

The Differential Impact of Climate Change of World Water Security

Station Coordinator NOTES

Station Experience 1 – Sub-Sahara Africa:

Station Set up:

- Place the water jug/poster on the far side of the field (the destination to where students will walk)
- Have the climate migrant signs ready to hand out for Time Period 2 (enough for 50% of students in this group)

Period 1 Instructions:

- Read out scenario for current:
Sub-Sahara Africa currently:
 - Is home to the world's fastest growing population in the world; population currently at 1.1 billion
 - has the lowest energy-generating countries globally leading to frequent energy deficits
 - is the world's least urbanized region, with 61.8% of the population living in rural or remote areas
 - close to 40% of the population does not have access to safe drinking water
 - rainfall decreasing leading to increasing drought
 - On average, citizens in Sub-Sahara Africa walk 30 minutes per day to collect water; for some it can be more than 3 hours
- Instructions to students:
 - Form a relay line. The first person will walk/run to the far side of the field, pick up the water jug/poster, and carry it back. The next person in the relay will carry the water jug/poster back to the far side of the field and return empty handed. The third person will walk/run to the far side of the field, pick up the water jug/poster and carry it back. Continue to alternate until all students have gone.

Period 2 Instructions:

- Read out scenario for 2075:
Sub-Sahara Africa in 2075 is:
 - Struggling as its population has grown by more than half a billion since 2020
 - 30% drop in annual precipitation
 - 60% of the population do not access to safe drinking water
 - There is not enough water for agriculture (40% loss in crop yields) leading to heightened food insecurity
 - On average citizens in Sub-Sahara Africa now walk 60 minutes per day to collect water, for some it can be more than 5 hours
 - Several areas are completely drought stricken and unable to support population
- Instructions to students:
 - Randomly choose 50% of students and give them a *Climate Migrant* sign. Tell them Sub-Sahara Africa can no longer support their water needs and they must migrate to North America. Tell the students to take their sign and walk over to the North America station. Tell them that when they arrive they are to ask for refuge. If they are denied refuge they are to simply stand at the edge of the North America station. No arguments or efforts to force entry.
 - Have the remaining students once again form a relay line. The first person will walk/run to the far side of the field TWO times, pick up the water jug/poster, and carry it back. The next person in the relay will carry the water with them as they go back and forth TWO times. Continue until all students have gone.

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Station Experience 2 – Northwest India / North China Plain:

Station Set up:

- Place the water hand pump, small jug with dirty water, container to receive filtered water, filter material, and 5-litre water jug / poster in the centre of the field (the destination to where students will walk)
- Have the climate migrant signs ready to hand out for Time Period 2 (enough for 20% of students in this group)

Period 1 Instructions:

- Read out scenario for current:
Northwest India / North China Plain currently:
 - Heavily reliant on groundwater and aquifers for drinking water
 - 54% of population face high to extremely high water stress
 - Almost 600 people are at risk for water disruption
 - 54% of wells are decreasing in level of groundwater; average wells dug down to 150 ft
 - Water is heavily contaminated
- Instructions to students:
 - Form a relay line. The first person will walk/run to the centre the field, pick up the pump and pump it **50** times. Then take the small jug of dirty water you will find there and pour it through the filter into the empty container. Once finished, pick up the 5-litre water jug or poster and return. Give the jug/poster to the next person, and have them repeat the exercise. Continue until all students have completed the challenge.

Period 2 Instructions:

- Read out scenario for 2075:
Northwest India / North China Plain in 2075 is:
 - Facing severe impacts from climate change in all ways – extreme flooding, extreme drought
 - Ground water has decreased substantially; average well depth now 300 ft
 - Extreme temperatures with between 90-120 days with temperatures over 35d Celsius
 - In Mumbai which has the world's largest population, over 1000 buildings are now flooded and inhabitable
 - Crops are failing due to frequent drought, costing India more than \$100 Billion US in rice and wheat yields alone
- Instructions to students:
 - Randomly choose 20% of students and give them a *Climate Migrant* sign. Tell them Northwest India / North China Plain can no longer support their water needs and they must migrate to North America. Tell the students to take their sign and walk over to the North America station. Tell them that when they arrive they are to ask for refuge. If they are denied refuge they are to simply stand at the edge of the North America station. No arguments or efforts to force entry.
 - Have the remaining students once again form a relay line. The first person will walk/run to the centre the field, pick up the pump and pump it **100** times. Then take the small jug of dirty water you will find there and pour it through the filter into the empty container. Once finished, pick up the 5-litre water jug or poster and return. Give the jug/poster to the next person, and have them repeat the exercise. Continue until all students have completed the challenge.

