

LESSON PLAN: THE GEOGRAPHY OF THE ARABIAN PENINSULA

By Joan Brodsky Schur

Introduction

This lesson introduces students to the physical geography of the Arabian Peninsula, its position relative to bodies of land and water and therefore its role in connecting continents, its climate, and its resources (in the premodern era). Based on evidence from materials provided in four maps and a background essay, students make hypotheses about how human societies adapted to life in a desert climate. Afterwards, they compare their hypotheses to factual evidence. In one concluding activity students are paired as travelers and travel agents. The travelers have specific scholarly interests in visiting the Arabian Peninsula, while the travel agents must plan trips to the peninsula to meet their client's purposes. In an alternative concluding activity, students study the Arabian camel and the impact of its domestication on human societies in the region.

This lesson provides material relevant to understanding the exhibit *The Roads of Arabia* as well as a second related lesson plan, *The Incense Routes: Frankincense and Myrrh, As Good as Gold*.

Grade Level

5th through 12th grades

Time Required

Depending upon the number of activities you plan to implement, this lesson takes from one to five class periods.

Materials

A variety of maps provided in this lesson and others in print and/or online.
The background essay provided in this lesson.

Essential Questions

- What geographical features create the desert climate of the Arabian Desert?
- How do land forms and waterways connect different world regions?
- How do plants and animals adapt to a desert climate?
- How do human societies adapt to living in desert climates?

Skills Taught

- Reading a variety of types of maps to ascertain specific information.
- Making inferences based on maps.
- Reading for information and researching a variety of source materials.

Standards

National Geography Standards

- Analyze the physical characteristics of places through the use of maps.
- Describe the relationships between the physical and human characteristics of a region.
- Use maps to show the physical and human connections between regions.

Procedure

Activity 1: Introduction

Part One

Ask students to share what comes into their minds when they think of the term “Arabia.” Do they describe a mythical place, a real one, or both? Perhaps students associate the term with the 1001 tales in *The Arabian Nights* or the movie *Lawrence of Arabia*. Technically the term means “land of the Arabs.” It has been handed down to us by writers like the Greek historian Herodotus (d. 430 BCE) who described Arabia as “*the last of inhabited lands towards the south, and it is the only country which produces frankincense, myrrh, cassia [a type of spice bark], cinnamon, and ladanum.*” Herodotus may not have known very much about the land he described, but he did give a reason to go there. What, if anything, do students know about the role of Arabia in ancient or medieval history? Do they think it was relevant to world history before the modern era and the discovery of oil? Why or why not? Ask them to list their reasons for thinking so.

Now refer students to Map 1: Map of the Arabian Peninsula and Vicinity. Point out that when we speak of Arabia in geographical terms, we are referring to the Arabian Peninsula — now home to seven modern states (including Saudi Arabia). Point out that in this map the higher the elevation, the lighter the shading. The highest region of the Arabian Peninsula is its southern and westernmost tip, where the highest mountain is over 12,000 feet high.

Distribute to students copies of Worksheet 1: Geography of the Arabian Peninsula, and project or otherwise distribute Map 1 and Map 4: Indian Ocean Dhow Ports. Students can work as individuals or in small groups. If possible, provide students with a blank map of the same region so that they can fill in place names on their own maps.

Part Two

Now distribute the background essay, *The Geography of the Arabian Peninsula*. Also distribute Map 2: Rainfall and Map 3: Fresh Groundwater Sources. After students have read the background essay, ask them to answer the questions on Handout 2, as individual homework or as small group work in class.

Activity 2: Making Hypotheses about Human Adaptation to the Environment of the Arabian Peninsula

Even before the advent of modern technology, humans learned to live in and adapt to the climate of the Arabian Peninsula. How might they have used the resources at hand to provide themselves with food, water, shelter, clothing, and means of transportation? Use

all the sources of information at your disposal (maps and the background essay) to make your predictions.

