



Environmental collapse

IT'S BEEN said that unless we learn from our mistakes, we're bound to repeat them. If we look back in history, we can find numerous times when groups of people overtaxed the resources of their landscape or altered the environment they lived in, such that their way of life was impacted or, in extreme circumstances, their civilization destroyed. We'd be wise to see the parallels in the world today.

A classic example is found on Easter Island, in the South Pacific. A civilization thrived here for hundreds of years, with a lifestyle that allowed large groups of craftsmen the leisure time to fashion, transport, and place the enormous stone heads, or Moai statues, that mystified Europeans who arrived on Easter Sunday, 1722. The islanders overfilled their environment to a maximum of about 20,000, and depleted the resources of their limited living area. Introduced rats, with no natural predators, wreaked havoc on the environment. It's been estimated that the rat population rose to 20 million before crashing to 1 million when their food supply dwindled.

Deforestation and soil depletion led to extreme erosion and siltation of waterways. Conditions deteriorated, the population that could be supported by the land decreased, and resources were stretched to the breaking point. Warfare broke out as groups competed for limited resources, and some groups resorted to cannibalism. When Europeans arrived, the local ecology could barely support the 3000 natives living there then, and by 1872 the population was reduced to 175.

The Mayan civilization, which extended from Mexico's Yucatán Peninsula down through Central America from 300 to 900 AD, is another example. In ways still not fully understood today, they coaxed a living from the thin soil of the area that not only sustained a population of several million, but created a surplus that allowed hundreds of thousands to work as stone-cutters, stone-carvers, craftsmen of all stripes, poets, scientists, soldiers, priests, and a large class of ruling elites. Hundreds of their monumental structures survive to this day—buildings, roads, and irrigation canals swallowed back up by

the jungle. But overuse of their environment led to degradation of the soil, pollution, erosion, and siltation of waterways. Climate change may have played a part in their demise, with climate records showing an arid event in the region at this time. The scarcity that followed led to warfare between groups, and the civilization underwent a major collapse in the 10th century A.D.

The Anasazi society of the American Southwest was also doomed by a combination of human-induced environmental changes and climate change over which they had no control. The primary factor, however, was population growth. The dry period that coincided with the end of their culture was no worse than numerous droughts that had occurred fairly regularly during the centuries they occupied their marginal real estate. However, degradation of the environment, over-population, plague, warfare, and starvation was a combination of circumstances the tribes were unable to survive, at least in a recognizable form compared to the original culture.

About the time of the Mayan decline, in the 900s, Norse explorers began to settle Iceland and the southern coast of Greenland, with temporary settlements reaching to the shores of North America in Labrador and Newfoundland. The climate was at best marginal for their farming-grazing way of life, although Inuit people survived there long before they arrived and long after they were gone. In this case, changes in climate were most likely the primary cause of the failure of their settlements, although if they had been more flexible in adapting their lifestyle to changes in their environment, they may have been able to hang on through what proved to be a short-term cold spell. Another factor may have been the arrival of the plague, or Black Death, carried in along with regular trade with the European mainland. The epidemic peaked in Europe in 1348–49, and Norse records



photo Japan Ministry of Environment

Easter Island today: a fallen civilization.

show that the last time they visited their North American settlements was 1350. The plague itself likely had its origins in the overcrowding, pollution, and stressed living conditions found in Medieval European society. Who can say how the development of culture would have differed in the New World if the primary influence of new settlement had come from Scandinavia rather than more southerly Europe?

Today, the reach of human beings, our settlements, and our industries is such that for the first time we have the power to force changes in both our environment and in the climate worldwide. Will we make the choices that lead us down the slippery slope followed by numerous previous cultures around the world, or will we use our broader view of the past to guide us down a road that won't doom us to a repeat of previous disasters? It's unlikely that we'll be able to repair all of the damage we've already done, but surely the choices we make from this point forward will have an enormous impact on the type of world our grandchildren will face. —Leon Buckwalter