The Pacific adventures of the

Clinnate Crab tool kit

El Niño and La Niña: from information to action!



The Pacific Adventures of the Climate Crab is a collaboration between Red Cross and the Australian Government's Pacific-Australia Climate Change Science and Adaptation Planning (PACCSAP) Program. The project was implemented by the Red Cross, the Australian Bureau of Meteorology, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Vanuatu Meteorology and Geo-hazard Department (VMGD) and the SPC-GIZ Climate Change Program.

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> tional Federation International Federation of Red Cross and Red Crescent Societies

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For more information about the use of this resource:

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Welcome to the Pacific Adventures of the Climate Crab!

Welcome to the Climate Crab toolkit!

This resource 'tool kit' is designed to help facilitators and educators link the information presented in The Pacific Adventures of the Climate Crab animation to decision-making and action. It may assist those working in fields like climate change adaptation, disaster risk management, health, education, food security, community planning, environmental protection, agriculture and natural resource management.

The islands and territories of the Pacific region can experience very wet or very dry conditions as a result of El Niño and La Niña. These conditions, along with extreme events like cyclones, can have serious impacts on water quality, food security, infrastructure (like houses and roads), livelihoods and health. However, good quality climate and weather information, warnings and forecasts can help us anticipate and prepare for changing risks.

The Pacific Adventures of the Climate Crab animation and this tool kit aim to increase awareness of the science of El Niño and La Niña and their impacts. The tool kit also seeks to encourage discussion around how Pacific Island countries can access forecast information, communicate and work pro-actively with other stakeholders and take early action to prepare for future El Niño and La Niña events. Addressing the ups and downs of these events can also help adaptation to human-induced climate change.

This tool kit provides resources designed to facilitate a workshop or lesson based around the animated film. It is designed to be very flexible and can be tailored to different audiences, meeting topics or timeframes. The sessions could easily be included in the wider program of a training day, workshop or planning session. This tool kit is available on DVD and is also freely available for download from www.pacificclimatechangescience. org/climatecrab.



How to use this tool kit – a short guide for facilitators and educators

The most important thing to do before your workshop is to watch The Pacific Adventures of the Climate Crab animation a few times, so you're familiar with the story, the characters and the key messages.

The Climate Crab toolkit contains a template outlining a suggested agenda for your workshop or lesson. The template is a guide only. You can choose to use some or all sessions shown in the template, depending on your audience and timeframe.

When you are planning a session, it is important to consider how much time you have to facilitate the workshop and identify some objectives – for example, what is it that you want people to walk away knowing or doing? Then you can choose which workshop sessions you would like to include. The workshop template provides a brief explanation of what each session is designed to achieve, and outlines all the tools and materials you will need to facilitate that session.

Before the workshop, it is important to familiarise yourself with all the sessions' details and content and make sure you have the support materials you need to facilitate the workshop. If possible, do a 'practice run' of your workshop on some friends or colleagues beforehand.

At the back of this handbook, there is a glossary that explains some key terms and also a list of places you can go to access more information if you need it.

Contents

- 1 Welcome to the Pacific Adventures of the Climate Crab!
- 1 How to use this tool kit
- *3* Climate Crab workshop template
- **5** Introducing the workshop
- 6 How to facilitate the weather and climate exercise
- 8 How to facilitate the El Niño and La Niña Impacts exercise
- 10 How to facilitate the Pacific Early Warning Early Action scenario exercise
- 2 How to access the latest forecasts and warnings
- 13 How to facilitate the Pacific Future Climate exercise
- 15 How to play Speed Dating (versions 1 and 2)
- **16** Frequently asked questions and answers for facilitators and educators
- **13** Glossary of key terms
- **19** For more information



Climate Crab workshop template

This workshop could easily become part of a regular training, workshop, lesson plan, meeting or planning session. The template is designed to be flexible and you should use it as a guide only. Choose the sessions that best suit the needs of your workshop and feel free to use some or all sessions shown in this template.

* A Climate Crab PowerPoint presentation (with notes) has been designed to help you facilitate this workshop (if you have access to a computer and a projector). This presentation can be copied from The Pacific Adventures of the Climate Crab DVD or you can download it from www.pacificclimatechangescience.org/climatecrab.

