

Water and Geography

Overview

Water impacts both physical and human geography. In many cases, water determines boundaries of cities, states, countries and continents. The geography of a place affects where people live and settle, but can also cause people to move away from their homes and settlements. For example, many settlements throughout history and today are near freshwater sources like rivers and lakes. When areas that were once flowing with freshwater start to dry up (desertification) or go into long-term drought, people migrate from their home and search for a new home near a water source. Even if you live near water, you still may not have access to it (i.e. your water source is saltwater, is contaminated, is across a national border, is slowed by dams, or it is too expensive). Weather patterns also effect human settlements and migration. Rainfall, hurricanes, tsunamis, drought, and floods are all factors in settlements, culture, religion, economy, and much more.

Physical Geography:

- Rainfall - Which regions get the most rainfall? The least rainfall? Look at a map of annual rainfall patterns. What are the effects of these patterns?
- Study the Earth's atmosphere, weather patterns, ocean currents, natural disasters – impacts on human life, economy, culture, settlement/migration, education (b/c of drought), war, etc.
- How do weather patterns and ocean currents affect people? Specifically, how have changes in the environment (specifically water related changes) affected human settlements, activities, etc. and reduced the capacity of the environment to support human activity? Explore the drought-plagued Sahel or Australia, the depleted rain forests of central Africa, the impact of the economic exploitation of Siberia's resources on a fragile sub-Arctic environment)
- How does drought affect farming?
- National borders – how are they determined by water?
 - International (Transboundary) Waterways – You could live in a country where the water source begins or in the country where the water source ends. For example, 90% of all usable water in the Middle East and North Africa crosses over one or more international boundaries. How would you be affected in either situation?
- Dams – Who decides to build dams? How do they affect the water source? How do they affect people both positively and negatively?
- What is the human impact on water (pollution, acid rain, dams, re-routing rivers, planting non-native species, building housing development on a flood plain, deforestation)?

Human Geography

- Locate past culture hearths such as Mesopotamia, Huang Ho, the Yucatan Peninsula, and the Nile Valley and compare their past and present state. Why did people move to these places? Are people still living there today? What has changed? Describe the region with water as the focus.
- People settle near water, bringing businesses, schools, farming, etc. to an area
- How does water influence culture? What role does water play in religion?

- Urban Migration - Rural people who lack a stable water supply may migrate to urban areas, leading to overcrowding and stress on already limited resources. Where is urban migration happening the most?
- Refugees – People also may be forced to leave their homes due to environmental conditions such as desertification, floods, drought, tsunamis, etc.
- How is water a contributing factor in conflict? (economic competition for scarce resources, boundary disputes, cultural differences, control of strategic locations)
- Explore the relationship between colonization and water? Where has colonization occurred in the past and where is colonization or temporary settlement occurring today in regards to water? (China in Sudan)
- What is our economic interdependence on the Earth’s surface? What does it take to manufacture goods (water footprint)?
- What is water’s role in trade routes, communication, land value?
- How is water a factor in the development of nation-states, country borders, cities, etc.?
- What are the major debates on how water should be used as a natural resource? What are the pros and cons of arguments regarding: Water as a human right vs. water privatization? Hydropower? Desalination? Regulation of water during drought?
- How do policy decisions affect water quality, water systems? (building of dams, pollution from factories or poor regulation/control of wastewater, privatization)

Possible Topics

- Investigate disputes over territory crossing rivers. Explore the dispute between Turkey and Syria over the Euphrates River as an example. Here are some additional examples:
 - o Rio Grande and Colorado Rivers – Mexico and United States
 - o Lake Victoria – Kenya, Uganda, Tanzania (frontline video)
 - o Jordan River – Israel, Jordan, Syria, Palestine
 - o Golan Heights – Israel and Syria.
- Research some of the following dams around the world and see what their impact is:
 - o 3 Gorges Dam – China
 - o Bramaputra – India
 - o Itaipu – Brazil and Paraguay
 - o Aswan – Egypt
 - o Ataturk – Turkey
- Examine the role of the Ganges River in rituals, spirituality and culture.
- Identify regions affected by drought and the response governments have to such natural disasters. (i.e. Ethiopia, Australia)
- Follow the paths of these rivers like the Ganges and Yangtze to explore pollution, as well as their effects on both the physical and human geography where they flow.
- Research places where environmental conditions have caused people to flee their homes, such as the Philippines, Honduras, Indonesia.



Lesson Plans

Discovery Education

Three Gorges: The Biggest Dam in the World

<http://school.discoveryeducation.com/lessonplans/programs/threegorges/>

Students research the Three Gorges Dam, build a model dam to understand the engineering of a dam, and discuss the pros and cons of the dam.

National Geographic Xpeditions

The Nile in Crisis

<http://www.nationalgeographic.com/resources/ngo/education/xpeditions/lessons/03/g912/morellcrisis.html>

This activity asks students to examine the current water situation in the Nile River region, focusing on the Blue Nile and the Egyptian Nile, and to investigate ways in which the damming of the Nile has changed this river significantly from the way it was in ancient times.

Water Resources in Asia: Changes and Challenges

<http://www.nationalgeographic.com/resources/ngo/education/xpeditions/lessons/14/g912/waterresources.html>

Students will conduct their own case studies on important water resources, such as the Aral Sea in Central Asia, to see how those resources have influenced the life cycles of countless generations of people and the flow of people, commerce, crops, and life in distinctly different regions in Asia.

