THE GLOBALED 2 WATER SIMULATION STUDENT WORKBOOK (2013)©

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For the GlobalEd 2 Project

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For the GlobalEd 2 Project

Contents

1. Water Simulation Scenario Introduction

Water scarcity is the focus of the GlobalEd 2 Water Simulation. During the simulation we expect you to act as a science advisor and a diplomat. As a science advisor to your country you are tasked with ensuring that the negotiations being conducted offer reasonable and viable solutions to the various problems associated with water scarcity. In order to successfully fill the role of a science advisor you will need to learn about science concepts related to water scarcity. For example, you will need to familiarize yourself with the hydrologic cycle, the geographic distribution of water across the planet, the various health issues that affect people who do not have access to clean drinking water or sanitation, and technologies, such as desalination, that are being offered to remedy freshwater scarcity. As a diplomat of your country you are tasked with representing your country's national interests and negotiating solutions to various global issues posed by water scarcity. In order to successfully fill the role of a diplomat you will need to learn about the country you are representing and familiarize yourself with how your country is currently handling water scarcity. You will also need to familiarize yourself with international initiatives that already exist. Throughout the simulation we encourage you to develop policies, and agreements in cooperation with other countries, that address the various issues related to global water scarcity.

Let's talk about water and water scarcity. Water covers approximately 70% of the Earth's surface. That is a lot of water! However, despite its relative abundance, 97% of the Earth's water is found in oceans and contains concentrations of salt, which limits its usability. Only 3% of the Earth's water is freshwater—water we need to survive, to support freshwater ecosystems, and use for agricultural, industrial and domestic purposes. Of that 3%, less than 1% of it is accessible to us. The rest of the Earth's freshwater is frozen in glaciers or is located deep within the ground. Although the water cycle or hydrologic cycle continually recycles the world's freshwater, the world's growing population's inefficient use of water, pollution, and climate change is impacting the availability and quality of the world's freshwater.

Water scarcity occurs when the supply and/or quality of water does not meet the demand for it. Water scarcity exists in two forms: physical water scarcity and economic water scarcity. Physical water scarcity refers to the actual absence of water resources. For example, a portion of a country may use most of the available water resources for irrigation purposes (to grow food) and the remaining water resources cannot meet the domestic needs of the community (water to drink, to bathe in, to prepare food with). Economic water scarcity refers to the unavailability of water for economic reasons, despite available resources. For example, a country may have an abundance of water but lack the infrastructure to distribute it (pipes, wells, storage capabilities).

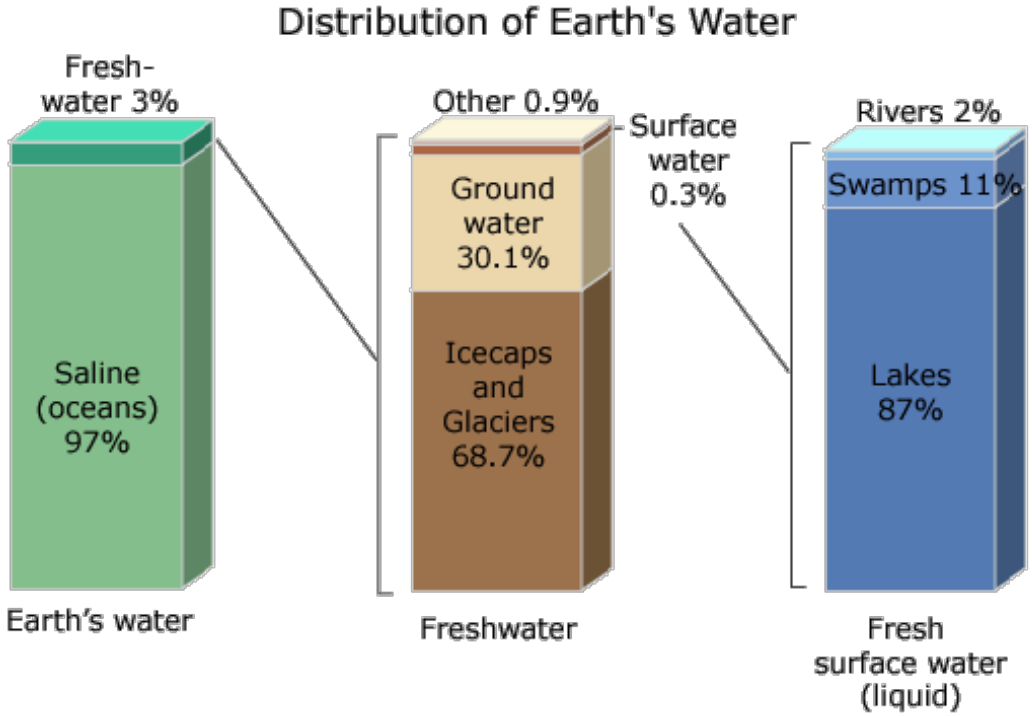
Only 3 % of the Earth's water supply is fresh water...

Earth's Freshwater:

Despite the abundance of water on Earth, only a small percentage—less than 3%—of Earth's water is freshwater. Of the 3% of Earth's freshwater, less than 1% of it is accessible. Rainfall, rivers, streams, ponds, lakes, reservoirs, wetlands, springs and groundwater in aquifers located relatively close to the Earth's surface are sources of freshwater. The remainder of the Earth's freshwater is frozen in glaciers or in aquifers deep within the Earth, and is inaccessible to us. The other 97% of the water on Earth is salt water. Water from the world's oceans is currently being

converted into freshwater via a form of water treatment referred to as desalination. Saudi Arabia is a large producer of desalinated water. However, desalination is expensive, energy intense, and can harm the environment.

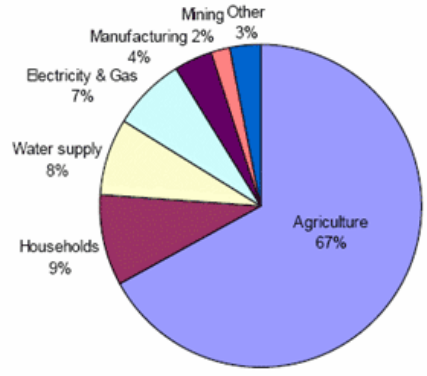
Figure1



(Source: United States Geological Survey. "Earth's water distribution." http://ga.water.usgs.gov/edu/waterdistribution.html)

We use freshwater for domestic, industrial and agricultural purposes. Most of the world's freshwater—70% of it—is used for agricultural purposes, such as growing food and raising livestock. Countries that lack access to adequate supplies of water to grow food have to import food to meet the needs of their population. 20% of the Earth's freshwater is used for industrial purposes, including the production of energy, textiles, electronics, and paper. 10% is used for domestic purposes. For instance, we use water to quench our thirst. We also use it to bathe, wash our clothes, and to prepare our food.

Figure 2
Uses of World Fresh Water Supply in 2005



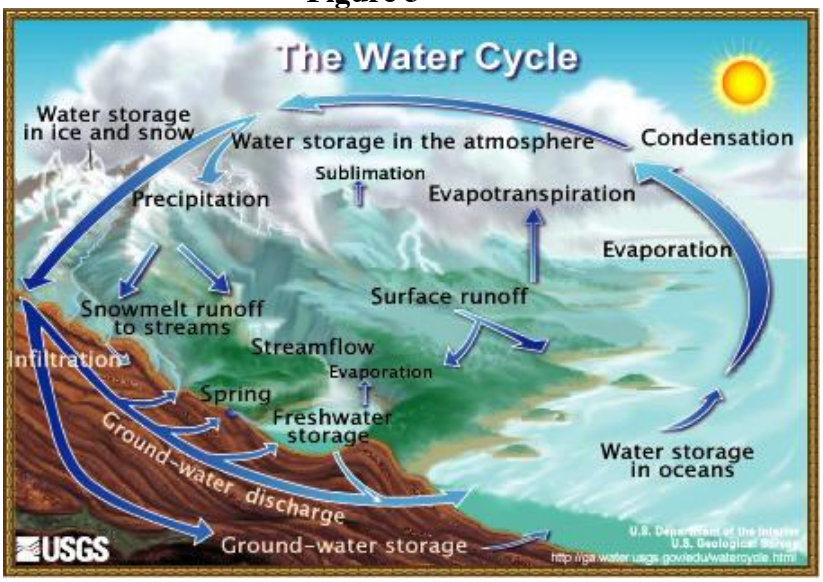
(Source: Climate Institute. "Water." http://www.climate.org/topics/water.html)

The world's population, at approximately 7 billion, continues to grow by roughly 80 million people each year. Each additional person places strain on the amount of freshwater available on Earth. Check out how much water you use every day—your water footprint—by accessing National Geographic's Water Footprint Calculator at http://environment.nationalgeographic.com/environment/freshwater/change-the-course/water-footprint-calculator/ .

Hydrological Cycle

Water is a finite resource. This means that the water that currently exists on Earth is all that there is. The amount of freshwater on Earth will essentially remain the same as the world's population increases. Interestingly though, the amount of freshwater on Earth today is roughly the same amount that was present when the dinosaurs roamed our planet. This is because the water cycle or **hydrologic cycle** continuously recycles the Earth's freshwater supply. It is also the Earth's natural, water purification system.

Figure 3



(Source: United States Geological Survey. "The Water Cycle." http://ga.water.usgs.gov/edu/watercycle.html)

The hydrologic cycle works like this: the sun's rays heat the Earth's water. The heat separates the water molecules and the water evaporates into the atmosphere, changing its state from that of a liquid to a gas or vapor. Evaporation accounts for 90% of the water in the atmosphere. Water also enters the atmosphere through transpiration. Transpiration occurs when plants, such as trees and cornfields, release water into the atmosphere. The evaporated and transpired water is pure and fresh when it enters the atmosphere. The salt in the ocean's water, for example, remains in the ocean. The water vapor in the atmosphere condenses as temperatures drop, changing its state from that of a gas or vapor to a liquid, and forms clouds. Air currents move clouds all over the world. The water in clouds falls to the Earth as precipitation, in the form of rain, snow, hail and sleet. The water travels on the surface of the earth into rivers, lakes and reservoirs, making its way back into the ocean. Some of the water seeps deep into the soil and rocks through a process called infiltration becoming part of the groundwater beneath the Earth's surface. The hydrologic cycle has no beginning or end, rather the cycle continues over and over.

To learn more about each of the stages of the hydrologic cycle and how each of these phases contributes to the purification of water, visit
http://ga.water.usgs.gov/edu/watercyclesummary.html

Water Quality

Despite the hydrologic cycle's natural purification process, pollution significantly affects the quality of freshwater resources. In order for water to be safe for human consumption or use, which is referred to as potable water, it must be free of impurities such as pollution and bacteria. Poor quality water poses serious health risks to humans and pollution also affects the amount and type of wildlife that can live in the water. Pollution contributes to water scarcity because it reduces the supply of available freshwater. Inadequate sanitation facilities, agricultural and industrial wastes and acid rain impact the quality of water.

Inadequate sanitation poses significant health risks and causes water-related illnesses, such as diarrhea. Diarrhea is the leading cause of illness and death in the world. Simply washing your hands can reduce the risk of diarrheal diseases by nearly 50%; 2.5 billion people still live without basic sanitation.

Agricultural and industrial waste also affects the quality of the world's freshwater supply. Harmful chemicals, such as nitrates and phosphates, which are used to kill insects and improve the growth of crops, enter the groundwater and contaminate it. Before the contaminated water can be used the nitrates and phosphates must be removed. Because water systems are connected, pollution in one area does not necessarily stay there; it can travel through the water cycle and through various river systems, effecting people downstream. Industrial waste also pollutes freshwater sources. Industrial waste is the discharge of chemicals, mainly from factories, into rivers, oceans, and other water bodies. The world generates about 400 billion tons of industrial waste each year and much of it ends up in the world's water.

Acid rain is a major source of pollution in ponds and lakes. When fossil fuels are burned during many manufacturing processes, they release air pollutants (**Sulfur Dioxide SO_2 and Nitrous Dioxides NO_x**). These gases combine with water in the atmosphere, making sulfuric acid and nitric acid. When it rains, these acids (with a pH of approximately 5) end up in the waterways. Over time, the acidification of waterways and the ocean can kill plants and animals. Acid rain also wears down buildings and statues.

Water as a Source of Conflict and Cooperation

Water scarcity and water quality is the subject of much debate in global affairs. Water has long been a major source of conflict in world politics. Countries have fought for control of freshwater resources and strategic access to seaports. In the 19th century, for example, Great Britain fought to maintain control of South Africa in order to use its ports as a midpoint for traveling to and from India. In the 20th Century, Egypt's Suez Canal repeatedly proved itself to be a site of conflict (and collaboration) because it connects the Mediterranean Sea with the Indian Ocean and whoever controlled the canal could influence the shipment of goods between Asia and Europe.

Water can be a source of conflict but can also promote cooperation among countries....

Water resources are often shared by several countries. For instance, countries often jointly border large bodies of water, and access the same rivers, mountain snowmelt, and glacial deposits. All common water sharing situations can create tensions and conflict or opportunities for cooperation. A recent example of conflict and cooperation surrounding a common water resource involves Turkey's plans to build a dam on the Tigris River, which is a concern for Syria, Iraq, Israel, and other countries downriver of the dam.

Figure 4
Map of the Middle East

(Source: Central Intelligence Agency. "Regional Maps." *World Factbook* https://www.cia.gov/library/publications/the-world-factbook/docs/refmaps.html)

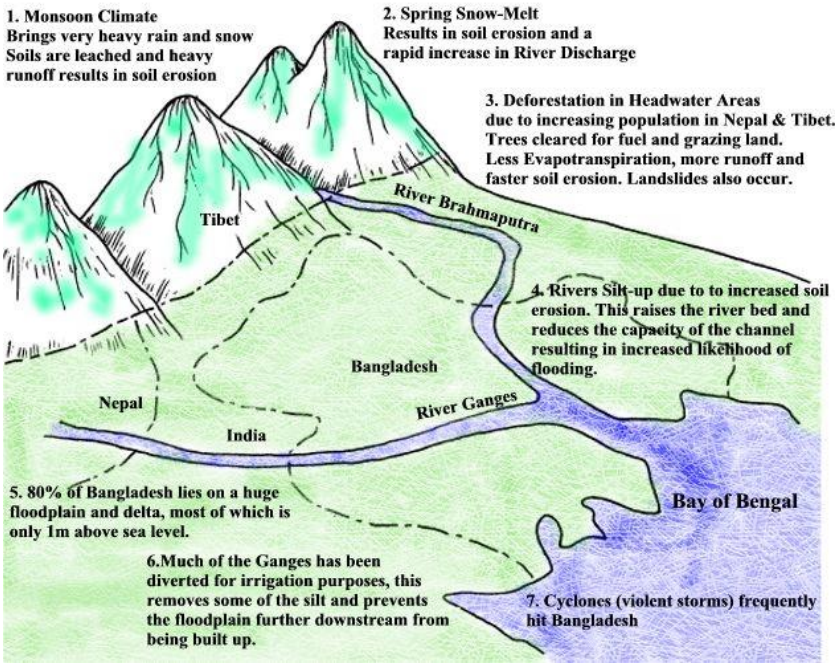
Today, climate change and population growth are contributing to new forms of conflict and cooperation, especially given the finite nature of freshwater resources. As always, **sovereignty** and **security** are coveted by states, but globalization is bringing the world's problems closer to home and forcing countries to deal with global issues. With many countries seeking to satisfy increasing water needs because of limited water resources and increasing populations, water might increasingly become a source of international conflict. As the UN Secretary General, Ban Ki Moon remarked recently, "Water scarcity is the potential fuel for wars and conflict. But cooperation, not conflict should guide us in our quest for a solution to this crisis."

Climate Change and Water

Increased flooding and desertification are both outcomes of **climate change**. Rising world sea-levels are likely to cause severe flooding in low-lying countries. Some of these countries, like the Netherlands, are wealthy and better able to finance the expensive **infrastructure** projects to cope with rising sea levels. Others, like Bangladesh, are not as able to cope and rising sea levels could

send millions of Bangladeshi **refugees** into Pakistan and other neighboring countries. Indeed, severe floods in Bangladesh have become routine, even seasonal.

Figure 5
Some Causes of Flooding in Bangladesh



(Source: Chambers, R. "Case Study: Flooding in Bangladesh." http://cgz.e2bn.net/e2bn/leas/c99/schools/cgz/accounts/staff/rchambers/GeoBytes/GCSE/Case%20Studies/Case%20Study.%20Flooding%20in%20Bangladesh.htm)

Desertification, too, leads to mass migrations of people. In fact, the United Nations estimates that fifty million people are at risk of **displacement** due to desertification within the next decade. The Sahara Desert, for example, has been pushing into urban Nouakchott, which is the capital of Mauritania.

Figure 6
Sahara Desert

(Source: United States Geological Survey. "Desertification." http://pubs.usgs.gov/gip/deserts/desertification/)

Recent increases in the world's population, ecologically stresses shared water resources. Countries whose borders share a common body of water may benefit by agreeing on how that resource should be managed. Together, global climate change and the growing world population's dependence on and inefficient use of freshwater have brought about new potential for conflict and cooperation. Water remains a central factor in international relations.

The Water Simulation Scenario Issue Areas section, presented below, will discuss how water scarcity impacts and is impacted by countries and individuals in a variety of ways. The issue areas for the water simulation are environment, global health, human rights, and international economics. Remember, it is essential that you understand both the science that underlies the debated issues, as well as the politics of water in order to participate in sound international policy-making. It is also necessary to recognize that each country's decision-makers are presented with policy choices that can either promote or minimize the potential for both conflict and cooperation. It is up to you, the science advisors and diplomats of your respective countries, to negotiate solutions to problems posed by the world's water scarcity concerns. In developing policy recommendations, you will have to cope with the reality that making good policy is a balancing act across issues and **optimal solutions** to policy problems are often difficult to achieve. For example, you may come up with the "perfect" economic solution to water problems, but that solution may causes problems for human rights or create environmental concerns.

Ideas to Think About

Water Problem #1

Various factors affect the accessibility of freshwater resources. For example, the world's increasing population requires additional freshwater to sustain itself. The increase of people in the world and all they desire is contributing to physical water scarcity—not enough water to meet demand—in some areas of the world. The increase in the world population requires additional water for:

- Food production;
- Personal hygiene and domestic use; and
- Industrial production (energy and manufacturing).

The activities and their byproducts can adversely affect water quality. For example, the reduction of water quality is affected by:

- Pesticides and other agricultural runoff;
- Inadequate sanitation and improper disposal of waste;
- Industrial wastes; and
- Urban runoff.

Poor water quality subsequently exacerbates physical water scarcity and affects the health of individuals through the spread of water-borne diseases.

Water Problem # 2

Economic water scarcity also affects the availability and accessibility of water around the world. Economic scarcity occurs when a lack of financial resources and infrastructure prevents people for accessing available water resources. Economic water scarcity impacts various aspects of peoples' lives:

1. Health (malnutrition and waterborne disease)
2. Livelihood
3. Access to education

Potential Solutions:

Humans can address water scarcity and water quality concerns by:

1. Understanding the impact personal, industrial and agricultural water use has on freshwater resources;
2. Preventing pollution and devising new strategies to recycle water;
3. Encouraging the development of water treatment plants where they do not yet exist;
4. Developing desalinization projects and new technologies to produce potable water;
5. Creating efficient water transportation/delivery systems;
6. Addressing the issue of illegal tapping and leaky pipes;
7. Devising new and/or updating old, inefficient irrigation systems;
8. Promoting international cooperation to develop these solutions;
9. Developing national and international water usage policies/initiatives;
10. Coordinating domestic and international agricultural policies relating to water; and
11. Recognizing the importance of water security today and in the future

Each country has to research the following questions and develop an opening statement to be shared with the GlobalEd 2 community:

1. Does your country currently deal with issues of physical and/or economic water scarcity?
    a. Will your country have to deal with water scarcity in the future?
    b. What policies are in place in your country to deal with the issue of water scarcity? Is your country party to any international initiatives dealing with water scarcity?
    c. What policies would be most effective in dealing with the issue of water scarcity?
2. Is the water quality of water resources a concern for your country?
    a. How is your country handling the pollution of their respective water resources?
    b. How should countries in general handle the problem of water pollution?

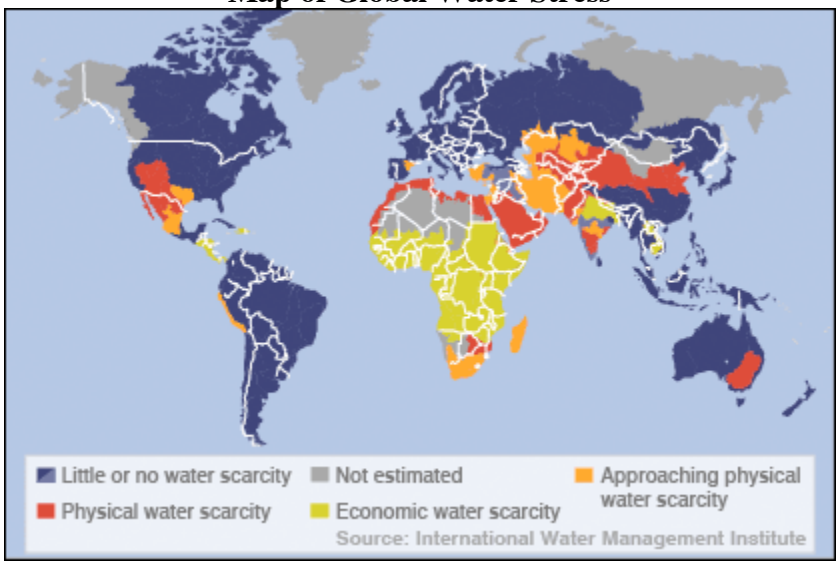
2. Water Simulation Scenario Issue Areas

I GLOBAL ENVIRONMENT

Water is a central feature of human life. When a country's water supply or seaport changes in some way (for example, either by having too much or too little water), then that country must also cope with environmental and political consequences. **Water scarcity**, flooding, and water **dead zones are** among the many environmental changes that can happen within a country.

Water scarcity, or not having enough water, is a challenge for many people on Earth and is often compounded by poor water quality. People drinking, cooking with, or bathing in poor quality water are at risk of sickness and disease. Estimates suggest that by 2025, 1.8 billion people could be living in countries or regions of the world with absolute water scarcity. Those living in the developing world will be affected most by water scarcity.

Figure 7
Map of Global Water Stress



(Source: BBC News: http://news.bbc.co.uk/2/hi/science/nature/5269296.stm#graphic)

Both the quantity and **quality of water** are influenced by the water cycle. Rich and poor countries alike feel the effects of water security, but the poorer countries are often less able to cope with the ramifications. At least 106 countries located in Africa, Latin America, Asia, Europe, and the Pacific receive help in monitoring and assessing water quality through the United Nations Environmental Programme's Global Environment Monitoring System/Water Programme, but this aid is often not enough to completely overcome problems of scarcity.

Countries can suffer from water scarcity but also because of too much water...

At the other end of the water-resource spectrum, some countries fear the consequences of too much water. In March 2009, for example, heavy rains in Indonesia caused a large dam to break apart, flooding homes and polluting the water supply. Indonesians had long been worried about repairing this and other dams (which were originally built under Dutch colonial rule), but

the government simply did not have the funds to undertake such a large project. Today, Indonesia's dam problem persists, in addition to new problems of population displacement, destroyed homes, and polluted water.

Figure 8
The Situ Gintung dam falls apart in Jakarta, Indonesia.

(Source: "Delgue in Jakarta." The New York Times.
http://www.nytimes.com/slideshow/2009/03/27/world/asia/20090327-indo-slideshow_10.html)

A third water-related environmental issue is known as a dead zone. Water dead zones are bodies of water so depleted of oxygen that they can no longer support marine life. Although dead zones used to be very rare, they have occurred much more frequently over the last fifty years, causing many countries to worry that their prime fishing grounds will be destroyed. Like scarcity and flooding, this is an environmental concern that occurs in both rich and poor countries, but affects poor countries in a more profound way.

