

CLIMATE JUSTICE



CLIMATE ACTION



Manitoba Council for International Cooperation

INTRODUCTION

In this simulation, students learn about the consequences of climate change, the injustice, and effects of climate change often experienced by vulnerable populations around the world. Students work in groups to build communities and attempt to develop mitigation and adaptation strategies while experiencing the impacts of climate change. **The lesson focuses on climate change and climate justice with material including droughts, tropical storms, rising sea levels, and other impacts of climate change.**

AUDIENCE

- Grades 7+
- 16-36 participants, 4-6 groups of 4-6 people

LENGTH

- 75-90 minutes

MATERIALS

- Cardboard building pieces
 - Houses (10x10 cm)
 - Apartments (10x19 cm)
 - Skyscrapers (10 x 35 cm)
 - Farms (18x18 cm, 15x22 cm)
 - *farms can vary in size and should be painted green or yellow to represent different crops
 - Green Technology (10x10 cm)
 - *brightly coloured
- Large cardboard or foam board pieces
 - *this will act as ‘land’ to build on. Sizes can vary.
- Money (see attached page for printable money)
- Masking tape
- Scrap paper or paper bags as ‘flags’





SET-UP

- Cut and prepare cardboard pieces to their dimensions with letters and/or colours.
- Sort supplies for groups ahead of time. Use paper bags to double as flags later.
- Prepare supply bank at the front of the room with the money easily accessible.
- Prepare a chart to record country names, rounds, GHG (keep covered) and scores.
- Prepare between-round distribution materials.
- Prepare the Greenhouse Gas meter with corresponding levels (tropical storms, droughts, rising sea levels).

Country	Houses (H)	Apartments (A)	Skyscrapers (S)	Farms (F)	Money (M)	Tape (T)
A	38	7	3	3	20	2 arms lengths
B	19	3	3	2	10	1 arms lengths
C	6	5	3	0	5	1 arms lengths
D	6	5	3	0	5	½ arms lengths

- Supplies above are meant for 4 groups of 4-6 participants. If there are more than 4 groups, repeat group C and D supplies to create group E and group F. If there are more than 6 groups, continue repeating supplies kits, always making sure there are more groups with less supplies. This will simulate realistic inequality in the world.



INSTRUCTIONS

1. Split students into groups of 4-6 people and have them settle at a level surface (desks, table, floor, etc.).
 - a. If there are more than 24 students, repeat group C and D supplies to create group E and group F. If there are more than 6 groups, continue repeating supplies kits, always making sure there are more groups with less supplies.
2. Have students create their country name and flag.
 - a. They can be a real or fake country.
 - b. If your students are familiar, have them pick countries corresponding to their supplies. Groups A and B will be Global North countries and Groups C and D will be Global South countries.
3. Explain the following:
 - a. Students are now in individual countries. Each country will receive a plot of land (designated area). They are only allowed to build on this area and only with the supplies that they are given or receive through the facilitator or trade.
 - b. Buildings must be formed with 5 pieces (4 walls and 1 roof), be free standing, and held together by tape.
 - i. *Buildings should be placed on 'land'. If cardboard 'land' is not given out, farms and buildings can sit on a flat surface but should be contained to mimic restricted land access.
 - ii. *House pieces (10x10 cm) act as both house walls and roofs.
 - iii. *Farms should be placed flat on the 'land'.
 - c. Their country's goal is to **have strong infrastructure and economy by producing POWER POINTS.**
 - d. Power points are earned at the end of each round by calculating the amount of development that has occurring in their country.
 - e. Power Point values:
 - i. 1 completed house = 1 point
 - ii. 1 completed apartment = 2 points
 - iii. 1 completed skyscraper = 5 points
 - iv. 1 farm = 3 points
 - f. Countries must have 2 farms and 3 houses **OR** 2 farms and 1 apartment before they can build a skyscraper.
 - i. comparing this to a rural area with a random skyscraper can help illustrate this point of development and infrastructure.



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- g. Explain that students can trade pieces with other countries and it is up to each team to decide what is acceptable, how items and supplies are valued, and who to trade with.
- h. Explain to students that there may be new pieces given out between every round (do not give the amounts). Round 1 will be 8 minutes, rounds 2 and 3 are 5 minutes long.
 - i. This can be extended depending on the time allowance of the simulation.
- i. After each round, students can disassemble whatever they'd like, for trade or reconfiguration. When the round ends, hands off the cardboard. **NO EXCEPTIONS!** (If this rule is broken, feel free to penalize groups. *See *Simulation Extras* below).

*Similar to our current world, the goal is to acquire the most points, building your country's infrastructure and growing economically while investing in development.





SIMULATION

ROUND 1

- Ensure everyone knows the rules and has their supplies, excluding money.
 - a. *Keep money until Round 2
- **START ROUND 1 (8 minutes long)**
- You will notice some countries building right away and others only able to build so much. Try to answer questions with only the instructions provided above, emphasizing that their main goal is that they are allowed to trade with others, and the value of each structure including the rule for building skyscrapers.