Water, Water Everywhere

<http://www.nationalgeographic.com/xpeditions/lessons/04/g912/newswater.html>

The goal of this lesson is to familiarize students with the realities about water supply in other nations, as well as in the United States, and what the future holds.

Online Resources

Global Water Hotspots

<http://news.bbc.co.uk/2/hi/science/nature/3754520.stm>

A description of the major water problems in the regions pictured below; explains how geography has played a role in many of these issues

Friends of the Earth Middle East

<http://www.foeme.org/index.php>

Website that highlights the various physical and human geography issues in the Jordan River Basin – also has a Video Library.

Turning the Tides: Regulation of the Tigris and Euphrates Rivers

http://maps.grida.no/go/graphic/regulation_of_the_tigris_and_euphrates_rivers

Water has long been associated with conflicts between neighboring countries. This graphic shows how water from the Tigris and Euphrates rivers is used in Iraq, and that neighboring Syria and Turkey influence the flow of this water.

Water Without Borders

<http://www.un.org/waterforlifedecade/pdf/waterborders.pdf>

A backgrounder on trans-boundary water issues.

Building Big: All About Dams

<http://www.pbs.org/wgbh/buildingbig/dam/index.html>

Learn about how dams are made, what the controversies are over them, what makes a dam successful, and explore some of the world's biggest dams.

UNICEF: Voices of Youth

http://www.unicef.org/voy/explore/wes/explore_wes.php

Voices of Youth is an Internet site created by the United Nations Children's Fund (UNICEF) for young people who want to know more, do more and say more about the world. This section has resources on water, environment and sanitation. Check out the fact sheets, Water Alert! game, and much more.

Africa's Growing Water Crisis

<http://www.pbs.org/frontlineworld/stories/africa705/history/africa.html>

A series of multimedia reports show how water stress across the horn of Africa is fueling conflict and threatening ancient ways of life. Includes article on Pastoralists in Ethiopia, slideshow of Lake Haramaya, and video on Lake Victoria.

Videos

Lake Victoria: Troubled Water – 5 min

<http://www.pbs.org/frontlineworld/stories/africa705/history/africa.html>

More than 30 million people rely on East Africa's Lake Victoria for their livelihoods. But lake levels have dropped dramatically in recent years. Climate change, hydroelectric dam projects and increasing pressure on its resources have some environmentalists suggesting the lake may be destroyed within 20 years.

Africa and Asia: Living on the Edge – 16 min

http://www.pbs.org/frontlineworld/stories/africa705/video/video_index.html

Exploration of the effects of climate change and other factors in Asia and Africa (base of the Himalayas, Kenya and Namibia)

Tuvalu: That Sinking Feeling – 16 min

http://www.pbs.org/frontlineworld/rough/2005/12/tuvalu_that_sin_1.html

There's trouble in paradise. A small island nation in the South Pacific, Tuvalu, is threatened by rising ocean levels believed to be caused by global warming.

Water: Drop for Life

<http://www.un.org/waterforlifedecade/index.html>

Watch the 'Water, Drop of Life' Video of the Decade and discover the issue (*located on in the middle-right side of page*).

Food & Water Watch Library

<http://www.foodandwaterwatch.org/water/films/library>

A great selection of water-related films available on loan from Food & Water Watch.

Current Events and Articles

Thirsting for Justice in Palestine (link to PDF of article)

The conflict between Israel and the Palestinians is, of course, about religion and power and history. But what few outside the region realize is that it is also largely about water.

Camels May Store Answers for Thirsty Africa

<http://www.circleofblue.org/waternews/2009/world/africa/camels-may-store-answers-for-thirsty-africa/>

Camel farming may become a central focus in the arid and semi-arid regions of Africa as climate change tightens its grip on agriculture.

Exploring the Sacred, Modern Along the Ganges

<http://www.npr.org/templates/story/story.php?storyId=9252214>

This five-part episode of Morning Edition on NPR takes you on a 1,550-mile journey down India's holy Ganges River and explores the river's role in India's culture, religion, economy, and much more.

Refugees Join List of Climate-Change Issues

http://www.nytimes.com/2009/05/29/world/29refugees.html?_r=2&ref=global-home

A look at the effects of rising sea levels on island nations.

Concerns Rise with Water of Three Gorges Dam

<http://www.npr.org/templates/story/story.php?storyId=17723829>

As a massive Chinese reservoir is filled to capacity, concerns resurface about the project's impact on the environment, resettled residents and the region's cultural heritage.

Afghanistan: Groundwater Overuse Could Cause Severe Water Shortage

<http://www.irinnews.org/Report.aspx?ReportId=80337>

The excessive use of groundwater for a variety of purposes has significantly depleted water tables and aquifers throughout Afghanistan and if the trend is not reversed soon the country will face a severe shortage of drinking water, the Ministry of Water and Energy said.

Iraq Suffers as the Euphrates River Dwindles

http://www.nytimes.com/2009/07/14/world/middleeast/14euphrates.html?_r=1&emc=eta1

The river is drying up as a result of the water policies of Iraq's neighbors, a drought and years of misuse by Iraq.