

# **JOURNEY TO PLANET EARTH**

## **Extreme Realities: *Severe Weather, Climate Change, and Our National Security***

**Educators Guide**

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# NEXT GENERATION SCIENCE STANDARDS

## GRADES 9-12

This film relates to the following Next Generation Science Standards:

### **ESS2.D: Weather and Climate**

- Current models predict that, although future regional climate changes will be complex and varied, average global temperatures will continue to rise. The outcomes predicted by global climate models strongly depend on the amounts of human-generated greenhouse gases added to the atmosphere each year and by the ways in which these gases are absorbed by the ocean and biosphere. *(Secondary to HS-ESS3-6)*

### **ESS3.A: Natural Resources**

- Resource availability has guided the development of human society. *(HS-ESS3-1)*
- All forms of energy production and other resource extraction have associated economic, social, environmental, and geopolitical costs and risks as well as benefits. New technologies and social regulations can change the balance of these factors. *(HS-ESS3-2)*

### **ESS3.B: Natural Hazards**

- Natural hazards and other geologic events have shaped the course of human history; [they] have significantly altered the sizes of human populations and have driven human migrations. *(HS-ESS3-1)*

### **ESS3.C: Human Impacts on Earth Systems**

- The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources. *(HS-ESS3-3)*
- Scientists and engineers can make major contributions by developing technologies that produce less pollution and waste and that preclude ecosystem degradation. *(HS-ESS3-4)*

### **ESS3.D: Global Climate Change**

- Through computer simulations and other studies, important discoveries are still being made about how the ocean, the atmosphere, and the biosphere interact and are modified in response to human activities. *(HS-ESS3-6)*

### **ETS1.B: Developing Possible Solutions**

- When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts. *(Secondary to HS-ESS3-2), (Secondary HS-ESS3-4)*

## OVERVIEW

“Extreme Realities” links global climate change to global security. The film examines how extreme events, such as droughts, floods, and wildfires, create conditions that lead to famine, economic hardship, violence, and political instability. As such events increase, so do human and environmental disasters. Case studies in Afghanistan, Kenya, Pakistan, Russia, and the Middle East illustrate how climate disasters in a region can affect global security. Many people – among them the president of World Bank, Jim Yong Kim, former CIA director, James Woolsey, former EPA administrator, Carol Browner, and the U.S. Senior Advisor on Climate Change, Andrew Light – contribute perceptive insights to the story. Though the film raises disturbing questions concerning our global future, it concludes on a hopeful note: that we possess the creativity and capacity for adaptation and innovation to tackle this issue, for the benefit of both the environment and of humankind.

## **LEARNING OBJECTIVES**

Students will be able to:

1. Understand how global climate change is affecting global security.
2. Map out cause-and-effect relationships between climate events and economic, political, health, and environmental consequences.

## PRE-VIEWING ACTIVITIES

If students do not know the following locations, use a map to familiarize them with the geographical areas profiled in the DVD:

- A. Afghanistan
- B. Pakistan
  - Kandahar border
- C. Kenya
- D. Bangladesh
- E. India
- F. Russia
- G. Middle East
  - Egypt (Mahalla and Cairo)
- H. Algeria (Algiers)
- I. Arctic and Arctic Ocean
- J. Benin
- K. Netherlands

The following terms are used in the DVD and may need to be introduced to students:

- **Arab Spring**: a wave of protests, demonstrations and riots that broke out in December 2010 and spread through much of the Arab world. Over the course of several years, some rulers had been forced from power (Egypt, Tunisia, Libya) and civil uprisings and protests broke out in many other Arab countries.
- **Cattle raids**: the illegal stealing of cattle. In parts of northeast Africa pastoralist herders have their animals stolen by armed and violent intruders who often kill villagers in the process.
- **Civil Disobedience**: a conscientious and non-violent breach of law with the aim of change; people conducting acts of civil disobedience are motivated by their conscience and willing to accept the consequences of their actions.
- **Commodity market**: a market that trades for primary products (wheat, coffee, sugar, gold, oil) rather than manufactured goods.
- **Environmental refugee**: a person forced to leave their land or country due to environmental crises such as floods, drought, and sea-level rise.
- **Insurgents**: people who fights against an established government or authority, sometimes through armed resistance
- **Jet stream**: Fast-flowing air currents that influence climate and weather. They generally flow west to east, but they can change in speed, direction of flow, and the number of paths they take.