- On a blank map of the peninsula, circle the areas that you think will be able to support sedentary populations based on a permanent food source. In other words, which areas would be home to the densest populations on the peninsula? Explain your reasoning.
- Which areas of the Arabian Peninsula could not support permanent settlement but might support a nomadic lifestyle? For example, nomadic pastoralists move from location to location as they tend animals that need to graze. When they have used all the food sources in one area, they move their animals to another, eventually circling back once plants have regrown. Point to areas in which pastoralists might set up semi-permanent settlements. Support your choices with evidence.
- Using the maps, predict the location of oases and plot a course that a traveler might use moving from one oasis to the next. What overland trade routes might have developed throughout the Arabian Peninsula from the south in Yemen up north into Mesopotamia (current-day Iraq) and the Levant (the area bordering the eastern Mediterranean)?
- Based on the information in the background essay, predict how peoples native to the Arabian Peninsula, like the Bedouins, might dress. Consider the climate, need for protection, and sources of materials for making clothing. What materials will they use?
- Why are camels the ideal means of transport across the deserts of Arabia?
- Other than transportation, for what other reasons would people in the region rely on camels? Think of at least four ideas.
- What types of shelters do you think nomads of the region would develop? Consider the need to transport their shelter as they move their animals, the means of carrying it, the climate, and sources of materials at hand.
- How many miles do you think nomadic peoples could cover in one day and why?
- Given what you have learned about the Arabian Peninsula, how many people do you think will live together in a nomadic group or tribe? Consider the need for protection, how fast smaller groups—relative to larger groups—can travel, and the resources they will need to find in order to survive, including the ability to support the grazing of animals.

Debriefing

After students make their own predictions, compare their hypotheses to the lifestyles that Bedouins actually developed over the centuries in this region. Which students came closest to making accurate predictions? Ask students if this exercise enhanced their empathy and respect for people living in this region before the advent of modern technology.

Use Map 5: Roads of Arabia to compare the trade routes students plotted to the ones that actually developed over time. Students' predictions can be measured against the reality of pre-modern Arabian life by using the following factual accounts.

- Philip K. Hitti, "The Original Arab, the Bedouin," in *The Arabs: A Short History*, (Washington, DC: Regnery, 1996). Reprinted in *One World Magazine*.
<http://www.oneworldmagazine.org/focus/deserts/hittstr1.htm>

- Inea Bushnaq, "Tales Told in Houses Made of Hair: Beduin Tales," in *Arab Folktales* (New York: Pantheon, 1986), 3-10.
- Albert Hourani, "The Countryside," in *A History of the Arab Peoples* (London: Faber, 2013), 98-104.
- Materials about the ancient cities of Tayma and Qaryat al-Faw, documented in the Roads of Arabia exhibit. Available at <http://www.roadsofarabia.com/>

Note: to order complimentary classroom copies of *Saudi Aramco World's* Special Exhibition issue "Roads of Arabia," email your request to EK.Catchings@AramcoServices.com, using the subject line "Roads of Arabia Special Request." Requests will be filled as long as supply lasts. Full-text digital articles, and the Classroom Guide are available at www.saudiaramcoworld.com.

Activity 3: Planning a Trip to the Arabian Peninsula for Specialized Purposes

1. Set up a class travel agency. Assign half of the class to play the role of clients who are traveling to the Arabian Peninsula for a specific purpose. Assign clients to travel agents in pairs, as per the list of clients below.

