The Rise and Fall of Civilizations: Will We Learn From History?

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Abstract

Throughout history, civilizations have risen and fallen due to a combination of environmental degradation, loss of trade, warfare, and climate change, raising concerns about the future of modern society. The collapse of Easter Island serves as an example of how resource mismanagement and internal conflict can lead to societal downfall. Similarly, the interdependent civilizations of Mangareva, Pitcairn, and Henderson Islands collapsed when the dominant trading power, Mangareva, exhausted its resources, cutting off trade and leading to starvation and warfare. The Maya civilization's decline further illustrates how conflicts between neighboring societies and resource limitations can destabilize even the most advanced societies. Additionally, the Viking settlement in Greenland demonstrates how climate change can force a once-thriving population to vanish entirely. As modern civilization faces many of the same threats—environmental destruction, geopolitical conflicts, economic instability, and climate change—history suggests that inaction could lead to collapse. However, by learning from the past, embracing sustainability, and fostering global cooperation, humanity has the opportunity to ensure a more resilient future.

Introduction

Civilizations have risen and fallen throughout history, leaving behind its glory and ruins. However, the collapse of the civilizations are not the result of a single factor, but rather multiple reasons: self-inflicted environmental damage, loss of trading relationships, conflicts between neighboring societies, and climate change. Based on these factors, our civilization may appear doomed towards a collapse; however we have the ability to make a more sustainable future if we take action now to preserve the planet.

Self-Inflicted Environmental Damage

The environment serves as a foundation where civilizations are built, providing natural resources and sustenance necessary for survival and success; but when humans are not good caretakers of their environments, civilizations are rarely long-lasting. Easter Island, an isolated island in the Eastern Pacific Ocean, provides a teachable example of the consequences wrought by being poor stewards of one's environment. Formed by volcanic eruptions, the remote island contains high cliffs, lava rocks, and little biodiversity [1] [2]. However, ecological evidence shows that Easter was not always an uninhabitable wasteland, but rather a subtropical forest with fertile land [3].

According to radiocarbon studies done on the rocks, the original indigenous inhabitants of Easter Island, who named the island Rapa Nui, are believed to have settled around 700 CE to 800 CE [4] [2]. Although it is unclear where the settlers came from, the most accepted theory is that they were voyagers from the western Polynesian islands [5]. Upon arrival, the voyagers had had access to abundant natural resources on the island, including fertile soil and lush vegetation. Their main source of food was farming: they grew sweet potatoes, yams, taro, and bananas [6, pp.107-110]. The culture of Rapa Nui hit its peak around 1500 AD, with the population of the island hovering between 7,000 to 9,000 people [5].

Although the Rapa Nui population was booming, their abundant lifestyle soon crashed from over consumption and overhunting. Chickens were the Rapa Nui's only domesticated animal, but the first settlers also hunted seabirds, land birds, and porpoises; these wild animals near Easter Island later declined and disappeared due to overhunting [5]. The vast amounts of trees, the majority of which were giant palms, were used to construct their homes, boats, and levers for moving the enormous humanlike statues, the moai [5]. Like the once-flourishing surrounding wild animals, the giant palms are now extinct on the island [6, p. 110].

Construction of the 30,000 pound moais led the Rapa Nui people to exploit the island's limited trees and fertile soil [3] [5]. Erecting the moais stressed the island's agricultural land by requiring additional food necessary for energy to build the moai, and supplies like timber and rope fashioned from tree bark to move the heavy statues [6, p. 122]. As natural resources became scarce, competition for food, land, and other essentials caused an internal civil war on the remote island [5]. Further decline in the population of the island's indigenous peoples occurred from the 1700s to the 1800s when the Europeans came, who brought foreign diseases and dwindled the remaining indigenous population to only 111 people [5] [6, p.122].
The decline of the Rapa Nui people of Easter Island demonstrates the consequences of unsustainable resource management, civil wars, and the infiltration of foreign disease, and how such issues can lead to the eradication of a civilization.