- **Monsoons**: annual rainy seasons that are due to a change in wind direction. At certain times of year, the land warms more quickly than the ocean and the air above the ocean. This causes winds to shift from a land-to-ocean direction to an ocean-to-land direction, bringing heavy rains usually over a period of months.
- **Opium**: the dried latex from the opium poppy plant (*Papaver somniferum*). The latex contains morphine, which is processed to make heroin.
- **Pashtun**: the largest ethnic group in Afghanistan, they also live in northwest and western Pakistan. They live by a traditional set of values that guide their individual and communal behavior.
- **Sea-level rise**: the rising of ocean levels due to climate change. As average global temperatures rise, more ice caps melt. In addition, warming oceans take up more volume than cooler oceans, also causing ocean levels to rise.
- **Taliban**: an Islamic fundamentalist political movement in Afghanistan that formed a government from 1996-2001. Many Taliban members are Afghan Pashtun tribesman.

To help students put the video in perspective, ask them the following questions:

- What are examples of extreme weather events that you are aware of? General and specific examples welcome!
- What do you consider to be the top challenges to our national security?
- What is your initial reaction to the idea that extreme weather events could affect global security? Why?
- Can you think of examples of extreme weather events that pushed a large number of people to a state of desperation? (If you can't think of specific examples, can you imagine circumstances in which this could happen?)
- What stresses does a weather disaster put on local economies and politics?
- Could you imagine a circumstance in which extreme weather events could lead to the fall of a political regime?
- What innovations have you heard of that could diminish the effects of global climate change?

## VIEWING ACTIVITIES

### **Segment One Topic: Connections between Extreme Drought and Terrorism and Violence**

Journalist Christian Parenti interviews Taliban insurgents near the Pakistani border. Ten months later, his colleague and translator is kidnapped and later killed by the Taliban. While trying to come to grips with his colleague's death, Parenti explores why the Taliban continues to get support from the local people and why the Taliban seems to have an endless supply of young recruits. He especially wonders this since the Taliban were driven from power in 2001. The answer to this question leads to an unexpected connection—a long and serious drought, which made it impossible to grow crops like wheat. It turns out that the Pashtun farmers could only grow poppies to make opium and then the illegal drug, heroin. The United States, for obvious reasons, has tried to eliminate this trade, but the Taliban is defending the Pashtun farmers' right to grow poppies, thus enlisting their support and their cooperation in hiding Taliban weapons and providing Taliban recruits.

Parenti then travels to another drought-ridden part of the Earth—northwest Kenya—where a drought has lasted seven years. In Kenya, Parenti realizes that drought caused by climate change is interacting with other pre-existing crises: the availability of cheap weapons, bad economic policies, and ineffective local governments. The extreme drought amplified these problems, and violence broke out over limited resources. Parenti's thesis is that climate change is already driving violence in some parts of the world.

#### **Finding Segment One (2:16-11:52)**

Visual cues: Start when you see “Extreme Realities” in black and white. This is followed by the visual cue “Afghanistan (near the Pakistan border).” Stop when you see Andrew Light, Senior Advisor on Climate Change speak about refugees.

