

Learner Guide

Certificate I in Climate Change and Disaster Risk Reduction

Units 10 & 11: CGRM0316 & CGCA0416

Demonstrate knowledge of
disaster risk reduction and climate
change mitigation and adaptation

Promote community action to
prepare for climate change and
disaster risk reduction



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(SPC & GIZ, 2014)

Copyright information



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Introduction

This Learner Guide supports the units of competency CGRM0316 (*Demonstrate knowledge of disaster risk reduction and climate change mitigation and adaptation*) and CGCA0416 (*Promote community action to prepare for climate change and disaster risk reduction*), which specify knowledge, skills and attitudes associated with learning about actions that communities can take to become more resilient to disasters and climate change. These units are the tenth and eleventh in a series of eleven units that comprise a 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 VQA 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.

The tenth unit, CGRM0316, defines the standard required to: outline common natural hazards; demonstrate knowledge of disaster risk reduction; apply the elements of disaster risk reduction to a real life disaster; outline ways of preventing and mitigating disaster risks; and review measures for adapting to climate change and mitigating greenhouse gas emissions. The eleventh and last unit, CGCA0416, defines the standard required to: outline steps to mobilize communities for climate change adaptation and disaster risk reduction; outline ways in which government agencies and NGOs can help communities to prepare for climate change and disaster risk reduction; and prepare action plans at local level for reducing risks from disasters and climate change.

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 SPC-EU PacTVET and the SPC/GIZ's Coping with Climate Change in the Pacific Island Region (CCCPIR) programme. 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 these unit standards:

Title: Demonstrate knowledge of disaster risk reduction and climate change mitigation and adaptation

VQA Level: 2

Credits: 3

Title: Promote community action to prepare for climate change and disaster risk reduction

VQA Level: 2

Credits: 3

The full unit standards will be handed to you by your trainer/facilitator. Please read them in your own time. Whilst reading the unit standards, make a note of your questions and aspects that you do not understand, and discuss them with your trainer/facilitator.

These unit standards are two 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	VQA Level	Credits
Certificate I in Climate Change and Disaster Risk Reduction	1 & 2	46
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.....

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/ trainer/ facilitator will discuss the unit standard with you.

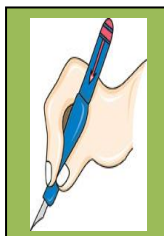
Enjoy this learning experience!

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

Competency/skill	Example of application
Initiative	<p>Adapting to new situations • developing a strategic long-term vision • being creative • identifying opportunities not obvious to others • translating ideas into action • generating a range of options • initiating innovative solutions</p> <ul style="list-style-type: none"> • <i>Initiate and carry out enquiries into a recent disaster event in Vanuatu and the DRR measures that were taken.</i> • <i>Work with the local community to develop and/or monitor action plans for reducing vulnerability to disasters and the impacts of climate change.</i>
Communication	<p>Verbal or non-verbal that includes: • speaking clearly and directly • writing to the needs of the audience • understanding the needs of internal and external parties • persuading effectively • establishing and using networks</p> <ul style="list-style-type: none"> • <i>Present information both visually (using hand-drawn illustrations and technology) and verbally to individuals and groups on traditional methods of preventing and mitigating disaster risks; the meaning of preparedness, response and recovery; DRR in a recent natural event; and key hazard messages promoted by CDCCCs, government and NGOs</i>
Teamwork	<p>Working with people of different ages, gender, race, religion or political persuasion • working as an individual and as a member of a team • knowing how to define a role as part of a team • applying teamwork skills to a range of situations</p> <ul style="list-style-type: none"> • <i>Work in a team to analyse DRR measures in a real life disaster.</i> • <i>Work with another person to learn new techniques of adaptation and mitigation.</i> • <i>Work in a team to prepare a proposed action plan for a local community and consult on this with representatives of the local community, including both men and women.</i>
Information & Communication Technology	<p>Having a range of basic IT skills • applying IT as a management tool • using IT to organise data • being willing to learn new IT skills • having the occupational health and safety knowledge to apply technology • having the appropriate physical capacity</p> <ul style="list-style-type: none"> • <i>Use the internet and community/local area survey questionnaires to access data on recent disasters affecting Vanuatu, the mitigation of disaster risks and adaptation to climate change.</i>

	<ul style="list-style-type: none"> • <i>Use mobile phones for taking photographs of mitigation and adaptation strategies being used in the community.</i> • <i>Use phones, email and social media to access information from NDMO, VMGD and other agencies concerned with disasters and climate change in Vanuatu.</i>
Problem solving	<p>Developing creative, innovative solutions • developing practical solutions • showing independence and initiative in identifying problems solving problems in teams • applying a range of strategies to problem solving • applying problem-solving strategies across a range of areas</p> <ul style="list-style-type: none"> • <i>Work with each other to analyse risk maps on volcanic eruptions and cyclones.</i> • <i>Work with each other and the local community to devise and implement a suitable action plan for reducing risks from disasters and adapting to climate change</i>
Self-management	<p>Having a personal vision and goals • evaluating and monitoring own performance • having knowledge and confidence in own ideas and vision • articulating own ideas and vision • taking responsibility</p> <ul style="list-style-type: none"> • <i>Reflect on knowledge and understanding of disaster risk reduction and climate change mitigation and adaptation, ready to prepare for the development of appropriate needs-based action plans.</i> • <i>Seek advice from others and readily express own views in discussions that are based on personal experiences, in order to inform planning and learning about disaster risk reduction at a community level.</i>
Planning	<p>Managing time and priorities – setting timelines, coordinating tasks • being resourceful • taking initiative and making decisions • establishing clear project goals and deliverables • allocating people and resources to tasks • participating in continuous improvement and planning • developing a vision and a proactive plan to accompany it</p> <ul style="list-style-type: none"> • <i>Devise plans for teaching a fellow learner about a technique of adaptation to climate change or mitigation of climate change.</i> • <i>Devise an action plan for helping a community to reduce risks from disasters and adapt to climate change.</i> • <i>Organise people, documents, transport and other variables in order to plan visits to communities to help them formulate and implement/monitor lines of action for developing greater resilience to disasters and climate change.</i>

Learning (gaining new skills and knowledge)	<p>Managing your own learning using a range of learning options suited to the individual learning style– mentoring, peer support, networking; • having enthusiasm for ongoing learning; • being willing to learn in any setting • being open to new ideas and techniques • being prepared to invest time and effort in learning new skills</p> <ul style="list-style-type: none"> • <i>Participate willingly in group discussions to share knowledge of strategies for disaster risk reduction, climate change mitigation, and climate change adaptation.</i> • <i>Participate willingly in group discussions to share knowledge and engage in planning to prepare action plans to help communities to better prepare for, and manage, vulnerability to disaster risks and climate change.</i>
GESI (Gender Equity and Social Inclusion)	<p>Valuing and supporting women and disadvantaged persons and equal opportunity for all in workplaces and communities • mentoring younger people • valuing and respecting older people • having respect for different cultural, social, religious and political values</p> <ul style="list-style-type: none"> • <i>Ensure that discussions and practical work are inclusive of both male and female perspectives on the reduction of disaster risks and adaptation to climate change.</i> • <i>Ensure that cultural and traditional knowledge is reflected in action plans for reducing community vulnerability to disasters and climate change.</i>

What am I going to learn?

- Section 1: Outline common natural hazards
- Section 2: Demonstrate knowledge of disaster risk reduction
- Section 3: Apply the elements of disaster risk reduction to a real life disaster
- Section 4: Outline ways of preventing and mitigating disaster risks
- Section 5: Review measures for adapting to climate change and mitigating GHG emissions
- Section 6: Outline steps to mobilize communities for climate change adaptation and disaster risk reduction
- Section 7: Outline ways in which government agencies and NGOs can help communities to prepare for climate change and disaster risk reduction
- Section 8: Prepare action plans for reducing risks from disasters and climate change

What do I need to know?

Before you start these two units, you should:

- have knowledge and skills acquired through the completion of the previous nine units of competency;
- have knowledge and experience of the impacts of disasters and climate change, and of some of the measures that might be taken to reduce the negative effects of these impacts.
- have knowledge of a local community, especially in terms of leadership structure, cultural and religious practices, and livelihoods
- have basic skills in mapping and the construction and interpretation of graphs and diagrams

What are my learning outcomes?

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

- summarize the common hazards affecting Vanuatu;
- explain the meaning of disaster risk reduction and its main elements;
- apply the elements of disaster risk reduction to a real life disaster;
- describe ways of preventing and mitigating disasters;
- summarize measures for adapting to climate change and mitigating GHG emissions at a community level;
- describe steps that communities can take to better organize and mobilize themselves for climate change adaptation and disaster risk reduction;
- describe ways in which government agencies and NGOs can help communities to prepare for climate change and disaster risk reduction;
- work with a local community to prepare action plans for reducing risks from disasters and climate change.

Introduction to the Unit

You are about to start on the tenth and eleventh Units of the Certificate I course on Climate Change and Disaster Risk Reduction. You have already completed seven Units at Level 1, and these two Units, CGRM0316 and CGCA0416, are the third and fourth at Level 2 in this course. In these two Units, you are going to find out more about how to promote community action and mobilization for climate change and disaster risk reduction. Our experiences during “monster” cyclone Pam showed us the importance of this mobilization.

In Unit CGHR0116 you studied the natural hazards that affect Vanuatu and other parts of the Pacific region and the risks they bring to people and the environment. You also learnt that actions can be taken to help a community to reduce the dangers brought by these hazards. In Units CGCK0216 and CGCV0316 you became aware of the main features of Vanuatu’s climate and its drivers, and looked at the nature of climate variability and climate change. Units CGCC0416 and CGCE0516 helped you to understand 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. Measures to mitigate greenhouse gas emissions and to adapt to climate change were dealt with in Units CGMC0616 and CGCA0716. The negative impacts of these climatic changes on ecosystems and human livelihoods and development were covered in Unit CGHV0116, and in Unit CGCR0216 you saw how community resilience to disasters and climate change can be strengthened by using many aspects of traditional knowledge.

These two Units build on the learning gained from all previous Units. They focus on both disasters and climate change, and further expand on the government and community structures already in place to prepare people for future hazard events.

You will begin by reviewing the common hazards that affect Vanuatu and explaining the elements of disaster risk reduction. You will learn how apply these elements to a real life disaster. You will then look at ways of preventing and mitigating the impacts of disasters, reviewing traditional and modern methods that we covered in previous Units. Following this, you will review past learning on adaption to, and mitigation of, climate change.

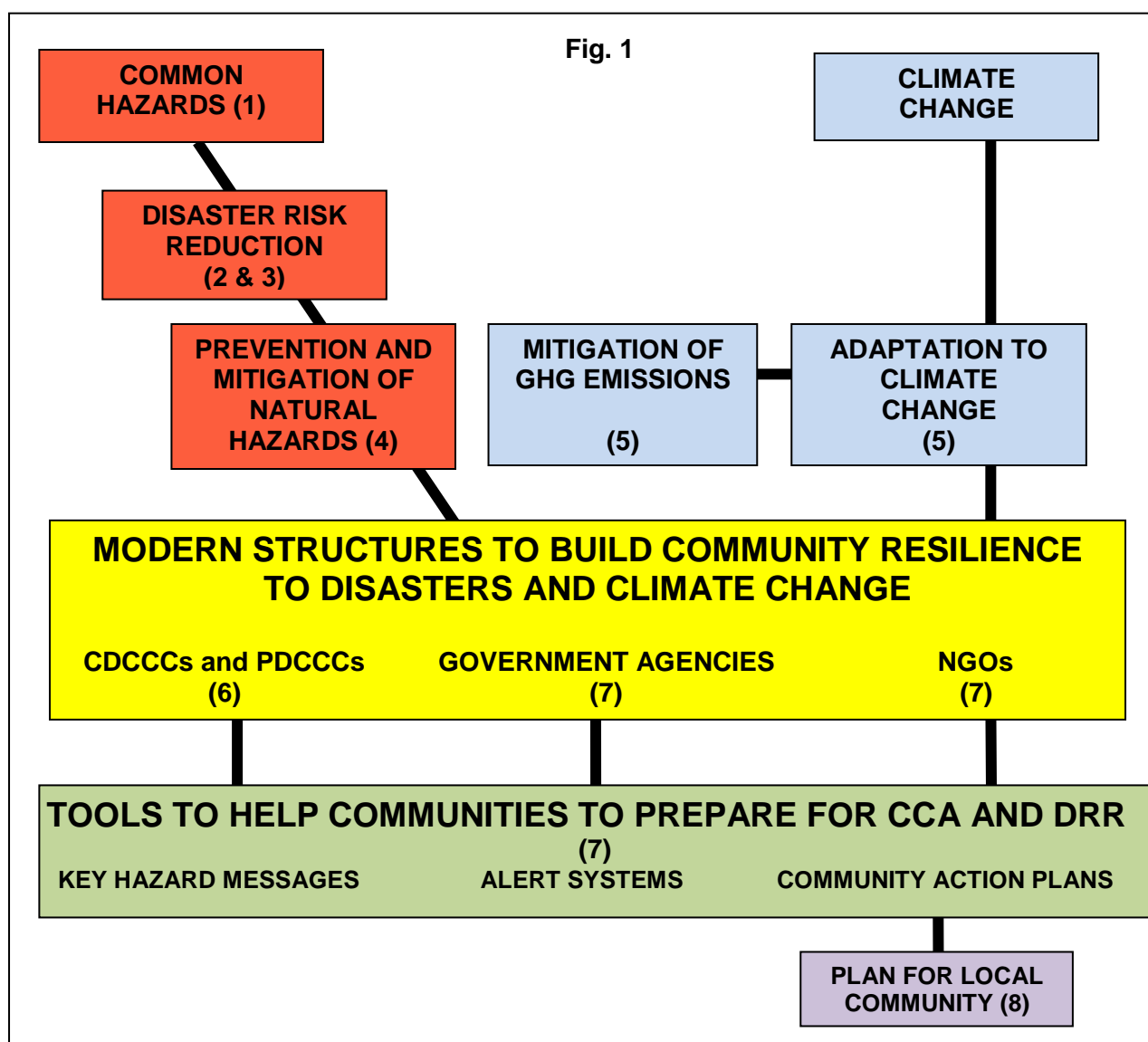
You will then look at modern structures that help communities to better organize and mobilize themselves for both disaster risk reduction and adaptation to climate change. These range from Community Disaster and Climate Change Committees (CDCCCs) to the National Disaster Management Office and the National Advisory Board on Climate Change and Disaster Risk Reduction (NAB), other government agencies, NGOs, and assistance provided by aid-donor and development agencies.

You will discover some of the tools that are available to help communities to prepare for climate change and disaster risk reduction, including key hazard messages, early warning systems, the NAB portal, the annual Climate Zone quiz, mobile phones and Facebook.

Finally, you will put all your learning into practice by working with a local community to prepare action plans for reducing risks from disasters and climate change.

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

This diagram (Fig. 1) shows how the content of these two Units has been organized. Numbers refer to Sections 1 to 8 in this Learner Guide:



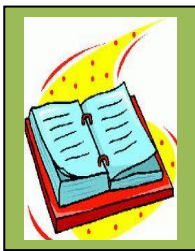
Section 1 Outline common natural hazards

After completing this section, you should be able to:

- 1.1 state common types of natural hazard found in Vanuatu and give an actual example of each.

