

What does history teach us about humanity's ability to adapt to climate change?

Humanity has always worked within the environment; coping, adapting, and responding to environmental changes. Shown throughout our existence, the ability to adapt to climate change relies on the unity of the society; to successfully adapt a society must have social cohesion, extensive networks, and a strong community. While the collapse of societies is often linked to significant environmental changes, too often underlying societal issues are overlooked. The Minoan civilisation collapsed around 1500 BC under changing environmental conditions¹, the late classic Mayan civilisation collapsed around 1000AD after long periods of drought², the Tsarist regime tumbled in the early 20th century after extended periods of harsh winters³. Numerous societies have collapsed under the pressure of climate change because their divisions, strife and lack of cohesion prevented the members of the society from adapting successfully. On the other hand, united societies have been able to thrive in the face of climate change; Holland during the Little Ice Age of the 16th, 17th, and 18th centuries when average global temperature dropped by 1 degree Celsius⁴, Japan which closed all its borders at the same time in protectionist policies⁵, early years of Mayan civilisation, and not to forget Homo Sapiens outcompeting the Neanderthals in cold European climates. For humanity to be able to continue to adapt to climate change their society and community must be united to act as a group to develop innovative solutions, and be ready to share, communicate and then adopt them widely.

Humanity's ability to adapt to climate change relies on the social cohesion of a society, as it prevents scapegoating and allows societies to find collaborative solutions to problems. Social cohesion describes the connected nature of members within a society, and in civilisations with greater social cohesion, responses to climate changes can be implemented more quickly and on a greater scale. When Holland faced colder

¹ Widdowson, Mark. "The Phoenix Principle and the Coming Dark Age, Social Catastrophes – Human Progress 3000 BC – AD 300.", 2001

² Willey, Gordon R. "Towards a Holistic View of Ancient Maya Civilisation." *Man*, vol. 15, no. 2, [Wiley, Royal Anthropological Institute of Great Britain and Ireland], 1980, pp. 249–66, <https://doi.org/10.2307/2801670>.

³ Waldron, Peter. "The End of Imperial Russia.", 1997

⁴ Degroot, Dagomar. "The Frigid Golden Age: Climate Change the Little Ice Age, and the Dutch Republic 1560-1720.", 2018

⁵ Atwell, William S. "Some Observations on the 'Seventeenth-Century Crisis' in China and Japan." *The Journal of Asian Studies* 45, no. 2 (1986): 223–44. <https://doi.org/10.2307/2055842>.

climates due to the Little Ice Age beginning in the 16th century, there was an unwillingness to take part in the witch trials, having some of the fewest within Europe and discontinuing them first⁶. Witch hunts were a form of scapegoating for social and environmental issues faced by societies, and the Republic's reluctance to take part shows solidarity and allowed the state to focus on current issues, finding solutions and the future. Instead of spending time rooting out 'witchcraft', the government invested in ports to boost trade, transport systems to allow for migration, and warehouses in the cities to store grain. The Dutch population exploded, wars were won, and global trade boomed with the Republic becoming one of the more powerful states in Europe. It can also be seen that societies that had less social cohesion struggled more in the face of changing climate. The Maya civilisation of southern Mexico and northern Central America thrived between 300AD and 800AD, despite encountering water stress and droughts in periodic waves⁷. However, after the fall of the kings in the 9th century, big-city leaders began to compete more⁸. This caused cities to use environmentally destructive tactics to increase wealth and power quickly, worsening the drought and depleting resources which led to the eventual abandonment of the Mayan lowland cities in the early 11th century. As city rivalry grew, their connections fell apart and the Mayan people were no longer able to put in innovations effectively nor were old innovations as effective if other cities chose not to use them. Without social cohesion, they were unable to cope with water stress. Social cohesion, therefore, is important in a society faced with the problems of climate change.

Networks are an important part of united societies, allowing for trade, migration, and travel, all of which are required in coping with a changing climate. Societies have created innovations to cope with changing climates throughout history, requiring large networks to share ideas, goods and transport people – to cope with struggles of a changing climate. One of the biggest successes of a societies network in the face of climate change can be seen in the Dutch Republic in the early 17th century. As winds became more

⁶ Degroot, Dagomar. "The Frigid Golden Age: Climate Change the Little Ice Age, and the Dutch Republic 1560-1720.", 2018

⁷ Willey, Gordon R. "Towards a Holistic View of Ancient Maya Civilisation." *Man*, vol. 15, no. 2, [Wiley, Royal Anthropological Institute of Great Britain and Ireland], 1980, pp. 249–66, <https://doi.org/10.2307/2801670>.

