

David Alexander Robinson
Lecturer of History
Edith Cowan University
Western Australia

Oil, Water, and Climate: An Introduction

Catherine Gautier; Cambridge: Cambridge University Press; 2008; 408 pages; \$108.00; ISBN-13: 978-0521709194; ISBN-10: 0521709199.

Catherine Gautier's new work, *Oil, Water, and Climate: An Introduction*, is representative of a wave of books (encompassing volumes from Jared Diamond's *Collapse* (2004), to George Monbiot's *Heat* (2007), and Vandana Shiva's *Soil Not Oil* (2008)) explaining the scientific processes of climate change in conjunction with their economic and social causes. While recent surveys have demonstrated that less than two thirds of Americans believe scientific evidence of man-made climate change (only slightly more than believe in the apocalyptic 'rapture' of the ecclesiastic 'end-times'), most sensible commentators recognise that these challenges are possibly some of the greatest to ever face humanity. From the 2003 heatwave that killed 30,000 Europeans, to Hurricane Katrina in the Gulf of Mexico, and the first environmental refugees in areas like Bangladesh and the Pacific, the societal implications of climate change are becoming increasingly clear. Gautier's textbook does an admirable job of elucidating the complex interactions between industrial development, land-use patterns, population growth and their environmental impacts, for entrance-level university students. However, her work is also a valuable reference text for academics without specialisation in the area, and concerned citizens wanting to learn more.

The work focuses on oil's central role in the global economy, the consequent climatic effects of carbon emissions, the existing pressures on global water supplies, and how climate change will intensify water scarcity. Key assumptions in this analysis are that high global population growth will continue throughout the coming decades; that Peak Oil is a significant phenomenon, which will lead to a transition in primary energy sources during this time; and that urbanisation and economic development paradoxically accentuate social and environmental crises, while slowing population growth and empowering previously marginalised groups.

In chapters examining the science of the Carbon and Water Cycles, Gautier methodically explores basic concepts, such as: how greenhouse gasses like carbon dioxide trap heat within the Earth's atmosphere; that heat in the oceans is redistributed via deep circulation currents; that global warming causes thermal expansion of water, which leads to rising sea levels; and that heat distribution and evaporation significantly affect cloud cover and rainfall patterns. Other chapters situate this science within its social context. Oil is discussed in relation to its vital role in fuelling transportation, facilitating food production, and creating electricity, plastics and various fabrics. Reference is also made to the geo-strategic significance of oil resources: motivating wars in the Middle East and civil conflicts in Africa. Most oil-rich states are authoritarian regimes that use oil wealth to protect that power, and the occupation of Iraq has demonstrated that the cost of deposing these regimes can be hundreds of thousands of lives and trillions of dollars.

Water scarcity issues are located within the nexus of disproportionate growth in coastal cities; associated pressure on water supplies and sanitation; changing rainfall patterns that will reduce consistent precipitation in these areas; and inland and oceanic flooding that will increasingly contaminate water supplies and destroy coastal infrastructure. Gautier notes that today almost two billion people are malnourished, which is directly related to lack of water and energy resources. Malnourishment encourages overexploitation of the environment, further degrading vegetation, soils, and water supplies. As population growth over the next three decades will primarily occur in Africa, Asia and Latin America, this cycle is set to intensify (p. 36).

Gautier is far from hysterical in her rhetoric, but her inescapable conclusions are that this population momentum is presently unstoppable, "barring large-scale wars, famines, and diseases" (p. 39). Furthermore, "[b]ecause of the interconnections among population, resources use, and environmental impacts, it will prove difficult to ... avoid possibly catastrophic climatic change under any fast population growth scenario" (p. 56). Though this situation seems inevitable, it remains essential to

amend social and economic practices to limit environmental damage and prepare a sustainable economy for the future. In relation to this Gautier notes the importance of state intervention, as, “[m]arket force alone will not be sufficient to deliver the full potential of energy and water savings and efficiency improvements” (p. 9).

Somewhat incongruently, Gautier’s work is disappointing in its discussion of green alternatives. Gautier’s premise that Peak Oil will create an economic imperative towards cleaner energy, though popular amongst environmentalists, is actually both an irrelevancy and a miscalculation. Remaining oil supplies are certainly sufficient to ensure that radical climate change will become unavoidable before economic motivations change energy-use, especially with increasingly viable bitumenous oil supplies available in Canada and Venezuela. Instead, the primary pressure for change must be *political* – pressure now working to various degrees under the year-old Obama administration, and my own left-leaning antipodean government.

More significantly, however, having described imminent socio-environmental turmoil, Gautier dismisses green energy alternatives with amazingly shallow analyses. Wind energy is dismissed as irregular, noisy and ugly. Solar energy is intermittent and currently too costly. Geo-thermal energy will never have enough sites globally. Biomass fuels create socially-destructive competition for land with food crops. She admits only briefly that combining these technologies ameliorates many of their deficiencies, and increasingly important tidal power technology is left unmentioned. Her conclusion is that nuclear energy is by default the best source of clean electricity, and that mixing it with ‘clean coal’ will be the best substitute for oil. As the book aims to inspire students “to act wisely and thoughtfully when it is their turn to make decisions regarding our environment and its resources” (p. 3), her position is concerning. In many ways this book has already been superseded by developments in green energy. Hybrid and energy-efficient cars are a growing fashion. Enormous solar projects are underway in the Sahara, and governments are beginning to subsidise domestic solar energy production. Skyscrapers will soon sport aesthetically-inoffensive wind turbines, and algae grown in the desert will replace grain and sugar-based ethanol as biofuel. While fossil fuel-use in growing economies like China and India will eventually decide how our climate future plays out, the *political* pressure of populations, both in their nations and ours, will ultimately secure better environmental outcomes. Gautier effectively diagnoses our challenges, but fails to map satisfactory solutions.

Bibliography

Diamond, Jared. *Collapse: How Societies Chose to Fail or Succeed*, Viking Adult, New York, 2004.

Monbiot, George. *Heat: How to Stop the Planet from Burning*, South End Press, Cambridge MA, 2007.

Shiva, Vandana. *Soil Not Oil: Environmental Justice in an Age of Climate Crisis*, South End Press, Cambridge MA, 2008.