## Post-viewing Discussion

1. What crop was traditionally grown in Afghanistan and why?  
(Poppies because they didn't require a large amount of water to grow.)
2. Why did the Pashtun farmers switch to growing wheat?  
(The Taliban banned the growing of poppies because doing so was considered un-Islamic.)
3. Why did these same farmers more recently switch back to growing poppies?  
(Drought. Wheat required six times more water. Farmers were desperate to make money and feed their families.)
4. Why do many Pashtun farmers support the Taliban in this part of Afghanistan?  
(In 2001, the Taliban was driven from power and was looking for a way to fund their insurgency. Drought-stricken farmers were vulnerable to intimidation by the Taliban. The Taliban promised to defend the rights of the farmers to grow poppies in exchange for the farmers hiding their weapons and providing their sons as new recruits.)
5. What was the chain-reaction of events affecting goat herders in Kenya during the severe and long-lasting drought?  
(With no water, their goats died. Without goats, they had lost their source of income, so they cut Acacia trees to make charcoal. Cutting the trees depletes this important resource and can lead to tribal conflicts.)
6. The film argues that a variety of challenges overlapped, leading to violence through cattle raids. What were these overlapping issues?  
(Availability of cheap weapons, bad economic policies, and the inability of local governments to respond to crises, and the severe drought brought on by climate change)
7. For what two reasons does the President of the World Bank argue that wealthy countries such as the U.S. should care about helping "fragile and conflict-affected states?"  
(1. Moral and economic reasons; 2. The development of the poorest countries can help increase the prosperity for the whole world.)

## **Segment Two Topic: Climate Refugees**

Bangladesh, with roughly half the population of the United States, holds its population in a country the size of New York State. Sediments brought by rivers originating in the Himalayas make this fertile land for growing rice, but annual monsoon floods displace many people. Sea-level rise induced by climate change threatens 60% of the Bangladesh population, producing as many as 30 million environmental refugees. Such increased flooding will cause productive farmland to disappear, causing an already poor citizenry to become further embedded in poverty and producing additional economic refugees. *Extreme Realities* raises the question of what will happen to these refugees if they try to enter neighboring India, where a barbed-wire fence has been constructed and defended by India along a 2,500-mile border.

### **Finding Segment Two (12:05-18:00)**

Start when you see Andrew Light, Senior Advisor on Climate Change to the U.S. State Department, speaking. Stop when you see Kurt Campbell, former Assistant Secretary of State, speaking, and when an image of the globe then appears on the screen.

### **Post-viewing Discussion**

1. Geographically, why is Bangladesh especially vulnerable to the rise of sea level resulting from climate change?  
(Bangladesh is a very low-lying country with dozens of rivers that flow through it into the Bay of Bengal.)
2. For what other reasons would Bangladesh suffer so much from sea-level rise?  
(It is a very crowded and poor country. Many people survive by growing rice. With increased and permanent flooding due to sea-level rise, more farmland would be lost, displacing people from their homes and threatening their livelihoods.)
3. What do you think is India's responsibility to Bangladeshi refugees displaced by sea-level rise? The global community's responsibility?

## **Segment Three Topic: Connecting Global Climate Events of 2010 to the Arab Spring**

In 2010, the jet stream split in two, leading to severe climate events in Pakistan and Russia. In Pakistan, the jet stream “turbo-charged” the monsoon rains, resulting in extreme flooding and 20 million homeless in one of the most destructive climate change events yet recorded. People went from having very little to having nothing as they watched the country’s infrastructure collapse around them. The government did not effectively meet people’s needs, so desperate people were willing to get help from anybody who would provide it, including groups the United States would consider being terrorist groups, notably the Pakistani Taliban. In this crisis, the Taliban reached out to suffering people to produce good will. In a race to win the hearts and minds of the Pakistani, the United States also provided many supplies during the crisis. This segment illustrates how a local humanitarian problem can become a global security threat. Kurt Campbell describes how the countries and institutions that can move quickly and effectively to address such crises will be those that achieve power and influence.

The same change in the jet stream that led to extreme flooding in Pakistan also led to drought, sweltering temperatures, and wildfires in Russia. The combination of events led to 56,000 deaths. People living in cities had to deal with health issues associated with the unprecedented heat and smoke from wildfires. Farmers had to deal with withered crops and a 40% loss of their grain harvest. To protect Russian citizens from rising food prices, President Vladimir Putin banned wheat exports. This raised wheat prices in parts of the world that relied on Russian wheat for food—especially countries in the Middle East. Desperate people protested the high food prices, which, coupled with human rights issues and a lack of economic progress, fueled the Arab Spring insurgencies across the region.

