

# Climate Change

## A New Green Learning Agenda for Married Adolescent Girls Safe Spaces in Nigeria

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OASIS



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## Anticipated Learning Outcomes

Session	Knowledge Areas	Skills
1. What is climate change?	Environmental awareness, scientific literacy (atmosphere, climate, weather, seasons)	Trans-temporal thinking (calculating trends over time, comparing historical changes), research skills (collecting and visualizing data), respect for traditional and indigenous knowledge, communication
2. What are the causes and impacts of climate change?	Causes and impacts of climate change (global and local), scientific literacy (global warming, climate change, the greenhouse effect)	Systems thinking, causal thinking, communication
3. What are the social drivers and impacts of climate change?	Causes and impacts of climate change (social and scientific), climate vulnerability, climate hazard, climate justice	Integrative thinking, solidarity, ability to analyze unequal systems of power, empathy
4. What are the climate risks and vulnerabilities near me?	Climate vulnerability, climate hazard, climate risk, community resources (natural, social, and human-made), systems, care work, jobs	Systems thinking, consequential thinking, identifying inequality, critical thinking, analytical thinking, communication, decision making
5. How does gender impact climate vulnerabilities and solutions?	Gender inequality, climate resilience, adaptive capacity, climate-smart agriculture, green entrepreneurship	Ability to recognize unequal relations of power, integrated thinking (especially between human and planetary health and wellbeing), critical thinking, comparative thinking, agency, evaluate efficacy of actions
6. What are ways to mitigate and adapt to climate change?	Climate solutions, climate justice, mitigation, adaptation, biodiversity	Future thinking, problem solving, decision making, critical thinking
7. What are climate-smart livelihoods?	Climate-smart livelihoods, climate-smart agriculture, individual/collective action	Working within complexity, decision making, coping with uncertainty

# Module 1: Introduction to Climate Change

**Module objective:** To build scientific and social scientific understanding of climate change and its underlying causes and impacts

## Session 1: What is Climate Change?

**Session objective:** To build awareness of the environment and foundational understanding of climate

**Total Time:** 1 hour and 15 minutes

### Materials:

- Blackboard and chalk
- Weather forecast for tomorrow
- Activity 1:
  - Girls: Writing utensils and paper
- Activity 2:
  - Clear space to move about
  - 1 large sheet of poster paper or flipboard paper
  - Marker
  - 5 pieces of paper with “hot”, “cold”, “rainy”, “dry”, and “today” written on each
  - 2 long pieces of rope or string to run across the room

### Part 1: What is our Environment?

**Objective:** To build foundational understanding and awareness of the environment, human-environment interactions, and the relationship between the health of our environment and the health of our bodies and communities

[Activity 1: Where do we live?](#)

**Activity type:** Group discussion

**Time:** 25 minutes

To introduce the module and the topic of climate change, engage the girls in an opening discussion about their observations about their environment, their activities that might depend on the environment, and how the weather impacts their ability to engage in these activities.

Ask the girls to draw on a piece of paper a picture of their community (defined here as the places they frequently visit in any given week) and their environment. Perhaps beginning with their house, draw the land around their house, the path to the community center and what they might see along the way, sources of water, locations of their farm fields, the market, and any other major landmark they can remember. Remind them to draw both natural and human-made landmarks. Give them about 5 minutes to complete their drawing.

### **Discussion:**

When the girls are done, place all the drawings together side-by-side and have the girls observe each other's drawings and compare them. Engage in a discussion about the common things they drew, as well as the things that might be absent from their drawings. Keep these drawings for Session 4.

Below are some sample questions to get the discussion started.

1. **Observe:** What do you notice everyone drew about our community and our environment? Describe what you see. Did anyone draw elements of nature? (For example, did anyone draw trees, plants, water sources, etc.)

If no one drew aspects of nature, ask them why not. Is it because they do not notice nature in their environment or because there is not much nature around them?

2. **Compare:** Think about our community in real life. Is there more nature or more human-made structures in our community? What do you think our community looked like 30 years ago? Would there have been more nature or more human-made structures? What do you think happened to the trees and the animals as our human-made structures were built?

3. **Think:** How does our natural environment help to keep us healthy and well?

Encourage the girls to think about the trees, flowers and plants, animals, insects, the quality of the air we breathe, clean water, etc.

Possible responses:

- Water nourishes our bodies, our livestock, and our crops.
- Trees help create the air we breathe.
- Trees provide us with shade when the days are very hot.
- Trees and shrubs provide homes to small animals that help eat pests that might harm us or our crops.
- Some insects help to pollinate flowers that help some vegetables to grow

- Flowers connect us with nature, making us feel good. (mental health)
- Trees provide us with wood to cook or to warm our houses.

If our natural environment plays such an important role in keeping us healthy and well, what can we do to keep our natural environment healthy and well?

Possible responses:

- Do not litter, especially plastic waste.
- Do not cut down trees unnecessarily.
- Alternate the types of crops we plant on the same plot, and rotate plots.

4. **Think:** Where does our food and water in our community come from? Can you trace the source all the way back to its beginning?

If the girls say that food comes from the market, encourage them to think about the farms that grow the food. What helps the crops to grow? Encourage them to think about the sun, the soil, and water, and the people that have to plant, grow, and harvest the food.

If the girls say that water comes from the tap/water pump or from the water well, ask them how the water got into the tap/well. Encourage them to think about how rain settles into the earth, and then people find ways to draw that water up from the earth.

**End the discussion** by helping the girls to understand that if there is not enough rain or too much rain, if the temperature is too hot or too cold, this imbalance in the natural environment can affect our health and wellbeing.

Ask the girls if they remember the most recent heat wave, the most recent flood, or the most recent extreme storm. Ask them to describe what happened and to consider its impacts and its causes.

1. What did you do to keep yourself safe? Did you know this event was going to happen?
2. What was the impact of the event? What happened to your farms? Your water sources? Your homes?
3. What do you think caused these events?

**Explain** to the girls that scientists believe these extreme weather events like heatwaves, flooding, and extreme storms are increasing in frequency because of *climate change*. And that these events are going to have an impact on our community that we need to be prepared for. And that if we are prepared, we can also play a role in reducing the impact and adapting to a new environment.

## Part 2: What is the Weather? What is Climate?

**Objective:** To distinguish the difference between weather and climate

Ask the girls if any of them have heard of climate change. Ask them to give examples of what they think climate change is. Write down their responses on the chalkboard.

Be prepared for responses that confuse climate change for weather or for seasons, which will be discussed later.

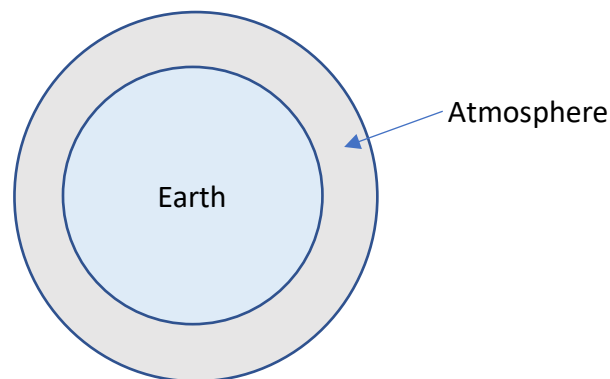
**Presentation** (10 minutes):

One of the first steps to understanding climate change is being able to differentiate between the weather and the climate.

To understand this, we need to understand what the *atmosphere* is.

(On the chalkboard, draw a large circle to represent planet Earth, and then draw a larger circle surrounding Earth to represent the Earth's atmosphere, like below.)

The **atmosphere** is the layer of gas that surround Earth. We often call this "air"—the same air that we breathe. The atmosphere is made up of many different types of gases, mostly *nitrogen* and *oxygen*. The rest of the gases in the atmosphere are called *greenhouse gases*.



**Weather** refers to the day-to-day variations in the *atmospheric conditions* in a particular place and time. Weather reflects the short-term conditions of the atmosphere over days, weeks, and sometimes months. Weather can be sunny, cloudy, rainy, dry, windy, snowy, hot, or cold. For example, today in \_\_\_\_, Nigeria, it is \_\_\_\_°C and (sunny, rainy, dry, cold). Tomorrow, the weather forecast suggests it will be a low of \_\_\_\_°C and a high of \_\_\_\_°C and (sunny, rainy, dry, cold).

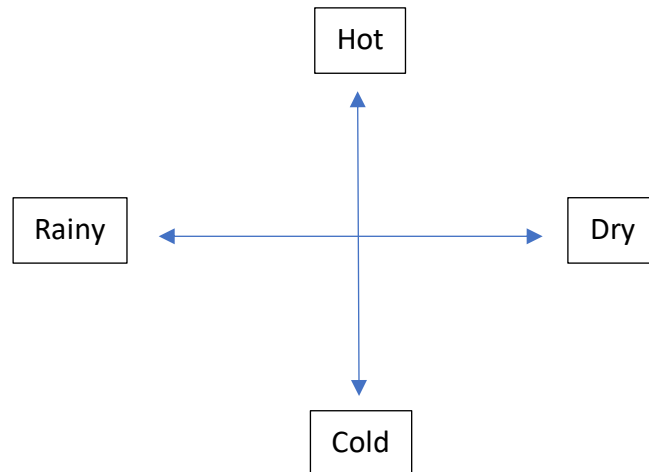
**Climate** refers to the weather of a specific region over a long period of time, like 30 to 50 to 100 years. Climate reflects long-term average conditions of the atmosphere, and determines the types of plants and animals that live in an area (e.g. tropical versus desert versus arctic). Climate can also be described as sunny, cloudy, rainy, etc., but in reference to the average temperature or average conditions. For example, January in Nigeria is usually very dry with a dusty, cold harmattan wind, and average daily temperatures ranging widely from lows around 9°C to highs around 30°C.

Activity 2: What’s the difference between weather and climate?

**Activity type:** Movement-based discussion

**Time:** 30 minutes

1. Place the 4 sheets of paper and string/rope on the floor, like below, providing ample room for the girls to be able to stand in the quadrants. Hold on to the “today” paper.



2. On the large sheet of poster paper, draw a graph like the one below.

	January	February	March	April	May	June	July	August	September	October	November	December
Hot												
Cold												
Rainy												
Dry												

Note: keep this paper for Activity 1, Session 4.

3. Ask the girls to look outside the window or to think about what the weather is like at this moment. Is it hot or cold, rainy or dry? Ask the girls to answer with their feet by moving to the quadrant on the floor that matches their answer. For example, if your answer is “hot and dry” then you should stand in the quadrant between the pieces of paper labeled “hot” and “dry.”
  - a. **Explain:** After the girls have moved to the right quadrant, explain that this is an example of the **weather** because it describes the atmospheric conditions right now in this place. Place the “today” paper in the correct quadrant and leave it there for reference.
4. Ask the girls to step away from the quadrants and to group themselves according to their birthday month. The girls born in January should stand together; girls born in February should stand together; etc. Ask girls to think about the weather on their birthday for as many birthdays as they can remember. Is the weather typically hot or cold, rainy or dry?
5. Now ask the girls with birthdays in the month of January to move into the quadrant where their answer is. Check to see if everyone with a birthday in that month is standing in the same quadrant. If not, ask them to discuss and to agree on what the weather is normally like in that month. Once the girls with January birthdays have moved into their quadrant, ask a volunteer to make a check mark next to the corresponding observations under the January column. For example, if the girls said January is “cold and dry,” place a check mark in the “cold” and “dry” boxes under January.
6. Repeat Step 5 for each remaining month, placing a check mark in the relevant “hot”, “cold”, “rainy”, or “dry” boxes under the corresponding month. If no girls were born in any given month, ask all the girls to agree on the normal weather conditions for that month.
7. When the group arrives at the month in which it currently is, ask the group to look at the quadrant where the paper labeled “today” is located. Is it in the same quadrant as the normal weather for that month (as agreed on by the girls with a birthday in that month), or is it in a different quadrant?
  - a. **Explain:** The quadrant where the “today” card is located describes the weather for today, which can vary on any given day in any given year. Next year on this date, the weather could be very more or less “normal” than it was today.
8. **Debrief** (10 min): The hot/cold, rainy/wet conditions that you agreed on for your birthday month represents the **climate** in your birthday month. You were thinking about weather *trends* over a long period of time (many, many birthdays).

Now look at the chart we made together. You may notice weather patterns across a cluster of months. The chart on a whole illustrates how weather patterns shift according to the *seasons*, like the harmattan season. Season describes a part of the year that is

characterized by certain climatic conditions. Season is determined by the intensity of the sun's rays over a particular region. This intensity changes as the Earth's tilt toward the sun changes as the Earth revolves around the sun.

[Homework: A conversation with elders about the environment, the weather, and climate](#)

Ask the girls to share with their grandmothers or grandfathers what they have learned so far about the difference between weather and the climate and about climate change, and to interview her/him about what the climate was like in Nigeria 30 years ago.