Figure 9
Creeping Dead Zones

(Source: National Aeronautics and Space Administration:
http://disc.gsfc.nasa.gov/oceancolor/scifocus/oceanColor/dead_zones.shtml)

Dead zones often form when crop fertilizers run into streams and rivers that flow into the ocean. There, at the **river mouth**, **organic matter** sinks to the ocean floor, where it is broken down by bacteria through a process known as **respiration**. In respiration, bacteria use oxygen and gives off carbon dioxide. Dead zones occur when bacteria consume oxygen at a level that deprives other sea creatures that also require oxygen to survive. This process is often enhanced by countries that dam up their rivers, further depleting the amount of available oxygen for ocean life. At China's Yangtze River mouth, for example, an inland dam is thought to be accelerating the depletion of oxygen and leading to the development of a dead zone. In Hong Kong, a dead zone already exists at the mouth of the Pearl River.

The likelihood of dead zones has been increasing over the last 50 years...

These issues, among others, all pose problems for developed and underdeveloped countries alike, but often disproportionally hurt poor countries. Since inland rivers flow from one country to the next, and since the world's oceans know no fixed boundaries, ecological water concerns are truly global environmental problems.

Figure 10
Creeping Dead Zones

Top: The Mississippi River Delta, United States
Bottom Left: The mouth of the Yangtze River, China
Bottom Right: The mouth of the Pearl River, Hong Kong.
(Source: National Aeronautics and Space Administration: http://disc.gsfc.nasa.gov/oceancolor/scifocus/oceanColor/dead_zones.shtml)

Research Questions:

1. Which kind of environmental changes can affect the water cycle and produce water scarcity or flooding? Are dead zones naturally formed or are human beings responsible for their formation?
    a. How do dead zones affect small fishermen in poor and developing countries?
    b. Is your country affected by water scarcity, flooding, or dead zones?

2. Does your country share a source of water (basins, rivers) with other countries? If so, how does your government collaborate with other governments in order to protect those sources of water?

II INTERNATIONAL ECONOMICS

In the economic system that emerged after World War II, world leaders often did not account for **environmental degradation** in their plans for **economic growth**. Slowly, environmental protection began to be seen as part of **economic development**. Today, world leaders sometimes focus on **sustainable development** as a key to long-term growth, but this is not always true. Water issues—including the supply of clean water, property rights, irrigation, and **desalination**, among others— can hinder or encourage a country's economic development because the availability or scarcity of water affects each economic sector of a country (from agriculture and food production to industry development and energy generation, etc.). Some, like Sunita Narain, director of the Center for Science and Environment in New Delhi, believe that India's economic success or failure hinges entirely on water issues. Narain comments, "If we become rich or poor as a nation, it's because of water." While India's economy has been growing, its ability to meet the needs of its population is limited. For example, according to the New York Times, the public sewer system does not reach 45% of the population in India http://www.nytimes.com/2006/09/29/world/asia/29water.html?_r=1. In short, water plays a key role in international economics.

Availability or scarcity of water affects the economy of a country (agriculture, industries, food production, energy generation, can be affected.

Figure 11
Residents on the Yamuna River wash their clothes in water polluted by raw sewage and methane gas

(Source: Fremson, Ruth. 29 September 2006. *The New York Times*. http://www.nytimes.com/2006/09/29/world/asia/29water.html

According to B.B.C news, people in wealthy countries consume ten times more water than those in poor countries (http://news.bbc.co.uk/2/hi/science/nature/2943946.stm). While water is not a **finite resource**, clean, usable water (**potable water**) is often in short supply. Many people, even those in wealthy countries, must take steps to secure clean water. Desalination plants, as well as drip irrigation and low-pressure sprinklers, help to conserve water resources, but come at considerable cost. Australia, for instance, spent $313 million on its plant, and Israel and United Arab Emirates each spent more. For countries without such resources, new technologically-dependent clean water projects are not an option. Their growth is dependent on clean water, and yet clean water is often impossible to find.

Wealthy countries consume more water than poor countries...

Figure 12
Saudi Arabia's Jubail desalination plant

(Source: City of Ryde. "Desalination and Rainwater Harvesting." http://www.ryde.nsw.gov.au/environment/water/desalination.htm)

Poor and **developing countries** today also face burdens of technological change within their borders. Technology often improves life for people, but it can also become a burden. For example, technologically advanced companies in Brazil and India have recently begun competing in the fishing industry against local fishers using traditional methods. Traditional fishermen cannot compete against their technologically advanced counterparts, and disputes between the two groups leave the governments of each country in a difficult position: How does one embrace technological change and preserve traditional ways of life?

Other countries, like Tajikistan, have decided to invest in technology to ensure a better way of life. Still recovering from a civil war in the late-1990s, Tajikistan is very poor, but it also possesses a rare natural abundance of water, and it hopes that a new **hydropower dam** will enable it to sell electricity to neighboring countries. The development of hydroelectric power, however, may also have significant environmental and economic costs. China's Three Gorges

Dam, for example, has caused severe water pollution and landslides, as well as massive population relocations for the people who inhabited its banks. In other countries, like Ecuador, the dependence on hydro power for energy generation has caused severe economic problems when the water is scarce. For several months in 2009 and 2010 the country suffered power shortages due to a drought, which affected the whole business sector and the population in general.

Although different countries have had dramatically different experiences related to water, one thing remains clear: for both developing and developed countries, water is crucial to economic survival.

Research Questions:

1. Do you agree that the lack of water affects the economic development of countries? Does it affect your own country? Would you agree that the unequal access to technology prevent your country from acquiring safe water for the population?

2. We know that water is crucial for the survival of human beings in rich countries and in poor and developing countries. How do you think countries could cooperate with each other to facilitate the access to clean water? Which actions could rich countries take to avoid wasting water?

III. HUMAN RIGHTS

The International Bill of Human Rights, consisting of the Universal Declaration of Human Rights (adopted in 1948), the International Covenant on Economic, Social and Cultural Rights and the International Covenant on Civil and Political Rights adopted in 1966), and the two Optional Protocols; adopted in 1966 and 1989 respectively), declare various economic, social, cultural, political and civil human rights guaranteed to all the peoples of the world on the basis of their common humanity. In other words, people are thought to have rights merely because they are human. Countries that agree to human rights declarations and conventions, like those referenced above, agree to respect, protect, and fulfill human rights. This means that states respect a right by not interfering with the enjoyment of the right, protect the right by preventing others from violating the right, and fulfill the right by enabling the enjoyment of the right and working towards its full realization.

The Right to Water

Prior to 2002, the right to water was not recognized as a human right. Rather, the right to water was embedded in the right to health, as stated in the Universal Declaration of Human Rights through the adequate standard of living guarantee described in Article 25 (1), and in Article 12 of the International Covenant on Economic, Social and Cultural Rights. Put simply, these documents focused on the human right to "the highest attainable standard of…health". The idea of a right to a healthy life found in Article 6 of the International Covenant on Civil and Political Rights also incorporates the right to safe water, for without water life is compromised. In 2000, prior to the specific recognition of water as a human right, the United Nations Committee on Economic Social and Cultural Rights agreed that Article 12 of the International Covenant on Economic, Social and Cultural Rights should be interpreted to include such factors that ***determine*** good health. Included in the list of the determinants of good health was "access to safe drinking water and adequate sanitation." Shortly thereafter, in 2002, the United Nations Committee on Economic, Social and Cultural Rights recognized water as a human right, in **General Comment No. 15.** According to General Comment No. 15, "The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses". Unfortunately, everyone does not enjoy the right to water. In fact, one-sixth of the world population does not have access to an adequate water supply (Center for Economic and Social Rights).

The United Nations recognizes water as a human right.

Put simply, the right to water means that there should continually be enough water for personal and domestic use. This means that there should be enough water to drink, to cook with, to bathe with and to wash clothes. The right to water also implies that the water should be free of "micro-organisms, chemical substances and radiological hazards," so as to not jeopardize a person's health, and be odorless and colorless, so that it is attractive to drink. In addition, the right to water asserts that water should be accessible to *all* people, meaning that *every* person in the world has the right to clean water, and that people should not have to travel unreasonably long distances to transport water. The following chart depicts the impact of travel distances on accessibility of water and how accessibility translates into whether or not needs are met.

Figure 13
Service Level and Quantity of Water Collected

Service level	Distance/time	Likely volumes of water collected	Needs met	Intervention priority and actions
No access	More than 1 kilometre/more than 30 minutes round trip	Very low (often below 5 litres per capita per day)	Consumption cannot be assured Hygiene practice compromised Basic consumption may be compromised	**Very high** Provision of basic level service
Basic access	Within 1 kilometre/within 30 minutes round trip	Average unlikely to exceed approximately 20 litres per capita per day	Consumption should be assured Hygiene may be compromised Laundry may occur off-plot – i.e. away from home	**High** Hygiene education Provision of intermediate level of service
Intermediate access	Water provided on-plot through at least one tap (yard level)	Average of approximately 50 litres per capita per day	Consumption assured Hygiene should not be compromised Laundry likely to occur on-plot – i.e. within the confines of the household	Low Hygiene promotion still yields health gains Encourage optimal access
Optimal access	Supply of water through multiple taps within the house	Average of 100-200 litres per capita per day	Consumption assured Hygiene should not be compromised Laundry will occur on-plot	Very low Hygiene promotion still yields health gains

Source: (Source: World Health Organization. 2003. "The Right to Water." **http://www.who.int/water_sanitation_health/rtwrev.pdf**)

Water should also be affordable to all people. In many places of the world, however these conditions are not met. For example, as discussed in other issues in this scenario, in Northern Africa and Western Asia, physical water scarcity remains a challenge; in these places, there is simply not enough water for everyone to use. In Southern Asia and sub-Saharan Africa, economic water scarcity, in the form of underdeveloped water infrastructure impedes the delivery of water to various locations even though the physical water resources are available (United Nations 2008, 40). In various other places of the world, water is too polluted to use. In response to the global water crisis, the United Nations incorporated in the Millennium Development Goals, a program launched collectively by the international community to eradicate poverty, the goal to "Halve, by 2015, the

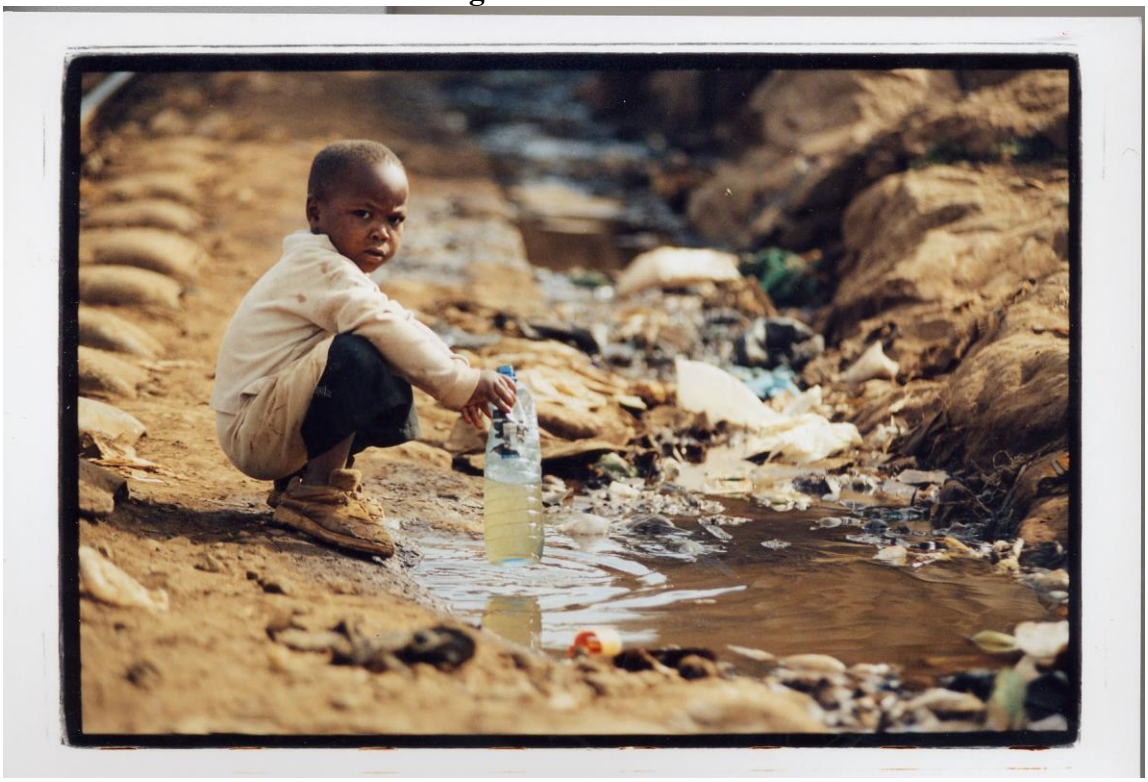
The UN goal is to halve by 2015 the number of people without access to safe drinking water.

proportion of the population without access to safe drinking water…" (United Nations 2008, 42) Currently, many governments are working toward achieving this goal.

Responsibility of the Government

As mentioned above, governments are obliged to respect, protect and fulfill human rights. Respecting and protecting the right to water, translates into governments ensuring that their actions and the actions of other individuals and/or corporations do not interfere with the "the sufficiency, safety, affordability and accessibility of water" (WHO 2003, 29). The fulfillment of the right to water, "requires that governments take active steps to ensure that everyone can enjoy the right to water as soon as possible" (WHO 2003, 30). Yet, as Gleick notes, "billions of people worldwide still lack access to the most basic human right: safe, clean, adequate water" (2008). And, the poorest people of the world are the most disadvantaged regarding water accessibility and safety. Incorporating international human rights into national laws is a key responsibility of the government. (To see what your country has included in its national constitution, go to http://www.worldwatercouncil.org/fileadmin/wwc/Programs/Right_to_Water/Pdf_doct/RTW_IUCN1.pdf , and refer to pages 42 to 46.) In addition, international cooperation is important to ensure that the right to water becomes a global reality.

Figure 14
Dangers of contaminated water



Source: Child Fund New Zealand:
http://www.childfund.org.nz/objects/version/32/23/16/162332/images/Kenya_boy_cameraview_in_water_2.jpg

Research Questions:

1. If the UN goal is to "halve, by 2015, the proportion of the population without access to safe drinking water…" which urgent actions should poor and rich countries take to guarantee the right of access to water?
2. Which actions has your government taken to guarantee safe water for the population? And what could your country realistically do in the future to fulfill the right to water?
    a. Has your government issued laws to protect the right of access to water? If so, which kind of laws?
    b. Does your government depend upon international aid to protect the right of access to safe water?
    c. If your country does not deal with current problems of water scarcity, how is your government supporting other countries to fulfill the right of access to safe water for the population?

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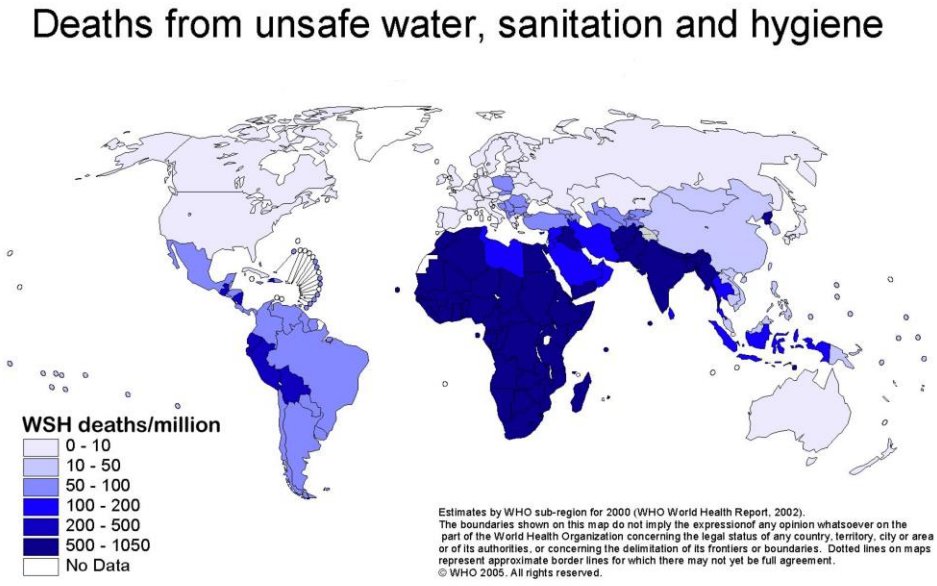
IV. GLOBAL HEALTH

Good health requires plentiful access to clean water. Humans need water for hydration, sanitation, and food preparation. If water is unavailable either as a result of **scarcity** (either in the physical or economic sense), is polluted, or is difficult to obtain, for example, if a substantial amount of travel is required to collect water, individual health is compromised. The prevalence of **diarrhea**, a disease brought on by ingesting dirty water, exemplifies the need for clean water for drinking and food preparation purposes, as well as hygiene practices and sanitation. According to the World Health Organization, in 2000, "Approximately 4 billion cases of diarrhea each year cause 2.2 million deaths, mostly among children under the age of five. This is equivalent to one child dying every 15 seconds, or 20 jumbo jets crashing every day. These deaths represent approximately 15% of all child deaths under the age of five in developing countries" (WHO/UNICEF 2000, 2). In 2008, diarrhea continued to account for a substantial amount of deaths, mostly among children, with the total figure standing at 1.5 million deaths worldwide. The following image details the death of persons globally as a result of unsafe water.

Diarrhea is a disease that affects mostly developing countries and it is caused by drinking dirty water.

Figure 15



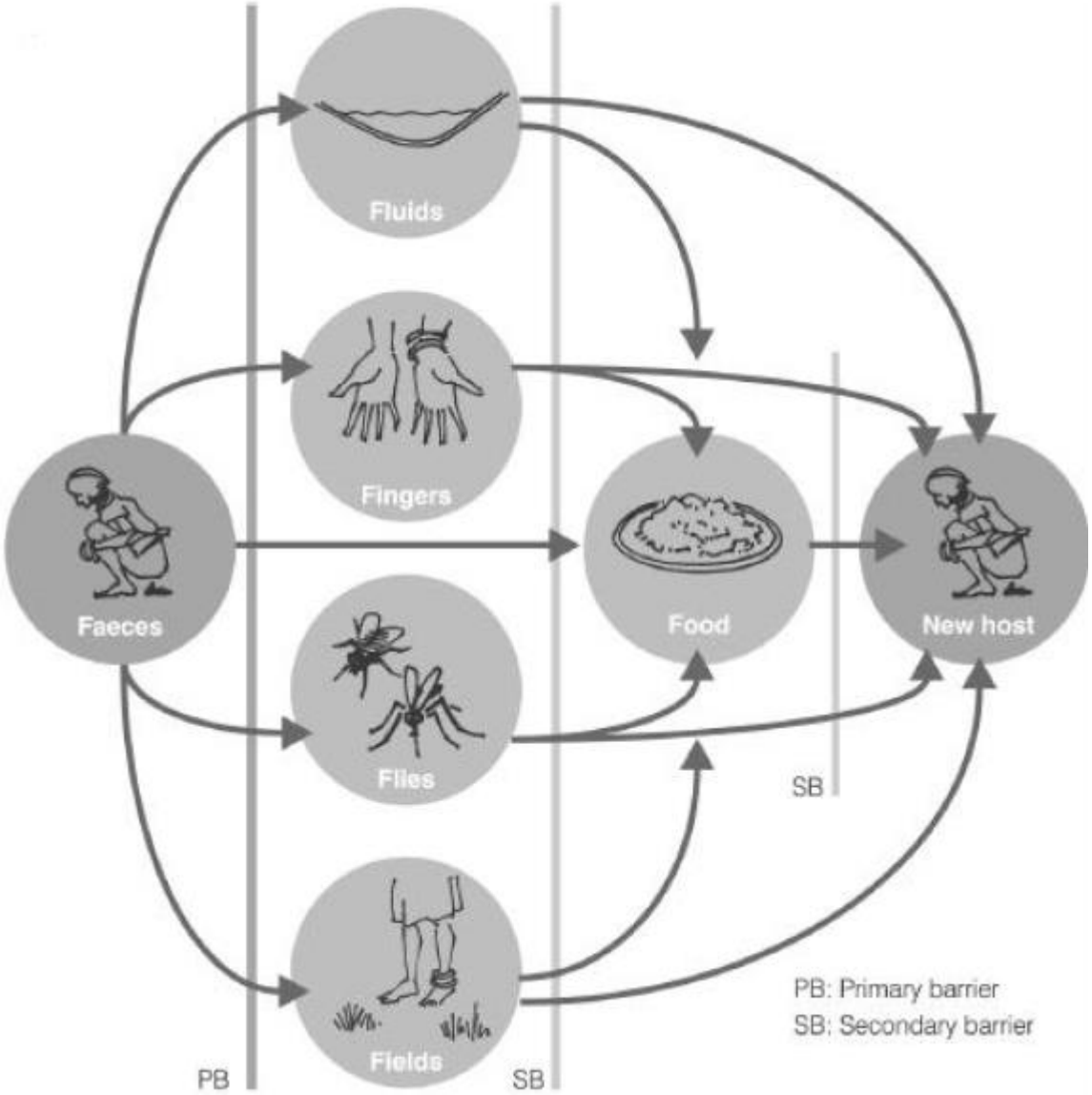
(Source: The World Health Organization. "Deaths from unsafe water, sanitation, and hygiene." http://www.who.int/heli/risks/water/en/wshmap.pdf)

Diarrhea, like other **fecal-oral transmission** diseases, is caused by ingesting **pathogens** present in unsafe drinking-water or food. The pathogens are often transmitted during food preparation as a result of

Proper hygiene practices and better sanitation policies could improve health.

poor hygiene. The chart below depicts the oral-oral route of transmission.

Figure 16
Fecal-oral route transmission of disease



(Source: Howard, G., and Bartram, J.. 2003. "Domestic Water Quantity, Service Level and Health." World Health Organization. **http://www.who.int/water_sanitation_health/diseases/WSH03.02.pdf**)

As depicted in the chart, inadequate hygiene and unsanitary sewage disposal contaminates water sources and subsequently causes illness, such as diarrhea. The United Nations states that, "About 90 per cent of sewage and 70 per cent of industrial wastes in developing countries are discharged into water courses without treatment, often polluting the usable water supply" (United Nations-Water 2006; http://www.un.org/waterforlifedecade/factsheet.html). Proper

hygiene practices and better sanitation policies could facilitate better health. For example, the use of latrines and basic hand washing practices minimizes the potential for people to carry **fecal matter** on their hands unknowingly, which could later be ingested and cause illness. In addition, the closeness of a water source or the presence of a water tap in the community limits the potential for disease, because water can be used more often for personal hygiene and collected with relative ease. Where water is not readily available, women are often burdened with collecting water at a great distance from their community. Water collection can adversely affect a women's health. The picture below shows women collecting water.

Figure 17
Women collecting water

(Source: United Nations Development Programme. "Community Action, Global Impact." http://sgp.undp.org/web/images/4296/the_only_tap_water_drawing_point_at_kibirashi_town.html)

In addition to **microbial pollution** contaminating water sources, water may also be considered unsafe if it has been polluted naturally. Naturally occurring toxins include arsenic and fluoride. These toxins, in high concentrations, can adversely affect a person's health. This is the case in Bangladesh, Cambodia, China, India, Mexico and the United States, where high levels of arsenic in the water may harm citizens. However, it is more common to find that natural resource extractive industries (like mining, oil, etc.) or industrial wastes produced by humans elevate levels of naturally found toxins and negatively impact the health of the individuals that consume or use the contaminated water.

Water can also breed disease. This is the case in some aquatic **ecosystems** that serve as a home to insects that transmit diseases to humans. Malaria, which is transmitted via mosquitoes and results in flu like symptoms, kills half a million people every year. Managing the environment, for example by eliminating stagnant water bodies, could eliminate almost half of the cases of malaria each year (Prüss-Üstün, Annette, et al., 2008).

Sanitation

Worldwide, 2.6 billion people lack access to adequate sanitation facilities (World Water Council, 2009). Without adequate sanitation, diseases are spread, as in the case of **fecal-oral transmission** mentioned above. In an effort to address the issue of sanitation and access to water more generally, the **United Nations Millennium Development Goals (MDGs)** seek to "Halve, by 2015, the proportion of the population without sustainable access to…basic sanitation." This includes providing bathroom facilities, in an effort to limit open defecation. In addition, running taps and the provision of soap for hand washing is an important aspect of proper sanitation and hygiene. The chart below depicts the level of water service needed to promote health.