### **Finding Segment Three (18:00 – 31:16)**

Start at the scene of the Earth spinning and end at the sound cue “But they are not alone in their vulnerability.”

## Post-viewing Discussion

1. What was the extreme weather event in Pakistan shown in this segment and what was its cause?  
(The event was an extreme monsoon season that caused the worst flooding ever witnessed in Pakistan. The cause was the splitting of the jet stream. Many knowledgeable people attribute these large changes in climate to global warming/climate change induced by human activity such as the burning of fossil fuels.)
2. In Pakistan, who reached out most effectively to help flood victims? Why did the United States get involved in helping?  
(The Pakistani Taliban provided more help to victims than the Pakistani government, thereby gaining support from the local people. The United States, concerned about the human tragedy, also realized there was an opportunity to “reach the hearts and minds” of Pakistanis who had lost trust in the United States.)
3. What is the national security concern implied by this segment in Pakistan?  
(The Pakistani Taliban could gain enough support from Pakistanis to become a greater security threat to the United States.)
4. What is Kurt Campbell’s view of a country with power and influence in the 21<sup>st</sup> century?  
(The countries with true influence in the world will be those that can respond quickly and effectively to help people experiencing crises such as the flooding in Pakistan. Desperate people simply want help and will accept it from whoever offers a hand, including terrorist organizations.)
5. What was the impact of the jet stream event in Russia?  
(Extreme drought from lack of rain and high temperatures, sweltering temperature with Moscow reaching its highest temperature in 500 years, and raging wildfires.)
6. How did this event impact the Russian people?  
(Health issues related to extreme heat and smoke; loss of land and homes from fires; death from heat and fires; loss of income from lost crops.)
7. What is the link between the drought in Russia and the spreading protests and changes in government associated with the Arab Spring?  
(Russia is a major wheat exporter, and Middle Eastern countries comprise nine of the ten largest wheat-importers of Russian wheat. When 40% of the grain crop was lost in the drought and Russia banned exports, the cost of wheat in the Middle East rose dramatically. For many citizens in the Middle East, life was already difficult and economic progress was not happening. The spike in food prices along with discontent with human rights issues and economic worries triggered the protests and demonstrations that ensued.)

## **Segment Four Topic: Is the Arctic the Next Gold Rush?**

Segment four examines how climate change is also threatening the security of wealthy nations. Arctic sea ice is melting much faster than scientists predicted, making oil reserves beneath the Arctic ice more accessible. Five Arctic nations, including the United States and Russia, have a stake in this region. Russia, in particular, has signaled its intent to exploit the Arctic for oil. This segment raises the question: will future wars be fought over natural resources in the Arctic? Footage of Greenpeace activists interacting with a Russian vessel in the Arctic to protest Arctic drilling and the burning of fossil fuels prompts viewers to consider how their protest is connected to national security threats.

### **Finding Segment Four (31:20-41:53)**

Start at the scene of Arctic ice that is followed by the subtitle “The Next Big Gold Rush.” Stop at the subtitle “Glimmers of Hope.”

### **Post-viewing Discussion**

1. This segment indicates that Russia has a clear intent to exploit Arctic oil for its own purposes. What evidence suggests that this is true?  
(Russia is taking a very large oil platform to the Arctic Circle; a Russian submarine planted a Russian flag on the floor beneath the North Pole in 2007; a Wiki Leaks document from Russia’s ambassador to NATO states there will be a fight for Arctic resources; according to the film, Russia plans to station troops there.)
2. What countries are considered to be “Arctic” nations with a special stake in the region?  
(United States, Canada, Norway, Denmark, and Russia)
3. Many people, including environmentalists, are concerned about drilling in the Arctic. What are their special concerns about drilling in this area that are mentioned in the film?  
(Harsh conditions make an oil spill more likely; the remoteness of the area makes it especially hard to respond to problems and spills; the nearest deep-water port is 1,000 miles away; communications and navigation are difficult.)
4. What other concerns might people have about drilling in this area?  
(Protecting one of the last wild areas and its unique wildlife.)
5. What do you think compels Greenpeace activists to put their lives in jeopardy? How are their protests connected to national security?
6. Do you feel Greenpeace activists play a valuable role in the position to stop drilling in the Arctic? Why or why not?
7. Who do you believe should have access to the natural resources beneath the Arctic, and why?