1.1 Common natural hazards affecting Vanuatu

The National Disaster Management Office gives us the following definitions:



A **hazard** is something natural or human-made that may cause disruption of, or damage to, life, property and/or the environment.

A **disaster** occurs when a hazard strikes a community and the resulting level of impact exceeds the affected community's ability to respond and allow the community to get back to normal.

Disaster risks are impacts that could happen to life, property and/or the environment if a hazard strikes a community. (NDMO, 2014)

Vanuatu is very **vulnerable** to natural hazards. Because it is situated along the Pacific "Ring of Fire", there is a constant risk of earthquakes, volcanic eruptions, ash falls, tsunamis and landslides. According to the Vanuatu Meteorology and Geohazards Department, Vanuatu's annual cyclone season lasts for six months. El Niño and La Niña weather patterns increase risks of droughts and floods. Impacts of climate change and sea level rise can already be seen in the islands, with Vanuatu having some of the world's first "climate change refugees". In the future, the risks of very hot days, intense cyclones, coastal flooding, coastal erosion, heavy rainfall events, droughts, ocean acidification and loss of biodiversity are predicted to increase.

In a report from a meeting of Small Island Developing States (SIDS) published in 2014, this statement was made:

"In sum, Vanuatu is ranked the world's most vulnerable country out of 111 developing countries assessed using the Commonwealth Vulnerability Index."

(SIDS, 2014)

Fig. 2: Sea level rise near Saratamata, East Ambae



Pierce, C., 2007

You can refresh your learning about natural hazards and their impacts by referring back to Unit CGHR0116.



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

My Notes:

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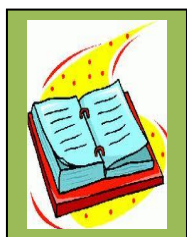
Concept	I understand this concept	Questions that I would still like to ask
1.1 Common types of hazard and an actual example of each.		

Section 2 Demonstrate knowledge of disaster risk reduction

After completing this section, you should be able to:

- 2.1 explain the meaning of “disaster risk reduction” (DRR);
- 2.2 construct a large diagram to show the main elements of DRR (preparedness, response and recovery);
- 2.3 explain the meaning of each of these three elements, with some examples.

2.1 Definition of disaster risk reduction (DRR)



According to the National Disaster Management Office, **disaster risk reduction** refers to all aspects of **prevention, mitigation, preparedness, response** and **recovery** that a community may decide to undertake in order to reduce present and future hazard impacts.

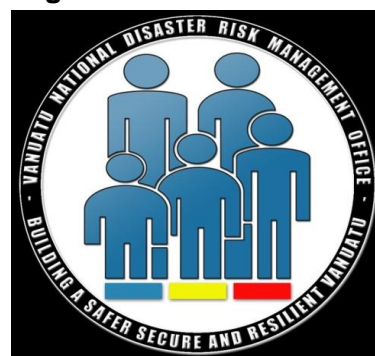
In other words, disaster risk reduction means the actions that a community takes to reduce dangers caused by the arrival of a hazard. It may not be able to stop the hazard from coming, but it can take steps to ensure that there is less damage or loss of life.

The three following elements are considered essential in disaster risk reduction:

- Preparedness: Taking steps to prepare for the hazard before it arrives.
- Response: Actions taken during the time of the hazard.
- Recovery: Helping the community to get back to normal after the hazard.

The main government agency for coordinating disaster preparedness, response and recovery operations in Vanuatu is the National Disaster Management Office (Fig. 3). It works alongside local and international NGOs to **coordinate** disaster risk reduction and **disaster risk management** programmes to reduce community vulnerability to natural disasters throughout the islands of Vanuatu (NDMO website, 2014).

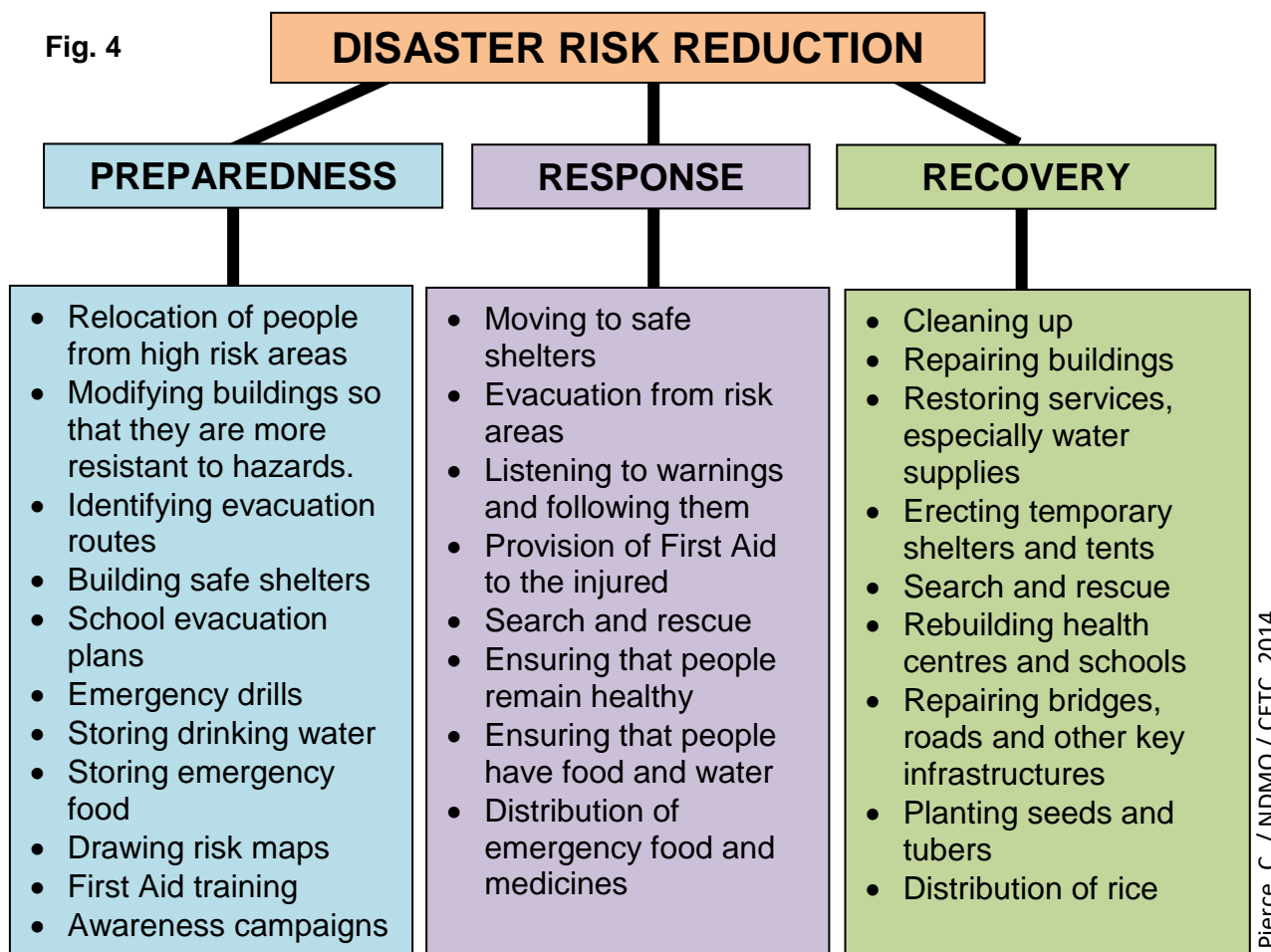
Fig. 3



NDMO, 2014

2.2 Diagram to show three important elements of disaster risk reduction

Fig. 4



2.3 The main elements of disaster risk reduction – nature and examples

Preparedness

According to Vanuatu's National Disaster Management Office, preparedness also includes prevention and mitigation. **Prevention** means either stopping the hazard from happening or being able to reduce vulnerability to its impacts. An example is the relocation of a vulnerable coastal village to an area further inland, as happened on Tegua island in 2005. **Mitigation** refers to measures to make the hazard impact less severe. An example is the modification of buildings so that they can stand up to hazards, for instance by strengthening roofs against ash falls, or by constructing houses on stilts to avoid flooding (Fig. 5) , or by fitting cyclone shutters.

Another aspect of preparedness is called **risk transfer**. It means that communities take steps to ensure that any economic losses are shared by the whole community, for example by putting aside emergency funds, or by using traditional networks and family support systems.



Fig. 5:

**Traditional house
lifted off the
ground on stilts,
to avoid risks
from flooding**



SPC/GIZ CCCPIR, 2013

Preparedness measures make sure that people are ready to respond to a disaster when it occurs, so that they can save their lives and protect their belongings. Examples of these measures are: the planning and clearing of evacuation routes; constructing safe shelters or strong buildings that can offer protection in cyclones and storms (Fig. 6); making stockpiles of canned and packaged food; storing drinking water in containers; setting up clear evacuation procedures for children at school, training people in search and rescue operations, training people in First Aid, and carrying out emergency drills. An emergency drill is simply a practice of what do to if an earthquake, a tsunami or other disaster arrives.



Fig. 6:

**Cyclone
shelter,
Mataso**



SPC/GIZ CCCPIR, 2013

In many ways, preparedness is the key element in disaster risk reduction. The better a community is prepared, the more **resilient** it will be to the impacts of the hazard.

Response

Response includes all actions taken during and immediately after a disaster to protect life and property. It may be many days before external help can arrive, so it is important for communities and individuals to be ready to respond to hazards.

When responding to a hazard, all those involved must take action in a **coordinated** manner. This means that men, women, young people, children, elderly people, chiefs and the Community Disaster and Climate Change Committee all work together in unity, and one of them does not do anything that goes against the efforts of others.

Examples of response measures are: listening to warnings broadcast on the radio or sent out on mobile phones; helping people to move to safe shelters in the village; evacuating people away from the village to another area altogether; providing first aid to the injured; sending reports on damage to provincial and national authorities; searching for people who may be lost because of the hazard - for example, because they were swept away by a flood, or buried under a collapsed house; ensuring that people have fresh water and food; checking that people are healthy; distributing emergency supplies of food and medicines.

Recovery

Recovery means helping the community to get back to normal and making it more resilient to future disaster events. Initially, a lot of cleaning up may need to be done, and houses will have to be repaired. Basic services such as water supplies and sanitation must be restored very quickly, to avoid the danger of communicable diseases such as malaria, diarrhoea, measles and cholera. Search and rescue operations will have to continue until all people are accounted for. Temporary shelters may be needed until such time as the NDMO arranges for proper tents to be provided. Other relief supplies must be distributed (Fig. 7). If gardens have been destroyed, bananas, kumala, manioc and island cabbage should be replanted, as they can be harvested more quickly than other food crops.

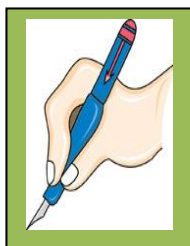


Fig. 7:
Unity Airlines
delivers 2100 kg of
relief supplies to
Aniwa on 1st April
2015, following
Cyclone Pam. Each package
contained materials for building a
house and tools for gardening.
The packages were supplied by
Australian Aid.



Unity Airlines, 2015

In the long term, bridges and roads will have to be repaired and perhaps rebuilt in such a way that they are stronger and more resilient to future hazards. Similarly, people may want to re-design their houses so that they are stronger and better adapted to fires and earthquakes. The community may decide to change the way the land is used so as to avoid problems of soil and coastal erosion; for example, trees and vetiver grass can be planted on slopes and along the coast, and buildings that were right on the sea shore can be relocated further inland.



Now please complete Activities 2.1, 2.2 and 2.3 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 Meaning of disaster risk reduction.		
2.2 Diagram to show three important elements of DRR (preparedness, response and recovery)		
2.3 Meaning of preparedness, response and recovery, with examples.		

Section

3

Apply the elements of disaster risk reduction to a real life disaster

After completing this section, you should be able to:

- 3.1 describe, for one real recent disaster (e.g. a cyclone, flood, volcanic eruption, earthquake, landslide), how the following were or were not carried out: preparedness, response and recovery.

3.1 A recent disaster

We are going to see what happened on Gaua in TORBA province, where there is an active volcano known as Mount Garet.

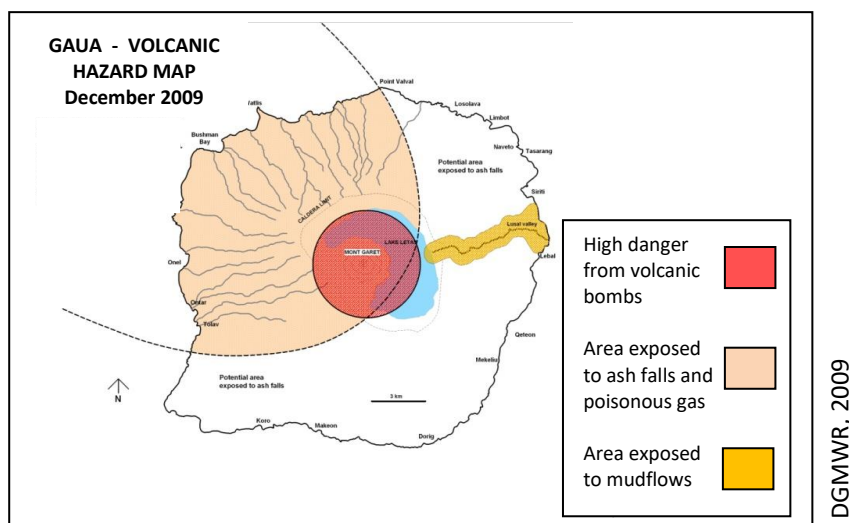
On 29th September 2009, a priest in a village on the west coast of Gaua contacted the VMGD by teleradio to say that he had seen an eruption on Mt. Garet. The Department sent an assessment team to Gaua on 1st October. The team installed a portable **seismograph** - an instrument that measures earthquakes - to look for signs that a volcanic eruption would be likely to occur. When the team returned to Vila, the VMGD issued a Level 2 alert, meaning that the eruption was moderate, and there was danger for certain parts of the island. The VMGD then worked closely with the TORBA provincial government to relocate the entire population living on the western side of Gaua to the eastern side, beginning in November 2009. This meant relocating 329 people to live with families in villages in the east of the island. A further group of people living along the river in the north-east of the island were also moved. By this time, western and northern parts of Gaua were experiencing ash falls and emissions of poisonous gas from the volcano.

At the end of November, the Vanuatu Government received assistance from the New Zealand Government in setting up a better network of stations to monitor earthquakes and eruptions on Gaua. The visiting experts also provided training to staff of the Geo-Hazards Department on the use of instruments. A new volcanic hazards map was produced in December 2009 to indicate those parts of Gaua most at risk from eruptions of gas and ash, as well as mudflows. During the same period, awareness talks on volcanic hazards were given to communities on the island, and seeds were provided to the relocated families in order for them to grow their own food.



Fig. 8:

Volcanic hazard map of Gaua produced in December 2009.



Volcanic activity was strongest in April 2010, and began to decrease after August 2010. The alert level was lowered from Level 2 to Level 1 on 27th December 2010. The evacuees returned to their homes in the west in January 2011, and VMGD then considered the operation complete.