Here are a few starter questions; the girls can develop their own questions in small groups or individually.

1. Was [my birthday month] hotter/colder, drier/wetter, or the same, 30 years ago?
2. What do you remember your elders talking about when they talked about the signs in the environment that would signal the weather patterns were about to change?
3. Can you describe how these signs have changed today? Are they more unpredictable? Out of sync?
4. For grandfathers: How has farming changed? Any changes with the fertility of the soil or the amount of rain? How are these changes in climate and the environment impacting livelihoods in our community?
5. For grandmothers: How has securing cooking fuel, water, and other household resources harvested from the natural environment changed? How is this impact women's time?
6. What changes in wildlife, pests, or plant life have you noticed between today and when you were my age?
7. How have the changes in climate impacted our cultural practices? (e.g. timing of wedding season; traditional foods and food sharing practices; pastimes, hobbies, and leisure activities; lifestyles, etc.)

The girls can also share the drawing they made from Activity 1 as a conversation starter, asking their grandmother or grandfather what has changed in the community since they were children. Were there as many human-made structures as today? Were the fields larger and did they produce more abundant crops? Were there more abundant water sources? More trees? More wildlife?

## Session 2: What are the Causes and Impacts of Climate Change?

**Session objective:** To build scientific understanding of the causes and impacts of climate change

**Total Time:** 1 hour and 30 minutes

### Materials:

- Blackboard and chalk
- Activity 1:
  - Sunny day (or a strong desk lamp that emits heat)
  - One thermometer
  - Glass jar with lid (or any see-through container with a lid)
- Activity 2:
  - Large space to move about
  - 2 long pieces of rope or string to mark spaces on the ground
  - About 100 pieces of straw or bottlecaps, small pebbles, or scrap pieces of paper (try to avoid wasting good paper); divided into three piles (or buckets)
  - Chalk or tape
  - Timer or stopwatch

### Part 1: What are the Causes of Climate Change?

**Objective:** To understand the scientific basis of climate change, including the greenhouse effect

#### **Recap** (5 minutes):

Ask the girls whether they remember the difference between *weather* and *climate*.

Ask the girls what they learned from their elders about what Nigeria or their community was like 30 years ago, or even 60 years ago.

#### **Presentation** (10 minutes):

Scientists who study the climate have noticed that, compared to more than 100 years ago, the average global temperatures on Earth have begun to rise. This phenomenon has been described as “global warming.” This means that, compared to 100 years ago, the Earth’s average temperature has gotten hotter by about 1°C. This might seem very small, but the impact on Earth’s climate by just a tiny fraction of a degree can be large. For example, with just a 1°C increase in average temperatures, we have already begun to see a higher frequency of extreme storms, variable rainfall and drought, extreme heat waves, rising sea levels, and more all around the world.

Remember that one really hot day can be a natural variation of *weather*. But if lots of days are hotter than usual, and if this happens for many years, this means that the *climate*—Earth’s weather patterns—is changing.

This is called **climate change**. Climate change is a change in the Earth’s climate. Scientists agree that this change is being caused by human activity. We’ll talk more about the types of activities that have caused temperatures to rise, later.

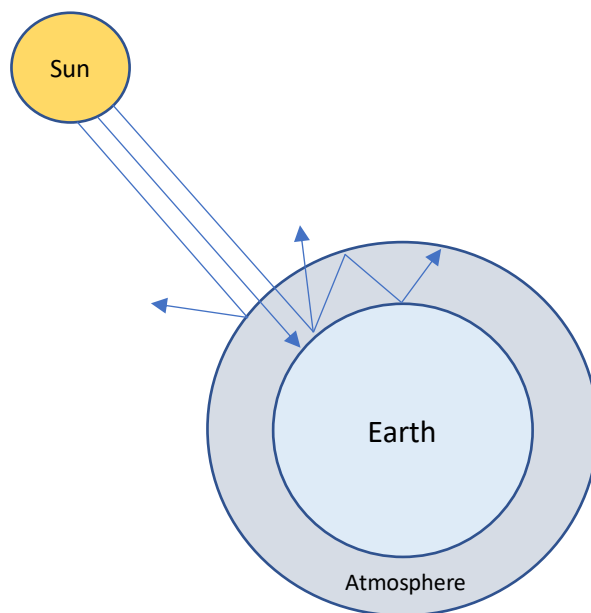
For now, let’s first understand how temperatures can rise.

(Draw a picture of Earth and the Atmosphere again, like in Session 1. Add a sun to the diagram.)

Earth gets all its energy from the sun, and this energy makes life on Earth possible. It helps plants grow, which feed the animals. Both plants and animals provide humans with food to grow.

Under “normal” conditions, some of this energy gets absorbed by the Earth, some of it bounces back out into space, and some of it gets trapped in the Earth’s atmosphere by something called **greenhouse gases**.

(Draw several arrows from the sun heading toward Earth to represent the sun’s energy, heat, and light. Draw one arrow “bouncing” off the Earth’s atmosphere, draw another arrow being “absorbed” by the Earth, draw a third arrow bouncing off the Earth and returning to space, and draw a fourth arrow—or, from the third arrow—bouncing off the Earth but remaining trapped in the Earth’s atmosphere, like below.)



These greenhouse gases are necessary and important to keep the Earth the perfect temperature for plants, animals, and humans to thrive. Greenhouse gases help to capture heat from the sun and redistribute that heat around the Earth like a warm blanket. Without greenhouse gases, the Earth would be too cold for life.

The most common greenhouse gases are carbon dioxide and methane.

Let's do an activity to better understand the greenhouse gas effect.

### [Activity 1: What is the Greenhouse Gas Effect?](#)

**Activity type:** Science experiment

**Time:** 5 minutes to set up

If it's a sunny day:

1. Ask the girls to go outside and to select a spot directly in the sun. Place the thermometer on a stable surface and read the temperature. Record the temperature somewhere.
2. Place the thermometer in the glass jar and close it. The glass jar represents the Earth's atmosphere, and the air inside the jar represents greenhouse gases. Place the jar in the same location that the thermometer was in for Step 1.
3. Let the jar sit in the direct sun long enough for the temperature inside the jar to rise. You may wish to carry on with the lesson and to return after concluding Activity 2 to read the temperature on the thermometer.

If it's a cloudy day:

1. Set the experiment up like above, but under the direct light of a strong desk lamp, preferably one that generates a bit of heat. Read the temperature of the thermometer outside of the jar, and then later after the thermometer has been sitting inside the closed jar for about half an hour.

**Presentation** (5 minutes):

Over the last hundred years, human activity has caused the amount of greenhouse gases in the Earth's atmosphere to rise too much too quickly, trapping more and more heat in the atmosphere and causing the Earth's average temperature to rise—or, to get too hot. We will observe this impact with our experiment with the glass jar later today.

Can you think of some types of human activities that have caused the level of greenhouse gases to increase?

[Give the girls a minute to offer their responses.]

Human activities like burning coal and oil to fuel our cars, planes, houses, factories, and buildings; raising large amounts of livestock like cows; and cutting down forests and burning trees to build more houses and roads or large-scale farms are all major contributors to the rise in greenhouse gases. These activities release high amounts of greenhouse gases and/or harm Earth's natural ability (like trees) to remove greenhouse gases from the atmosphere.

Nearly all scientists around the world are certain that the climate is warming, and that human activity is the primary cause. Scientists also have proof that the changes that are happening now are getting worse.

[Activity 2: What is the effect of more greenhouse gases on the Earth's average temperature?](#)

**Activity type:** Game

**Time:** 30 minutes

Note: This game involves physical activity and touching (tagging) others. A minimum of 12 players is needed. If there aren't enough girls, include Mentors in the game.

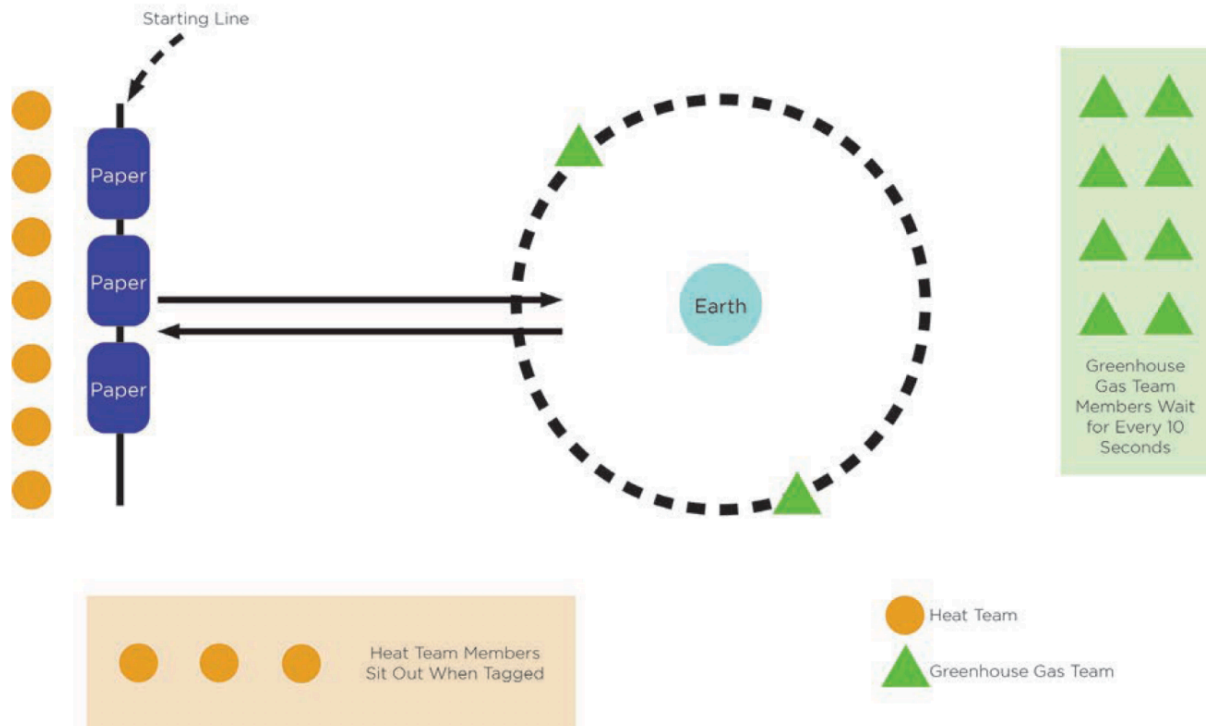
*This activity has been adapted from [The Greenhouse Gas Game](#), and can be supplemented with [Climate Cards](#). The game is part of the Y-Adapt curriculum developed by PLAN International, the Red Cross Red Crescent Climate Centre, the Engagement Lab at the Emerson College, the Philippines Red Cross, and PLAN Philippines.*

**Objective of the game:** Players will see how an increase in greenhouse gas emissions increase the amount of heat trapped in the Earth's Atmosphere.

**Set up:**

1. Ask the girls to hold hands and form a large circle. Then, ask everyone to release their hands and to take two steps back. Use one piece of rope to mark a circle on the ground just outside of the circle of people. This circle represents the Atmosphere.
2. In the center of the rope circle/Atmosphere, draw a small circle with chalk or mark a small circle with tape to represent Earth.
3. Use the other piece of rope to mark a Starting Line outside of the circle to represent the Sun. Place the three piles/buckets of straw on the Starting Line.
4. Divide the girls into two teams by having them count off A and B. Team A will represent the Heat Team and should start behind the Starting Line. Team B will represent the Greenhouse Gas Team.

The diagram, below, illustrates how your set up for this game should look.



(Source: Y-adapt)

### To play:

1. Team A/Heat Team starts behind the Starting Line. During the game, Heat players will:
  - a. Grab a straw/bottlecap/paper from one of the three buckets.
  - b. Run into the circle and touch the Earth with one foot.
  - c. Return to the Starting Line/Sun and give the straw/bottlecap/paper to the Facilitator.
  - d. Pick up a new piece of straw and repeat the run to Earth and back to the Starting Line/Sun.
  - e. Repeat as many times as possible.
2. Team B/Greenhouse Gas Team should pick two players to start the game on the rope circle/Atmosphere. For the entire game, any Greenhouse Gas Team player must keep both feet on the circle. The remaining Greenhouse Gas Team players should wait on the side until it is their turn.
  - a. When the game begins, the two Greenhouse Gas Team players that are on the circle will run around *ON THE CIRCLE* and try to tag any Heat Team player *AFTER* the Heat TEAM player has finished touching the Earth and is running back out toward the Starting Line/Sun. The Greenhouse Gas Team players must always have both feet on the circle, moving around the circle by “shuffling” to the left or to the right.

