR06 (*Demonstrate how*

traditional knowledge helps communities to become more resilient to disasters and climate change) which specifies knowledge, skills and attitudes associated with learning about ways in which traditional knowledge (TK) can help communities to adapt to hazard events and climate change. The unit is the sixth in a series of seven units that comprise VRDTCA’s compulsory training programme on climate change and disaster risk reduction at Certificate Level 1.

The Learner Guide provides guidance and relevant educational resources that address the required elements and performance criteria. It is accompanied by a Learner Workbook that provides learner-centred activities and assessment tools to foster learning of key concepts and skills. The competencies developed are in line with the key competencies promoted by VRDTCA to foster greater empowerment and success in the work place. Additionally, a Facilitator Guide for this unit provides further background knowledge and teaching notes for facilitators, trainers and teachers.

This sixth unit, CCDRR06, defines the standard required to: define traditional knowledge (TK) and resilience; explain some of the challenges in gaining access to traditional knowledge and suggest how they might be overcome; describe examples of how traditional knowledge helps communities to become more resilient to hazards and climate change; demonstrate some traditional techniques that foster greater resilience to risks from hazards and climate change; and promote the use of traditional knowledge in a local community.

The development of all units was guided by consultations with government and non-government stakeholders in Vanuatu and was based on the SPC’s Community Education Training Centre draft training unit *Community Based Disaster Risk Management and Climate Change* (SPC/GIZ/USP, 2013). The units have been produced with technical and financial assistance from the SPC/GIZ’s Coping with Climate Change in the Pacific Island Region (CCCPIR) programme, implemented on behalf of the German Federal Ministry for Economic Cooperation and Development. The University of the South Pacific’s Pacific Centre for Environment and Sustainable Development (USP PACE SD) contributed to its technical review. The curriculum writer is Charles Pierce.



Icons



Activity to complete in the workbook



How am I doing?



Definition



Example

Course Outline

Before we start...

Dear Learner - This Learner Guide contains all the information to acquire all the knowledge, skills and attitudes leading to the unit standard:

Title: Demonstrate how traditional knowledge helps communities to become more resilient to disasters and climate change

NTQF Level: 1 Credits: 6

The full unit standard will be handed to you by your Trainer. Please read the unit standard at your own time. Whilst reading the unit standard, make a note of your questions and aspects that you do not understand, and discuss it with your Trainer.

This unit standard is one of the building blocks in your qualification at Certificate level 1 listed below. Please write in the names of all the units of competency that you are currently doing:

Title	NTQF Level	Credits
Certificate I in Climate Change and Disaster Risk Reduction	1	46
.....
.....

Please mark the learning program in which you are enrolled:

Your Trainer should explain the above concepts to you.

Are you enrolled in a:	Y	N
Learning programme?		
Skills programme?		
Short course?		

You will also be handed a Learner Workbook. This Learner Workbook should be used in conjunction with this Learner Guide. The Learner Workbook contains the activities that you will be expected to do during the course of your study. Please keep the activities that you have completed as part of your Portfolio of Evidence, which will be required during your final assessment.

You will be assessed during the course of your study. This is called formative assessment. You will also be assessed on completion of this unit standard. This is called summative assessment. Before your assessment, your assessor will discuss the unit standard with you.

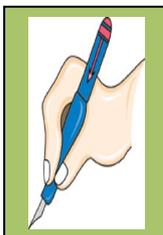
Enjoy this learning experience!

How to use this guide ...

Throughout this guide, you will come across certain re-occurring “boxes”. These boxes each represent a certain aspect of the learning process, containing information that will help you with the identification and understanding of these aspects. The following is a list of these boxes and what they represent:



What does it mean? Each learning field is characterized by unique terms and **definitions**. It is important to know and use these terms and definitions correctly. They are highlighted throughout the guide in this manner.



You will be requested to complete **activities**, which could be group activities or individual activities. It is important to complete all the activities as your facilitator will assess them and they will become part of your portfolio of evidence. Activities, whether group or individual, will be described in this type of box.



Examples of certain concepts or principles will be shown in this type of box. Examples help you to relate what you are learning to a real life situation.



This type of box indicates a **summary** of concepts that have been covered, and offers you an opportunity to ask questions to your facilitator if you are still feeling unsure of these concepts.

My Notes ...

You can use this box to jot down questions you might have, words that you do not understand, instructions or explanations given by the facilitator, or any other remarks that will help you to get a better understanding of what you are learning.

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Key competencies / employability skills to be acquired during this unit

Key competency	Example of application
Collect, organise and analyse information	Collect, organise and analyse information on examples of how traditional knowledge can help communities in Vanuatu to become more resilient to hazards and climate change.
Communicate ideas and information	Give talks to each other on the challenges of gaining access to TK, on examples of different TK held by women and by men, and on examples of the use of TK in lessening vulnerability to hazards and climate change.
Plan and organize activities	Work with a local community to promote, initiate or monitor at least one traditional technique for becoming more resilient to climate change and/or disasters.
Work with others and in teams	Work in a team to consult with owners of TK in the local community with a view to promoting a greater use of this TK in the community.
Problem-solving	Devise suitable strategies for approaching owners of TK in the local community.
Graphical skills	Draw diagrams and wall charts to show one or more of the following traditional adaptation techniques: ways of reading animal behavior and other natural weather/climate signs; food preservation; traditional building design and construction; traditional techniques of cultivation, animal husbandry and fishing; tree planting to reduce erosion and landslides; establishment of traditional taboos and conservation areas.
Practical skills	Demonstrate at least one technique based on TK that can be used to promote greater resilience in the community.
Show initiative	Work with the local community to encourage a greater use of TK in reducing vulnerability to the effects of disasters and climate change.

Prior knowledge and skills required

Knowledge

- Knowledge and experience of the impacts of climate change and of some of the measures already being taken to reduce the negative effects of these impacts.
- Knowledge of a local community, especially in terms of leadership structure, cultural and religious practices, and livelihoods.
- Knowledge acquired through the completion of units of competency CCDRR01, CCDRR02, CCDRR03, CCDRR04 and CCDRR05.

Skills

- Basic graphicacy skills - interpretation and construction of graphs and diagrams, mapping skills.
- Skills acquired through the completion of units of competency CCDRR01, CCDRR02, CCDRR03, CCDRR04 and CCDRR05.

Learning outcomes

After you have completed Unit of Competency CCDRR06 of the Certificate I in Climate Change and Disaster Risk Reduction, you should be able to:

- define traditional knowledge (TK) and resilience;
- explain some of the challenges in gaining access to traditional knowledge, and suggest how they might be overcome;
- describe examples of how traditional knowledge helps communities to become more resilient to hazards and climate change;
- demonstrate some traditional techniques that foster greater resilience to risks from hazards and climate change;
- promote the use of traditional knowledge in a local community.

What am I going to learn?

What will I be able to do?

What do I need to know?

Learning outcomes

Introduction

Section 1: Define traditional knowledge (TK) and resilience

Section 2: Explain some of the challenges in gaining access to traditional knowledge, and suggest how they might be overcome

Section 3: Describe examples of how traditional knowledge helps communities to become more resilient to hazards and climate change

Section 4: Demonstrate some traditional techniques that foster greater resilience to risks from hazards and climate change

Section 5: Promote the use of traditional knowledge in a local community

What will I be able to do?

When you have achieved this unit standard, you will be able to: -

- collect, organise and analyse information on examples of how traditional knowledge can help communities in Vanuatu to become more resilient to hazards and climate change;
- give talks to each other on the challenges of gaining access to TK, on examples of different TK held by women and by men, and on examples of the use of TK in lessening vulnerability to hazards and climate change;
- work with a local community to promote, initiate or monitor at least one traditional technique for becoming more resilient to climate change and/or disasters;
- work in a team to consult with owners of TK in the local community with a view to promoting a greater use of this TK in the community;
- devise suitable strategies for approaching owners of TK in the local community;
- draw diagrams and wall charts to show one or more of the following traditional adaptation techniques: ways of reading animal behavior and other natural weather/climate signs; food preservation; building design and construction; methods of cultivation, animal husbandry and fishing; tree planting to reduce erosion and landslides; establishment of traditional taboos and conservation areas;
- demonstrate at least one technique based on TK that can be used to promote greater resilience in the community;
- work with the local community to encourage a greater use of TK in reducing vulnerability to the effects of climate change and natural disasters.

What do I need to know?

It is assumed that a learner attempting this unit will have the following competencies:

- Basic functional literacy and numeracy (ability to read, write and handle numbers).
- Knowledge and experience of the impacts of climate change and of some of the measures already being taken to reduce the negative effects of these impacts.
- Knowledge of a local community, especially in terms of leadership structure, cultural and religious practices, and livelihoods
- Basic graphicacy skills - interpretation and construction of graphs and diagrams

What are my learning outcomes?

When you have achieved this unit standard you will be able to:

- define traditional knowledge (TK) and resilience;
- explain some of the challenges in gaining access to traditional knowledge, and suggest how they might be overcome;
- describe examples of how traditional knowledge helps communities to become more resilient to hazards and climate change;
- demonstrate some traditional techniques that foster more resilience to risks from hazards and climate change;
- promote the use of traditional knowledge in a local community.