However the volcano has continued to be active, and Alert Level 1 has been maintained. In 2011, a new volcanic hazard **risk map** was produced that indicates that most parts of Gaua are still at risk from the volcano. In 2015, the alert level for Mt Garet is still at Level 1.



Fig. 9: Volcanic hazard map of Gaua produced in December 2011

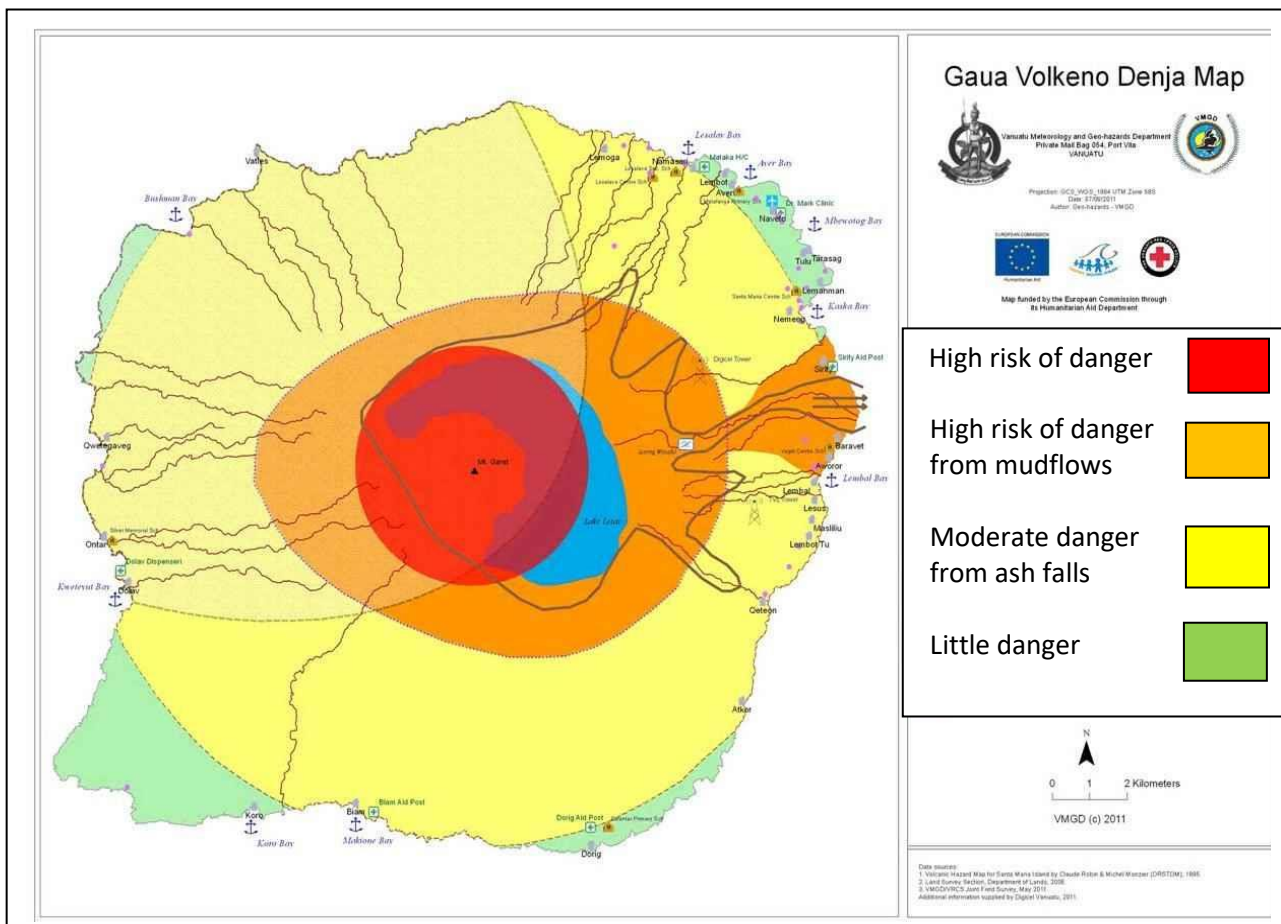


Fig. 10:
Eruption of volcanic ash from Mt Garet, 30th July 2013



Now that you have read through this report, think about the elements of disaster risk reduction that were involved - preparedness, response and recovery.



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 Elements of disaster risk reduction in a real recent disaster - preparedness, response and recovery.		

Section

4

Outline ways of preventing and mitigating disaster risks

After completing this section, you should be able to:

- 4.1 identify traditional measures that can be used to reduce climate and disaster risks;
- 4.2 identify modern methods used in Vanuatu for preventing and mitigating disaster risks.

4.1 Traditional measures that can be used to reduce disaster risks

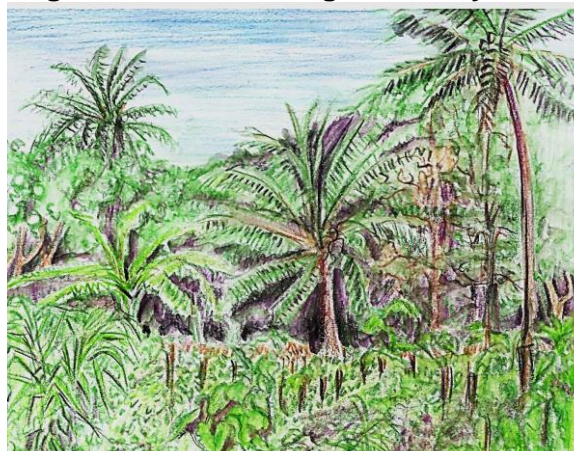
In the previous Unit, CGCR0216, you studied some of the traditional measures that were used to make communities more resilient to the impacts of disasters such as cyclones, droughts, earthquakes, volcanic eruptions, floods and landslides. You found out that many of these measures are still very useful today, and where possible, should be revived.

Remember that “resilience” is 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).

Here is a summary of some traditional techniques that build resilience:

- **Reading traditional signs of forthcoming hazards:** These traditional signs are seen in plants and in changes in the behaviour of animals, fish and insects. For example, traditional indicators of the arrival of a cyclone include the arrival of the frigate bird, the way that ants speed up their movements, and the relocation of colonies of flying foxes to sheltered areas. The ability to read these signs means that people can take steps to prepare for the hazard that may come.
- **Using traditional calendars:** Traditional calendars are usually based on seasonal changes in climate and how they affect agricultural activities. By following the traditional planting and harvesting calendar for their island, people can get the maximum yield of crops and still conserve resources.
- **Cultivating crops in traditional food gardens:** By following the bush fallow system, soil fertility is maintained, soil erosion is reduced, and the wide variety of plants stops the build-up of pests and diseases. However, this system is not always practical today in areas of high population density, since the land cannot be left long enough in fallow, and other methods of cultivation must be used.
- **Traditional techniques of cultivation:** Traditional agroforestry, in which trees and a wide variety of food crops are planted together, is a very valuable way of maintaining soil fertility and providing livelihoods that meet household needs for food and shelter and at the same time give families a source of income. Another useful technique is the application of natural mulch and compost to growing plants.

Fig. 11: Traditional agro-forestry



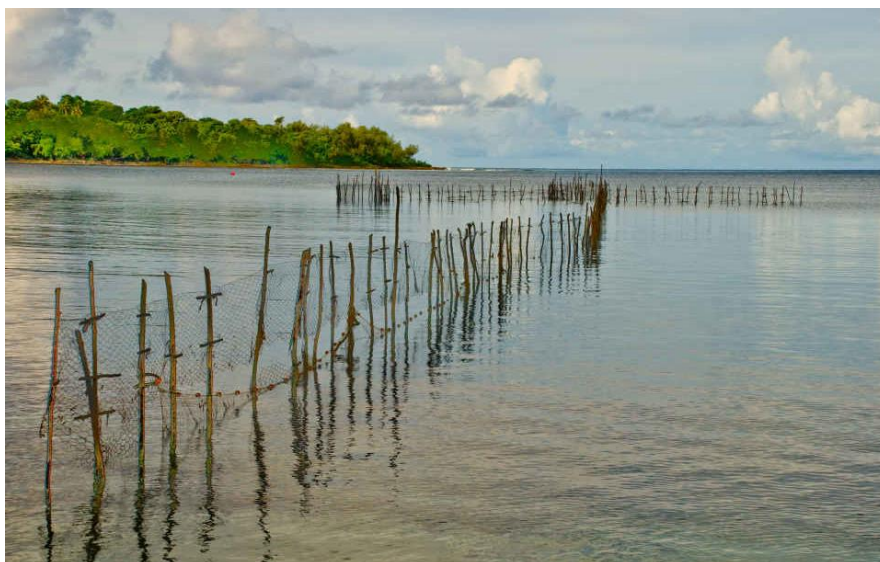
Morgan, B., 2014

- **Traditional fishing techniques:** These methods ensured that there was always a balance between population and resources. Examples are putting a taboo on a section of the reef, using lines or traditional spears, using traditional traps for fish and shellfish, blocking streams and rivers with stones to catch fish and namarai, and using traditional sailing canoes for fishing.



Fig. 12:

Traditional fish trap, Pango, Efate



Philip Capper / Flickr, 2008

- **Traditional methods of food preservation:** In the past, all communities had to find ways of surviving cyclones, earthquakes, volcanic eruptions, tsunamis, floods, drought and other hazards. Traditional techniques of food preservation helped to ensure that food would be available after the disaster. Such techniques are still very important today, especially in remote areas that may not receive external assistance for days or weeks. Some of these techniques are: the *mara* technique of preserving bananas, practiced on Futuna; traditional preservation of breadfruit in the Torres islands; preserving fish using the *putangi* method; making flour from manioc and taro; and traditional ways of storing yams. All islands still have their own techniques for preserving root crops and fish.

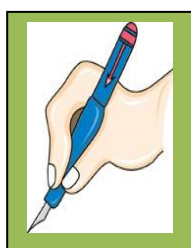
- **Traditional building designs:** Traditional houses made of bush materials can often survive earthquakes. Because of their sloping or rounded roofs, low walls and lack of windows, they can withstand wind and rain, apart from during “monster” cyclones such as Pam. These features of their design can be used in the construction of modern cyclone-proof buildings.

Fig. 13: Traditional Vanuatu house



McMorrow, B., 2012

- **Protection from erosion on slopes:** Traditional ways of reducing **soil erosion** and landslides on sloping land were to plant trees or bushes at right angles to the direction of slope, place logs or branches at right angles to the direction of slope, or cut terraces into the slope to create gardens for taro. All these techniques are still very useful today to enable a sustainable use of the land.
- **Traditional community support systems:** These systems ensured that everyone in a community would be cared for during and after a disaster. Ceremonies and reciprocal exchanges of yams, pigs, kava and mats meant that all community members were linked together. Chiefs would ensure that traditional wealth was shared out between community members. Today, as urbanization, education and the influence of mass media cause many young people to lose their traditional ties, these community support systems are weaker. If they can be strengthened through other means, this can only increase a community's resilience to natural disasters.



Now please
complete
Activity **4.1a**
and **4.1b**
in your Learner
Workbook

My Notes:

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Concepts	I understand this concept	Questions that I would still like to ask
4.1 Summary of traditional measures that can be used to reduce disaster risks.		

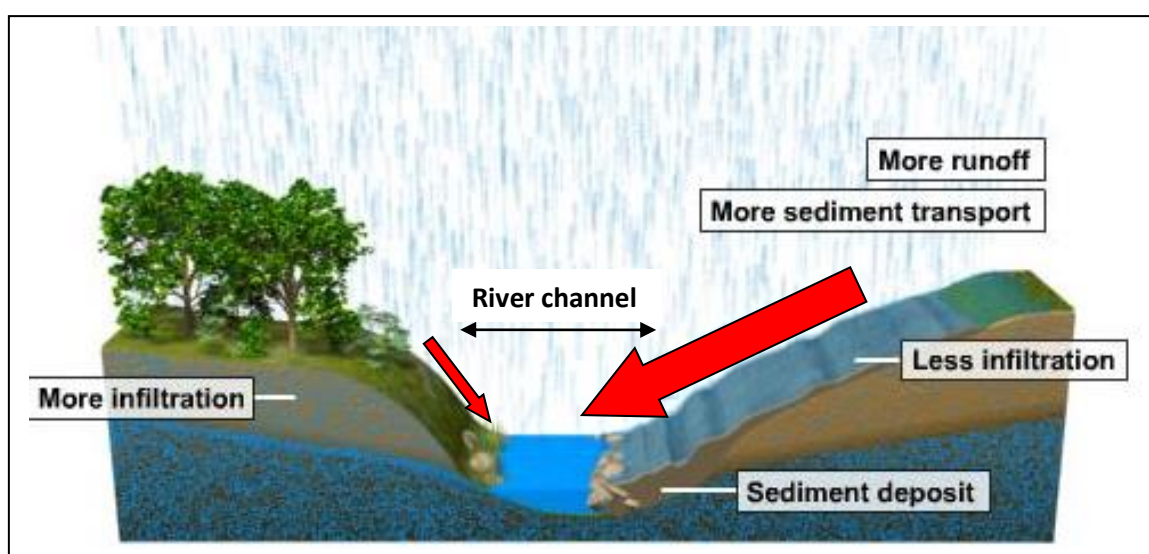
4.2 Modern methods of preventing and mitigating natural disasters

Today, we have additional methods for preventing, mitigating and preparing for natural disasters. These measures are a result of advances in **technology**. They also reflect a greater awareness of the vulnerability of small island states such as Vanuatu.

Some of these measures are as follows:

- Prevention of hazards: Hydro-meteorological hazards** such as cyclones, droughts, floods, extreme weather events and sea level rise cannot be stopped. Neither can **geological hazards** such as volcanic eruptions and earthquakes. However, floods and landslides can be reduced by ensuring that there is no deforestation on steep slopes. In the first Unit, CGHR0116, you saw that removal of vegetation on the sides of a river valley leads to greater run-off and the washing down of sediment into the river, which can block the river channel and cause the water to rise up and flood. In the following diagram (Fig. 14), run-off is shown by the large red arrows. You can see how more sediment is washed down the slope when the trees have been removed.

Fig. 14: Soil erosion on the side of a valley



Another example of hazard prevention is the relocation of people away from areas in river valleys and along coastal plains that have experienced flooding in the past. Relocation of villages right on the coast will also protect them from the hazards of coastal erosion and **inundation**, as happened with the village of Lateau on Tegua island during 2005.

- Building codes:** In urban areas such as Port Vila and Luganville, the municipal council can enforce rules to make sure that all new buildings are better able to resist hazards such as earthquakes and cyclones. These are called **building codes**. New offices, for example, have foundations that are resilient to earthquakes, windows that have strong shutters, and roofs that are anchored down by long screw-in nails. The National Disaster Management Office highly recommends the implementation of building codes to make all buildings stronger, but this may not be possible in rural areas because of the cost involved.
- Strengthening of the sea shore to stop coastal erosion:** One way of doing this is to build a sea wall. This is really a short-term measure, and may not be effective.



Fig. 15:

Sea wall built of stones on Malakula



SPC/GIZ CCCPIR, 2013

A more effective long-term measure for reducing coastal erosion is the planting or replanting of mangroves or other coastal tree species. Mangrove trees are strong. Their roots hold beach materials in place and make an effective barrier to strong winds and storm surges during cyclones. Mangrove swamps also provide a natural breeding ground for fish and shellfish. So the planting of mangroves and other coastal trees increases community resilience.