END ROUND 1

- Have students tally up their points, referring to the list above. Champion those with the most points and record everyone's development on the chart, keeping the Greenhouse Gases (GHG-o-meter) hidden.
- Announce the following:
 - a. UH-OH! Power Points contribute to Greenhouse Gas emissions (GHG)
 - b. Reveal GHG-o-meter
- **Tropical Storms**
 - a. Due to an increase in GHGs, **Tropical Storms** are occurring more frequently. Typically, hurricanes begin as tropical storms off the Western Coast of Africa, and gather momentum as they travel across the Atlantic towards the Americas. Not all thunderstorms turn into Hurricanes – for that to happen, the storm requires a lot of warm moist air. As ocean temperatures rise, tropical storms will become even stronger with higher wind speeds and heavier rain. This is because warm air can hold more water. These can be devastating – as we witnessed with hurricanes in the Caribbean and southern U.S.A. (Hurricane Irma, Harvey, and Maria), storms can result in flooding cities and homes, destroyed farmlands, people harmed or killed, and can creating dire humanitarian situations.
 - b. Storms can destroy buildings and crop lands – especially when governments or populations have no way of protecting them, or when they are made out of weaker materials or unsustainably.
 - c. **As a result, do the following:**
 - i. **Take down (smash) buildings from C and steal some from D. Explain that vulnerable populations like those living in poverty, close to coastlines,**



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women, children, and the aging population are often the most effected by natural disasters.

Inform students that as they build their city, they are also producing Green House Gases (GHG). Every power point they create and earn will also be a point on the “Greenhouse Gas-o-meter.” Reveal the meter and add up the total GHG points from their “country”. Show them that they have passed the first “climate catastrophe” but that there are more to come!



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ROUND 2

- Distribute Round 2 supplies

Country A	6 pieces	½ arm's length tape
Country B	4 pieces	No tape
Country C	2 pieces	No tape
Country D	2 pieces	No tape

*Distribute pieces using your own judgement of what is needed or not needed.

- Hand out money, referring to the supply chart.
- Explain that Green Technology (GT) is now available to buy from the facilitator/bank.
 - a. Participants can buy Green Technology for new or existing buildings. Pieces will replace their roofs and will affect their points. They must be bought before the end of the round.
 - b. Indicate that Green Technology may help adapt to the effects of climate change and will knock down the points collected from each building or farm with GT by 1.
 - c. Cost = \$2 per residential building, or \$3 for Skyscraper/farm.
 - d. Adjust Power Points with Green Technology using the values below.
 - i. Houses = 0, rather than 1
 - ii. Apartments = 1, rather than 2
 - iii. Farms = 2, rather than 3
 - iv. Skyscrapers = 4, rather than 5

- START ROUND 2 (5 minutes long)

END ROUND 2

- Have students tally up their points, referring to the list above. Champion those with the most points and record everyone's development on the chart, keeping the Greenhouse Gases (GHG-o-meter) hidden.
 - a. Remember to take away one point from each structure or farm with Green Technology (Houses = 0, Apartments = 1, Farms = 2, Skyscrapers = 4)
 - b. Take note of countries that reassessed their strategy after the first round.
- **Droughts**



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- a. As the climate changes and our planet warms, we will experience longer and more severe droughts, reducing access to food and water sources around the world. With changes in the climate, some places will receive more rain, and some less. As well, changes to average temperatures will change the crops that farmers are able to grow and harvest in their area. This can deeply effect livelihoods as many countries and economies depend on food imports and exports. And since everyone needs food to survive, changes to the global food system could have direr consequences such as a global food crisis.
- b. **As a result, do the following:**
 - i. Remove all farm land pieces from either all teams or just two.
 - ii. **Announce: 1 person in your country is now a climate refugee. This often occurs when people are forced to leave their home or communities because of the effects of climate change and global warming.**
 - 1. Countries must either pay \$2 to support their return and rebuilding, or they must find another country willing to accept them.
 - 2. Begin refugee negotiations. Stop after 2 minutes. If no agreement is reached, have climate refugees stand to the side and observe for the remainder of the simulation.



ROUND 3

- **Distribute Round 3 supplies**

Country A	6 pieces	No tape
Country B	2 pieces	No tape
Country C	4 pieces	No tape
Country D	2 pieces	No tape

- **START ROUND 3 (5 minutes long)**

END ROUND 3

- **RISING SEA LEVELS**
 - The rise of GHG is contributing to the warming of oceans and rising sea levels in two ways. Warm water expands (thermal expansion) and melting land and sea ice flows into the oceans. Both contribute to rising sea levels. A recent study says we can expect the oceans to rise between 2.5 and 6.5 feet by 2100, that could be in your lifetime! That would be enough to swamp many of the cities along lower coastlines (Europe, Canada, US, etc.). More than 600 million people (around 10% of the world’s population) live in coastal areas that are less than 10 meters above sea level and nearly 2.4 billion people (around 40% of the world’s population) live within 100 km of the coast. The highest point of the Maldives’s, a country in the Indian Ocean, is only 7 ½ feet above sea level, with the rest of the island averaging 5 feet above sea level. It is expected to lose 77% of its land by 2100.
 - As a result, do the following:**
 - Rising sea levels have increased soil erosion, take farmland away from B.
 - Part of C is flooded, take away 2 buildings.
 - D goes under water – occupants are forced to move to new countries (climate refugees). Countries may except them or not
 - As with before, if no agreement is reached and refugees are not accepted anywhere, allow them to stand to the side of the activity. This will represent a refugee or Internally Displaced Persons (IDP) camp where refugees often do not have access to work, concrete housing, or education.

