# Civilisation Collapse

## Introduction

Civilisation collapse, once the subject of distant historical retrospection, is increasingly seen as a looming contemporary threat. As modern societies grapple with the environmental consequences of industrialisation, land degradation, and climate instability, questions once reserved for the past such as "*why do civilisations fail, and could it happen again?*", have gained a greater urgency. Kemp captures this growing anxiety, questioning whether we are witnessing early signs of a broader systemic unravelling driven by anthropogenic pressures.[1]

Human-driven environmental change is at the core of this concern, and it is argued that large-scale land use and land cover changes have profoundly transformed Earth's ecosystems, altered biogeochemical cycles, and accelerated climate change.[2] These shifts not only degrade ecological resilience but also increase exposure to extreme weather events, droughts, and biodiversity loss, all of which contribute to socio-political instability. Historical examples suggest that such environmental disruptions can act as tipping points. For instance, one article links a severe mega-drought 4,200 years ago to the collapse of several early state societies in the Near East, underscoring the vulnerability of complex civilisations to climatic shocks.[3]

Integrating paleoclimate data with archaeological and historical evidence provides a deeper understanding of this vulnerability. Some scholars advocate for a holistic perspective that connects climate proxies with patterns of societal change over millennia.[4] Studies have revealed how past communities responded with varying

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1. Luke Kemp*, Are we on the road to civilisation collapse*?, *BBC Future*, 19 February 2019. Available at: https://www.bbc.com/future/article/20190218-are-we-on-the-road-to-civilisation-collapse (Accessed:18 April 2025)
2. Parth Sarathi Roy, Reshma M Ramachandran, Oscar Paul, Praveen K. Thakur, Shirish Ravan, Mukunda Dev Behera, Chandan Sarangi and Vijay P. Kanawade, 'Anthropogenic Land Use and Land Cover Changes—A Review on Its Environmental Consequences and Climate Change', *Journal of the Indian Society of Remote Sensing*, 2022, 50, p.1618.
3. Michael Marshall, 'Did a Mega Drought Topple Empires 4,200 Years Ago?', *Nature*, 601, no. 7894 (2022), pp. 498–501.
4. Chris Caseldine and Chris Turney*, 'The bigger picture: towards integrating palaeoclimate and environmental data with a history of societal change'*, School of Geography, University of Exeter, 2010, p.1.

degrees of resilience to climate anomalies, such as the 8.2 ka and 9.2 ka events. [5] Yet, as one review of Diamond's *Collapse* explains, failure to adapt—through rigid political institutions, environmental mismanagement, or failure to perceive threats—often led to irreversible societal decline.[6]

This essay explores the drivers and dynamics of civilisation collapse through a multidisciplinary lens, drawing on environmental history, palaeoclimatology, literature, and remote sensing. It examines how past societies succumbed to, or survived, environmental stresses; it interrogates whether modern civilisation is repeating similar patterns. With evidence ranging from molecular analyses in the Maya lowlands[7] to land use transformations in South Asia,[8] this essay situates contemporary challenges within the ambit of humanity's interaction with the environment. By doing so, it seeks not only to understand past collapses but also to critically assess whether our own civilisation can chart a sustainable path forward, or whether we are, ourselves, on the edge of collapse.

**Historical Context**

The collapse of complex societies is a recurrent theme throughout human history, stretching back thousands of years to some of the earliest known civilisations. While each case of societal collapse is shaped by its own cultural, environmental, and

5. Pascal Flohr, Dominik Fleitmann, Roger Matthews, Wendy Matthews, and Stuart Black, 'Evidence of resilience to past climate change in Southwest Asia: Early farming communities and the 9.2 and 8.2 ka events', *Quaternary Science Reviews*, 2015, p.1; Wanner, H. et al., 'Mid- to Late Holocene climate change: an overview', 2008, vol.136, 15 March 2016, p.34.
6. Scott E Page, 'Are We Collapsing? A Review of Jared Diamond's Collapse: How Societies Choose to Fail or Succeed', *Journal of Economic Literature*, 2005, 43, p.1049.

7. Benjamin Keenan, Anic Imfeld, Kevin Johnston, Andy Breckenridge, Yves Gelinas and Peter MJ Douglas, 'Molecular evidence for human population change associated with climate events in the Maya lowlands', *Quaternary Science Reviews*, vol.258, 15 April 2021, 106904.

8. Marco Madella and Dorian Fuller, 'Palaeoecology and the Harappan Civilisation of South Asia: a reconsideration', *Quaternary Science Reviews*, vol. 25., issues 11-12, June 2006, Pages 1283.

political conditions, archaeological and paleoclimatic records reveal commonalities, particularly in the interaction between human societies and their ecological contexts.