Fig. 16:

Mangrove planting in Kiribati



SPREP, 2013

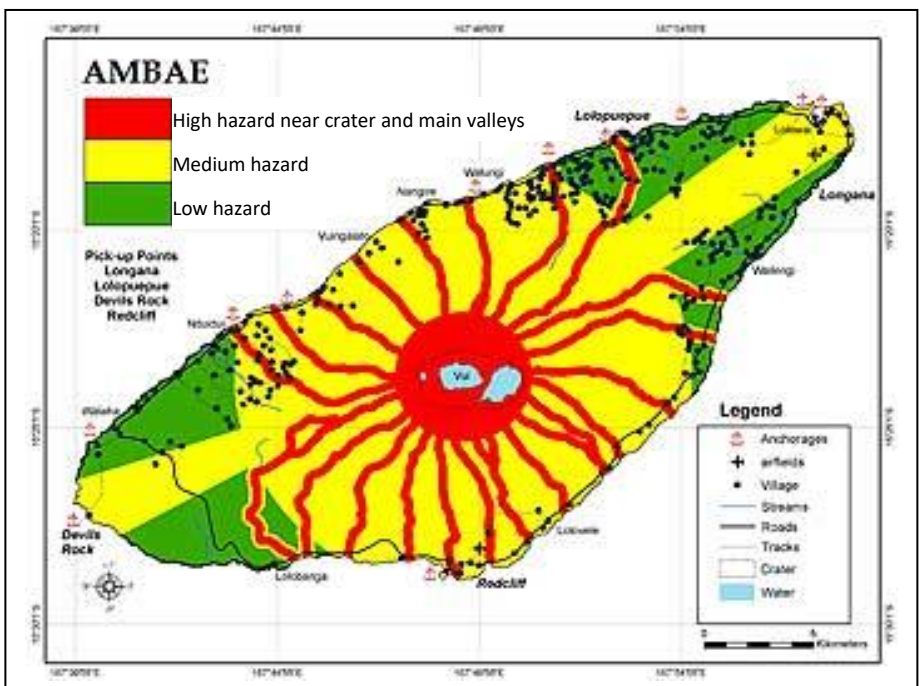
- **Risk mapping:** Risk maps can be produced at community level by the community itself. You produced such a map in CGHR0116 and made use of it in CGHV0116. Risk maps are also produced at national and regional levels by government departments of all Pacific nations, focusing on cyclones, earthquakes and volcanoes. Examples of these risk maps are shown on the next page.

This map (Fig. 17) shows areas at risk from volcanic activity on Ambae, together with names of points where people will assemble if Manaro erupts and everyone has to be evacuated.



Fig. 17:

Risk map for volcanic hazards on Ambae



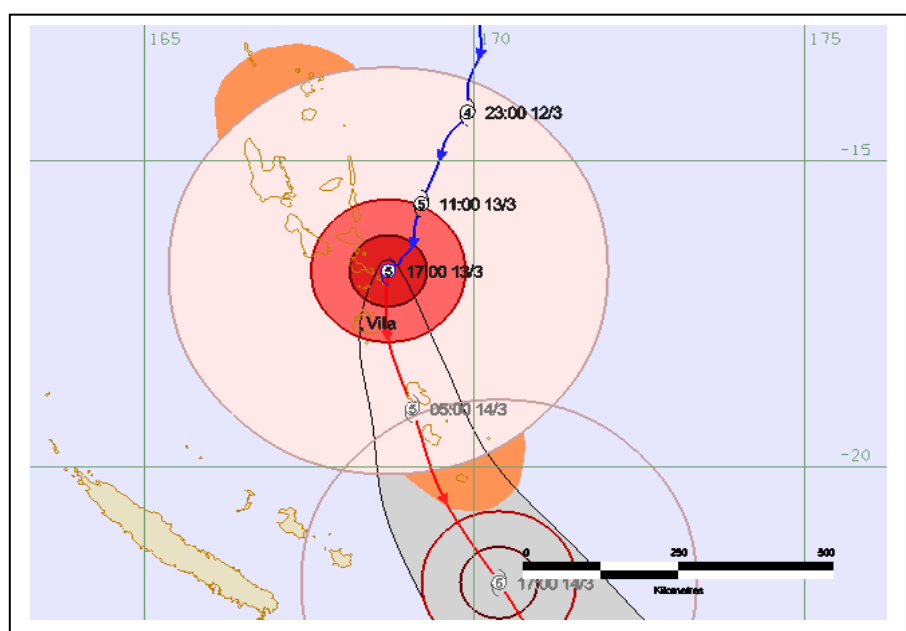
Cronin, S, 2005

Fig. 18 is the map of Tropical Cyclone Warning no. 28 for cyclone Pam, on 13th March 2015. It shows past track of the cyclone (blue line), its expected track (red line), its position at certain times and dates, and the strength of the cyclone (numbers inside the little circles). The areas affected by strong winds and rain are shown in dark red, red, pink and orange, with the dark red zone indicating the position of the cyclone at 5pm on 13th March.



Fig. 18:

Present and expected path of cyclone Pam through Vanuatu



VMGD, 2015

- **Community Disaster and Climate Change Committees (CDCCCs):** These are bodies set up at community level on most islands of Vanuatu. Their members are chosen by community leaders to serve communities with a population of between 50 and 500. They are responsible for the three elements of disaster risk reduction at community level - preparedness, response and recovery. For example, a CDCCC will identify resources that can help the community when a hazard arrives, conduct awareness programmes on disaster risk reduction and climate change in its community, set up evacuation routes, assist vulnerable members when the hazard arrives, and assist with the distribution of relief supplies when it has passed. CDCCCs communicate with the National Disaster Management Office (NDMO) through Provincial Governments. They work closely with NGOs such as the Red Cross, Oxfam, Care International and Save the Children Australia in the field of disaster risk reduction. More information will be given in Section 6 of this Unit. (NDMO, 2013.)
- **Awareness campaigns and consultations with communities:** In recent years, the National Disaster Management Office (NDMO), provincial governments, CDCCCs, and non-government organizations have conducted awareness campaigns in all the islands of Vanuatu to make people more aware of the impacts of natural hazards and future climate change, and to help them prepare for these impacts. Very valuable work is being done by organizations such as Red Cross Vanuatu, the French Red Cross, Oxfam, Care International, Live and Learn Environmental Education and Save the Children Australia. All have field workers who engage in awareness programmes and consultations with communities. The work of the VMGD, SPC/GIZ and the Vanuatu Kaljoral Senta in conducting surveys to find out and make use of Traditional Knowledge on climate change indicators is another example of consultation with communities to foster better preparedness.

The awareness programmes include advising communities on the importance of identifying evacuation routes to safe places, building safe shelters for people in the community, better storage of drinking water, safety programmes for schools, emergency drills to practice what to do when a hazard arrive, learning techniques of preserving fruit, root crops, fish and meat, planting varieties of crops that are more tolerant of salty water or drought, and relocating the village to a safer site.

- **Advocating for funding and support:** To advocate means to publicly recommend or support something. In the case of disaster risk reduction, if a community feels that it is not getting enough services from the government, for example, structures for better storage of drinking water, it may need to enter into conversations with NGOs or provincial or national government agencies. The community can take steps to request the services that government is obliged to provide.

- **Building community coherence:** Coherence can be defined as “the quality of forming a unified whole.” If a community has coherence, everyone works together in unity, so that even though people may be doing different things, they are still in harmony. A healthy human body has coherence, because all the different parts - mind, soul, heart, eyes, lungs, arms, stomach, blood, etc. - work together to help the person progress through life. A community in which there is mutual respect and cooperation can face challenges together and overcome them. Anything that promotes this cooperation is therefore contributing to community resilience. Culture and religion have a key role to play.



Please complete
Activity 4.2a
and 4.2b in your
Learner
Workbook

My Notes:

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Concepts	I understand this concept	Questions that I would still like to ask
4.2 Modern methods for preventing and mitigating disasters		

Section 5 Review measures for adapting to climate change and mitigating GHG emissions

After completing this section, you should be able to:

- 5.1 demonstrate skills and knowledge of appropriate measures for adapting to climate change and mitigating GHG emissions at a community level in Vanuatu.

5.1 Measures that can be taken at community level for adapting to climate change and mitigating GHG emissions

In Units CGMC0616 and CGCA0716 you studied measures to help communities adapt to climate change, as well as looking at steps that can be taken to mitigate **emissions of greenhouse gases**.

You found out that human activities around the world in the last two hundred years have resulted in greater concentrations of certain gases in the atmosphere - for example, carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) - and that these gases are trapping outgoing heat energy from the earth and gradually making our atmosphere and oceans warmer. This is called global warming, or the enhanced greenhouse effect. The increase in temperatures is causing climate to change. Impacts of this change include sea level rise, loss of biodiversity, less food security, less water security, ocean acidification, coastal erosion, stronger cyclones, and so on.

To slow down this climate change, steps must be taken to reduce the emissions of greenhouse gases (GHGs) from the burning of fossil fuels in industries, power stations, vehicles, ships and aircraft. At the same time, ways must be found of increasing **carbon sinks** such as forests that can absorb atmospheric CO₂.

But evidence is growing that even if GHG emissions are reduced, climate change will still happen, and small island states such as Vanuatu will suffer from its impacts. For this reason, communities must take action to adapt their ways of living to the changes that are going to come, so becoming more resilient and less vulnerable to the hazards that are predicted.

Fig. 19:

Cartoon on climate change, showing that there will be more extreme weather events



In this section we will review actions that can be taken at community level to both adapt to climate change and to contribute towards the reduction of GHG emissions.

Summary of adaptation and mitigation measures appropriate for Pacific islands

Discuss this picture (Fig. 20) with your facilitator and your fellow-learners:

Fig. 20



Review of measures for adapting to climate change

Examples of adaptation measures that are suitable for local communities are:

- **Breeding varieties of crops and animals that are better adapted to droughts, floods, salty water, pests and diseases, etc.** This includes yam planting using yam vines, as well as the normal tubers: yam minisett techniques; cross breeding varieties of taro that are more adapted to climatic extremes, are resistant to pests and diseases, and have better eating quality; banana multiplication techniques; pig husbandry, in which native breeds of pig are cross-bred with exotic varieties; and honey-bee husbandry improvement.
- **Reducing coastal and soil erosion by planting trees and vetiver grass:** planting mangroves, other tree seedlings and vetiver grass along the shore line; planting vetiver grass on hillsides at right angles to the direction of slope.



Fig. 21:

Modern pig-breeding pen on Pele island



SPC/GIZ CCCPIR

- **Planting different varieties of crop with different fruiting and harvesting seasons, so that not all crops are damaged by a hazard at the same time.** This is a traditional technique that has been used for generations.
- **Forestry and agroforestry:** Forestry includes the protection of existing rain forests in conservation areas and national parks as well as reforestation projects in areas where trees have been cut down for logging or agricultural purposes. Agroforestry, whether done in the traditional or the modern way, is a method of growing trees with crops in such a way that the trees help the crops to grow - by protecting them and providing them with nitrogen and other natural nutrients. It is a way of using the land that is more healthy, more profitable and more sustainable. Forestry and agroforestry are also useful mitigation techniques, since trees absorb carbon dioxide from the atmosphere and are carbon sinks.
- **Soil improvement in rural areas** using techniques such as **alley cropping**, cover crops like lablab beans, and crop rotation. Such techniques add nitrogen to the soil.
- **Backyard tilapia breeding:** Tilapia fish can be raised in plastic drums kept close to the family home. Fish are ready to harvest five months after the drum is first stocked.
- **Food preservation techniques:** The use of solar dryers for drying fruits and nuts will improve food security and give families a small income. Modern techniques such as the preparation of silage from kumala are examples of other ways in which food can be preserved for humans and animals in preparation for hazard events.
- **Protection of coral reefs, sea grass beds and mangroves from pollution and over-exploitation:** Adaptation measures include: the replanting of mangroves; conserving trees along river banks; avoiding the use of destructive fishing methods on coral reefs; removing crown-of-thorns starfish from reefs and making them into compost; and coral gardening or mariculture.

- **Establishment of taboos and community conservation areas.** These measures protect natural ecosystems and ensure more sustainable livelihoods.
- **Using fish aggregating devices and other fishing techniques that do not put pressure on reefs and inshore fisheries.** With a FAD, fishermen no longer need to travel long distances into the ocean to catch large fish. **Food security** is improved, and village people can sell the fish to gain an income.
- **Helping households to have better water security.** This can be achieved by: using corrugated iron roofs and strong rain water tanks; fixing broken gutters and leaking pipes; having village water committees to protect water sources, conserve water and promote wise use; covering wells and water tanks; increased awareness at village level on how underground water sources can be polluted; and the use of composting toilets.
- **Relocation of buildings and settlements in vulnerable positions.** Examples are villages that are right on the sea shore or in low-lying river valleys.

Review of measures for mitigating emission of greenhouse gases at community level

- **Using renewable sources of energy.** In promoting the use of wind power, solar radiation, biofuels, biogas, biomass and micro-hydro schemes, Vanuatu's reliance on imported and expensive fossil fuels will be reduced. Already, there are several local communities making use of solar energy, wind turbines, biofuels, biogas or running water to meet their needs for lighting, refrigeration and entertainment. Once the equipment has been set up, such forms of energy are cheap to run and maintain, and there are no GHG emissions.
- **Using electrical energy in a more efficient way,** for example, through energy-saving light bulbs, turning off electrical appliances when not in use, cleaning filters on generators and boat engines, and avoiding the use of high-consumption appliances.
- **Recycling, composting and mulching** all help to reduce GHG emissions. They are also necessary for maintaining a sustainable lifestyle. The disposal of non-recyclable material is very important, and communities need to find ways of burying such rubbish.



Fig. 22:
Burying waste in a village on Pentecost



SPC/GIZ CCCPIR, 2013

- **Walking, cycling and using canoes:** This will enable people to cut their consumption of imported petroleum products such as petrol, diesel fuel and kerosene, so reducing their **carbon footprint**.
- **Stopping widespread deforestation, creating forest reserves and planting more trees.** This will increase carbon sinks and at the same time help communities to be more resilient to climate change. Forest products can be obtained and used to strengthen food security and promote better livelihoods.
- **Ensuring that both men and women are involved in mitigation activities**



Please complete
Activities **5.1a**,
5.1b and **5.1c** in
your Learner
Workbook

My Notes:

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Concept	I understand this concept	Questions that I would still like to ask
5.1 Measures for adapting to climate change and mitigating GHG emissions at a community level.		

Section 6

Outline steps to mobilize communities for climate change adaptation and disaster risk reduction

After completing this section, you should be able to:

- 6.1 identify the primary roles and responsibilities of a Community Disaster and Climate Change Committee (CDCCC);**
- 6.2 state the links between community, provincial and national agencies involved in climate change adaptation and disaster risk reduction.**

6.1 Roles and responsibilities of a Community Disaster and Climate Change Committee (CDCCC)

As mentioned previously, a Community Disaster and Climate Change Committee (CDCCC) is a body set up at local community level to look after disaster risk reduction and preparation for climate change. Its members are chosen by community leaders.

