

**UNIVERSITY OF CHICAGO 12TH INTERNATIONAL
EDUCATION CONFERENCE:**
The Hot Topic: Strategies for Teaching Global Climate Change

Lesson Plan: Climate Change in the Middle East

*[Please send any questions/comments/feedback to Krishna (CMES Outreach Coordinator) at
kskulkarni@uchicago.edu]*

Objectives and Outcomes:

- Students will be able to identify resources and industries vulnerable to climate change in the Middle East.
- Students will be able to identify cause and effect relationships between environmental changes and socio-political events in the Middle East.

Materials Required:

- Maps of Middle Eastern bodies of water and agricultural areas, along with borders/conflict zones (included in Lesson Plan)
- Colored pencils for annotating maps – red for identifying areas of conflict, orange for areas of potential conflict, blue for key bodies of water

Procedure

Hook:

- Ask students how much water they use on an average day (for drinking, bathing, cleaning, etc.)
 - Data: On average, each person in the U.S. uses 80-100 gallons of water per day. Flushing the toilet and using the shower/bath are the largest uses of household water.
- Ask students where their water comes from – is that a sustainable source for the next 10 years? If not, how will that affect their daily life?
 - In Chicago, our drinking water comes from Lake Michigan, one of the largest sources of freshwater in the world (show photo of “water crib”). But in the rest of Illinois, communities rely on groundwater that is quickly depleting, due to aging pipes and poor planning. Despite being close to such a large source of freshwater in Lake Michigan, Illinois residents are vulnerable to water shortages. So, what challenges face a region like the Middle East, which is much drier than Illinois?

Body:

- **Present main idea:** Tell students that they will be exploring the question: What is the relationship between climate change and current events in the Middle East? Hand out copies of blank Middle East maps to students (incl. under “Attachments”)

- **Activate prior knowledge:** Ask students to brainstorm 3 current events and 1 major body of water in the Middle East. Can they label the locations of these events and bodies of water on their maps?
- **Building knowledge:** Show map of “Climate Zones in the Middle East and North Africa” and map of “Water Resources, Water-Diversion projects, and Water Conflicts in the Middle East” (links included under “Attachments”)
 - Show Middle East Institute video, “Water Crisis in the Middle East”
 - Show Encyclopaedia Britannica video, “Aral Sea”
 - Show map of World Resources Institute’s Water Risk Atlas in the Middle East (included in lesson plan folder)
- Ask students to reflect on these videos and maps: What have been the primary causes of the water crisis in the Middle East? How did human actions impact the Aral Sea? What are the long-term effects of the Aral Sea drying up?
- **Guided Practice:** Using atlases or the internet, ask students to label Middle Eastern countries and draw/shade bodies of water on their handout maps. Which countries share each body of water? Do these groupings correspond to any current events in the region (conflicts, extreme weather events, etc.)?
 - **Countries:** Morocco, Algeria, Tunisia, Libya, Egypt, Sudan, Chad, Mali, Niger, Eritrea, Djibouti, Ethiopia, Somalia, Saudi Arabia, Yemen, Oman, United Arab Emirates, Qatar, Bahrain, Kuwait, Iraq, Jordan, Israel, Palestinian Territories, Lebanon, Syria, Turkey, Iran, Afghanistan, Turkmenistan, Azerbaijan, Georgia
 - **Major bodies of water:** Nile River, Suez Canal, Tigris & Euphrates Rivers, Red Sea, Persian Gulf, Caspian Sea, Black Sea, Lake Chad, Niger River
- **Independent Practice:** The teacher will assign aforementioned bodies of water in the Middle East to groups of students. Each group of students will then create a case study of the body of water (what resources it contains, which communities or countries depend on those resources, and any relevant political / historical events regarding the body of water) and turn it in as a homework assessment. Ask students to use the following questions to guide their inquiry:
 - Does climate change in the Middle East pose a threat to that resource’s continued existence?
 - Have there been/are there any conflicts over this resource today?
 - If not, what might be the risk of such events occurring in the future? Why?
 - What might be some solutions?