One of the earliest examples comes from the Akkadian Empire, often cited as the world's first empire, which experienced a sudden and dramatic decline around 4,200 years ago. This event, sometimes referred to as the 4.2 ka BP drought event, is associated with widespread aridification across the Near East. As one researcher explores, this mega-drought likely triggered crop failures, famine, and mass migration, contributing to the disintegration of central authority.[9] Similarly, palaeoecological analyses suggest that the Harappan civilisation of South Asia underwent decline during a period of monsoon weakening and river system changes, possibly exacerbated by human-induced land degradation.[10]

In Mesoamerica, the collapse of the Classic Maya civilisation (c. 8th–9th centuries CE) is another case of complex societal failure amid environmental strain. Molecular evidence supports the hypothesis that climate events, particularly prolonged droughts, coincided with demographic changes, reduced agricultural productivity, and sociopolitical upheaval.[11] These examples highlight how environmental variability, especially when intersecting with population pressures, can push societies beyond their adaptive capacity.

However, not all responses to climate stress resulted in collapse. One study details how early farming communities in Southwest Asia demonstrated resilience to the 9.2 and 8.2 ka events, partly through technological adaptation and shifts in settlement patterns.[12] Such findings challenge deterministic views of environmental collapse

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[9] Marshall, Michael. "Did a mega drought topple empires 4,200 years ago?.", *Nature* 601, no. 7894 (2022): pp. 498-501.

[10] Madella, M and Fuller, D.Q., '*Palaeoecology and the Harappan Civilisation of South Asia: a reconsideration*', 2006

[11] Benjamin Keenan, Anic Imfeld, Kevin Johnston, Andy Breckenridge, Yves Gelinas and Peter MJ Douglas, *Molecular evidence*, 106904. p.4.

[12] Pascal Flohr, Dominik Fleitmann, Roger Matthews, Wendy Matthews, and Stuart Black, 'Evidence of resilience to past climate change in Southwest Asia: Early farming communities and the 9.2 and 8.2 ka events', *Quaternary Science Reviews*, 2015, p.1; Wanner, H. et al., 'Mid- to Late Holocene climate change: an overview', 2008, vol.136, 15 March 2016, p.22.

and point to the role of social, economic, and political structures in mediating vulnerability.

By synthesising paleoclimatic reconstructions and archaeological data, scholars advocate for a more defined understanding of societal change.[13] Their work highlights that collapses are not abrupt, singular events, but rather complex processes often unfolding over decades or centuries, marked by transformation, reorganisation, and occasionally, regeneration.

Understanding this deep-time context is essential for analysing present-day concerns. As past societies were shaped by the constraints and volatility of their environments, so too is modern civilisation. The historical record not only provides warnings but also illuminates pathways of resilience and lessons increasingly relevant in an era of accelerating climate change, global inequality, and ecological overshoot.

**Climate Change: Current Trends and Projections**

While past civilisations faced regional or periodic environmental pressures, the modern world confronts a global climate crisis of unprecedented scale and complexity. Anthropogenic climate change, driven primarily by the combustion of fossil fuels, deforestation, and large-scale land use change, is altering atmospheric and oceanic systems at a pace unmatched in the geological record. According to Roy et al., land cover change, particularly the expansion of agriculture, urbanisation, and industrial activity has not only transformed natural ecosystems but has also amplified climate feedback loops, contributing to rising temperatures, altered precipitation patterns, and increased frequency of extreme weather events. [14]

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[13] Heinz Wanner, Jürg Beer, Jonathan Bütikofer, Thomas J. Crowley, Ulrich Cubasch, Jacqueline Flückiger, Hugues Goosse et al. "Mid-to Late Holocene climate change: an overview." *Quaternary Science Reviews* 27, no. 19-20 (2008), p.1796; ‘Caseldine, C.J. and Turney, C., *The bigger picture: towards integrating palaeoclimate and environmental data with a history of societal change*, 2008, p.91.

[14] Parth Sarathi Roy, Reshma M Ramachandran, Oscar Paul, Praveen K. Thakur, Shirish Ravan, Mukunda Dev Behera, Chandan Sarangi and Vijay P. Kanawade, ‘Anthropogenic Land Use and Land Cover Changes—A Review on Its Environmental Consequences and Climate Change’, *Journal of the Indian Society of Remote Sensing*, 2022, 50, pp. 1619.