Non-government organizations such as Oxfam, Care International, Save the Children Australia and the Red Cross have been working with local communities to establish these committees in recent years, since it is not possible for the NDMO to be working in all communities in Vanuatu at the same time. However, the NDMO is connected to the CDCCCs through the Provincial Disaster and Climate Change Committees that have been set up in each province. It also provides guidelines for the operation of CDCCCs. The NDMO receives communications from the CDCCCs about disasters, and checks that the information is **valid**. (Alice Iarem, 2014)

A Community Disaster and Climate Change Committee serves a community with a population of between 50 and 500 people. It is responsible for the three elements of disaster risk reduction at community level - preparedness, response and recovery. It is also responsible for helping its community to adopt adaptation measures that make it more resilient to climate change.

In April 2014, CDCCCs were operating in the following areas:

- Torres islands
- All the Banks islands
- Big Bay area, Santo
- West Coast, Santo
- North Maewo
- Ambae
- Malakula
- Ambrym
- Paama
- Parts of Efate
- Erromango
- Tanna
- Aniwa
- Futuna

In Fig. 23 on page 40 you can read the guidelines on the roles and responsibilities of CDCCCs, as prepared by the National Disaster Management Office. In the guidelines, the committees are called CDCs (Community Disaster Committees) because at that time responsibilities for Climate Change had not yet been added.

From these guidelines, we learn that the primary roles and responsibilities of CDCCCs are to:

- be on the look-out for hazards that could impact on the community, as well as ways in which the community is vulnerable to these hazards;
- find out the community's strengths or assets that will enable it to be more resilient to risks;
- conduct awareness programmes on disaster risk reduction and climate change, and be ready to work with NGOs that are wanting to do this;
- develop a **community response plan** for coping with disasters;
- collect information on traditional signs that could indicate the arrival of a disaster, as well as information on traditional calendars;
- work with school safety committees;
- find evacuation routes to safer areas;
- compile reports on the damage done by a hazard;
- assist vulnerable community members during and after a hazard;
- communicate all official warnings and alerts during a hazard;
- help distribute relief supplies after the hazard;
- encourage people in the community to rebuild stronger houses after the hazard has passed.

We also learn that the membership of a CDCCC should include representatives of vulnerable groups in the community.

Fig. 23



NDMO guidelines of CDC Roles and responsibilities 25th July 2013



Preparedness	<ul style="list-style-type: none"> • CDC to identify hazards and vulnerabilities that are a significant risk to the community.
	<ul style="list-style-type: none"> • CDC to identify resources / capacities available to community members i.e. transport, tools, seed stock, water containers, etc...
	<ul style="list-style-type: none"> • CDC and ASC to assist other organizations such as NGOs with disaster risk reduction and climate change related work/activities.
	<ul style="list-style-type: none"> • CDC to conduct awareness on disaster risk reduction and climate change within the community.
	<ul style="list-style-type: none"> • CDC to develop a preparedness and community response plan for the community involving chiefs and the community leaders. <ul style="list-style-type: none"> - Monitor implementation of activities - Advocate for funding opportunities
	<ul style="list-style-type: none"> • As required, collect information on cropping calendars and other useful statistics.
	<ul style="list-style-type: none"> • CDC member to participate in local school safety committee(s).
	<ul style="list-style-type: none"> • CDC to maintain and manage the resources donated to the community.
	<ul style="list-style-type: none"> • CDC to advise community leaders on evacuation routes to safer areas.
	<ul style="list-style-type: none"> • CDC to organize regular meetings to update the community on developments and contacts.
Response	<ul style="list-style-type: none"> • CDC to undertake appropriate actions on community assessment after the impact of a hazard or other extreme event.
	<ul style="list-style-type: none"> • Assist Rapid Technical Assessment Team during assessment.
	<ul style="list-style-type: none"> • Assist Rapid Technical Assessment Team during external joint assessments.
	<ul style="list-style-type: none"> • Assist vulnerable community members (e.g. elderly people, pregnant women, children, people with special needs, sick people) to go to safe areas.
	<ul style="list-style-type: none"> • CDC to communicate all alerts to the community, including observations of natural signs of the arrival of a hazard.
Recovery	<ul style="list-style-type: none"> • CDC to advise community leaders on evacuation routes to safer areas.
	<ul style="list-style-type: none"> • CDC to assist as needed with the distribution of relief supplies to households.
	<ul style="list-style-type: none"> • CDC to assist with preparation, response and recovery work, particularly with vulnerable members of the community.
	<ul style="list-style-type: none"> • CDC to advise community to 'build back better' after the hazard or extreme event has passed.

Recommendations for membership of the CDC
1- Community leaders (chief, pastor, chairman of village council, etc.)
2- Representative from community-based organizations (youth, women, church, ...)
3- Representatives of locally-based government organizations (e.g. school, aid post,)
4- Representative of small community stations in the area ?
5- Representative of any minorities in the community ?
6- Representative of people with disabilities
7- Representative of the elderly

Information sharing process from CDC to NDMO
1- CDC link to Area Secretary Council, PDC and NDMO
2- Updating of CDC's list of contacts
3- Use of NDMO community initial assessment form
4- List dates of trainings facilitated by the CDC within the community
5- NDMO approval of documents developed (CBDRR plan, community response plan, ...)
6- Monitoring

6.2 Links between CDCCCs, Provincial DCCC, the NDMO and NAB

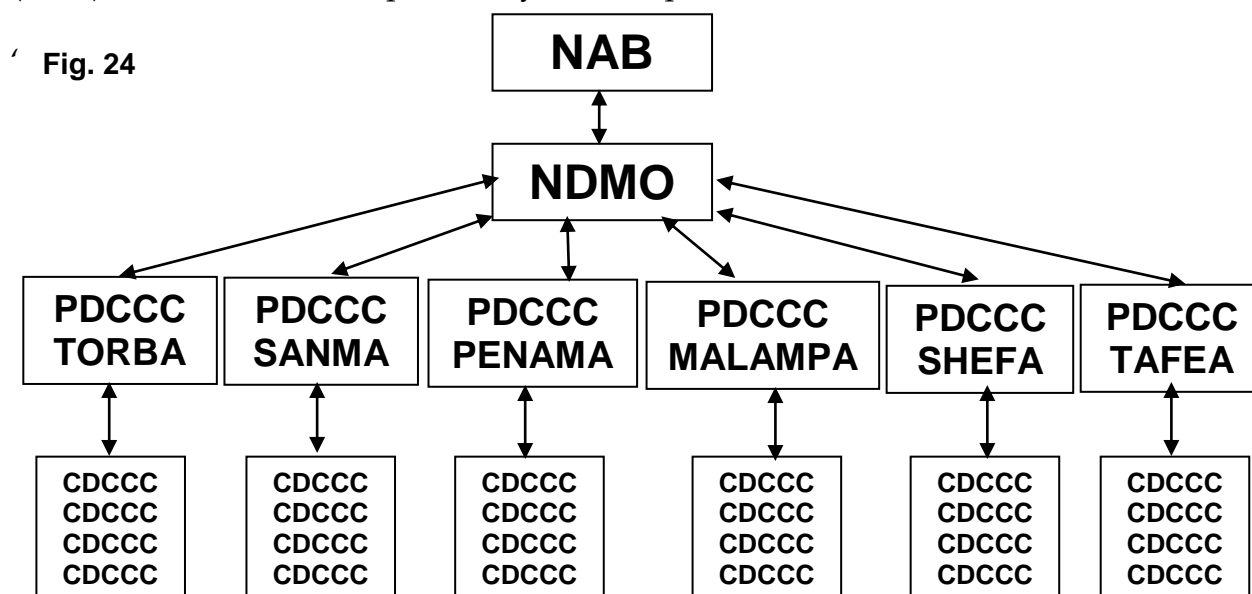
Community Disaster and Climate Change Committees (CDCCCs) communicate information to Area Council Secretaries and to the Provincial Disaster and Climate Change Committee (PDCCC) for their province. From there, the information is passed to the National Disaster Management Office (NDMO) (Fig. 24)

After a cyclone or other hazard has passed, a CDCCC compiles an initial community assessment form (“Fes Komuniti Assessmen Fom”) to report on the damage done to buildings, water supplies, infrastructures and gardens. The same form is also used to report on people’s injuries and health.

In emergencies, a CDCCC can also send text messages to the NDMO directly, using the free number 166.

The NDMO is kept aware of training programmes facilitated by the CDCCC within the community, and checks the community response plan that a CDCCC has prepared. It also monitors the activities of CDCCCs.

The National Advisory Board for Climate Change and Disaster Risk Reduction (NAB) now has overall responsibility for the operation of the NDMO.



To give you an idea of the kind of information on a disaster that is collected by a CDCCC and then passed on to a PDCCC and the NDMO, please study the blank CDC Fes Komuniti Assessmen Fom given on pages 42 to 45 (Fig. 25).

Fig. 25



☒ Yu save tikim smol box long fom, mo raetem ol infomesen long eria long empty box.

Taem disasta i finis, plis kompletem fom bifo 24 awa i pass, mo karem igo long eria council.

A. INFOMESEN BLONG YU MO BLONG ERIA

(Q1) Deit	
(Q2) Taem we yu mekem assessmen	
(Q3) Nem Blong Yu	
(Q4) Posisen blong yu long CDC / Komuniti	
(Q5) Kontak namba blong yu	
(Q6) Provens	
(Q7) Aelan	
(Q8) Eria Kaonsel / Wod	
(Q9) Vilej / Komuniti	

B. POPULESEN INFOMESEN – I gat hamas pipol lo komuniti?

	Hamas
(Q10) Everiwan we oli liv long vilej blong yu	
(Q11) Hamas haos we wan famili i silip/kuk long hem	

C. INFRASTRUKJA - Transpot i ko long Vilij Mo Komuniti (plis tikim ☒)

	I gat lo Vilij	I gat be hemi damej	Nogat	Komen
(Q12) Smol rod blong wokabot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(Q13) Rod Blong Trak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(Q14) Pasis Blong Bot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(Q15) Eapot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(Q16) Narafala	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

D. SEF HAOS

Putum nem mo ples blong ol Komuniti sef haos:	Hamas i stap long sef haos	Sef haos i gat damej?	Komen
(Q17)			
(Q18)			
(Q19)			
(Q20)			

E. KOMUNITI BILDING– Hamas damej i stap long komuniti building? (plis putum namba)

	I gat hamas long komuniti?	Hamas i gat ful damej (destroyed)	Hamas i gat bigfala damej	Hamas i gat smol damej
(Q21) Ol klasrum / Skul				
(Q22) Klinik, Dispenseri, Aid Post				
(Q23) Jios				
(Q24) Haos blong gavmen				
(Q25) Komuniti Haos / Nakamal				
(Q26) Stoa / Coop				



F. WOTA SAPLAE – Damej blong ol Wota blong dring we i stap long komuniti (Plis tikim ☒)

Ol ples we yu karem wota blong dring	Nogat	I gat	I gat be hemi damej	Komen
(Q27) Spring Wota we i kamaot long kraon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(Q28) Riva blong dring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(Q29) Well we i stap andanit long kraon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(Q30) Han Pam well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(Q31) Wota Saplae we i usum elektrisiti	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(Q32) Ol narafala ples Raetem: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(Q33) Ren wota / tank	I gat hamas tank long komuniti?	Hamas tank i fulap?	Hamas tank i no fulap tumas?	Hamas i empti o klosap empti?	Hamas i damej?

(Q34) Komuniti i gat inuf wota blong dring? (Plis tikim wan <input checked="" type="checkbox"/>)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
(Q35) Sipos yu tikim 'No', hamas pipol i nidim wota blong dring?	*	

G. KLINLINES MO HAEGIN

(Q36) Wanem kaen toilet ol pipol long komuniti oli usum? (plis tikim <input checked="" type="checkbox"/>)	
Bus nomo	<input type="checkbox"/>
Bus Toilet	<input type="checkbox"/>
Toilet we i usum simen (VIP)	<input type="checkbox"/>
Toilet we yu kapsaedem wota (Wota sil)	<input type="checkbox"/>
Toilet we yu prestem wota	<input type="checkbox"/>
Ol Narafala Toilet - Plis Raetem:	

(Q37) Sop blong wasem hand
Hamas haos i gat sop blong wasem hand?
Hamas haos i nogat sop blong wasem hand?

H. DAMEJ LONG OL KAKAI MO ANIMOL LONG VILEJ (plis tikim ☒)

	Nogat Damej	I gat Damej	Komen
(Q38) Ol kakai long kraon	<input type="checkbox"/>	<input type="checkbox"/>	
(Q39) Ol Animol	<input type="checkbox"/>	<input type="checkbox"/>	
(Q40) Ol Kakai Antap (Frut Tri)	<input type="checkbox"/>	<input type="checkbox"/>	

I. KOMIUNIKESEN

(Q41) Wanem kaen komiunikesen i stap wok nao ia? (plis tikim <input checked="" type="checkbox"/>)					
Mobael fon blong TVL	<input type="checkbox"/>	Tele-Radio	<input type="checkbox"/>	Intanet	<input type="checkbox"/>
Mobael fon blong Digicel	<input type="checkbox"/>	Radio Vanuatu	<input type="checkbox"/>	Satelaet fon	<input type="checkbox"/>
Telefon	<input type="checkbox"/>	Radio - FM 107	<input type="checkbox"/>	Narafala (Raetem):	

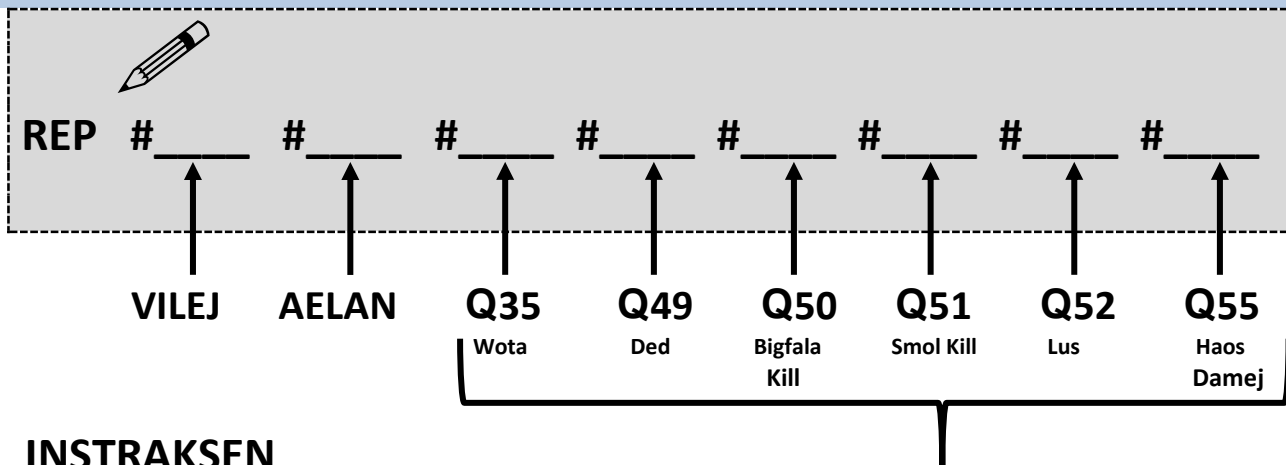


J. KOMUNITI HAOS INFOMESEN – Go toktok long ol lida blong wan wan haos we famili i silip/kuk long hem:

HAOSHOL Raetem Nem blong Lida blong wan wan Haoshol	POPULESEN I gat hamas pipol long wan wan haos?						HELT Hamas pipol i gat helt problem long wan wan haos?						HAOS Tikem sipos i gat damej long haos ☑			
	Olfala Woman (60+)	Olfala Man (60+)	Woman (18-59)	Man (18 -59)	Piki- nini (5-17)	Bebe (0-5)	Ded	Big- fala Kil	Smol Kil	Lus	Hand- ikap Disab -iliti	Gat Bel	Haos Blong Slip <u>Ful</u> Damej	Haos Blong Slip <u>Smol</u> Damej	Kijin Damej	Toilet Damej
													<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
													<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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													<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
													<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<p style="text-align: center;">TOTELEM EVRI SAMTING BLONG OLGETA HAOS TUGETA → Atemap ansa blong olgeta haos tugeta. Mo raetem long ol box andanit:</p>																
Yu tok tok long hamas Haos- hol	Olfala Woman (60+)	Olfala Man (60+)	Woman (18-59)	Man (18 -59)	Piki- nini (5-17)	Bebe (0-5)	Ded	Bigfala Kil	Smol Kil	Lus	Hand- ikap Disab- iliti	Gat Bel	Haos Blong Slip <u>Fu</u> Damej	Haos Blong Slip <u>Smol</u> Dame j	Kijin damej	Toilet damej
													Hamas <input checked="" type="checkbox"/>	Hamas <input checked="" type="checkbox"/>	Hamas <input checked="" type="checkbox"/>	Hamas <input checked="" type="checkbox"/>
(Q42)	(Q43)	(Q44)	(Q45)	(Q46)	(Q47)	(Q48)	⁎	⁎	⁎	⁎	(Q53)	(Q54)	⁎ (Q55)	(Q56)	(Q57)	(Q58)

SENDEM INFOMESEN I GO LONG NDMO MO PROVINS



INSTRAKSEN

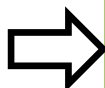
NAMBA 1: Raetem nem blong Vilej mo AELAN blong yu long spes blong grei bokis antap.