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Station Experience 3 – Caribbean and Small Island Nations:

Station Set up:

- Using Phys Ed flags, cones or rocks mark out a large circle on the field
- Place 3, 5-litre water jugs/posters at the centre of the circle
- Place 3 sets of desalination supplies (bowl, cup, plastic, elastic, rock and jug of salt water) at the centre of the circle [this won't be used until the second time period]
- Have climate migrant signs ready to hand out for Time Period 2 (enough for 30% of students in this group)

Period 1 Instructions:

- Read out scenario for current:
Caribbean and Small Island Nations currently:
 - Heavily reliant on rainwater for drinking water and agriculture
 - There are many Small Island States with limited resources
 - Economies are fragile and susceptible to hurricanes
 - Highly reliant on rainwater
- Instructions to students:
 - Divide students into 3 groups and have each group go to a spot on the circumference of the circle (spread out roughly equally around the circle).
 - Using a relay students will walk/run to the centre of the circle and pick up the water jug/poster and return to their "home". They will pass it to the next student in line who will repeat the exercise. Continue repeatedly until the time period is over.
- Read out scenario for 2075:
 - Temperature increase has wreaked havoc on weather systems. Extreme weather events including Category 5 Hurricanes (which typically take 6-10 years to recover from) are frequent.
 - Sea Level rise has resulted in a number of Small Island Nations being completely submerged. Others have seen their above-water land mass considerably reduced and many periphery buildings are flooded. All drinking water other than rain water (which is in short supply must now be desalinated)
 - Sea level temperature has risen, resulting in coral bleaching and changes in fish stocks. Traditional food sources for domestic and export purposes have taken a heavy hit and economies and plummeted.
 - Tourism – which accounts for 25%-35% of the Caribbean economy has dwindled.
- Instructions to students:
 - The circumference of the circle is moved in dramatically. Students are now standing together in a relatively small circle.
 - Randomly choose 30% of students and give them a *Climate Migrant* sign. Tell them the Caribbean and Small Island Nations can no longer support their water needs and they must migrate to North America. Tell the students to take their sign and walk over to the North America station. Tell them that when they arrive they are to ask for refuge. If they are denied refuge they are to simply stand at the edge of the North America station. No arguments or efforts to force entry.
 - In their groups, students must now build a desinator (will take only a 2-3 minutes) and will wait and watch how long it takes to get potable water.

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Station Experience 4 – Canada and the United States:

Station Set up:

- Set up a long rectangular table with water jug/poster at one end
- At the beginning of time period 2, place the water jug/poster at least 10 metres away.

Period 1 Instructions:

- Read out scenario for current:
Canada and United States:
 - Comparable to many nations globally, Canada and the United States are water-rich countries
 - Recently there has been an increase in storm activity, flooding and drought
 - Water realities are differential among different populations. In Canada, Indigenous and remote communities have very different water realities than most other communities and the security and safety of water is highly inequitable
 - Canada is the 2nd largest producer of hydro-electricity worldwide, and it accounts for 59% of the nation's power
- Instructions to students:
 - Have students form a line at the end of the table opposite the water jug. The first student will walk to the end of the table pick up the water jug/poster and carry it back to the front of the line. They will pass it to the next student who will walk it to the end of the table and back, passing it off to the next student. This action must be repeatedly 142 times to represent the average amount of water used per person per day for domestic purposes only in Canada.
- Read out scenario for 2075:
 - Various infrastructure has been significantly damaged due to excess flooding; many communities are frequently under temporary or permanent boil-water advisories due to
 - Significant loss of sea ice in Arctic (direct impact on indigenous livelihoods and health (travel across sea ice less predictable, more dangerous, prevents access to traditional hunting and harvesting activities)
 - Sea level rise high impact in coastal communities especially BC and Atlantic Canada, communities such as Richmond are completely flooded
 - In contrast, many areas experiencing extreme drought, leading to crop failure and lack of water for animal farming
 - Warmer ocean temperatures mean sea life affected, wreaking havoc on commercial fisheries and fish-farming
- Instructions to students:
 - Advise students their water is severely contaminated due to excess flooding. As a result they will need to import safe drinking water into their community.
 - Tell students they will be the recipient of a lot of "climate migrants". They must decide whether to accept them as refugees or deny them entry to North America. There are to be no arguments or attempts by the refugees to force entry and your students must be highly respectful if they say no.
 - Forming a relay have the first student walk to the new "water depot" (at least 10 metres away) and return with a jug/poster of water. They hand it to the next student who must walk to the depot and back, handing off the jug/poster to the next student. As a team, they must do this 142 times to equal the amount of water used by one person each day in Canada.