These trends are not hypothetical. Observational data from the past century show a consistent rise in global average surface temperatures, with recent decades experiencing accelerated warming. This warming is accompanied by shrinking polar ice sheets, sea level rise, and intensifying cycles of drought and flood across various regions. For example, studies document significant hydrological variability in arid zones like the Sonoran Desert, exacerbated by El Niño–Southern Oscillation (ENSO) events. These are patterns that are expected to grow more erratic under climate change projections. [15]

Projected climate scenarios further amplify concerns. Without major mitigation efforts, Earth is on track for warming between 2.5°C and 4.5°C by the end of the century, well beyond the thresholds associated with many past climate-induced collapses.[16] Models suggest that such warming will lead to profound disruptions in agricultural productivity, freshwater availability, and habitability in many regions—particularly in the Global South. These outcomes are compounded by socio-political vulnerabilities and existing inequalities, raising the potential for climate-induced migration, conflict, and governance failures.[17]

The long-term paleoclimatic record, such as that outlined by Wanner et al. and Caseldine and Turney, demonstrates that even modest climate changes in the Holocene were capable of triggering significant ecological and societal shifts. [18] When viewed through this lens, current climate projections take on added gravity.

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[15] Parth Sarathi Roy, Reshma M Ramachandran, Oscar Paul, Praveen K. Thakur, Shirish Ravan, Mukunda Dev Behera, Chandan Sarangi and Vijay P. Kanawade, 'Anthropogenic Land Use and Land Cover Changes—A Review on Its Environmental Consequences and Climate Change', *Journal of the Indian Society of Remote Sensing*, 2022, 50, pp. 1623.

[16] [1]United Nations Environment Programme, *Nations Must Go Further Than Current Paris Pledges or Face Global Warming of 2.5–2.9°C*, 20 November 2023, https://www.unep.org/news-and-stories/press-release/nations-must-go-further-current-paris-pledges-or-face-global-warming [accessed 21 April 2025].

[17] Alexander N. Zolotokrylin, Tatiana B. Titkova, and Luis Brito-Castillo, 'Wet and Dry Patterns Associated with ENSO Events in the Sonoran Desert from, 2000–2015', *Journal of Arid Environments*, 134 (2016), 25.

[18] Heinz Wanner, Jürg Beer, Jonathan Bütikofer, Thomas J. Crowley, Ulrich Cubasch, Jacqueline Flückiger, Hugues Goosse et al. "Mid-to Late Holocene climate change: an overview." *Quaternary Science Reviews* 27, no. 19-20 (2008), p.1796; 'Caseldine, C.J. and Turney, C., *The bigger picture: towards integrating palaeoclimate and environmental data with a history of societal change*, 2008, p.98.

Unlike past societies that were limited in technological capacity but often more locally adaptive, today's global civilisation is heavily centralised, interdependent, and reliant on fragile infrastructure. As Kemp argues, the convergence of environmental stress with economic and political instability may bring modern civilisation into a high-risk zone for systemic collapse. [19] The challenge, therefore, is not merely scientific or technological but profoundly social and political: whether societies can act collectively and equitably to mitigate emissions, adapt to inevitable changes, and build resilience before key thresholds are crossed.

**Mechanisms of Collapse**

Collapse is rarely the result of a single, sudden event. Rather, it tends to emerge from a convergence of interrelated stressors that erode the structural foundations of complex societies. These mechanisms include those of environmental degradation, political instability, economic inequality, resource depletion, and institutional rigidity that all interact in feedback loops, weakening a society's capacity to adapt to internal and external shocks.

One of the most consistently cited mechanisms is environmental mismanagement. As Page notes in his review of Jared Diamond's *Collapse*, civilisations often contribute to their own downfall through unsustainable practices, such as deforestation, soil exhaustion, and overreliance on finite water sources. [20] These actions diminish ecological resilience, making societies more vulnerable to climatic shifts. Roy et al. extend this argument to the present, pointing to how anthropogenic land use change exacerbates environmental stress by accelerating habitat loss, altering hydrological cycles, and amplifying carbon emissions. [21]

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[19] Luke Kemp, 'Are we on the road to civilisation collapse?', *BBC Future*, 19 February 2019. Available at: https://www.bbc.com/future/article/20190218-are-we-on-the-road-to-civilisation-collapse (Accessed: 18 April 2025).

[20] Scott E Page, 'Are We Collapsing? A Review of Jared Diamond's *Collapse: How Societies Choose to Fail or Succeed*', *Journal of Economic Literature*, 2005, 43, pp. 1057.