SIMULATION EXTRAS

*Add these throughout the simulation to challenge participants. Common themes explored are the effects of climate change on economic, social and environmental health.



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- Have students from Country C or D not be able to build for 2 minutes. This represents a restriction of money, man power, support, etc.
- Allow students from A or B to hire a C or D (for \$5 to C or D) – this represents an influx of migrant workers, contributing to emissions and growth. However, migrant workers from the Global South often return to their own countries, most of which experience effects of climate change at a much different rate than those in the Global North.
- Randomly send supplies to ‘in-need’ groups.
 - a. This can be supplies they don’t actually need (ex: influx of apartments when they don’t have enough tape to build, influx of tape with nothing to build, etc.
- Offer or bribe countries by offering additional supplies for farmland, crops, percentage of points, etc.
- If rules of building, end-of-round “hands off”, or other violations are broken, penalize the groups with trade, building, or supply restrictions.





DEBRIEF

Have students discuss the following questions in groups or as a whole.

1. Did you have control over what happened to you in the activity? How so? How did it make you feel?
 - a. Vulnerable, dependent, etc.
2. Who had power in the game?
 - a. Larger countries/economies? “Mother Nature”?
3. How could we have changed the outcome?
 - a. Less Development? More Green Technology? More collaboration?
4. How could we have made power more equal?
 - a. Distribution of supplies, accountability, open trading/transparency, etc.
5. How was it when refugees had to join new countries?
 - a. In real life this often causes conflict. Refugees might have to move somewhere with a different language/culture/religion – and may feel, and sometimes are, powerless in their new community.
6. How many countries kept building and developing despite knowing they were contributing to GHG?
7. Do we need to grow more? Why do we keep doing it?
8. Did anyone use an innovative approach? Did you share, collaborate, combine land, etc.?
9. Why did the countries keep building if they knew there would be negative consequences?
 - a. High-income countries are contributing the most to climate change, yet it is often countries who have contributed the least to climate change that experience the most drastic consequences (just like in the game with GHGs and climate refugees).
10. Why might people living in poverty, or in the Global South have a harder time dealing with climate change?
 - a. (Location, weak infrastructure, lack of safety nets, dependency on more established/in control economies, etc.)
11. In the game, the only way to stop Climate Change was to stop growth. What else can we do in real life?
 - a. Green energies, recycle, reduce personal consumption, more efficient buildings, etc.
12. Would it have been possible to make a deal with another group to work together and/or to stop emissions?



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- a. *students usually recognize that this is a difficult deal to make, because they can't rely on the actions of other countries.
- b. USA/China climate deal (made Nov. 2014) – In the past, it's been hard for countries to make climate deals but in November, USA and China (#1 & 2 carbon producers) reached an agreement to reduce their emissions. the United States would emit 26 percent to 28 percent less carbon in 2025 than it did in 2005. China's pledge to reach peak carbon emissions by 2030. There is hope for us to reduce emissions!
- c. The Paris Agreement, made in 2016, brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.
 - i. Yet President Donald Trump has backed out of the Paris Agreement... What does this mean as a large producer of emissions contributing to climate change?

MAINTAKE-AWAYS

Climate change is affecting those who are often contributing the least. The people hit the hardest are those already living in poverty and at higher risk. The game brought up three of the effects that climate change is going to have on people.

- Climate change is affecting our ability to grow food
 - a. Growing seasons are disrupted or shortened and storms, droughts, and floods all affect harvest outcomes
- Climate change is affecting where and how we live
 - a. Finding new homes after generations of living in one area.
 - b. Extreme storms, rising sea level, melting permafrost, etc.
- Climate change is directly affecting human health and safety
 - a. Spread of diseases (like malaria), heat waves, wild fires, air pollution.



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RECORD CHART

*recreate this or print the following

Country	Round 1	Round 2	Green Technology	Round 3	Green Technology	Accumulative Greenhouse Gases
A						
B						
C						
D						

*Subtract 1 point from each building using Green Technology

*Power Point values:

- 1 completed house = 1 point
- 1 completed apartment = 2 points
- 1 completed skyscraper = 5 points
- 1 farm = 3 points

*Countries must have 2 farms and 3 houses **OR** 2 farms and 1 apartment before they can build a skyscraper.

GREENHOUSE GAS-O-METER

*recreate this or print the following



