The Construction of Dams: A Case Study Analysis

Revised from: http://www.learningtogive.org/lessons/unit124/lesson2.html

Name: _____

Purpose:
To investigate the effects of dams on the ecosystem of a region (the long-term effects that are not anticipated).

Introduction:
Refer to the photo of the Hoover Dam on the screen. In the space below, describe the purpose of this and other dams.....you may include information you learned in previous lessons as well as personal experiences.

The Case Study:
Complete the following information based on the dam case study you received:

INDIVIDUALLY:

*Name of the Case Study and the River involved:*_____
Complete the chart below as you read the short article. You may bullet your notes!

POSITIVES OF DAMMING ON THE REGION	NEGATIVES OF DAMMING ON THE REGION
At least 3	At least 3

WITH A PARTNER:

Return to the chart you completed.....with the help of a peer, make adjustments to your lists. You may add, delete, or transfer information from one side to the other.

AS A GROUP

In a group of 4 (as assigned by your teacher), share the info in your charts. Create one table below.

NILE RIVER REGION		COLORADO RIVER REGION	
Positives of Damming	Negatives of Damming	Positives of Damming	Negatives of Damming

Conclusion:

Over the past few class periods, you have investigated the fresh water biome and an issue – the construction of dams- that affects it. Pretend you can travel back in time to a period **before** any dams were built.. In the space below, write an essay that persuades the government to begin or to avoid building the dam. Be sure to cite specific reasons for your argument. (You may continue onto a separate sheet of paper)

Case Study #1

The Aswan Dam

The Aswan Dam was completed in 1971 in an effort to meet the water needs of Egypt's rapidly growing population. It was also built to tame the yearly floods of the Nile River. The Nile is almost the only source of water for the Egyptian people. With the growth of the population, that means there is less water to go around. The soil of Egypt is poor and cannot grow enough food to meet the needs of the people who live there. The building of the dam has helped. There are fewer water shortages, the farmers can grow crops year round with no fear of flooding, the use of irrigation has helped increase the amount of arable land available to grow crops, and the dam has also provided electrical energy to power the homes and businesses of Egypt.

When the decision to build the dam was reached, there were several other decisions that had to be made. The first was the location. The dam was built 600 miles south (upstream) from the capital city of Cairo. The lake that was created by the dam covers over 300 miles of the Nile River Valley in Egypt and Sudan. When the dam was built, over 50,000 people in Sudan were forced to relocate and leave their homes because of the flooding of their land. Decisions about relocation had to be answered before the dam could be completed. With the population growing by nearly 11 million over the past 20 years, conservation of water resources is still a concern to the people of Egypt. Egypt has had to make adjustments in the ways it uses the limited supply of water.

Despite bringing a year-round supply of water to the people who live in the Nile Valley, the Aswan Dam has caused some unexpected and unforeseen environmental problems. The people of the Nile Valley need the water that the Aswan Dam provides and are less concerned with the problems the dam has caused. The damage the Aswan Dam has caused is great. Some of the problems faced as a result are:

- The amount of salt in the water has increased.
- Some types of fish, mainly sardines, have disappeared from the Mediterranean coast.
- The amount of silt that washes down the river has been reduced and has caused people to have to buy fertilizer to make and keep their land productive.
- Erosion has increased.
- There have been increases in diseases that are carried by insects, which breed in the irrigation channels.
- Because of the flood control the dam provides, there has been a dramatic increase in the number of rodents that clog the sewers and eat the crops.

While these are huge problems, the government of Egypt is working to solve them. Egypt must find a way to feed its people without destroying the land or water. Egypt faces future water shortages if she cannot find ways to conserve water and resources.

Case Study #2

The Colorado River

The Colorado River is the largest river in the American Southwest. The river runs 1,450 miles from the Rocky Mountains to the Gulf of California. The Colorado is the seventh longest river in North America. It is also has the most salt and silt of any river, anywhere. The river has the greatest drop in elevation in North America. It has carved and continues to carve the Grand Canyon and other beautiful natural wonders. People in seven states and Mexico rely on the Colorado River for a large portion of their daily water supply. These states are Colorado, New Mexico, Arizona, Nevada, California, Utah, and Wyoming. The Colorado River basin covers an area larger than the country of France but the river supplies water to an area much larger. In fact, the demands humans have put on the Colorado River have exceeded its capacity to support the people of the region.

For many years, people have been diverting water from the Colorado River to meet their water needs. Canals, aqueducts, and dams have been built to maximize the water supplied by the river. Near the river's source, the Grand Ditch cuts into the Rocky Mountains and diverts water to Fort Collins, Colorado. Further down river the Glen Canyon Dam blocks the Colorado, creating Lake Powell, a 186-mile long lake at the Utah-Arizona border. At the Nevada-Arizona border, the river meets the Hoover Dam, a structure that collects water that is sent to Las Vegas. At the Arizona-California border, the Parker Dam holds back water that is diverted to San Diego and other communities in southern California and to Phoenix and other cities in Arizona. Finally, a last major diversion carries water to Tijuana, Mexico to meet the needs of the people living there. By the time the river reaches its mouth at the Gulf of California, what was once a mighty river has dwindled to a tiny trickle. In fact, when droughts occur, the Colorado River dries up before it even reaches its end.

The Colorado River is used in a variety of ways. At Fort Collins, it is used to irrigate the crops in the area. At Lake Powell, it is used for recreation. The water from the Hoover Dam is used to supply the energy and water supply for the city of Las Vegas. This continues down the length of the Colorado and its tributaries. The complex of dams, aqueducts, and canals has brought water to areas once thought uninhabitable.

The biggest concern to environmentalists is the loss of habitat to wildlife and the excessive use of water from the river. One of the biggest problems faced by the Colorado River Basin is the fact that much of the water diverted from the river is taken completely out of the drainage basin and is gone from the region forever. The region has been experiencing rapid growth for many years and the demands on the resources of the river have continued to increase. Environmentalists, farmers, and city dwellers are all concerned with the excessive use of the water but usually expect others to cut back on their own use. This has created controversy among the inhabitants of the region. With rapid growth expected to continue for some time, there are many problems to be faced and solved if the river is to survive.