

Social Studies 8

Unit 1: Civilizations Defined

Lesson: What causes civilizations to collapse/fall?

Activity: Easter Island: A Case-Study

Name: _____

Block: _____

Date _____



Instructions:

1. Carefully read Source #1 & Source #2

2. As you are reading these case-studies you need to think like an **Anthropologist!** Identify key ideas and examples from both of these sources that explain the reasons for
 - i. the expansion of the Polynesian society on Rapa Nui (Easter Island) from AD 400 to AD 1600...

 - ii. the eventual collapse of this society.

Based on the evidence... What conclusions can you make?

Evidence explaining the *Rise*

Evidence explaining the *Fall/Collapse*

Easter Island Case Study: Source #1

Introduction:

Easter Island is the most isolated inhabited spot on Earth, devoid of heavy timber and most resources. Yet, the first European travelers to the island marveled at large and delicately carved statues covering the whole of the island. For centuries, they wondered how those statues were built and transported, resorting to myth and fantasy to explain them. In the twentieth century, it was revealed that the first settlers to inhabit the island encountered a resource rich and bountiful tropical land, abundant in resources. They developed a complex society with strong hierarchy and sophisticated religious rituals, including the carving, transporting, and erecting of the large statues. Gradually, they exploited their resource base to extinction, and consequently fell into decline.

Historians have put to rest any theories about the transport and erection of statues. Instead, they debate the causes for decline, and wonder why the islanders permitted the continued exploitation of their resource base, even after they were aware that they were causing severe damages to the environment. Author Jared Diamond has asked the question, "What were they thinking when they cut down the last palm tree?"

Backgrounder:

One of the most remote habitable places on the earth, Easter Island, lies about 3200 km west of South America, the nearest continent, and more than 2000 km from the closest occupied island (Pitcairn). With a mild climate and fertile volcanic soils, Easter Island should have been a tropical paradise, but when it was "*discovered*" by Dutch explorer Jacob Roggeveen in 1722, it resembled a barren wasteland more than a paradise. Covered by a dry grassland, the island had no trees and few bushes more than a meter tall. No animals inhabited the island except humans, chickens, rats, and a few insects.

The 2000 people living on the island at the time eked out a pitiful existence. Having no seaworthy canoes, they couldn't venture out on the ocean to fish. With no trees to provide building materials or firewood, the island's cool, wet, windy winters were miserable; meager gardens hardly produced enough food for subsistence.

And yet, scattered along the coastline were thousands of immense stone heads, some as large as 30 meters tall, weighing more than 200 metric tons (previous page). How could such a small population have carved, moved, and erected these enormous effigies? Was there once a larger and more advanced civilization on the island? If so, where did they go?

Historical studies have shown that conditions on the island were once very different than they are now. Until about 1500 years ago, the island was covered with a lush subtropical forest and the soil was deep and fertile. Polynesian people apparently reached Easter Island about A.D. 400. Anthropological and linguistic evidence suggests they sailed from the Marquesas Islands 3500 kilometers to the northwest. Excavations

of archeological sites show that the early settlers' diet consisted mainly of porpoises, land-nesting seabirds, and garden vegetables. Populations soared, reaching as much as 20,000 on an island only about 15 km across.

By A.D. 1400 the forest appears to have disappeared completely-cut down for firewood and to make houses, canoes, and rollers for transporting the enormous statues. Without a protective forest cover, soil washed off steep hillsides. Springs and streams dried up, while summer droughts made gardens less productive. All wild land birds became extinct and seabirds no longer nested on the island. Lacking wood to build new canoes, the people could no longer go offshore to fish. Statues carved at this time show sunken cheeks and visible ribs suggesting starvation.

At this point, chaos and warfare seem to have racked the land. The main bones found in fireplaces were those of rats and humans. Cannibalism apparently was rampant as the population decreased by 90 percent. The few remaining people cowered in caves, a pitiful remnant of a once impressive civilization. When we try to imagine how people reached this condition, we wonder why they didn't control their population and conserve their resources. What were their thoughts as they cut down the last trees, stranding themselves on this island of diminishing possibilities?