Workshop session	Session details Tools to help you run this session		Time of session
Introducing the Climate Crab workshop	This session will give participants a clear understanding of the aims and agenda of the workshop. You can also use this session to facilitate introductions between the participants.	• See page 5 for some key points that you may like to include in the workshop introduction.	15 minutes
Weather and climate exercise	This exercise will help participants learn about the differences between weather and climate.	 How to facilitate the weather and climate exercise (see page 6) A whiteboard or a large piece of paper Coloured markers Small pieces of paper 	30 minutes
Optional extra: Speed Dating (version 1)	This exercise is a good icebreaker that will encourage participants to start thinking about how weather and climate can impact upon their community, organisation, department, business, sector or country.• How to play Speed Dating (version 1) (see page 15) • A stopwatch or a watch with a second hand • Chairs		45 – 60 minutes
Climate Crab slideshow presentation	 This presentation will help you to increase participants' understanding of: Different timeframes and what they mean in terms of weather and climate The difference between climate change and climate variability Current climate trends and projections for the Pacific region Make sure you leave some time for questions at the end of the slideshow. PowerPoint slides and notes* Computer and projector Computer and projector 		30 minutes
Screening of The Pacific Adventures of the Climate Crab animation	 Showtime! All you need to do is press play. The Pacific Adventures of the Climate Crab animation Something to play the animation on – for example, a DVD player and TV or a computer and projector 		5 minutes
Question time!	This session is an open forum where participants can ask questions related to the animation. There is a list of some common questions and answers to help you.	o the animation. There is a list and answers for facilitators	
El Niño and La Niña Impacts exercise	This exercise will help participants become familiar with the typical impacts of El Niño and La Niña events in their country and/or upon their sector.	 How to facilitate the El Niño and La Niña Impacts exercise (see page 8) El Niño/La Niña impacts table (see page 9) Some big pieces of paper Coloured markers 	45 – 60 minutes

Workshop session	Session details	Tools to help you run this session	Time of session
Pacific Early Warning Early Action scenario exercise	This exercise helps participants to see how they can use warnings and forecasts from their weather office and turn these into practical low cost actions, which will help their communities, countries or organisations to be better prepared.	 How to facilitate the Pacific Early Warning Early Action scenario exercise (see page 10) PowerPoint slides and notes showing some 'best practice' examples of action across the Pacific* Computer and projector Some big pieces of paper Coloured markers 	90 minutes
Coming soon the latest forecasts and warnings	of climate and weather warnings and forecasts. You (regional and/or country		15 – 30 minutes
The Pacific Future Climate exercise			45 – 60 minutes
Optional extra: Speed Dating (version 2)	This exercise is a great way to finish the workshop. It will encourage participants to start thinking about an action that they could take in their country, community, organisation, department, sector or business in the near future.	 How to play Speed Dating (version 2) (see page 15) A stopwatch or a watch with a second hand Chairs 	45 – 60 minutes



Introducing the workshop

Keep the workshop introduction short and sweet.

Introduce yourself and briefly explain your role and where you work.

Introduce the broad aims of your workshop. You could include the following aims:

- To increase awareness of the science and impacts of climate and weather in the Pacific;
- To increase people's understanding of important warnings and forecasts provided by local weather offices across the Pacific; and
- To encourage discussions around how organisations, departments, schools, businesses and communities can take early action to prepare for the impacts of future El Niño and La Niña events and adapt to climate change.

You could also highlight the following points:

- Extreme climate and weather events and climate change impact on every sector, organisation, community and individual in the Pacific region;
- There are very useful warnings, forecasts and other services available across the Pacific region;
- These warnings, forecasts and other services can be linked with smart decision-making and practical action to best prepare the Pacific region for the impacts of future extreme climate and weather events; and,
- It is important to pro-actively communicate and work together with other communities, organisations, government departments and/or countries.

Outline the agenda. Once you have decided which parts of the workshop template you would like to use, you can write up your customised agenda.

Check to see if anyone has any questions and, if appropriate, facilitate introductions between the workshop participants.



How to facilitate the weather and climate exercise

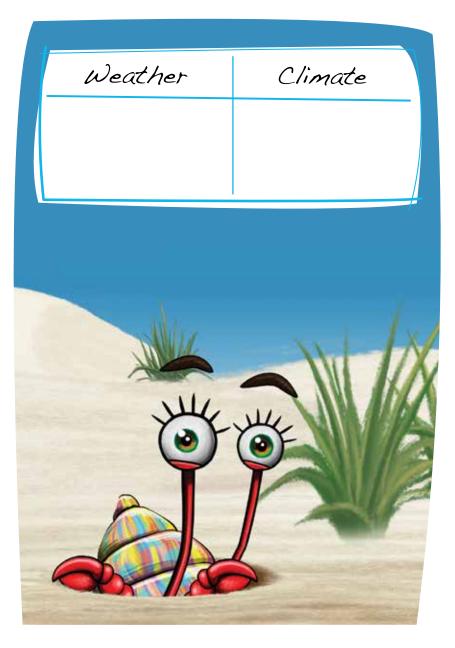
Equipment needed

- A whiteboard or a large piece of paper (flip chart) stuck onto the wall.
- Different coloured markers with which to write (permanent or whiteboard).
- Some small pieces of paper and something to stick them onto the table with (for example, white masking tape or blu-tack).

Preparation

Draw a table on the whiteboard or on a large piece of paper stuck to the wall (see below).

Write or print out the scenarios onto the small pieces of paper (see next page; make sure you don't include the answers for participants!). You should have one separate piece of paper for each scenario.



How to play!