Introduction to the Unit

You are about to start on the sixth Unit of the Certificate I course on Climate Change and Disaster Risk Reduction. In this Unit, you are going to find out more about the important role of traditional knowledge in helping people to adapt to the impacts of natural disasters and climate change.

You already know from CCDRR03 that human activities in the last 200 years have resulted in greater quantities of greenhouse gases such as carbon dioxide and methane being put into our atmosphere, and that this is making the atmosphere warmer. The increase in atmospheric temperatures also warms up our oceans and affects humidity and rainfall patterns, so leading to changes in the global climate. The negative impacts of these changes on ecosystems and human livelihoods and development were covered in Unit CCDRR04, and measures to mitigate greenhouse gas emissions and to adapt to climate change were dealt with in Unit CCDRR05.

This Unit further expands on adaptations to prepare for climate change and disaster events, but focuses on the use of traditional methods that have already been in use for hundreds and hundreds of years. By reviving these methods, we stand a better chance of becoming more **resilient** to impacts such as severe cyclones and storms, long periods of drought, floods, landslides, storm surges, rising sea levels, very hot days, loss of food security, damage to livelihoods that depend on natural ecosystems, and so on.

We will begin by defining traditional knowledge (TK) in the context of Vanuatu, and looking at the meaning of “resilience” in relation to hazards and climate change. We will examine some of the challenges in gaining access to TK, considering why it is gradually disappearing and discussing issues relating to the ownership and sharing of TK, including the fact that women and men may have different TK available to them. We will then suggest ways in which these challenges might be overcome.

Next, we shall consider examples of how traditional knowledge has helped communities in Vanuatu to become more resilient to geological and hydro-meteorological hazards, looking at such methods as reading traditional signs of forthcoming drought or storms, using traditional calendars, using traditional techniques of cultivation and animal husbandry, traditional methods of food preservation, traditional building designs, traditional food gardens, and traditional

ways of tree planting to overcome soil erosion and minimize landslides. You will be asked to produce a traditional calendar for the local community.

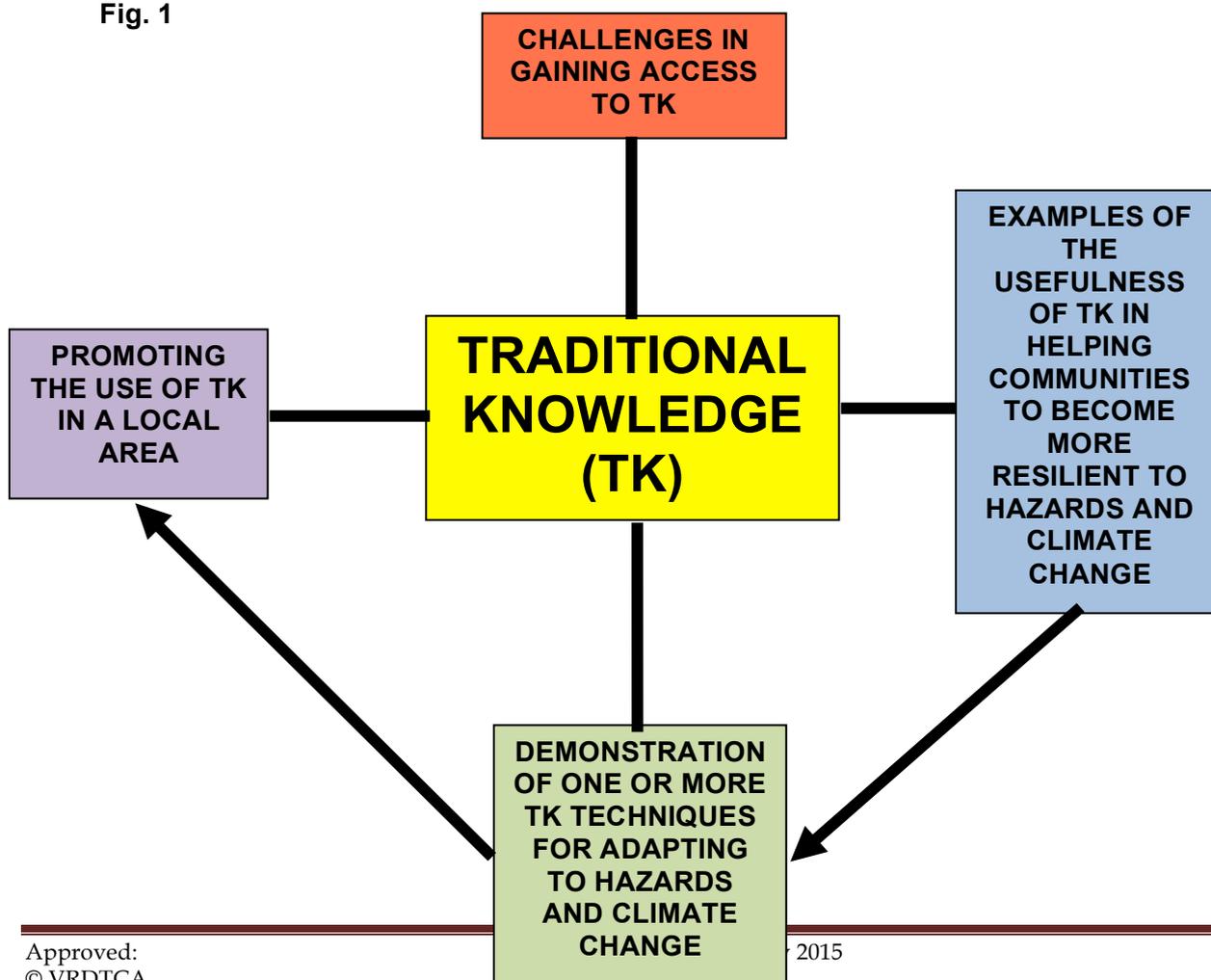
This will be followed by a section in which you will learn from a local expert how to actually demonstrate one or more traditional techniques.

Finally, you will try to find out more about the TK that already exists in a local community, and consult with the owners of this traditional knowledge to find ways in which it can be used to achieve greater resilience for everyone in the community. In this way, you will be helping to promote the use of traditional knowledge in the area around you.

Your learning from this Unit will enable you to become agents of change in the community, equipped to help others to better prepare for climate change.

This is how the content of this Unit has been organized:

Fig. 1

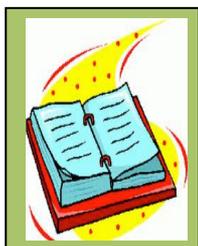


Section 1 Define traditional knowledge (TK) and resilience

After completing this section, you should be able to:

- 1.1 define “traditional knowledge” in the context of Vanuatu;
- 1.2 define “resilience” in relation to hazards and climate change.

1.1 Definition of “traditional knowledge” (“TK”)



“Traditional knowledge” refers to information and beliefs regarding the relationship of living things to one another and their surroundings. It is based on a deep understanding of the local environment, and is a way of life and means of survival for many. This knowledge has been passed on from generation to generation through stories, songs, ceremonies and rituals. (USP PACE-SD, 2011)

Traditional knowledge (TK) may include awareness and information about the following:

- Seasonal changes in the environment, such as times when certain birds appear, or when certain plants flower and give fruit.
- Weather and climate - predicting weather events and their impact, beliefs that certain people can influence weather patterns (for example by making the rain come or changing the course of a cyclone).
- Memories of past weather patterns and their impacts.
- **Food security** - how to produce extra food and how to preserve and store food in safe locations ready for cyclones, storms and droughts.
- Designing and constructing houses that are able to withstand floods, cyclones and other extreme events.
- **Ecosystems** - planting native trees to reduce erosion and prevent landslides. (Vanuatu Red Cross, 2013; USP PACE-SD, 2011)

In Vanuatu, traditional knowledge has an important role to play in preparing for climate change. Local observations of changes in weather and ecosystems

fill gaps in the statistics collected by VMGD. Also, traditional ways of preparing for disasters can be used today and in the future for **climate change adaptation** and disaster preparedness.

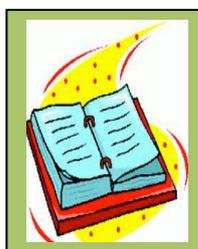
Fig. 2:

“ **Kastom hem i laef!** ”



SPC/GIZ CCCPIR, 2013

1.2 Definition of “resilience”

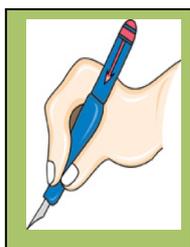


According to Vanuatu’s National Disaster Management Office (NDMO), “**resilience**” can be defined as “a person’s, household’s or community’s adaptability (ability to cope) and capacity to prepare for hazards and recover from disaster” (NDMO, 2013). In relation to climate change, resilience means the ability to survive and recover from the effects of climate change; it includes the ability to understand possible impacts and to take action before, during and after these impacts so as to lessen their negative effects and be able to respond to future changes (Rockefeller Foundation, 2009).

In other words, a community is resilient to hazards and climate change if it has taken steps to prepare for them and is able to recover from the damage without external help. A resilient community can cope with hazards when they arrive. Resilience is the opposite of vulnerability.