Case Study

Easter Island

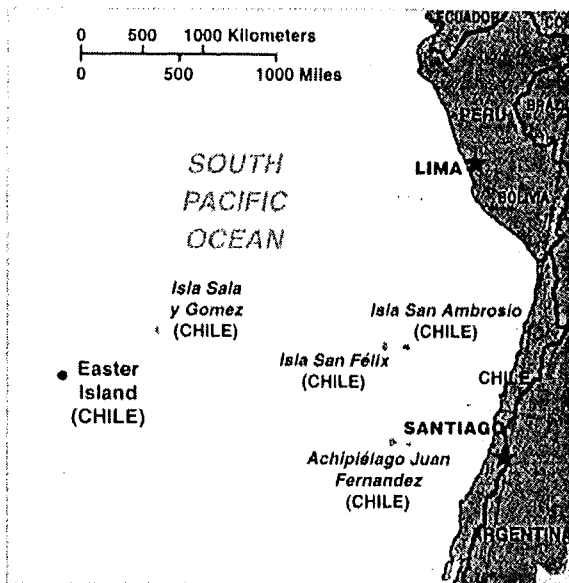
The story of Easter Island spans a period of approximately 1,500 years and illustrates both the importance of science and the sometimes irreversible consequences of rapid human population growth, accompanied by depletion of resources necessary for survival. Evidence of the island's history is based on detailed studies by earth scientists and social scientists who investigated the anthropological record left in the soil where humans lived and sediment in ponds where pollen from plants that lived at different times was deposited. The goals of the studies were to estimate the number of people, their diet, and their use of resources. This was linked to studies of changes in vegetation, soils, and land productivity.

Easter Island lies several thousand kilometers west of South America, and when Polynesian people first reached it about 1,500 years ago they colonized a green island covered with rich soils and forest. The small group of settlers grew rapidly, and by the 16th century over 10,000 people had established a com-

plex society. They were spread among a number of small villages that raised crops and chickens, supplementing their diet of fish from the sea. They used the island's trees to build their homes, and to build boats. They also carved massive 8-meter-high statues from volcanic rock and moved them into place at various parts of the island using tree trunks as rollers (Figure 1.1).

When Europeans first reached Easter Island in the 17th century, the only symbols of the once-robust society were the statues. A study suggested that the island's population had collapsed in just a few decades to about 2,000 people because they had used up (degraded) the isolated island's limited resource base.

At first there were abundant resources, and the human population grew fast. To support their growing population, they cleared more and more land for agriculture, and cut more trees for fuel, homes, and boats, and for moving the statues into place.



(a)



(b)

Michael Wozniak/iStockphoto

© FIGURE 1.1

Easter Island, collapse of a society.

(a) Location of Easter Island in the Pacific Ocean several thousand kilometers west of South America; (b) large statues carved from volcanic rock before the collapse of a society of about 10,000 people.

Some of the food plants they brought to the island didn't survive, possibly because the voyage to the island was too long, or because the climate was not suitable for them. In particular, they did not have the breadfruit tree, a nutritious starchy food source, and so they relied more heavily on other crops, which required clearing more land for planting. The island was also relatively dry, so it is likely that fires for clearing land got out of control sometimes and destroyed even more forest than intended.

The cards were stacked against the settlers to some extent—but they didn't know this until too late. Other islands of similar size that the Polynesians had settled did not suffer forest depletion and fall into ruin.^{1, 2} This isolated island, however, was more sensitive to change. As the forests were cut down, the soils, no longer protected by forest cover, were lost to erosion. Loss of the soils reduced agricultural productivity, but the biggest loss was the trees. Without wood to build homes and boats, the people were forced to live in caves and could no longer venture out into the ocean for fish.

These changes did not occur immediately—it took over 1,000 years for the increasing population to deplete their resources. The loss of the forest was irreversible: Because the loss of trees led to loss of soil, new trees could not grow to replace the forests. As resources grew scarcer, wars between the villages became common, as did slavery and even cannibalism.

Easter Island is small, but its story is a dark one that suggests what can happen when people use up the resources of an isolated area. We note that some aspects of the history of Easter Island stated above have recently been challenged as being only part of the story. Deforestation certainly played a role in the loss of the trees, and rats that arrived with the Polynesians were evidently responsible for eating seeds of the palm trees, not allowing regeneration. The alternative explanation is that the Polynesian people on Easter Island at the time of European contact in 1722 numbered about 3,000. This population may have been close to the maximum reached around the year 1350. Contact with Europeans introduced new diseases and enslavement, which reduced the population to about 100 by the late 1870s.³

As more of the story of Easter Island emerges from scientific and social studies, the effects of human resource exploitation, invasive rats, and European contact will become clearer, and the environmental lessons of the collapse will lead to a better understanding of how we can sustain our global human culture. However, the primary lesson is that *limited resources can support only a limited human population.*

Like Easter Island, our planet Earth is isolated in our solar system and universe and has limited resources. As a result, the world's growing population is facing the problem of how to conserve those resources. We know it takes a while before environmental damage begins to show, and we know that some environmental damage may be irreversible. We are striving to develop plans to ensure that our natural resources, as well as the other living things we share our planet with, will not be damaged beyond recovery.⁴