1. First ask participants what they think the difference is between weather and climate. You can confirm the answer and give a couple of examples with the information below.

Answer:

Weather = current conditions like rainfall, temperature, wind speed, at a particular place and time. Example: Today's temperature is 32 degrees.

Climate = average pattern of weather for a place over a long period of time (i.e. 30 years or more). Example: Niue has a pronounced wet season and dry season and the average dry season rainfall is 700mm.

There is a useful phrase that can help to distinguish weather from climate: *'Climate is what we expect. Weather is what we get.'*

2. Hand each person in the group one of the scenarios (see next page).

3. Ask the participants to think about if their scenario could be classified as 'weather' or 'climate' and why.

4. Ask each person to stick their pieces of paper under the relevant heading on the table you have provided.

5. As a group, go through each of the scenarios one by one and discuss whether each scenario is indeed weather or climate and why (the answers have been provided to help you). Move scenarios to the other heading if needed.



Scenarios (answers in italics)

Yesterday it was a very hot day in Apia

Weather – temperature at a specific time and place is a short-term condition.

Vanuatu has a wet season and a dry season

Climate – the season you expect is based on long term observations.

Nauru has consistent monthly average temperatures throughout the year

Climate – the monthly temperature is averaged over time.

The cyclone season runs from November to April in Tonga

Climate – the season you expect is based on long term observations.

The radio presenter announced that a category 3 tropical cyclone is likely to hit the northern provinces of Vanuatu tomorrow morning

Weather – cyclone conditions at a specific time and place are short-term conditions.

My sister's house in Honiara might get flooded because it has been raining very heavily this week and more rain is forecast today

Weather – rainfall at a specific time and place is a short-term condition.

In the Southern Cook Islands, the average maximum temperature in January is hotter than the average maximum temperature in August

Climate – the maximum temperatures in January and August are averaged over time.

In Suva, the forecast for tomorrow morning is mostly fine, with a chance of showers

Weather – short-term conditions.

A tsunami alert has been issued in the Pacific at 10:00am today

This is a trick question – a tsunami is a geological hazard caused by an earthquake and therefore is not linked to weather or climate!

The average rainfall for March in Port Vila is 323mm

Climate – rainfall for March is averaged over time.

Usually La Niña events bring drier conditions to Tuvalu and El Niño brings wetter conditions

Climate – these are conditions that you can expect based on observations over long periods of time.

My father might not go fishing for tuna off Tarawa tomorrow because it is too windy

Weather – wind at a specific time and place is a short-term condition.

Droughts occur in Niue from time to time, causing water shortages and damage to agriculture

Climate – we can say this as droughts and their impacts have been observed many times over many years.

How to facilitate the El Niño and La Niña Impacts exercise

This exercise aims to give participants an understanding of how El Niño and La Niña events impact their country and/or their sector. There are two different ways that you can facilitate this exercise (see option 1 and option 2 below).

Equipment needed

- El Niño/La Niña impacts table (see page 9)
- Big pieces of paper
- Different coloured markers with which to write

Option 1: Impacts by sector

1. Make a list of sectors that are represented by participants in the room (for example health, water, agriculture).

2. Divide participants into their sector groups.

3. Give each sector group a copy of the El Niño/La Niña impacts table.

4. Ask each sector group to choose a particular country and then give them 20 minutes to reflect on the impacts of El Niño and La Niña events relevant to their sector in that country (for example, what are the health impacts that could be triggered by a La Niña event and subsequent heavy rainfall in Fiji? Impacts could include typhoid and dengue fever).

5. Ask each group to present their answers back to the whole workshop. Further discussion can then be had on sector-relevant preparedness measures that could be undertaken upon receiving a warning of an El Niño or La Niña event or a seasonal forecast for above or below average rainfall (you can link this with the scenario exercise on page 10).

Option 2: Impacts by country

1. Make a list of countries that are represented in the room.

2. You can divide participants into all country groups that are represented or just choose a selection of countries (for example, Melanesian, Polynesian or Micronesian countries, or countries that are characterised by similar geological features like atolls or mountains).

3. Give each sector group a copy of the El Niño/La Niña impacts table.

4. Ask each group to reflect upon the impacts of El Niño and La Niña events on their country. Ask them to think across sectors such as health, agriculture, water etc.

5. Ask each group to present their answers back to the whole workshop. Further discussion can be had on country-relevant preparedness measures that could be undertaken upon receiving a warning of an El Niño or a La Niña event (you can link this with the scenario exercise on page 10).



El Niño/La Niña impacts table

Summary of the impacts of El Niño and La Niña during November to April in each country and region, showing whether there is a clear change in rainfall, sea level or tropical cyclone risk. 'El Niño' covers all years of El Niño, and 'Extreme El Niño' includes only the years 1982/3 and 1997/8.