You considered some of these steps to build up resilience in Unit CCDRR05. Examples are the planting of trees and vetiver grass to reduce erosion; improving food security through soil improvement, agroforestry, pig breeding, backyard tilapia aquaculture, fish aggregating devices, etc.; replanting mangroves; and community awareness programmes on disaster preparedness and climate change. In this Unit, we shall focus on long-standing, “kastom” ways of building up community resilience and adapting to disasters and climate change. You have already come across some

of these in CCDRR05.



Now please complete Activities 1.1a, 1.1b and 1.2 in your Learner Workbook

My Notes:

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Concept	I understand this concept	Questions that I would still like to ask
1.1 Definition of traditional knowledge (TK) in the context of Vanuatu.		
1.2 Definition of resilience in relation to disasters and climate change.		

Section **2** Explain some of the challenges in gaining access to traditional knowledge and suggest how they might be overcome

After completing this section, you should be able to:

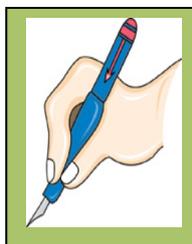
- 2.1 suggest reasons why traditional knowledge (TK) is disappearing in Vanuatu;
- 2.2 discuss issues relating to the ownership and sharing of TK - local taboos, transmission of secret knowledge, observing traditional protocols, policies of the Vanuatu Kaljoral Senta, etc.
- 2.3 discuss different types of traditional knowledge held by women and by men, and challenges in accessing this information;
- 2.4 suggest ways in which these challenges might be overcome.

2.1 Reasons why traditional knowledge is disappearing in Vanuatu

If you ask people in your village whether they think that traditional knowledge is disappearing, they will almost certainly say “yes”.

So why is this happening and what can be done? Discuss the following questions with your fellow-learners:

- Do you think that elderly people and those who hold traditional knowledge are passing on this knowledge to young people in the same way as was done in the past? Why or why not?
- Do some parents think that traditional knowledge is no longer important in the modern world? What makes them think like this?
- Why are many young people not interested in learning about traditional knowledge today?
- How do the following affect the handing down of traditional knowledge from generation to generation: **Urbanization**? Education? Influence of Western culture?
- Should we take steps to encourage young people to get learn more about the TK available in their communities? How could this be done?



Now please complete Activity 2.1 in your Learner Workbook

My Notes:

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Concept	I understand this concept	Questions that I would still like to ask
2.1 Reasons why traditional knowledge is disappearing in Vanuatu.		

2.2 Issues relating to the ownership and sharing of TK

Traditional knowledge is held by certain people - usually chiefs, elders and others who have been given the knowledge by their parents, grandparents elderly relatives. They are the **custodians** of this knowledge, in other words they are supposed to keep it safe, use it wisely for the benefit of others and pass it to others in an appropriate manner.

But let us look at some of the issues involved in the ownership and sharing of TK - local taboos, transmission of secret knowledge, observing traditional protocols and policies of the Vanuatu Kaljoral Senta.

Local taboos

A **taboo** is a social or religious custom prohibiting or restricting a particular practice or forbidding association with a particular person, place or thing (Oxford Dictionaries, 2014). In Vanuatu, there are many things that are taboo (“tabu” in Bislama) - burial grounds, sites of spiritual significance, stones, plants, animals, kastom practices and so on. This means that they are sacred and **prohibited** for the majority of people.

Some things are traditionally taboo and nobody questions them. Other things are made taboo by particular people for a certain reason, and others may question this, or take no notice of the taboo. A good example is when a chief or a custom land owner puts up a namele leaf or other sign (Figs. 3 and 4) to show that nobody can use a piece of ground, an area of forest, or part of a reef.



Fig. 4:

Namele leaf indicating a taboo placed on a reef off Emau island, North Efate.



SPC/GIZ CCCPIR, 2013

Fig. 3



Anastasia Riehl, 2011

Some of the issues that arise from the placing of a taboo on a certain place or object

are as follows:

- Who has the right to do this? Can any person put a taboo on his land or should only certain people be allowed to do this?
- What happens if people take no notice of the taboo?
- Should we respect those taboos that are made in order to protect the environment and to have a sustainable use of natural resources?



Fig. 5: Namele leaf placed over a turtle nest in the Maskeleyne islands, Malakula.



Fig. 6: Namele leaf placed on a reef at Erakor, Efate



Transmission of secret knowledge

Some traditional knowledge is held to be secret or taboo, and only shared with special people, families or clans when the owner of the knowledge feels the time is right. Such knowledge may relate to the use of particular plants for medicinal or magic purposes, or to natural signs of forthcoming weather events, or other things that are not normally spoken about. In some cases, the owner may hold special powers relating to the control of winds, rain, and other natural forces. Access to such knowledge is therefore very limited.

The Vanuatu Meteorological and Geohazards Department (VMGD) is working with the Vanuatu Kaljoral Senta, Red Cross and SPC/GIZ to try and collect local knowledge of weather indicators that can be used to make better forecasts of future weather and climate patterns. This is called the “TK Climate Indicators Project”.

Some of the challenges faced in accessing this information are as follows:

- The owner of the TK may not wish to share his knowledge with field officers in the TK Climate Indicators project.

- Sometimes it is difficult to find out the identity of the owner(s) of TK about weather and climate indicators.
- Sometimes there are many “owners”, for example a whole family, community or clan, and it is unclear as to who has the right to share the knowledge.
- In order to access TK on weather and climate indicators, it is important to find out the necessary “kastom” **protocols** that have to be followed, and then to follow them.
- It is important to verify the information that has been collected, and other people must be found to do this. This will take time.

Traditional protocols

As mentioned above, it is usually essential to observe “kastom” protocols when asking owners of TK to share their knowledge.

Those in the TK Climate Indicators Project have learnt from their experiences on Tanna that there must be a preliminary kava ceremony and discussions with chiefs and village elders. Presentation of gifts may also be necessary. Then, after the traditional special knowledge holders (“Tupunis” on Tanna) have been identified, the researchers sit down with them and let them talk.

“Storian” has been found to be the most effective method of collecting weather indicators and traditional strategies for adaptation. Direct questions about beliefs regarding weather control should be avoided.

(VMGD/NDMO/DARD/VKS/SPC-GIZ CCCPIR, 2012.)



Fig. 7: Discussions in Port Resolution, Tanna, regarding the collection of TK about weather indicators, November 2012



Policies of the Vanuatu Kaljoral Senta

The main function of the Vanuatu Kaljoral Senta (Fig. 8) is “to support, encourage and make provisions for the **preservation**, protection and development of various aspects of the cultural heritage of Vanuatu.” It documents and records the culture and cultural history of Vanuatu with the help of a network of some 60 volunteer field workers throughout the islands (VKS, 2013). The VKS collects traditional knowledge and has an Oral Traditions Collection Project. It has specific policies regarding the sharing of information that has been collected.

Fig. 8: The Vanuatu Kaljoral Senta in Port Vila



Through its network of field assistants, the VKS is able to collect and record information about weather indicators and traditional methods of adaptation to natural disasters. Because much of this information is secret and is only shared with VKS officers on the understanding that it will remain with the VKS, this makes it difficult for other government and non-government agencies to access valuable knowledge that can be used in helping people to prepare for climate change.

For this reason, discussions on the sharing of TK have been taking place between the VKS, VMGD and other agencies such as Vanuatu Red Cross, SPC/GIZ and COSPPac (Climate and Oceans Support Programme in the Pacific, operated by the Australian Bureau of Meteorology). A Memorandum of Understanding has now been signed between VMGD, VKS, SPC/GIZ and the Vanuatu Red Cross to work together on the collection of TK on weather and climate.

Under the MOU, a Traditional Knowledge Survey will be carried out throughout the islands of Vanuatu, with information collected by field workers and recorded in a computer-held data base. The first page of the current survey form is shown on the next page. Note the section on TK location information and access. The owner of TK is asked “Who is allowed access to your TK story?” His response is then classified as **LOW sensitivity**, **MEDIUM sensitivity** and **HIGH sensitivity**. High sensitivity means that the information is “spiritual information tied to customary laws which could harm community or local holders of information if it is shared publicly” (Traditional Knowledge Project Protocol Form, 2014)

Fig. 9: First page of the Traditional Knowledge Survey form







Traditional Knowledge Survey – Vanuatu

DATABASE RECORD #:	
FORM VERSION #:	3.0

PLEASE NOTE: The project protocol must be provided and a statement of prior informed consent completed and signed by the participant before commencing interview!

INTERVIEW / MEETING INFORMATION (please write down or circle where possible):					
Date (d/m/y):		Time:		am	pm
Place of Interview:	Village:	Province:		Island:	
Interview Language:	Bislama	English	Other (write here):		
Extra Records:	Audio	Video	Photo	None	Other (write here):
INTERVIEWER / OBSERVER INFORMATION:					
Name of Interviewer:			Contact Details:		
PARTICIPANT INFORMATION:					
Participant's Name:					
Position in Community:				Male	Female
Age Group:	< 20	21-30	31-40	41-50	51-70 > 70
First Language:	Bislama	English	Other (write here):		
Where is Their Home:	Village:		Province:		Island:
Contact Details:					
TRADITIONAL KNOWLEDGE (TK) LOCATION INFORMATION AND ACCESS:					
Where is this TK story found?	Around Participant's Home	If not, please specify where?	Village(s):	Province(s):	Island(s):
Who is allowed access to your TK story?	LOW SENSITIVITY: Public – everyone	MEDIUM SENSITIVITY: Managers, Public with permission	HIGH SENSITIVITY: Project Managers Only	Are there any other access Restrictions? Circle: Yes / No	Gender: Religion: Other:

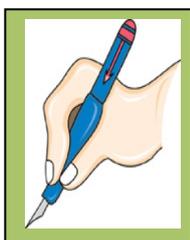
VMGD/VKS/GIZ/Red Cross/COSPac, 2014

2.3 Traditional knowledge held by men and women

Different kinds of Traditional Knowledge are held by men and by women, and this may vary from island to island. Traditionally, women may not have access to TK held by men, and men may not have access to TK held by women. This may present problems for field workers trying to access valuable information on weather indicators and adaptation measures.