- The clients must prepare a list of their goals and the reasons for the journey they are about to undertake. After their travel agent prepares their itinerary they must write an imaginary account of their journey.
- Travel agents must prepare specific itineraries that meet the needs of the client for whom they are planning a trip. This should include locations to visit, means of transport to get there, living accommodations, and experts in the region with whom clients can consult about topics of interest to them. Agents should consider sending their clients to the archeological sites covered in the Roads of Arabia exhibit, where relevant. Ask the travel agents to annotate the itinerary on Google Earth. Go to <http://www.google.com/earth/outreach/tutorials/index.html> for a tutorial about making annotated maps.
- List of Clients:
 - An archaeologist looking for evidence of the earliest human societies in the Arabian Peninsula.
 - An archaeologist researching life along the Incense Routes throughout the Arabian Peninsula.
 - A botanist who wants to learn about the Arabian Peninsula's most unique plant life.
 - A zoologist who wants to learn about the Arabian Peninsula's animal life, including endangered species.
 - A specialist in Ottoman history who wants to study any remaining Ottoman buildings and infrastructure on the peninsula (roads, caravanserais, religious monuments, bridges, etc.).
 - An executive of a petrochemical company in search of new sources of oil on the peninsula.
 - An anthropologist who wants to visit oases in order to study the relationship between sedentary populations (crop growers) and nomadic pastoralists (herders) both today and in history.
 - An ecologist interested in studying the availability, uses, and sustainability of water on the Arabian Peninsula and its sustainability.

- A demographer who wants to study the impact of immigrant labor on the peninsula.
- A Muslim historian of the *hajj* (pilgrimage to Mecca) who wants to study how it has changed since Ottoman times, including the impact of modern transportation on the region.

Activity 4. The Camel in Space and Through Time

The Arabian camel is a fascinating animal for students of any age to study. For high school students, the domestication of camels can be studied alongside their study of the effects of animal domestication on the rise of civilizations worldwide.

Begin by asking students to study the images of camels in rock art and sculpture on pages 8 and 13 in the Saudi Aramco World special exhibition issue, "Roads of Arabia." What evidence of domestication is found in these images? (In the sculpture on page 8 the camel wears a rope around its neck and is depicted with great tenderness. In the rock art on page 13 camels are shown interacting with people, perhaps being trained.)

- Consider having younger students make their own model of a camel in clay and create a backdrop of a desert in which to display it. Alternatively, working in larger groups, ask students to make paper maché model camels, the actual size of a newborn camel. Ask them to gather the essential "tools" that would be needed to train a camel as it grows up, and put those implements in their display.
- Ask younger students to write a "year in the life of a camel" from the camel's point of view or from the point of view of someone tending camels. What are the most challenging aspects of camel herding? How does this relate to how camels interact with one another?
- Ask students to describe in a report the physical properties and patterns of behavior that allow camels to survive in the desert.
- Ask older students to study the ways in which human uses of the camel transformed life in the Middle East. (See "Why They Lost the Wheel" by Richard W. Bulliet in *Saudi Aramco World*:
<http://www.saudiaramcoworld.com/issue/197303/why.they.lost.the.wheel.htm>)

Worksheet 1: Geography of the Arabian Peninsula

1. Between what latitudes does the Arabian Peninsula lie? Much of the Arabian Peninsula is desert. Using a world atlas, name three other deserts in the world that occupy roughly the same latitudes.
2. List the seven states that currently occupy the Arabian Peninsula.
3. A peninsula is defined as a land mass surrounded on three sides by water. Which three bodies of water surround the Arabian Peninsula? Also find and label the Gulf of Aden, the Gulf of Oman, and on a larger map, the Indian Ocean.
4. Define the landform that we call a "bay." Why is a bay necessary for providing ships with shelter? Look closely at the height and shape of the coastlines on all three sides of the Arabian Peninsula. Then locate the most useful bays in terms of access to them from land (for docking and inland transport) and water. [Note: big boats also need deep waters. You may want to consult nautical maps before choosing the best sites.]
5. Before the Suez Canal was built in 1869, what land or water routes would have been used to connect the Arabian Peninsula to the Mediterranean Sea?
6. Find and label: the Rub' al-Khali (the Empty Quarter), Nafud, Hijaz and Asir regions of the peninsula.
7. Using Map 6: Global Connections, name two places in Asia to which the Arabian Peninsula has access over land. Name four places in Africa and Asia to which it has access via waterways.

Worksheet 1: Geography of the Arabian Peninsula (Answer Key)

1. Between what latitudes does the Arabian Peninsula lie? Much of the Arabian Peninsula is desert. Using a world atlas, name three other deserts in the world that occupy roughly the same latitudes.