Figure 18
Summary of requirement for Water Service Level to Promote Health

Service level	Access measure	Needs met	Level of health concern
No access (quantity collected often below 5 l/c/d)	More than 1000 m or 30 minutes total collection time	Consumption – cannot be ensured Hygiene – not possible (unless practised at source)	Very high
Basic access (average quantity unlikely to exceed 20 l/c/d)	Between 100 and 1000 m or 5 to 30 minutes total collection time	Consumption – should be ensured Hygiene – handwashing and basic food hygiene possible; laundry/ bathing difficult to ensure unless carried out at source	High
Intermediate access (average quantity about 50 l/c/d)	Water delivered through one tap on-plot (or within 100 m) or 5 minutes total collection time	Consumption – ensured Hygiene – all basic personal and food hygiene ensured; laundry and bathing should also be ensured	Low
Optimal access (average quantity 100 l/c/d and above)	Water supplied through multiple taps continuously	Consumption – all needs met Hygiene – all needs should be met	Very low

(Source: Prüss-Üstün, A., Bos, A., Gore, F. & Bartram, J. 2008. "Safer water, better health: Costs, benefits and sustainability of interventions to protect and promote health" World Health Organization. http://whqlibdoc.who.int/publications/2008/9789241596435_eng.pdf).

Clean water is a key to living a healthy life. Many people around the world do not have access to clean water for drinking, bathing, personal hygiene or sanitation purposes, and as a result, succumb to preventable diseases that ultimately cost them their lives.

Research Questions:

1. Which substances cause water pollution?
    a. What is the difference between water that is naturally polluted and water that is contaminated by human activity?
2. What water related diseases are most prevalent in your country?
    a. Has your country been facing diseases caused by unsafe water and the lack of sanitation?
    b. Has your government taken clear actions to protect the population from the dangers of diseases caused by unsafe water and the lack of sanitation?

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3. Country Profiles for the GlobalEd 2 Simulation

The GlobalEd 2 Project Country Profiles

We used the CIA World Factbook to create the country profiles. You can explore the CIA Factbook online at: https://www.cia.gov/library/publications/the-world-factbook/

The Entire World

	The World
GWP (Gross World Product)	$71.83 trillion (2012 est.) GDP per capita: $12,400 (2012 est.) GDP Growth Rate: 3.1% (2012 est.)
Population	7,095,217,980 (2013 est.) Population Growth Rate: 1.1% (2013 est.) Life Expectancy: 68 years (2013 est.) Literacy Rate: 84.1% (2010 est.)
Economy	Unemployment Rate: 9.2% (2012 est.) Military Expenditures: 2.1% of GWP (2012 est.)
Environment	Renewable Water Resources: 53,789.29 cu km (2011) Improved Drinking Water Source: 89% (2010 est.) Improved Sanitation Facility Access: 63% (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 31.68 billion Mt (2010 est.).
Info Link	https://www.cia.gov/library//publications/the-world-factbook/geos/xx.html

North America

	United States of America	Mexico
		
Principle Leader	President Barack H. Obama (since January 20, 2009)	President Enrique Pena Nieto (since December 1, 2012)
Government	Democratic, Constitution-based Federal Republic Declared Independence from Great Britain on July 4, 1776	Federal Republic Declared Independence from Spain on September 27, 1821
GDP	$15.65 trillion (2012 est.) GDP per capita: $49,800 (2012 est.) GDP Growth Rate: 2.2% (2012 est.)	$1.163 trillion (2012 est.) GDP per capita: $15,300 (2012 est.) GDP Growth Rate: 4% (2012 est.)
Population	3rd most populous country in the world 316,668,567 (2013 est.) Population Growth Rate: 0.9% (2013 est.) Life Expectancy: 79 years (2013 est.) Literacy Rate: 99% (2003 est.) Internet Users: 245 million (2009)	 116,220,947 (2013 est.) Population Growth Rate: 1.07% (2013 est.) Life Expectancy: 77 years (2013 est.) Literacy Rate: 86.1% (2005) Internet Users: 31.02 million (2009)
Gender Inequality	Maternal mortality rate: 21 deaths/100,000 live births (2010) Gender Inequality Index: .256	Maternal Mortality Rate: 50 deaths/100,000 live births (2010) Gender Inequality Index: .382
Economy	Largest economy in the world Unemployment Rate: 8.2% (2012 est.) Youth Unemployment Rate: 17.3% (2011) Population Below Poverty Line: 15.1% (2010 est.) Health Expenditures: 17.9% of GDP (2010) Education Expenditures: 5.4% of GDP (2009) Military Expenditures: 4.6% of GDP (2010)	 Unemployment Rate: 5% (2012 est.) Youth Unemployment Rate: 9.8% (2011) Population Below Poverty Line: 51.3% (2010 est.) Health Expenditures: 6.3% of GDP (2010) Education Expenditures: 5.3% of GDP (2009) Military Expenditures: 0.5% of GDP (2012)
Trading Partners	Canada; Mexico; China; Japan; Germany	US; China, Japan
Environment	Renewable Water Resources: 3,069 cu km (2011). Freshwater withdrawal (domestic/industrial/agricultural): 478.4 cu km/yr (14%/46%/40%) (2005). Improved Drinking Water Source: 99% of population (2010 est.) Improved Sanitation Facility Access: 100% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 5.61 billion Mt (2010 est.) 2nd largest contributor Water pollution from runoff of pesticides and fertilizers Limited natural freshwater resources Air pollution Acid rain	Renewable Water Resources: 457.2 cu km (2011). Freshwater withdrawal (domestic/industrial/agricultural): 80.4 cu km/yr (14%/9%/77% (2009). Improved Drinking Water Source: 96% of population (2010 est.) Improved Sanitation Facility Access: 85% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 445.3 million Mt (2010 est.) Freshwater scarcity Water pollution Poor water quality Concern over hazardous waste disposal Ground water depletion

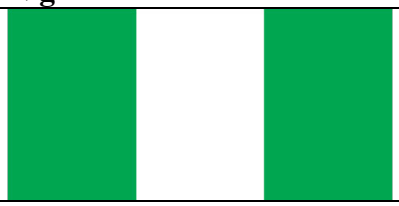
	Desertification Strained water-sharing agreements between US and Mexico US has made no territorial claim in Antarctica (but has reserved the right to do so) and does not recognize the claims of any other states	Desertification Deforestation Air pollution Rural/urban migration Strained water-sharing agreements between US and Mexico
Infant Mortality per 1,000 births	5.9 Rank =174	16.25 Rank =103
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/us.html	https://www.cia.gov/library/publications/the-world-factbook/geos/mx.html

South America

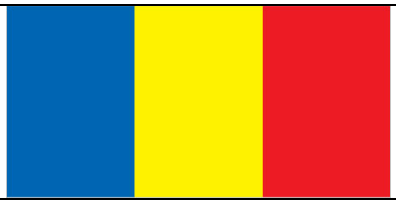
	Brazil	**Peru**
		
Principle Leader	President Dilma Rousseff (since January 1, 2011)	President Ollanta Humala Tasso (since July 28, 2011)
Government	Federal Republic Independence from Portugal on September 7, 1822	Constitutional Republic Independence from Spain recognized on July 28, 1821
GDP	$2.425 trillion (2012 est.) GDP per capita: $12,000 (2012 est.) GDP Growth Rate: 1.3% (2012 est.)	$200.3 billion (2012 est.) GDP Per Capita: $10,700 (2012 est.) GDP Growth Rate: 6% (2012 est.)
Population	5th most populous country in the world 201,009,622 (2013 est.) Population Growth Rate: 0.83% (2013 est.) Life Expectancy: 73 years Literacy Rate: 88.6% (2004) Internet Users: 75.982 million (2009)	29,849,303 (2013 est.) Population Growth Rate: 1% (2013 est.) Life Expectancy: 73 years (2013 est.) Literacy Rate: 92.9% (2007) Internet Users: 9.158 million (2009)
Gender Inequality	Maternal Mortality Rate: 56 deaths/100,000 live births (2010) Gender Inequality Index: .387	Maternal Mortality Rate: 67 deaths/100,000 live births (2010) Gender Inequality Index: .447
Economy	South America's leading economic power Unemployment Rate: 6.2% (2012 est.) Youth Unemployment Rate: 17.8% (2009) Population Below Poverty Line: 21.4% (2009 est.) Health Expenditures: 9% of GDP (2010) Education Expenditures: 5.6% of GDP (2009) Military Expenditures: 1.3% of GDP (2012)	Unemployment Rate: 7.7% (2012 est.) Youth Unemployment Rate: 16.2% (2011) Population Below Poverty Line: 31.3% (2010 est.) Health Expenditures: 5.1% of GDP (2010) Education Expenditures: 2.6% of GDP (2011) Military Expenditures: 1% of GDP (2012)
Trading Partners	China; US; Argentina; Germany; South Korea	China; US; Canada; Japan; Spain; Chile; Germany; Brazil; Ecuador; South Korea
Environment	Renewable Water Resources: 8,233 cu km (2011). Freshwater Withdrawal (domestic/industrial/agricultural): 58.07 cu km/yr (28%/17%/55%) (2006) Improved Drinking Water Source: 98% of	Renewable Water Resources: 1,913 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 19.34 cu km/yr (8%/10%/82%) (2005) Improved Drinking Water Source: 85% of

	population (2010 est.) Improved Sanitation Facility Access: 79% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 453.9 million Mt (2010 est.) Water pollution in several large cities. Deforestation in Amazon Basin Water pollution Air pollution Oil spills	population (2010 est.) Improved Sanitation Facility Access: 71% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 41.88 million Mt (2010 est.) Deforestation Desertification Air pollution Water pollution Soil erosion Nevado Mismi—the ultimate source of the Amazon River—is located in Peru
Infant Mortality per 1,000 births	19.83 Rank = 93	20.85 Rank = 89
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/br.html	https://www.cia.gov/library/publications/the-world-factbook/geos/pe.html

Africa

	South Africa	**Nigeria**
		
Principle Leader	President Jacob Zuma (since May 9, 2009)	President Goodluck Jonathan (since May 5, 2010)
Government	Republic Freedom Day—End of Apartheid and the Establishment of Majority Rule: April 27, 1994	Federal Republic Independence from the UK on October 1, 1960
GDP	$390.9 billion (2012 est.) GDP per capita: $11,300 (2012 est.) GDP Growth Rate: 2.6% (2012 est.)	$272.6 billion (2012 est.) GDP per capita: $2,700 (2012 est.) GDP Growth Rate: 7.1% (2012 est.)
Population	48,601,098 (2013 est.) Population Growth Rate: -0.45% (2013 est.) Life Expectancy: 49 years (2013 est.) Literacy Rate: 86.4% (2003 est.) Internet Users: 4.42 million (2009)	174,507,539 (2013 est.) Population Growth Rate: 2.54% (2013 est.) Life Expectancy: 52 years (2013 est.) Literacy Rate: 61.3% (2010 est.) Internet Users: 43.989 million (2009)
Gender Inequality	Maternal Mortality Rate: 300 deaths/100,000 live births (2010) Gender Inequality Index: .462	Maternal Mortality Rate: 630 deaths/100,000 live births (2010).
Economy	Unemployment Rate: 22.7% (2012 est.) Youth Unemployment Rate: 49.8% (2011) Population Below Poverty Line: 31.3% (2009 est.) Health Expenditures: 8.9% of GDP (2010) Education Expenditures: 6% of GDP (2010) Military Expenditures: 1.7% of GDP (2006)	Unemployment Rate: 23.9% (2011 est.) Youth Unemployment Rate: N/A Population Below Poverty Line: 70% (2010 est.) Health Expenditures: 5.1% of GDP (2010) Education Expenditures: N/A Military Expenditures: 0.9% of GDP (2012)
Trading Partners	China; US; Japan; Germany; UK; Saudi Arabia; India	US; India; Brazil; Spain; France; Netherlands; China; South Korea

Environment	Renewable Water Resources: 51.4 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 12.5 cu km/yr (36%/7%/57%) (2005) Improved Drinking Water Source: 91% of population (2010 est.) Improved Sanitation Facility Access: 79% of population (2010 est.) Carbon Dioxide Emission from Consumption of Energy: 465.1 million Mt (2010 est.) Water scarcity Water pollution Air Pollution Acid rain Soil erosion desertification	Renewable Water Resources: 286.2 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 13.11 cu km/yr (31%/15%/54%) (2005) Improved Drinking Water Source: 58% of population (2010 est.) Improved Sanitation Facility Access: 31% of population (2010 est.) Carbon Dioxide Emission from Consumption of Energy: 80.51 million Mt (2010 est.) Water pollution Air pollution Desertification Deforestation Oil spills Soil degradation Niger River runs through the country
Infant Mortality per 1,000	42.15 Rank = 52	72.97 Rank = 15
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/sf.html	https://www.cia.gov/library/publications/the-world-factbook/geos/ni.html

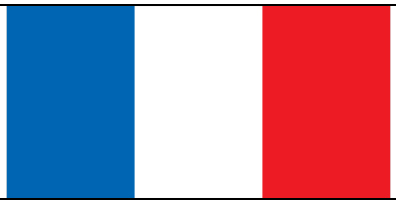
	Chad	**Sudan**
		
Principle Leader	President Lt. Gen. Idriss Deby (since December 4, 1990) Prime Minister Djimrangar Dadnadji (since January 21, 2013)	President Umar Hassan Ahmad al-Bashir (since October 16, 1993)
Government	Republic Independence from France on August 11, 1960.	Federal Republic Independence from Egypt and UK: January 1, 1956 South Sudan seceded from Sudan in 2011.
GDP	$9.723 billion (2012 est.) GDP per capita: $2,000 (2012 est.) GDP Growth Rate: 7.3% (2012 est.)	$51.58 billion (2012 est.) GDP per capita: $2,400 (2012 est.) GDP Growth Rate: -11.2% (2012 est.)
Population	11,193,452 (2013 est.) Population Growth Rate: 1.95% (2013 est.) Life Expectancy: 49 years (2013 est.) Literacy Rate: 34.5% (2010 est.) Internet Users: 168,100 (2009)	34,847,910 Population Growth Rate: 1.83% (2013 est.) Life Expectancy: 63 years (2013 est.) Literacy Rate: 61.1% (2003 est.) Internet Users: 4.2 million (2008)
Gender Inequality	Maternal Mortality Rate: 1,100 deaths/100,000 live births (2010)	Maternal Mortality Rate: 730 deaths/100,000 live births (2010) Gender Inequality Index: .604
Economy	Primarily agricultural economy Population Below Poverty Line: 80% (2001 est.)	 Unemployment Rate: 20% (2012 est.) Population Below Poverty Line: 46.5 (2009 est.)

	Health Expenditures: 4.5% of GDP (2010) Education Expenditures: 2.9% of GDP (2011) Military Expenditures: 1.6% of GDP (2011)	Health Expenditures: 6.3% of GDP (2010) Military Expenditures: 4.2% of GDP (2012)
Trading Partners	US; China; France; Cameroon; Finland; Sweden; Saudi Arabia; Belgium;	Macau; UAE; Saudi Arabia: India; Egypt; Germany
Environment	Renewable Water Resources: 43 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 0.88 cu km/yr (12%/12%/76%) (2005) Improved Drinking Water Source: 51% of population (2010 est.) Improved Sanitation Facility Access: 13% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 290,900 Mt (2010 est.) Landlocked country Potable water scarcity Water pollution Desertification Lake Chad is the most significant water body in the Sahel Impacted by the large refugee movements spurred by the crisis in Darfur, Sudan.	Renewable Water Resources: 64.5 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 27.59 cu km/yr (4%/1%/95%) (2005) Improved Drinking Water Source: 58% of population (2010 est.) Improved Sanitation Facility Access: 26% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 13.79 million Mt (2010 est.) Scarcity of potable water Soil erosion Desertification Drought Crisis in Darfur, Sudan
Infant Mortality per 1,000	91.94 Rank = 6	54.23 Rank = 35
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/cd.html	https://www.cia.gov/library/publications/the-world-factbook/geos/su.html

	Egypt
	
Principle Leader	President Muhammad Mursi (since June 30, 2012) Prime Minister Hisham Qandil (since July 24, 2012)
Government	Republic Official independence from UK protectorate status on February 28, 1922; The July 23rd, 1952 Revolution led to the declaration of a republic on June 18, 1953 and the British withdrawal of troops by 1956
GDP	$255 billion (2012 est.) GDP per capita: $6,600 (2012 est.) GDP Growth: 2% (2012 est.)
Population	85,294,388 (2013 est.) Population Growth Rate: 1.88% (2013 est.) Life Expectancy: 73 years (2013 est.) Literacy Rate: 72% of age 10 and over (2010 est.) Internet Users: 20.136 (2009)

Gender Inequality	Maternal Mortality Rate: 66 deaths/100,000 live births (2010) Gender Inequality Index: .590
Economy	Unemployment Rate: 12.5 (2012 est.) Youth Unemployment: 24.8% (2010) Population Below Poverty Line: 20% (2005 est.) Health Expenditures: 4.7% of GDP (2010) Education Expenditures: 3.8% of GDP (2008) Military Expenditures: 2.2% of GDP (2012)
Trading Partners	Italy; India; Saudi Arabia; US; Turkey; Spain; France; China; Germany; Kuwait;
Environment	Renewable Water Resources: 57.3 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 68.3 cu km/yr (8%/6%/86%) (2000) Improved Drinking Water Source: 99% of population. (2010 est.) Improved Sanitation Facility Access: 95% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 196.5 million Mt (2010 est.) Soil salination Oil pollution Water pollution Urbanization Desertification Freshwater scarcity The Nile is the only perennial water source Aswan High Dam and Lake Nasser altered agricultural benefits of Nile River Dependence on upstream neighbors Control of Suez Canal—a sea link between Indian Ocean and Mediterranean Sea
Infant Mortality per 1,000	23.3 Rank = 80
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/eg.html

Europe

	France	**Netherlands**
		
Principle Leader	President Francois Hollande (since May 15, 2012) Prime Minister Jean0Marc Ayrault (since May 16, 2012)	King Willem-Alexander (since April 30, 2013) Prime Minister Mark Rutte (Since October 14, 2010)
Government	Republic	Constitutional Monarchy
GDP	$2.58 trillion (2012 est.) GDP per capita: $35,500 (2012 est.) GDP Growth Rate: 0.1% (2012 est.)	$770.2 billion (2012 est.) GDP per capita: $42,300 (2012 est.) GDP Growth Rate: -0.5% (2012 est.)
Population	65,951,611 (2013 est.) Population Growth Rate: .47% (2013 est.) Life Expectancy: 82 years (2013 est.) Literacy Rate: 99% (2003 est.) Internet Users: 45.262 million (2009)	16,805,037 (2013 est.) Population Growth Rate: 0.44% (2013 est.) Life Expectancy: 81 years (2013 est.) Literacy Rate: 99% (2003 est.) Internet Users: 14.872 million (2009)
Gender Inequality	Maternal Mortality Rate: 8 deaths/100,000 live births (2010) Gender Inequality Index: .083	Maternal Mortality Rate: 6 deaths/100,000 live births (2010) Gender Inequality Index: .045
Economy	Unemployment Rate: 10.3% (2012 est.) Youth Unemployment Rate: 22.1% (2011) Population Below Poverty Line: 7.8% (2010) Health Expenditures: 11.9% of GDP (2010) Education Expenditures: 5.9% of GDP (2009) Military Expenditures: 2.6% of GDP (2005 est.)	Unemployment Rate: 6.8% (2012 est.) Youth Unemployment Rate: 7.7% (2011) Population Below Poverty Line: 10.5% (2005) Health Expenditures: 11.9% of GDP (2010) Education Expenditures: 5.9% of GDP (2009) Military Expenditures: 1.6% of GDP (2005 est.)
Trading Partners	Germany; Italy; Spain; Belgium; UK; US; Netherlands; China	Germany; Belgium; France; UK; Italy; China; Russia; US
Environment	Renewable Water Resources: 211 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 31.62 cu km/yr (19%/71%/10%) (2009) Improved Drinking Water Source: 100% of population (2010 est.) Sanitation Facility Access: 100% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 395.2 million Mt (2010 est.) Water pollution Air pollution Acid rain France claims territory in Antarctica	Renewable Water Resources: 91 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 10.61 cu km/yr (12%/88%/1%) (2008) Improved Drinking Water Source: 100% of population (2010 est.) Sanitation Facility Access: 100% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 263.4 million Mt (2010 est.) Acid rain Water pollution Air pollution
Infant Mortality per 1,000	3.34 Rank 215	3.69 Rank 20
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/fr.html	https://www.cia.gov/library/publications/the-world-factbook/geos/nl.html

	Spain
	
Principle Leader	King Juan Carlos (since November 22, 1975) President of the Government Mariano Rajoy (since December 20, 2011)
Government	Parliamentary Monarchy
GDP	$1.347 trillion (2012 est.) GDP per capita: 30,400 (2012 est.) GDP Growth Rate: -1.4 (2012 est.)
Population	47,370,542 (2013 est.) Population Growth Rate: 0.73% (2013 est.) Life Expectancy: 81 years (2013 est.) Literacy Rate: 97.7% (2010 est.) Internet Users: 28.119 million (2009)
Gender Inequality	Maternal Mortality Rate: 6 deaths/100,000 live births (2010) Gender Inequality Index: .103
Economy	Unemployment Rate: 26% (2012 est.) Youth Unemployment Rate: 46.4% (2011) Population Below Poverty Line: 21.1% (2012) Health Expenditures: 9.5% of GDP (2010) Education Expenditures: 5% of GDP (2009) Military Expenditures: 1.2% of GDP (2005 est.)
Trading Partners	France; Germany; Portugal; Italy; UK; China; Netherlands
Environment	Renewable Water Resources: 111.5 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 32.46 cu km/yr (18%/22%/61%) (2008) Improved Drinking Water Source: 100% of population (2010 est.) Improved Sanitation Facility Access: 100% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 316.4 million Mt (2010) Mediterranean Sea pollution Water quality Water scarcity Air pollution Desforestation Desertification
Infant Mortality per 1,000	3.35 Rank =214
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/sp.html

Middle East

	Turkey	Iran
		
Principle Leader	President Abdullah Gul (since August 28, 2007) Prime Minister Recep Tayyip Erdogan (since March 14, 2003)	Supreme Leader Ali Hoseini-Khamenei (Since June 4, 1989) President Mahmoud Ahmadinejad (since August 3, 2005) **President Elect: Hassan Rohani (August 3, 2013)
Government	Republican Parliamentary Democracy Independence—Successor of Ottoman Empire on October 29, 1923	Theocratic Republic Islamic Republic of Iran proclaimed on April 1, 1979
GDP	$781.1 billion (2012 est.) GDP per capita: $15,000 (2012 est.) GDP Growth Rate: 3% (2012 est.)	$483.8 billion (2012 est.) GDP per capita: $13,100 (2012 est.) GDP Growth Rate: -0.9% (2012 est.)
Population	80,694,485 (2013 est.) Population Growth Rate: 1.16% (2013 est.) Life Expectancy: 73 years (2013 est.) Literacy Rate: 87.4% (2004 est.) Internet Users: 27.233 million (2009)	79,853,900 (2013 est.) Population Growth Rate: 1.24% (2013 est.) Life Expectancy: 71 years old (2013 est.) Literacy Rate: 77% (2002 est.) Internet Users: 8.214 million (2009)
Gender Inequality	Maternal Mortality Rate: 20 deaths/100,000 live births (2010) Gender Inequality Index: .336	Maternal Mortality Rate: 21 deaths/100,000 live births (2010) Gender Inequality Index: .496
Economy	Unemployment Rate: 9% (2012 est.) Youth Unemployment Rate: 18.4% (2011) Population Below Poverty Line: 16.9% (2010) Health Expenditures: 6.7% of GDP (2010) Education Expenditures: 2.9% of GDP (2006) Military Expenditures: 5.3% of GDP (2005 est.)	Unemployment Rate: 15.5% (2012 est.) Youth Unemployment Rate: 23% (2008) Population Below Poverty Line: 18.7% (2007 est.) Health Expenditures: 5.6% of GDP (2010) Education Expenditures: 4.7% of GDP (2010) Military Expenditures: 2.5% of GDP (2006)
Trading Partners	Germany; Iraq; UK; Italy; France; Russia; China; US; Iran	China; Japan; Turkey; India; South Korea; Italy; UAE; Germany
Environment	Renewable Water Resources: 211.6 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 40.1 cu km/yr (14%/10%/76%) Improved Drinking Water Source: 100% of population (2010 est.) Improved Sanitation Facility Access: 90% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 263.5 million Mt (2010 est.) Water pollution Air pollution Deforestation Oil Spills Strategic location—control of the Turkish Straits	Renewable Water Resources: 137 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 93.3 cu km/yr (7%/1%/92%) (2004) Improved Drinking Water Source: 96% of population (2010 est.) Improved Sanitation Facility Access: 100% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 560.3 million Mt (2010 est.) 8th largest contributor Iran is considered a state sponsor of terrorism…and remains subject to US, UN, and EU economic sanctions and export controls. Nuclear weapons ambitions Oil pollution

