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Introduction

The View from Clifton Bridge



The Clifton Suspension Bridge, spanning Avon Gorge near Bristol, England. *Credit:* willmetts/Shutterstock.

Keywords

- Political ecology
- Reconciliation ecology

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News headlines from forests, fields, rivers, and oceans suggest we are in a world of trouble. Fresh water is increasingly scarce around the globe, owing not only to heavy water use but also widespread pollution; there is not a single drop of water in the Colorado River in the United States or the Rhone River in France that is not managed through complex dams and distribution systems, or affected by city and industrial waste along their paths to the sea. Agricultural soils are depleted from years of intensive cropping and from the ongoing application of fertilizers and pesticides in the search for ever-sustained increases of food and fiber; in North India, after decades of increasing production, yields of wheat and rice have hit a plateau. Global temperatures are on the rise and, with this increase, whole ecosystems are at risk. Species of plants and animals are vanishing from the earth, never to return. Perhaps most profoundly, the world's oceans – upon which these global systems rest – show signs of impending collapse. The accumulation of these acute problems has led observers to conclude that the environment may be irreversibly lost or that we may have reached “the end of nature” (McKibben 1990).

And yet, looking down from a two-century-old suspension bridge spanning the Avon Gorge in Bristol, England, along the winding waterway towards the lower reaches of the River Avon and the ocean beyond, it is hard not to be swept away in a fantastic environmental romance. Peregrine falcons nest in the walls and can be seen on rare occasions, seeking pigeons and seagulls for prey, flying along the updrafts that rise from the gorge cut by the ancient river, as it makes its way to the sea. Orchids thrive here, as do horseshoe bats. The river is all the more remarkable for its incredible flood tide range, with water rising and falling as much as 15 meters (49 feet) between low and high tide. In the entire world, this dramatic distance is second only to that of the Yangtze River in China. The power of the sea, the river, and the moon is almost palpable as the water passes beneath the bridge out to Avonmouth, adjacent to the vast Severn Estuary, and on to the Atlantic.

But all is not well here. The blessing of a massive tidal flow has made the Severn Estuary a very desirable location for tidal power generation, which captures the energy of the rising and falling water to generate electricity for homes and businesses. Harnessing the tidal power of the area might provide as much as 5 percent of the United Kingdom's power. Because this is a form of power that generates no greenhouse gas emissions, which are the main culprit behind global climate change, this is an environmentally attractive project. The plan, however, does not come without environmental costs and the proposed projects include the construction of vast lagoons, huge underwater fences, and an enormous tidal reef. This could destroy marshland, drive away migrating birds, and harm the fish population in ways that are hard to estimate.

The view from Clifton Bridge makes our global situation easier to understand, though perhaps no simpler to solve. The contradictory proposition – harnessing green power in a way that will paradoxically transform the environment – is a metaphor for the condition of our long-standing relationship to the non-human world. From this view, looking down across the gorge, one can catch a glimpse of heavily quarried sites where the land was mined for lead and iron for more than a thousand years. Yet these quarry sites also provide habitat for wild animals and birds. Everywhere the works of people are in evidence; bridges, tunnels, docks, all formed from brick and iron, span the chasm and snake along the valley floor. Yet these features frequently vanish into the riotous growth of trees and walls of

stone. Decisions made at the estuary downstream, therefore, cannot be made solely on the basis that the region is a “natural” one, nor a “social” one. The area is simultaneously neither and both, with environmental features (deep sea inlets, open gorges, and veins of minerals) inspiring invasive human actions (docks, bridges, and mines), which sometimes produce altogether new habitats and environments.

The landscape here has been worked and reworked for centuries by human hands, creating a thoroughly social environment, yet falcons nest here, as do bats and a range of other species, making this an undeniably natural space as well.

If these sorts of decisions are to be made, and the larger complex puzzle of living *within* nature is to be solved, therefore, we need tools with which to view the world in fresh ways and assess possible routes forward. For example, viewed as a problem of ethics, the development of the estuary becomes one of sorting through competing claims and arguments about what is ethically best, on whose behalf one might make such an argument (that of power customers or that of the river itself?), and over which criteria we might use to adjudicate “good” policy. From the point of view of political economy, by contrast, one would be urged to examine what value is created and destroyed in the transformation of the marshlands, which specific technologies are selected for power generation and why, whose pockets are filled in the process, and how decisions are controlled and directed through circuits of corporate power and national authority. Indeed, there is no shortage of ways to view this problem, with population-centered considerations competing with those that stress market logics, and arguments about public risk perception competing with those about the romantic social construction of the river.

What Is This Book?

This book is designed to explain these varied interpretive tools and perspectives and show them in operation. Our strategy is first to present the dominant modes of thinking about environment–society relations and then to apply them to a few familiar objects of the world around us. By environment, we mean the whole of the aquatic, terrestrial, and atmospheric non-human world, including specific objects in their varying forms, like trees, carbon dioxide, or water, as well as the organic and inorganic systems and processes that link and transform them, like photosynthesis, predator–prey relationships, or soil erosion. Society, conversely, includes the humans of the earth and the larger systems of culture, politics, and economic exchange that govern their interrelationships.