3. If a Heat Team player is tagged, she must give her piece of straw/bottlecap/paper to the Greenhouse Gas Team player that tagged her and then sit out of the game.
4. Demonstration: Ask one player from each team to demonstrate the rules; clarify any questions.
5. At the start of the game, there are only 2 Greenhouse Gas Team players on the circle/Atmosphere.
  - a. Every 10 seconds (using a stopwatch), add 1 Greenhouse Gas Team player to the circle. Be very strict with the timing.
6. The game ends after 3 minutes of play. Add up the total number of straw/bottlecaps/paper that the Heat Team players returned to the facilitator. Record the Heat Team's score.
7. Switch the teams up (Heat Team becomes Greenhouse Gas Team, and vice versa), and play again for 3 minutes.
8. The team with the most cards wins the game.

**Debrief (10 minutes):**

Ask the girls to explain what they think the game represents:

1. What did the Heat Team represent? What were they doing when they ran inside the circle/Atmosphere? What was happening when the Heat Team player successfully returned their piece of straw to the Facilitator?

**Explain:** The Heat Team represents the sun's rays (its energy, light, heat) reaching the Earth through the Atmosphere. Some of these rays are reflected back out into space through the Atmosphere.

2. What was happening when the Heat Team player was tagged by the Greenhouse Gas Team player?

**Explain:** Greenhouse gases in our atmosphere can trap some of this heat in the atmosphere. This process is important for warming up the Earth.

3. What did you notice when the number of players from the Greenhouse Gas Team increased on the circle/Atmosphere?

**Explain:** This represents the increase in the amount of greenhouse gases in the atmosphere as a result of human activity. The more greenhouse gases, the more heat gets trapped, warming the Earth to a higher temperature, causing the climate to change.

Return to the glass jar and read the temperature on the thermometer. Compare this new temperature reading with the temperature you recorded at the beginning of Activity 1. What is the difference between the two readings? How much hotter is the second reading compared to the first?

## Part 2: What are the Impacts of Climate Change?

**Objective:** To understand the global impacts of climate change as well as the local impacts in Nigeria

**Presentation** (5 minutes):

Now you understand the **greenhouse effect**. This is how greenhouse gases help to warm the planet by trapping heat in our atmosphere. But when there are too many greenhouse gases, the amount of heat trapped gets too high, causing the weather patterns to change over time. The rainy season might not start or stop the way that it has for as long as your elders can remember. The amount of rain might not be the same—it might be too much, causing flooding, or it might be too little, causing drought. The harmattan season may have more bitterly cold days than your elders may remember. And the hot season may have more extreme heat waves. Storms are becoming more intense—blowing roofs away or destroying our homes.

This process of change is called **climate change**. Human activities are causing more heat-trapping greenhouse gases to get into the atmosphere, making average temperatures rise. This is causing our *weather patterns* to change.

Now let's think about the ways that climate change impacts us.

**Discussion** (20 minutes):

These are various impacts of climate change. Let's think about what may cause this impact to happen, and what it means for us as people.

[Draw the table below and label the columns. Write in the list of climate change impacts on the chalkboard. Ask the girls to brainstorm the climate causes, and write them into the table as the girls name the correct possible causes. Help the girls generate their responses if they are unsure.]

Climate Change Impact	Climate Cause	Impact on Us
Lower crop yield	Drought, Flooding	<ul style="list-style-type: none"><li>➤ Food prices will get higher</li><li>➤ Food insecurity will increase</li><li>➤ Potential for famine</li><li>➤ Increase conflict over resources</li><li>➤ Other ideas?</li></ul>
Water scarcity	Drought	<ul style="list-style-type: none"><li>➤ Water shortage</li><li>➤ Water prices will get higher</li><li>➤ Increase time spent looking for freshwater sources</li><li>➤ Increase conflict over water resources</li><li>➤ Worsened living conditions for humans</li></ul>

		<ul style="list-style-type: none"> <li>➤ Animals and crops die off</li> <li>➤ Other ideas?</li> </ul>
Migrating pests (mosquitoes, locusts, armyworm)	Hotter temperatures, Increased humidity	<ul style="list-style-type: none"> <li>➤ Increase in diseases like malaria</li> <li>➤ Destruction of crop and vegetation</li> <li>➤ Other ideas?</li> </ul>
Sea level rise	Melting glaciers, Warming oceans	<ul style="list-style-type: none"> <li>➤ Increased coastal flooding</li> <li>➤ Increased saltwater intrusion into freshwater sources</li> <li>➤ Loss of livable/habitable land</li> <li>➤ Other ideas?</li> </ul>
Intensified storms	Hotter air temperatures, Warming oceans*	<ul style="list-style-type: none"> <li>➤ Increased flooding</li> <li>➤ Increased destruction to property</li> <li>➤ Crops washed away</li> <li>➤ Loss of lives (humans and animals)</li> <li>➤ Other ideas?</li> </ul>
Desertification	Drought, Hotter temperatures, Deforestation	<ul style="list-style-type: none"> <li>➤ Habitat loss and loss of biodiversity</li> <li>➤ Crop failure</li> <li>➤ Worsened living conditions for humans (and animals)</li> <li>➤ Other ideas?</li> </ul>
Poor air quality	Hotter air temperatures, Increased air pollution	<ul style="list-style-type: none"> <li>➤ Increased respiratory illnesses, like asthma</li> <li>➤ Worsened living conditions for humans</li> <li>➤ Other ideas?</li> </ul>
Other ideas?		

\*Facilitator may need to explain that warmer temperatures and warmer oceans create more intense storms because hotter air holds more water vapor and transfers more heat, creating stronger winds and heavier rainfall.

[Homework: Identify climate change causes and impacts near you](#)

On the way home today, observe your environment and make a list of how climate change could affect your community, or ways that climate change already is affecting your community. Think about the potential causes and the potential impact. Think about the potential effect it could have on you and your family. Write these down and be prepared to talk about it at our next session.

## Session 3: What are the Social Drivers and Impacts of Climate Change?

**Session objective:** To build *social* scientific understanding of climate change and its underlying causes and impacts

**Total Time:** 1 hour and 30 minutes

**Materials:**

- Blackboard and chalk

### Part 1: What are the Social Drivers of Climate Change?

**Objective:** To understand the social scientific drivers of climate change and to appreciate the relationship between human and planetary health

**Recap** (5 minutes):

Ask the girls to volunteer to read their observations of climate change causes and impacts that they recorded for their homework. Ask them to talk about how they think it could impact their family.

**Presentation** (10 minutes):

In the last two sessions, we learned about the scientific causes of climate change. We talked about the *greenhouse effect* and how this process is necessary to keep the Earth the right temperature for life on this planet. We observed this effect with our experiment with the glass jar under the sunlight. We talked about how this process happens because of *greenhouse gases* in the *atmosphere*, and we played a game to demonstrate how greenhouse gases trap heat.

But, if the amount of greenhouse gases in the atmosphere gets too high, these gases trap too much heat and the Earth begins to warm too much. The higher temperatures affect weather patterns, making rainfall more variable, storms more intense and frequent, hot season more hot and dry, the quality of air poorer, etc. This is called *climate change*.

Climate change has negative impacts on our health and wellbeing by affecting our crops and increasing food prices, damaging our homes, causing displacement and migration, and leading to conflict over resources. Remember *climate* is the weather patterns observed for a region over a long period of time, and *weather* is the day-to-day variations of atmospheric conditions in a specific place. You can have a really hot day when you least expect it and that be natural variation in the weather. But when you have a really hot day when you least expect it, repeatedly, and over many years, that is climate change.

We began to talk about how human activity is the cause of climate change. Activities like **burning coal** to power our homes, cars and trucks, planes and boats, and factories is causing more greenhouse gases to enter our atmosphere, trapping more heat in the atmosphere and warming the planet. In Nigeria, **gas flaring** is a common practice used by companies as they extract oil from the ground, not only releasing excess greenhouse gases, but also destroying nearby crops and hurting people’s health in nearby communities. **Industrial agricultural practices** like large-scale livestock rearing or monocropping (growing the same crop year after year on the same piece of land) is also generating more greenhouse gases while also degrading the nutrient quality of our soils. **Deforestation** and **burning of biomass** (like wood, plants, waste from farms or households, etc.) is also contributing to climate change by emitting large quantities of greenhouse gases while destroying Earth’s natural balancers of greenhouse gases. Trees and healthy soil are important absorbers of greenhouse gases, and biodiversity is important to maintaining a healthy environment, too. When these are absent or reduced in significant quantity, we lose our ability to remove greenhouse gases naturally from the atmosphere.

Today, we’re going to learn a bit more about the underlying causes of climate change. In particular, we’re going to learn how scientific processes (like the greenhouse effect) can be affected by human processes (like economic development).

[Activity 1: How are scientific and social scientific causes of climate change connected?](#)

**Activity type:** Small Group Discussion

**Time:** 30 minutes

Divide the girls into three groups to discuss the role that humans play in either worsening or helping the environment in the following situations. Mentors can read one situation aloud for each group, breaking up the scenario into pieces if helpful for listening comprehension. Allot approximately 10 minutes of discussion per scenario. Then rotate scenarios so each group gets to discuss all three scenarios. Use the discussion guide to further engage the girls’ thinking about the environmental issues and social (human) drivers, hidden and unhidden.

Discussion Guide:

Use the following sample questions to get the discussion started:

1. What is the environmental issue in the situation?
2. What is the human cause driving the issue?
3. Is there an “unseen” or “hidden” cause that you can think of?
4. How might the human drivers in the situation contribute to worsening climate change?
5. What could be done to make the situation better?

**Scenario #1:** Bimpe lives in a community that has traditionally relied on what is now the Akure-Ofosu Forest Reserve for its livelihood. For generations her community has harvested timber in

a sustainable way, cutting down trees to clear small plots of land for subsistence farming. In the past, Bimpe's community has traditionally reserved the timber for their own use or sold the excess timber to nearby villages. But over the last two decades, more and more people from Bimpe's community have begun to cut down trees in large quantities to sell to big logging companies that want to export the timber at a higher price to rich countries. Some people in Bimpe's community have also cleared large plots of land to start cocoa farms to sell to international chocolate companies. Bimpe has noticed that a lot of the loggers and farmers are people from her community who could not find jobs in Lagos. Forest fires have become a regular occurrence as farmers try to clear more land, and some farmers have even been killed for encroaching on the land that another farmer has cleared. Over the last two decades, because of these practices, the forest has lost nearly half of its trees. Bimpe's family is considering clearing a plot of trees to sell to the logging company and then using the land to plant cocoa. What should Bimpe do?

*[Possible discussion topics: deforestation, burning of biomass, monocropping, habitat loss, poverty, unemployment, international companies]*

**Scenario #2:** A major international oil company has been extracting and refining oil in Sade's home state of Bayelsa for several decades. The oil is used primarily to power the energy needs of rich countries, but also to the wealthier parts of Nigeria. The local government Chairman and Councilors pride themselves in having secured and sustained the oil company's investment in the state, as it has brought prosperity for a few families and has raised the quality of life for many more—but not for Sade's family. Her family still does not have reliable electricity, and regularly suffers from oil spilling into their farmlands and into the nearby creeks and rivers where her family fishes for food and to sell in the local market. In addition, the oil company is regularly burning the natural gas byproduct of extracting the oil—a process called "gas flaring." Gas flaring is increasing the local soil temperature, filling the air with pollutants, and causing the skies to always be hazy. When it rains, the rain is too acidic, killing her family's crops and also causing the fish in the river to die or to migrate elsewhere. Every member in Sade's family has asthma and they regularly get bouts of pneumonia. Her auntie recently passed away from cancer, and one cousin was born premature while another cousin was born with an eye defect. She remembers her village was once full of elders, but now only her grandfather remains in that generation. Sade wants to help, but what should she do?

*[Possible discussion topics: oil extraction, gas flaring, international companies, energy demand, oil spills, acid rain, crop failure, health effects like lower life expectancy and respiratory illnesses]*

**Scenario #3:** Yoruba's father has just recently engaged her to be married to a man in a nearby village in Kaduna state. She is only 14 years old and will become the man's second wife. Her

family is struggling to feed, clothe, and educate her 7 siblings, and her father believes that she, her mother, and her siblings will be better off if she were to marry. The man whom Yoruba is engaged to marry is one of her father's creditors, having lent her father a large plot of land and provided him with seeds, fertilizer, and pesticides to start cotton farming. Traditionally, Yoruba's family has farmed rice, beans, and millet, but as their family grew in size Yoruba's father felt pressured to start growing a single cash crop to help him generate more income to feed and educate all of his children. But the unpredictable rains and flooding over the last 5 years has led him to lose his entire crop twice. For 3 of those years his yield was far below what he expected, and he could not find buyers for the little cotton that he was able to produce. As a result, he has not been able to pay off his creditors. Yoruba is concerned about getting married; she enjoys going to school, which will likely stop after she is married and pressured to start bearing children. At school she has heard about an organization in Kaduna that is teaching farmers in the state about the importance of soil health and how to use techniques like crop rotation to improve soil nutrients, drip irrigation to help in times of drought, integrated pest management to minimize damage and disease to crops caused by armyworm, locusts, and other pests, and agroforestry land management practices. She wants to learn more and try these techniques to help her father and family. What can she do?