	(Bosporus, Sea of Marmara, Dardanelles) that link Black Sea and Aegean Seas Disagreement with Syria and Iraq over Turkish hydrological projects controlling upper Euphrates waters	Salination Potable water scarcity Water pollution Strategic location on the Persian Gulf and Strait of Hormuz—vital maritime pathways for crude oil transport Iran disagrees with Afghanistan limiting flow of dammed Helmand River tributaries during drought.
Infant Mortality per 1,000	22.23 Rank 84	40.02 Rank = 56
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/tu.html	https://www.cia.gov/library/publications/the-world-factbook/geos/ir.html

	Saudi Arabia
	
Principle Leader	King and Prime Minister Abdallah bin Abd al-Aziz Al Saud (since August 1, 2005)
Government	Monarchy Kingdom unified on September 23, 1932
GDP	$657 billion (2012 est.) GDP per capita: $25,700 (2012 est.) GDP Growth Rate: 6% (2012 est.)
Population	26,939,583 (2013 est.) Population Growth Rate: 1.51% (2013 est.) Life Expectancy: 75 years (2013 est.) Literacy Rate: 86.6% (2010 est.) Internet Users: 9.774 million (2009)
Gender Inequality	Maternal Mortality Rate: 24 deaths/100,000 live births (2010) Gender Inequality Index: .682
Economy	Oil-based Economy Unemployment Rate: 10.7% (2012 est.) Youth Unemployment Rate: 28.2% (2008) Health Expenditures: 4.3% of GDP (2010) Education Expenditures: 5.6% of GDP (2010) Military Expenditures: 9.1% of GDP (2012)
Trading Partners	Japan; China; US; South Korea; India; Singapore; Germany; Italy
Environment	Renewable Water Resources: 2.4 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 23.67 cu km/yr (9%/3%/88%) (2006) Improved Drinking Water Source: 97% of *urban* population (2010 est.) Improved Sanitation Facility Access: 100% of *urban* population (2012 est.) Carbon Dioxide Emissions from Consumption of Energy:

	478.4 million Mt (2010 est.) Desertification Depletion of underground water resources Water scarcity Extensive seawater desalination facilities Oil spills Plays a leading role in OPEC Largest exporter of petroleum
Infant Mortality per 1,000	15.08 Rank = 111
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/sa.html

Central Asia

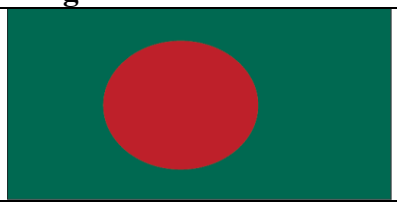
	Russia	**Uzbekistan**
		
Principle Leader	President Vladimir Vladimirovich Putin (since May 7, 2012) Premier Dmitriy Anatolyevich Medvedev (since May 8, 2012)	President Islom Karimov (since March 24, 1990 appointment by Supreme Soviet; elected in 1991) Prime Minister Shavkat Mirziyoyev (since December 11, 2003)
Government	Federation Dissolution of the Soviet Union in 1991	Republic; Authoritarian Presidential Rule Dissolution of the Soviet Union in 1991
GDP	$2.053 trillion (2012 est.) GDP per capita: $17,700 (2012 est.) GDP Growth Rate: 3.4% (2012 est.)	$48.3 billion (2012 est.) GDP per capita: $3,500 (2012 est.) GDP Growth Rate: 8.2% (2012 est.)
Population	142,500,482 (2013 est.) Population Growth Rate: -0.02 (2013 est.) Life Expectancy: 70 years (2013 est.) Literacy Rate: 99.6% (2010 est.) Internet Users: 40.853 million (2009)	28,661,637 (2013 est.) Population Growth Rate: 0.94% (2013 est.) Life Expectancy: 73 years (2013 est.) Literacy Rate: 99.3% (2003 est.) Internet Users: 4.689 million (2009)
Gender Inequality	Maternal Mortality Rate: 34 deaths/100,000 live births (2010) Gender Inequality Index: .312	Maternal Mortality Rate: 28 deaths/100,000 live births (2010)
Economy	Unemployment Rate: 5.7% (2012 est.) Youth Unemployment Rate: 15.5% (2011) Population Below Poverty Line: 12.7% (2011) Health Expenditures: 5.1% of GDP (2010) Education Expenditures: 4.1% of GDP (2008) Military Expenditures: 3.9% of GDP (2005)	Unemployment Rate: 4.8% (2012 est.) Population Under Poverty Line: 17% (2011 est.) Health Expenditures: 5.3% of GDP (2010) Military Expenditures: 3.5% of GDP (2010)
Trading Partners	Netherlands' China; Italy; Germany; Poland; Ukraine	Russia; Turkey; China; Kazakhstan; Bangladesh; South Korea; Germany;
Environment	Renewable Water Resources: 4,508 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 66.2 cu km/yr (20%/60%/20%) (2001) Improved Drinking Water Source: 97% of	Renewable Water Resources: 48.87 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 56 cu km/yr (7%/3%/90%) (2005) Improved Drinking Water Source: 87% of

	population Improved Sanitation Facility Access: 70% of population Carbon Dioxide Emissions from Consumption of Energy: 1.634 billion Mt (2010 est.) 4th largest contributor Water pollution Air pollution Groundwater contamination Deforestation Soil erosion Radioactive contamination Lake Baikal, the deepest lake in the world, holds approximately one fifth of the world's fresh water	population Improved Sanitation Facility Access: 100% of population Carbon Dioxide Emissions from Consumption of Energy: 114.3 million Mt (2010 est.) "During the Soviet era, intensive production of 'white gold' (cotton) and grain led to overuse of agrochemicals and the depletion of water supplies, which have left the land degraded and the Aral Sea and certain rivers half dry" Water pollution Landlocked country Soil salination Water-sharing difficulties between Uzbekistan and Turkmenistan
Infant Mortality per 1,000	7.19 Rank = 160	20.51 Rank = 91
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/rs.html	https://www.cia.gov/library/publications/the-world-factbook/geos/uz.html

	Tajikistan
	
Principle Leader	President Emomali Rahmon (since November 6, 1994) Prime Minister Oqil Oqilov (since December 20, 1999)
Government	Republic Dissolution of the Soviet Union in 1991
GDP	$7.59 billion (2012 est.) GDP per capita: $2,200 (2012 est.) GDP Growth Rate: 7.5% (2012 est.)
Population	7,910,041 (2013 est.) Population Growth Rate: 1.79% (2013 est.) Life Expectancy: 67 years (2013 est.) Literacy Rate: 99.7% (2010 est.) Internet Users: 700,000 (2009)
Gender Inequality	Maternal Mortality Rate: 65 deaths/100,000 live births (2010) Gender Inequality Index: .338
Economy	Poorest of the former Soviet countries Unemployment Rate: 2.5% (2012 est.) Population Below Poverty Line: 39.6 (2012 est.) Health Expenditures: 6% of GDP (2010) Education Expenditures: 3.9% of GDP (2011) Military Expenditures: 1.5% of GDP (2010)
Trading Partners	Exports: Turkey; Russia; Iran; China: South Korea; Afghanistan; Italy; Kazakhstan; US
Environment	Renewable Water Resources: 21.91 cu km (2011)

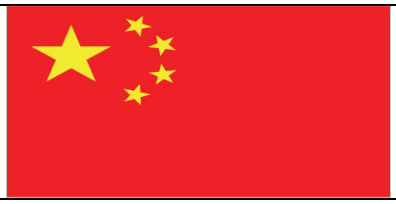
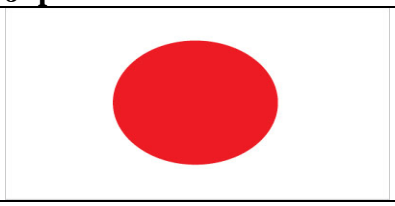
	Freshwater Withdrawal (domestic/industrial/agricultural): 11.49 cu km/yr (6%/4%/91%) (2006) Improved Drinking Water Source: 64% of population (2010 est.) Improved Sanitation Facility Access: 94% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 6.678 million Mt (2010 est.) Landlocked Soil salinity Inadequate sanitation facilities "Electricity output expanded with the completion of the Sangtuda-1 hydropower dam-finished in 2009 with Russian investment. The smaller Sangtuda-2, built with Iranian investment, began operating in 2012." The Roghun dam's construction is currently suspended.
Infant Mortality per 1,000	36.16 Rank = 64
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/ti.html

South Asia

	India	**Bangladesh**
		
Principle Leader	President Pranab Mukherjee (since July 22, 2012) Prime Minister Manmohan Singh (since May 22, 2004)	President Abdul Hamis (since April 24, 2013) Prime Minister Sheikh Hasina (since January 6, 2009)
Government	Federal Republic Independence from the UK on August 15, 1947	Parliamentary Democracy Independence from West Pakistan: December 16, 1971
GDP	$1.947 trillion (2012 est.) GDP per capita: $3,900 (2012 est.) GDP Growth Rate: 6.5% (2012 est.)	$118.7 billion (2012 est.) GDP per capita: $2,000 (2012 est.) GDP Growth Rate: 6.1% (2012 est.)
Population	2nd most populous country in the world 1,220,800,359 (2013 est.) Population Growth Rate: 1.28% (2013 est.) Life Expectancy: 67 years (2013 est.) Literacy Rate: 61% (2001) Internet Users: 61.338 million (2009)	 163,654,860 (2013 est.) Population Growth Rate: 1.59% (2013 est.) Life Expectancy: 70 years (2013 est.) Literacy Rate: 56.8% (2010 est.) Internet Users: 617,300 (2009)
Gender Inequality	Maternal Mortality Rate: 200 deaths/100,000 live births (2010) Gender Inequality Index: .610	Maternal Mortality Rate: 240 deaths/100,000 live births (2010) Gender Inequality Index: .518
Economy	4th largest economy in the world Unemployment Rate: 9.9% (2012 est.) Youth Unemployment Rate: 10.2% (2010) Population Below Poverty Line: 29.8% (2010 est.) Health Expenditures: 4.1% of GDP (2010)	 Unemployment Rate: 5% (2012 est.) Youth Unemployment Rate: 9.3% (2005) Population Below Poverty Line: 31.5% (2010 est.) Health Expenditures: 3.5% of GDP (2010)

	Education Expenditures: 3.3% of GDP (2010) Military Expenditures: 1.8% of GDP (2012)	Education Expenditures: 2.2% of GDP (2009) Military Expenditures: 1.4% of GDP (2012)
Trading Partners	UAE; US; China: Singapore: Hong Kong; Switzerland; Saudi Arabia;	US; Germany; UK; France: Italy; Spain; Netherlands; China; India; Malaysia
Environment	Renewable Water Resources: 1,911 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 761 cu km/yr (7%/2%/90%) (2010) Improved Drinking Water Source: 92% of population (2010 est.) Improved Sanitation Facility Access: 34% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 1.696 billion Mt (2010 est.) 3rd largest contributor Water pollution Deforestation Desertification Potable water scarcity Air pollution Kashmir remains an area of concern India and Pakistan "have disputes over water sharing of the Indus River and its tributaries"	Renewable Water Resources: 1,227 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 35.87 cu km/yr (10%/2%/88%) (2008) Improved Drinking Water Source: 81% of population (2010 est.) Improved Sanitation Facility Access: 56% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 56.74 million Mt (2010 est.) Flooding Waterborne diseases Water pollution Water quality Water scarcity Deforestation Soil degradation Country is situated on deltas of large rivers flowing from the Himalayas
Infant Mortality per 1,000	44.6 Rank = 50	47.3 45
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/in.html	https://www.cia.gov/library/publications/the-world-factbook/geos/bg.html

East & Southeast Asia

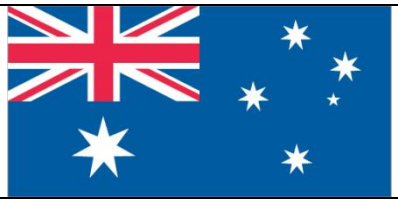
	China	**Japan**
		
Principle Leader	President Xi Jinping (since March 14, 2013) Premier Li Kequiang (since March 16, 2013)	Emperor Akihito (since January 7, 1989) Prime Minister Shinzo Abe (since December 26, 2012)
Government	Communist State People's Republic of China established on October 1, 1949	Parliamentary Government with a Constitutional Monarchy
GDP	$12.38 trillion (2012 est.)[i] GDP per capita: $9,100 (2012 est.) GDP Growth: 7.8% (2012 est.)	$5.984 trillion (2012 est.) GDP per capita: $36,200 (2012 est.) GDP Growth Rate: 0.2% (2012 est.)
Population	Most populous country in the world 1,349,585,838 (2013 est.) Population Growth Rate: 0.46% (2013 est.) Life Expectancy: 75 years (2013 est.)	127,253,075 (2013 est.) Population Growth Rate: -0.1%% (2013 est.) Life Expectancy: 84 years (2013 est.)

	Literacy Rate: 92.2% (2007) Internet Users: 389 million (2009)	Literacy Rate: 99% (2002) Internet Users: 99.182 million (2009)
Gender Inequality	Maternal Mortality Rate: 37 deaths/100,000 live births (2010) Gender Inequality Index: .213	Maternal Mortality Rate: 5 deaths/100,000 live births (2010) Gender Inequality Index: .131
Economy	Third largest economy in the world Unemployment rate: 6.4% (2012 est.) Population Below Poverty Line: 13.4% (2011) Health Expenditures: 5.1% of GDP (2010) Military Expenditures: 2.6% of GDP (2012)	5th largest economy in the world Unemployment Rate: 4.4% (2012 est.) Youth Unemployment Rate: 8% (2011) Population Below Poverty Line: 16% (2010 est.) Health Expenditures: 9.5% of GDP (2010) Education Expenditures: 3.8% of GDP (2010) Military Expenditures: 1% of GDP (2012)
Trading Partners	US; Hong Kong; Japan; South Korea; Germany; Australia	China; US; South Korea; Hong Kong; Thailand; Australia; Saudi Arabia; UAE
Environment	Renewable Water Resources: 2,840 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 554.1 cu km/yr (12%/23%/65%) (2005) Improved Drinking Water Source: 91% of population (2010 est.) Improved Sanitation Facility Access: 64% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 8.321 billion Mt (2010 est.) Largest contributor Extreme weather Air pollution Acid rain Water shortages Water pollution Deforestation Desertification Soil erosion Conflict with Kashmir	Renewable Water Resources: 430 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 90.04 cu km/yr (20%/18%/62%) (2007) Improved Drinking Water Source: 100% of population (2010 est.) Improved Sanitation Facility Access: 100% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 1.164 billion Mt (2010 est.) 5th largest contributor Air pollution Acid rain Water quality concerns
Infant Mortality per 1,000	15.2 Rank = 110	2.17 Rank = 223
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html	https://www.cia.gov/library/publications/the-world-factbook/geos/ja.html

	Indonesia
	
Principle Leader	President Susilo Bambang Yudhoyono (since October 20, 2004)
Government	Republic Independence from Japan declared on August 17, 1945
GDP	$894.9 billion (2012 est.)

	GDP per capita: $5,000 (2012 est.) GDP Growth Rate: 6% (2012 est.)
Population	4th most populous country in the world 251,160,124 (2013 est.) Population Growth Rate: 0.99% (2013 est.) Life Expectancy: 72 years (2013 est.) Literacy Rate: 90.4% (2004 est.) Internet Users: 20 million (2009)
Gender Inequality	Maternal Mortality Rate: 220 deaths/100,000 live births (2010) Gender Inequality Index: .494
Economy	Unemployment Rate: 6.1% (2012 est.) Youth Unemployment Rate: 22.2% (2009) Population Below Poverty Line: 11.7% (2012 est.) Health Expenditures: 2.6% of GDP (2010) Education Expenditures: 3% of GDP (2010) Military Expenditures: 0.9% of GDP (2012)
Trading Partners	Japan; China; Singapore; US; South Korea; India; Malaysia; US; Thailand
Environment	Renewable Water Resources: 2,019 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 113.3 cu km/yr (11%/19%/71%) (2005) Improved Drinking Water Source: 82% of population (2010 est.) Improved Sanitation Facility Access: 54% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 402.1 million Mt (2011 est.) World's largest archipelagic state Deforestation Water pollution Air pollution
Infant Mortality per 1,000	26.06 Rank = 72
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/id.html

Australia/Oceania

	Australia
	
Principle Leader	Prime Minister Julia Eileen Gillard (since June 24, 2010)
Government	Federal Parliamentary Democracy; Commonwealth of the UK Independence from the federation of UK colonies January 1, 1901
GDP	$1.542 trillion (2012 est.) GDP per capita: $42,400 (2012 est.)

	GDP Growth Rate: 3.3% (2012 est.)
Population	22,262,501 (2013 est.) Population Growth Rate: 1.11% (2013 est.) Life Expectancy: 82 years (2013 est.) Literacy Rate: 99% (2003 est.) Internet Users: 15.81 million (2009)
Gender Inequality	Maternal Mortality Rate: 7 deaths per 100,000 live births (2010) Gender Inequality Index: .115
Economy	Unemployment Rate: 5.2% (2012 est.) Youth Unemployment Rate: 11.3% (2011) Health Expenditures: 8.7% of GDP (2010) Education Expenditures: 5.1% of GDP (2009) Military Expenditures: 3% of GDP (2012)
Trading Partners	China; Japan; South Korea; India; US; Singapore; Germany
Environment	Renewable Water Resources: 492 cu km (2011) Freshwater Withdrawal (domestic/industrial/agricultural): 22.58 cu km/yr (27%/18%/55%) (2010) Improved Drinking Water Source: 100% of population (2010 est.) Improved Sanitation Facility Access: 100% of population (2010 est.) Carbon Dioxide Emissions from Consumption of Energy: 405.3 million Mt (2010 est.) Australia is the driest inhabited continent on earth Soil erosion Salinity Desertification Freshwater scarcity Only continent without glaciers Claims territory in Antarctica
Infant Mortality per 1,000	4.49 Rank = 190
Info Link	https://www.cia.gov/library/publications/the-world-factbook/geos/as.html

Glossary

We used the definitions provided in the CIA World Factbook to create the glossary. You can explore the 'Definitions and Notes' section of the CIA Factbook online at: https://www.cia.gov/library/publications/the-world-factbook/docs/notesanddefs.html

Carbon Dioxide Emissions from Consumption of Energy: "the total amount of carbon dioxide, measured in metric tons, released by burning fossil fuels in the process of producing and consuming energy".

Education Expenditures: "the public expenditure on education as a percent of GDP". In other words, the percentage of the county's GDP that is allocated to education-related expenses.

Freshwater Withdrawal (domestic/industrial/agricultural): the total "annual quantity of water in cubic kilometers removed from available sources for use in any purpose. … Domestic sector use refers to water supplied by public distribution systems. … Industrial sector use is the quantity of water used by self-supplied industries not connected to a public distribution system. Agricultural sector use includes water used for irrigation and livestock watering".

GDP—Gross Domestic Product (Official Exchange Rate): "the gross domestic product (GDP) or value of all final goods and services produced within a nation in a given year. A nation's GDP at official exchange rates (OER) is the home-currency-denominated annual GDP figure divided by the bilateral average US exchange rate with that country in that year. The measure is simple to compute and gives a precise measure of the value of output. Many economists prefer this measure when gauging the economic power an economy maintains vis-à-vis its neighbors, judging that an exchange rate captures the purchasing power a nation enjoys in the international marketplace".

GDP—Gross Domestic Product—Growth Rate: Percentage of "GDP growth on an annual basis adjusted for inflation".

GDP—Gross Domestic Product—per capita: gross domestic product (GDP) at purchasing power parity (PPP) exchange rates divided by the population. GDP at PPP exchange rates "is the sum value of all goods and services produced in the country valued at prices prevailing in the United States in the year noted. This is the measure most economists prefer when looking at per-capita welfare and when comparing living conditions or use of resources across countries. The measure is difficult to compute, as a US dollar value has to be assigned to all goods and services in the country regardless of whether these goods and services have a direct equivalent in the United States".

Gender Inequality Index: "A composite measure reflecting inequality in achievements between women and men in three dimensions: reproductive health, empowerment and the labour market" (2013 Human Development Report-available at: http://hdr.undp.org/en/reports/global/hdr2013/download/). "The index shows the loss in human development due to inequality between female and male achievements… It ranges from 0, which indicates that women and men fare equally, to 1, which indicates that women fare as poorly as possible" (http://hdr.undp.org/en/statistics/gii/). A score closer to 0 is more desirable. The score "can be interpreted as a percentage loss to potential human development" e.g., "The World average score on the GII is 0.463, reflecting a percentage loss…of 46.3%" (http://hdr.undp.org/en/statistics/gii/). *This statistic is not found in the CIA World Factbook*.

Government: "the basic form of government" in the country.

Authoritarian: "a form of government in which state authority is imposed onto many aspects of citizens' lives".

Commonwealth: "a nation, sate, or other political entity founded on law and united by a compact of the people for the common good".

Communist: "a system of government in which the state plans and controls the economy and a single—often authoritarian—party holds power; state controls are imposed with the elimination of private ownership or property or capital while claiming to make progress toward a higher social order in which all goods are equally shared by the people".

Constitutional: "a government by or operating under an authoritative document (constitution) that sets forth the system of fundamental laws and principles that determines the nature, functions, and limits of that government".
Constitutional monarchy: "a system of government in which a monarch is guides by a constitution whereby his/her rights, duties, and responsibilities are spelled out in written law or by custom".
Democracy: "a form of government in which the supreme power is retained by the people, but which is usually exercised indirectly through a system of representation and delegated authority periodically renewed".
Democratic republic: "a state in which the supreme power rests in the body of the citizens entitled to vote for officers and representatives responsible to them".
Federal (Federation): "a form of government in which sovereign power is formally divided—usually by means of a constitution—between a central authority and a number of constituent regions (states, colonies, or provinces) so that each region retains some management of its internal affairs".
Federal republic: "a state in which the powers of the central government are restricted and in which the component parts (states, colonies, or provinces) retain a degree of self-government; ultimate sovereign power rests with the voters who chose their governmental representatives".
Monarchy: "a government in which the supreme power is lodged in the hands of a monarch who reigns over a state or territory, usually for life and by hereditary right; the monarch may be either a sole absolute ruler or a sovereign—such as a king, queen, or prince—with constitutionally limited authority".
Parliamentary democracy: "a political system in which the legislature (parliament) selects the government—a prime minister, premier, or chancellor along with the cabinet ministers—according to party strength as expressed in elections; by this system, the government acquires a dual responsibility: to the people as well as to the parliament".
Parliamentary government: "a government in which members of an executive branch (the cabinet and its leader—a prime minister, premier, or chancellor) are nominated to their positions by a legislature or parliament, and are directly responsible to it; this type of government can be dissolved at will by the parliament (legislature) by means of a no confidence vote or the leader of the cabinet may dissolve the parliament if it can no longer function".
Parliamentary monarchy: "a state headed by a monarch who is not actively involved in policy formation or implementation (i.e., the exercise of sovereign powers by a monarch in a ceremonial capacity); true governmental leadership is carried out by a cabinet and its head—a prime minister, premier, or chancellor—who are drawn from a legislature (parliament)".
Republic: "a representative democracy in which the people's elected deputies (representatives), not the people themselves, vote on legislation".
Theocracy: "a form of government in which a Deity is recognized as the supreme civil ruler, but the Deity's laws are interpreted by ecclesiastical authorities (bishops, mullahs, etc.); a government subject to religious authority".

GWP—Gross World Product: "the aggregate value of all final goods and services produced within a given year".

Health Expenditures: "the total expenditure on health as a percentage of GDP". In other words, the percentage of the county's GDP that is allocated to health-related expenses.

Improved Drinking Water Source: percentage of people within a country that have access to: "piped water into dwelling, yard, or plot; public tap or standpipe; tubewell or borehole; protected dug well; protected spring; or rainwater collection".