The Arabian Peninsula lies approximately between latitudes N. 12° and N. 34°. The Sahara, the Thar Desert in India and Pakistan, and the Mojave Desert in the US share similar latitudes.

2. List the seven states that currently occupy the Arabian Peninsula.

Saudi Arabia, Yemen, Oman, the United Arab Emirates, Kuwait, Qatar and Bahrain occupy the Arabian Peninsula.

3. A peninsula is defined as a land mass surrounded on three sides by water. Which three bodies of water surround the Arabian Peninsula? Also find and label the Gulf of Aden, the Gulf of Oman, and on a larger map, the Indian Ocean.

The Arabian Peninsula is surrounded by the Red Sea, the Arabian Sea and the Persian Gulf.

4. Define the landform that we call a "bay." Why is a bay necessary for providing ships with shelter? Look closely at the height and shape of the coastlines on all three sides of the Arabian Peninsula. Then locate the most useful bays in terms of access to them from land (for docking and inland transport) and water.

A bay is a large inlet in a body of water where the land curves inward. In general, the coastline along the Red Sea is less useful for harboring ships because it has fewer bays. In addition, the Red Sea coastline rises in height rapidly. The Persian Gulf has many more bays and it extends inland at sea level. The southern coastline is strategically important, especially at the Gulf of Aden and Gulf of Oman.

5. Before the Suez Canal was built in 1869, what land or water routes would have been used to connect the Arabian Peninsula to the Mediterranean Sea?

In general two routes were used before the Suez Canal. The first went up the peninsula's western coastline (either by land along the Hijaz or by boat in the Red Sea) and from there overland through Petra (in today's Jordan), ending in Gaza on the Mediterranean. The second route was to cross the Red Sea into Egypt and from there navigate the Nile River, ending in Alexandria.

6. Find and label: the Rub' al Khali (the Empty Quarter), Nafud, Hijaz and Asir regions of the peninsula.

7. Using Map 6: Global Connections, name two places in Asia to which the Arabian Peninsula has access over land. Name four places in Africa and Asia to which it has access via waterways.

The Arabian Peninsula connects overland to Iran (Persia) and Afghanistan. Via waterways the Arabian Sea leads to the Indian Ocean, and thus to India and Indonesia. Across the Red Sea Arabia is close to Egypt, Ethiopia and Somalia.

Worksheet 2: Adaptation to the Arabian Peninsula

1. Why is the Arabian Peninsula referred to as a "crossroads"?
2. Explain why there is little rainfall on the peninsula or in other regions lying at similar latitudes. Which areas of the peninsula receive the most rainfall, and why? What grows in Yemen, where rainfall is the most plentiful?
3. Define the terms *wadi* and *oasis*. Using the maps, predict where they might be located throughout the peninsula, and explain why you think so.
4. Describe the Rub' al-Khali (the Empty Quarter), giving concrete details. Why do you think it got this name? Also describe the Nafud, Hijaz and Asir regions of the peninsula.
5. Despite the lack of rain and heat, plants do survive throughout the Arabian Peninsula. Name three ways that they adapt to the harsh climate.
6. Animals have also adapted to conditions in the harsh climate. Name three animals that can survive in the desert, and explain their means of adaptation. How could humans learn to survive by imitating the survival tactics of animals?

Handout 1

Background Essay: The Geography of the Arabian Peninsula

The Arabian Peninsula is the largest peninsula in the world. It was first referred to as *Arabia* or “land of the Arabs” during the Hellenistic period. The peninsula stretches approximately 1,200 miles from north to south and 1,300 miles from east to west – roughly the same size as the United States from the East Coast to the Mississippi River. Arabia lies at the crossroads of Asia (of which it is a part) and Africa, which it faces across the Red Sea. On the peninsula’s eastern flank lies the Persian Gulf, which leads south to the Indian Ocean. Thus Arabia is connected directly to many places in the world via water routes, including India and East Africa.