## **Segment Five Topic: Glimmers of Hope**

Energy technologies and engineering innovations that show promise addressing climate change are the focus of this segment. Drip irrigation provided through solar electricity helps farmers in ten villages in Benin grow crops successfully during extreme dry seasons, saving towns from famine and making it possible for people to sell their crops. The Netherlands, where two-thirds of the population live below sea level, is highlighted as a country that has adapted to rising sea levels. State-of-the-art sea walls, moveable barriers, floodgates, and floating homes are illustrated as engineering innovations that have helped the Netherlands successfully adapt. Buildings strengthened to withstand high winds through relatively inexpensive means represent yet another engineering innovation highlighted in this segment of the film.

### **Finding Segment Five (41:54-48:18)**

Start at the sub-title “Glimmers of Hope” and stop at the sub-title “Epilogue.”

### **Post-viewing Discussion**

1. What were some of the energy and engineering innovations you found most interesting in this segment, and why?
2. Do you believe it is important for countries to become climate-ready and less susceptible to changing and severe climate and weather events? Explain.
3. Is it the responsibility of wealthier countries to help poor countries become climate-ready? Why or why not? What would be the consequences of wealthy countries doing little or nothing?
4. What reasons did the President of the World Bank give for investing in protecting coastal areas now, even if it costs millions of dollars?  
(Investing that money now will prevent a future loss of one trillion dollars per year.)

Can you think of an analogy in your life where investment now saves much more money in the future?

5. The film shows you many ways in which we can work to reduce the impacts of global warming and climate change. What are some of these?  
(Policy, negotiation, engineering and energy innovation, etc.)
6. Do you believe it's a greater priority to reduce carbon emissions that lead to global warming or to develop means for adapting to climate change? Explain.

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## SPECIAL PROJECTS

1) This activity is designed to help your students map out the connections between extreme weather events related to climate change and the potential economic, political, social, and health effects they can cause. The “map” diagrams cause- and-effect relationships and illustrates the consequences of the original climate event.

It might be helpful to first do a class warm-up activity on the board. Write “Drought in Russia” in the center of the board and circle it. Ask your students to think about the effects that the Russian drought had on people, the environment, economics, and politics as depicted in the film. As they share ideas, work out from the original circle (“Drought in Russia”), connecting each circled cause to its effects. Examples include connecting “Drought in Russia” to extreme temperatures (one circle) and wildfires (another circle). These could be further connected to deaths from heat, smoke-related illness, loss of wheat crop, etc. The new round of circled concepts could be related to the ban on exportation of wheat, and that to price spikes. Price spikes can be connected to protests in the Middle East. Your students might add separate circles (you could use a different color marker) to indicate already occurring human rights issues in the Middle East and related protests. This circle could be connected to the protests over wheat prices, and both are connected to political instability and changes in regimes. In the end, your class should see the cause-and-effect relationships mapped out by a series of “bubbles,” much like a concept map.

Now, your students are ready to work in small groups to map out the consequences of other extreme climate events. Here are some possible events to use: severe and long-term drought in a poor developing country; melting of snow and ice in the Andes; more extreme hurricanes and storms in the Caribbean. Your students could research their topic as homework. Then, during class, each group could work on its “consequence map.” Groups should consider effects upon the environment, health, poverty, economics, political stability, and violence. Also, encourage them to consider which of their consequences would affect the United States and, if so, how. These ideas could be highlighted in yellow. As they work, visit the groups and ask probing questions that might help them make connections they haven’t yet made.