Improved Sanitation Facility Access: percentage of people within a country that have access to: "flush or pour-flush to a piped sewer system, septic tank or pit latrine; ventilated improved pit latrine; pit latrine with slab; or a composting toilet".

Infant Mortality Rate: Infant deaths per 1,000 and world rank in infant mortality.

Internet Users: "number of users within a country that access the Internet".

Life Expectancy (total population): "the average number of years to be lived by a group of people [men and women of the country] born in the same year, if mortality at each age remains constant in the future." *GlobalEd2 rounded the number provided by the CIA World Factbook to the nearest whole number*.

Literacy Rate: the percentage of the total population age 15 and over that are able to read and write.

Maternal Mortality Rate: "the annual number of female deaths per 100,000 live births for any cause related to or aggravated by pregnancy or its management…during pregnancy, childbirth, or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy".

Military Expenditures: the total expenditure on defense programs as a percentage of GDP—official exchange rate value. In other words, the percentage of the county's GDP that is allocated to military-related expenses.

Population Below Poverty Line: "the percentage of the population falling below the poverty line". Note that "[d]efinitions of poverty vary considerably among nations".

Population Growth Rate: "The average annual percentage change in the population, resulting from a surplus (or deficit) of births over deaths and the balance of migrants entering and leaving a country".

Principle Leader—Chief of State & Head of Government: "the titular leader of the country" and the "top administrative leader who is designated to manage the day-to-day activities of the government".

Renewable water resources: "the long-term average water availability for a country in cubic kilometers of precipitation recharges ground water and surface inflows from surrounding countries".

Unemployment rate: "the percent of the labor force that is without jobs".

Youth unemployment: "the percentage of the total labor force ages 15-24 unemployed".

Name _____ Class_____ Date _____

4. *Water: Drop of Life* Video Viewing Task

Read the questions below before viewing the video.
As you watch the video, fill in the answers to the questions.

1. What is one thing that Kofi Annan says about water?

   _____

2. How much of the Earth's water is fresh water?

   _____

3. What is one source of water pollution?

   _____

4. What percent of our fresh water supply is used for agriculture?

   _____

Name _____ Class_____ Date _____

5. Splish and Splash Video Viewing Task

Read the questions below before viewing the video.
As you watch the video, fill in the answers to the questions.

1. As you watch the video, you will notice that there are breaks between each of the scenes. During these breaks, you are introduced to various "water tips". Write down at least 3 of the water tips suggested in the video (the video provides more than 10 water tips).

   a. _____

   b. _____

   c. _____

2. How many children die each year from diarrheal diseases?

   _____

3. What percent of your body is water?

   _____

4. What is one way that farmers conserve water?

   _____

5. What are some of the methods companies use to clean water after it has been used for manufacturing purposes?

   _____

6. Personal Water Audit

Name: _____ Date: _____

Answer the following questions to determine how much water your household used today. If you do not know the exact numbers, use your best guess.

Pre-Question:

Before completing the chart below, take a guess at how many gallons of water you use in 1 day ___ When you finish your water audit, compare your guess with the **Daily Total** below, indicating how much water you actually use!

Question	**Answer**	**Calculation - Try not to use a calculator!**	**Answer**
1. How many times today did you flush the toilet?		**Multiply this number by 3.** The average toilet uses 3 gal of water per flush.	Gal
2. Did you take a shower or bath today?		**Write down 40 gal if you took a bath. Write down 7 gal for every minute you were in the shower.** You may adjust this number if you did not fill the tub all the way or if you have a low-flow showerhead.	Gal
3. How many times did your family run the dishwasher today?		**Multiply this number by 10. The average dishwasher uses about 10** gal per load.	Gal
4. How many loads of laundry did your family do today?		**Multiply this number by 40.** (If you have a front-loading washer, multiply this number by.)	Gal
5. How many minutes did you run your sink faucet for today? Remember, brushing your teeth, washing your hands and/or face, washing dishes, shaving, etc. all count toward the total amount of minutes.		**Multiply this number by 4.**	Gal
6. Check the faucets in your house to see if any are leaky. Count the number of drips per minute.		**For every 10 drips in a minute, multiply by 1.4.** This should be done for each leaky faucet.	Gal
7. How many glasses of water did you drink today?		**Multiply each glass by 0.0625.** There are about 8 oz in an average glass. 128 oz = 1 gal (or about 16 glasses of water).	Gal
8. How many minutes did you use a hose today? Think about whether you watered a garden, washed a car, or bathed a pet.		**Multiple this number by 10 gal**	Gal
Daily Total		**Add up the numbers in the right-hand column.** This is how many gallons of water you used today.	Gal

Figures for calculations estimated from "Conducting a Household Water Audit," Maryland Department of the Environment.

7. Claim, Evidence, Reasoning

As scientific advisors to your country, you will have to write in a scientific and academic way. Writing scientifically may be different than the way you write in your English class. Writing scientifically means that you are responsible for making claims, providing evidence, and explaining your reasoning.

Claim – a statement, fact or opinion
Evidence – information that provides proof of the claim
Reasoning – a statement offered to explain or justify; connects the evidence to the claim

8. The Rules of Diplomacy

Be realistic. It is important to have goals and propose solutions that are reachable. Keep in mind that other countries have their own needs to worry about.

Be careful about what you say. Plan your communiqués carefully. The words you choose could make all the difference to another country. Try to imagine the other country's reaction to your communiqué. Use diplomatic language!

Seek common ground. Disputes begin negotiations; finding the common ground is the pathway to a solution. Think about what compromises you are willing to make that may be attractive to other countries. Be flexible, but remember to stay in character!

Understand the other side. Make sure you look at the issue through the other country's eyes. Try to understand the viewpoint of other countries and their economic, demographic and cultural differences.

Be patient. Being overly anxious to come to an agreement can make the other country think that you are weak, can pressure them into saying no, and can lead to bad decisions.

Leave avenues of retreat open. Everyone knows that you shouldn't corner an animal unless you want it to fight. Countries do not like to be in a position where they are being ordered to do something without any options.

Name _____ Class_____ Date _____

9. Claim, Evidence, Reasoning In Everyday Life

We all use Claim-Evidence-Reasoning (C-E-R) in our everyday lives! In the space below, use C-E-R to try to convince your parents to let you do something. For example you might try to convince your parents to let you stay up late or watch a particular T.V. show. Be creative! Make sure you provide evidence and a convincing reason to back up your claim.

Remember:

Claim - a statement, fact or opinion
Evidence - information that provides proof of the claim
Reasoning - a statement offered to explain or justify the claim; connects the evidence to the claim

For example,
Claim: The sun is hot.
Evidence: My skin feels warm.
Reasoning: My skin became warmer when the sun came up.

Claim:

_____

_____

Evidence:

_____

_____

Reasoning:

_____

_____

Name _____ Class_____ Date _____

10. Persuasive Writing: Valid vs. Invalid

When you try to convince someone of something, what you say needs to make sense. This is known as an "academic" argument.

If you have trouble making sense, you might try to convince someone of something by tricking them. This is known as a "propagandist" argument.

Although it can be tempting to use "propaganda", or tricky language, to change someone's mind, if they can tell you're doing it, then it won't work.

To really change someone's mind, you must present a clear argument using a clear claim, evidence to support the claim, and the reasoning connecting the two.

Also, if someone is using propaganda to persuade you, then you must learn to spot it and address where their argument is invalid.

Valid (Use these!)	Invalid (Don't Use These!)
Academic Persuasion Building an argument using Claims, Evidence, and Reasoning.	**Propagandist Persuasion** Trying to convince people any way you can.
Counter-argument Pointing out where the opposition is wrong.	**Poor Logic** Not making sense.

Techniques Charts

Academic Technique (Valid)	Summary
They Say	Address the opposition.
Summarize	Summarize the opposition.
Quoting	Quote the opposition.
Responses	Agreeing and/or disagreeing with reasons why. Backed with evidence.
But We Say	How your claim is different.
Address Skeptics	Predict how they will say you're wrong.
Why It Matters	Why your position is important.
Connecting	Connect ideas to support your claim.
In Other Words	Restate views your claim in a different way.

Counter-argument (Valid)	Summary
Question Their Claims	Look for claims based on common sense or commonly held beliefs.
Question Their Samples	Look for research using small experimental groups or biased groups.
Question Their Logic	Look for conclusions that do not follow from evidence.
Question Their Data	Look for evidence with no reference to the source.

Propagandist Technique (Invalid)	Summary
Repetition	Basic position, repeated
Satire	Presents opposing position ironically
Shock	Extreme statements to draw attention
Lies or Half-truths	Incorrect information, avoiding the question, or one-sided arguments
Ad Hominem	Position connected with important persons
Ad Populum	Position connected with important groups
Bandwagon	Position presented as popular
Appeal to Power	Position connected with the powerful people or groups.
Begging the Question	Statements include assumptions which are questionable

Poor Logic (Invalid)	Summary
Non - Sequitur	Claims do not follow logically from evidence.
Insufficient evidence	Simple claims, but unsupported.
Faulty Syllogism	Faulty causal logic
Analogies	False analogies or analogies as proof
False Dilemma	Not a simple yes or no, or not all information given

Name _____Class_____ Date _____

11. What is a Communiqué?

(A diplomatic message sent as an e-mail message
or a real time conferencing statement within the GlobalEd 2 simulation)

A communiqué is a short, one or two paragraph message summarizing an issue.
The purpose of a communiqué to is document a particular position. A communiqué serves as a starting point for further discussion and enables future reference. Communiqués are often used to facilitate communication by governmental and/or private international organizations.

A communiqué can:

- Be **information** or **evidence** of research (What do you know about the topic? What have you found out about the topic?)
- **Ask questions** of the other country (team). Questions might pertain to other countries previous messages or they may be questions you want other countries to think about. (Refer to message number)
- **Ask for clarification** or further explanation of what the other team has stated. Ask them for proof /evidence/sources. (Refer to message number)
- **Propose a solution** to a problem. Think of ways that you can get other countries support – Suggest a proposal or agreement.
- **Answer questions** the other countries have asked of your country. Remember that you want them to answer YOUR questions.

A communiqué should contain these three elements:

- **Claim** – A statement, fact or opinion
  - Example: "China should reduce greenhouse gas emission."
- **Evidence** – Information that provides proof of the claim
  - Example: "Greenhouse gas emissions contribute to climate change."
- **Reasoning** – A statement offered to explain or justify; connects the evidence to the claim
  - Example: "China's reduction in greenhouse gas emissions would mitigate the effects of climate change."

A communiqué should be:

- Well written and free of typos, grammatical mistakes and emoticons;
- Must use diplomatic language (see 8. The Rules of Diplomacy);
- Must have substance. A message that simply says "we agree" is not a communiqué because it does not advance the discussion;
- Accurate. All facts and information about a country or set of countries, the issues impacting them and their policies should be accurate and fairly presented.

Name _____ Class _____ Date_____

12. Assertions, Questions, and Proposals: Types of Communiqués

Assertion:

The purpose of an assertion is to make a statement of fact, establish a position, or give information to other countries. Assertions use claim-evidence-reasoning by providing at least one fact to support the claim, and use reasoning to connect the evidence to the claim.

Examples of posts categorized as an assertion:

"We do not agree with your position."

"Our country is in dire need of a solution to the problem you have created."

"We will not agree to these terms."

Question:

The purpose of posing a question is to obtain information from other parties (a non-rhetorical question). The posting of a question may or may not contain actual question marks.

Examples of posts categorized as a question:

"Where do you want to begin this project?"

"Send us the evidence you have to support this claim."

"Please provide the details of your proposal."

Proposal:

The purpose of a proposal is to suggest a direction for action. Proposals can include questions and assertions, but the questions and assertions included in the proposal would be in support of the proposal.

Examples:

"Would you help us establish a pipeline between our countries?"

"We wish to establish a treaty between our countries."

"Please do not form an alliance with our enemies."

Name _____ Class_____ Date _____

13. Assertions, Questions, Proposals Task

Use the definitions of Assertions, Questions, and Proposals to complete this worksheet.

Wildfires are a serious issue in California. Each year hundreds of thousands of acres burn; destroying forests, homes, and businesses. By paying for more firefighters and equipment, we can prevent some of the devastation.

Image from: http://www.cnn.com/2009/US/08/31/california.wildfires/index.html

For more information you can visit,
http://www.cnn.com/2009/US/08/31/california.wildfires/index.html

Provide an Assertion

Pose a Question

Create a Proposal

Name _____

Class_____ Date _____

14. Dog Island

Directions: Take 5 minutes to explore the website. Then, answer the questions below. You can copy and paste your responses into the document.

Image from: http://www.thedogisland.com/photos.html

1. What is the web address? _____
2. What is the end of the web address?
   ☐ .com ☐ .edu ☐ .gov ☐ .net ☐ .org
3. What does that type of web address ending mean? _____

   _____
4. Does the website have:
   - Working links? Yes ☐ No ☐
   - Photos related to the topic? Yes ☐ No ☐
   - Unusual photos? Yes ☐ No ☐
5. Who created the website? (If it does not tell you, then write **not specified**)

   _____
6. When was the website created or last updated?

   _____
7. What is the purpose of this website?

   _____
8. Have you ever heard of Dog Island? Yes ☐ No ☐
9. Use Google to find 2 other websites about Dog Island. What are the website addresses?

   Website 1 _____

   Website 2 _____
10. Why did you choose these websites to confirm the Dog Island website?

    _____

    _____
11. Do you believe the information presented on this website? Yes ☐ No ☐
12. Give two reasons why you believe or do not believe the information on the website.
    - _____
    - _____

Name _____
Class_____ Date _____

15. Kakapo

Directions: Take 5 minutes to explore the website. Then, answer the questions below. You can copy and paste your responses into the document.

Image from: http://animal.discovery.com/tv/a-list/creature-countdowns/loudmouths/loudmouths-09.html

1. What is the web address? _____
2. What is the end of the web address?
   ☐ .com ☐ .edu ☐ .gov ☐ .net ☐ .org
3. What does that type of web address ending mean? _____

   _____
4. Does the website have:
   - Working links? Yes ☐ No ☐
   - Photos related to the topic? Yes ☐ No ☐
   - Unusual photos? Yes ☐ No ☐
5. Who created the website? (If it does not tell you, then write **not specified**)

   _____
6. When was the website created or last updated?

   _____
7. What is the purpose of this website?

   _____
8. Have you ever heard of kakapos? Yes ☐ No ☐
9. Use Google to find 2 other websites about kakapos. What are the website addresses?

   Website 1 _____

   Website 2 _____
10. Why did you choose these websites to confirm the Kakapo website?

    _____

    _____
11. Do you believe the information presented on this website? Yes ☐ No ☐
12. Give two reasons why you believe or do not believe the information on the website.
    - _____
    - _____

Name _____ Class_____
Date _____

16. Ligers

Directions: Take 5 minutes to explore the website. Then, answer the questions below. You can copy and paste your responses into the document.

Image from: http://www.lairweb.org.nz/tiger/ligers.html

1. What is the web address? _____
2. What is the end of the web address?
   ☐ .com ☐ .edu ☐ .gov ☐ .net ☐ .org
3. What does that type of web address ending mean? _____

   _____
4. Does the website have:
   - Working links? Yes ☐ No ☐
   - Photos related to the topic? Yes ☐ No ☐
   - Unusual photos? Yes ☐ No ☐
5. Who created the website? (If it does not tell you, then write **not specified**)

   _____
6. When was the website created or last updated?

   _____
7. What is the purpose of this website?

   _____
8. Have you ever heard of ligers? Yes ☐ No ☐
9. Use Google to find 2 other websites about ligers. What are the website addresses?

   Website 1 _____

   Website 2 _____
10. Why did you choose these websites to confirm the liger website?

    _____
11. Do you believe the information presented on this website? Yes ☐ No ☐
12. Give two reasons why you believe or do not believe the information on the website.
    - _____
    - _____

Name _____ Class_____
Date _____

17. Northwest Pacific Tree Octopus

Directions: Take 5 minutes to explore the website. Then, answer the questions below. You can copy and paste your responses into the document.

Image from: http://zapatopi.net/treeoctopus/

1. What is the web address? _____
2. What is the end of the web address?
   ☐ .com ☐ .edu ☐ .gov ☐ .net ☐ .org
3. What does that type of web address ending mean? _____

   _____
4. Does the website have:
   - Working links? Yes ☐ No ☐
   - Photos related to the topic? Yes ☐ No ☐
   - Unusual photos? Yes ☐ No ☐
5. Who created the website? (If it does not tell you, then write **not specified**)

   _____
6. When was the website created or last updated?

   _____
7. What is the purpose of this website?

   _____
8. Have you ever heard of the Northwest Pacific Tree Octopus? Yes ☐ No ☐
9. Use Google to find 2 other websites about the Northwest Pacific Tree Octopus. What are the website addresses?

Website 1 _____

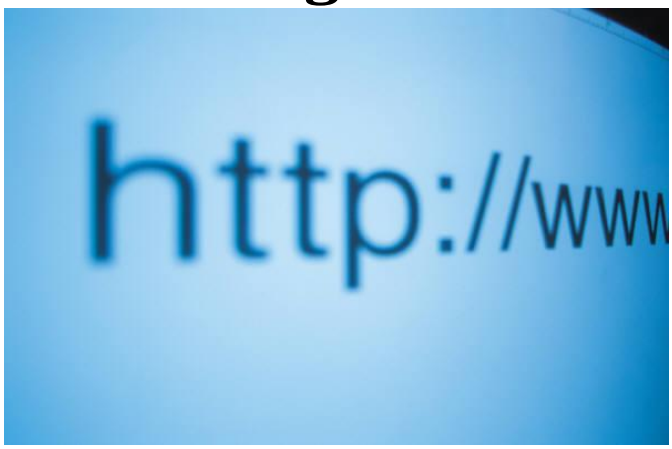
Website 2 _____

10. Why did you choose these websites to confirm the Northwest Pacific Tree Octopus website?

    _____
11. Do you believe the information presented on this website? Yes ☐ No ☐
12. Give two reasons why you believe or do not believe the information on the website.

- _____
- _____

18. Determining Website Validity



When conducting research it is important to identify whether a source is valid. A valid source provides **true and reliable** (dependable) information about your research questions. This can be tricky even for adults, but this guide can help you decide whether you can trust a website and the information it presents. Some websites can look real but in fact contain lots of information that is false.

- Check the web address. What do the endings mean?
  - .gov – created by the government
  - .edu – created by a school or college
  - .com or .net– paid for by a company or individual, anyone can buy one of these sites
  - .org – supposed to be for non-profit organizations (for example, the Boy Scouts, Girl Scouts, or religious groups), but in actuality anyone can buy these sites
- Who is the source? Who created the website?
  - For example, if you are trying to learn more about climate change, you need to realize that some scientists think climate change is occurring at a greater speed because humans are releasing carbon dioxide into the atmosphere at alarming rates (the majority of scientists feel this way); however, other scientists feel that climate change is occurring naturally. You need to take this into consideration when viewing the content of various websites. Determining who created the site helps to inform you about the content of the site.
- What is the purpose of the website?
  - Inform or Teach?
  - Persuade?
    - If they are trying to persuade you, ask yourself if you can trust what they say.
  - Sell a Product?
    - If they are trying to get you to buy something, they will tell you anything to get you to buy the product. Examine these types of websites carefully.

Objective

- Is the information fact, opinion, or propaganda?

Adapted from http://www.crlsresearchguide.org/10_brainstorming_questions.asp

Accurate (true)

- Does the website tell you where the information they are presenting is from, so you can check to see if the information is true?
- Can you find other sources that convey the same information?

Reliable (dependable)

- Why should you believe this website?
- Is it from an organization that you know?
- Does the website provide evidence to support their claims?

Current

- Is the website current? Has it been recently updated?
    - If the website is too old, the information may no longer be valid. This is especially true when you are looking for statistics about your country.

Links

- Does the website have links?
    - Do the links work?
    - Do they provide additional information about your topic? Do the links seem reliable?

For every website, check if it is:

Objective, Accurate, Reliable, Current,
and has appropriate and working Links

A Note about Wikipedia: Wikipedia is a very tempting source when doing Internet research; however, the pages can be changed by anyone in the world whether or not they know anything about the topic. When you review a Wikipedia page, check the references and see if they are legitimate. If there are no references, it may not contain reliable information.

Image from: http://www.wikipedia.org/

Adapted from http://www.crlsresearchguide.org/10_brainstorming_questions.asp

19. Brainstorming Research Questions

Why do we write research questions?

- Research questions help us stay focused on what we need to know. Finding the answers to your research questions will allow you to make claims, provide evidence, and support your claim with reasoning!

Two Types of Questions:

Factual Questions

Who, what, when, where, why, how many? Factual questions usually have only one answer.
Example: How many people in your country have access to clean drinking water?

Interpretive Questions

Interpretive questions may have more than one answer, but the answers must be supported with evidence.

- **Hypothetical:** How would things be different if something in the past had been different?
  Example: *How would the lives of people living in India who face water scarcity issues be different India had begun preserving its water resources 20 years ago?*
- **Prediction:** How will things be in the future, based on the way it is now?
  - *How does India intend to provide its growing population with access to clean drinking water, if nothing changes?*
- **Solution:** What solutions can be offered to a problem that exists today?
  - *How can we provide clean drinking water to our population today?*
- **Comparison or Analogy:** Find the similarities and differences between the country your class is representing and a similar country in the simulation.
  - *Do India and China have similar water scarcity issues? What can India learn from China's domestic solutions to their water scarcity issues?*
- **Judgment:** Based on the information you find, what is your informed opinion on the subject?
  - ***This is the basis of your opening statement!***

Adapted from http://www.crlsresearchguide.org/10_brainstorming_questions.asp

Name _____ Class_____ Date _____

20. Research Source List

It is important to document where you find information while conducting scholarly research. This list will serve as a record of all the sources you reference. When you find a new source, add it to the list. The number of the source is then used as a key to record the information you find from the respective source. For print resources, include the title, author, year published, publisher, and publishing city. For web resources, include the name of the website, web address, and if possible the author and date of last update.