In the north, Arabia borders the Syrian Desert, which has been traversed for centuries by caravans headed into Mesopotamia and the Levant. It benefited from trade routes on the Indian Ocean, as well as from overland trade that crossed Mesopotamia and the Sahara Desert. Thus Arabia is an important land bridge connecting continents and cultures. The peninsula is now occupied principally by Saudi Arabia, followed in size by Yemen and Oman. It also includes the smaller countries of Kuwait, Bahrain, Qatar, and the United Arab Emirates. Oil was not discovered in Arabia until the 1930s.

Temperatures throughout Arabia are high, reaching up to 130° Fahrenheit in the interior, and in most areas there is little rainfall. This is because the Tropic of Cancer (at 23° 26’ north of the Equator) lies at the center of the Arabian Peninsula. Covering this latitude is a high-pressure area that causes clouds to evaporate. Because of scant rainfall – an average of 4 inches of rain a year – the Arabian Peninsula has few permanent lakes or rivers. Water can intermittently be found in *wadis*, the hardened dry remnants of riverbeds that formed thousands of years ago when the climate was wetter. When it does rain, water gathers and flows along a *wadi*’s hard surface. Usually the water evaporates quickly into the hot, dry air, or filters down hundreds of feet below the surface, so the *wadi* is not a permanent source of surface water. More reliable are oases, which are fed by underground springs. In an oasis environment palm trees rich with dates flourish, grains grow, and animals are raised. Al-Hasa and Qatif, both in eastern Arabia, are two of the world’s most populated and ancient oases.

To the north of the peninsula lies the Nafud desert, which has sand dunes that reach over 100 feet high. In the southern interior of the Arabian Peninsula lies the Empty Quarter (*Rub’ al-Khali*). Spreading throughout a third of the peninsula, the Empty Quarter is the largest sand desert in the world – equivalent in size to France. The great sand dunes of this region were created by centuries of wind blowing on rock, causing the rock to erode eventually into particles of sand. In such an arid climate the wind blows uninterrupted by trees and other vegetation. Thus the Empty Quarter is especially difficult to survive during a sandstorm. Yet Bedouins and their camels have inhabited the edges of the region for centuries and traversed the Empty Quarter for purposes of trade up until about 300 CE, when the process of increased desertification made it all but uninhabitable until the advent of modern technology.

In some parts of the peninsula, such as the south and east, there are predictable rainfalls, which are influenced by the monsoon winds that bring rainfall to India. Water running down from the mountainous areas can be tapped many miles away by digging canals or wells. A central plateau, the Nejd, also has fertile valleys and enough rainfall to support

the grazing of sheep, goats, and camels. The Hijaz — home to Islam's holy cities of Mecca (Makkah) and Medina (Madinah) — borders the northern coast of the Red Sea while Asir lies on the Red Sea's more rugged southern coastline. The Hijaz, like Asir, is home to *wadis* and oases that draw on underground springs.

The most fertile areas of Arabia are the low-lying lands along the Persian Gulf, and the mountainous areas of the southwest that border the Red Sea and Gulf of Aden. The peninsula's highest peaks are in Yemen where mountains can reach up to 12,000 feet. Here, moisture rises from the surrounding waters up along the mountain ranges and condenses, bringing up to five inches of rainfall a year. The Yemen region is thus a more fertile one, capable of growing numerous products including coffee, frankincense, myrrh, qat, barley, wheat, lentils, ginger, and fruit.

Plants throughout the deserts of Arabia adapt by growing small spiny leaves instead of bigger leaves that would shrivel in the heat. Cacti survive by storing water. Other types of grasses spring to life when it rains and quickly wilt, but not before they drop sturdy seeds into the soil that survive until the next rainfall. Even in the Empty Quarter, the scant rainfall is enough for a hardy species of salt grass to grow.

Animals also survive in the desert by adapting to the climate. Hedgehogs, rodents, and hares burrow underground during the intense daytime heat to survive. Cold-blooded lizards survive by carefully managing their body temperature and retaining water efficiently. Larger animals have adapted to require little or no drinking water. Predators such as foxes, caracals (desert lynxes), hyenas, and jackals take moisture from their prey, while herbivores like gazelles take moisture from the plants they consume. Some of the peninsula's birds, like flamingos and pelicans, concentrate in coastal waters, while others concentrate around oases.