[21] Parth Sarathi Roy, Reshma M Ramachandran, Oscar Paul, Praveen K. Thakur, Shirish Ravan, Mukunda Dev Behera, Chandan Sarangi and Vijay P. Kanawade, 'Anthropogenic Land Use and Land Cover Changes—A Review on Its Environmental Consequences and Climate Change', *Journal of the Indian Society of Remote Sensing*, 2022, 50, p.1630.

Climate change can act as a direct or indirect catalyst for collapse. As paleoclimate studies reveal, abrupt environmental changes such as the 8.2 and 4.2 ka BP events coincided with demographic decline, agricultural disruption, and sociopolitical reorganisation across multiple regions. [22] Yet, climate alone is not deterministic. The societal response to these events, whether through adaptation, migration, or institutional transformation, is often the determining factor between collapse and survival.

Social and political mechanisms also play a critical role. Kocsis explores how modern societies often struggle with “social futuring”—the ability to envision and implement long-term sustainable pathways.[23] Historical examples show that elite capture, wealth inequality, and political fragmentation often intensify in times of stress, reducing the capacity for collective action. This dynamic is visible in the collapse of the Classic Maya, where environmental pressures were compounded by internal strife and rigid political systems that failed to adapt.

Cultural and cognitive factors may also inhibit timely response. As Kemp observes, complex societies often fall victim to a “creeping normalcy,” failing to perceive the gradual accumulation of risk until systemic thresholds are crossed. [10] Modern technological and bureaucratic systems, though powerful, can become brittle when over-centralised or insulated from environmental feedback. The failure to act decisively—despite ample data and foresight—is thus a recurring mechanism of collapse.

Finally, interconnectedness itself can become a liability. In a globalised system, localised disruptions, whether environmental, economic, or epidemiological, can cascade through trade, migration, and political networks, triggering wider instability. This is particularly concerning considering the projections discussed by many scholars, who warn that cascading failures across interdependent systems (e.g.,

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[22] W. R. Wicks and S. Mithen, 'The 8.2 ka BP Event and the Mesolithic–Neolithic Transition in Western Scotland: A Bayesian Model', *Quaternary Science Reviews*, 123 (2015), p3.
[23] Tamas Kocsis, 'Finite Earth, Infinite Ambitions: Social Futuring and Sustainability as Seen by a Social Scientist', *Society and Economy*, 40, S1 (2018), p. 90.

food, energy, finance) may define 21st-century collapse scenarios in ways more rapid and far-reaching than historical precedents. [24]

In sum, collapse is best understood as a multi-causal process driven by the interplay of environmental pressures, social dynamics, institutional failures, and systemic complexity. Studying these mechanisms across different temporal and geographic contexts not only deepens our understanding of past societal failures but also highlights the vulnerabilities and opportunities facing modern civilisation.

**Case Studies of Modern Vulnerabilities**

While modern civilisation enjoys a level of technological advancement and global interconnectivity unprecedented in human history, it remains critically susceptible to systemic fragilities like those that precipitated the collapse of earlier societies. Contemporary examples illustrate how climatic stress, ecological degradation, and socio-political instability are converging in ways that resemble the dynamics of historical collapse, albeit now on a global scale.

A salient example is the increasing precarity of global food systems under climatic duress. Prolonged droughts across regions such as sub-Saharan Africa and the Middle East have already undermined agricultural output, exacerbated food insecurity and fuelling political unrest. The Syrian conflict, for instance, has been partially attributed to a prolonged drought that forced rural populations into urban centres, heightening social tensions and contributing to civil unrest. Environmental shocks, in this case, acted as multipliers of existing vulnerabilities, echoing the

[24]Chris J. Caseldine and Chris Turney, *The bigger picture: towards integrating palaeoclimate and environmental data with a history of societal change*, 2010, p.2; [24] Heinz Wanner, Jürg Beer, Jonathan Bütikofer, Thomas J. Crowley, Ulrich Cubasch, Jacqueline Flückiger, Hugues Goosse et al. "Mid-to Late Holocene climate change: an overview." *Quaternary Science Reviews* 27, no. 19-20 (2008), p.6; Flohr, P. et al., ‘Evidence of resilience to past climate change in Southwest Asia: Early farming communities and the 9.2 and 8.2 ka events’, *Quaternary Science Reviews*, 2015, p.20.

collapse trajectories of societies such as the Maya and Akkadian empires, whose declines have been linked to climatic fluctuations.[25]

In South Asia, rapid urbanisation and industrial growth have placed unprecedented pressure on terrestrial and atmospheric systems. Land use and land cover changes across India, as documented by Roy et al., have resulted in habitat fragmentation, the intensification of urban heat island effects, and disruptions to regional climate stability. [26] These changes, coupled with rising water stress and declining air quality, illustrate the vulnerability of densely populated megaregions not only in ecological terms but also through the lens of infrastructural complexity and political inertia.