1

2

3

4

5

6

7

8

9

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11

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15

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17

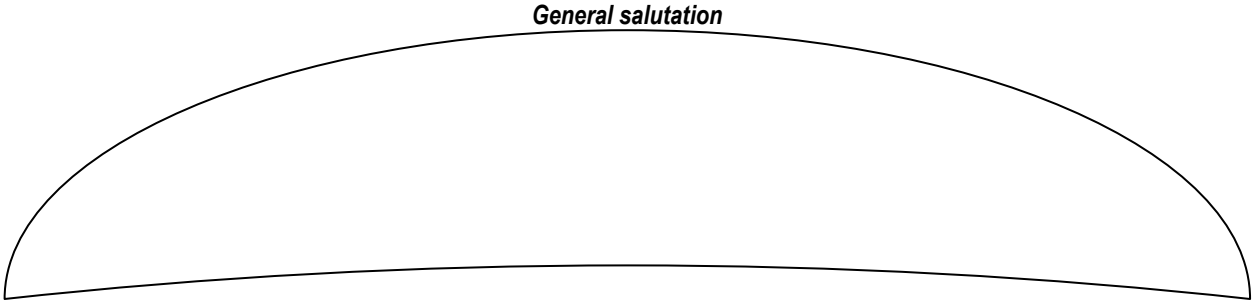
18

19

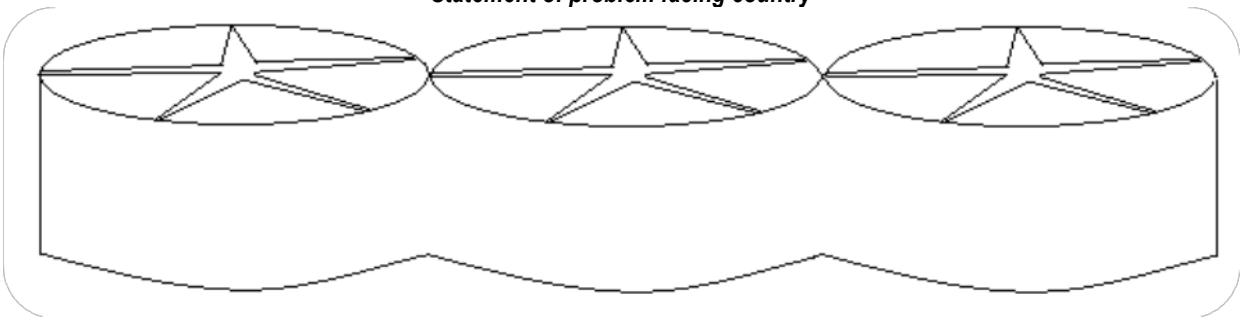
Name_____ Class _____Date_____

21. Opening Statement Organization- Hamburger

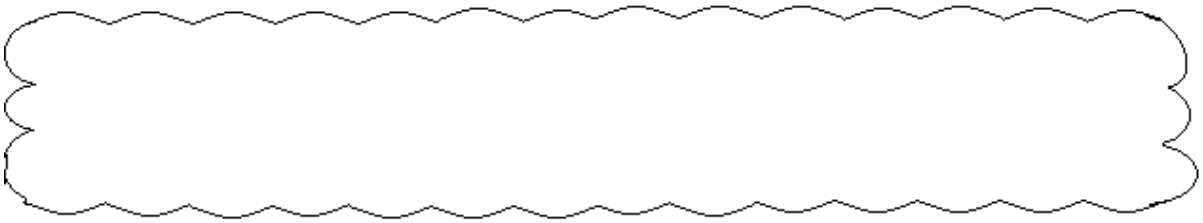
General salutation



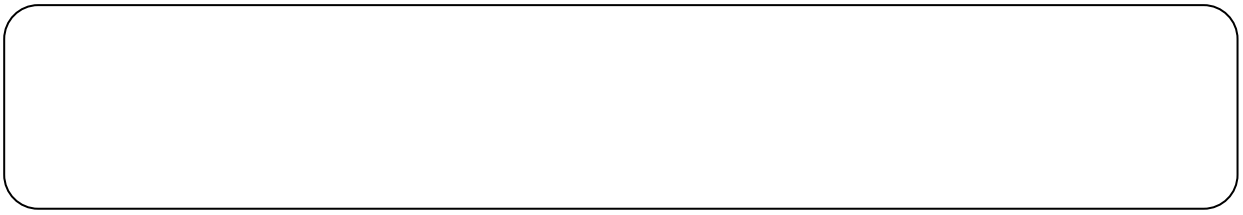
Statement of problem facing country



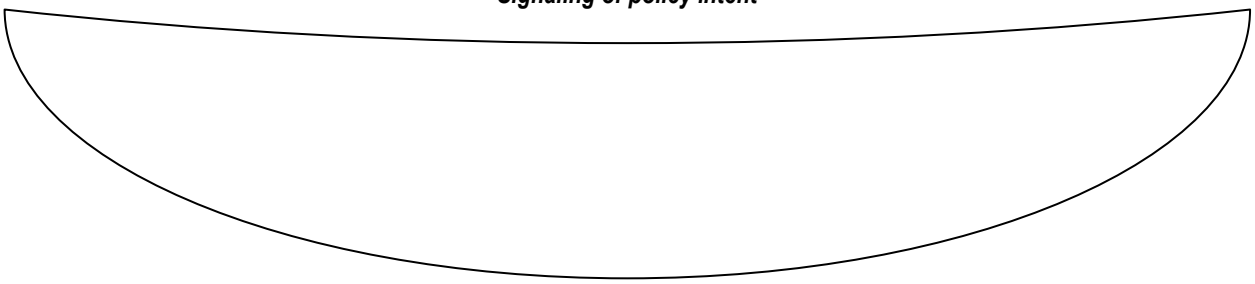
What the country has done



Statement of problem facing broader international community



Signaling of policy intent



Your Opening Statement –
More detailed information about your hamburger!

- *Top Bun* (*General Salutation*) - The salutation is a greeting that identifies the intended readers of the message and uses appropriate diplomatic language.
- *Contents* – Presents the country's background on the topic including the following components:
    - *Lettuce* (A s*tatement of the problem facing country*) - The statement of the problem facing the country outlines the issues that the country faces and conveys why these issues are a problem.
    - *Tomato (What the country has done)* – This section specifies how the country has attempted to mitigate the problem either nationally or internationally.
    - *Burger (A Statement of the problem facing the broader international community)* - This section links up the issues being discussed with the greater international community. In other words, this section attempts to convey why other nations should also be concerned.
    - *Burger 2* (*optional*) - Statistics regarding the issue.
- *Bottom Bun* (*Signaling of policy intent)* – Outline exactly what the country intends to work on with the international community to mitigate or adapt to the problem both domestically and across national boundaries.

22. Contents of an Opening Statement – Ukraine Example

- General Salutation
- Statement of problem facing country
- What the country has done
- Statement of problem facing broader international community
- Signaling of policy intent

Topic: Acid Rain
Country: Ukraine

Greetings Fellow Delegates,

The Ukrainian Delegation is looking forward to working with the international community in addressing the problem of acid rain. Acid rain harms our people, environment, and economy. The high levels of pollution that create acid rain are linked to higher rates of cancer and other illness, decreased biodiversity for both plants and animal species, and decreased crop yields -- which is very problematic for us because we are a major food producer.

Our country has pursued several complementary policies designed to clean the environment and decrease amounts of acid rain. Domestically, our government has …. Internationally, the Ukraine has signed the Protocol to the 1979 Convention on Long Range Transboundary Air Pollution. These policies seek to limit the sulfur emissions from factories, leading to less acid rain.

While we have made significant improvements within our own country, we believe that the international community must act together and create a coordinated and well-crafted response that will reduce amounts of acid rain across all of Eastern Europe. Industrial waste and pollution created in neighboring states spills across borders and creates numerous and costly problems in Ukraine. Pollution is a transnational problem that does not respect national boundaries. The Ukrainian Delegation understands that no single nation can resolve this issue alone. It requires concerned and comprehensive action.

We are most eager to hear from fellow delegates and are open to a wide range of proposals and policies, including binding international treaties and emissions trading systems designed to curb pollution.

The Ukrainian Delegation

Name _____ Class_____ Date_____

23. Culture Activity

Directions: Using the Internet and other resources that are available to you, answer the following questions. The resources on the Social Studies page of the Student Global Ed 2 website may be helpful.

1. Define culture.

2. Examine information that details your country's culture. What are some important cultural characteristics about your country that make it different from the other countries in the simulation? What are some similarities?

3. Countries often have cultural differences that impact their position on a particular issue. For each country that is participating in the simulation, list THREE beliefs, attitudes or customs that may influence the way the country will view the issues presented in the issue areas to which you are assigned.

You may find the following Internet sources useful in determining how water plays a role in your country's culture:

- United Nations Educational Scientific and Cultural Organization. "Water and World Views." Available at: http://www.unesco.org/water/wwd2006/world_views/index.shtml
- United Nations Educational Scientific and Cultural Organization. "Water and World Views: Water, religions and beliefs." Available at: http://www.unesco.org/water/wwd2006/world_views/water_religions_beliefs.shtml

Name _____ Class_____ Date _____

24. Geography Activity

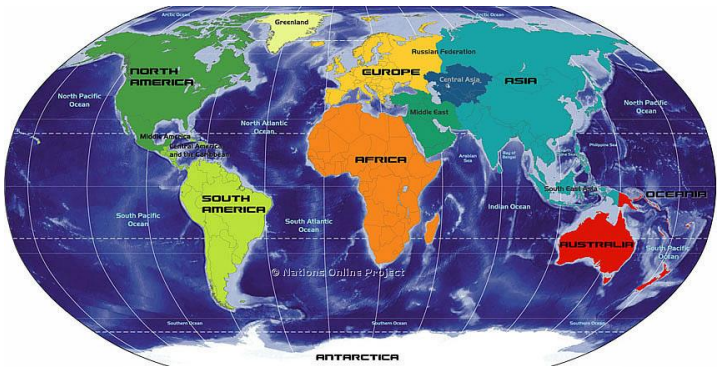


Image from: http://www.r-us-holidays.com/Image/continents_map.jpg

Directions: Using the Internet and other sources available to you, please answer the following questions. Use all of the websites listed below to help you find information.

Physical Map of the World. Available at:
http://www.lib.utexas.edu/maps/world_maps/world_physical_2007.pdf

World Water Availability Map. Available at:
http://www.lib.utexas.edu/maps/world_maps/water_availability_1980_2015.jpg

Projected Global Water Scarcity Map. Available at:
http://www.lib.utexas.edu/maps/world_maps/water_scarcity_2025.jpg

1. Locate the various counties participating in the simulation on a map.
2. Locate the following regions: Africa, North America, South America, Europe, Middle East, Asia and Australia.
3. Locate the bodies of water that the countries participating in the simulation depend on.
4. With regard to your issue area, what are the geographical issues that may affect negotiations on this topic?

Name _____ Class_____ Date _____

25. What Makes a Good Opening Statement?

Directions: Review the opening statements found at http://www.globaled.uconn.edu/student_water/writing/scaffolding_good_structure.html You will need to read through all of the opening statements listed in the Additional Opening Statements box. Each opening statement contains structural components: claims, evidence, and reasoning, as well as content components: general salutation, statement of the problem, what the country has done, statement of problem facing international community, and policy intent. Good and poor examples are provided. Click on the terms Claim, Evidence and/or Reasoning or General salutation, Statement of problem facing country, What the country has done, Statement of problem facing broader international community, and/or Signaling of policy intent on the right side of the screen to highlight the various components. Complete the exercise below.

List 3 strengths of the Ukraine example.

1. _____

2. _____

3. _____

List 3 issues with the Argentina example.

1. _____

2. _____

3. _____

List 3 issues with the India example.

1. _____

2. _____

3. _____

List what you need to include in your opening statement.

Structure

1. _____

2. _____

3. _____

Content

1. _____

2. _____

3. _____

4. _____

5. _____

26. How to Craft a Policy-Proposal Information for Middle School Students and Teachers

Writing an Opening Statement for the GlobalEd 2 Project

Writing an opening statement might appear to be a difficult task. However, as you hone your research skills, you will find that writing an opening statement is easy and is a useful skill.

Why Worry About Your Opening statement

Well written opening statements convey a country's policies on issues in a clear and succinct manner. Specifically, these messages establish:

1. why the issue matters to the country-team;
2. how and why past and current policy has evolved around the issue under consideration;
3. the preferred outcome/resolution; and
4. how your country-team thinks a resolution might be achieved.

Opening statements are usually one to one-and-a-half single-spaced pages in length. Your opening statements should include a brief introduction followed by a comprehensive breakdown of your country's proposal on the topics that are being discussed within the scenario. A good proposal will not only provide specific facts related to your position and proposal, but will also suggest potential resolutions to the problems in the simulation scenario.

To summarize, a good opening statement will include most of the following components:

- A brief introduction to your country and its history concerning the topic;
- How the issue affects your country now and in the future;
- Your country's policies with respect to the issue and your country's reasons for these policies;
- What your country believes should be done to address the issue;
- How the positions of other countries affect your country's position.

Diplomacy in Writing

You must remember that you are acting as representatives of governments and your writing should reflect this. First, **you must use diplomatic language**. This is especially important in simulation-wide messages and notes. Messages are "publicly" consumed and establish the overall tone of the simulation. In addition, your teams must stay focused and not produce messages that are elaborate with little substance.

Writing an effective and realistic opening statement requires you to think about your positions within the context of an ongoing negotiation and incorporating this element into your writing. For example, the best opening messages do not state the obvious, for example, "We are in

favor of peace." Instead they relate peace to their own objectives, for example, "Pakistan desires peace in the region; however, we recognize that peace depends on the willingness of regional powers to stop threatening our safety."

Often students convey their objectives to the other countries from the beginning in ways that do not help the negotiations. You need to appreciate nuance, the subtle differences in issues and express this in your messages. Students sometimes want to lay all their objectives, plans, etc. on the table from the start and spend the entire simulation trying to convince everyone else to follow their plan. Successful communiqués may include some of these elements but leave plenty of "wiggle room" for teams to negotiate with other countries to reach agreements.

Finally, it is important that you understand that your team may not have goals that are compatible with those of the region or the broader international community. For example, many students automatically assume that women's rights are universally accepted. However, sometimes you must play the role of a country that does not acknowledge women's rights. Your own attitudes should not be part of the opening statement of the country you represent. While it may be difficult to act as a country that does not support women's rights, or is in support of ecologically unfriendly agreements because of concerns over economic development, it is important you represent the views of your simulation country. Make sure you convey realistic attitudes, positions, and solutions in your communiqués.

Sample messages are included below. They are drawn from the Middle School Simulation in 2006-2007. We have included some comments to illustrate some of aforementioned points.

Bad Example 1:

Greetings from the Pakistan Peacekeeping Committee. The following are our views on what we would like to see happen in the Darfur Region.

490,000 refugees have already migrated out of Darfur. As they leave the fighting follows them. The Pakistan Peacekeeping Committee would like to stop the refugees from moving into other countries without using military action.

150,000 - 450,000 deaths have occurred in Darfur already; if military action is used, we believe that fighting and deaths will only increase.

We would also like to seek foreign aid from Russia, China, and Chad so we can create a bigger influence on the U.N. and the people of the Darfur region. If our solutions do not come into effect do not expect us to give any support.
Peace will be accomplished by working with the African Union to make a treaty for the people of Sudan.

We are looking forward to discussing this problem and finding ways to have peace in Darfur.

Comments*:* The message does not establish why the situation in Darfur matters to Pakistan and how it relates to their national objectives. The message also does not indicate what, if any, policies Pakistan currently has in place. It is not clear why they singled out foreign aid from Russia, China, and Chad as examples.

Bad Example 2:

Hello, we are the Human Rights group from China. We are excited to be a part of the Global Ed simulation. This year, we hope to accomplish decreasing the percentage of world hunger. We look forward to exchanging amd discussing ideas to eliminate the issue of world hunger. All though we know that donations from countries are needed to fight world hunger I'm afraid that hunger is a problem in our own country and donations may be difficult to attain from us.

Comments: They did not begin their message by using diplomatic language and the message contains typos. Moreover, there is not much substance to the message and it does not relate these issues to China's current policies and future objectives.

Bad Example 3:

The delegates of China wish to welcome you. We, the Conflict and Cooperation group, are looking forward to further working with you in attempt to solve the Darfur crisis.

Though we do not wish the fighting in Sudan to continue, we as China are hesitant to help due to our depending on the Sudan government oil. We are willing to help if some sort of contract between us and Sudan is drawn to secure our oil needs. Perhaps by taking the rebel group Janjaweed and the Sudanese government to International Criminal Court will help minimize the crimes against humanity occurring in Darfur. We must focus on stopping violence before attempting reconstruction. We believe that the UN should compensate Chad for tolerating the thousands of Sudanese refugees crossing the border into their territory and using up Chad's resources. Maybe then they would be more willing to help.

We hope that we are successfully able to work together in order to assist the Darfur crisis.

Comments: While their comments on the relationship between China's interests and Sudanese oil exports are technically correct, it is not the type of statement that a representative of China would say as a matter of public diplomacy. The team should have found a more diplomatic and discrete means of expressing their support for Sudan. Finally, they do not indicate why they believe that the UN should compensate Chad. Also, this seems unrealistic because the UN does not provide compensation or reparations to states.

The following are examples of the types of statements we would like to see in the simulation.

Good Example 1:

Salaam from the Pakistan Alternative Energy Source Committee.

Global Warming is the increase in temperature of the earth's atmosphere caused by the greenhouse effect. This problem has the potential to melt the ice caps and flood densely populated areas, deaths from global warming will double in just 25 years to 300,000 people a year and more than a million species of plants and animals worldwide will be in extinction in 2050.

1. The Kyoto Protocol is an agreement to reduce greenhouse gas production by the year 2012. 163 nations signed and ratified this agreement including Pakistan.

2. We created an Alternative Energy Development Board in May of 2003. This board works to promote, facilitate, and encourage the development of renewable energy in Pakistan. Also, a new law being enforced soon in Pakistan makes it a mandatory for new buildings, hotels, etc. to install solar -powered hot -water geysers. We also plan to create energy through windmills and hydrogen fuel cells as an alternative to pollution producing energy sources.

3. We have used 74 thousand metric tons of nuclear energy, 1,931 thousand metric tons of hydroelectric energy, and 23,462 thousand metric tons of renewable sold biomass as alternative means of energy. With new boards such as the Alternative Energy Development Board and laws that eliminate the use of fossil fuels, the usage of alternative energy sources will grow in Pakistan.

4. We see nuclear energy as a clean alternative to fossil fuels. Nuclear power does not pollute the air with substances such as carbon dioxide, sulfur dioxide and nitrogen oxides that contribute to the wearing away of our O-zone layer.

We hope to work together to find alternative energy sources that will replace fossil fuels and keep the environment a clean and safe place to live.

Comments: The message is well written and addresses all the relevant questions. They demonstrate why the issue matters to their team and the international community. The message also addresses their past and current policies and suggests areas of future discussion, for example, nuclear energy.

Good Example 2:

North Korean Nuclear Energy Group

Greetings from the North Korean Environmental Issue Group,

We are hoping to come up with a way for all countries to be able to use nuclear power. We want all countries to use this because it is a relatively clean and very efficient way to make power. It will also help LCD's to possibly come out of debt. We can work on a way to make it safe to use and be able to trust other countries with nuclear energy.

We believe that all countries should use nuclear power. We must work on ideas to make it work. We understand that with this many countries may not agree many ideas so we must come up with an idea that will please everyone enough so that they will agree and so we can keep our security.

If we can come up with a way to control the threat of nuclear weapons it would benefit everybody. There are many ways to keep control over what's happening without going into the country which could lead to more problems. Still some countries may not agree so we must work on many ideas to make it work.

We hope to come up with a way to use nuclear energy and solve this problem soon.
North Korea.

Comments: This message is quite good because it shows North Korea's strong support for the right of sovereign states to develop civilian nuclear power. While most believe that North Korean government wants this as a deterrent to outside aggression, this team couches the desire in terms of energy in an attempt to make it more palatable to the international community. Moreover, they acknowledge that this is a contentious issue, which will help them later in the simulation.

Good Example 3:

Greetings from the South African Delegates we are here concerning our concepts of Migration and Immigration. Due to financial and food availability, we are forced to extremely restrict the number of people we allow into our country since 1994, even though our migration out of the country has accelerated. Unfortunately if we completely open our borders, we will not be able to take care of the large influx of people. We have even been forced to place armed guards at our borders to stream line the thousands of Zimbabweans fleeing to find work and escape political persecution. In our present situation, we cannot support the idea of uniform immigration policy. Each country at different times is placed into positions where they must restrict the amount of people that enter their country. As an international community, we must come to realize that not all problems can be faced uniformly, so we must confront the issue of immigration in many different ways. We must look at the circumstance and develop an understanding of what must be done for each country, because certain countries can't afford to allow a continuous flow of immigrants.

As a country, we have come to realize that we must allow only the more talented and educated immigrants into our country. We have very few jobs in our country, so we must restrict who enters. We have decided to impose restriction based on how capable a person is at their job and if they are well educated. We believe that by doing this we can raise our economy, and eventually increase the amount of people we allow into the country. Although this may seem discriminatory, it is a necessary evil. In order to create a more stabilized and lucrative economy in the future, we must take drastic steps in the present.

In many instances countries have to turn away asylum seekers. Although these refugees may be attempting to escape a persecuting country or some other evil, it may not be possible for the country to allow them to enter. We have been forced to prevent people from fleeing our borders from Zimbabwe. Our country's position in today's society does not allow us to welcome them into our country. In order to allow large numbers of people into your country your country must first be able to accommodate and take care of them. We are not in a position to do this. We must consider the safety and health of the people already in our country. Things like this are world problems, not a South African problem.

On the issue of the global war on terror, we do not believe that immigration should be totally limited by it. Immigration and migration are important to the growth of every country's economy, but the war on terror must restrict immigration to some extent for the safety of the people in its country. Furthermore restrictions are necessary on immigration and migration regulations, and because of the terror alert we must be more vigilant on our restrictions.

For our country, we have placed armed guards at specific places of our borders. Of course, our method is not 100% effective; but it does limit the amount of illegal immigrants that enter our country. We cannot make assertions that our way is the best to confront the issue, but it has been fairly effective. Illegal immigration is wrong, and it must be stopped at the border where it belongs. Each country must devise their own method to stop the illegal immigrants.

In conclusion, the South Africa Delegates thank you for your time, and your understanding.

Comments: This message is very well done. The level of writing is very high for a middle school simulation and it shows a superb grasp of the nuances involved in the issue. The message also addresses all the pertinent aspects of the question, though it could do a better job out outlining future areas of conversation.

27. GlobalEd 2 Linear Paragraph (Put an X next the paragraph you are working on)

__ 1: Statement of problem facing country __ 2. What the country has done

__ 3. Statement of problem facing broader international community __ 4. Signaling of policy intent

	Claim
	Transition
	Evidence
	Reasoning
	Transition
	Evidence
	Reasoning
	Transition
	Evidence
	Reasoning
	Transition
	Conclusion

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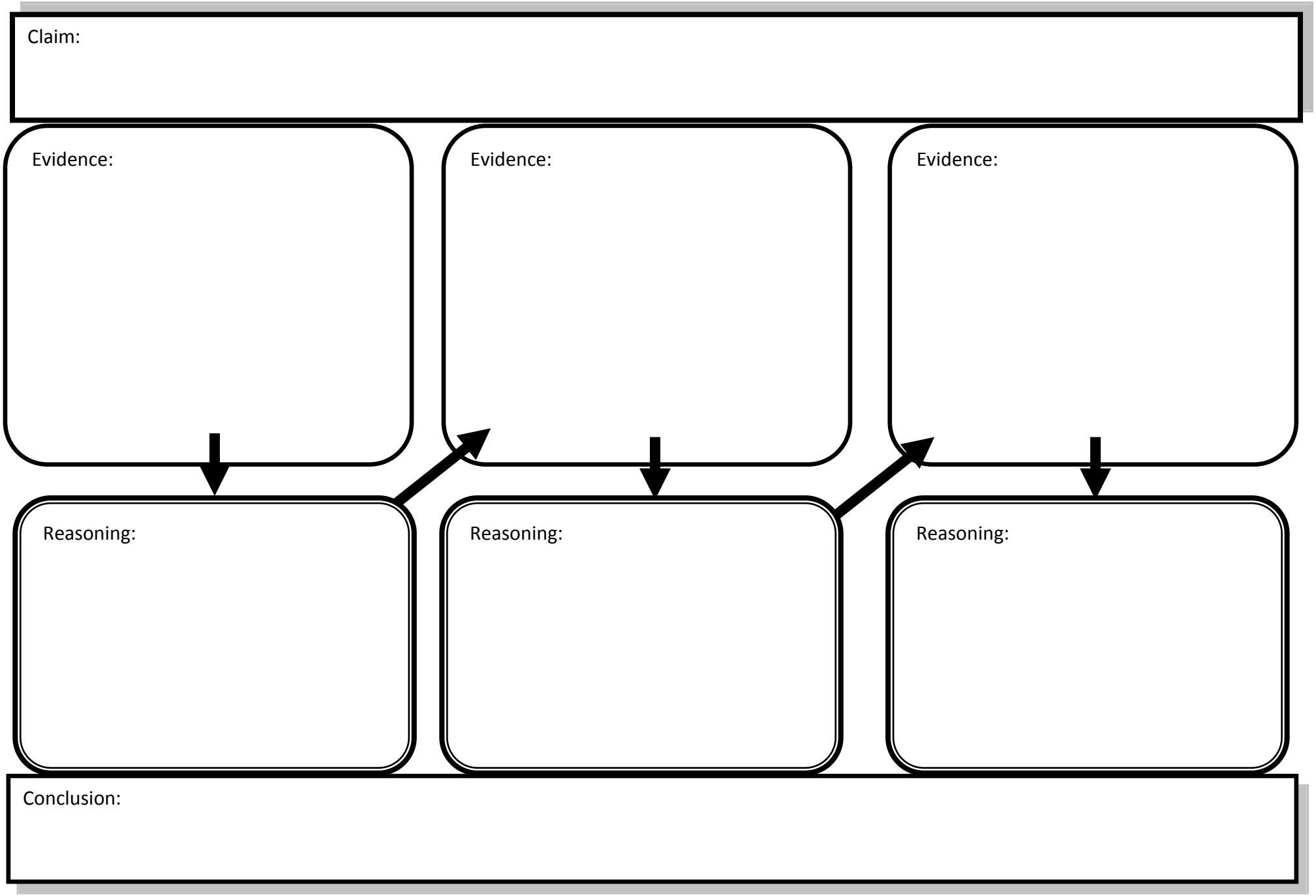
	Claim
	Transition
	Evidence
	Reasoning
	Transition
	Evidence
	Reasoning
	Transition
	Evidence
	Reasoning
	Transition
	Conclusion