From the outset we must insist that these two categories are interlaced and impossible to separate. Humans are obviously environmental beings subject to organic processes. Equally problematically, environmental processes are also fundamentally social, in the sense that they link people and influence human relationships. Photosynthesis is the basis of agriculture, for example, and so is perhaps the most critical environmental process in the history of civilization. More complex: human transformation of carbon levels in the atmosphere may further alter global photosynthesis in a dramatic way, with implications for human food and social organization. Obviously, it is difficult to tell where the environment leaves off and society begins. On the other hand, there is not universal agreement on

exactly of what these relationships and linkages consist. The perspectives summarized in this text present very different views about which parts of society and environment are connected to which, under what conditions these change or can be altered, and what the best courses of action tend to be, with enormous implications for both thinking about our place in the ecosystem and solving very immediate problems like global warming, deforestation, or the decline in the world's fisheries.

In Part I, we lay out some of the dominant ways of interpreting the environment/society relationship. We begin in Chapter 2 with a perspective that is foundational to the history of both the natural and social sciences: population. Here we describe how human population has been viewed as a growing threat to the non-human world, contrasting this with views of population growth as a process that not only consumes, but also potentially *produces*, resources in the world. In Chapter 3 we consider economic ways of thinking about the environment. These views stress the power of markets – a category in which we include systems of economic exchange – to respond to scarcity and drive inventive human responses. This is followed in Chapter 4 by approaches that stress institutions, which we define as the rules and norms governing our interactions with nature and resources. Institutional approaches address environmental problems largely as the product of “common property” problems that are amenable to creative rule-making, incentives, and self-regulation. Chapter 5 examines ethics-based approaches to the environment, with their often radical ways of rethinking the place of humans in a world filled with other living and non-living things. The view of the environment as a problem of risk and hazard is explored in Chapter 6. That approach proposes a series of formal procedures for making the best choices possible, given that environments and environmental problems are inherently uncertain and highly variable. This is followed by a description of political economy approaches in Chapter 7, which are those that view the human relationship with nature as one rooted in the economy, but which insist that the economy is based in, and has fundamental implications for, *power* relationships: who gets what, who works for whom, and who pays. Contrary to market-based approaches, these point to the environmentally corrosive impacts of market economics. Chapter 8 closes this part of the book by describing approaches to environment and society issues that stress social construction, which we define as the tendency for people to understand and interpret environmental issues and processes through language, stories, and images that are often inherited or imposed through systems of media, government, education, or industry. These stories are not harmless, since they can encourage or overlook very real actions, impacts, and behaviors with serious environmental and social consequences.

Within these several ways of seeing are many others, of course. Within political economy, for example, issues of environmental justice are critical to understanding why some people are more heavily exposed to hazards than others. We have nested many of these perspectives within larger categories of thought, though without pretending we can do more than introduce many important concepts. Of particular significance are issues related to gender. These are so important, indeed, that we chose not to set them aside in a separate chapter, but to thread them throughout the book, amidst themes as varied as population and political economy.

Part II presents a set of six critical objects, and examines each of them in turn using a sample of these approaches. Each chapter begins with a “short history” of the object

followed by a discussion of ways in which the characteristics of the object present a puzzle or conundrum, and then presents divergent ways of thinking about the object from competing points of view. In Chapter 9, we introduce carbon dioxide, a curious gas with a complicated history on the earth that shows it to vary widely over time, with enormous implications for the forms of life dwelling here. As one of the most important greenhouse gases, moreover, CO₂ has become an increasingly contested object, with competing views about its control, regulation, and circulation. In Chapter 10, we discuss trees. These plants have been companions of human civilization since the beginning, though the long relationship has been marked by dramatic ebbs and flows. In this chapter we take the opportunity to introduce varying theories to account for deforestation and reforestation, as well as a startling ethical proposal for trees to legally represent themselves. Chapter 11 is dedicated to wolves, a species with which humans have a current love-hate relationship and whose return throughout North America and parts of Europe and Asia represents a dramatic change in the way humans and animals relate. This chapter stresses diverse cultural understandings of the same animals, and the implications of our ethics and institutions for the many animals that share the landscape with humanity. The tuna takes center stage in Chapter 12, and with it the profound problems faced by the world's oceans. Here, human economics and ethics collide in a consideration of how fish production and consumption are regulated and managed in a complex world. Chapter 13 addresses one of the world's fastest-growing commodities, bottled water. This object has the rare dual role as a solution to problems of water supply in some parts of the world, while being a clear luxury item – with attendant environmental problems – in others. We close with French fries (also called “chips”!) in Chapter 14, a culinary invention that connects the complex centuries-old history of the transatlantic “Columbian Exchange” with the health controversies and industrial food economies of the twenty-first century.