The animal most important to human survival in the desert is the Arabian camel, or dromedary. Camels eat thorny plants and can drink thirty gallons of water at a time. They can vary their body temperatures to avoid sweating, and their single hump stores fat that can be broken down into energy when water and food are not available. Camels can thus go for a month or more without drinking. They can travel up to twenty-five miles a day while carrying loads of hundreds of pounds. Anthropologists believe that camels were domesticated by around 3,000 BCE.

Information about the earliest human societies on the Arabian Peninsula comes from archaeological evidence, still being unearthed today. Originally the peoples of the peninsula lived in distinct regions of Arabia defined by linguistic and cultural differences. "Arabs" as a people were first mentioned by outsiders in Assyrian and Biblical texts from the ninth to fifth centuries BCE. As the Arabic language evolved over time it became the lingua franca of the peninsula.

A progression of empires rose and fell on Arabia's borders, including the Assyrians, Babylonians, Egyptians, Hellenes, Romans, Persians and Byzantines; all were influenced by trade with Arabia's people and left their mark on the indigenous cultures of the peninsula. Today the region is highly urbanized. For example, more than two-thirds of Saudi Arabia's population (26.5 million) lives in one of five major cities.

THE GEOGRAPHY OF THE ARABIAN PENINSULA

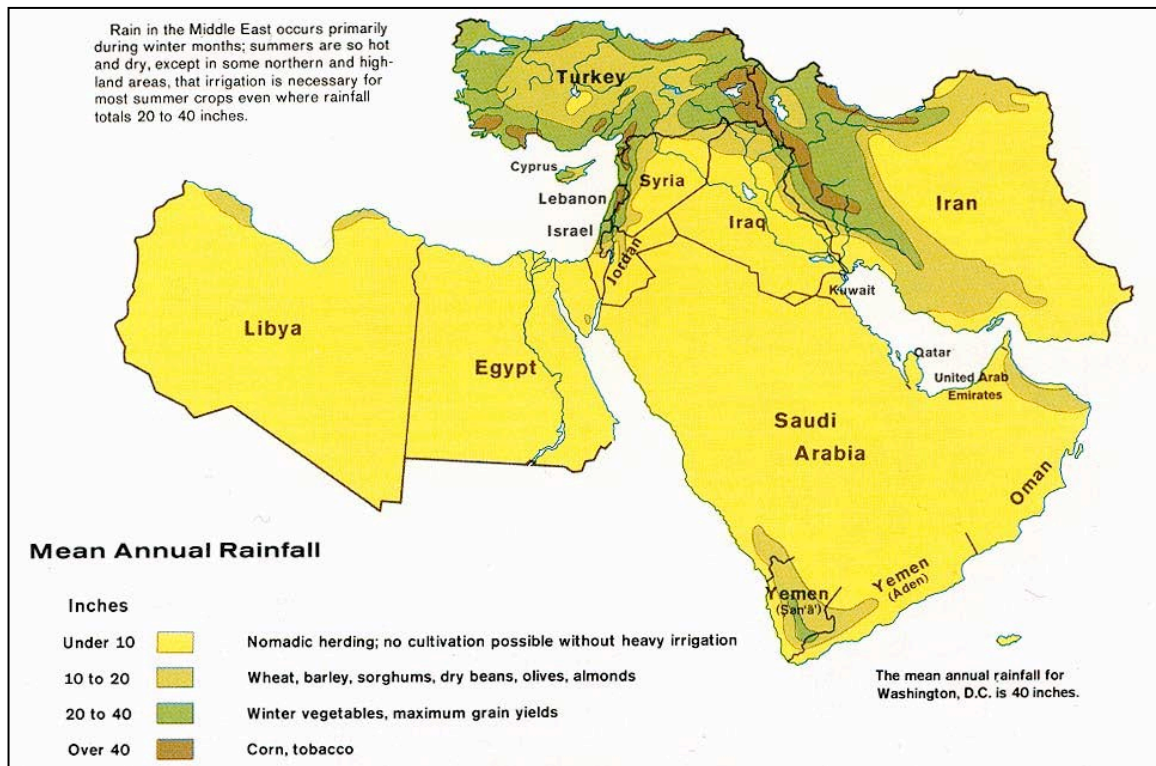
Map 1: Map of the Arabian Peninsula and Vicinity