*[Possible discussion topics: monocropping, drought and flooding, loans and debt, early marriage, birth spacing, food shortage, climate-smart agriculture\*]*

\*Session 7 will discuss climate-smart agriculture techniques in more depth

## Part 2: Who is Most Impacted by Climate Change?

**Objective:** To build awareness and understanding of the concept of climate justice and factors that drive climate vulnerability

**Presentation** (30 minutes):

In the scenarios that we just discussed, there are people who suffer more than others. This suffering is influenced by people's *vulnerability*. What does vulnerability mean?

[Ask the girls to brainstorm what they think vulnerability means.]

**Vulnerability** describes the degree to which someone is exposed to the risk of being harmed or negatively impacted by an event. This could be their risk of exposure to being attacked because they are part of a specific group of people (e.g. a religious or ethnic minority) or because they identify or present in a certain way (e.g. as an adolescent girl or woman). Someone could be vulnerable to illness like cancer or asthma because they live close to a source of pollution and they risk being exposed to higher levels of irritating pollutants in the air or to contaminated water than people who live farther away from that source.

[On the blackboard, draw a picture of a cliff with a house near the edge of the cliff. Ask the girls how vulnerable they think the family is that lives in the house. After they have finished responding, draw a swing hanging from a tree that is located even closer to the edge of the cliff than the house. Ask the girls how vulnerable they think the person is that swings on the tree swing in comparison to a person inside the house. See the picture below as an example of what to draw; contextualize it as necessary.]



Source: <https://www.dreamstime.com/stock-illustration-house-cliff-cgi-lonely-edge-single-tree-swing-hangs-far-above-image96650518>

Our level of vulnerability can change, depending on the *hazards* that are present, as well as how prepared we are for the risks that are associated with the hazard.

In the context of climate change, global warming affects everyone around the world. Everywhere, temperatures are rising, causing changes in weather patterns everywhere, making our seasons more variable, and increasing the frequency, duration, and intensity of weather-related events like drought, flooding, storms, and heat waves. All coastal communities around the world are being affected by sea level rise caused by the process of water expanding as it gets hotter (thermal expansion) and by the melting of the Earth's major ice caps. Glaciers and snow that typically cover the world's tallest mountains are increasingly receding or becoming drier.

All of these climatic events are called **climate hazards** increasing our vulnerability to the impacts of climate change, including loss and damage to our buildings, biodiversity loss (mass

die off or extinction of plants and animals due to sudden changes in their habitat), crop failure, and more.

**Climate vulnerability** is both our *risk of exposure* to the negative impacts of climate change and our *capacity to adapt* and to cope with these impacts.

But, like the picture we just drew, some communities and some people are more vulnerable to the impacts of climate change than others. Scientists estimate that of the 7.7 billion people on Earth, between 3.3-3.6 billion people are highly vulnerable to climate-related disasters because they are either exposed to more climate hazards and/or have lower capacity to adapt. Different countries and different communities (and different species of plants and animals) experience climate vulnerability differently.

Let’s go through some examples:

[Draw the table below and fill in the “answers” while you discuss each scenario.]

<b>Scenario</b>	<b>Climate hazard</b>	<b>Population most impacted</b>	<b>Climate vulnerability</b>
A heat wave rages across the country, killing hundreds of people in the urban slums and in rural villages	Heat wave	Poor communities	Poverty and lack of access to air conditioning means poorer communities are less able to cope during a heat wave
An island community has lost its only fresh water source and all of its coastal farmland after a major cyclone caused the ocean to rise several meters	Sea level rise, saltwater intrusion, intensified extreme storms	Low-lying small island nations	Geographic location and formation of these small island nations puts them at high risk of climate change
The nearby well has dried up and the only source of water for drinking, cooking, and cleaning is a two hour walk away	Drought	Women and girls	Traditional gender roles place the burden of fetching water on girls and women, putting them at higher risk of exposure to gender-based violence and increased time poverty
Repeated flooding has led to massive crop failure in the rural parts of the country and a mass influx of	Variable rainfall, flooding	Agricultural households in rural areas, female-headed	Agricultural livelihoods put farmers at higher risk of being impacted by variable rainfall and flooding; poverty and lack of industries puts

laborers from the villages to the city		households, women and girls	these households at greater risk of needing to migrate during periods of economic shock to search for alternative livelihoods; women are at greater risk of sexual exploitation and girls are at greater risk of early marriage
A cyclone swept through 6 countries last month, but 2 of the poorest countries that got hit have not been able to rebuild or recover or to restore electricity	Cyclone	Poorer countries	Lower economic status means poorer countries have less access to money and resources to be able to rebuild after a major climate-related disaster, leaving their people to suffer for longer periods of time

It's also important to remember that in many cases those who are the most vulnerable to climate change are often the ones least responsible for causing it. Remember that climate change is caused by human activity like the burning of coal to create energy to fuel buildings and homes, cutting down trees in large quantities to turn trees into timber for construction or paper products, raising large quantities of cattle for beef. Much of these activities have historically been driven by rich countries as they developed economically and increased their quality of life and levels of consumption. These historic activities over the last 200 years have led to our present extreme levels of greenhouse gases and to the impacts of climate change that countries like Nigeria have already started to feel.

Meanwhile, countries in Africa, again like Nigeria, have just started to increase their levels of greenhouse gas emissions as they start to develop, and as small pockets of Nigerian society start to increase their levels of consumption as a result. But nonetheless, countries in Africa are experiencing the worst impacts of climate change.

Why? Because their climate vulnerability is high. Their level of exposure to climate hazards and the risks of negative impacts are worsened by inequalities, including gender inequality and economic inequality. These inequalities also mean there is less access to resources needed to adapt to and cope with the negative impacts of climate change. These resources include knowledge and information, technology, materials, money, voice, and political power.

What we are talking about now is about climate justice. **Climate justice** is the recognition that the impacts of climate change are not evenly distributed across the globe or across different populations. And that this uneven distribution of vulnerability is influenced and informed by historically unequal relations of power between groups of people (like between men and women, between tribes, and between rich and poor countries). As a result, actions taken by

governments, communities, and people to address climate change need to also take into consideration who is most responsible (historically), who is most impacted, who should receive a greater amount of support and who should provide it, and how relations of power can be made more equal through the process.

With greater awareness of climate justice, climate vulnerable communities can gain the knowledge and skills to take action to minimize or avoid the negative impacts of climate change.

### [Activity 2: What is climate justice?](#)

**Activity type:** Small Group Discussion

**Time:** 15 minutes

Have the girls return to their three groups to discuss how issues of climate justice are reflected in the three scenarios from Activity #1. Mentors can re-read the situations aloud for each group. Allot approximately 5 minutes per scenario to have sufficient time to discuss all three scenarios.

#### Discussion Guide:

Use the following sample questions to get the discussion started:

1. What is the climate hazard(s) or environmental hazard(s) in the scenario?
2. Who or what groups of people are being impacted the worst?
3. What is this group's level of exposure to this hazard?
4. What is this group's capacity to adapt to the impacts of this hazard or to cope with it?
5. Can you think of whose actions contributed to the hazard in the first place? Is the burden fairly carried?

#### Homework: None

If there was no time left to do Activity 2, ask the girls to think about the scenarios and to write down their answers or reflections to the questions.

# Module 2: Climate Risk and Vulnerability

**Module objective:** To build critical awareness of climate risk and vulnerability for communities in Nigeria, as well as the skills to reduce these risks and vulnerabilities and to build greater climate resilience and adaptive capacity

## Session 4: What are the Climate Risks and Vulnerabilities Near Me?

**Session objective:** To deepen understanding of climate risk and vulnerability by applying it to one's own community and local environment.

**Total Time:** 1 hour and 30 minutes

**Materials:**

- Blackboard and chalk
- Girls: Writing utensils
- Activities 1 and 2:
  - The girls' drawings from Session 1, Activity 1
  - 1 or 2 sheets of paper split into 5 pieces
  - Marker
- Activity 3:
  - Climate/Weather/Seasons chart from Session 1, Activity 2

<b>Part 1: What are the Climate Vulnerabilities and Risks in My Community?</b>
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**Objective:** To identify climate hazards in one's own community

**Recap** (5-10 minutes):

If the girls did Activity 2 from Session 3 as Homework, ask the girls to volunteer some of their answers to stimulate a recap discussion on issues of climate justice.

If the girls did Activity 2 as part of Session 3, briefly recap some of the discussion.

Remind the girls that climate justice is the recognition that the impacts of climate change are unequally borne by the most vulnerable because of historic inequities and discrimination and unequal relations of power. To address issues of climate injustice, these vulnerabilities and risks must be removed through our climate actions by restoring power, voice, and agency to the most vulnerable.

Activity 1: What are the climate hazards in my community?

**Activity type:** Group Discussion and Small Group Work

**Time:** 20 minutes

Task 1: Identify the hazards

1. On the chalkboard, make a large chart like the one below, leaving plenty of space in each box to write each event's associated climate hazards later. Label this table: "Extreme Weather and Climate Events."

Extreme Weather & Climate Events

STORMS	HEATWAVES	DROUGHT
EXTREME RAINFALL	CHANGING RAINFALL PATTERNS	INCREASED TEMPERATURES

2. Write the following list of hazards to the side of the chart, and label this list "Hazards."

Hazards

- Heatstroke
- Dengue
- Increased malaria
- Increased risk of wildfires
- Water shortage
- Wind erosion
- Desertification
- Flooding
- Flash flood
- Landslide
- Erosion
- Severe wind
- Storm surge
- Sea level rise
- Infrequent and unpredictable rainfall
- Delayed or early rainfall
- Increased water evaporation
- Avalanche

Ask the girls whether they are familiar with all the words on the board. Take a few minutes to define any words needed. Move on to the next step after the girls feel comfortable with the different terms.

3. Ask the girls to call out which extreme weather/climate event is associated with which hazard(s). The facilitator can either write these hazards on the chart in the appropriate cell as the girls call out a connection, or the facilitator can ask each girl to come up to the chart and write one hazard for one extreme weather/climate event until the girls have gone through the entire list of hazards and feel they have satisfactorily filled out the chart. Alternatively, depending on how many girls there are, the facilitator can assign one or two hazards to each girl and ask the girl to write their specific hazard on the chalkboard for any of the extreme weather/climate events she thinks it is associated with.

\*Note, some hazards are associated with multiple extreme weather/climate events. For example, “increased risk of wildfires” is associated with drought, heat waves, and increased temperatures.

4. Ask the girls to choose the extreme weather/climate events or hazards that they think have the biggest impact on their community. The girls can choose up to 5 extreme weather/climate events or hazards. They can do this collectively by coming to an agreement through discussion. Or they can do this individually by voting which they think is the single most impactful event/hazard by placing a \* (star) next to event label on the chart or the hazard in the list. Select the 5 events/hazards with the most stars and write each down on a piece of paper and tape these on a wall somewhere for the girls to be able to reference during the rest of the session.

\*Note: Save this list of 5 events/hazards for Sessions 5 and 7.

### Task 2: Map these hazards in your community

1. Divide the girls into groups of 2 or 3. Have them look at their drawings and to choose one drawing to use for their small group work.
2. Ask the girls to consider what additional places or things (natural or human-made) they might add to this drawing of their community, including important places/things that appear on the other girls’ original drawings or places/things from the list below that may be important resources, but they did not draw originally.

- Agricultural field
- Bank
- Clinic/Hospital
- Church
- Factory
- Forest
- Garden
- House
- Lake
- Local government office
- Market
- Park
- Public restroom

- River
- Road/Bridges
- School
- Store
- Trees
- University
- Water well

3. Have the girls look at the list of 5 extreme weather/climate events and climate hazards that are listed on the chalkboard. Ask them to draw a \* (star) next to the landmarks in their drawing that they believe to be most vulnerable to the impacts of each extreme weather/climate event and hazard.

For example, if one of the climate hazards selected is “increased water evaporation,” then you might place a \* (star) next to the farm fields in the drawing (because the fields are vulnerable to lower water absorption and therefore are at risk of crop failure), and another star next to the water well and the lake (because the well or lake is at risk of evaporating and running dry).

4. Ask the girls to discuss in their groups why and how they think these landmarks are vulnerable to the extreme weather/climate event or hazard before placing a \* (star) on their drawing.

Give the girls a 2-minute warning before moving on to the next part of the Session, which will shift from thinking about the places and things that are most vulnerable to thinking about the people who are most vulnerable.

\*Note: Save the girls’ climate hazards maps for Session 5.