The Arctic and Subarctic offer another dimension of vulnerability. The thawing of permafrost and accelerating ice melt are not merely regional issues but global catalysts, unleashing potent feedback loops such as methane emissions and sea level rise. Wanner et al. have highlighted the sensitivity of the Holocene climate system to relatively minor forcings, suggesting that today's anthropogenic drivers may push the Earth system past critical thresholds with irreversible consequences.[27]

Even in industrialised nations, latent vulnerabilities are being exposed. The 2021 Texas power crisis, triggered by an unanticipated extreme cold event, revealed the brittleness of centralised energy infrastructures ill-equipped for climatic anomalies. This incident underscores Kemp's argument that complexity itself may become a

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[25] Matthew Marshall, *The Human Planet: How We Created the Anthropocene*, (2018), p. 132.

[26] Parth Sarathi Roy, Reshma M Ramachandran, Oscar Paul, Praveen K. Thakur, Shirish Ravan, Mukunda Dev Behera, Chandan Sarangi and Vijay P. Kanawade, 'Anthropogenic Land Use and Land Cover Changes—A Review on Its Environmental Consequences and Climate Change', *Journal of the Indian Society of Remote Sensing*, 2022, 50, pp. 1625.

[27] Heinz Wanner, Jürg Beer, Jonathan Bütikofer, Thomas J. Crowley, Ulrich Cubasch, Jacqueline Flückiger, Hugues Goosse et al. "Mid-to Late Holocene climate change: an overview." *Quaternary Science Reviews* 27, no. 19-20 (2008), p.7.

liability: when tightly integrated systems lack resilience, minor disturbances can precipitate systemic collapse.[28]

Socio-political polarisation and declining trust in democratic institutions further compound these risks. Kocsis contends that many contemporary societies exhibit an inability to adopt long-term strategies in the face of existential threats. Misinformation, cultural inertia, and the prioritisation of short-term economic gains inhibit meaningful responses to climate and ecological challenges—paralleling the fatal misjudgements of historical elites documented by Jared Diamond.[29]

These cases demonstrate that modern vulnerability is not geographically isolated, nor confined to the developing world. Rather, it emerges from the interplay between environmental stressors, socio-economic inequality, technological overdependence, and governance failures. As humanity breaches planetary boundaries, the danger lies not only in isolated breakdowns, but in the potential for interconnected, cascading failures reminiscent of past civilisational declines, yet now on a scale that could affect the entire planet.

**Resilience and Adaptation Strategies**

Historical and contemporary examples of civilisational collapse offer not only grim warnings but also potential pathways for resilience and adaptation. While the failure of complex societies is often triggered by environmental and systemic stresses, many civilisations have demonstrated the capacity to endure, reorganise, or transform in the face of crisis. Understanding these adaptive responses is critical for shaping modern strategies to mitigate collapse risks and promote long-term sustainability.

In the ancient world, societies frequently adapted to environmental disruptions by diversifying subsistence strategies, decentralising political authority, and reinforcing

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[28] Luke Kemp, ‘Are we on the road to civilisation collapse?’, *BBC Future*, 19 February 2019. Available at: https://www.bbc.com/future/article/20190218-are-we-on-the-road-to-civilisation-collapse (Accessed: 18 April 2025).

[29] Tamas Kocsis, 'Finite Earth, Infinite Ambitions: Social Futuring and Sustainability as Seen by a Social Scientist', *Society and Economy*, 40, S1 (2018), p. 111.

social cohesion. As Flohr et al. document, early agricultural communities in Southwest Asia showed remarkable resilience during the 9.2 and 8.2 ka events by altering settlement patterns and adjusting agricultural practices in response to climate shifts.[30] Similarly, Wanner et al. suggest that societies exhibiting cultural flexibility and ecological awareness were better able to navigate the climate fluctuations of the Holocene. [31]

In the contemporary context, resilience strategies are increasingly framed within the disciplines of sustainability science, disaster risk reduction, and climate adaptation policy. Roy et al. emphasise the importance of integrated land-use planning, ecological restoration, and large-scale afforestation initiatives to mitigate environmental degradation. These measures not only address climate change but also offer protection against biodiversity loss, soil erosion, and water scarcity, strengthening both ecological and social resilience. [32]

Urban resilience has become a focal point for adaptation strategies, especially in response to escalating climate risks. Many cities are adopting green infrastructure projects such as urban forests, wetlands, and permeable pavements to manage the effects of heatwaves, flooding, and storm surges. These interventions provide dual benefits: they enhance ecological systems while simultaneously improving public health and promoting social equity. Sharifi and Yamagata's analysis of urban planning highlights how "resilience thinking" encourages the development of systems

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[30] Flohr, P. et al., 'Evidence of resilience to past climate change in Southwest Asia: Early farming communities and the 9.2 and 8.2 ka events', *Quaternary Science Reviews*, 2015, p.5.

