**APES Chapter 13: Water Resources**

**Note Taking Focus Questions**

**Directions:** Use the Cornell Method of note taking as you answer the questions below. Your notes must be **hand written** to receive credit for them. Within your notes, use the title for each subsection of notes which is *in italics and underlined.*

**Core Case Study: The Colorado River Story**

1. Describe the Colorado River – where does it flow, where does the water come from, what alters its flow

2. Who depends upon the water of the Colorado River, and what do they use it for?

3. What problems is the Colorado River facing?

**Section 13-1** *Will we have enough usable water?*

1. List of the things that make water an irreplaceable resource. (What is it used for?)

2. Describe why access to freshwater is each of the following: a global health issue, an economic issue, a national and global security issue, and an environmental issue.

3. How much water is available to us as liquid freshwater?

4. How are we altering the water cycle, and why haven’t we paid much attention to our effects on the water cycle?

*Sources of Water*

1. Define the following: groundwater, zone of saturation, water table, aquifer, natural recharge, lateral recharge, nonrenewable aquifers.

2. Define the following: surface water, surface runoff, watershed or drainage basin, reliable surface runoff.

*Worldwide: Who is using the water?*

1. List the various percentages and the categories of water users.

2. What is meant by a water footprint? How much does the average American use?

3. What is virtual water and how does it affect our water footprint?

*Case Study: Freshwater Use in U.S.*

1. What is true of water supplies here in the U.S.?

2. List the water users in the U.S. and the % of water that they use.

3. What does the USGS predict for 2025? Why do they think this will happen?

4. What does the Department of Interior will happen in the water hotspots?

5. Describe the 4 major problems with will happen if the Colorado River is impacted by climate change.

*Freshwater Shortages Will Grow*

1. What are the factors that cause water scarcity?

2. What is scarcity stress? How many countries are facing it?

3. What is the scarcity stress likely to lead to?

**Section 13-2**

*Is groundwater a sustainable resource?*

1. How much of the world’s population depends upon aquifers for drinking water?

2. Why is the groundwater in aquifers being depleted?

*Case Study: Ogallala Aquifer*

1. Where is the Ogallala aquifer? How much water does it supply for what uses?

2. What is happening to the water level in the aquifer? Why? What is the impact on the springs/wetlands that are fed by the aquifer?

*Harmful Effects of Overpumping Aquifers*

1. Describe at least 6 harmful effects of overpumping aquifers.

2. List the 4 major concerns about using deep aquifers as a potential future water source.

**Section 13-3**

*Expanding Surface Water Resources*

1. List the benefits and drawbacks of *Building a Dam and Creating a Reservoir* behind it.

2. Read the Case Study: How Dams Can Kill An Estuary. Describe how the dams along the Colorado River and the redirection of the river water has impacted the estuary where the river should flow into the Gulf of California. What would need to be done to repair the damage?

**Section 13-4**

*Can water transfers expand supplies?*

1. What is used to transfer water from water rich areas to dry areas?

2. Give some examples of places that use it.

3. List the benefits and drawbacks of supplying water this way.

4. Why does water supplied this way seem inexpensive?

5. How could climate change threaten the sources of water?

*Case Study: The Aral Sea Disaster*

1. Describe what has happened to the Aral Sea as a result of water diversion project and why it is considered to be an environmental disaster.

**Section 13-5**

*Desalination as a way to expand water supplies*

1. Define desalination, and describe the two different methods used to desalinate water supplies.

2. What are the problems associated with desalination?

**Section 13-6**

*Using Freshwater more Sustainably*

1. Why do we allow so much water to be lost through evaporation, leaks, and inefficient use?

2. Describe some ways that we can improve efficiency in irrigation including more efficient systems.

3. Describe the methods that poor farmers use to conserve water.

4. List the various ways to reduce irrigation water losses.

5. List the ways to reduce water loss in industries and homes.

**Section 13-7**

*Reducing the Threat of Flooding*

1. What is a floodplain, and why do people live in them?

2. What has been done to reduce the threat of flooding?

3. List the benefits and drawbacks of flooding.

4. Describe how human activities can increase flooding.

*Case Study: Living in the Floodplains of Bangladesh*

1. Why is flooding such a problem in Bangladesh?

2. Why has flooding gotten worse in recent years?

3. How is the country taking measures to adapt to projected sea level rise?

*Reducing Flood Risks*

1. Describe both natural and engineered devices that help to reduce floods.