Source: University of Texas Libraries

http://www.lib.utexas.edu/maps/middle_east_and_asia/middle_east_ref04.jpg

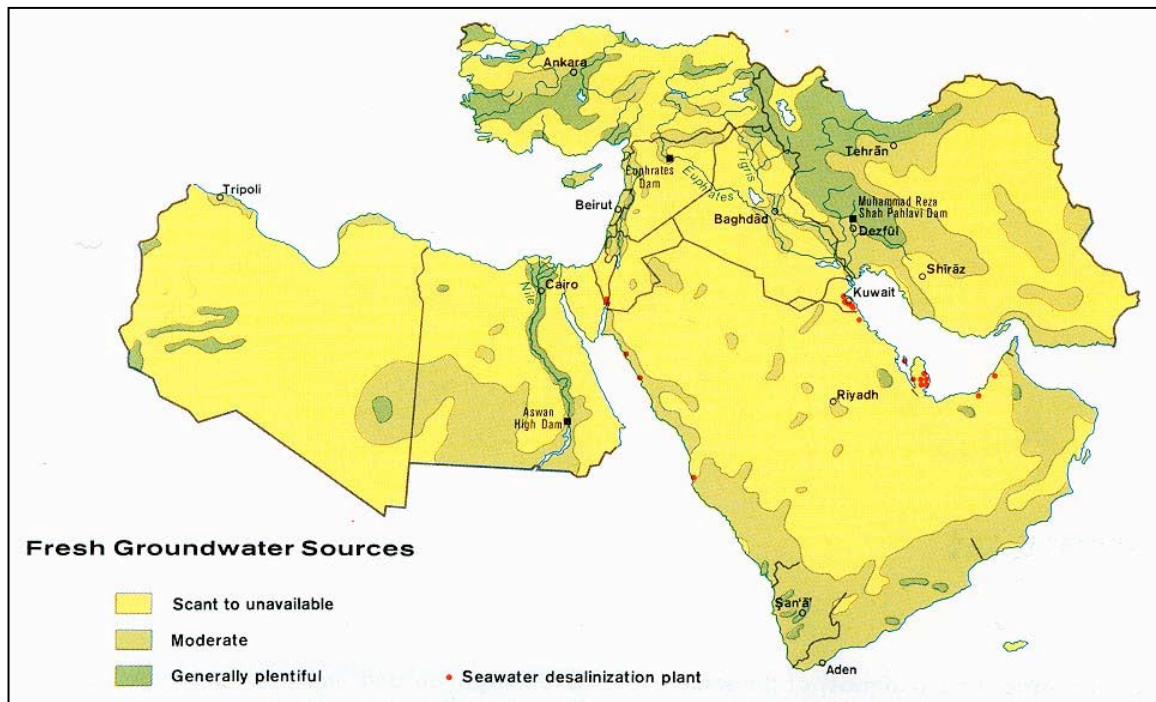
Map 2: Annual Rainfall in the Middle East



Source: University of Texas Libraries

http://www.lib.utexas.edu/maps/middle_east_and_asia/middle_east_rainfall_1973.jpg