Discuss the following with your fellow-learners:

- What is the situation on your island? Do men have different kinds of TK to women?
- What kinds of TK are held by women? (The women in your group will have to answer this question)
- What kinds of TK are held by men (The men in your group will have to answer this question).
- Do you think that TK should be shared freely between men and women in your community?



Now please complete Activities 2.2a, 2.2b and 2.3 in your Learner Workbook

My Notes:

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Concepts	I understand this concept	Questions that I would still like to ask
2.2 Issues relating to the ownership and sharing of TK - local taboos, transmission of secret knowledge, observing traditional protocols, policies of the Vanautu Kaljoral Senta. 2.3 Different types of TK held by women and by men, and challenges in accessing this information.		

2.4 Overcoming challenges in gaining access to TK

Those involved in collecting TK about weather indicators and seasonal changes in the environment have found that owners of TK are often reluctant to share their knowledge, as it is felt to be secret. However, when there is awareness that sharing such knowledge will build up resilience in the local community of which the owner is a member - and also in other communities all over Vanuatu - owners of TK become more willing to “storian”.

So awareness talks on ways in which local community knowledge can help everyone to prepare for climate change and disaster risk reduction are very important, especially if the talks and discussions take place in a sensitive and respectful manner.

What about the other challenges mentioned in sections 2.2 and 2.3? In your group, discuss the following:

- If you yourself wanted to collect TK on weather, climate, ecosystems, food security and building construction from your local community, what traditional protocols should be observed?
- Do you think that you should ask a VKS field worker to share secret TK that he/she has obtained about the environment, or should you go and discuss this directly with the owners of this information? If you did this, what would you say in order to persuade them to share the information?
- Should a payment be made in exchange for TK about climate change and/or resilience to hazards?
- Why is it important to use the local language in trying to access TK?
- How would women access TK held by men, and how would men access TK held by women?



Now please complete Activity 2.4 in your Learner Workbook

My Notes:

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Concepts	I understand this concept	Questions that I would still like to ask
2.4 Ways in which challenges of access to TK might be overcome.		

Section

3

Describe examples of how traditional knowledge helps communities to become more resilient to hazards

After completing this section, you should be able to:

- 3.1 give examples of TK that help communities in Vanuatu to become more resilient to geological and hydro-meteorological hazards (reading traditional signs of forthcoming drought, storms, earthquakes, etc.; using traditional calendars; traditional food gardens; traditional techniques of cultivation, animal husbandry and fishing; traditional methods of food preservation; traditional building designs; protection from erosion on slopes; establishing traditional taboos and conservation areas; traditional community support systems, etc.)
- 3.2 produce a traditional calendar for the local community.

3.1 Examples of traditional knowledge that help communities in Vanuatu to become more resilient to hazards

Reading traditional signs of forthcoming drought, storms, earthquakes, etc.

Over many generations, people have observed certain signs in the natural environment that lead them to believe that storms, droughts, earthquakes, heavy rains and other hazards are likely to be experienced. They have also observed regular changes in the seasons. These traditional signs, or indicators, are seen in plants, animals, fish and insects, and may vary slightly from island to island. The ability to read these signs means that people can take steps to prepare for the hazard that may come.

Here are some examples drawn from fieldwork carried out by VMGD:

- Changes in the behaviour of ants, for example, when they speed up their movements, may indicate that a cyclone is likely to arrive.
- The arrival of the frigate bird (*manunalang* in Ambae language) also

indicates that a cyclone could be approaching.

- According to oral traditions on Ambae, signs of a forthcoming eruption from Manaro volcano are that there will first be a long period of drought, when grass dies and bushfires are experienced, and then there will be earthquakes.
- Just before the severe earthquake and tsunami experienced at Baie Martelli, Pentecost, on 26th November 1999, some people reported that there were changes in the behaviour of crabs, ants, dogs and cats in the village.
- Before a cyclone, colonies of flying foxes can be seen moving away from the normal places where they come together in order to seek a safe hiding place.
- When the *narara* tree is in flower, wet weather can be expected.

During research at Port Resolution on Tanna in November 2012, the team from VMGD/NDMO/DARD/VKS/SPC-GIZ were told about the following indicators of climate and weather:

- The coastal species of tree known as *tera* does not flower very often. But when it flowers in April-May, a long dry season is almost certain to come.
- When the *karkuratana/rinkai* birds come close to Port Resolution in large numbers, this means that there will be strong winds and storms in the coming months.
- If red non-biting ants are observed to be especially active for several weeks, a long wet period is expected.
- If a cloud formation looking like a snake skin, known as *natonga*, is observed coming on the wind from the south to the north, rain will come within one week.
- When *shako (mynah)* birds sit together on the grass and fly in large groups around the village, then rain will soon come.
- When cicadas call in unison at night, and in a shrill manner, rain will fall before daybreak.
- When Yasur volcano emits a lot of steam, rain is certain to fall within one or two days.
- When *mankuru* (mackerel) hide on the sea floor, even in calm and sunny weather, heavy rain will fall in less than one week.
(VMGD/NDMO/DARD/VKS/SPC-GIZ, Initial Field Test of TK Climate Indicators, 2012)

Now you can think about some of the indicators of climate and weather from your own area.

Do you have any similar signs to those given above? What other signs do you have?

Traditional calendars

Throughout the Pacific islands, there are traditional calendars that guide the planning of agricultural activities. Such calendars are often based on observations of changes in the environment that reflect the changing seasons - hot and wet, warm and dry. The calendars vary from island to island, and for large islands, may be different in different areas of the island.



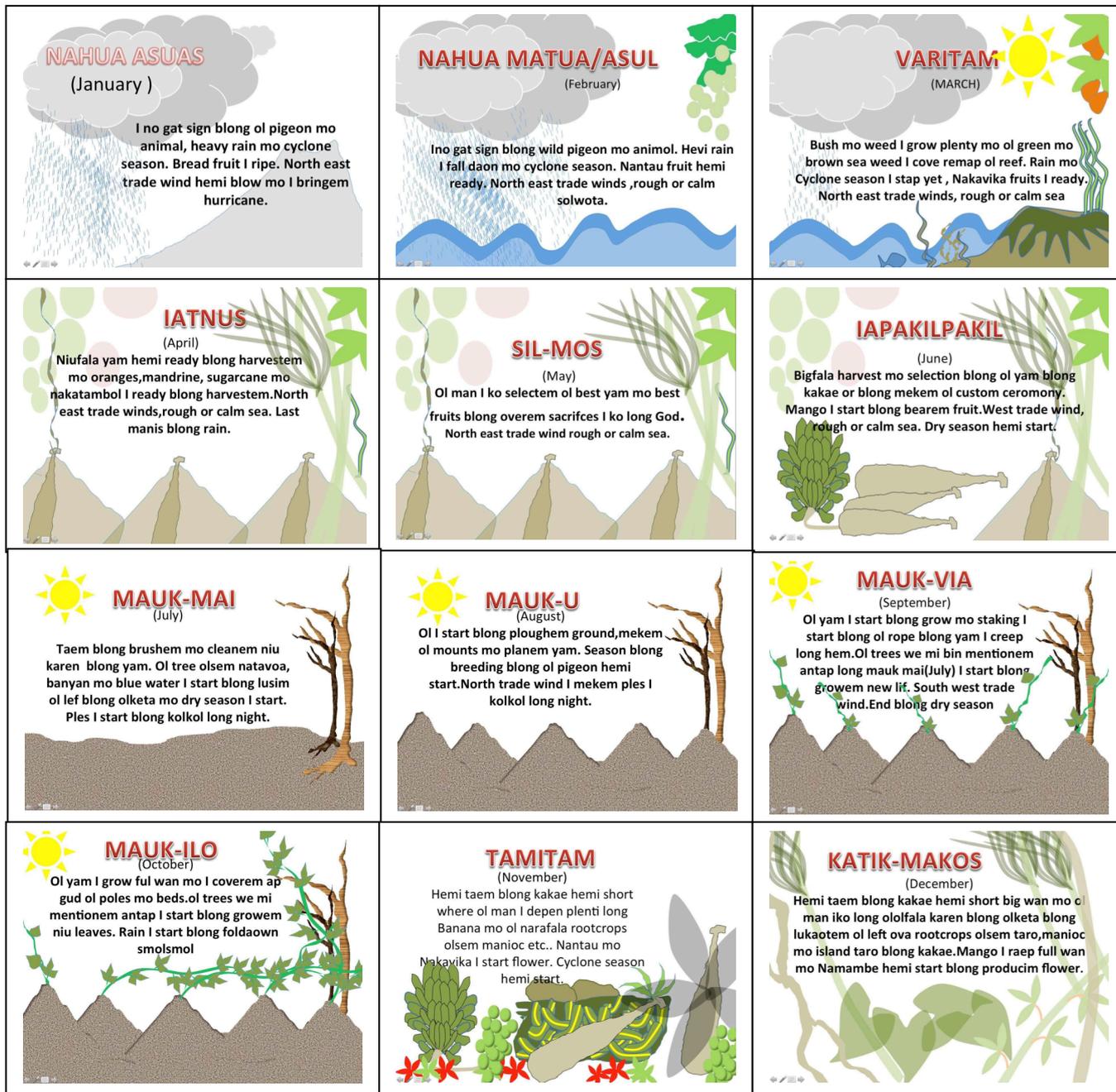
Here are two examples. The first, from Mota Lava, gives the traditional name of each month and states some of the natural happenings on land and in the sea. The second, from Tanna, is a traditional crop calendar that indicates agricultural activities and changes in climate.