## Part 2: Who in My Community is Vulnerable to These Climate Hazards, and Why?

**Objective:** To consider how climate vulnerability intersects with climate hazards in one’s own community

[Activity 2: Who are the most vulnerable to these climate hazards?](#)

**Activity type:** Small Group Work

**Time:** 20 minutes

**Task 1: Map the economic activity in your community**

1. Using the back of one of the girl’s drawings, ask each small group to make a two-column table, like the one below.

Job/Work	Resources Needed

2. Ask the girls to think about the jobs or work that people do in or at the places (natural and human-made) in their drawings. Make a list of these jobs/work under the left side column. For example, if the girls drew a bank in their community map, they would write down “banker” on the left side. If they drew an agricultural farm, they would write down “farmer.” If they drew a newsprint shop, they would write down “journalist.” If they drew a salon, they would write down “hairdresser.” A home may be the location of handicraft work or soap making—write these kinds of jobs down, too.

If the person performing this job is more likely to be a woman, place a ♀ (female) symbol next to it.

3. Ask the girls to think about what resources these people use to get to their job, to complete their job, or to get the work from their job to customers. Think about things like a bicycle that someone might ride to get to the field, or seeds to plant on the farm, or a truck to deliver the vegetables to the market in the city. Write these resources and tools down next to the list of jobs and people.

If access to this resource is made harder IF the person performing this job is a woman, place a ♂ (male) symbol next to it to indicate that men are more likely to have access to this resource. (For example, if it is unlikely that a woman can drive a truck to the market and more like that a man would, place a ♂ symbol next to it.)

Use the list below to help stimulate their thinking:

- Bicycle
- Boat
- Bus
- Car
- Cell phone
- Cow
- Donkey
- Electricity
- Land
- Money
- Pig
- Radio
- Solar power
- Tools
- Truck
- Water

4. Ask the girls to consider which of the jobs/work they have brainstormed together might be more *resilient* to climate change—that is, more able to face the climate hazard or to respond or reorganize so that they can maintain their activities with little disruption or disturbance. Similarly, which jobs/work might be more vulnerable to disruption or disturbance in the face of the climate hazard? Ask the girls to discuss in their small groups their reasons why, and place a \* (star) next to those jobs that the small group agrees is most vulnerable to climate change.

Task 2: Map the care economy in your community

1. On the back of another girl’s drawing, ask each small group to make another two-column table, like the one below.

Care Jobs/Work	Resources Needed

2. Ask the girls to think about the jobs or work that people do in their community that are responsible for the education, health, and wellbeing of community members. These may be paid or unpaid jobs. Make a list of these care jobs/work under the left side column. For example: teacher, nurse, doctor, parent, in-home care worker (for special needs, sick, or disabled people), mentor, religious leader, etc.

If the person performing this job is more likely to be a woman, place a ♀ (female) symbol next to it.

3. Ask the girls to think about what resources these people need in order to be able to engage in this kind of care work. Think about things like time, knowledge, training, trust, relationships, social services, etc. Write these resources down next to the list of care jobs.

If access to this resource is made harder IF the person performing this job is a woman, place a ♂ (male) symbol next to it.

4. Ask the girls to consider which of these care jobs/work might be more *resilient* to climate change—that is, more able to face the climate hazard or to respond or reorganize so that they can maintain their activities with little disruption or disturbance. Consider, which care jobs/work might be more vulnerable to disruption or disturbance in the face of the climate hazard. Ask the girls to also consider whether the people performing these care jobs are paid. If the job is a paid job, place a \$ (money) symbol next to that job.

Remind the girls to consider the economic shock that might happen as a result of the extreme weather/climate event or climate hazard. If the person performing the care job/work does not receive an income from this work (e.g. the work is unpaid domestic work), can this person continue to perform this care job/work in the event that his/her household has experienced a sudden loss of income or loss of livelihood? Or, does a household economic shock from climate change actually increase the burden of care (e.g. care for siblings increases when schools are shut down due to physical damage of school buildings)? Discuss in their small groups their reasons why, and place a \* (star) next to those care jobs/work that the small group agrees is most vulnerable to climate change.

**Debrief** (10 minutes):

Ask the girls to focus on the large group for a brief inter-activity discussion.

1. How are the places, things, and people you drew or named connected to and/or dependent on each other?
2. When one place, person, or thing is impacted by an extreme weather/climate event or exposed to a climate hazard, how does this impact another place, person, or thing?
3. How might this play out globally? If one place, person, or thing in Nigeria is impacted by climate change, how might this impact another place, person, or thing in Niger or in Chad?

**Explain** to the girls that this interdependency illustrates how *systems* work. A **system** is a group of things that work together as a whole. Your body is a complex system with different organs, muscles, cells, neurons, etc. working together as one.

The jobs that we discussed earlier today illustrate how our human systems (our economic activities, our society, our health) interact, connect with, and are interdependent with the natural world. When one thing is impacted negatively, a whole chain reaction happens to all the things that are related and connected together in that system. For instance, if a garden is flooded, not only are the plants destroyed, but the people and animals relying on those plants for income and food are also impacted.

Understanding these connections are important because they help us think about how different people in our community are impacted by climate change differently and at different times. The most vulnerable members of our community (our “system”) may be most at risk of exposure to climate hazards and experience the negative impacts of climate change first, but eventually every member of our community will, too, because we are all interconnected.

\*Note: Save the lists of jobs for Session 5.

### Part 3: When is Vulnerability to These Climate Hazards Highest?

**Objective:** To consider when in any given year one’s community is most vulnerable to climate hazards; To identify ways to minimize risk of exposure for climate vulnerable members of the community

Activity 3: When are people most vulnerable to these hazards?

**Activity type:** Group Discussion

**Time:** 20 minutes



1. Ask the girls to divide themselves up again according to their birthday month.
2. Using the chart you created for Activity 2 from Session 1, add five additional rows to the bottom of the chart, each row for each of the extreme weather/climate events and hazards that the girls identified earlier as most likely to/having the greatest impact on their community. See chart, below, as an example.

	January	February	March	April	May	June	July	August	September	October	November	December
Hot												
Cold												
Rainy												
Dry												
Hazard 1												
Hazard 2												
Hazard 3												
Hazard 4												
Hazard 5												

3. Starting with the first extreme weather/climate event or climate hazard, ask the girls with January birthdays whether this hazard has happened in their birthday month before. If their response is “yes,” place a check mark in the Hazard 1 box under the month of January. If “no,” leave the space blank. Continue with the other birthday months, and then repeat with the remaining 4 hazards.
4. Ask the girls to consider whether the weather conditions and climate hazards have changed over the last 30 years. Remind them to think back to their first homework assignment when they were asked to interview their elders about whether and how

they have noticed changes in climate since they were children and since their parents were children. Beginning with Hot and running through Cold, Rainy, etc., ask each birthday month group whether the conditions have increased, decreased, or stayed the same over the last 30 years. Use the symbols below and add the appropriate symbol into the lower corner of each box in the chart.

For example, if the girls with a birthday month in June heard their grandfathers/grandmothers say that the month of June has gotten cooler in recent years compared to when they were children, add a downward arrow symbol in the corner of the cell for “hot” under the column for June. For the climate hazards, ask the girls to make an educated guess given what they may have heard in casual conversations at home and/or in the community.

 <b>Increased</b> between now and more than 30 years ago	 <b>Decreased</b> between now and more than 30 years ago	= <b>Similar</b> now as it was more than 30 years ago
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**Debrief (10 minutes):**

In the last remaining minutes of the session, as the girls to reflect on the activities they engaged in today. Below are a few prompts to get the debrief started.

1. Now that you’ve mapped out when people in your community might be most vulnerable to these extreme weather/climate events and climate hazards, what might you do to decrease the climate vulnerability and/or risk of the people, places, and things that your group starred in Activities 1 and 2?
2. How might you explain to your community members the outcomes of this exercise? How might you explain to them their unique climate vulnerabilities and what they can do to adapt in time for the next extreme weather/climate event?

[Homework: A conversation with elders about climate risk and vulnerability in the community](#)

Ask the girls to share with their grandmothers or grandfathers what they have learned so far about climate risk and vulnerability in their community, and who is most at risk of exposure to climate hazards that are likely in the community. Interview her/him about what solutions might be pursued to help reduce this climate risk for the community.

Here are a few starter questions; the girls can develop their own questions in small groups or individually.

1. Do you agree that the 5 climate hazards we selected in our session today have/will have the greatest impact on our community?

2. Do you think these 5 climate hazards have gotten worse or stayed the same over the last 30 years?
3. Who in our community has been impacted by these hazards the most?
4. What do you think we can do to reduce our community's vulnerability to these hazards?
5. Are there examples in our community's history where people worked together to solve a collective environmental challenge? What did the community do? Who spoke up for the most vulnerable people?

## Session 5: How does gender impact climate vulnerabilities and solutions?

**Session objective:** To build awareness of how gender impacts the experience of climate change; To build integrated thinking toward addressing climate vulnerability through gender empowerment

*Note: This session may be best placed after Session 11 of the Married Adolescent Safe Space Curriculum, which introduces the concept of gender and gender-based violence.*

**Total Time:** 1 hour and 15 minutes

### **Materials:**

- Blackboard and chalk
- 5 climate hazards (from Session 4, Activity 1)
- Girls:
  - Writing utensils
  - Community climate hazards map (from Session 4, Activity 1)
  - Jobs charts (from Session 4, Activity 2)

### Part 1: What Does Gender Inequality Have to Do with Climate Change?

**Objective:** To understand how gender inequality exacerbates climate vulnerability

#### **Recap** (5 minutes):

Begin with a recap of the Homework assignment by asking the girls to share what they learned from their elders.

If the girls had the chance to ask their elders about who in the community has been impacted by climate hazards the most, then ask the girls whether they can spot any patterns in the characteristics of those people/groups that have been most impacted. It may help if the facilitator writes a list on the blackboard of the types of people that the girls mention in their responses (e.g. farmer, woman, shopkeeper, etc.). Ask the girls to try to identify common characteristics that may have contributed to increasing the vulnerability of these individuals/groups to the climate hazard. Was it their socioeconomic status? Was it their gender? Was it their location in relation to the hazard? Etc.

If the girls had the chance to ask their elders about solutions (e.g. how to reduce their community's vulnerabilities to climate hazards, or examples of how the community worked together to solve a big climate or environment-related challenge), ask them what they learned. What was the outcome of the solution or collective action?

**Discussion** (25 minutes):

Today we are going to dig a little deeper into underlying root causes of climate vulnerability by learning more about how *gender inequality* worsens vulnerability, and how climate change worsens gender inequality.

**The story of Tujuka**

Tujuka is a 14 year old girl living in a rural village in northern Nigeria. Her father is a farmer, but often leaves for the city in search of work for several months because food prices are so high these days and the family needs an additional income. Her mother tends to the crops when her father is not around. But for the last several years in a row, they have not been able to identify the right time to plant seeds. Twice they've had to replant in the middle of the growing season because the rains did not come as expected.

Because their crops have failed multiple times, Tujuka's mother has also had to leave for the city for weeks at a time to sell her traditional handicrafts and soaps, leaving Tujuka, who is the eldest of 6 children, behind to take care of her younger siblings. When her mother is gone, Tujuka cannot go to school because she must act as the head of household, tending to their vegetable garden, cooking for her siblings, making sure her brothers get to school, fetching water, and keeping house. Tujuka looks forward to her mother's return so that she can go back to school, too.

This year, Tujuka's father wasn't able to plant at all because the rains never came, forcing him to move to the city for the season. And because the land was so dry, an unseasonal cloud burst (sudden heavy rain) caused massive flooding in her village, damaging their home and their reserved food stocks. Tujuka and her siblings had to stand on a table for hours until the waters receded. As a result of her father's longer absence and the flash flood, her mother has had to leave for the city as well. With Tujuka leaving school repeatedly and for longer periods of time, she no longer feels motivated to go back to school because she has fallen so behind on her schoolwork.

The wells are drying up and she and the eldest of her younger siblings have had to travel longer distances to search for water, forcing her siblings to also leave school. She knows which wells not to return to in the future because the men at these wells make her feel very uncomfortable and violated. One threatened her to do things with her body that she did not want to do in exchange for two jerrycans of water.

Several months later, Tujuka finds out that she is pregnant from the incident by the well. When her father returns, he is furious and begins to talk of marrying her off. She doesn't want to marry, nor does she want to have a child. She doesn't understand how her life came to be this way.