Loss of Trading Relations

Just as Easter Island's collapse was caused by self-inflicted environmental damage, three of the Southeast Polynesian Islands—Mangareva, Pitcairn, and Henderson—faced similar ecological collapse due to their irresponsible actions as trade partners. Trading relations are important to a civilization's success because it promotes economic growth for both parties [7]. Through trade, civilizations can exchange goods and essential resources that they lack access to on their own lands, as well as increase living standards because of the comparative advantage for the respective goods [7]. However, the effects of unfair trade practices can cause environmental degradation and contribute to societal collapse.

Mangareva Island settled around 800 AD. The island was surrounded by an ocean teeming with fish and shellfish, as well as rich soil for growing crops, offering an abundance of food for Polynesian settlers [6, p.141]. However, despite its fertile land and large marine life, Mangareva Island lacked high-quality stones to make tools and weapons [8]. Fortunately, nearby Pitcairn Island provided the valuable resources for tool-making, including volcanic glass and fine-grained basalt [6, p.147]. Henderson Island, unlike the other two Southeast Polynesian islands, presented challenging living conditions that were risky to support a permanent population, but live sea turtles and red feathers were traded as luxury items to Pitcairn and Mangereva. Trade among these islands continued throughout 1000 AD, and their populations multiplied [6, pp. 140-151].

Mangareva became the dominant island in commerce due to its strategic location and abundant resources, with Pitcairn and Henderson at a disadvantage in trade negotiations because of their more isolated location and smaller population [6, p.151]. Eventually, Mangareva's populace grew beyond what even its plentiful resources could sustain and stopped exporting materials to the more remote islands, Pitcairn and Henderson [6, pp.150-155]. Subsequently, the end of the trade created problems for Mangareva as they could not make tools from Pitcairn's volcanic glass. With the decline of trade and Mangareva's population skyrocketing, the once prosperous island struggled to provide enough food to sustain its people and a civil war erupted [6, p.152]. The soil deteriorated and animals went extinct [8]. People resorted to cannibalism as a source of protein; they would consume recently deceased individuals and buried corpses. Barbaric warriors replaced an orderly political system, and because of Mangareva's fall, the East Polynesia trade network fell apart [6, p. 153]. Similarly, the loss of trade relations led to the downfall of civilization on Henderson island; residents in Henderson Island could not survive as they did not have enough trees to build boats to go out to sea, and in 1606 AD, Europeans discovered the island but saw no one; the population had ceased to exist [6, p. 152]. By 1790, the population in Pitcairn had also vanished [9] [8].

The end of indigenous life on Pitcairn, Henderson, and Mangareva demonstrate the importance of trade relations; Pitcairn and Henderson's reliance on Mangarevan's imports hindered them from adapting to the change, and as the islands became increasingly isolated and resources were depleted, the economic system of the once interconnected islands collapsed.

Conflicts Between Neighboring Societies

In addition to loss of trading relationships between civilizations, the end of the Maya shows how conflicts between neighboring societies have led to the collapse of one of the most advanced societies in pre-Columbian America [10].

The Maya civilization, which thrived in regions of present-day Mexico, Guatemala, and northern Belize, was not a singular empire but instead consisted of various city-states, each with its own ruler and political structure [10] [11]. Around 1500 BCE, the Maya created settlements and developed a hierarchy, with farmers producing foods for the military force who were dependent on agricultural surplus [6, p. 184]. However, Maya agriculture suffered from limitations that prevented the farmers from meeting the demands of the large non-farming population. Their dominant crop, corn, offered very little protein; they raised few domesticated animals for meat; the slash-and-burn agricultural practice along with the humid climate made it difficult to produce enough yield; and they relied on human labor for plowing and transport [6, p. 184]. These limitations contributed to the division of Maya society into smaller kingdoms that fought frequently over resources, land, and political control. Maya kings between different kingdoms went back and forth capturing each other for conquest and putting them through severe torture. The brutality of the Maya warfare was discovered through archaeological evidence that depicted the battles and prisoners on stone monuments [6, p. 192].

As wars continued in a vicious cycle, the strain on resources intensified and the political power of the civilization became unstable. Ultimately, Maya's inability to maintain peaceful relations, largely owing to farming deficits and scarce resources, contributed greatly to the civilization's demise.