NAMBA 2: Luk long asesmen fom mo faendem ol ansa blong ol kwesten long fom: Q35, Q49, Q50, Q51, Q52, Q55. Raetem ol ansa long spes blong grei bokis antap.



NAMBA 4: Sendem teks mesej i go long namba 166.



NAMBA 3: Mekem wan niu teks mesej, mo raetem evri samting we i stap insaed long grei bokis antap. Olsem→



Hemi fri nomo blong sendem teks mesej long 166

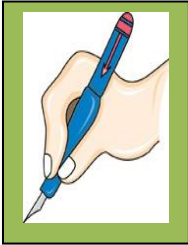
Taem yu sendem teks mesej finis yu mas sendem fom iko long eria sekreteri. Sipos yu no save kasem eria sekreteri, yu save sendem fom iko long Provinsial Disasta Komiti long Provins.

Sipos yu iusem wan fon/teleradio blong sendem infomasen blong fom ia. Taem yu toktok hemi importen blong talem namba blong kwesten festaem, afta talem ansa.



The National Advisory Board for Climate Change and Disaster Risk Reduction (NAB)

Further information on this body will be provided in Section 7.1.



Please complete
Activities **6.1a**,
6.1b and **6.2** in
your Learner
Workbook

My Notes:

[illegible]

Concept	I understand this concept	Questions that I would still like to ask
<p>6.1 Primary roles and responsibilities of a Community Disaster and Climate Change Committee (CDCCC).</p> <p>6.2 Links between CDCCCs, Provincial Disaster and Climate Change Committees, the National Disaster Management Office, and the National Advisory Board for Climate Change and Disaster Risk Reduction.</p>		

Section

7

Outline ways in which government agencies and NGOs can help communities to prepare for climate change and disaster risk reduction

After completing this section, you should be able to:

- 7.1 identify the government agencies that are helping communities to prepare for climate change and disaster risk reduction, and demonstrate how they can be contacted for advice and in emergencies;**
- 7.2 identify the various NGOs operating in Vanuatu that are helping communities to prepare for climate change and disaster risk reduction, and demonstrate how they can be contacted for advice and in emergencies;**
- 7.3 discuss the responsibilities and accountabilities of government agencies and NGOs in providing services to communities that enable them to adapt to hazards and climate change;**
- 7.4 identify some of the tools that are helping communities to prepare for climate change and disaster risk reduction;**
- 7.5 produce eye-catching posters that present key hazard messages being promoted by government agencies and NGOs in Vanuatu.**

7.1 Government agencies that help communities to prepare for climate change and disaster risk reduction

Some of the main government agencies that are working to help communities to prepare for climate change and disaster risk reduction are as follows:

National Advisory Board on Climate Change and Disaster Risk Reduction (NAB):

This is a committee made up of government and non-government members. It was created in 2012. It brings together the Vanuatu Meteorology and Geo-hazards Department and the National Disaster Management Office (Fig. 26).

Fig. 26



The branch of NAB that implements (carries out) its duties and develops policies is called the NAB Secretariat. It has an office in the VMGD/NDMO building in Nambatu, Port Vila. The Secretariat reports to both co-chairs of the NAB - the Ministry of Climate Change and the Prime Minister's Office.

NAB has six main duties:

1. It acts as Vanuatu's chief policy-making and advisory body for all disaster risk reduction and climate change programmes and activities.
2. It develops policies and guidelines on disaster risk reduction and climate change.
3. It gives advice on Vanuatu's DRR (Disaster Risk Reduction) and CCA (Climate Change Adaptation) obligations at international, regional and national levels.
4. It advises on, facilitates and approves the development of new programmes, projects and activities in the fields of disaster risk reduction and climate change.
5. It is a focus for the sharing of all information on disaster risk reduction and climate change.
6. It advises, guides and coordinates the finances of national climate change and disaster risk reduction processes.

The NAB Secretariat has many duties. Here are some examples:

1. It provides technical advice to government departments and NGOs
2. It **endorses** materials and projects on DRR and CCA
3. It carries out secretarial duties for the NAB
4. It makes sure that all agencies involved in DRR and CCA give out the same standard messages
5. It investigates how DRR and CC projects can be funded
6. It implements DRR and CC projects once funding has been obtained.

The Vanuatu Meteorological and Geo-hazards Department

This department has seven divisions - Administration, Weather Forecasting and Services, Climate, Climate Change/Project Management Unit, Geo-Hazards, Observations, and ICT/Engineering. It collects information on weather, climate and geological hazards. It leads efforts to carry out climate change adaptation and mitigation, and to develop early warning systems for geohazards. It aims to be a world-class meteorological and geohazards institution that contributes to the sustainable development of Vanuatu and the Pacific region. (VMGD website, 2014)

The Vanuatu National Disaster Management Office

The National Disaster Management Office (NDMO) is the government agency for coordinating disaster preparedness, response and recovery operations in Vanuatu. It works alongside local and international NGOs to coordinate Disaster Risk Reduction and Disaster Risk Management programs to reduce community vulnerability to natural disasters throughout Vanuatu. (NDMO website, 2014)

Other departments of the Vanuatu Government that are involved in preparing for hazards and climate change

- **The Department of Agriculture and Rural Development (DARD):** This department is doing a lot of work in the field of climate change adaptation, researching crop breeding techniques that can ensure better food security.
- **The Department of Livestock and Biosecurity** is involved in breeding livestock that are better adapted to a warmer climate, with more extreme weather events. It is helping smallholder cattle farmers to adapt to climate change.
- **The Department of Fisheries** promotes sustainable in-shore and deep-sea fishing, as well as aquaculture. It is actively involved in helping local communities to manage their marine resources.
- **The Department of Forests** collects information about national forest resources, facilitates the development of forestry plantations and agroforestry, and gives advice on sustainable forest management.
- **The Department of Environmental Protection and Conservation** aims to ensure the sustainable development of ecosystems, to promote biodiversity and to work with communities in setting up conservation areas.
- **The National Tourism Development Office** is working closely with VMGD and the SPC/GIZ CCCPIR programme to help those working in the tourist industry at community level to be able to cope with the risks brought by climate change. For example, increased coastal erosion, rising sea levels, degraded coral reefs and loss of biodiversity will all impact on tourist arrivals and on Vanuatu's economy.

(continued on the next page)

- **The Public Works Department** is very concerned with preparation for hazards and climate change. It is responsible for building and maintaining roads, bridges, wharves and airfields, as well as repairing them after disasters. Because of this, it must find ways of strengthening these infrastructures to enable them to cope with stronger cyclones, floods, landslides and coastal erosion. An example is the current road-improvement project on Epi, undertaken with the help of the Pacific Adaptation to Climate Change (PACC) project.



Fig. 27

This group on Epi is participating in a project to improve coastal roads on the island. The project is being carried out by the PWD and SPREP's PACC programme.



PACC, 2013

Other government and international agencies involved in preparations for hazards and climate change

- **Official Development Assistance (ODA) agencies.** Many overseas governments are involved, but here are a few examples:
 - ❖ USAID, through its Coastal Community Adaptation Project (CCAP);
 - ❖ The German Government, through its agency GIZ, working in partnership with SPC in the Coping with Climate Change in the Pacific Island Region (CCCPIR) programme;
 - ❖ AusAID, through the Pacific Climate Change Science Programme (PCCSP), the Australian Bureau of Meteorology, CSIRO and other agencies;
 - ❖ NZAID;
 - ❖ Japan International Cooperation Agency (JICA)
- **Regional agencies:** These include:
 - ❖ The University of the South Pacific (through its Pacific Centre for Environment and Sustainable Development, or PACE-SD);
 - ❖ The South Pacific Regional Environment Programme (SPREP), through agencies such as the Pacific Adaptation to Climate Change (PACC) programme, and the Pacific Islands Greenhouse Gas Abatement through Renewable Energy Programme (PIGGAREP);
 - ❖ The Secretariat of the Pacific Community (SPC), for example through its Applied Geoscience and Technology Programme (SOPAC);
 - ❖ The Forum Fisheries agency (FFA);

- **International Agencies** such as the United Nations, the United Nations Development Programme (UNDP), the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the United Nations Children’s Fund (UNICEF), the World Bank, the World Meteorological Organisation, the Food and Agricultural Organisation, the Asian Development Bank, the International Renewable Energy Agency (IRENA), etc.

7.2 Non-Government Organizations (NGOs) working in Vanuatu to help communities prepare for climate change and disaster risk reduction

Among the NGOs working in Vanuatu, the following are making important contributions. There are also others, and the list will change over time.

- **Care International** works to help communities to prepare for emergencies. It runs awareness programmes on disaster risk reduction, emergencies and climate change, and publishes booklets and pamphlets on these topics. It works with Youth Challenge Vanuatu to provide internships for local young people. (Care International, 2014)
- **Red Cross.** Red Cross Vanuatu works in partnership with Red Cross Australia and the French Red Cross to prepare people for disasters and to improve community health, water, and sanitation. It supports the WASH (Water, Sanitation and Hygiene) project. It has published a handbook on weather, climate and climate change. It is a key organization in distributing relief supplies after a disaster has struck. (Red Cross, 2014)



Fig. 28

Vanuatu Red Cross supports the WASH project to improve community health and hygiene.



Australian Red Cross, 2014

- **Save the Children Australia** runs child protection, disaster risk reduction and climate change programmes to ensure that children are safe from harm and can help their communities adapt to the changing environment (Save the Children, 2014). Among the materials it has produced is a very comprehensive guide for teachers entitled *Disaster Risk Reduction and Climate Change Education in Vanuatu*.

- **Oxfam** works with local partner organizations such as Wan Smolbag and Habitat for Humanity to increase young people’s skills and opportunities. It has field workers who are building up the resilience of vulnerable communities to the impacts of climate change. At a regional level, it advocates for greater national and global action on climate change. (Oxfam, 2014)
- **Live and Learn Environmental Education** works in Vanuatu and other Pacific countries on projects related to the management of biodiversity, climate change and energy, management of conflicts over resources, and environmental governance. It is in partnership with the REDD desk to implement forestry projects. It publishes many materials on the environment and **sustainable development**, including *Farm Technology: Protecting food security through adaptation to climate change in Melanesia*.
- **Wan Smolbag Theatre** operates in the fields of education, environment, governance, health and youth. It performs plays to create awareness and community action, and provides training and materials to schools, communities, NGOs and government departments in the Pacific and beyond. Among the environmental issues, it promotes better understanding of climate change, logging, reef management, use of leaf medicine, sustainable tourism and sea cucumber farming. It runs the *Vanua-Tai* network of voluntary turtle monitors, who help protect turtles and turtle eggs. (Wan Smolbag, 2014)

Fig. 29: Wan Smol Bag on Maewo



Wan Smolbag, 2011

Fig. 30: Protection of turtles



Wan Smolbag, 2012



Please complete
Activities 7.1
and 7.2 in your
Learner
Workbook

My Notes:

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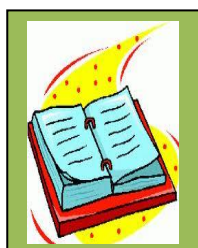
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	Concept	I understand this concept	Questions that I would still like to ask
	7.1 Government agencies that help communities to prepare for CC and DRR. 7.2 NGOs that help communities to prepare for CC and DRR.		

7.3 Responsibilities and accountabilities of government agencies and NGOs

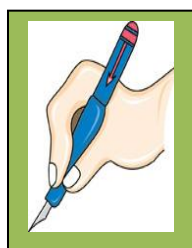


Responsibility means having a duty to deal with something. So responsibility for helping communities to cope with hazards and climate change means that the government has a duty to do this. It is part of its duty to care for its citizens. Similarly, a non-government organization that has promised to help a community has a duty to keep its promise.

Accountability means being answerable to someone for what you are doing, or having a duty to report on actions that have been taken. In terms of hazards and climate change, it means that a government agency and an NGO should be able to tell a community what it has been doing to make it more resilient to climate change.

Now, discuss these questions with your fellow-learners and your facilitator:

- Why should the Vanuatu Government and its agencies take actions to help villages and communities to prepare for climate change?
- Why do many NGOs feel that they must get involved in working at community level to help people become more resilient to hazards and climate change?
- Do you think that the Vanuatu Government and its departments are doing enough to build resilience at community level? If not, what else should they do?
- What can a community do if it feels that it is not getting enough help to become more resilient to disaster risks and climate change?



Please complete
Activity 7.3 in
your Learner
Workbook

My Notes:

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Concept	I understand this concept	Questions that I would still like to ask
7.3 Responsibilities and accountabilities of government agencies and NGOs in providing services to communities that enable them to adapt to hazards and climate change.		

7.4 Tools to help communities prepare for climate change and disaster risk reduction

Each year, our **technology** advances. When Cyclone Uma struck central and southern islands of Vanuatu in 1987, very few people had computers, there was no Internet, and mobile phones did not exist. The only way you could listen to a cyclone warning was to tune in to Radio Vanuatu, as long as the transmitting station was still working and you had batteries for your radio. But when Cyclone Pam struck in 2015, the whole population could be warned by SMS messages sent to each person's mobile phone.