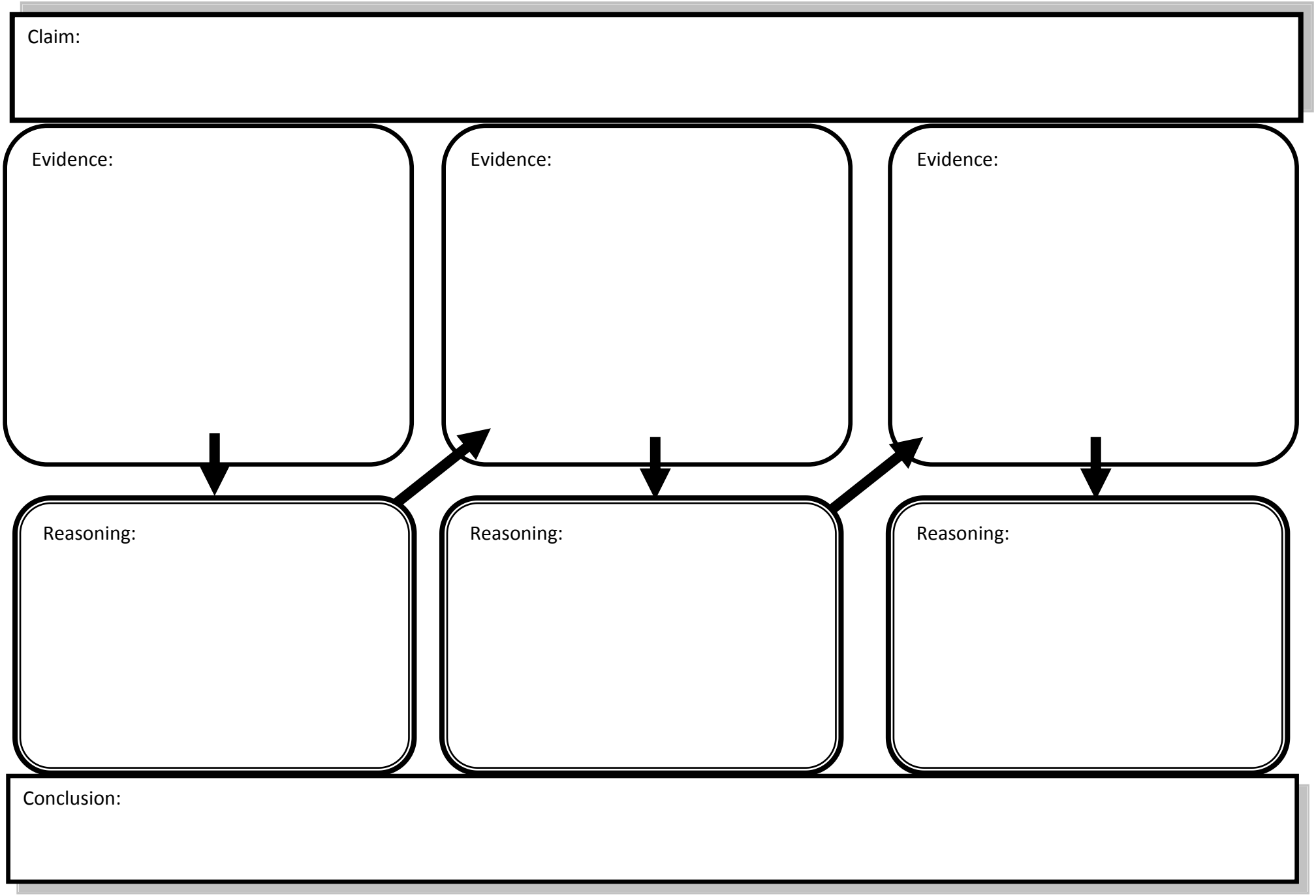
28.1 GlobalEd 2 Graphic Organizer Paragraph (Put an X next the paragraph you are working on)

__ 1: Statement of problem facing country
__ 2. What the country has done
__ 3. Statement of problem facing broader international community
__ 4. Signaling of policy intent



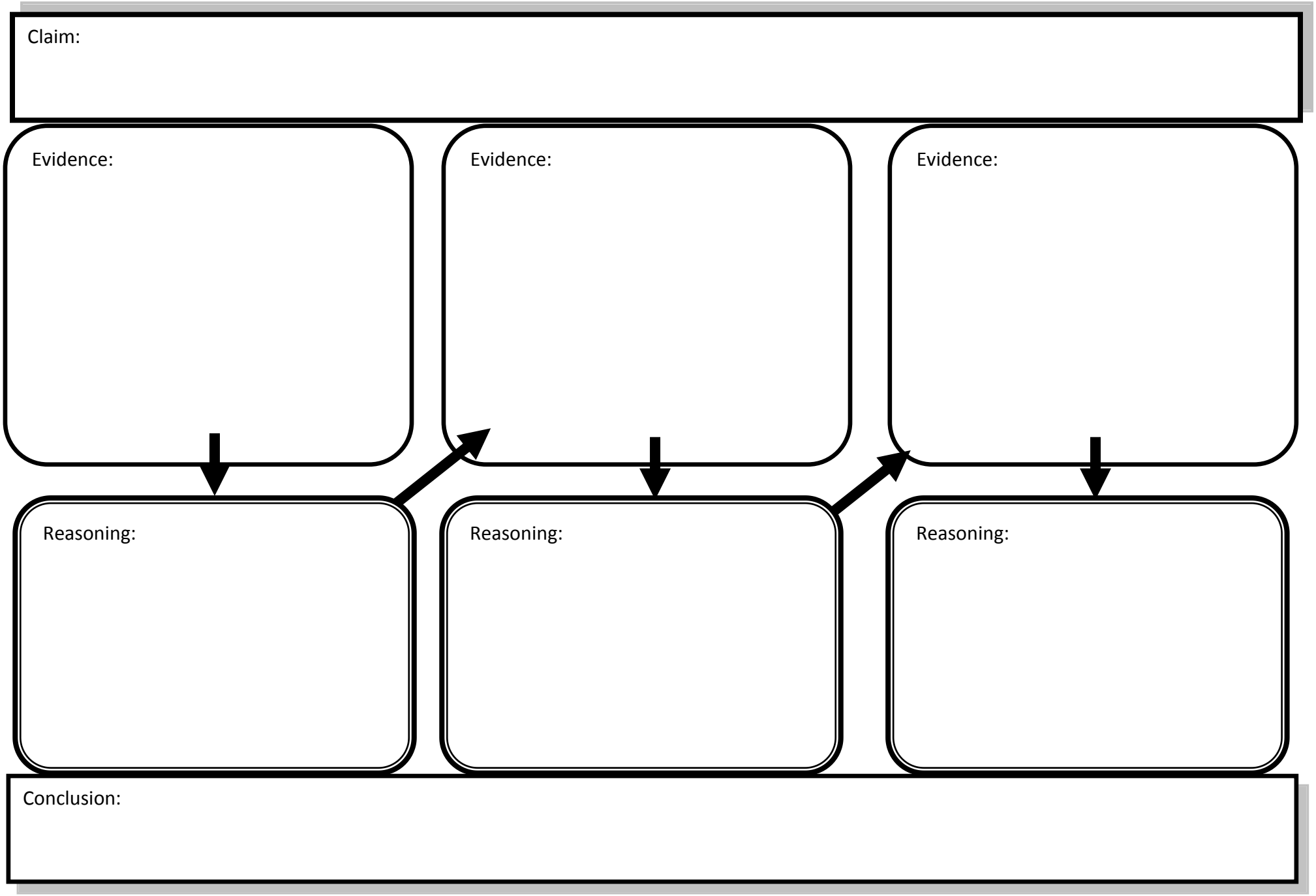
28. GlobalEd 2 Graphic Organizer Paragraph (Put an X next the paragraph you are working on)

__ 1: Statement of problem facing country
__ 2. What the country has done
__ 3. Statement of problem facing broader international community
__ 4. Signaling of policy intent



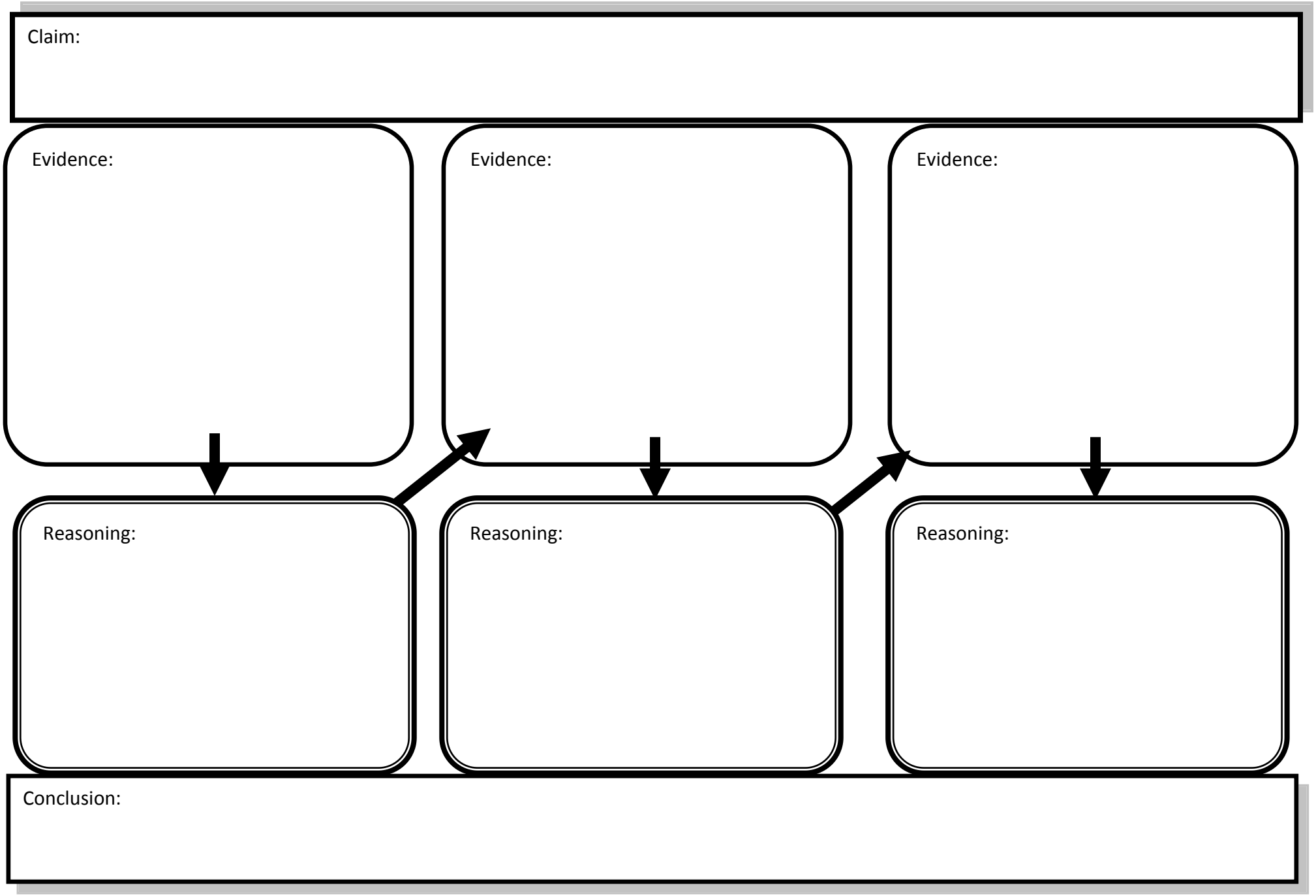
28. GlobalEd 2 Graphic Organizer Paragraph (Put an X next the paragraph you are working on)

__ 1: Statement of problem facing country
__ 2. What the country has done
__ 3. Statement of problem facing broader international community
__ 4. Signaling of policy intent



28. GlobalEd 2 Graphic Organizer Paragraph (Put an X next the paragraph you are working on)

__ 1: Statement of problem facing country
__ 2. What the country has done
3. Statement of problem facing broader international community
4. Signaling of policy intent



Name _____

Class_____ Date _____

29. What are Our Goals for Our Issue Area?

http://nedroid.com/comics/2009-06-29-beartato-lifesgoal.gif

Establishing goals will facilitate your team's success during the simulation because goals help focus your writing and your communiqués. Here are some things to think about when creating your goals:

- What does your country hope to achieve during the simulation?
- Is your country in a position to aid other countries?
- Does your country rely on other countries?
- What resources does your country have access to? Is your country able to offer these resources to other countries?
- What are the issues within your issue area that your group is focusing on?
- What issue within your issue area is most important for your country?
- What issues within your issue area are secondary priorities?

Working with your issue area group, write 3-5 goals.

1. _____

2. _____

3. _____

4. _____

5. _____

Name _____ Class_____ Date _____

30. Global Ed 2 Opening Statement Checklist

Review your team's opening statement. Read the statement and use the checklist provided below to check off each item as you identify it in your opening statement. If you are missing something, revise your statement!

Content of an Opening Statement – Put a check next to those aspects that are included in your opening statement.

__ 1. **General salutation** – The salutation is a greeting that identifies the intended readers of the message and uses appropriate diplomatic language.
__ 2. **Statement of problem facing country** – The statement of problem facing the country outlines the issues that the country is facing and why these issues are a problem.
__ 3. **What the country has done** – This section specifies how the country has attempted to mitigate the problem either nationally or internationally.
__ 4. **Statement of problem facing broader international community** – This section links up the issues being discussed within the context of the greater international community. In other words, this section attempts to outline why other nations should also be concerned.
__ 5. **Signaling of policy intent** – This section of the opening statement outlines exactly what the country intends to work on with the international community to mitigate or adapt to the problem both domestically and across national boundaries.

Structure of an Opening statement – You should use claim-evidence-reasoning in each component of the opening statement (except for the salutation).

__ 1. **Claim** - a statement, fact or opinion
__ 2. **Evidence** - information that provides proof of the claim
__ 3. **Reasoning** - a statement offered to explain or justify the claim; connects the evidence to the claim

Academic Language

__ All of the language is academic language. There should not be any propaganda language (refer to 10. Persuasive Writing: Valid vs. Invalid).

Mechanics

__ Spelling is correct.
__ Grammar is correct (check your verbs, adverbs, adjectives, etc…).

Name _____ Class_____ Date _____

31. Allies and Adversaries

Throughout the simulation, you will need to develop alliances and identify your adversaries.

Allies – countries that see the issue the same way as your team and will most likely support your proposals

Adversaries – countries who see the issue differently than your team and may try to block your proposals

By identifying which countries are allies or adversaries, you will be able to understand which countries will most likely agree or disagree with you throughout the negotiations. As scientific and political advisors, understanding what your adversaries want will help you find ways to work with them or work around them.

Read the Opening Statements and identify which countries may be allies or adversaries.

- If they are an ally, write at least one thing that they agree with you on.
- If they are an adversary, write at least one thing that they disagree with you about.

Allies	Adversaries

Name _____
Class_____ Date _____

32. First Conference Reflection

Congratulations! You successfully participated in your first live online conference. Take a few minutes to reflect on this experience by responding to the questions below. If you want, you can look back at the transcript of the conference for specific examples.

1. What is one thing that went well during the live conference?

2. What is one thing that was challenging about the live conference?

3. What is one thing that you will do differently for the second live conference?

4. Which countries agree with your ideas?

5. Which countries disagree with your ideas?

6. What scientific concepts were referenced during the conference?

Name _____ Class_____ Date _____

33. Feedback Protocols for GlobalEd 2 – Analyzing Communiqués

This worksheet will help you make your communiqués more effective. By answering these questions and revising your communiqués, your issue area team will become more successful at expressing your ideas and negotiating throughout the simulation!

1. **Initial Reactions – your reaction to the communiqué, the first time you read it**
    a. Can the reader identify the main point?
    b. Can the reader accurately summarize the post?
    c. Are there points 'almost made' or assumed?
    d. What is the reader's response?
2. **What type of post is it?**
    a. Assertion – Does the post *present* facts or information?
    b. Question – Does the post *seek* facts or information?
    c. Proposal – Does the post *suggest* future actions?
3. **Building the Claim – Evidence – Reasoning chain:** *If the main idea is an assertion or, especially, a proposal,* does it include all three 3 elements of the Claim – Evidence – Reasoning chain?
    a. Does it make a clear ***claim***?
        i. A claim for our purposes is a political proposal or position that is an arguable opinion, rather than an absolute. Claims are supported by verifiable facts (evidence).
        ii. Example: We should donate water to an international fund. (An opinion)
    b. Does it support the claim with ***evidence***?
        i. Evidence is verifiable facts that support or refute arguable claims. In a political argument, these facts are not the issue being debated. Facts are verified by scientific observation and experimentation, not a political argument.
        ii. Example: Less-developed countries do have enough water to ensure the survival of their population (verifiable fact).
    c. Does it connect the claim to the evidence through ***reasoning***?
        i. Reasoning is the connection between the claim and the evidence supporting it. It answers the question, "Why does the evidence support the claim?"
        ii. Example: The international cost of donating water to a fund is less than the costs associated with remedying poor health in less-developed countries (why the facts support the opinion).
    d. Questions to ask about the **structure of the argument**:
        i. How can the argument be better developed?
        ii. Are there secondary issues being raised which would be addressed through a separate discussion?
        iii. Is additional information / research necessary?

iv. Are necessary details / information / explanation left out?
v. Is the complexity of the argument dealt with adequately?
vi. Does the argument produce the desired effect?
vii. Is there unnecessary information?
viii. Is there confusing information?

4. Language of the argument- Academic or Propagandist

(See 10. Persuasive Writing: Valid vs. Invalid)

a. Academic persuasion:

i. Builds a complete Claim – Evidence – Reasoning chain. Directly addresses the opposing argument and does not stray from the topic at hand.

1. If the post builds a valid academic argument, does it provide a valid **counterargument?**
    a. Is there a counterargument given?
    b. Does the counterargument address the opposing opinion, or if none has been given yet, does it address a *likely* opposing opinion?
    c. Does the counterargument address any propagandist techniques used by the opposition?
    d. Does the counterargument address any logical fallacies used by the opposition?

b. Propagandist persuasion:

i. Typically does not refer to facts or a logical argument. Posts using these techniques are often couched in emotional language and stray from the topic.

5. Content

a. Does the post primarily contain science content? Is it addressing the CER chain? Is it discussing science issues?
b. Does the post primarily contain political science content, addressing international relations or discussing relationships between countries?

34. Use of Diplomatic Language, Done Well and Done Poorly

The quality of diplomacy varies widely from one middle school team to the next. Some teams employ diplomatic language and carefully articulate their policy-position; While others use insulting language or are vague. To write diplomatically does not mean one merely agrees or disagrees with other proposals, but instead outlines the contours of one position against another. In other words, poorly worded messages can range from the offensive to the uninteresting: "that's stupid" is undiplomatic for obvious reasons, but a message that simply says "we agree" is also undiplomatic because it does not advance the discussion.

The following examples from the 2009 Middle School Global Ed I simulation are intended to show a range of diplomatic language. Both introductory messages (which are longer and more descriptive) and regular messages (which are usually shorter and more responsive to specific proposals) are used to show good and bad usages of diplomatic language.

Diplomacy Well-Done:

Example #1 (Introductory): Here, France has produced a well-researched and mostly well-articulated policy proposal on climate change. Although countries should not leave openings for criticism from others (i.e. "using nuclear energy might turn world opinion away from us"), France is right to pre-empt potential criticism. This way, other countries know that this is a thoroughly thought-out proposal. France could also have benefitted from a final paragraph connecting its domestic policies to the international arena. But, overall, this is a well-done middle school proposal.

Bonjour from the Committee on Climate Change! Climate change is a long-term significant change in the weather patterns of an area. France is a country that is determined to cut down on greenhouse gas emissions. Since 2004, France no longer mines for coal. We shut down our last coal mine in 2004 as well. France has relatively low CO2 emissions. We use nuclear energy as our main source of energy. In fact, 80% of France's energy comes from nuclear energy. France also ratified the Kyoto Protocol in 2002. The Kyoto Protocol states that each developed country is required to reduce greenhouse gas emissions to a certain level for each country that ratifies the Kyoto Protocol.

Global climate change affects France in many different ways, immediately and in the future. Using nuclear energy might turn world opinion away from us; but at the same time, world opinion could sway toward us because we have lowered greenhouse gas emissions. This is because greenhouse gases is bad for the environment, so if we lowered the amount of greenhouse gas emissions, other countries would see us as an example to theirs. Nuclear energy is bad so if we use it more, other countries wouldn't see us as a good role model. Greenhouse gases are gases contributing to the retention of heat in the Earth's atmosphere. These gases trap the heat of the sun in the Earth's atmosphere, producing the greenhouse effect. The primary greenhouse gas is carbon dioxide. It results largely from human consumption of carbon-based fossil fuels. At the G8 Summit in Japan in June 2008, France pledged itself to cutting in half its greenhouse gas emission by 2050. if we succeed, the world opinion will definitely sway toward France. The long-term sustainability of the world energy model, which is 85% base on fossil energy, is also a burning issue. The consequences of the damages inflicted on the environment affect the most poverty-stricken first: 800 million

people are affected by desertification and more than a billion don't have access to drinking water. Desertification is the most gradual deterioration of formerly productive land resulting mostly from human activities, most notably global warming.

France has many environmental policies for transportation, the building industry, and biodiversity.

France's environmental transportation policies deal with mostly trying to stop the air polluting cars and for a new rail freight industry.

Some of France's environmental policies in transportation are:

1. the beginning of a green tax disc with a "bonus" to people who own fuel efficient cars. The "bonus" will put an annual tax on people with the most air polluting cars.
2. the increase of tax mileage for trucks
3. the development of the rail freight industry
4. the creation of 1250 miles of high speed railroad tracks by 2015

France's environmental policies in the building have to do with the building of public buildings, making them accessible to everyone, and trying to save energy in them. The policies are:

1. New public buildings will have to obey a low energy-consumption policy(50kWh/m2 per year) by 2010 and 2012 by private sector.
2. Old buildings will have to make access for the handicapped and have thermal renovation.
3. Energy assessments have been made compulsory in 2008.
4. The beginning of a "powerful incentive mechanism" for private sector.

France's environmental policies regarding agriculture have to do with stopping the use of harmful chemicals. The policies are:

1. Use half as much pesticides as possible within the next ten years
2. Stop GM plantations until research is finished.
3. The creation of an independent bio-diverse authority.

France's environmental policies dealing with biodiversity have to do with saving???

Example #2 (Introductory): This second example is well-done overall. Here, Germany stakes out a clear position, reviews its own internal progress, and offers suggestions for the international community.

Greeting from the German Climate Change Control Committee (GCCCC).

We have supported preventing Climate Change through the act of giving 3.3 billion euros (4.5 billion American dollars) to climate change policies. We are in favor of reducing greenhouse gas emissions to make the world a cleaner and healthier place to live. We want to increase renewable energy used globally and decrease the dependence of fossil fuels.

In the past, Germany has signed and ratified the Kyoto Protocol, therefore agreeing to cut our greenhouse emissions eight percent by 2012. Also, our government is considering increasing our efforts by reducing greenhouse emissions forty percent by 2020 and then eighty percent by 2050. We have given out 1.5 billion euros in loans and grants in 2006 to people who wanted to make their houses and living spaces more energy efficient and environmentally friendly. In addition to what Germany has done already, we are striving to surpass the standard of environmental cleanliness.

The GCCCC has proposed an international conference run by the UN in which every nation will have the opportunity to be represented. During this conference, we will discuss solutions on how to fix Climate Change problems. This conference would take place to unite all countries to agree on a global climate change prevention policy.

One possible solution that we have is to charge countries based on their carbon emission levels and GNP. The higher the emissions and/or GNP, the more money each country will need to tax its citizens. The money given will be used at the countries discretion in order to clean up the carbon emitted by that country. This can be achieved through several means, including planting native forest or other plants, producing more energy-efficient materials, and researching eco-friendly products. An extra fine will be added to each country that does not clean the carbon they produce, as it affects the whole world. We urge countries to join now in order to avoid such unpleasant consequences. Countries who cannot afford to pay such fines will not have to, but we still encourage these countries to join. An incentive for LCDs and other countries with poor soil quality to join would be giving compost derived from the waste of more developed countries. This compost is nutrient rich and eco-friendly. They can also use that money to implement renewable energy resources such as wind, solar, and geothermal power.