⁸ Levitt, Malcolm. "Why Did Ancient States Collapse? The Dysfunctional State." *Archaeopress*, 2019, <https://doi.org/10.2307/j.ctv1zckxpr>.

unreliable, governments invested in 'pull ferries', ice breakers, sledges and built canals to connect cities. This allowed for the redistribution of grain during food shortages, and the transportation of other food stuffs despite harsher weather - the Dutch were able to keep a diverse diet, people were able to migrate, travel and trade, despite changes in climate⁹. Therefore, the networks within the Republic kept the people in good health, with supplies and led to the economy continuing to prosper. On the other hand, many countries have suffered due to insufficient networks for transportation and trade. Within Tsarist Russia at the onset of the 20th century, extended cold periods led to crop failures, most notably the winter of 1916-17. The countries slowness to industrialise as quickly as its counterparts in Europe, due to the risk it posed to conservative landowner's wealth, meant that redistribution of grain was difficult especially in adverse weather. Cities such as Petrograd needed over 12,000 wagons of food each month, however in January 1217 they only received 6,556. The networks of Russia were unable to keep up to the standards required to keep the population fed, undermining the Tsarist effort to hold onto power, the regime collapsed that year under revolution.

In the face of adversity, a sense of community and shared values is essential in holding together and moving forward a society. Links can be drawn between societies losing their sense of community and succumbing to the issues of climate change. Within both the Harappan civilisation of East Asia from 2600BC and the Minoan civilisation on Crete from 2000BC, significant climatic changes had been occurring regularly for centuries, including changing rainfall and river patterns as well as fluctuating local temperatures and weathers respectively. However, towards the end of their civilisations, their cultures began to get lost. It is often argued that late Minoan pottery became tasteless and lost balance and subtlety¹⁰, whilst experts claim that Harappan culture had increased 'heterogeneity of pottery and other artefacts within an area where they had been highly uniform'¹¹. In both societies loss of community contributed to a lack of unity. When climate continued to change both civilisations were not able to continue implementing the same systems as before

⁹ Degroot, Dagomar. "The Frigid Golden Age: Climate Change the Little Ice Age, and the Dutch Republic 1560-1720.", 2018

¹⁰ Hutchinson, R W. "Prehistoric Crete", 1962

¹¹ Widdowson, Mark. "The Phoenix Principle and the Coming Dark Age, Social Catastrophes – Human Progress 3000 BC – AD 300.", 2001

and collapsed, the loss of culture and a shared purpose undermining attempts to secure government. Furthermore, shared values can be seen in Japan during the late 16th and 17th century, which faced decreased food supply and inflation due to a period of extended cold temperatures. Japanese government set up protectionist policies, known as Sakoku, which united the country and developed its domestic economy as well as the outlawing of Christianity to unite the people under the worship of the Tokugawa dynasty¹². These shared values brought unity to Japan, and the people were able to adapt despite significant climate change. In the Dutch Republic, the culture and art were greatly influenced by the increase in cold weather, from the early 17th century snowy winter landscapes and stormy seas became popular genres of art in response to the changing climate. Furthermore, ice fairs became a popular and regular occurrence as more lakes froze¹³. This willingness to embrace climatic changes into their culture shows a sense of community across the citizens of Holland. Not only did this help create a greater sense of community, but art of the time also helped to popularise sleds, pull ferries, and share new innovations. Therefore, through a sense of community the Dutch republic were able to adapt to climate change more widely.

From the beginning of recognised humanity, history shows that unity within a society is key to being able to adapt to climate change. Homo sapiens were relatively more united than their Neanderthal counterparts, with complex trade networks, evidenced by stashes of stones found over 50km from where their quarry¹⁴. This allowed early humans to share ideas and inventions faster, such as the use of a sewing needle to make more effective clothing to survive in the colder climate. On the other hand, it is believed that Neanderthals lived in smaller isolated groups, with fewer networks and connections¹⁵. When Homo Sapiens moved into Europe 45,000 years ago, they were better equipped to adapt to a changing climate, despite the biological advantages of Neanderthals to cold weather. Eventually Neanderthals were outcompeted by the Homo Sapiens.

¹² Atwell, William S. "Some Observations on the 'Seventeenth-Century Crisis' in China and Japan." *The Journal of Asian Studies*, vol. 45, no. 2, [Cambridge University Press, Association for Asian Studies], 1986, pp. 223–44, <https://doi.org/10.2307/2055842>.

¹³ Degroot, Dagomar. "The Frigid Golden Age: Climate Change the Little Ice Age, and the Dutch Republic 1560-1720.", 2018

¹⁴ Polianskaya, Alina. "Humans have been trading with each other as early back as 300,000 years", 2020 <https://inews.co.uk/news/science/early-humans-trading-300000-years-135655>

¹⁵ Vergano, Dan. "Neanderthals Lived in Small, Isolated Populations, Gene Analysis Shows." *National Geographic*, 2014. <https://www.nationalgeographic.com/culture/article/140421-neanderthal-dna-genes-human-ancestry-science>

It would be wrong to imagine that these are the sole components of successful adaptation, but history shows that the ability of humanity to adapt to climate change relies on networks, social cohesion, and sense of community – a united society can put complex innovations into practice more efficiently. This has been the case since the beginning of modern-day humanity for societies in the face of adverse environmental conditions. Since 1906, the global average surface temperature has increased by over 0.9 degrees Celsius and is projected to continue rising. History teaches us that to successfully adapt, we need to continue to foster a united community, inspire social cohesion, broaden our networks, and kindle a sense of community in the face of this change.

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