Country	Decier			
Country	Region	El Niño	Extreme El Niño	La Niña
Papua New Guinea (PNG)		Lower than normal sea levels	Dry Lower than normal sea levels	No consistent impact on rainfall North PNG – higher than normal sea levels
Solomon Islands		Dry Lower than normal sea levels	Dry Lower than normal sea levels	Wet Higher than normal sea levels
Vanuatu		Dry	Dry	Wet
Fiji		Dry	Very dry	Wet
Tonga		Dry Increased cyclone risk	Very dry Increased cyclone risk	Wet
Niue		Dry Increased cyclone risk	Very dry Increased cyclone risk	Wet
Cook Islands	North	Wet Increased cyclone risk	Wet Increased cyclone risk	Dry
	South	Dry Increased cyclone risk	Very dry Increased cyclone risk	Wet
Samoa		Increased cyclone risk	Dry Lower than normal sea level	No consistent impact on rainfall Higher than normal sea level
Tuvalu		Wet Lower than normal sea level	Wet Lower than normal sea level	Dry
Nauru		Wet	Dry	Dry
Kiribati	Gilbert Islands	Wet	Dry	Dry
	Line Islands	Wet Higher than normal sea level	Wet Higher than normal sea level	Dry Lower than normal sea level
Palau		Dry Lower than normal sea level	Dry Lower than normal sea level	Wet Higher than normal sea level
Federated States of Micronesia (FSM)	West	Dry Lower than normal sea level	Very dry Lower than normal sea level	No consistent impact on rainfall Higher than normal sea level
	East	Lower than normal sea level	Dry Lower than normal sea level	Wet Higher than normal sea level
Marshall Islands	North	Lower than normal sea level	Lower than normal sea level	No consistent impact on rainfall
	South	Lower than normal sea level	Very dry Lower than normal sea level	Higher than normal sea level Dry Higher than normal sea level
East Timor		Dry	Dry	Wet

How to facilitate the Pacific Early Warning Early Action scenario exercise

This exercise helps people from across the Pacific to see how they can use weather and climate warnings and forecasts and turn this information into informed decisions and practical actions that will help them to be better prepared.

Equipment needed

- One or two copies of each scenario (see page 11), depending on how big the workshop is
- Big pieces of paper
- Different coloured markers with which to write
- PowerPoint slides and notes for the Pacific Early Warning Early Action scenario exercise
- A computer (and projector if available)

Preparation

1. This exercise is designed so that it can be targeted to different kinds of audiences. To prepare for the exercise, think about what sort of participants will be attending your workshop – are they all from a similar sector or type of organisation? Are they from one or two countries only? Or are they from very different sectors and organisations, and from all over the Pacific region? Do they have a regional focus?

2. Write the scenarios out by hand on separate pieces of paper or print them out. We have also provided a slide for you with these scenarios in the PowerPoint presentation for this exercise if you would prefer to use this.

3. On some big pieces of paper, copy out the discussion questions (see next page) and display them somewhere where everyone can see them. We have also provided a slide for you with these questions in the PowerPoint presentation for this exercise if you would prefer to use this.

4. Set the projector up and get the relevant slides ready to go if you are using this tool.

Instructions for facilitator

1. Divide the workshop participants up into small groups. You could organise the groups so people from the same or similar organisations, sectors, backgrounds or countries are grouped together or you can divide them up randomly.

2. Outline the scenarios and the discussion questions (see next page) to the whole group. There are some slides in the presentation that can help you explain these clearly.

3. Provide each group with a piece of paper outlining a particular scenario (see next page), some big pieces of paper and markers to write with.

4. Ask each group to nominate someone to present back to the big group and someone to take notes.

5. Check to see if anyone has any questions about the exercise.

6. Ask the groups to work through the discussion questions using their particular scenario. Let them know that they will have 45 minutes to discuss the questions and come up with ideas.

7. Let the groups know when they have five minutes left and then after time's up, bring the groups back together and ask the nominated speaker from each group to take five to ten minutes to present their ideas and actions back to the large group. Allow some time for questions at the end of each presentation.

At the end of the presentations, you can use the slideshow to demonstrate real life 'best practice' examples and generate discussion about what early preparedness actions are being taken across the Pacific region. This part of the session is a great chance to inspire participants.



Scenarios

These scenarios are based on real warnings and forecasts that have been released in the past by weather offices across the Pacific, but you could also create your own, using the El Niño and La Niña impacts table provided on page 9 of this booklet.

Seasonal forecast scenarios

Scenario 1: Above average rainfall

There is a La Niña in the Pacific. The Solomon Islands Meteorological Service forecasts above average rainfall for the coming three months in the Solomon Islands. High rainfall and floods may be possible.

Scenario 2: Below average rainfall

There is an El Niño in the Pacific. Below average rainfall is forecast for the coming three months in Tonga. The Tonga Meteorological Service releases a drought warning stating that some areas may experience water shortages. They advise people to take measures to minimise the impact of drought.