Fig. 10: Traditional calendar from Mota Lava

Month	Traditional name	Happenings
January	<i>Wetgoi</i>	The wild cane is ready to bear flowers.
February	<i>Lemegtowowoh</i>	The wind opens the wild cane's top.
March	<i>Tetnamwon</i>	The wild cane opens its petals.
April	<i>Lemegdoidoi</i>	Wind blows constantly, causing wild cane to produce lots of noise.
May	<i>Bubultetdot</i>	Big high tide washes ashore many pieces of dirt and stone to a particular tree called <i>natoto</i> .
June	<i>Wuivegsa</i>	After the seashore was dirty from the previous high tide, another high tide occurs to clean the dirt from the shore.
July	<i>Napdodomol</i>	The trees bear new leaf.
August	<i>Taktakleingon</i>	Appearance of first palolo worms on the sea shore.
September	<i>Ningon</i>	The palolo worms reside in abundance on the sea shore and on the reefs but remain inedible as they are still considered sour.
October	<i>Ninyig</i>	The palolo worms are reduced in number. Only a few remain on the seashore and on the reefs.
November	<i>Ninlap</i>	The worms reappear but this time bigger than <i>taktakleingon</i> . These worms then become eatable.
December	<i>Ninwei</i>	People eat the palolo worms for the last time to say farewell to the old year.

Vanuatu Red Cross, undated, *Together, Becoming Resilient! DIPECHO Project: Traditional Knowledge* (Save the Children Australia, 2012, p. 37)

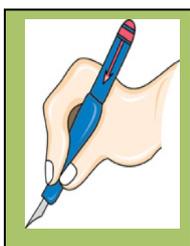
Fig. 11: Traditional crop calendar from Tanna



Willie Iau, Peter Iesul, Noel Stephen, DARD and SPC/GIZ (Save the Children Australia, 2012, p. 38)

Now think about your own community and island and reflect on these questions:

- Do you have a traditional calendar that guides agricultural, forestry or fishing activities?
- Is your traditional calendar linked to seasonal changes in weather that are shown by changes in the natural environment?
- Does your traditional calendar provide a natural way of adapting to disasters and climate change? Why do you say this?



Now please complete Activities 3.1a and 3.1b in your Learner Workbook

My Notes:

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Concepts	I understand this concept	Questions that I would still like to ask
3.1 Examples of TK that help communities in Vanuatu to become more resilient to geological and hydro-meteorological hazards: reading traditional signs of forthcoming drought, storms, earthquakes, etc.; using traditional calendars.		

Traditional food crop gardens in Vanuatu

Traditionally, a clan or group of families held an area of land, with individual members having rights to use, but not own, sections of that land. New gardens were cleared each year from the forest or bush using stone axes and fire. After clearing, a variety of crops were planted, with yam or taro as the main staple. The ground was carefully swept and weeded, with individual planting holes made with a digging stick. The garden was maintained until the yams or taro had been harvested, then allowed to revert to bush. As secondary forest developed, fertility was gradually restored on the old garden plot, and after 10 years or so, it could be used again. This is called the “bush **fallow**” system, “shifting cultivation”, or “slash and burn” agriculture.

This system of bush fallowing had many advantages:

“It maintained soil fertility, and prevented erosion and the build-up of plant pests and diseases. It allowed man to farm the land indefinitely and develop his intimate ... identity with it. The staple foods were taro and yam, and bananas, sugarcane and leaf vegetables were also grown. Fences were built around the gardens to protect them from the pigs and fowls that scavenged at liberty. Large surpluses of food were produced and used in exchanges with neighbouring groups to cement alliances or for barter. In a few places, ample water resources and the terrain allowed the development of intensive, irrigated taro systems. The hunting and gathering of pigeon, flying fox, wild fowl, wild pig, edible ferns, termites and many kinds of wild nuts and fruit, or prawns from streams and shellfish from the reef, inshore fishing and the harvesting of breadfruit and coconuts, provided security against famine following the severe hurricanes and drought which periodically destroyed the food gardens or **decimated** their yields.” (Weightman, 1989)



Fig. 12:

Food gardens cover the slopes above Lini Memorial College, North Pentecost

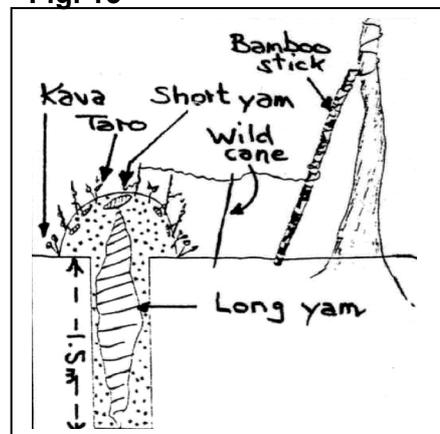


Pierce, C., 1989

Traditional gardening was carried out like this for centuries. On most of the larger islands of Vanuatu, traditional gardens in the coastal areas were different from those at higher altitudes.

In the coastal zone, people planted yam gardens surrounded by fences. They had extensive knowledge of how the different varieties of yam should be planted. In North Malakula (Fig. 13), the “long” yam was planted in a hole 1 – 2 metres deep, which was then filled with soft, crumbled topsoil until a mound 1 metre high was created; short yams (for food) were planted in this mound; the vines from the yams were trained along sticks of wild cane, with the vine from the “mama” yam following a bamboo stick and then a large tree (Bonnemaison, 1978).

Fig. 13



Pierce, C., 2010

On Ambae, yam gardens were cleared during July, at the start of the dry season. Women and children cleared undergrowth and secondary

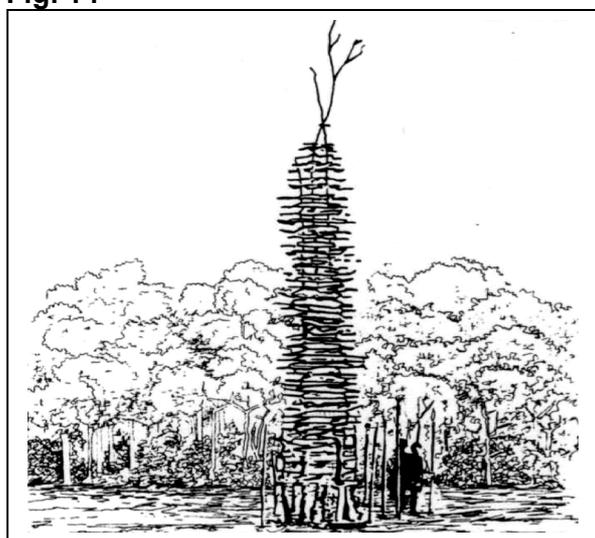
vegetation, while the men cut down the larger trees. After a month, the cleared vegetation was burnt, and the ground prepared for planting by careful weeding and use of the mineral-rich ashes. Yam heads were planted in deep holes and covered in topsoil and compost. After harvesting the yams the following April, the farmer let his garden go back to forest, although he would return from time to time to harvest the bananas, kava or wild yams. After 10 – 15 years, the land could be cleared again for gardening (Bonnemaison, 1973).

Yams have by far the best storing qualities of all food crops cultivated in Vanuatu. On Malakula, the traditional names of the months indicate that yams could be stored for up to 6 months without going bad or being consumed by rats. They could be eaten during the period from April to September, and were available for re-planting as “seed” yams or yam heads.

Fig. 14 shows a remarkable example of outdoor yam storage that was seen at Pongkil Bay, Erromango, in 1850. (Weightman, 1989)

At altitudes of over 300 metres, in the zone known as “*aute*” on Ambae, “*kut*” on Pentecost and “*mananapi*” on Tanna, the main crop was taro. Traditional taro cultivation was very similar to yam cultivation, in that it involved clearing of the forest and bush-fallowing.

Fig. 14



Vigors, P.D., 1850

However, taro can be planted and harvested at any time of year, unlike the yam, and is impossible to preserve for long periods. This meant that taro cultivation had to be continuous throughout the year, so that there would always be plants for harvesting. Several types of taro were cultivated - giant taro (for feasts and ceremonies), normal “island” taro or *taro colocasia*, water taro, and “taro Fiji”, which was introduced in the early 1900s. (Bonnemaison, 1973).