Climate Change

While rivaling societies can doom a civilization, climate change can also exert devastating impacts. Historians have pointed to the Viking settlement in Greenland, as an illustration of the drastic effects of just a two-degree Celsius drop in temperature [12].

The Norse Civilization, also known as the Vikings, were made up of people from Scandinavia who navigated seas and conducted raids on coastal towns and cities across Europe. They were swift warriors and traders who gave power to the Scandinavian countries by conquering lands during the 9th and 11th century [13] [14]. One such warrior was a Viking named Erik the Red, who in 980 AD, was exiled from Iceland for manslaughter and decided to explore seas for a place to stay. His exploration led to the first discovery of Greenland by Europeans [15].

Although covered by a massive ice sheet, Greenland was a place where the Norse were able to thrive for a short amount of time by fishing and raising farm animals. However, around 1250, the world experienced a period of cooling called the Little Ice Age [16]. The frigid weather caused Greenland's sea levels to rise as the newly formed ice increased the gravitational pull on the surrounding waters [17]. The sudden change in climate and the resulting rise in sea level created problems in agriculture for the Vikings [15]. They were no longer able to farm and their main source of food came from the sea [16]. Researchers also concluded that the Norse suffered from environmental degradation as a consequence of overgrazing during that period. It became almost impossible for the Vikings to survive because the land was incapable of

harvesting plants and the lack of trees prevented them from creating heat or building ships. By the 15th century, their presence in Greenland vanished entirely [16].

Will the Current Global Civilization Collapse?

Each past civilization confronted the challenges of a changing climate, wars with neighboring societies, loss of trade relations, and the effects of human-led environmental degradation. The Vikings in Greenland lost their ability to farm on land following climate change; the Mayas and Polynesian Islands experienced ecological self-sabotage on top of their main problem of warfare; and the inhabitants of Rapa Nui fought battles between their own people after driving all the flora and fauna to extinction. In looking at the collapse of past civilizations, historians have identified a pattern of common elements, yet our modern society faces similar threats today.

Like Pitcairn and Henderson, modern-age human exploitation of ecological resources, such as oil, has resulted in environmental harm. Since the Industrial Revolution, the reliance on fossil fuels has been driving global warming and air pollution [18]. Because of the rising temperatures caused by CO2 emissions and climate change, endangered species are struggling to exist; melting glaciers are causing sea levels to rise in Europe and threaten the freshwater supplies for people in Asia; and intensive farming practices are depleting the soil's nutrients [19] [20]. Consequently, human-induced environmental degradation is affecting the safety of human health and the Earth's sustainability. In addition to ecological destruction, nuclear and deadly weapons harbored strategically by countries around the world have the potential to destroy humanity completely.

While modern society has achieved advancements in technology that can improve the quality of life, it is resulting in challenges that are threatening the collapse of its civilization. Based on study models done by researchers, if we continue our current trajectory of population growth and environmental instability, there will be less than a 10% chance of averting a fall of our civilization in just a few decades [21]. Though some may argue that changes in the weather and fluctuations in climate are outside of human control, humans possess the ingenuity and can choose alternative energy sources to make the world sustainable for future generations; however, it is up to current generations to decide how much they care about preserving the planet. As long as humanity strives for peace, leverages technology to maintain sustainability, and relies on history as a guide—through Earth's interconnected societies—humans will be able to learn from past mistakes and continue thriving.

References and Works Cited

[1] Commendador, Amy S., et al. “A Stable Isotope (δ13C and δ15N) Perspective on Human Diet on Rapa Nui (Easter Island) ca. AD 1400–1900.” American Journal of Physical Anthropology, vol. 152, no. 2, Aug. 2013, pp. 183–195, https://doi.org/10.1002/ajpa.22339.

[2] Heyerdahl, Thor and Caviedes, César N.. "Easter Island." Encyclopedia Britannica, 27 Jun. 2024, https://www.britannica.com/place/Easter-Island. Accessed 27 June 2024.