[31] Heinz Wanner, Jürg Beer, Jonathan Bütikofer, Thomas J. Crowley, Ulrich Cubasch, Jacqueline Flückiger, Hugues Goosse et al. "Mid-to Late Holocene climate change: an overview." *Quaternary Science Reviews* 27, no. 19-20 (2008), p.5.

[32] Parth Sarathi Roy, Reshma M Ramachandran, Oscar Paul, Praveen K. Thakur, Shirish Ravan, Mukunda Dev Behera, Chandan Sarangi and Vijay P. Kanawade, 'Anthropogenic Land Use and Land Cover Changes—A Review on Its Environmental Consequences and Climate Change', *Journal of the Indian Society of Remote Sensing*, 2022, 50, p.18.

that are modular, redundant, and capable of absorbing shocks without systemic collapse.[33]

Equally important is the resilience of social and political institutions. Kocsis argues that societies with strong institutions, those capable of long-term strategic thinking, are better equipped to avoid collapse. The concept of "social futuring" involves fostering trust in public institutions, ensuring participatory governance, and embedding sustainability into the political and educational systems.[34] In parallel, Johns-Putra points out that cultural narratives play a vital role in shaping public engagement with climate change. Literature, media, and education can serve as powerful tools in cultivating adaptive mindsets and encouraging collective action.[35]

Technological innovation also plays a crucial role in modern resilience strategies. Advances in remote sensing, predictive climate models, and multi-proxy paleoenvironmental data, as described by Caseldine and Turney, enable us to monitor and predict environmental changes with greater accuracy. [36] For example, early warning systems for droughts, crop failures, and disease outbreaks offer proactive measures to reduce the human toll of climate-related disasters. However, the success of these tools depends on equitable access and effective governance to ensure their widespread use and impact.

Perhaps the most profound form of resilience lies in the capacity for transformative adaptation that moves beyond mere recovery to fundamentally reshape societal

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[33] Yoshiki Yamagata and Ayyoob Sharifi (eds.), *Resilience Thinking in Urban Planning* (Springer, 2018). p.5.

[34] Tamas Kocsis, 'Finite Earth, Infinite Ambitions: Social Futuring and Sustainability as Seen by a Social Scientist', *Society and Economy*, 40, S1 (2018), p.113.

[35] Adeline Johns-Putra, *Climate Change and the Contemporary Novel* (Cambridge University Press, 2019), p.2.

[35] Caseldine, C. & Turney, C., 'Advances in Climate Prediction: Remote Sensing and Proxy Data Integration', *Environmental Science and Technology*, (2009), p.2.

structures. This includes transitioning to post-carbon economies, redefining prosperity beyond GDP growth, and restoring ecological relationships disrupted by industrialisation. [37]As we confront an uncertain future, resilience is not just about bouncing back from disruption, but about redesigning ecological, social, and economic systems that can endure and thrive amidst uncertainty. While the challenges ahead are considerable, historical and scientific evidence suggests that collapse is not inevitable, provided societies act with foresight, creativity, and collective resolve.

**Considerations**

The prospect of civilisational collapse is not merely a scientific or historical issue; it is fundamentally an ethical one. Disproportionate vulnerability to environmental change, unequal access to resources, and deeply entrenched social inequities mean that, if collapse occurs, its impacts will not be evenly distributed. As the stresses of climate change and systemic fragility intensify, questions of justice, responsibility, and moral obligations to future generations become increasingly urgent.

Historically, inequality has been both a precursor and accelerant of collapse. As Jared Diamond discusses in *Collapse*, many failed societies were characterised by elite insularity, resource hoarding, and a resistance to reforming exploitative systems until it was too late.[38] Diamond's central thesis—that societies often "choose to fail" by prioritising the short-term interests of elites over long-term collective survival raises enduring questions about governance, accountability, and distributive justice. These themes resonate today, as modern societies continue to grapple with the twin threats of environmental degradation and social inequality.