Taro was also grown, and is still grown, in irrigated gardens on higher ground. Water from a stream is diverted into a series of terraces, or steps, on which water taro has been planted. This practice is still carried out in parts of Pentecost and Maewo, in Santo Bush (Figs 15 and 16) and on other islands. Taro gardens on irrigated terraces last for many years, and there is no need to shift to another plot of ground. Because the slopes are terraced, the risk of soil erosion is removed.

Fig. 15: Irrigated taro garden, Forchenale, Santo Bush

Fig. 16: Giant taro from irrigated garden, Forchenale, Santo Bush



Pierce, C., 1987



Pierce, C., 1987

It is interesting to note that traditional gardening involved traditional agroforestry. Some tree species were always conserved when gardens were cleared. These species were slow-growth forest trees, fruit and nut trees, and trees of cultural or medicinal importance. As gardens aged, other domesticated tree species were planted, such as coconuts, bananas, breadfruit, mango and burao (for fences). There are many advantages in such forest management and re-planting: trees provide shade; protect soil from leaching and erosion; ensure the preservation of animal habitats; provide timber for housing and furniture; supply food, spices, medicines, wrapping materials and perfumes; and yield cultural resources (e.g. ferns for carving tamtams on Ambrym).

Traditional techniques of cultivation, animal husbandry and fishing

Cultivation

In addition to the traditional techniques of cultivation mentioned above, there are many others. Here is a quick summary:

- Bush-fallow system, or shifting cultivation. After clearing and burning the bush, a plot is cultivated for one or two years and is then left fallow for the bush to grow back and the soil to regain its fertility.
- Irrigated taro gardens on terraces cut into steep slopes.
- Agroforestry, with trees and food crops grown together.
- Special, often secret, techniques for planting and growing yams (Fig. 17)

- Using natural **mulch** and **compost** for fertilizing the ground and providing protection from climatic extremes.
- Planting a wide variety of crops in a small plot.
- Using simple wooden digging sticks rather than metal tools.
- Following an agricultural calendar that corresponded to seasonal changes in temperatures, rainfall and winds.
- Growing a **surplus** so that there would always be a supply of yams, kava, etc. for ceremonial purposes.



Fig. 17

**Traditional
yam garden
at Lamkail,
Tanna.**



Pierce, C., 1986

Animal husbandry

Traditionally, the main domestic animal was the pig, which was mainly reared for ceremonial purposes. In the northern islands of Vanuatu, men acquired pigs in order to participate in *nimangki* (grade-taking) ceremonies. In such ceremonies, only tusked boars or intersex pigs had value, and because grade-taking involved the sacrifice of large numbers of pigs, the men spent a lot of time in trading pigs, travelling from place to place and attending pig markets. In southern islands like Efate and Tanna, pigs were used for feasting, food exchanges and for the payment of women in marriage. In general, pigs roamed free, and were very useful for scavenging in and around the villages, although gardens were always protected by strong fences. Pigs were usually kept very close to the houses of their owners, and carefully fed and fattened up ready for ceremonies. They were not kept in small pens, like today. Certain varieties were bred because they could tolerate extreme events such as very hot days, drought or flooding.

Poultry were also kept, and almost every family in a village would have bush fowls for subsistence purposes - usually for meat and not for eggs. They were small, hardy and able to exist by scavenging. Some varieties were resilient to climatic extremes. Cattle, sheep and goats were only reared after the arrival of Europeans in Vanuatu.
(Weightman B., 1989)

Fishing

Traditional fishing techniques ensured that there was always a balance between population and resources. Some of the techniques were as follows:

- Putting a taboo on certain fishing areas to allow fish stock to increase again.
- Having a fixed season for fishing and a closed season when no-one could fish.
- Traditional rules that only allowed certain fish species to be eaten by chiefs or spiritual leaders in the village.
- Only using lines, traditional spears or small nets, so as to reduce the number of fish caught at any one time.
- Blocking streams with stones to catch river fish and namarai.
- Taking advice from “master fishermen” who knew the best places and times to catch fish.
- Using traditional traps for fish and shellfish
- Using poison from the “fish poison tree” and other natural sources.
- Undertaking deep-sea fishing on sailing canoes, for example around Aneityum and around the Maskeleyne islands of Malakula.
- Imposing fines on those who broke taboos or other fishing restrictions.



Fig. 18:
Traditional naura trap, Futuna



VKS/UNDP, undated



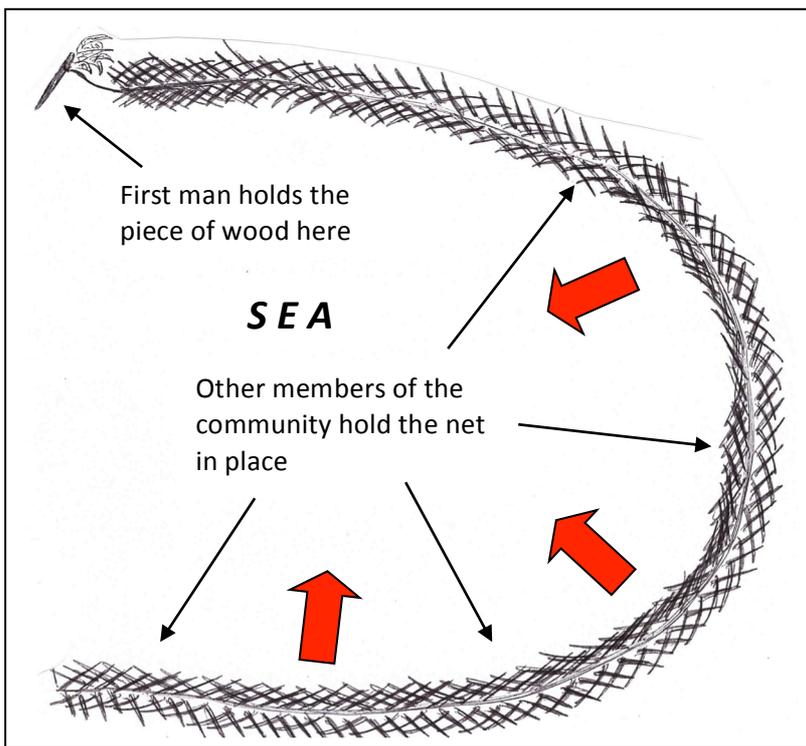
Fig. 19:
Traditional sailing canoe near Peskarus, Maskelyne islands, in 1979



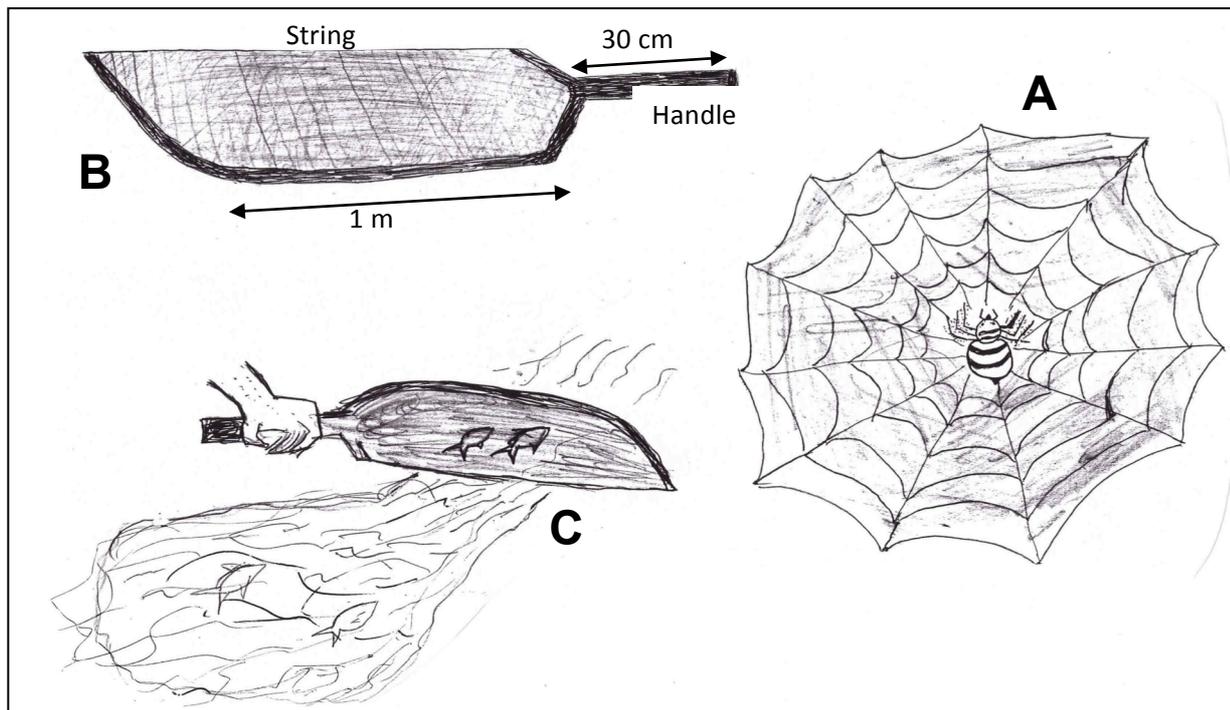
Pierce, C., 1979

Fig. 20: Examples of traditional fishing techniques still being used in the Banks Islands

Traditional net fishing on Mota Lava. The net is made of coconut leaves. One man goes in front and holds the net with a piece of wood. Others follow behind him, carrying bows and arrows. They form a semi-circle in the sea. Gradually the people move inwards, trapping any fish swimming inside. They then kill all the fish with bows and arrows. Everyone in the community takes part. The traditional net is then carried back to the shore for use on another day.