Another solution would be using renewable resources because it emits less greenhouse gases. These could include wind, solar, and geothermal. We recognize the fact that these forms of energy can be costly, so we encourage all countries to use these types of energy to the best of their abilities. Newer forms of these technologies can also be used, such as high-altitude, kite-like windmills that can produce up to 250 times more electricity than the conventional windmills. Another way to save money while using these renewable resource solutions is having each country donate a certain amount according to how much each country could afford. This can be measured by GDP. For example, the countries with the highest wind rates, should install windmills. Also, governments can do more economically friendly things. For example, the UN building could put solar panels on the roof and run by just solar energy. These issues can also be decided at the conference suggested earlier in this letter.

Germany is sympathetic for the rest of the world who has not yet tried to fix this issue, as it is a long and difficult process. We feel it is our obligation to help the rest of the world achieve a high global standard of green living. We also appreciate all the support given to this cause, and it warms the hearts of many to prove the true colors of the human race.

Thank you for time and effort.

Example #3 (Regular): At times, countries must try to persuade each other through direct negotiations. In a regular message, Brazil is privately trying to influence Germany's position on the creation of a new international organization. Brazil first announces its support for the plan, and then tries to suggest that Germany allow more representation from Latin America. While their back-and-forth messaging continued, this particular message illustrates an appropriate way to engage other countries.

Germany,

We agree with the G-4 plan and we support it. The only thing we dislike about the plan is that there will be only two more seats for Latin America.

Your friend and ally,
Brazil

Example #4 (Regular): In this example, Russia has sent a multilateral message (addressed to all countries participating in the simulation), but addressed to Germany specifically. Russia is, in essence, "calling out" Germany on its UN proposal that includes extending veto-power status to Germany. Instead of simply writing an insulting message, Russia asks Germany pointed questions pertaining to why Germany made this particular policy proposal.

To Germany,

We agree that members of the Security Council should retain their veto power and their position of power because it establishes a firmness of conduct and helps things stay organized. However, there is something we would like to address.

It has come to our attention that one of your top priorities is securing a permanent seat for Germany. This has become clear throughout the full time we have been in contact with each other. However, we feel that you are expressing your eagerness to become a permanent member of the Security Council too vehemently. We would like to respectively say that we do not feel that your eagerness seems to be entirely for the common good, but supports your fervent desires primarily. Why do you feel that adding you as a permanent member to the Security Council is such a priority? What do you think you could offer that would be beneficial to the general welfare of the global community? We ask this only because if we had some idea of your plan as a permanent member, the current members might be a little more enthusiastic about adding you among their ranks. We merely want to understand your goals and aims a little better to help us come to a better understanding. We might be a little more willing to dilute power further if we felt it would be helpful to all. We say all of this in the most respectful way possible.

Do svyazee
Your Russian Friends

Diplomacy Poorly-Done

Example #1 (Introductory): In the following passage, Iran introduces its position on women's rights. Iran is a difficult country for Westerners to play, not only because Iran is so foreign for many American students, but also because it is often misrepresented by the media. Nonetheless, this opening passage demonstrates a lack of basic knowledge about the country or the region. This message, for example, names the Shah as the leader of Iran, and mistakenly refers to his rule as religiously-based. It also implies that Arabic (not various Persian dialects) is Iran's primary language. Middle School students cannot be expected to grasp the intricacies of Islam's connection to political authority or women's rights, but students should know basic information about the leadership of a country and its history. Here, Iran needed to begin negotiations by staking a clear position on women's rights. Lack of in-class preparation can make for frustrating negotiations for all students.

Al salaam a'alaykum, or good day, in Arabic.

We come representing Iran's views on the issue of human rights. We would like all nations, especially those with western views, to recognize our opinions and be willing to accept our way of thinking.

We believe that anyone that vies for women's equal rights is liable to be punished for causing a disturbance. Iran believes that women's rights should be largely dependent on the Shah and they need to comply with all the religious laws. We need to prioritize so that we ensure that all areas comply with the Islamic beliefs and traditions.

We believe that every country is entitled to enforce women's rights according to their own beliefs. Other countries should focus on their own issues and not intervene in the affairs of other nations. In Iran, our Islamic beliefs contradict with many of the Western ideas about how women should be treated. Enforcing their views in our nation would go against the religion of 98% of the country, upsetting the majority of the people. Iran is a sovereign country, and it should be allowed to choose how it implements women's rights.

We hope to be able to have calm, civilized negotiations over this topic.

Sincerely,
The Iranian Women's Rights Team

Example #2 (Regular): When SimCon injected a nuclear-meltdown crisis into the simulation, several countries responded. Here, Brazil is attempting to advance the discussion, but suggests no proposals of its own and its use of capitalization implies shouting. One diplomat shouting to another hardly seems productive.

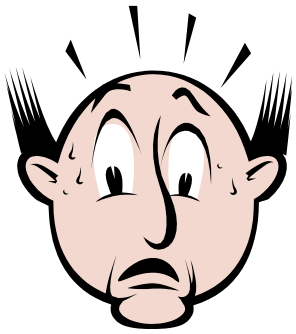
Brazil's Global Environment delegation believes that we should send out supplies and any relief aids possible to Ukraine. WE MUST DISCUSS WAYS TO PREVENT THIS FROM GETTING ANYWHERE! Is there any possible way to clean the air from this radiation? Please respond.

Example #3 (Regular): In this case, China responds to the crisis by suggesting that the international community research ways to prevent accidents from happening in the future. China does not, however, offer insights from its own nuclear program or even offer an unsubstantiated opinion on how nuclear power can be made safe. Students don't have to have "all the answers" in crafting their messages, but they should have some notion of which options are more preferable than others.

The accident suggests that we should make nuclear power safer. The accident was clearly a spill, so it mainly concerns the containment of nuclear energy. The International Community can follow up by researching safer ways to contain the materials used for nuclear energy. We can achieve this goal through time and research.

Name _____ Class_____ Date _____

35. Reviewing our Posts: Academic (Valid) vs. Propaganda (Invalid) Argumentation



Use the 11. Persuasive Writing: Valid vs. Invalid to review the different argumentation techniques.

1. List the different techniques you or your issue area team has used in your communiqués.

Academic	Propaganda

2. If you found that you used propaganda techniques, rewrite those posts on the back of this page using academic language.

3. List at least two academic techniques that you or your issue area team will use in your next two communiqués.

36. Components of a Closing Statement

The intent of a closing statement is to summarize your country's current position on the issues discussed within the simulation. Although complete resolution of the problems presented in the simulation scenario may not be achieved during the simulation, some progress was undoubtedly made. You may find it helpful to identify the progress that was made on the important aspects of the scenario. The closing statement attempts to illustrate how the negotiations have changed your country's initial position, which you provided in your opening statement, and outlines the steps that must be taken in order to make further progress in the future. In addition, many scientific solutions were proposed. Identify those and comment on which one you feel best solves the problem presented in the scenario. Each closing statement should contain the following three components:

1. **Mention of progress (or lack thereof) during the simulations negotiations.**
    - This may include a discussion of how your country's position and the position of other countries changed as a result of the negotiations.
2. **Discussion of where negotiations need to go from this point forward**.
    - What else needs to be done in order to bring resolution to the issues being discussed? Draw on the scientific knowledge you have developed.
    - Who do you need to work with in order to get closer to resolution?
3. **What are primary roadblocks to further progress**?
    - Political?
    - Scientific?

Please remember that the structure of the closing statement is as important as the content. You need to be specific about your claims, provide evidence for them and link the evidence back to your claims by making your reasoning visible and logical.

Claim - a statement, fact or opinion
Evidence - information that provides proof of the claim
Reasoning - a statement offered to explain or justify the claim; connects the evidence to the claim

Name _____ Class_____ Date _____

37. Our Closing Statement

You are the experts on your country and issue area. Use your knowledge to craft your closing statement. Begin by writing your ideas for each section of the closing statement in the space provided below. This is your initial brainstorm. You can fine tune these ideas when you are crafting your first draft of the closing statement.

1. **Mention of progress (or lack thereof) during the simulations negotiations.**
    a. This may include a discussion of how your country's position and that of other countries has changed as a result of the negotiations. Also comment on what scientific solutions were proposed to address the issues advanced in the scenario. Did a particular scientific solution resonate with you?

2. **Discussion of where negotiations need to go from this point forward**.
    a. What else needs to be done in order to bring resolution to the issues being discussed? How does science play a role in what comes next?

b. Who do you need to work with in order to get closer to a resolution?

---

3. **What are the primary roadblocks to future progress**?
   a. Political?

---

   b. Scientific?

38. Simulation Reflection

Name _____

Class_____ Date _____

1. How was the simulation experience similar or different from the real world?

2. How did technology impact what you did? What would have been different if you had been face-to-face?

3. In what ways did the concepts discussed before the simulation come into play during the simulation?

4. What else should you have known to be able to negotiate and make decisions effectively during the simulation?

5. What would you change about the simulation experience? Why?

6. How important is it to understand science concepts before crafting policy?

Name _____ Class_____ Date _____

39. Allies and Adversaries Revisited!

The first week of the simulation you identified who you thought would be your allies and your adversaries based on other countries opening statements. Let's look back and see if your predictions were correct.

Allies – countries who saw the issue the same way your country did and supported your proposals

Adversaries – countries who saw the issue differently than your country and may have tried to block your proposals

1. Look back over the messages, conferences, and closing statements. Which countries were your allies and which were your adversaries throughout the simulation?

Allies	Adversaries

2. Look at your ***Allies and Adversaries*** page from the first week of the simulation. Circle the countries that you predicted would be your allies and actually were; and the countries you predicted would be your adversaries and actually were.

3. List 3 ways your allies helped you throughout the simulation. Be specific. Identify a country or countries and refer to a specific conference message or a daily message that provides evidence of this.

Country/Countries	How they helped you

4. List 3 ways your adversaries tried to prevent you from achieving your goals throughout the simulation. Be specific. Identify a specific country or countries that blocked you and refer to a specific conference message or daily message that provides evidence of this.

Country/Countries	**How they blocked or prevented you**

5. Identify one country that surprised you (was an ally that you thought would be an adversary, *or* was an adversary that you thought would be an ally). Why did that country surprise you? How did they help or hurt your team?

6. Is there a country that was neither an ally nor adversary? Which one? Why?

Name _____ Class_____ Date _____

40. Opening and Closing Statements

Read the opening statement and closing statement for your issue area.
Then, answer the following questions.

1. How are your opening statement and closing statement similar? (Think about your use of academic language, your use of claim-evidence-reasoning, your use of scientific evidence, and your knowledge of the country you represented)

2. How is your opening statement different from your closing statement? (Think about your use of academic language, your use of claim-evidence-reasoning, your use of scientific evidence, and your knowledge of the country you represented)

3. Is the opening statement or closing statement better written? Which is more effective at communicating your ideas: Why? (Hint: Claim, evidence, reasoning)

4. Did the simulation help you become a better writer? Why or why not?

Name _____ Class_____ Date _____

41. Successful and Unsuccessful Communiqués

Within your simulation issue area select a few message threads and identify successful communiqués.

1. Identify a successful discussion between two or more countries.

2. Why do you consider this discussion effective?

3. Give an example of the authors' use of use scientific evidence to support their claims.

4. Why are their claims believable?

Now identify unsuccessful communiqués.

5. Identify an unsuccessful discussion between two or more countries.

6. Why do you consider this discussion ineffective?

7. How could you change this post to make it more effective?

42. Final Reflection

Your final assignment for GlobalEd 2 is to write a 2-3 page reflection about your experience participating in the Global Ed 2 project. In your reflection address the following key ideas: (1) simulation and technology; (2) science and social studies understandings; and (3) Claim-Evidence-Reasoning writing.

Simulation and Technology

- How do you feel about participating in the simulation? What parts of the simulation phase did you like the most? What did you find frustrating during the simulation phase? How is the simulation phase of the Global Ed 2 project different from what you do in a traditional social studies class?
- Did you enjoy the technological aspect? Did you like writing communiqués and participating in live conferences? What would have been different if you had been face-to-face?
- Did you enjoy working with a group? Do you prefer to work independently? How did your issue area group work together?

Science and Social Studies Understandings

- How did your knowledge of scientific concepts help you during the negotiation phase of the Global Ed 2 project? How is learning about science concepts for use during the simulation phase different than how you learn about science concepts for a science test? Did you learn about science concepts differently than you might have in science class? Was it easier or harder to learn about science during the Global Ed 2 project?
- How did your social studies understandings help you during the negotiation phase of the Global Ed 2 project? How is learning about the country you represented in the Global Ed 2 project different than how you might learn about geography for a social studies test? Did you learn about geography, culture and politics differently than you might have in social studies class? Was it easier or harder to learn about social studies through the Global Ed 2 project?

Academic Writing

- Have you used claim-evidence-reasoning in writing before? How did using claim-evidence-reasoning affect your ability to make an argument? Were you able to persuade the other countries to agree with your position? Will you use claim-evidence-reasoning in future papers for other classes?
- Was using diplomatic language in writing challenging? Have you written using diplomatic language before?

43. Glossary

A

Abstract – difficult to define.

Aggravated – to make worse, more serious, or more severe.

Air pollutants – particles in the air that can cause problems to humans, animals, and plants.

Anaemia – disorder that occurs when the red blood cells in the body are insufficient, which can cause health problems.

Anthrax – disease acquired by humans from infected animals or contaminated animal products.

Anthropogenic – it refers to emissions produced by humans.

Atmosphere –natural gaseous system.

B

Brundtland Report – elaborated in 1987 by the World Commission on Environment and Development with the aim to advise world leaders that economic growth does not need to be at the expense of natural resource degradation.

C

Carbon Dioxide – CO2 is a greenhouse gas produced during the respiration cycle of animals, plants and bacteria.

Cataracts – illness which affects the lens of the eye.

Civil Rights – rights of individuals to an equal access to education, employment, housing, health, etc.

Climate Change – any significant change in measures of climate, including temperature and precipitation, lasting for an extended period (decades or more). Climate change today results from human activities like burning fossil fuels that change the atmosphere's composition.

Climate Zones – zones of the earth classified according to temperature. The most important are the polar, temperate, and tropical zones.

Commodity – a good (such as food, grains, metals, etc.) that is used in trade.

Conference of the Parties (COP) – it is the body that is in charge of implementation of the Convention on Biological Diversity.

Cholera –intestinal infection caused by ingestion of contaminated water or food.

D

Dead Zones – areas of water that have very low or zero concentrations of oxygen. Very few plants or animals can survive under these conditions.

Desalination – the process of removing salt and other minerals from seawater to create freshwater.

Desertification – the creation of deserts due to soil erosion, over farming, and deforestation, which converts cropland to non-productive land.

Developed – related to developed countries that enjoy a high level of development.

Developing – related to developing countries that have relatively low standards of living, poorly developed industries, extensive poverty, and a low per capita income.

Developing Countries – nations that have relatively low standards of living, poorly developed industries, extensive poverty, and a low per capita income.

Diarrhea – a disease brought on by ingesting dirty water.

Diplomats –individuals working on behalf of their governments in international circles.

Displaced – individual or group of individuals forced to leave their native place.

Displacement – the act of moving people from their native place.

Dysentery – disorder of the intestine that causes diarrhea, fever, and abdominal pain.

E

Economic Development – increases in living standards measured by the size of the economy, the amount of goods and services produced, per capita income, and access to social programs like healthcare and education.

Economic Growth – steady growth in the productive capacity and national income of the economy; the increased production of goods and services within an economy.

Ecosystem – it is a system of the environment where physical elements (like soil) function together and in interdependence with other organisms, such as plants and animals.

El Niño – climatic phenomenon that occurs because of the warming of the ocean waters in the eastern tropical pacific.

Enter Into Force – date when a treaty is implemented; it is different from the date when it was adopted.

Environmental Degradation – the deterioration of the environment through the depletion of resources in the air, water, soil; the destruction of ecosystems and the extinction of wildlife.

Eradication – reduction or elimination of something.

F

Fecal Matter – solid excretory product evacuated from the bowels.

Fecal-Oral Transmission – when diseases are spread through the ingestion of fecal (human waste) matter often in untreated water.

Financial Resources –term used to describe the money a government, organization, or individual has in assets or loans.

Finite Resource – limited resources that cannot be readily replaced once used.

Fluorinated Gases – hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride that are emitted by industries.

Fossil Fuel-Based – a process that is based on the use of fuels formed by natural resources (such as coal or gasoline).

Framework Convention on Climate Change – UN international treaty aimed at reducing global warming.

G

Geopolitical –combination of geographic and political factors.

Geothermal –heat extracted from the earth

Global North – it refers to developed countries that enjoy a high level of development.

Global South – it refers to developing countries that have relatively low standards of living, poorly developed industries, extensive poverty, and a low per capita income.

Global Warming – the increase over time in Earth's average annual temperature and other associated climate changes.

Greenhouse Gases – carbon dioxide, methane, chlorofluorocarbons, and other gases that create a blanket effect by trapping heat and preventing the nightly cooling of Earth.

Greenhouse Gas Emissions – emissions of Carbon dioxide, methane, chlorofluorocarbons, and other gases that create a blanket effect by trapping heat and preventing the nightly cooling of Earth.

H

High Global Warming Potential (GWP) gases – hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride that are emitted by industries. They are also called fluorinated gases.

Human Resources – people that work for an organization. It also refers to the workforce of a nation.

Hydrologic Cycle – the cycle of water movement from the atmosphere to the earth and back to the atmosphere through condensation, precipitation, evaporation, and transpiration.

Hydropower Dam – dams that harness the power of moving water and generate electricity.

I

Ice Cores – samples removed from ice sheets and glaciers.

Indigenous – it refers to the original people of a region.

Industrial Revolution – the development of mechanical and industrial production of goods that began in Great Britain in the mid-1700s and then spread through Europe and North America.

Industrialism – process of transitioning to machine-made goods.

Industrialization – process of social and economic change related with the transition to machine-made products.

Industrialized Countries – term similar to developed country; those countries that enjoy high levels of development.

Infrastructure – a nation's basic physical structures, including roads, utilities, dams, bridges, water treatment plants, etc.

Institutional Resources – a term used to describe the strength and efficiency of the institutions of a government.

Institutions – it can refer to formal organizations of government or to customs and behaviour patterns important to a society.

Intergenerational – it refers to intergenerational rights.

Intergenerational Rights – rights of the future generations to a safe and clean environment.

J

K

Kyoto Protocol – a supplement to the Global Warming Convention (1992) that requires the economically developed countries to reduce greenhouse gas emissions by about 7% below their 1990 levels by 2012 and encourages, but does not require, less developed countries to reduce emissions.

L

Livelihoods – means of subsistence.

Low Emission Pathway – reduction in the emission of pollutants.

Low-Carbon –minimal emission of greenhouse gases.

Lyme Disease – vector-borne inflammatory disease spread through a tick bite.

M

Malnutrition –condition that occurs when the body does not get enough nutrients.

Methane – **CH4** is a greenhouse gas emitted during the production and transport of coal, natural gas, and oil.

Microbial Pollution – contamination of water or food caused by the presence of bacteria, viruses, or other microorganisms.

Millennium Development Goals – eight international development foals set by the United Nations that countries have agreed to achieve by 2015. They are eradication extreme poverty and hunger; achieve universal primary education; promote gender equality; reduce child mortality; improve maternal health; combat HIV/AIDS and other diseases; ensure environmental sustainability and develop a global partnership for development.

N

Nitrous Dioxide – a highly poisonous brown gas sometimes known as smog. It is a common air pollutant most frequently released by the internal combustion engines found in cars and trucks.

Nitrous Oxide – N2O is a greenhouse gas emitted during agricultural and industrial activities, and during combustion of fossil fuels and solid waste.

No-Carbon – no emission of greenhouse gases.

Non-governmental Organization (NGO) – international (transnational) organization with private memberships.

Northern Passage – it is a sea route through the Arctic Ocean that connects the Atlantic and Pacific Oceans.

O

Optimal Solutions – the most desirable solutions given a set of constraints.

Organic Chemicals – a broad class of substances containing carbon and its derivatives.

Organic Matter – residues of dead plants and animals in various stages of decomposition.

Ozone Layer – it is an area located in the stratosphere, several miles above the surface of the Earth. It contains relatively high concentrations of ozone, a gas that occurs naturally in the atmosphere.

P

Pathogens – an agent that causes disease, including bacteria, viruses, and other microorganisms.

Per Capita – it means for each person.

Plasmodium Parasites – parasites that cause human malaria.

Political Rights – rights of individuals to political participation, such as the right to vote, the right to join a political party, the right to stand as a candidate in an election, the right to participate in a demonstration, and freedom of association.

Pollutants – waste materials that pollute air, water or soil.

Potable Water – water that is free from contaminants that cause disease or harmful effects and that is safe for human consumption.

Public Good – good that is non-rival in consumption, meaning that consumption of the good by one party does not reduce the amount of the good's benefits available to other parties; and, non-excludable, meaning that no actor or party can be prohibited from consuming the benefits of the good.

Q

Quality of Water – it refers to water that should be free of micro-organisms, chemical substances, and radiological hazards, so as to not jeopardize a person's health, and be odorless and colorless, so that it is attractive to drink.

R

Ratification –approval of a formal document, such as a treaty or constitution.

Refugees – people who flee for safety to another country because of a fear of persecution or harm.

Resources – available sources of wealth. It can refer to natural, financial, institutional, or human resources.

Respiration – the process whereby living organisms convert organic matter to carbon dioxide, releasing energy and consuming oxygen gas.

River Mouth – the geographic point at which rivers empty into larger bodies of water, like lakes, seas, or oceans. They are contain rich soil and are home to diverse species of plants and animals.

S

Salmonellosis – food borne disease. It is generally contracted through the consumption of contaminated food of animal origin or contaminated vegetables.

Scarcity – insufficiency of amount or supply; shortage.

Security – the state of being free from danger.

Smog – it is a type of air pollution derived from vehicular and industrial emissions.

Sovereignty – under international law, the principle that there is no higher authority than the state. States that are fully in control of their own internal (domestic) and external (foreign) policies.

Standard – it refers to the establishment of criteria against which other things can be evaluated.

Standard of Living – it refers to the level of well-being an individual or group aspires to achieve.

State Failure – it refers to countries in which all or most of the citizens give their primary political loyalty to an ethnic group, a religious group, or some other source of political identity. Such states are so fragmented that no one political group can govern effectively, thus these states are more legal entities than functioning governments.

Stockholm Declaration – declaration that recognizes the right to a healthy environment. It was adopted by the United Nations in 1972.

Sulfur Dioxide – a colorless, extremely irritating gas or liquid. Many industrial processes create this pollution.

Sustainable Development – the ability to continue to improve the quality of life of those in the industrialized countries and, particularly, those in the less developed countries while simultaneously protecting Earth's biosphere

T

Toxic Heavy Metals – individual metals and metal compounds that negatively affect people's health if present in large amounts.

Typhoid – bacterial disease that is transmitted through the ingestion of contaminated food or drink contaminated by the feces or urine of infected people.

U

Ultraviolet Radiation – it is a form of energy travelling through space.

Underdeveloped – it refers to underdeveloped countries where people lack access to jobs, health care, drinkable water, food, education, and housing.

United Nations Millennium Development Goals (MGDs) – eight international development foals set by the United Nations that countries have agreed to achieve by 2015. They are eradication extreme poverty and hunger; achieve universal primary education; promote gender equality; reduce child mortality; improve maternal health; combat HIV/AIDS and other diseases; ensure environmental sustainability and develop a global partnership for development.

Universal Declaration of Human Rights (UDHR) – adopted by the UN General Assembly, it is the most fundamental internationally proclaimed statement of human rights in existence.

V

Vector-Borne Diseases – diseases that are transmitted to humans or other animals by an insect.

Volatile Organic Compounds (VOC) – they are organic chemical compounds used by industries. VOC can affect the environment and human health.

W

Water – a clear, colorless, odorless, and tasteless liquid also known as H2O, It essential for most plant and animal life and the most widely used of all solvents.

Water Scarcity – the situation when the demand for water exceeds the supply of available water.

X

Y

Z

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[i] The CIA Factbook notes that "because China's exchange rate is determined by fiat, rather than by market forces, the official exchange rate measure of GDP is not an accurate measure of China's output;…in China's situation, GDP at purchasing power parity provides the best measure for comparing output across countries". As such, we've provided GDP at purchasing power parity for China.