Some possible connections for severe and long-term drought:

- Drought → Loss of food → hunger/malnutrition → greater poverty → crime and/or political instability → possible security threats to U.S.
- Drought → soil erosion → less fertile soil → long-term food shortage → malnutrition and starvation → on-going global crisis to which wealthier countries must respond with foreign aid
- Long-term food shortage → migration of people to cities → increased slums in cities unprepared for increasing population → conflict over unmet needs → political instability

Some possible connections for melting of snow and ice in the Andes:

- Melting snow → less drinking water and irrigation → more time spent obtaining water, so less time in fields or at school → greater poverty → migration to cities or other areas → need for economic and social help from governments already stretched thin → greater chance for political instability and more desire to emigrate

Some possible connections for more and larger storms in Caribbean:

- Bigger storms → damaged infrastructure → decreased tourism → loss of income to families and government → greater need for financial and social assistance → poverty, crime, and emigration → increased dangerous sea crossings en route to U.S.
- Bigger storms → loss of crops and agricultural land and fisheries → loss of income and food resources → poverty and desperation → protests and discontent → political instability

To wrap-up the activity, engage the students in a dialogue about what they learned from the exercise, and especially about the ways they realized the United States could be affected by disasters in other parts of the world.

**2)** Many U.S. government entities have a special interest in climate change based on their area of concern. This activity will help your students better understand these concerns and the parts of government designed to address them. Divide your students into small groups, assigning each group to one of the U.S. Departments listed below:

- Department of Agriculture
- Central Intelligence Agency (CIA)
- Department of Commerce (including National Oceanic and Atmospheric Agency--NOAA)
- Department of Defense
- Department of Energy
- Environmental Protection Agency
- Department of Health and Human Services (HHS)
- Homeland Security (including Federal Emergency Management Administration—FEMA)
- Department of Interior
- Department of State
- Department of Transportation (including the Federal Highway Administration)

Ask the groups to visit and explore the website of their assigned department to find out the following:

- What is your department's position on climate change? (Does it acknowledge that it's happening? Does the department think it's a serious problem, or not?)
- How does climate change affect your department's area of concern? (For example, how does the Department of Agriculture describe the effects of climate change upon U.S. agriculture, now and in the future?)
- What, if anything, does your department recommend in terms of mitigation or adaptation to climate change? What is it already doing?
- What do you (the students in each group) believe is the likelihood that these recommendations are going to happen? What are the obstacles to these recommendations being addressed? What ideas do you have for overcoming the obstacles?

The home page yields helpful information for many of the departments. A simple search using the key words "climate change," "climate adaptation," or "sustainability" also yields valuable results. Some departments have reports accessible that shed light on their concerns.

Ask each group to share what was learned with the class. PowerPoint presentations or on-line document sharing are useful presentation formats to use during class or as an outside assignment.

Close the activity with a final class discussion. Whether departments directly state climate change is a serious problem or not, do all or most departments acknowledge that it's happening? According to information available on the websites, which departments appear to have the most developed plans for addressing climate change? What insights did you gain about the inner-workings of our government? What were you surprised to learn while hearing or reading the presentations about these government departments? (I used to think, but now I think...) What questions would you like to get answers to? What do the class presentations make you think about in terms of your own future?

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## **RESOURCES**

### **Environmental Protection Agency (EPA)**

<http://www.epa.gov/climatechange/>

The EPA has an entire section of its website dedicated to climate change, including a section on Climate Adaptation. The site also hosts education resources for students and teachers.

### **Intergovernmental Panel on Climate Change (IPCC)**

<https://www.ipcc.ch/index.htm> (home page)

<https://www.ipcc.ch/report/ar5/wg1/> (for 2013 report)

The IPCC is the leading international body for the assessment of climate change. Their mission is to provide the world with a clear view of the current scientific understanding of climate change and its potential environmental, social, and economic impacts. The organization has just released a new report on the status of climate change. One section of the report is dedicated to “Impacts, Adaptation, and Vulnerability” and can be accessed from the home page.