George Hardy, Fisher Young RTC



Enry Womal, Fisher Young RTC

Traditional spider web fishing net used on Mota. The fisherman goes into the bush and collects spiders' webs (A) using a net. The webs join together in the net to produce a strong sticky substance that can be used to catch fish (B). The fisherman finds a place where the sea water rushes in and out of a small pool. He holds the net by its handle at the entrance to the pool (C) and catches the fish as the current moves them in or out.

Traditional methods of food preservation

In the past, all communities had to find ways of surviving cyclones, earthquakes, volcanic eruptions, tsunamis, flooding, drought and other natural hazards. Our ancestors developed ways of ensuring that food would be available during and after such disasters. These traditional techniques of **food preservation** are still very useful today and will be important in the future as our climate changes and extreme weather events become more common.

In Unit CCDRR05 you learnt about some of these traditional methods of food preservation. Two examples are the way that people on Futuna preserved bananas and those in the Banks islands preserved breadfruit several months before the cyclone season, ready for use when strong winds and heavy rain destroyed their crops. These methods are still used today.



The traditional Futunese method is as follows: A ripe head of bananas is selected from the garden and then harvested. On the same day, the bananas are mashed into a

pulp using a clam shell or spoon, then put into a dish. The pulp is then wrapped inside laplap leaves (Fig. 21) and placed in a local basket woven from coconut leaves. Holes in the basket allow liquid from the pulp to drain away. The banana mix is left to hang in this basket for 14 days, until it is dry.

Fig. 21

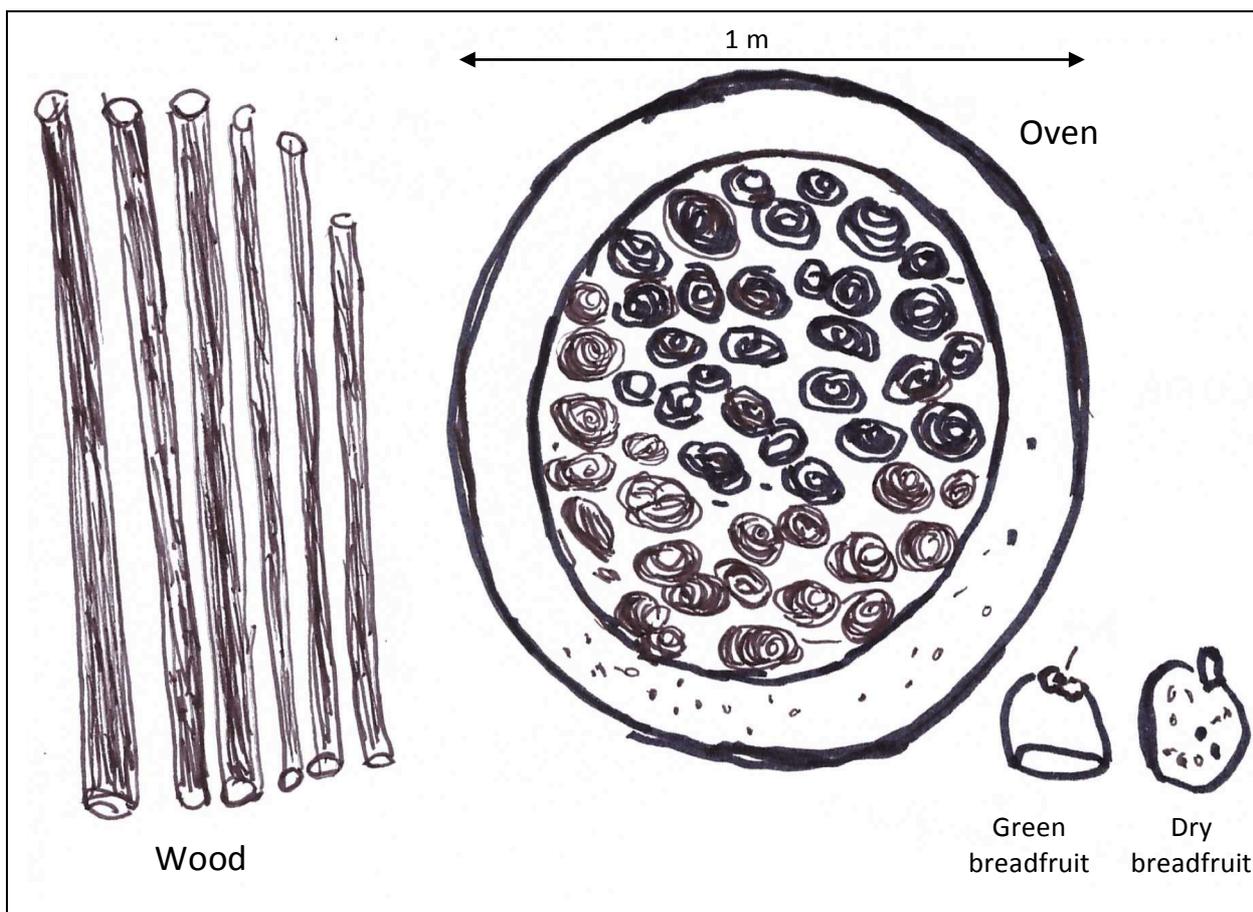


DARD, 2013

Meanwhile a large hole is dug in the ground ready to receive the banana pulp. Before placing it in the hole, the pulp is mixed with fresh water to ensure that it is free from smell and there is no longer any of the old banana water present. Coconut leaves are placed inside the hole in a special way, and covered in laplap leaves. The banana pulp is tipped on to the bed of leaves and mixed with more water. Then more leaves are placed on top and covered again with stones. The banana pulp will now be preserved for 7 months, after which the coconut and laplap leaves must be replaced. If required, the banana can now be harvested. It will smell, but if mixed with coconut scrapings will taste like banana again. It can be roasted and eaten. (DARD / SPC-GIZ CCCPIR)

Other traditional techniques of **food preservation** include the drying of yams and fish in the sun, or using smoke; preserving breadfruit using a technique from the Banks and Torres islands (Fig. 22); and preserving fish on Futuna using the “putangi” method. As mentioned under “traditional food crop gardens”, yams are root crops that can be stored for many months after harvesting, so traditionally, it was important to plant as many yams as possible to ensure a good food supply when disasters struck.

Fig. 22: Preservation of breadfruit in the Banks islands



How to prepare dried breadfruit:

1. Prepare an oven and make a fire.
2. Roast the green breadfruit.
3. Peel off the outside skin of the breadfruit.
4. Make a hole in the middle of the roasted breadfruit so that that the heat can pass through and the breadfruit can dry more quickly.
5. Remove the seeds and the stalk of the breadfruit.
6. Put the wood on top of the oven and lay the breadfruit on top.
7. Cover with leaves and a bag.
8. Allow the breadfruit to dry over a period of three days.
9. The dried breadfruit can last for many years if further heating is applied.

Yoko Adams, Fisher Young RTC



Now please complete Activities 3.1c, 3.1d, 3.1e and 3.1f in your Learner Workbook

My Notes:

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Concepts	I understand this concept	Questions that I would still like to ask
3.1 Examples of TK that help communities in Vanuatu to become more resilient to geological and hydro-meteorological hazards: traditional food crop gardens; traditional methods of cultivation, animal husbandry and fishing; traditional methods of food preservation.		

Traditional building designs

Traditional building designs were adapted to **minimize** damage from cyclones. By having very low walls and roofs that reached almost to the ground, strong winds would flow over the house without lifting off the roof. Many traditional leaf and wooden houses in rural areas of Vanuatu still show these designs.



Fig. 23:

House in Forchenale, Santo Bush. The building is supported by two thick posts that extend 3 metres into the ground.



Pierce, C., 1987

In areas that suffer from volcanic eruptions, such as the Whitesands and Middle Bush areas on Tanna, traditional houses have roofs strengthened by using rafters made of hardwood, with the rafters placed much closer together than in normal houses. With such adaptations, a house is better able to support the weight of ash falls. (Jimmy Tom, 2014).

In terms of earthquakes, there is evidence that traditional leaf houses are more flexible than brick or concrete buildings, so will move from side to side during the earthquake and have less chance of collapsing. The siting of houses is also important. If the building can be constructed in a place where the underlying rock is limestone, it may be more secure from earthquakes than a building constructed on volcanic ash or sand. (Eslyne Garaebiti, 2014).

In terms of temperature, traditional houses made of bush materials are certainly much cooler than “western” houses during periods of extreme heat.

Protection from erosion on slopes

Once vegetation has been cleared on sloping land, there is the risk of **soil erosion**. Some of the traditional ways of reducing this erosion were as follows:

- Planting trees or bushes at right angles to the direction of slope.
- Placing logs or branches at right angles to the direction of slope.
- Cutting terraces into the slope, either for irrigated taro gardens, or for growing taro without irrigation.