Scenario 3: Below average rainfall

There is a La Niña in the Pacific. Below average rainfall is forecast for the coming three months in Kiribati. The Kiribati Meteorological Service releases a drought warning stating that some areas may experience water shortages. They advise people to take measures to minimise the impact of drought.

Scenario 4: Cyclone season

It is the beginning of the rainy season in Vanuatu. The Vanuatu Meteorology and Geo-hazard Department releases the tropical cyclone outlook for the season. There are 9 - 12 tropical cyclones forecast for the Pacific region and Vanuatu is likely to experience close to normal or slightly above normal tropical cyclone activity. The Vanuatu Meteorology and Geo-hazard Department forecasts that 2 - 4 cyclones may affect the country and asks the people of Vanuatu to remain vigilant at all times during this cyclone season.

Weather forecast scenarios

Scenario 5: Severe weather warning

It is the middle of the rainy season in Samoa. The Samoa Meteorology Division releases a severe weather warning. Winds of 60 km/hour are expected in the next 24 hours and heavy rain is forecast for much of the country. A flood and landslide advisory for vulnerable areas is also in effect. High seas and marine wind warnings are also in place.

Scenario 6: Tropical cyclone warning

It is cyclone season and a Category 4 cyclone is approaching Fiji from the northeast. The Fiji Meteorological Service releases an updated warning on Tropical Cyclone Iris. Very destructive hurricane force winds with average speeds to 180 km/hr and momentary gusts to 240 km/hr are expected in the next 24 hours. Heavy rain and flooding of lowlying areas is also expected. A damaging heavy swell warning is in place for all Fijian waters. The next warning on Severe Tropical Cyclone Iris will be issued at 6:00pm.

Discussion questions for all groups

1. Impacts

- 1. Can you remember a time that this has happened before?
- 2. What impacts could this scenario have on your community, organisation, sector, country or region (facilitator to choose which is more appropriate for the audience)?

2. Information

Where can you get warnings and more information about this scenario?

3. Solutions

- 1. Think about existing responses to these impacts. What works well that can be done more? What can be done differently or better next time?
- 2. What no cost or low cost actions can be taken in the near future to prepare for this scenario?
- 3. How would you make sure these actions are implemented into the future (not once-off)?

4. Which stakeholders could you pro-actively communicate and work together with?

Be as specific or general as you like (for example, you could think about community responses, or sectorbased, national, organisational or regional responses).

How to access the latest forecasts and warnings

The Island Climate Update is a monthly summary of the climate in the tropical South Pacific Islands, and provides a summary outlook for the coming months for each country. It is published each month by the National Institute of Water and Atmospheric Research (NIWA) in New Zealand.

You can download the latest Island Climate Update at www.niwa.co.nz/climate/icu For North Pacific countries you can find a summary of seasonal forecasts and a climate update here:

www.prh.noaa.gov/peac/update.php www.prh.noaa.gov/peac/rainfall.php

The Australian Bureau of Meteorology also publishes a fortnightly update on the state of the El Niño Southern Oscillation (ENSO) at

www.bom.gov.au/climate/enso

Regular weather updates, including cyclone warnings, severe weather warnings and marine warnings are also available across the region.

For more country-specific information on weather, climate, forecasts and warnings, contact your local weather office.



How to facilitate the Pacific Future Climate exercise

Equipment needed

- The Pacific Climate Change Science Program's Current and future climate of ... brochures. You can download these from www.pacificclimatechangescience. org/publications2.html
- Big pieces of paper and something to stick them up on the walls with
- Coloured markers with which to write

Preparation

1. Choose a country or countries to use in this exercise. Have a think about where your workshop participants are likely to be from and choose a country (if they are all from the same place) or countries – for example, if they are from all over the Pacific, you could choose one Melanesian, one Polynesian and one Micronesian country. Get a copy of the Pacific Climate Change Science Program's Current and future climate of ... brochure for the country or countries you have chosen (see above).

2. Once you have a copy of the brochure for your chosen country or countries, turn to the 'future climate' section on page 6. Write the climate change projections for your chosen country on the top of your big pieces of paper (one projection per sheet) and stick them up around the room (make sure you leave lots of space under each heading for people to write on later). For example, if your chosen country was Papua New Guinea, you would use the following projections:

- Temperatures will continue to increase
- More very hot days
- Changing rainfall patterns
- More extreme rainfall days
- Less frequent but more intense cyclones (meaning that more of those that do occur will be very intense)
- Sea level will continue to rise
- Ocean acidification will continue

And you would write, for example, 'Papua New Guinea – More very hot days' at the top of one sheet of paper. If you have chosen a few different countries, you will need lots of pieces of paper!

How to facilitate

1. Show participants the Pacific Climate Change Science Program's brochure for your chosen country or countries and explain that this exercise is based around climate projections sourced from this publication. If you have included the Climate Crab PowerPoint presentation in your workshop, participants should already have an understanding of some of the information contained in this brochure. Make sure everyone knows that brochures for 15 different countries are freely available online at www.pacificclimatechangescience. org/publications2.html.