In the context of climate change, the most vulnerable populations are often those who have contributed the least to greenhouse gas emissions. Poor and marginalised communities, both within nations and globally, are disproportionately affected by the impacts of environmental stress, including displacement, health risks, and food

[37] Tim Jackson, *Prosperity Without Growth? The Transition to a Sustainable Economy* (London: Sustainable Development Commission, 2009), p.7

[38] Diamond, J., *Collapse: How Societies Choose to Fail or Succeed* (New York: Viking, 2005), pp.235 - 236.

insecurity.[39] Roy et al. note that land-use changes and environmental degradation are frequently driven by extractive economic models, which externalise their costs onto vulnerable populations.[40] These structural injustices exacerbate existing disparities and make adaptation more challenging for those already burdened by poverty, exclusion, or the legacies of colonialism.

Addressing these inequalities requires more than merely redistributing resources. Ethical responses to these issues must include both distributional justice ensuring that the benefits and burdens of climate action are shared equitably and procedural justice, which addresses who gets to decide and whose voices are heard. As Inayatulla argues, societies must embrace inclusive, long-term decision-making processes that reflect diverse perspectives and values to foster sustainable outcomes. Similarly, resilience and sustainability strategies must be grounded in the principles of climate justice, ensuring that adaptation efforts do not deepen existing inequities.[41]

Intergenerational ethics are equally crucial. Climate change and ecological collapse are slow-moving crises whose most severe consequences will likely fall on future generations. This raises profound questions about moral responsibility: What do current societies owe to future generations? How can present-day policies avoid locking humanity into irreversible paths of degradation? Johns-Putra suggests that literature and cultural discourse play a vital role in fostering ethical imagination, helping societies grapple with their obligations beyond the immediate and the visible.[42]

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[39] IPCC, *Climate Change 2022: Impacts, Adaptation and Vulnerability* (Geneva: Intergovernmental Panel on Climate Change, 2022), p. 14.

[40] Parth Sarathi Roy, Reshma M Ramachandran, Oscar Paul, Praveen K. Thakur, Shirish Ravan, Mukunda Dev Behera, Chandan Sarangi and Vijay P. Kanawade, 'Anthropogenic Land Use and Land Cover Changes—A Review on Its Environmental Consequences and Climate Change', *Journal of the Indian Society of Remote Sensing*, 2022, 50, p.3.

[41] Sohail Inayatullah, *Futures Studies: Theories and Methods* (January 2013), p.52.

[42] Adeline Johns-Putra, *Climate Change and the Contemporary Novel* (Cambridge University Press, 2019), p.1.

Furthermore, the ethical dilemmas surrounding triage, the difficult decisions about which systems, regions, or communities to prioritise when resources are limited, are becoming increasingly apparent. As global adaptation finance remains insufficient, particularly for the Global South, prioritisation decisions risk reinforcing the very inequalities that contribute to collapse. [43] Ethical frameworks must, therefore, extend beyond mere utilitarian efficiency and incorporate values of care, empathy, and solidarity as guiding principles for planetary stewardship.

Ultimately, addressing the risk of civilisational collapse is not only a technical or scientific challenge but also a moral imperative. It calls for a fundamental shift in values, from extraction to regeneration, from domination to reciprocity, and from indifference to responsibility. If collapse is to be averted or softened, it will require collective action to build a more just, equitable, and compassionate global society that refuses to sacrifice the vulnerable for the sake of the powerful or the future for the convenience of the present.

**The Future Outlook**

Looking forward, the trajectory of global civilisation is suspended in a delicate balance between escalating risks and emerging possibilities. Climate change, ecological degradation, economic instability, and geopolitical tensions all point toward an increasingly volatile future. Yet, at the same time, an unprecedented awareness of these challenges exists, coupled with a growing commitment to sustainability and a deepening body of knowledge of science, history and culture that offers the tools to navigate an uncertain world.

Kemp argues that civilisational collapse is no longer a distant theoretical concern but a plausible scenario within the lifetime of today's youth. The convergence of planetary boundaries, such as climate thresholds, biodiversity loss, and freshwater

[43] United Nations Environment Programme (UNEP), *Climate Impacts Accelerate, Finance Gap for Adaptation Efforts to the Least Developed Countries (LDCs) Grows*, 2023 https://www.unep.org/news-and-stories/press-release/climate-impacts-accelerate-finance-gap-adaptation-efforts-least-50 [accessed 21 April 2025].

depletion signals not merely environmental stress but systemic strain across interconnected global networks. However, modern society differs from past civilisations in one crucial respect: it possesses scientific foresight, technological capability, and the means to communicate and cooperate on a global scale. If harnessed effectively, these factors could be the key to preventing irreversible decline and enabling transformative resilience.[44]

Future outcomes will likely hinge less on environmental limits alone and more on political will, social adaptability, and cultural imagination. As Zoltan et al. stresses, the concept of "social futuring" encourages societies to envision long-term, sustainable futures based on shared goals rather than short-term economic gain. [45] This vision requires investment in climate-resilient infrastructure, equitable development, and governance structures capable of anticipating and responding to compounded crises. Achieving these aims would not only mitigate environmental risks but also foster more inclusive and just societies, capable of absorbing shocks and thriving amidst uncertainty.