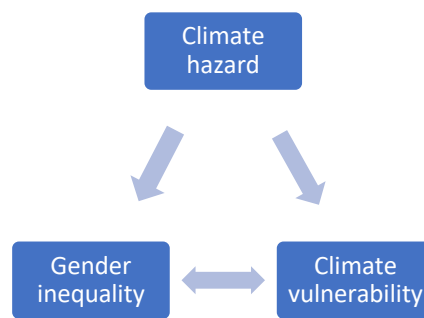
**Gender inequality** describes how people of different genders are not equal because social and cultural norms, beliefs, and attitudes suggest that one gender (often women) is inferior to another (often men). Gender inequality manifests in many ways, from limiting the mobility of women and girls (e.g. girls are unable to travel to another village without a male chaperone or without the permission of a male relative), to constraining opportunities for women and girls (e.g. girls are more likely to be out of school than boys because they are expected to take care of the house or younger siblings), to affecting their health and wellbeing (e.g. girls and women are more likely to suffer physical, sexual, and emotional violence from boys and men). Gender inequality also affects boys and men negatively, but in different ways.

1. How does gender inequality affect Tujuka and her family? [Give the girls a few minutes to respond and discuss]

Gender inequality exacerbates girls' and women's climate vulnerability by exposing girls and women to climate hazards and increasing her risk of harm, and also by reducing her ability to adapt to the impacts of climate change (this is called **adaptive capacity**), and to be better able to cope with and to bounce back from climate-related disruptions and disasters (this is called **climate resilience**).

2. Identify what the climate hazards are in Tujuka's story.
3. How did these hazards make existing gender inequalities worse?
4. How does gender inequality increase Tujuka's vulnerability to these hazards? How does it expose her to increased risk and harm? How did it reduce her ability to adapt to climate change effectively?
5. Can you think of other ways in which gender inequality can exacerbate girls' and women's climate vulnerability?

[If there is interest and time to deepen the girls' ability to identify how gender inequality and climate vulnerability are linked, use the following examples to guide the discussion further. Also, it may help to draw the figure below on the blackboard and, as the discussion unfolds, write in examples of vulnerability to specific climate hazards that are made worse by gender inequality. You can use the list below as a starting point.]



Possible examples to discuss:

- If gender norms dictate that girls wear long clothing that impede her ability to run, climb, or swim, she is more likely to be injured or to perish in the event of a climate hazard like wildfires, flood, or a landslide that requires her to move quickly to safety.
- If gender practices are likely to discourage girls and women from attending mixed sex public meeting spaces, they are less likely to be exposed to important public information about climate hazards or public information about how to adapt to or reduce their risk of exposure to these hazards.
- If customary law does not allow girls and women to own land, they are unlikely to have access to extension services that can teach them how to use climate-smart agriculture techniques like drip irrigation, intercropping, or agroecology that are more adapted to drought conditions, ultimately lowering her and her family’s food security in dry spells.
- If policies do not allow or discourage women from opening a savings account in their own name, women have less financial autonomy in times of environmental shocks and have less resources to begin an alternative source of livelihood should climate conditions destroy her or her family’s main source of livelihood.

Additional examples of gender inequality that exacerbate climate vulnerability (be sure to also point out how gender inequality may affect boys and men, too):

Gender inequality	Climate Hazard	Climate vulnerability
Limited or no education for girls	Drought, extreme storms, wildfire, flood	<ul style="list-style-type: none"> <li>• Cannot read or interpret weather warnings</li> <li>• Unlikely to learn new climate-smart technologies</li> </ul>
Constrained mobility without a chaperone	Wildfire, flood	<ul style="list-style-type: none"> <li>• Cannot move quickly to shelter or safety</li> </ul>
Disproportionate care burden of the young, sick, and elderly	Extreme temperatures, extreme storms, flood	<ul style="list-style-type: none"> <li>• Increased exposure to climate-related illnesses (like heat stroke)</li> <li>• Increased likelihood of mortality in the face of natural hazards</li> </ul>
Disproportionate domestic burden	Drought	<ul style="list-style-type: none"> <li>• Increased time poverty</li> <li>• Decreased access to sustainable and adaptable livelihoods</li> </ul>
Lack of access to menstrual hygiene products, sexual and reproductive health services, and sanitation facilities	Drought, flood	<ul style="list-style-type: none"> <li>• Increased exposure to illness (like UTIs) or discomfort (like constipation)</li> <li>• Decreased bodily autonomy</li> <li>• Increased pressure to engage in transactional sex</li> </ul>

		<ul style="list-style-type: none"> <li>• Increased exposure to gender-based violence</li> </ul>
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[Activity 1: How does climate change impact girls and women in my community?](#)

**Activity type:** Small Group Discussions

**Time:** 20 minutes

Divide the girls into their small groups from Session 4 and have them look over their community climate hazards map and their job charts. The facilitator may need to remind the girls of the 5 climate hazards they selected in the previous session that served as the girls’ reference point for considering climate vulnerability.

Task 1: Reflect on the impact of climate change on women’s livelihoods

Take a look at your job charts (including the care jobs chart. Remember that these were some of the jobs that you identified that different people in our community do in/at the places you drew on your community map. Choose any of the reflection prompts below.

1. Reflect on the jobs that you marked with a ♀ (female) symbol, and discuss amongst yourselves how the 5 climate hazards you selected previously might affect these female workers in ways that are unique because of their gender.
2. Reflect on the jobs that you marked with a \* (star), indicating a climate vulnerable job. Given what you know now about how gender inequality exacerbates the impacts of climate change by increasing girls’ and women’s climate vulnerability, would you revise your conclusions about which jobs (and the people that perform them) are most vulnerable to the impacts of climate change. Why? Why not?
3. Look at the right-side column of your job charts at the resources needed for each job. Focus on the ones marked with a ♂ (male) symbol, and the jobs that you marked with a \$ (money) symbol. Be sure to include the first jobs list where it is assumed that all the jobs listed are paid jobs. Reflect and discuss with each other how gender inequalities might make it harder for women in these jobs to adapt to climate change and/or to bounce back from a climate-related emergency. For example, you might have marked a ♂ (male) symbol next to “seeds and land” for a farmer job. This would symbolize that being a female farmer makes it harder to access to seeds and land than for a male farmer. You might have marked a \$ (money) symbol next to training for a nursing job, indicating that becoming a nurse requires money to pay for the training needed. Reflect and discuss amongst each other how climate change might affect women in these jobs more than men. Why? Why not?

### Task 2: Reflect on the gender aspects of your community map

Take a look at your community climate hazards map and the places that you marked with a \* (star) to indicate where the most vulnerable locations are in your community to the 5 different climate hazards. Given what you know now about how the impacts of climate change can be made worse by gender inequality, are there any new places on your map that you would mark as creating more risk for women and girls? Are there any places that you previously marked as vulnerable that you would consider less vulnerable than you initially thought? Why? Why not?

## Part 2: What Does Gender Equality Have to Do with Climate Change?

**Objective:** To illustrate how gender empowerment and gender equality is vital to building climate resilience and adaptive capacity for girls and women and their communities

**Transition** (5 minutes):

[Ask the girls: What is the opposite of vulnerability? Allow them some time to reflect and respond.]

We have been talking about climate vulnerability and climate risks for some time now. It might sound very scary and very sad, but if we are better able to identify climate hazards we can better prepare for them and the potential impacts they bring. If we can better prepare, then we can better adapt, cope, and bounce back from climate-related disasters in ways that help us and our families and communities thrive. This is called building our *climate resilience* and *adaptive capacity*.

[Ask the girls if they remember what these terms mean.]

[Activity 2: How can empowered girls and women help address climate change?](#)

**Activity type:** Small Group Discussion

**Time:** 20 minutes

Divide the girls into four small groups (mix the girls up this time) and assign them to one of the following stories. Have them read or have a mentor read the story out loud and to think about how the actions of the young women helped to increase their own and their community's climate resilience and adaptive capacities. Mentors may need to simplify the stories for better comprehension.

### **Sori's story**

Sori's village was experiencing an unprecedented drought. The rainy seasons were not starting on time, not lasting as long, and not raining enough. As a result, the wells had run dry and Sori

noticed that the girls and women in her village were suffering the most. Not only were they spending more time to traveling farther distances to collect water, but their daughters and sisters were not able to go to school and not able to engage in other productive work, like making handcrafts and other items to generate income.

Sori felt like she needed to do something, so she gathered the women and girls in the village for a meeting to discuss the village's challenge with water. The other women expressed how the drought was affecting them the most in their families, and that they needed to work together to address the water scarcity issue. They agreed that they must raise their voices as women to demand their village leadership pursue a solution.

Sori organized a meeting with the village leaders expressing the challenges women were facing with the drought and water crisis. There they learned that one possible solution was to install a water pump that would be able to dig very deep into the ground to pull water up for them to use, saving them hours a day from traveling far away to a water source. Sori helped to encourage one of the village leaders to write a letter to the local prefect requesting that a water pump be installed in their village. She also convinced one of the leaders to go with her to the city to hand deliver the letter to the prefect. Through her leadership, several months later the local government sent trucks and workers to install a water pump for her village.

This story was adapted from the film, *Marcher Sur L'eau*, by Aïssa Maïga.

### **Ayomide's story**

Ayomide grew up in Lagos, a city in Nigeria with such a high population density that efforts to preserve its green spaces seemed always to succumb to the need to build more housing or construct bigger roads to accommodate its growing number of people. The resulting air pollution in the city even made the clouds not look right; the clouds often had the appearance of being dirty, sometimes even pouring down acid rain. The city was a stark contrast from the green rural countryside where Ayomide attended high school and where she remembers with fondness the smell of the red clay earth. It was as a teenager, however, that she was first introduced to the impact of climate change as flooding in Lagos reached the rooftops of the houses around her. Fast forward twenty years later to today, changing rain patterns in the country are regularly impacting Nigeria's agricultural households as well as its urban dwellers. And rising sea levels threaten to displace poorer coastal communities across the country, impacting their way of life and traditions.

As Ayomide heard stories on social media and in the news about climate change, its causes, and the unequal burden of impact that some communities bore (even if these communities had done little to cause it), she wondered about their connection to stories about gender-based violence, terrorism, and poverty she was also hearing. She heard about communities in the north of the country dependent on grasslands to feed their sheep, but with no rains they were being forced to migrate. As communities clashed over land and natural resources, conflict

erupted and armed militias emerged. Stories of violence against women, including sexual assault and kidnapping, trailed closely behind. She heard about girls being married early by households hoping to protect them, only to be forced to drop out of school to start bearing children. Ayomide wondered why more Nigerians did not see the connections she was seeing between environmental destruction, climate change, poverty, gender inequality, and gender-based violence.

Wanting to bridge this communication gap, Ayomide was inspired to write a graphic novel that would help introduce young Nigerians to the connection between gender-based violence (like child marriage) and climate-caused environmental change (like drought). She interviewed women and girls, collecting their stories and thinking about how they were similar to each other and how they were different. She thought about what their vulnerabilities were, and how gender inequality helped to explain these vulnerabilities. She also thought about how to tell the stories of boys and men in her book because she realized that the violence they were committing against girls and women was rooted in harmful gender norms, not because they were inherently violent. And to stop the violence, she needed to show that boys and men were part of the solution, too. By telling stories, Ayomide felt that she was able to use her voice to give voice to the voiceless, and to bring to light the things hidden beneath the surface.

To learn more about Ayomide and her upcoming graphic novel, see <https://girlrising.org/our-programs/future-rising-girls-education-climate-change/fellows>

### **Fatuma's story**

Fatuma grew up as the first girl in a family of 7 children. As a girl, she was always meant to keep out of sight. Her parents did not see any reason to send her to school, preferring to send her brothers instead. However, Fatuma knew that if she did not go to school, she would face a future of hardship just like the other women in her village who were struggling to feed their many children. One year, her brother took some pity on her and gifted her his enrollment fees. She excelled at school and studied hard to give her parents no reason but to let her stay in school. She eventually even went to college and studied nutrition.

When she wasn't in school, she was helping her mother with rice farming, trying to contribute to improving the food security of her household and community. But the local market price for rice was lower than the cost of growing it. Fatuma recognized that her community needed an alternative food source that would be hearty enough to grow amidst increasingly variable weather conditions, nutritious and affordable for poor families, profitable enough to become a viable livelihood for households, and cheap enough to grow that poorer farmers could participate. Drawing on what she learned at school, Fatuma realized that growing pumpkins could be the solution. Pumpkins require low production costs and are a high yield, are rich in vitamins and minerals, can be combined with rice flour to make porridge, and nearly all parts of the pumpkin (its seeds, leaves, stem) can be consumed, leaving very little food waste.

Fatuma started her business with very little money and with very little support from her family, being a woman with very little resources. But in just two years, she has been able to grow her business by over 200% and now employs 20 staff. She has also trained and worked with thousands of young farmers (the majority of whom are women with children) to grow pumpkins and to start their own businesses. Fatuma has shown her community that girls can do anything they put their mind to.