Today, most people have mobile phones; many have mobile Internet; there is more than one telecommunications operator; we can watch Television blong Vanuatu, TBN, CCTV, RFO Nouvelle-Calédonie, ABC (Australia) and satellite television; we can listen to several radio stations; texting is a cheap and popular means of communication; and people can use the Internet at any time to get the latest cyclone and tsunami warnings from the VMGD and meteorological departments in Fiji, New Caledonia and Australia. Those with access to the Internet can also obtain up-to-date information and advice on disasters and climate change from a website known as the NAB Portal. They can also access social media sites such as Facebook.

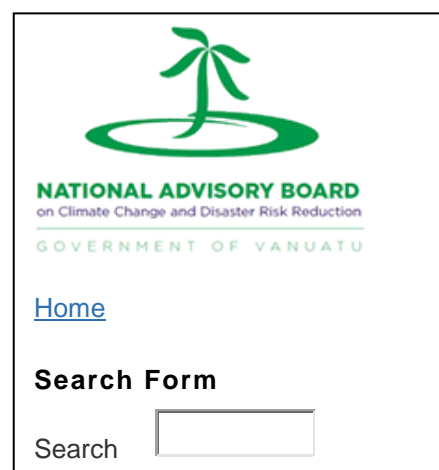
In summary, some of the most important tools to help communities prepare for climate change and disaster risk reduction are as follows:

The NAB web portal

This is a website that enables the user to download information on all aspects of disaster risk reduction and climate change adaptation and mitigation, whether provided by government agencies or NGOs. You can also upload your own information, news items, and details of workshops and projects. It is open to anyone who has access to the Internet.



Fig. 31:
Part of the home page of the NAB web portal



NAB, 2015

The NDMO/VMGD SMS early alert system

The NDMO and the VMGD have an arrangement with telecommunications companies for people to ring or send text messages to the number 166 in times of emergencies. The number is only activated at such times. Arrangements have also been made for telecommunications companies to text warnings and alerts to all mobile phone subscribers whenever a hazard is approaching.

Schools “Climate Zone” Quiz

This quiz is now an annual event in Vanuatu, with all secondary schools eligible to take part in the competition. Teams compete by answering questions on all aspects of climate change, and the finals of the competition are broadcast on national television. Those who take part learn a great deal, as do the many members of the public who watch the competition on television.



Fig. 32

**Malapoa College
wins the final of the
2014 Climate Zone
Quiz**



Pierce, C., 2014

Radio and television

The Vanuatu Broadcasting and Television Corporation (VBTC) works with the VMGD to broadcast **alerts** for cyclones, tsunamis and other approaching hazards, using both radio and television. Cyclone warnings are numbered from the time when a cyclone is first identified in Vanuatu waters, and continue until the cyclone moves outside those waters. Other private and community radio stations operating in Vanuatu also broadcast these alerts.

Newspapers

Vanuatu Daily Post, *Vanuatu Time* and *The Independent* always contain weather forecasts and cyclone alerts, but these papers may not reach people in rural areas and outer islands for several days, by which time the hazard has probably already arrived.

Facebook

Those with access to Facebook can easily find out the current weather forecast, including any cyclone warning, by going to “Forecast Division, VMGD” and looking at the forecast and the weather map provided. They can also go to the “Climate Change Vanuatu” page.

Key hazard messages

The NAB has approved a set of key messages about hazards for use in Vanuatu. They are measures for households and individuals to consider and undertake before, during and after a hazard. There are key messages that apply to all hazards. There are also specific messages for the following hazards: droughts, earthquakes, landslides, tsunamis, floods, volcanoes, cyclones and pandemics (epidemics of infectious diseases). We will deal with key messages for all hazards in section 7.5.

7.5 Key hazard messages for all hazards in Vanuatu

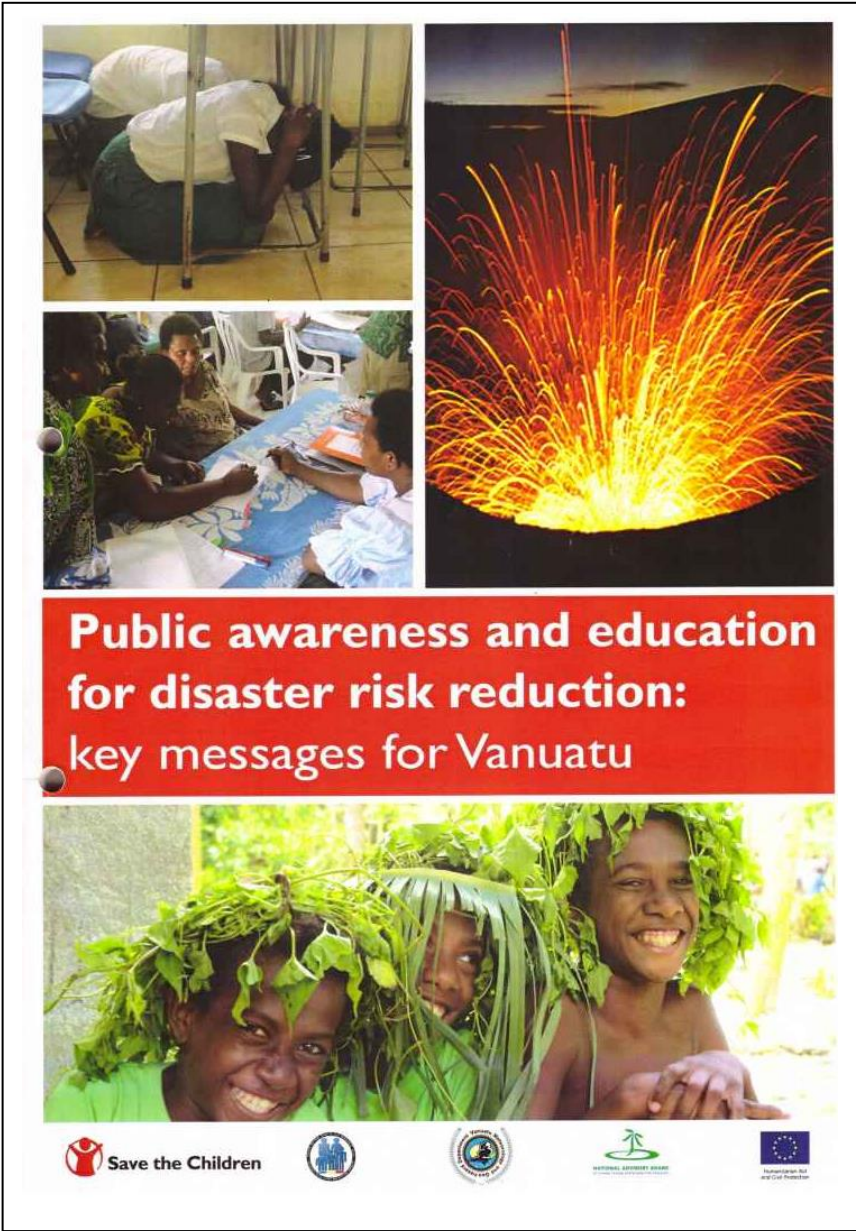
Key hazard messages are extremely important in helping communities and individuals to be more resilient to hazards. As our climate changes, these hazards are expected to become more common and/or more intense. So we need to follow them in order to reduce our vulnerability to the negative impacts of the hazards.

The following key messages have been published by Save the Children Australia in the booklet *Public awareness and education for disaster risk reduction: key messages for Vanuatu*. They are approved and endorsed for use in Vanuatu by the National Advisory Board on Climate Change and Disaster Risk Reduction.



Fig. 33:

Cover page of the booklet on key hazard messages for Vanuatu



Save the Children, 2014

In the following table (Fig. 34), messages shown in **bold font** must be followed. Those in normal font should be considered and followed. The messages have been slightly modified to suit the purposes of this Unit of Competency.

Fig. 34

Code	Key message	
ASSESSMENT AND PLANNING		
A1	Assess your risks for where you live, work, study and play	<i>Faenemaot ol problem we i save hapen long ples we yu stap, yu wok, yu skul mo yu pleiplei long hem</i>
A2	Assess individual capabilities and needs	<i>Luksave long wanwan samting we wan man i save mekem mo i nidim</i>
A3	Make a plan	<i>Mekem wan plan</i>
A4	Consider access and functional needs and create and prepare a support network	<i>Faenem wea ples yu wantem go mo wanem yu nidim, mo krieitem mo preperem wan gudfala netwok blong givim sapot</i>
A5	Make plans to reunite	<i>Mekem ol plan blong kam tugeta bakagen</i>
A6	Keep emergency contact and health information available	<i>Kipim ol emejensi kontak mo ol helt infomesen long wan sef ples.</i>
A7	Learn and participate in your community's early warning systems	<i>Lanem mo tek pat long ol aktiviti insaed long komuniti blong yu we i givim woning abaot ol denja we bambae i kam.</i>
A8	Make an evacuation plan: know your shelter destination, evacuation route and transportation method	<i>Mekem wan plan blong muvaot. Save rod blong muvaot, wea ples blong muv i go long hem, haos we i strong blong stap long hem, mo hao nao bambae yu save muvaot.</i>
A9	Learn the location of shelter, safe havens or temporary housing	<i>Lanem wea ples wan strong haos i stap, wea nao sef ples blong go long hem, mo wea nao wan haos i stap we yu save go stap sot taem long hem.</i>
A10	Expand your circles. Continue your planning and plan with your neighbours and communities	<i>Gohed blong praktisim wok ia long komuniti blong yu mo helpem nara komuniti klosap long yu.</i>
A11	Know the exit routes from buildings that you use.	<i>Yu mas save ol rod blong go aot long haos we yu stap long hem.</i>
A12	Make hazard-specific plans about whether to stay or go and where to shelter	<i>Mekem wan plan blong ol difren hasad (denja) we plan ia i save helpem yu blong disaed sipos bambae yu stap o yu go, mo wea ples bambae yu save faenem wan strong haos.</i>
A13	Pool your financial risks by taking out a group insurance policy	<i>Toen tugeta long wan grup blong pipol we i mekem wan insurans polisi</i>
A14	Keep copies of important personal documents	<i>Kipim sef ol importan pepa blong yu.</i>
A15	Include pets, service animals and livestock in your planning	<i>Insaed long plan blong yu, yu mas inkludim ol animol blong yu.</i>

PHYSICAL AND ENVIRONMENTAL PROTECTION		
A16	Construct your home in a safe place in compliance with building regulations	<i>Bildim haos blong yu long wan sef ples mo folem rul blong mekem haos mo kastom fasin blong mekem haos</i>
A17	Know your building and its strength	<i>Yu mas save gud haos blong yu mo sipos hem i strong long taem blong trabol</i>
A18	Practice home fire prevention	<i>Lukaot gud oltaem long faea mo lanem hao blong stopem faea long haos blong yu</i>
A19	Store hazardous materials safely	<i>Tekem ol samting we oli gat poesen insaed mo putum olgeta long wan sef ples</i>
A20	Practice good hygiene and sanitation	<i>Mekem gudfala fasin blong stap klin mo blokem sik</i>
A21	Take annual home maintenance measures to keep your home safe	<i>Wan taem evri yia, mekem ol wok we haos blong yu i nidim blong mekem se hem i sef</i>
A22	Protect your domestic animals and livestock	<i>Protektem ol animol mo ol buluk blong yu</i>
A23	Protect your environment	<i>Lukaotem evri samting long envaeronmen blong yu</i>
RESPONSE: CAPACITIES AND SKILLS		
A24	Learn how to react to fire	<i>Save gud wanem blong mekem sipos i gat faea</i>
A25	Know what to do if you see fire or smell smoke	<i>Save gud wanem blong mekem sipos yu lukim faea o yu smelem smok blong faea</i>
A26	Respond to early warnings of approaching hazards	<i>Mekem rere taem we yu harem ol fasfala woning blong denja</i>
A27	Learn First Aid	<i>Lanem wanem blong mekem blong sevem laef</i>
A28	Practice regular drills	<i>Praktisim ol ekasaes blong emejensi</i>
A29	Stay informed (Radio Vanuatu - FM100 or AM1125)	<i>Lisen oltaem long redio (Radio Vanuatu - FM100 o AM1125)</i>
A30	Familiarize yourself with household water treatment methods to purify water	<i>Save gud long fasin blong mekem wota i sef blong dring</i>
A31	After the hazard impact, help those around you	<i>Afta long disasta, helpem ol pipol we i stap raon long yu.</i>
A32	After the hazard impact, check for damage	<i>Afta long disasta, jekem ol damej</i>
A33	After the hazard impact, take care of yourself	<i>Afta long disasta, lukaotem gud laef blong yu</i>
A34	After the hazard impact, support the response, clean-up and recovery	<i>Afta long disasta, wok tugeta wetem evriwan blong klinap mo blong putum bak nomal laef insaed long komuniti</i>
A35	Learn how to turn off your utilities (water, gas, electricity)	<i>Lanem olsem wanem blong offem ol wota, gas mo elektrisiti blong yu</i>
A36	Extinguish small fires	<i>Kilim ol smol faea</i>
A37	Only use telephones for emergencies	<i>Yusum fon blong yu nomo long taem we i gat emejensi, olsem bigfala trabol</i>
A38	In case of power outage, take fire precautions	<i>Sipos i no gat paoa, lukaot gud se yu no laetem eni faea</i>

RESPONSE: CAPACITIES AND SKILLS (continued)		
A39	Use the correct fire extinguisher for the situation	<i>Yusum stret tul blong putumaot eni faea</i>
A40	Respond to the needs of your animals	<i>Anserem nid blong ol animol blong yu</i>
A41	Maintain communication	<i>Kipim ol komunikesen i open</i>
RESPONSE: PROVISIONS (WATER AND FOOD)		
A42	Store food and water	<i>Putum gud plante klin wota mo kakae</i>
A43	Store response provisions at home, work and school	<i>Putum gud long haos, long skul, mo long wok blong yu evri samting we bambae yu nidim long taem blong disasta</i>
A44	Prepare a “go bag” ready for evacuation	<i>Mekem redi wan emejensi basket blong save ron wetem i go long wan sef ples</i>
A45	After a power outage, throw away contaminated food and water	<i>Sipos i nomo gat elektrisiti, sakem ol kakae mo wota we i no gud o i roten finis</i>
A46	Purify water	<i>Sevem mo boilem wota</i>
A47	Check your phones	<i>Jekem fon blong yu</i>

(Information from Save the Children Australia, *Public awareness and education for disaster risk reduction: key messages for Vanuatu*, slightly modified by Charles Pierce)

For hazards such as cyclones and volcanic eruptions, there are several levels of alert to indicate the closeness of the hazard.

Volcanic eruptions have five risk levels. (Please refer back to the maps on pages 23 and 30)

- Level 0: Normal activity, or quiet.
- Level 1: Signs of activity, but dangerous only near the crater.
- Level 2: Moderate activity. Dangerous near to crater and in the red zone on risk maps.
- Level 3: Dangerous near to the crater, along stream valleys and in the red and yellow zones on risk maps.
- Level 4: Very large eruption. Dangerous in red, yellow and green zones on risk map and possibly in neighbouring islands.

Cyclones have three main levels of alert:



Blue alert: The cyclone can arrive within 24-48 hours.



Yellow alert: The cyclone can arrive within 12-24 hours.