Fig. 24
Land cleared for gardens on the slopes above Liro, Paama. Coconut branches are placed at right angles to the slope.



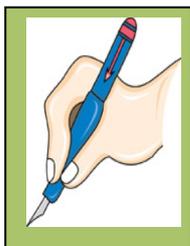
Pierce, C., 1979

Traditional taboos and conservation areas

See Section 2.2 (page 19)

Traditional community support systems

We must always remember that traditional communities had various support systems that enabled them to be resilient to disasters. Ceremonies and reciprocal exchanges of yams, pigs, kava and mats, meant that all community members were linked together. When disasters arrived, it was natural for everyone to support and help everyone else. Chiefs ensured that traditional wealth was shared out between community members (UNESCO, 2013), and that no-one would suffer more than others after a hazard had destroyed housing and food supplies. In contrast, some families today think only of their own needs.



Now please complete Activities 3.1g and 3.1h in your Learner Workbook

My Notes:

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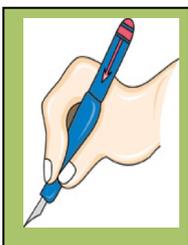


Concepts	I understand this concept	Questions that I would still like to ask
3.1 Examples of TK that help communities in Vanuatu to become more resilient to geological and hydro-meteorological hazards: traditional building designs; protection from erosion on slopes; traditional taboos and conservation areas; traditional community support systems.		

3.2 Producing a traditional calendar for the local community

You have already seen that one of the ways in which local communities were adapted to natural hazards and climatic change was to follow a traditional calendar that guided their activities. In this way, they could live in balance with their environment.

Now you are given the opportunity to do some research and produce a traditional calendar that is appropriate for your local community.



Now please complete Activity 3.2 in your Learner Workbook

My Notes:

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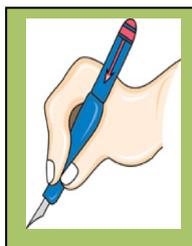
Concepts	I understand this concept	Questions that I would still like to ask
3.2 Traditional calendar for the local community.		

Section 4 Demonstrate some traditional techniques that foster greater resilience to risks from hazards and climate change

After completing this section, you should be able to:

4.1 use the help of a local expert to learn how to demonstrate one or more of the following traditional techniques: reading animal behavior and other natural weather/climate signs; food preservation; building design and construction; cultivation and fishing; protection from erosion on slopes; establishment of traditional taboos and conservation areas.

In Section 3 of this Unit, you learnt about some of the traditional techniques that enabled people and communities to be more resilient to hazards. Now you are going to find out how to demonstrate some of these techniques to others.



Please complete Activity 4.1

My Notes:

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Concepts	I understand this concept	Questions that I would still like to ask
4.1 Demonstration of traditional techniques that foster resilience to hazards and climate change.		

Section

5

Promote the use of traditional knowledge in a local community

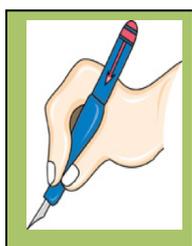
After completing this section, you should be able to:

- 5.1 use a simple questionnaire to find out about some of the traditional knowledge relating to hazards and climate change that already exists in a local community, e.g. weather/climate indicators and building design;**
- 5.2 consult with owners of this traditional knowledge to find ways in which the TK can be used to promote greater resilience in the community to hazards and climate change, and help the community to become more aware of at least one of these TK measures.**

5.1 Researching TK in a local community

In this section, you will continue with some practical activities that use traditional knowledge to help to build up more resilience in the local community.

Your first task is to conduct a survey in a local community to find out some of the traditional knowledge relating to hazards and climate change already exists in the community. You can use the simple questionnaire that has been provided in your Learner Workbook. Alternatively, you can make up your own questionnaire with the help of your facilitator.



Please complete Activity 5.1

My Notes:

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Concept	I understand this concept	Questions that I would still like to ask
5.1 Using a questionnaire to find out TK that already exists in a local community.		

5.2 Consulting with a local community on the use of TK to promote

greater resilience

Now that you have completed your survey, you will have a better knowledge of the TK concerning disasters and climate change that is already available. You will probably find that not everyone has access to this TK.

You are now encouraged to work with your facilitator to consult with owners of TK in the community regarding the traditional techniques that might be introduced more widely into the village in order to make it more resilient to hazards and climate change. You can then help the whole community to become more aware of one or more of these techniques, and even help with the implementation, if TK owners and the community agree. Perhaps some of these techniques were already shared with the community when your class did the activities in Unit CCDRR05. But this time, the focus is on traditional methods that may be dying out, and which you are helping to re-introduce.

Remember that access to traditional knowledge is a sensitive matter. You must proceed with care and respect, always listening to the wishes of the community.

It is hoped that you can help the community to become more aware of at least one or two traditional measures that will make them more resilient to the impacts of future hazards and climate change.



Please complete
Activity 5.2

My Notes:

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Concept	I understand this concept	Questions that I would still like to ask
5.2 Consultation with owners of TK and with the community regarding one or more traditional techniques that might be introduced into the community.		

Glossary

Adaptation to climate change	How people adjust their ways of living in order to cope with the harmful effects of warmer temperatures and other climatic changes, as well as to benefit from new opportunities that arise.
Agroforestry	Way of combining forestry with agriculture. Trees and crops are grown together in such a way that the trees help the crops to grow.
Alley cropping	Planting trees or shrubs in two or more rows, with crops cultivated in the alleys or spaces in between.
Biodegradable	Substance that will naturally rot or decompose
Biodiversity	The variety of plant and animal life in a particular area, or in the world. The large number of plant and animal species that are found.
Climate change	Long term continuous change in the climate or in the range of weather (e.g. more extreme events), measured over several decades, hundreds of years or millennia, and supported by statistical evidence
Compost	Natural fertilizer made from rotting plants
Custodian	Person who is looking after something, to keep it secure and safe.
Decimated	Most of it (90%) has been destroyed
Degradation	When something loses its quality, or is spoilt.
Ecosystem	A group of living organisms and non-living elements of the environment that are found together and affect each other.
Fallow period	Time when a piece of land is left unused and uncultivated so that vegetation can grow back again and the soil can regain its fertility
Food preservation	Way of keeping food so that it does not go rotten or decompose.
Food security	When all people at all times have access to sufficient, safe, nutritious food that enables them to maintain a healthy and active life.
Forest conservation	Planting and maintaining forested areas for the benefit of future generations.
Geological hazard	Hazard caused by plate tectonics and the release of magma from under the earth's surface.
Hazard	Something natural or human-made that may cause disruption or damage to life, property and/or the environment
Husbandry	Care, cultivation and breeding of crops and animals.
Hydro-meteorological hazard	Hazard caused by weather and water systems - cyclone, storm, depression, intense rainfall event, flood, erosion, strong winds, drought

Impact	How something affects or causes a change in something else; how hazards and climate change affect natural ecosystems and human societies.
Implementation	Carrying out a decision or a plan.
Indicator	A sign that something is happening.
Irrigation	Artificial application of water to the soil, done by taking water from one place and letting it flow to another place that does not have water.
Livelihood	Ways in which a person obtains or meets his/her basic needs in life - food, water, shelter, clothing etc.
Living sustainably	Meeting present needs without spoiling things for future generations.
Minimize	Reduce something to the smallest possible amount.
Mulch	Layer of natural rotting vegetation that is spread around crops or flowers to help them to grow.
Negative effect	An impact that causes damage, harm or distress.
Preservation	Keeping something in its original state or in good condition.
Prohibited	Forbidden
Protocol	Set of rules that must be followed.
Resilience	Ability of a person, household or community to cope with hazards, to prepare for hazards and climate change, and to recover from disasters that occur.
Resilient	Able to cope with, and recover from, injury, stress or damage.
Sensitivity	Being aware of someone's feelings; being careful in how you speak or act, in case your words or actions upset or harm that person.
Soil erosion	Removal of the top layer of soil by rain, running water or wind.
Surplus	Extra amount. More than is needed.
Sustainable	Can be kept at a certain level, or at the same level, in the future.
Sustainable development	Using natural resources without spoiling the ability of future generations to meet their own needs; economic development that takes place without using up natural resources.
Sustainable livelihood	Ways in which a person or a community is able to meet their basic needs for food, water, shelter, etc., and at the same time can cope with stress and shocks and provide opportunities for the next generation.

Taboo (tabu in Bislama)	Social or religious custom prohibiting or restricting a particular practice or forbidding association with a particular person, place or thing.
Technique	Method or way of doing something.
Traditional knowledge (TK)	Information and beliefs regarding the relationship of living things to one another and their surroundings.
Traditional food garden	Age-old method of clearing and burning the forest to establish a small plot of land where a variety of different food crops can be grown for one or more years, then abandoning this plot so that it can be left in fallow to regain soil fertility and moving on to clear and cultivate another small plot of land.
Transmission	Passing something from one person to another
Urbanization	The way that more and more people are moving to live in towns; the way that more and more of a country's population is living in the towns rather than in rural areas.
Vulnerability	The extent to which persons, families or communities are likely to suffer from a hazard or from the effects of climate change because they lack the capacity to cope and adapt.
Vulnerable	Easily hurt, affected or damaged.

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Illustrations

Fig. number	Source
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