Read more about Fatuma here: <https://www.feedthefuture.gov/article/pumpkins-powerful-profitable-and-full-of-potential/>

### **Oladusu's story**

Oladusu is from the Lake Chad region of northern Nigeria, which has experienced enormous effects from climate change. Due to drought and rising temperatures, the lake has lost nearly all of its water. As a result, families in the region have very little access to water or a source of income. Many of the men, desperate for an income but without the skills or opportunities to get a job outside of farming, have been recruited by militant groups to commit acts of violence and terrorism in exchange for money. Because of this increased insecurity and armed conflict in the region, many girls and women, who have to walk longer distances to get water, have been abducted, targeted for sexual violence, and forced into child marriage.

Oladusu recognizes the connections between the environment and gender. On the one hand, climate change is displacing families and causing men to lose their livelihoods, resorting to violence or creating conflict over scarce resources. On the other hand, women's day to day activities in the region are so dependent on the environment, that they often come into the crossfires of violence being perpetrated by men. Yet because education levels are so low in the region, and because very few people know about or understand climate change, no one was trying to find out ways to make things better. Oladusu decided to start organizing an educational campaign.

Today, Oladusu travels around northern Nigeria and the Lake Chad region visiting schools to teach children and young people about climate change and how to recognize the signs and its social effects so that they can help their friends and each other. She also speaks with farmers and links them with resources to help introduce them to climate smart agricultural techniques and technologies. This will help them farm even under very dry conditions and be less susceptible to being recruited by militant groups. She hopes to increase local awareness of the connections between climate change and gender so that communities can be better prepared to adapt in ways that allow everyone to thrive.

Read more about Oladusu here: <https://www.wen.org.uk/2020/08/26/whys-climate-justice-a-feminist-issue-oladosu-adenike/>

### Discussion Guide:

Use the following sample questions to get the discussion started.

1. In the story that you read, what are the gendered vulnerabilities putting women at greater risk of experiencing the negative impacts of climate change?
2. What did the young women do to try to help reduce the climate vulnerabilities of other women in their community?
3. What obstacles stood in their way, and how did they overcome these?
4. Describe how the girl's actions helped to improve the climate resilience of their community.
5. Describe how the girls' actions help her community adapt to the impacts of climate change.

After the small groups have had a chance to discuss with each other, bring all the girls back to the large group. Ask one girl from each group to summarize the story for the entire group, and another girl from each group to summarize what they thought was the most memorable point from their small group discussion.

[Homework: Write your own climate resilience story](#)

Ask the girls to create their own story of a young woman in their village who is taking action to reduce her own, her family's, or her community's climate vulnerability. The girls can model their story off of a real story that they have witnessed or heard about, or they can make up a fictional story based on themselves or a fictional character.

The story should have a clear climate hazard, illustrate the unique climate vulnerability faced by the main character or by her community, and it should showcase a set of actions that the girl takes to reduce this vulnerability and to increase her or her community's climate resilience.

# Module 3: Climate Solutions

**Module objective:** To build awareness and skills to participate in climate mitigation and adaptation solutions that address participants' climate risks and vulnerabilities

## Session 6: What are Ways to Mitigate and Adapt to Climate Change?

**Session objective:** To build foundational understanding of climate mitigation and adaptation

**Total Time:** 1 hour and 15 minutes

**Materials:**

- Blackboard and chalk
- Girls:
  - Stories of climate resilience (Homework from Session 5)

<b>Part 1: What are Actions to Adapt to Climate Change in Nigeria?</b>
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**Objective:** To understand climate adaptation and its importance in Nigeria

[Activity 1: What does climate resilience look like?](#)

**Activity type:** Skit/Performance

**Time:** 40 minutes

Divide the girls into small groups of three. In their small groups:

1. Have one girl volunteer her story to serve as the basis of the group's role play. Have another girl read the story to the rest of her small group. (about 5 minutes)
2. The small groups should discuss their story to be sure that everyone in the group understands the story, including the climate hazard, the climate vulnerability, the action taken, and the resilience gained. (about 5 minutes)
3. The girls should now come up with roles for each member of the group, as well as a short script to act out the story. (about 10-15 minutes)

When developing the skits, the girls should ensure their skit has at least three parts:

- a. pre-action (setting the scene)
- b. the action (the climax—what the main character does to address her or her community's climate vulnerability)

- c. post-action (what happens as a result of the action taken)

Give each small group about 5 minutes to perform their skit for the rest of the group.

After each group performs their skit, ask the rest of the girls to respond to some of the questions below:

1. Can you identify what the climate hazard was in the story?
2. What kind of vulnerabilities did the main character or her community face? What factors created this vulnerability? Was gender inequality a factor?
3. What did the main character do to reduce this vulnerability?
4. How did her actions increase her resilience, or that of her community?
5. Would you have done the same thing? If not, what would you have done differently under the same circumstances?

**Presentation** (10 minutes):

We've talked a lot about the causes and impacts of climate change over the last several sessions, including those causes and impacts that are hidden from plain sight and can affect some groups of people more than others.

We've also talked about vulnerability, risks, and hazards that can put some groups, especially girls and women, in harm's way when it comes to the impact of climate change.

What we're talking about today are *climate solutions*. This is something that we've already begun to see through our skits, and through some of the stories we discussed last time. **Climate solutions** are the actions we can take to address our individual and collective risks and to reduce or eliminate the climate hazards in our environment. Climate solutions are also the actions we can take to help stop climate change by stopping the activities that are making it worse.

We must remember, though, that greenhouse gases stay in the atmosphere for a long time after they have been released—sometimes for decades. This means if we were to stop doing the things that are causing climate change today (mainly, burning coal and oil to fuel our homes, cars, and buildings), we would still see the effects of the greenhouse gases already in the atmosphere for many generations—until your children's children are grown up. This makes climate change a long-term problem. And this means learning to *adapt* to the ways that climate change is changing the planet is very important. This is especially the case for countries like Nigeria where the impacts of climate change are already hurting communities, especially the most vulnerable.

And because climate change was historically caused by the activities of rich countries while their economies grew over the last 200 years, these countries have a greater responsibility to take greater actions against climate change than poorer countries. They also have a responsibility to help poorer countries to adapt to the impacts of climate change. But as poorer

countries develop they will require the same degree of energy for their economies to grow, and it would not be fair to let climate change delay their development. Nigeria's economy is one of the fastest growing economies in Africa, and it has one of the highest levels of greenhouse gas emissions on the continent. So, all countries, including Nigeria, will have to take action against climate change.

But how? And what can you do? Especially if this problem is not going to go away very quickly? [See if the girls have any ideas, before proceeding.]

One of the answers is we need to do things to help our communities adapt and to deal with the effects of climate change by adapting our human and natural systems. This kind of action is called **adaptation**. Adaptation actions are very important for Nigeria because they help to build people's *climate resilience* and *adaptive capacity* to the impacts of climate change already happening in the country.

[Ask the girls if they remember what climate resilience and adaptive capacity is.]

We learned during our last session that our adaptive capacity can be constrained by things like gender inequality. Gender norms and harmful gender practices can limit girls' and women's access to important resources, information, and time to engage in activities that could help her or her family to adapt to the impacts of climate change.

But achieving gender equality can help improve girls' and women's adaptive capacities and, as a result, her resilience to climate shocks.

## Part 2: What are Actions to Mitigate Against Climate Change in Nigeria?

**Objective:** To understand climate mitigation and its importance in Nigeria

**Presentation** (5 minutes):

The second thing we can do are those actions that attempt to fix the underlying problems. Actions that help to stop climate change from getting worse by reducing or stopping the human activities that release greenhouse gas emissions into the atmosphere. This kind of action is called **mitigation**.

[Ask the girls if they remember the first two Sessions where they learned about the Earth's Atmosphere, Greenhouse Gases, and the Greenhouse Effect. The facilitator may want to take a few minutes to remind them of these terms, possibly drawing the figure from Session 2, Part 1, to help remind them. Perhaps even ask the girls if they find it surprising that something like the greenhouse effect can have such a strong impact on human society like those impacts that have been discussed throughout this program.]

In Nigeria, mitigation activities are important to ensure that as Nigeria continues to grow and develop that it does so without releasing harmful greenhouse gas emissions. As one of Africa’s largest and fastest growing economies, it will be important that the country makes sustainable choices that promote the health of its soil, quality of its air, cleanliness of its water, etc. If we take care of the Earth, the Earth will take care of us.

Activity 2: Which action is more sustainable?

**Activity type:** Small Group Discussion

**Time:** 15 minutes

Divide the girls into small groups. Either write the pairs in the list below on the chalkboard, or call them out one pair at a time.

1. Have the girls discuss in their small groups, which action in each pair of actions is the more sustainable option.
2. Then determine whether that action is mitigation action or adaptation action. Remind the girls that mitigation reduces or stops the release of greenhouse gases. Adaptation helps people deal with the impacts of climate change. Some actions can be “win-win” that are both mitigation and adaptation.

Rotating crops every year*	Planting the same crop every year
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*[“Win-win” | Mitigation: Crop rotation encourages biodiversity and improved soil health, including absorbing greenhouse gases like carbon and nitrogen | Adaptation: Crop rotation helps farmers adapt to pests and weeds that are made worse by rising temperatures]*

Using energy from burning coal (fossil fuels)	Using energy from the sun (solar power)*
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*[Mitigation: Burning fossil fuels is the main culprit of greenhouse gas emissions; using an alternative source of energy like the sun, wind, or water is a much more sustainable source of energy]*

Clearing trees for farmland	Managing trees and farmland together*
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*[“Win-win” | Mitigation: Agroforestry methods of land management enables greater biodiversity and improved soil health by integrating trees and shrubs into cropping and livestock land | Adaptation: Agroforestry provides a layer of resilience against climate shocks and enhanced food security]*

Using a clean cookstove*	Burning firewood to cook
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*[Mitigation: Burning firewood or other biomass (organic matter) for cooking releases both greenhouse gases and harmful air pollutants that lead women (who typically are responsible for cooking) to develop respiratory illnesses and premature death; it also promotes deforestation and forest degradation. Clean cookstoves use different technologies to mitigate against the release of gas and pollutants, and some use renewable energy like solar.]*

Planting trees to prevent desertification*	Using water harvesting methods to retain water during dry periods*
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*[This one is a trick question. Both are sustainable options, but dependent on context. Planting trees is an important way to help prevent desertification (mitigation), but can be ineffective if a single species of trees is used or if surrounding villages have not been taught how to care for the trees. Indigenous water harvesting methods can be a regenerative method to encourage natural tree growth (mitigation and adaptation).]*

Clear drains of rubbish and litter*	Provide rubbish bins and encourage recycling*
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*[This one is a trick question. Both are sustainable options, but depend on context. Clearing drains can help to prevent flooding in flood-prone areas (adaptation), while encouraging recycling can help to curb waste that can contribute to climate change, especially in high consumption/high waste areas (mitigation).]*

**Debrief** (5 minutes):

Ask the girls whether they noticed how many of the mitigation and adaptation actions involved taking better care of nature and encouraging more *biodiversity*.

**Biodiversity** is a way to describe lots of variety of life (trees, plants, animals, insects, microorganisms, etc.) in a particular place. An area that has more biodiversity is healthier and more abundant.

Explain to the girls that with greater biodiversity, nature can provide us humans with more natural services, including providing us with food and protection to be more resilient to climate change. But for nature to help provide for us, it is very important that we help to look after, conserve, and care for nature.

[Homework: Nature helps nature hunt](#)

Nature hunt: On your way home, go on a “nature hunt” and identify the natural things around you. Write these down and think about how you benefit from them.

For example, if you pass the market and see fruits and vegetables, write down fruits and vegetables. You benefit from these because they provide your body with nutrients and vitamins

and energy. If you enjoy watching birds in a particular place, or if you like to hang out with your friends in a meadow, this is nature supporting your mental health. If you get water from the river or a well, or if your family's home is protected by a large tree, write these down.

Think about how nature helps to take care of you. Now, what can you do to take care of nature so that it can continue to take care of you?

## Session 7: What are Climate-Smart Livelihoods?

**Session objective:** To build interest and a basic understanding of green jobs and climate-smart livelihoods

**Total Time:** 1 hour and 30 minutes

### **Materials:**

- Wall space to tape sheets of paper
- 5 climate hazards (from Session 4, Activity 1), each written in large font on a small piece of paper
- “Hazards” and “Community” written largely on 2 sheets of paper
- 7 sheets of paper or flip chart paper
- 8 sheets of paper, split in fourths to create at least 30 pieces (will need both front and backsides of the paper)
- 12-20 beans, or similar sized smallish objects that match the number of participating girls (“votes”)
- 40-50 small pebbles (“climate hazards”)
- Markers
- Tape
- Girls:
  - Writing utensils
  - Optional: Community climate hazards maps (from Session 4, Activity 1) and Jobs charts (from Session 4, Activity 2)

\*Please conserve paper. Where possible use scrap paper.