Red alert: The cyclone has arrived.



Please complete
Activities **7.4**
and **7.5** in your
Learner
Workbook

My Notes:

[illegible]

Concept	I understand this concept	Questions that I would still like to ask
7.4 Tools that help communities prepare for climate change and disaster risk reduction.		
7.5 Key hazard messages and alerts.		

Section

8

Prepare action plans at local level for reducing risks from disasters and climate change

After completing this section, you should be able to:

- 8.1 propose an action plan to enable a local community to cope with disaster risks and the impacts of climate change;
- 8.2 consult with representatives of this local community to share, seek feedback on, and revise this proposed plan.

8.1 Action plan to build a community's adaptive capacity to disaster risks and the impacts of climate change

Now you have almost come to the end of this Certificate 1 level course on Climate Change and Disaster Risk Reduction. You have learnt a great deal about ways of adapting to climate change and methods of reducing emissions of greenhouse gases. You have become more familiar with steps to take before, during and after the arrival of hazard. You have demonstrated adaptation and mitigation techniques to others and helped a local community to begin using some of these measures. You have produced posters to advise people what to do when a cyclone arrives, and you have worked out how to keep safe if your Training Institution Centre is affected by an earthquake or a fire.

In Unit CGCA0716 you worked with the local community to help them undertake action planning for measures to adapt to climate change and mitigate greenhouse gas emissions. Now you will work with the community to develop a further action plan that will build up its resilience to disaster risks.

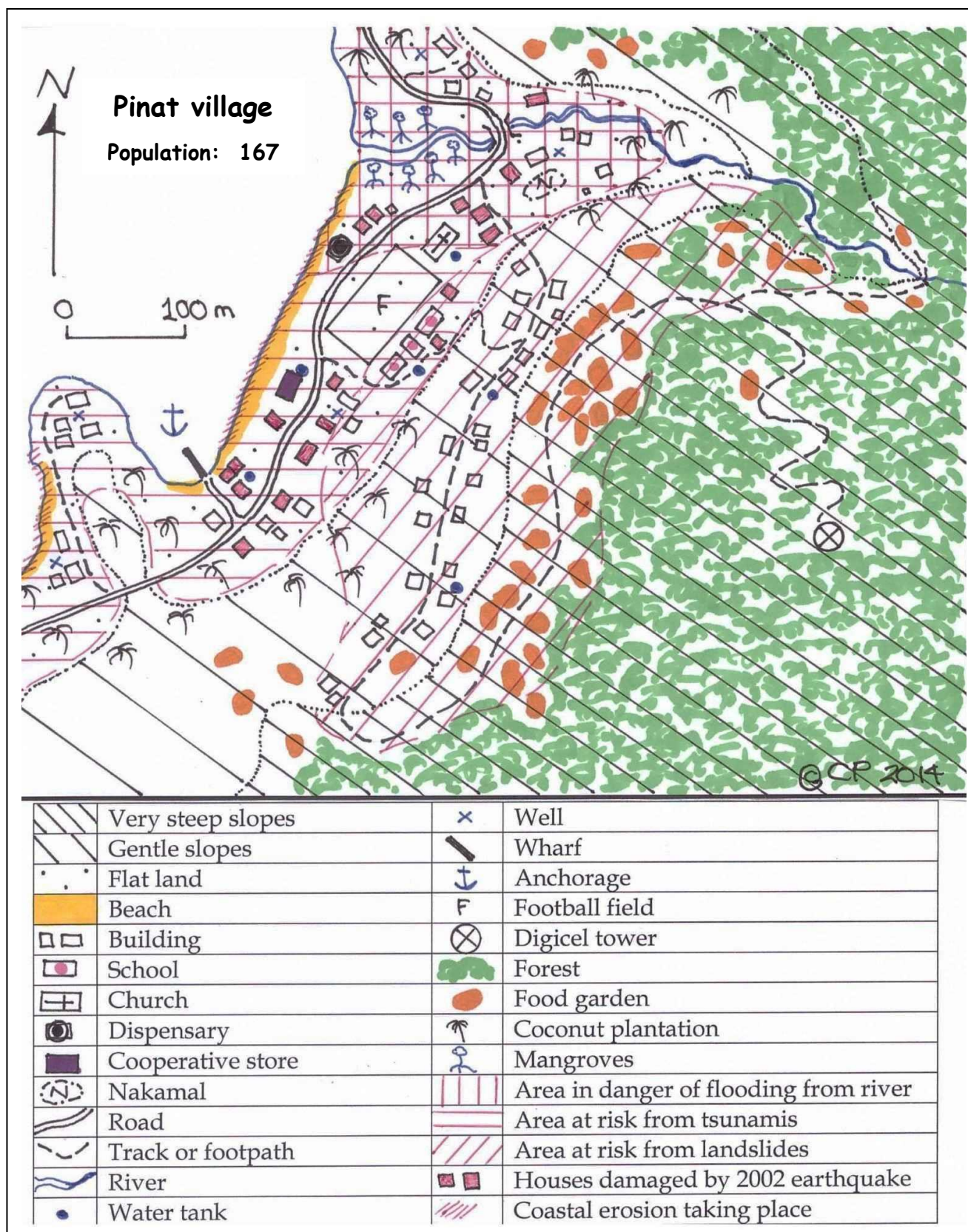
Firstly, however, you should think about some of the main elements of an action plan that might be appropriate. Consider evacuation routes, safe areas, safe buildings, tree planting schemes, building designs, protection of vulnerable people, awareness talks, safety drills, and so on. Discuss this with your facilitator and your fellow-learners, and make a summary of your suggestions in your Learner Workbook when you do Activity 8.1a. It might also be advisable to involve members of the local CDCCC or others in the community in your discussions.

One element of the plan that you probably want to include will be a risk map of the local community. You first attempted this in Unit CGHR0116, and then did further work on the same map in Unit CGHV0116. Now, you can prepare another risk map of your community, this time making it more simple. This time, just show those areas in the village that are at high risk, those that are at moderate risk and those that are at low risk. To do this, you will need to look at your first risk map that showed the different areas affected by different hazards, and then determine those areas that are going to be affected by many hazards (high risk), by some hazards (moderate risk) and by few or no hazards (low risk).

An example is given on the next two pages. Fig. 35 is the original map of Pinat village that was drawn for use in Units CGHR0116 and CGHV0116. Fig 36 is a simplified version of the same map. Your task in Activity 8.1b will be to draw a map for your chosen community that is like the one in Fig. 36.

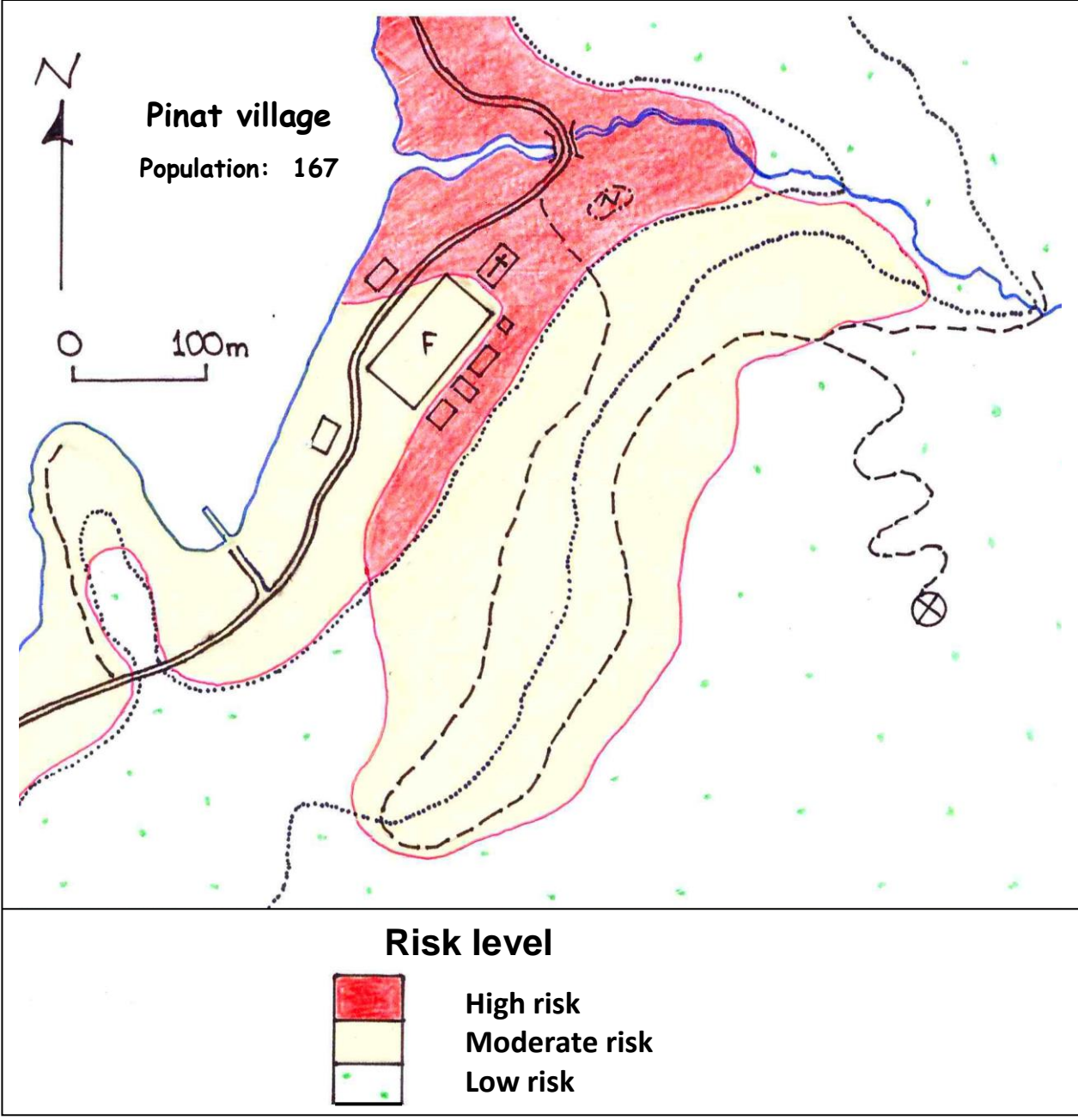
When you have completed Activities 8.1a and 8.1b, you will be ready to make the action plan in Activity 8.1c.

Fig. 35



Pierce, C., 2014

Fig. 36



Pierce, C., 2014



Please complete Activities 8.1a, 8.1b and 8.1c in your Learner Workbook

My Notes:

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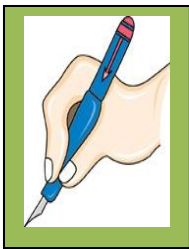
Concept	I understand this concept	Questions that I would still like to ask
8.1 A proposed action plan for a local community for coping with disaster risks and the impacts of climate change, and for building up the community's adaptive capacity.		

8.2 Consultation with the community about the proposed action plan

Now that you have worked in teams to prepare an action plan for a local community, it is time to take your plan to the community. You are going to try and meet with representatives of the local community, and you will possibly be working alongside members of the local Community Disaster and Climate Change Committee (CDCCC), if there is one.

When you have your meeting with community representatives, you can share your plan and get feedback from them about whether your plan is suitable for them. It is important that you seek feedback from both women and men, and that vulnerable groups such as the elderly, pregnant mothers and mothers with small babies, people living with disabilities, etc. are consulted.

After you have obtained this feedback, you can revise your plan and then give it to your community and/or the CDCCC, also keeping a copy for yourselves.



Finally, please complete Activity 8.2 in your Learner Workbook and in the field

My Notes:

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Concept	I understand this concept	Questions that I would still like to ask
8.2 Consultation with representatives of a local community to share, seek feedback on, and revise the proposed action plan, always ensuring that the interests of women and other vulnerable groups are represented.		

Glossary

Accountability	Being answerable to someone for what you are doing, or having a duty to report on actions that have been taken.
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.
Advocate	To publicly recommend or support something.
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.
Alert	Warning of a possible danger that will come.
Alley cropping	Planting trees or shrubs in two or more rows, with crops cultivated in the alleys or spaces in between.
Assessment	Measuring the value or usefulness of something; measuring the ability of a community to cope with a hazard or with climate change.
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.
Building code	Set of rules describing how a building should be constructed.
Carbon sink	Forest, ocean or other natural environment that can absorb carbon dioxide from the air.
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.
Coherence	Quality of forming a unified whole.
Community response plan	Plan made by and for a community to minimize the effects of a hazard and to help the community recover and get back to normal.
Compost	Natural fertilizer made from rotting plants.
Coordinate	Work together in harmony, so that efforts are not wasted or duplicated.
Degradation	When something loses its quality, or is spoilt.
Disaster	When a hazard strikes a community and the resulting level of impact exceeds the affected community's ability to respond and allow the community to get back to normal.
Disaster risk management	All aspects of planning for and responding to emergencies and disasters, including both pre- and post-event activities.

Disaster risk reduction	All aspects of prevention, mitigation, preparedness, response and recovery that a community may decide to undertake in order to reduce the impacts of present and future hazards.
Disaster risks	Impacts that could happen to life, property and/or the environment if a hazard strikes a community.
Ecosystem	A group of living organisms and non-living elements of the environment that are found together and affect each other.
Emergency	A sudden disturbance that can cause loss or damage, but which a community can cope with by using its own resources; a situation that requires immediate attention.
Emergency drill	A practice of what do to if an earthquake, a tsunami or other disaster arrives.
Emission	Substance or gas that is released into the air.
Endorse	Publicly approve or support something.
Exploitation	Using something at a faster rate than it can be replaced.
Fallow period	Time when a piece of land is left unused and cultivated 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.
Greenhouse gases	Gases that trap outgoing heat energy from the earth and so make the atmosphere warmer; examples are carbon dioxide, methane and nitrous oxide.
Hazard	A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
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.
Inundation	Flooding of areas next to the coast or to a river.

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.
Mitigation	Measures to make the impact of a hazard less severe.
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.
Preparedness	Making sure that people are ready to respond to a disaster when it occurs, so that they can save their lives and protect their belongings.
Preservation	Keeping something in its original state or in good condition.
Prevention	Stopping the hazard from happening, or being able to reduce vulnerability to its impacts.
Recovery	Helping the community to get back to normal and making it more resilient to future disaster events.
Renewable energy	Energy from a source that is not depleted (used up) when it is used.
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.
Response	All actions taken during and immediately after a disaster to protect life and property.
Responsibility	Having a duty to deal with something.
Risk map	Map that shows the level of danger expected in an area.
Risk transfer	Taking steps to ensure that any economic losses are shared by the whole community, for example by putting aside emergency funds, or by using traditional networks and family support systems.
Seismograph	Instrument that measures the strength of an earthquake
Soil erosion	Removal of the top layer of soil by rain, running water or wind.
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.
Technology	Use of machines or tools; the application of scientific knowledge for practical purposes.
Traditional knowledge (TK)	Information and beliefs regarding the relationship of living things to one another and their surroundings.
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
Cover	Secretariat of the Pacific Community (SPC) and Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), 2014, <i>Learning about Climate Change the Pacific Way: A Visual Guide – Vanuatu</i> . Accessed on 12 December 2014 at http://www.spc.int/images/climate-change/cc-project/Vanuatu-complete.pdf
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