2. Divide the workshop participants into small groups and hand out a marker to each group to write with. There are two different ways to divide up the group. Use 'Option 1' if your participants are all from the same country and 'Option 2' if your participants are from different countries.

Option 1: Arrange participants into one small group per climate projection (i.e. if your country had seven projections, then you would need seven small groups) and assign a climate change projection to each group. For example, one group stands at sea-level rise, another group takes temperature rise etc. **Option 2:** Arrange participants into country groups (for example you could choose a Melanesian, Polynesian and Micronesian country) and ask them to stand next to the projections for their assigned country. They will need to consider all of the projections for that country.

3. Ask each group to take 15 minutes (for Option 1) or 30 minutes (for Option 2) to brainstorm what impacts they think these projected changes may have for this country over the course of the century. Each group should list the relevant impacts under each projection.

You can help kick start group discussions by asking people to think about impacts related to health, agriculture, water, ecosystems or disasters. For example, an impact of more extreme rainfall events in the Solomon Islands may lead to more flooding which can cause damage to infrastructure (houses/ roads/bridges) and threaten people's livelihoods and safety.

4. Get everyone back together in a big group and walk around the room as each small group explains their answers. Participants from the other small groups can be encouraged to add to the list of impacts.

After you have gone through all the different impacts, you can facilitate

a general group discussion. Here are some useful questions and points that you can use to guide this discussion:

- Are these impacts things that people in that country (or the Pacific) might already be familiar with? Which are/ aren't familiar?
- You can point out that some impacts are related to long-term change, while others will come as extreme events
- Do a brainstorm as a group to think of other factors that might make these impacts worse (for example, other vulnerabilities such as economic, environmental, social factors)
- You can make the point that it isn't climate change alone that will cause the greatest impact. It is the intersection of climate change with many other challenges, such as El Niño and La Niña. We can work on preparing for the 'shocks' (like extreme weather events) as well as the slow changes (such as changes to seasons) and we can also work on some of these other factors to reduce vulnerability and increase people's resilience to changes that might occur (for example, reducing environmental degradation).

Make sure you capture any key points on a whiteboard or on paper.

How to play Speed Dating (versions 1 and 2)

Equipment needed

- Chairs make sure you have enough chairs for everyone in the group
- A stopwatch (most mobile phones will have a stopwatch) or a watch with a second hand

Preparation

1. Take half the chairs and arrange them in a circle facing outwards.

2. Arrange the other half of the chairs in a bigger circle, with each chair facing one of the chairs in the first circle.

How to play

1. Ask everyone in the workshop to sit down in a chair. Once everyone is sitting down there should be two circles of people facing each other.

- 2. Explain the game.
- For 'Speed Dating 1', each person will need to tell the person sitting opposite them their name, their organisation and give them one example of how the weather and climate affects their organisation, sector, community, country or place of work.
- For 'Speed Dating 2', each person will need to tell the person sitting opposite them their name, their organisation and give them one example of an early action that they are going to take in their organisation, sector, community, country or place of work.

3. Give the participants 3 minutes to think about which example they are going to use.

4. Then start the game! Each person sitting in the inside circle of chairs has 45 seconds to tell the person sitting opposite them their name, organisation and example.

5. The facilitator must keep an eye on the time. Give the group a warning at 35 seconds – you can call out '10 seconds to go!' – and once the clock reaches 45 seconds, call out 'time!' or 'change!' or make a loud buzzer sound. **6.** Then it's the turn of each person sitting in the outside circle, who has 45 seconds to explain to the person sitting opposite them THEIR name, organisation and example.

7. Once the facilitator has called 'time', all the people sitting in the outside circle must stand up and move across one chair to the left and sit down so that they are facing a new person.

8. The cycle then starts again, until the people in the outside circle have returned back to the seat that they were sitting in at the start of the exercise.

9. Wrap up the session by reinforcing and sharing some of the 'highlights'. Ask four or five participants to tell the group what they thought was:

- The most interesting example of how the weather or climate affected their partner's organisation, sector, community, country or place of work (if you're playing version 1)
- The most inspiring or 'smart' example of an early action that their partner planned to take (if you're playing version 2)

At the end, ask all the participants to stand up and give themselves a big clap!

Frequently asked questions and answers for facilitators and educators

This list of frequently asked questions and answers is designed to help you answer some questions that may arise. If you don't know the answer to a question and it is not covered in this list, be honest and tell people you will find out for them (make sure you do get back to them!). That way you and the participant both learn something new!

Why do the clouds in the cloud meeting place form above the warm pool?

Clouds form where there is moisture and rising air. The warm waters of the warm pool provide both of these. The warm waters heat the air above the warm pool, which causes it to rise and adds lots of moisture to the air.

What time of the year do El Niño and La Niña happen and how long do they last?

Every El Niño and La Niña is different, but they usually start around the middle of the year and last until early the following year. Sometimes they can last for another full year.