### **Part 1: How Can Individual and Collective Actions Contribute to Resilience?**

**Objective:** To understand what actions and decisions we can take as individual and as a community, and the different impact that these actions can have on climate change and our climate resilience and adaptive capacity

#### **Recap** (5 minutes):

Ask the girls to volunteer their list of things that they identified in nature as part of their Homework assignment, “Nature helps nature hunt.” Ask them to share how these things help to take care of them (physically, mentally, emotionally). Ask them if they thought of ideas of how they can help take care of these aspects of nature.

#### **Presentation** (5 minutes):

Thinking about how nature nurtures us and how we can in turn nurture and protect nature is a fundamental part to building *climate-smart livelihoods*. **Climate-smart livelihoods** are ones that meet two objective:

- 1) They enable communities to meet local and global basic needs, like food security and economic development, without having a negative impact on the environment or degrading/destroying natural resources that future generations will need to meet their needs.
- 2) They reduce vulnerability and build resilience of people and communities to the short-term risks and long-term stresses of climate change and other shocks to human and natural systems.

Climate-smart livelihoods are created through a combination of individual and collective actions. Some of these actions are more long-lasting and impactful than others, and the types of actions that are most impactful depend on local contexts and local circumstances.

Today, we're going to consider the type of decision making and future thinking that is required to build climate-smart livelihoods.

#### [Activity 1: How can we act to adapt?](#)

**Activity type:** Game

**Time:** 70 minutes

*This activity has been adapted from [Act to Adapt](#), and can be supplemented with [Resource Cards](#), or played with self-made cards (This adaptation uses self-made cards). The game is part of the Y-Adapt curriculum developed by PLAN International, the Red Cross Red Crescent Climate Centre, the Engagement Lab at the Emerson College, the Philippines Red Cross, and PLAN Philippines.*

**Objective of the game:** Players will see how climate hazards pose a risk to community resources, and how individual and collective “climate-smart” action (both mitigation and adaptation) can help to build community resilience by reducing climate impacts, adapting human and natural systems, and stopping climate change.

#### Task 1: Choose your community resources (30 minutes)

**Set up:**

1. Label each of the 7 flipchart papers with one of the following resource categories (left column) at the top of the paper:

Resource Category	Example
Organizations/Institutions	Local Village Council, NGO, bank, market, etc. (groups or organizations that serve your community)
Jobs/Work	Example: Farmer, teacher, etc. (activities that people in the community do that provide income)
Mobility/Communication	Example: Bicycle, donkey cart, cell tower, etc. (things that help people be more mobile or to interact and connect with each other)
Knowledge/Skills	Example: School, university, NGO, etc. (places that provide people with information and skills)
Health/Care	Example: Clinic/hospital, doctor, gym, etc. (things that help people become healthier)
Nature	Example: Trees, river, cow, goat, garden, etc. (things that are part of the natural environment)

2. Create 7 “stations” for brainstorming by placing 1 flipchart paper at each location with several markers

**Brainstorm:**

1. Divide the girls into 7 groups and have each group start at a different station.
2. Explain to the whole group what each of the stations represents, running through the examples (right column, above) if needed.
3. Give the girls 1 minute to brainstorm and write down on the paper the people, places, and things in their community that they think fits into the category. They can think back to previous Sessions (e.g. their community map from Session 1, Activity 1; their jobs charts from Session 4, Activity 2; etc.)
4. After 1 minute, have the girls rotate to the next category, read what the previous group listed, and then add to it.
5. Continue to rotate until all groups have had the chance to visit each station once (six rotation).
6. Ask each group to take their paper and lay them on the floor, creating a line of the seven categories.

**Ranking:**

1. Working individually now, explain to the girls that they will now vote on which 3 things they think is the most important resource across all the categories.

2. Each girl has only 3 votes, which will be represented by an “X” mark, and she can use these 3 votes however way she wants to. She could:
  - a. Give 1 resource all 3 of her votes (XXX)
  - b. Give 1 vote to 3 different resources (X) (X) (X)
  - c. Give 1 vote to 1 resource and 2 votes to another resource (X) (XX)
3. Give the girls about 5 minutes to do this.

**Create Community Resource Cards:**

1. On the board write the following list of systems (left side column):

<u>System</u>	<u>Description</u>
People	Do people become smarter, more mobile, or healthier because of this?
Social	Is this a group, organization, or person that helps your community? Or does this help people interact with each other?
Structure	Is this a human-made landscape or construction?
Nature	Is this part of the natural environment?
Livelihood	Does this provide money, income, food, or jobs?

2. Divide the ~30 pieces of paper evenly amongst the girls and have them write their name on the front and back of the card toward the bottom of the page.
3. Then divide the list of check-marked items amongst the girls. You can do this in one of two ways. Either:
  - a. Have the girls choose 5-7 items on the lists on the floor that have an “X” mark next to it, cross it out on the list, and then write these items in large letters on the front of their pieces of paper (1 item per paper). If there aren’t 30 items check-marked on the list, permit the girls to make duplicate cards of the items that have more than 1 “X” mark.
  - b. Divide and assign the items to each girl. Write down each of the “X” marked items onto each of the 30 pieces of paper. If there are not 30 items checked, create duplicate cards of those items that have more than 1 “X” mark.
4. On the backs of the girls’ pieces of paper, have them look at the list of systems on the board and write down whether the item they have selected fits into any of these systems.

For example, if they have the item “school” on the front of their Resource Card, then on the back of the card they should write down “people” (because schools help people become smarter), “social” (because schools help their community and helps people in the community interact with each other), “structure” (because typically schools are

human-made structures), and “livelihood” (because schools provide livelihoods for teachers, school leaders, and school staff).

For duplicate cards, be sure that the girls filling in these cards have written in the same systems on the backs of the cards.

If there is sufficient time, ask the girls to check each other’s cards to make sure they have selected the right systems for each item.

### Task 2: Act to Adapt (40 minutes)

#### **Set up:**

1. Create the “Resource chart” on the wall by taping the “Hazards” and “Community” cards side-by-side at the top, taping a line down in between. These will serve as your column headings. Tape the 5 hazards from Session 4 in a single column down the left. (see Diagram below)



This Resource chart will help the facilitator keep track of how the players on the Community Team are adapting their community resources in the face of climate hazards. As the game progresses through each climate hazard, the facilitator will tape resources cards under the appropriate team’s column (Hazards or Community), depending on whether the Community team is able to successfully adapt the resource to the climate hazard.

2. Give each girl a bean (“vote”) and have them stand in a large circle with their resource cards. Tell the girls to remember where they are standing, as this will be their position for the entire game.
3. Make the community by having every girl put their Resource Cards down in the middle of the circle on the floor, with the item name facing up. Have the girls do this one at a time, reading aloud the name of their Resource Card. Be sure that the resource cards are spread around, spaced out, and mixed up well. The girl should return to her previous position on the circle.
4. Pick 2 players to be on the Hazard Team. They should not be near each other on the circle. Replace these players’ beans with 7 pebbles each.

#### **How to play:**

1. The team with the most Resource Cards is the winner.
2. The Hazard Team represents the 5 climate/environmental hazards from Session 4. Their aim is to “destroy” as many Resource Cards as possibly. Each Research Card that is “destroyed” goes to the Hazard Team.
3. The Community Team aims to “protect” as many Resource Cards as possible by adapting them. Each card that is not destroyed after 5 rounds is kept by the Community Team.
4. The game ends after 5 rounds.

#### **How the Hazard Team gets cards:**

1. For each round, the Hazard Team’s pebbles represent the hazard for that round (e.g. a flood, a storm, a drought, etc.). Without moving from their position on the circle, the Hazard Team members should toss the pebbles on the Resource Cards. They must toss the pebbles all at the same time.
2. If a pebble lands and stays on a Research Card, this resource is destroyed and belongs to the Hazard Team. The card is removed and taped to the Resource Chart under the “Hazards” column and next to the specific hazard for that round.
3. Whoever’s name is on the destroyed Resource Card joins the Hazard Team. The facilitator should give this player 7 pebbles in exchange for their bean.

#### **How the Community Team gets cards:**

There are 2 ways the Community Team can protect its Resource Cards:

1. Individual actions: Individuals actions protect Resource Cards for 1 round only. To take an individual action, you give your bean to the facilitator, which allows you to flip over 1 of your Resource Cards. On the back of each card you have listed the different systems

associated with this resource. For these flipped cards to be destroyed by the Hazard Team, the number of pebbles that land on the card must be more than or equal to the number of systems listed on it. For example, if your Resource Card has 3 systems listed, then it needs at least 3 pebbles on it to be destroyed during that round. Individual actions only last one round, and at the end of the round the cards will be flipped back over.

2. Community actions: Community actions protect Resource Cards for the rest of the game. To take a community action, you will need to place your bean on a resource card in your community circle. For the Card to be protected, it must receive votes from 1/3 of the community. The facilitator will then move the protected card to the Community section of the Resource Chart, next to the specific hazard for that round. It will remain protected for the rest of the game.

Number of Community Team players	0-8	9-11	12-14	15-17	18-20	21-23	24-26	27-29	30
Number of votes needed for community action	2	3	4	5	6	7	8	9	10

**Practice Round 1:**

1. Reveal the hazard that will impact the community (make up a climate hazard for the practice round).
2. Give the Community Team 1 minute to discuss with the people next to them what action they should take. Players cannot move from their spot on the circle. They should think about which resources are both important and particularly vulnerable to the hazard for that round.
3. Get opinions from the Community Team on what to protect by asking them to raise their hand if they have a specific Resource Card that they think should be protected. Select someone and ask her to say which resource she would protect and why. Ask the rest of the Community Team to raise their hand if they agree. Repeat this with three different Community Team members.
4. Choose half of the players to take community actions by voting with their beans which resource they want to protect. Have them place their bean on the Resource Card, reminding them how many votes are needed to protect a resource.
  - a. Count the votes (beans) on each Resource Card. If there are enough votes to make a community action to protect the resource, move the card to the Resource Chart under “Community” and next to the hazard for that round.
5. Choose the remaining half of the players to take individual actions. These players should give their vote (bean) to the facilitator and then flip over the Resource Card of their choice.
6. Let the Hazard Team toss their pebbles.

7. Show everyone which Resource Cards were protected and which ones were destroyed. Move the destroyed cards to the Resource Chart under “Hazards” and next to the specific hazard for that round.
8. The Community Team players of the destroyed Resource Cards should now join the Hazard Team, trading their bean for 7 pebbles with the facilitator.
9. Flip any cards protected by individual actions back over so the name of the item is facing up, and redistribute one bean to each of the remaining Community Team members, and 7 pebbles each to the old and new Hazard Team members.

**Practice Round 2:**

1. Reveal the hazard that will impact the community (make up a climate hazard for the practice round).
2. Give the Community Team 1 minute to discuss with the people next to them what action they should take. Players cannot move from their spot on the circle. They should think about which resources are both important and particularly vulnerable to the hazard for that round.
3. Get opinions from the Community Team on what to protect by asking them to raise their hand if they have a specific Resource Card that they think should be protected. Select someone and ask her to say which resource she would protect and why. Ask the rest of the Community Team to raise their hand if they agree. Repeat this with three different Community Team members.
4. This time let everyone on the Community Team choose whether they want to take an individual or a collective action. Have these players close their eyes, and instruct them to take a step forward if they want to take a community action or to stay where they are if they want to take an individual action. Have them do so on the count of three.
5. Community Team players that stepped forward should take their community action first by placing their vote/bean on the Resource Cards that they want to protect. Remind them how many votes are needed to protect a card.
6. Count the votes on each Resource Card. If there are enough to make a community action to protect the resource, move the card to the Resource Chart. If the Community Team did not have enough votes to protect a card, point this out the Team and let them know that in the future they may want to better communicate how they are going to vote, or they may want to take an individual action instead.
7. Individual actions can go next. These players should give their vote (bean) to the facilitator and then flip over the Resource Card of their choice. If no Community Team members chose to take an individual action, ask them why.
8. Let the Hazard Team toss their pebbles.
9. Show everyone which Resource Cards were protected and which cards were destroyed.
10. Reset the game completely.

**Play the game:**

Restore all Resource Cards to the community circle, distribute beans to Community Members, and pebbles to only 2 Hazard Team players to start. Play for 5 rounds, going through each

climate hazard on the Resource Chart. The team with the most Resource Cards after 5 rounds wins the game.

**Debrief** (10 minutes):

Ask the girls to discuss the following questions with their neighbor:

1. What did you notice while playing this game?
2. What was the difference between community and individual actions? Which types of actions created the most resilience?
3. What was your strategy?
4. What happened to your community resources with each new hazard?
5. Were there any Resource Cards that were destroyed that you wish you and your team had adapted?
6. Which resource do you think is the most important to protect in real life from extreme weather and climate hazards in your community? How is this being “climate-smart”?

<b>Part 2: What is climate-smart agriculture?</b>
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**Objective:** To introduce climate-smart agriculture, and its associated green jobs, as a sustainable livelihood

This part of the session is in conjunction with the climate-smart agriculture vocational training offered by CGE.