

What Drives Societal Collapse?

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-there is plenty of prehistoric archaeological evidence for relatively sudden societal collapse where regions are abandoned, subsistence bases are replaced, or a lower-energy sociopolitical organisation emerges

-the root causes that tend to get identified are a combination of sociopolitical and economic factors

-with the introduction of refined and detailed paleoclimatic data, however, abrupt climate events that alter environmental conditions significantly are being viewed as precipitating causes as well and increasingly

-one example is the collapse of hunting-gathering communities in southwest Asia about 12,000 years before present (BP)

-the Natufians appear to have shifted from their nomadic hunting-gathering strategy to a labour-intensive one of animal husbandry and plant cultivation whose surpluses led them to develop a complex society

-this transition coincided with an interglacial climate change from arid steppe vegetation to woodlands with increased seasonality

-population grew resulting in greater complexity until about 8400 years BP when another climate shock forced an abandonment of agricultural settlements in northern Mesopotamia with migration to the Tigris-Euphrates delta and alluvial plains where seasonal basin facilitated agricultural irrigation

-by 5500 year BP Late Uruk society was flourishing

-a relatively short but severe drought (4000-4200 years BP) appears to have led to Uruk society's sudden collapse

-once wetter conditions reappeared, complex societies with centralised sociopolitical institutions and class hierarchies arose and spread across the Mediterranean region (e.g., Akkadian) into northern Africa (e.g., Old Kingdom) and West Asia (e.g., Harappan)

-these societies, in turn, were terminated during another catastrophic drought and cooling period around 4200 years BP that diminished agricultural production dramatically

-prehistoric societies across the Old World appear to have been quite vulnerable to sudden climatic shifts

-“Many lines of evidence now point to climatic forcing as the primary agent in repeated societal collapse.” (p. 610)

- abrupt climate change also appears to be a proximal cause of collapse in New World societies
- a 30-year drought along with severe flooding around 1500 years BP occurred at the time of the Moche civilisation's decline in northern coastal Peru
- the collapse of the Classic Maya (circa 1200 years BP) occurred during a lengthy dry period of severe drought
- around 1100 years BP the agricultural base of the Tiwanaku civilisation of the central Andes collapsed due to a prolonged dry period
- 800 years ago a 30-year drought along with a general cooling devastated the agricultural production of the Anasazi resulting in abandonment of their settlements

-despite long-held beliefs of relative stability over the past 11,000 years, paleoclimatic data indicates significant instability exposing societies of the time to unprecedented changes that disrupted agricultural food production

-societies of the time were unable to adapt to the duration, amplitude, or rapidity of the shifts

-these shifts cannot be attributed to human activity of the time given the absence of industrialisation and relatively minimal scale of urbanisation and population densities

-many models of future climatic forcing suggest changes are likely to be of even greater amplitude and rapidity, and lead to dramatic changes in rainfall patterns

-these climate changes will occur for a significantly increased population

-despite modern technology, many people continue to live as subsistence or small-scale agriculturalists and will be greatly impacted by forthcoming climate changes and "in an increasingly crowded world, habitat-tracking as an adaptive response will not be an option." (p. 610)

-being able to anticipate these changes, however, provide modern societies an advantage

-our models provide a road map for how our climate system may evolve and where population growth will continue and be greatest

-these data need to be used "to design strategies that minimize the impact of climate change on societies that are at greatest risk. This will require substantial international cooperation, without which the 21st century will likely witness unprecedented social disruptions." (p. 610)