How often do El Niño or La Niña happen?

El Niño and La Niña don't happen every year, and there is no regular pattern of how often an El Niño or La Niña will occur. This is why it is important to keep up to date with seasonal forecasts. Over the period from 1979 to 2012 there were ten El Niños and six La Niñas. Some decades have more El Niños and La Niñas than others. For example, during the decade 2000-2010 four El Niño events and two La Niña events occurred.

Why do El Niño and La Niña have different effects in different parts of the Pacific?

El Niño and La Niña cause changes in the location and strength of the cloud meeting places (South Pacific Convergence Zone, Inter Tropical Convergence Zone and monsoon). The impacts of El Niño and La Niña depend on where your country is situated, which cloud meeting places and other climate features normally affect your climate, and how the cloud meeting places change during the event. For example, many countries in the south west Pacific are affected by the South Pacific Convergence Zone, and when it moves to the north east during an El Niño the country-specific impacts depend on how far it moves and whether it moves closer to or further away from your country.

Are the impacts of El Niños and La Niñas always the same?

No, they are all different. Scientists can measure and forecast different aspects of El Niño and La Niña. The impact that they have on temperature, rainfall, the location and intensity of tropical cyclones and changes to sea level can be different depending on the strength of the event. For example, in Vanuatu, an El Niño may not always mean there will be a drought, but two out of the last three El Niños have resulted in official droughts being declared in Vanuatu.

It is important to remember that the strength of an El Niño or La Niña event only provides an indication of how widespread and severe associated impacts are likely to be. It does not provide certainty regarding the severity of impacts in specific locations. The best way to anticipate if an El Niño or La Niña event is likely to bring too much or too little rainfall to your area is to monitor seasonal forecasts for your country.

Are El Niño and La Niña linked to climate change and why are they different to climate change?

El Niño and La Niña occur naturally and are a normal part of our climate. Just like our seasons, they will still occur and affect year-to-year climate variations even when the climate is changing over a long period of time. In the future El Niño and La Niña will continue to occur and affect our climate. However, because our climate is changing, some aspects of El Niño and La Niña may be different in the future. The average climate is changing. For example, the atmosphere is warming, which means it can hold more moisture, so rainfall may become more intense in some places. This also means that the effects El Niño and La Niña have on rainfall may also be different in the future. Also, sea level is rising due to climate change. This means that any high sea level events that happen, for example due to La Niña, may be more severe because of the higher average sea levels due to climate change.

Scientists are also researching whether El Niño and La Niña might happen more or less often, or be more or less intense in the future, but at the moment the science suggests these will not change significantly.



How accurate are the forecasts from my weather office?

Most weather offices provide forecasts of El Niño and La Niña, and of their impacts. They can fairly accurately forecast whether an El Niño or La Niña event is likely to happen from a few months or more ahead, depending on the time of year and the strength of the signs. However, impacts such as an increase or decrease in rainfall are harder to predict and so these forecasts don't provide certainty, but we can still take 'low or no cost' measures to prepare. The impacts of past El Niño and La Niña events also guide us as to how the climate for the coming seasons is likely to be different from normal.

What if the forecast high rainfall doesn't happen – have I wasted my time preparing?

Forecasts are probabilities, not certainties. This means that there is a chance or a risk of something happening (for example, high rainfall). Just because we don't have certainty doesn't mean we shouldn't prepare. It is always better to be safe than sorry. There are many actions we can take that will mean we are more prepared for next time and that are good to practice regardless of whether the rainfall forecast happens or not – for example, encouraging hand washing and good hygiene practices.

Where can I find forecasts for my country and what can I do with them?

Contact your local weather office to find out how you can access the latest forecast for your country.

If, over the coming months, seasonal forecasts for your area show a higher chance of below or above normal rainfall, it is important to start thinking through possible preparedness measures. Some questions to consider when you are thinking about possible measures are:

- What would too much or too little rainfall mean in terms of water and food availability, health problems and income?;
- What can be done to prepare? What kind of 'low-cost' actions could be taken early on that would help to manage these impacts? ('low-cost' actions are things that are good to do anyway, regardless of whether a forecast event happens or not – for example, hand washing and maintaining good hygiene standards or mulching gardens); and,
- Do you have a community disaster committee and has the committee discussed possible preparedness and response measures?

What if I can't understand the forecast? Who can I ask for help?

Your local weather office can provide you with more information and advice.

Where can I get more information about El Niño, La Niña and climate change?

See the 'For more information' section at the end of this booklet.

What actions can I take to prepare for the impacts of El Niño, La Niña and climate change and where can I get more information and advice?

Your local weather office can help explain forecasts. Your National Disaster Management Office can provide advice on disaster preparedness measures appropriate for the hazards you face (for example flood or drought preparedness). The Red Cross National Society in your country is also available to assist with disaster preparedness information and advice.