### **National Center for Atmospheric Research (NCAR)**

<http://ncar.ucar.edu/home>

NCAR is a federally funded research center dedicated to the study of atmospheric and related sciences. Its mission is to understand the behavior of the atmosphere and related biological, physical, and social systems. The agency has a section of educational resources on its web site.

### **National Geographic Society**

[http://education.nationalgeographic.com/education/encyclopedia/climate-refugee/?ar\\_a=1](http://education.nationalgeographic.com/education/encyclopedia/climate-refugee/?ar_a=1)

This website has an education section with a page dedicated to climate refugees. Once at the site, you can use it to explore additional resources.

### **National Oceanic and Atmospheric Administration (NOAA)**

<http://www.nesdis.noaa.gov/index.html>

This website has a variety of helpful resources, especially access to global climate data. The data portal provides access to global maps representing observations from satellites, ground stations, and historical collections. You can use the portal to examine data over time.

### **Refugees International**

[http://www.refugeesinternational.org/policy/in-depth-report/confronting-climate-displacement?gclid=CLu2\\_JGf770CFaMcOgodbQYAwg](http://www.refugeesinternational.org/policy/in-depth-report/confronting-climate-displacement?gclid=CLu2_JGf770CFaMcOgodbQYAwg)

Refugees International is an independent organization committed to advocating for life- saving assistance and solutions to displacement crises. One section of its website is dedicated to climate refugees.

### **The Nature Conservancy (TNC)**

<http://www.nature.org/>

The Nature Conservancy is a non-profit conservation organization dedicated to the conservation of lands and waters upon which all life depends. Go to the web page, search “climate change”, and find information on a variety of climate-related websites that include the following topics: climate impacts upon wildlife, storms and their relationship to climate change, climate impacts and threats, and climate footprint calculators.

## **The New York Times**

[http://learning.blogs.nytimes.com/2014/04/02/teaching-about-climate-change-with-the-new-york-times/?\\_php=true&\\_type=blogs&e](http://learning.blogs.nytimes.com/2014/04/02/teaching-about-climate-change-with-the-new-york-times/?_php=true&_type=blogs&e)

The New York Times Learning Network highlights climate change materials published in the New York Times that can be used to teach climate change from a wide variety of perspectives: the science of climate change; how climate change will affect North American ecosystems, public health, and species; mapping climate change; preparedness and solutions; ethical issues; and climate politics.

## **United Nations Framework Convention on Climate Change (UNFCCC)**

<https://unfccc.int/2860.php> (home page)

[https://unfccc.int/resource/docs/publications/tech\\_for\\_adaptation\\_06.pdf](https://unfccc.int/resource/docs/publications/tech_for_adaptation_06.pdf) (for report)

The UNFCCC produced a report called “Technologies for Adaptation to Climate Change.” It describes the effects of climate change upon coastal zones, drinking supplies, agriculture, public health, and infrastructure. Each of these topics has detailed information including a list of possible adaptations and examples from around the world.

## **UNHCR—The U.N. Refugee Agency**

<http://www.unhcr.org/pages/49e4a5096.html>

UNHCR has a section of its website dedicated to climate change and refugees. Presentations on the topic are posted as well as news stories showing examples of climate change leading to population displacement.

## **U.S. Department of Defense**

[http://www.defense.gov/home/features/2014/0314\\_sdr/qdr.aspx](http://www.defense.gov/home/features/2014/0314_sdr/qdr.aspx)

The U.S. Department of Defense produces a Quadrennial Defense Review. The most recent 64-page Quadrennial Review stresses threats to global security posed by climate change and discusses the potential for increased terrorism as a result. A short article discussing the recent review can be found at the following site: <http://rt.com/usa/pentagon-climate-change-terrorism-294/>.

## **The White House**

<http://www.data.gov/climate/>

In an effort to show how climate change can affect us directly in the United States, the Obama administration has inaugurated a website with the aim of turning specific data about projected climate events into digital presentations that will make the affects of climate change more tangible. At this time, data is available. Keep checking to see when visual presentations are available.

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