At the same time, caution is warranted. Structural inertia, entrenched inequalities, and political polarisation continue to obstruct meaningful change, even when the knowledge and solutions are available. Roy et al. caution that while land-use reforms and mitigation strategies are well understood in theory, they are often undermined in practice by conflicting interests and inadequate implementation. [46] The future,

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[44] Luke Kemp, 'Are we on the road to civilisation collapse?', *BBC Future*, 19 February 2019. Available at: https://www.bbc.com/future/article/20190218-are-we-on-the-road-to-civilisation-collapse (Accessed: 18 April 2025).

[45] Zoltán O. Szántó, Petra Aczél, János Csák, and Chris Ball, *Foundations of the Social Futuring Index* (2019).

[46] Parth Sarathi Roy, Reshma M Ramachandran, Oscar Paul, Praveen K. Thakur, Shirish Ravan, Mukunda Dev Behera, Chandan Sarangi and Vijay P. Kanawade, 'AnthropogenicLand Use and Land Cover Changes—A Review on Its Environmental Consequences and Climate Change', *Journal of the Indian Society of Remote Sensing*, 2022, 50, p14.

therefore, will be shaped not solely by science and technology but also by ethics, justice, and the choices societies make about what they value.

The humanities, too, have a critical role in this outlook. As Johns-Putra notes, literature, art, and philosophy provide vital means for societies to reflect on collapse, not just as a material process, but as a deeply human experience, one marked by fear, hope, denial, and responsibility. [47] These cultural tools can inspire, warn, and mobilise action in ways that data alone cannot, underscoring the importance of human creativity and ethical reflection in addressing global challenges.

In sum, the future of civilisation is not fixed. While collapse remains a real and serious threat, it is not inevitable. The path forward will require confronting hard truths, reimagining progress, and embracing the complex interplay of ecology, culture, and technology. Whether humanity chooses a future of degradation or regeneration depends on its capacity to learn from the past, act wisely in the present, and plan boldly for what lies ahead.

**Conclusion**

The collapse of civilisation is not merely a topic for historians or speculative fiction. It is a pressing and present, multidimensional challenge confronting humanity. From the fall of ancient societies, often triggered by climate disruption and social inequality, to the contemporary crises of ecological degradation, global warming, and systemic injustice, the evidence reveals patterns that we can no longer afford to ignore.

Modern civilisation stands at a critical juncture. On one path lies continued exploitation of finite resources, deepening inequality, and ecological overshoot—conditions that have historically led to the breakdown of complex societies. On the other lies the potential for transformation: the opportunity to reimagine our

[47] Adeline Johns-Putra, *Climate Change and the Contemporary Novel* (Cambridge University Press, 2019), p.14.

economies, restructure our priorities, and foster resilience through equitable adaptation and global cooperation.

The case studies of past collapses offer both warnings and lessons. They remind us that resilience is possible but not guaranteed and that thriving amid change requires more than just technology or wealth; it demands foresight, flexibility, and moral courage. Addressing the ethical dimensions of collapse, from intergenerational justice to the uneven distribution of risk and burden, calls for a reassessment of the values that underpin our civilisation. As Page discusses in his review of *Collapse* by Jared Diamond, many past societies were unable to enact necessary reforms until it was too late, prioritising short-term elite interests over long-term collective survival. [48] This history serves as a cautionary tale for contemporary decision-making, highlighting the critical importance of long-term thinking in governance and policy.

While the future is uncertain, it is not beyond influence. Whether collapse becomes a reality or is averted through deliberate action depends on the choices societies make today. As history shows, civilisations do not simply fall, they unravel through a series of missed opportunities, ignored warnings, and unheeded responsibilities. But equally, they can endure, adapt, and even flourish if they are willing to learn, change, and act with purpose.

In the end, the future of civilisation depends on humanity's ability to respond to the multifaceted challenges it faces. By integrating lessons from the past, embracing new scientific and technological knowledge, and fostering ethical leadership, society can build the resilience needed to face the uncertain world ahead. It is a matter not just of survival, but of thriving through change and creating a future that prioritises sustainability, equity, and justice.

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[48] M. Page, 'Jared Diamond's Collapse and the Fate of Modern Civilisations', *Journal of Historical Studies*, 2005, p.1056.

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