Glossary of key terms

Adaptation: Adjustments in response to actual or expected climate change, to reduce negative impacts or take advantage of opportunities.

Climate: The average pattern of weather for a particular place over a long period of time (for example, 30 or more years). 'Climate' is different from 'weather'. One popular phrase can help distinguish weather from climate: 'Climate is what we expect. Weather is what we get.'

Climate change: Changes in the Earth's climate, generally referring to those due to human activities but can also include natural processes. These changes can include more intense extreme events such as droughts, floods and tropical cyclones, and changes in average rainfall patterns. Climate change that is due to human activity has happened and is expected to continue much more quickly than natural changes in the climate, due to the unprecedented rate of increase in greenhouse gases.

Climate projection: A description of what the climate may be like in the coming decades and centuries. These are generally produced by climate models taking into account various scenarios of possible future greenhouse gas emissions.

Climate system: The linked system of the atmosphere, oceans, land surface, cryosphere (parts of the world covered in ice – for example, glaciers) and biosphere (parts of the world where life is found - for example, forests) and the interactions between them all. The climate system is normally described in terms of pressure, temperature. rainfall, winds and currents and other variables, as well variations like the El Niño Southern Oscillation (ENSO). The state of the climate system is determined by physical conditions such as the location and shape of continents and islands, solar (sun) output, amounts of greenhouse gases and the Earth's orbit and angle.

Climate variability: Variations in the climate due to natural processes. Important climate variability occurs from month-to-month, seasonto-season, year-to-year and even decade-to-decade. In the Pacific region, the main driver of climate variability from year-to-year is the El Niño Southern Oscillation (ENSO).

Dry season: The period of one or more months that occurs every year when there is the lowest amount of rain. The 'dry season' is the opposite of the 'wet season'.

El Niño: This is what scientists call the time when the trade winds in the Pacific weaken, warmer waters move to the east and the cloud meeting places move closer together.

El Niño Southern Oscillation (ENSO):

This is what scientists call the ups and downs of El Niño and La Niña across the Pacific. ENSO causes changes to rainfall, cyclone risk, winds, sea levels and temperatures.

Forecast: A prediction of future conditions or events. Weather Forecasts give the most likely conditions (e.g. expected temperature and if it will rain) for the coming days (out to about a week), while Seasonal Forecasts give the probabilities of a condition occurring (e.g. the chance of getting above normal rainfall) for the coming months or season. All forecasts are uncertain. However, just because we don't have certainty doesn't mean we can't prepare. It is always better to be safe than sorry.

Hazard: Something natural or man-made that may cause disruption or damage to life, property and/or environment.

Intertropical Convergence Zone

(ITCZ): One of the cloud meeting places in the Pacific that is located just north of the equator. A place where clouds meet and rainfall occurs.

La Niña: This is what scientists call the time when the trade winds in the Pacific get stronger, pushing warmer water to the west and the cloud meeting places further apart. This is the opposite of El Niño. **Preparedness:** Measures taken in anticipation of a hazard to reduce the level of damage.

Seasonal forecast: The forecasting of likely conditions (for example, of rainfall) in a region for a period of one or more months, based on the conditions in the ocean and atmosphere. These forecasts can help to prepare for different extreme impacts, from tropical cyclone damage to malaria.

South Pacific Convergence Zone:

One of the cloud meeting places in the Pacific. A place where clouds meet and rainfall occurs.

Trade winds: The prevailing winds in the tropics, which generally blow from the east.

Vulnerability: The degree to which life, property and/or environment is open to being affected by, or unable to cope with, adverse effects of hazard impacts.

Warm pool (also known as West Pacific Warm Pool and Indo-Pacific Warm Pool): A very large pool of the world's warmest water, with temperatures exceeding 28–29°C, extending from the central Pacific to the far eastern Indian Ocean.

Weather: The state of the atmospheric, such as temperature, rainfall and wind speed, over a short period of time – a few hours or a few days. Weather changes from day to day and the changes are easy to see. 'Weather' is different from 'climate'. One popular phrase can help distinguish weather from climate: 'Climate is what we expect. Weather is what we get.'

West Pacific Monsoon: One of the cloud meeting places in the Pacific. A place where clouds meet and rainfall occurs.

Wet season: The period of one or more months that occurs every year when there is the highest amount of rain. The 'wet season' is the opposite of the 'dry season'.

For more information

For more information on weather, climate, forecasts and warnings in your country, contact your local weather office.

For more information on disaster preparedness actions, contact your National Disaster Management Office.

The Red Cross National Society in your country can also help you with information and advice about disaster preparedness and taking early action. There are some fantastic online resources that you can access.

For climate related resources, visit the Pacific Climate Change Science site at **www. pacificclimatechangescience.org** and also visit the Pacific Climate Change Portal at **www.pacificclimatechange.net**

For disaster preparedness related resources, visit the Pacific Disaster Net at **www.pacificdisaster.net**



www.pacificclimatechangescience.org/climatecrab