[3] “Stone Giants.” NOVA Online, Nov. 2000, https://www.pbs.org/wgbh/nova/easter/civilization/giants.html. Accessed 27 June 2024.

[4] Clark, Liesl. “First Inhabitants.” NOVA Online, https://www.pbs.org/wgbh/nova/easter/civilization/first.html. Accessed 27 June 2024.

[5] “Easter Island History.” Chile Culture, http://www.chileculture.org/easter-island-history/. Accessed 27 June 2024.

[6] Diamond, Jared M. Collapse: How Societies Choose to Fail Or Succeed. 2005.

[7] “International Trade: Commerce among Nations.” IMF, https://www.imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/Trade. Accessed 27 June 2024.

[8] Salleh, Anna. “Neighbourly Trade Shaped Pitcairn’s Past.” ABC Science, 7 Mar. 2006, https://www.abc.net.au/science/articles/2006/03/07/1582495.htm. Accessed 27 June 2024.

[9] “Pitcairn Island: Story of the Bounty Mutineers - History Chronicles.” History Chronicles - Bringing History to Life, 13 Jan. 2024, https://historychronicles.org/pitcairn-island-story-of-the-bounty-mutineers/. Accessed 27 June 2024.

[10] The Editors of Encyclopaedia Britannica. "Maya". Encyclopedia Britannica, 27 Jun. 2024, https://www.britannica.com/topic/Maya-people. Accessed 27 June 2024.

[11] Onion, Amanda. “Mayan Civilization: Calendar, Pyramids & Ruin.” HISTORY, 29 Oct. 2009, https://www.history.com/topics/ancient-americas/maya. Accessed 27 June 2024.

[12] Lanchester, John. “How the Little Ice Age Changed History.” The New Yorker, 23 Mar. 2019, https://www.newyorker.com/magazine/2019/04/01/how-the-little-ice-age-changed-history. Accessed 27 June 2024.

[13] The Editors of Encyclopaedia Britannica. “Viking.” Encyclopedia Britannica, 20 July 1998, https://www.britannica.com/topic/Viking-people. Accessed 27 June 2024.

[14] Cohen, Josh. “The Vikings: A Complete History Of Their Civilization.” History, 19 Sept. 2022, https://www.historyonthenet.com/the-vikings-2. Accessed 27 June 2024.

[15] Patel, Kasha. “Here’s the Real Reason the Vikings Left Greenland.” The Washington Post, 28 Apr. 2023, https://www.washingtonpost.com/climate-environment/2023/04/28/vikings-greenland-sea-level-rise-climate/. Accessed 27 June 2024.

[16] Greenspan, Jesse. “Why Did the Vikings Disappear From Greenland?” HISTORY, 19 Apr. 2023, https://www.history.com/news/why-did-the-viking-disappear-from-greenland. Accessed 27 June 2024.

[17] Columbia Climate School. “Vikings Abandoned Greenland Centuries Ago in Face of Rising Seas, Says New Study.” State of the Planet, 1 May 2023, https://news.climate.columbia.edu/2023/05/01/vikings-abandoned-greenland-centuries-ago-in-face-of-rising-seas-says-new-study/. Accessed 27 June 2024.

[18] “Fossil Fuels and Climate Change: The Facts.” ClientEarth, 8 Oct. 2020, https://www.clientearth.org/latest/news/fossil-fuels-and-climate-change-the-facts/. Accessed 27 June 2024.

[19] “Consequences of Climate Change.” Climate Action, https://climate.ec.europa.eu/climate-change/consequences-climate-change_en. Accessed 27 June 2024.

[20] Schauenberg, Tim. “Melting Glaciers Threaten Asia’s Water Supply.” Deutsche Welle, 19 July 2022, https://www.dw.com/en/heat-wave-himalaya-glaciers-melting-flooding-deluge-asia-water-hydropower-pakistan-india/a-62514108. Accessed 27 June 2024.

[21] Nater, Olivia. “Are We Nearing Global Collapse?” Population Connection, 5 Feb. 2024, https://populationconnection.org/blog/are-we-nearing-global-collapse/. Accessed 27 June 2024.