Follow-up Group Activity for Next Lesson: Role Play

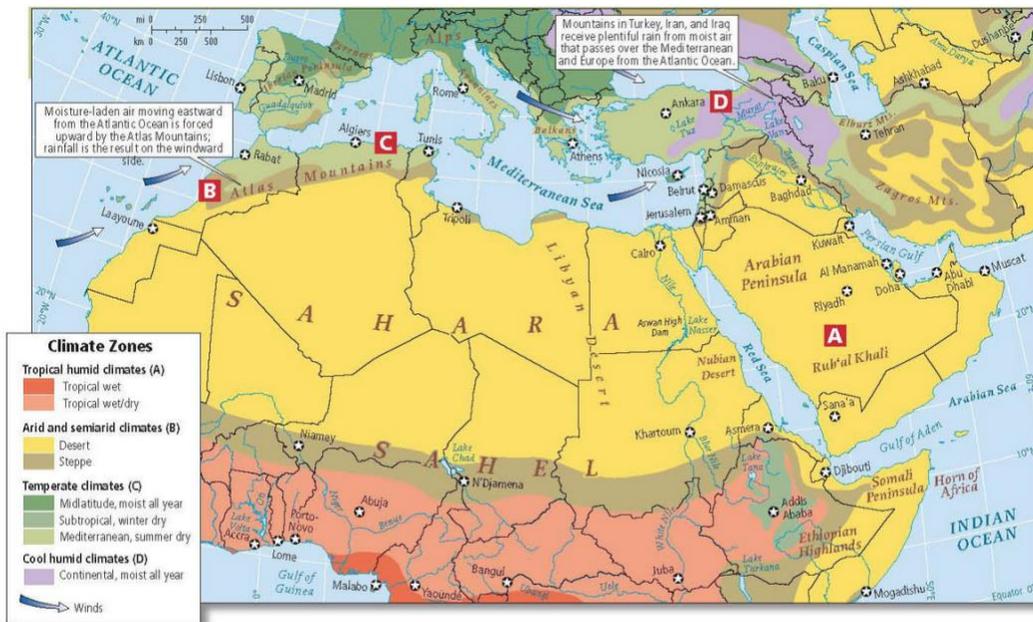
- Assign students roles related to a water-rights conflict
 - Leader of each country involved
 - Business interests
 - Human rights groups
 - Ordinary citizens
- Each student is tasked with securing certain necessities, but this will require a successful compromise.
- Possible scenarios: Egypt, Sudan, and Ethiopia (Nile), Iraq and Syria (Tigris/Euphrates), Chad, Nigeria, Cameroon, Niger (Lake Chad)

Further Reading:

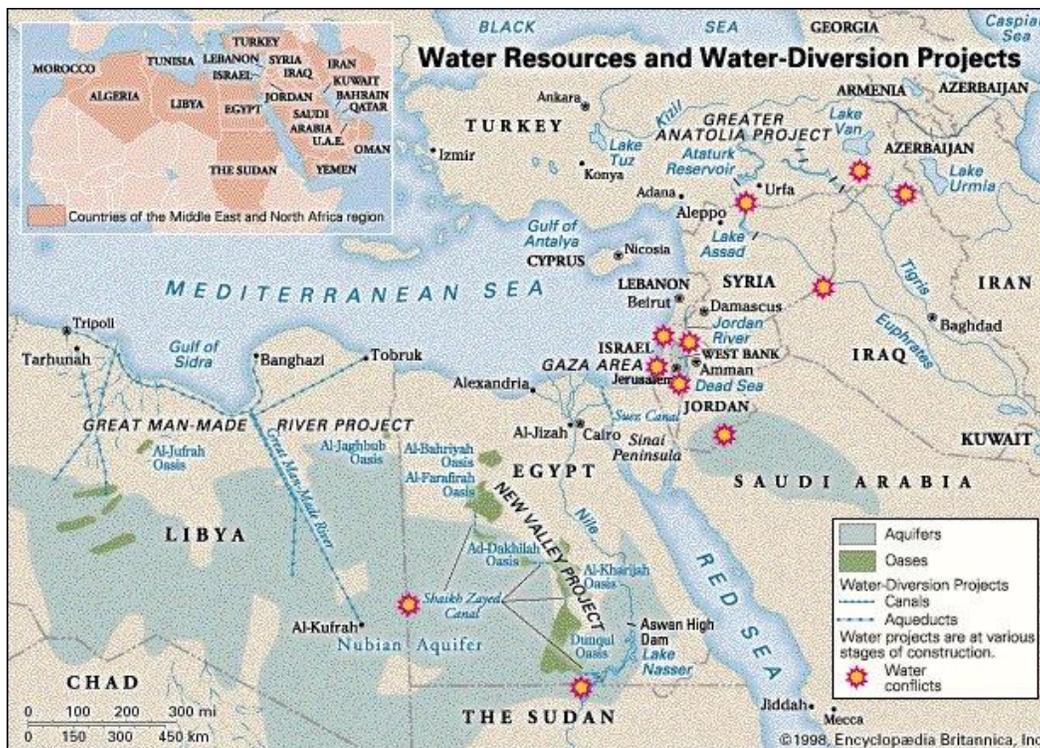
- Ben Taub, “Lake Chad: The World’s Most Complex Humanitarian Disaster,” *The New Yorker*, 27 November 2017: <https://www.newyorker.com/magazine/2017/12/04/lake-chad-the-worlds-most-complex-humanitarian-disaster>
- Salma Islam, “The Ethiopians are building a massive dam, and Egypt is worried,” *Los Angeles Times*, 8 April 2019: <https://www.latimes.com/world/la-fg-egypt-ethiopia-nile-dam-20190408-story.html>
- Vikram Mansharamani, “A major contributor to the Syrian conflict? Climate change,” *PBS Newshour*, 17 March 2016, <https://www.pbs.org/newshour/economy/a-major-contributor-to-the-syrian-conflict-climate-change>

Attachments

- ‘Water crib’ in Chicago. <https://drinkingwater123.metroplanning.org/meet-your-water-an-introduction>. Photo credit Eric Allix Rogers
- Katy Scott, “Can the Middle East Solve its Water Crisis?”, *CNN*, 03/22/19: <https://www.cnn.com/2018/07/11/middleeast/middle-east-water/index.html>
- (Video) “Water Crisis in the Middle East,” *Middle East Institute*: <https://www.mei.edu/multimedia/video/water-crisis-middle-east>
- (Video) “Aral Sea,” *Encyclopaedia Britannica*: <https://www.britannica.com/place/Aral-Sea#/media/1/31983/156916>
- (Image) Climate Zones of the Middle East. Pulsipher, L.M. & Pulsipher, A. A. (2014, Jan 6). *World Regional Geography Without Subregions: Global Patterns, Local Lives*. New York: W. H. Freeman and Company. <https://spring2015landers.files.wordpress.com/2015/05/screen-shot-2015-05-12-at-8-42-47-pm.png>
- (Image) Water Resource, Water-Diversion Projects, and Water Conflicts in the Middle East, *Encyclopaedia Britannica*, <https://www.britannica.com/topic/water-crisis-381196>
- (Image) “Aqueduct Water Risk Atlas,” World Resources Institute, <https://www.wri.org/resources/maps/aqueduct-water-risk-atlas>
- (Image) Blank, Printable Map of the Middle East. <http://resources.aldaad.org/wp-content/uploads/2015/07/map.png>



Climate Zones of the Middle East.



Water Resource, Water-Diversion Projects, and Water Conflicts in the Middle East