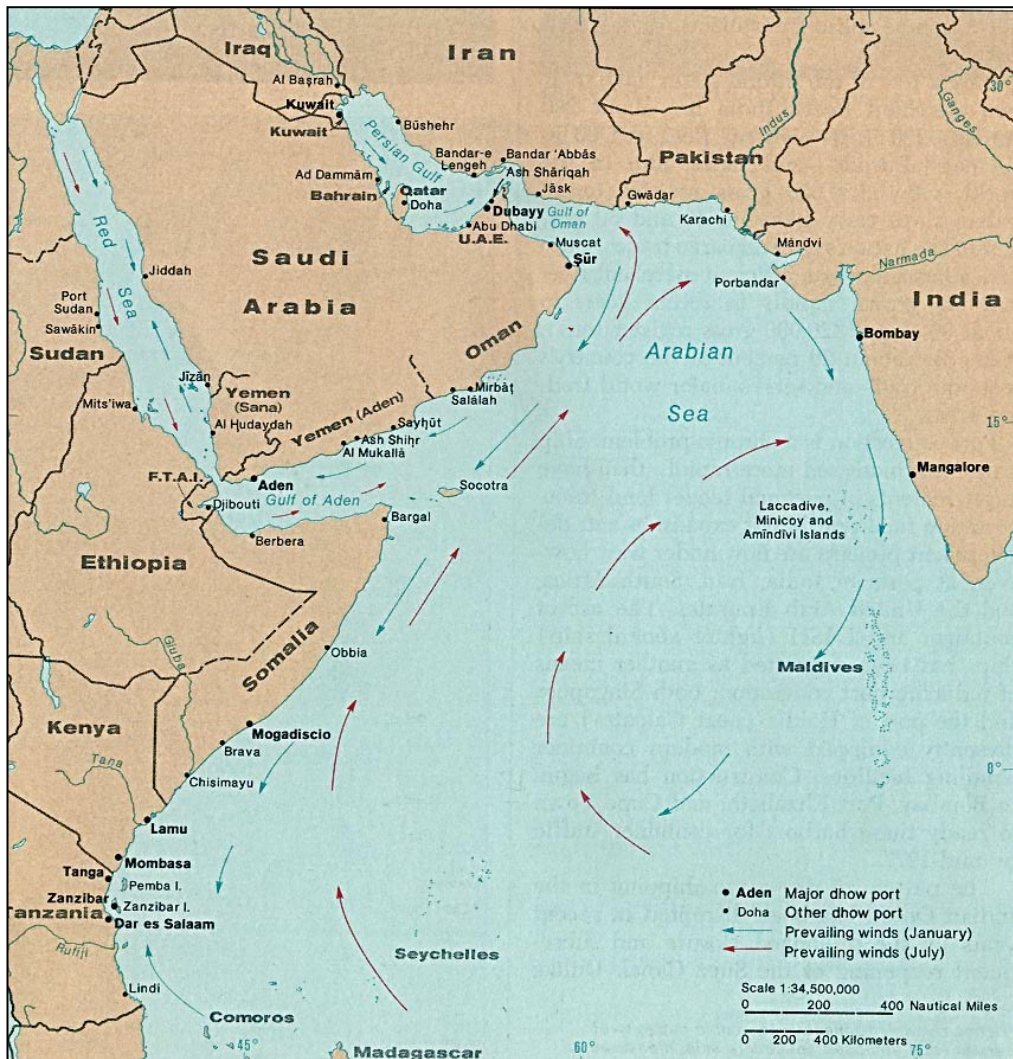
Map 3: Fresh Groundwater Sources



Source: University of Texas Libraries

http://www.lib.utexas.edu/maps/middle_east_and_asia/middle_east_grndwater_1973.jpg

Map 4: Indian Ocean Dhow Ports
 Showing states in 1976 and prevailing winds (Note: Yemen has since reunited)



Source: University of Texas Libraries
http://www.lib.utexas.edu/maps/islands_oceans_poles/dhow_76.jpg

THE GEOGRAPHY OF THE ARABIAN PENINSULA

Map 5: Roads of Arabia showing incense and pilgrimage routes



Source: "Roads of Arabia," Saudi Aramco World, 2012
<http://www.saudiaramcoworld.com/issue/201102/roads.of.arabia.htm>

Map 6: Global Connections



Source: University of Texas Libraries

http://www.lib.utexas.edu/maps/world_maps/world_rel_803005AI_2003.jpg