Quite intentionally we have selected *objects* for exploration, rather than *problems*. We do this for two reasons. First, while many objects are obviously linked to problems (trees to deforestation, as we shall see in Chapter 10, for example), *not all human relations with non-humans are problems*. Second, we intend by this structure to invite people to think seriously about how different things in the world (giraffes, cell phones, tapeworms, diamonds, chainsaws ...) *have their own unique relationship to people* and present specific sorts of puzzles owing to their specific characteristics (they swim, they melt, they migrate, they are poisonous when eaten ...). This is intended as an opportunity to break away from the environment as an undifferentiated generic problem, one universally characterized by a state of immediate and unique crisis. While global climate change is a critical (and sprawling) suite of problems, for example, the long and complex relationship of people to carbon dioxide itself provides a focused entry point, filled with specific challenges and opportunities. We do indeed face enormous environmental problems, but we believe them to be best solved by exploring the specificities and differences, as well as commonalities, of both people and things.

Needless to say, these objects do not encompass the full enormous range of environmental actors with which society is intertwined and, though these chapters do capture a number of key issues and ideas, we do not pretend to have provided an exhaustive list of socio-environmental situations, interactions, and problems. Instead we provide a few key

examples to show how objects are tools to think with, and to demonstrate the very different implications of divergent ways of seeing environmental issues.

It is also important to note that this is not an environmental science textbook, though it is a book that takes environmental science seriously. Several key concepts and processes from a range of environmental sciences are described and defined, especially in the latter half of the book, including carbon sequestration, ecological succession, and predator/prey relationships, among many others. These are described in terms detailed enough to explain and understand the way human and social processes impinge upon or relate to non-human ones. Throughout we have drawn on current knowledge from environmental science sources (the report on global climate change from the Intergovernmental Panel on Climate Change, for example), but we intend a book that requires no previous knowledge of such sciences or sources. We believe this book might reasonably accompany more strictly environmental science approaches, or be used in courses that seek to bridge environmental ethics, economics, or policy with issues in ecology, hydrology, and conservation biology, or vice versa.

The authors' points of view

Finally, we provide many points of view in this volume that directly contradict one another. It is difficult, for example, to simultaneously believe that the source of all environmental problems is the total population of humans on the earth, and to hold the position that population growth leads to greater efficiencies and potentially lower environmental impacts. Even where ideas do not contradict one another (for example, risk perception in Chapter 6 might be seen as a sort of social construction in Chapter 8), they definitely stress different factors or problems and imply different solutions.

With that in mind, it is reasonable to ask what the points of view of the text's authors might be. Which side are we on? This is difficult to answer, not only because there are three of us, each with our own view of the world, but also because, as researchers, we often try to bring different perspectives and theories to bear on the objects of our study, and to foster a kind of pluralism in our thinking.

Nonetheless, we do collectively have a point of view. First, we are each urgently concerned about the state of natural environments around the world. Our own research has focused on diverse environmental topics, including Professor Hintz's work on the status of bears in the western part of the United States, Professor Moore's research on the management of solid and hazardous waste in Mexico, and Professor Robbins' investigation of the conservation of forests in India. From these experiences, we have come to share an approach best described as **political ecology**: an understanding that nature and society are produced *together* in a political economy that includes humans and non-humans. What does this mean? To keep it as straightforward as possible, we understand that relationships among people and between people and the environment are governed by persistent and dominant, albeit diverse and historically changing, *interactions of power* (Robbins 2004). This means that we have some special sympathy for themes from political economy and social construction.

Political Ecology An approach to environmental issues that unites issues of ecology with a broadly defined political economy perspective

When Hintz examines the conservation of bears in Yellowstone, for example, he thinks it is critical to examine how bears are *imagined* by people and to know what media, assumptions, and stories influence that imagination, since these prefigure how people do or do not act through policy, regulation, or support for environmental laws. When examining solid waste in Mexico, in another example, Moore thinks the crucial question is who *controls access to and use of* dumps, since this determines, to a large degree, how waste is managed, whether problems are addressed or ignored, and where the flow of hazards and benefits is directed. When examining forests in India, Robbins wants to know how local people and forest officers *coerce one another*, in a system of corruption that determines the rate and flow of forest cutting and environmental transformation. People's power over one another, over the environment, and over how other people think about the environment, in short, is our preferred starting point.

We also share an assumption that persistent systems of power, though they often lead to perverse outcomes, sometimes provide opportunities for progressive environmental action and avenues towards better human–environment relationships. We are stuck in a tangled web, in other words, but this allows us many strands to pull upon and many resources to weave new outcomes.

As a result, we also stress throughout the volume a preference for some form of **reconciliation ecology**. As described by ecologist Michael Rosenzweig (2003), this describes a science of imagining, creating, and sustaining habitats, productive environments, and biodiversity in places used, traveled, and inhabited by human beings.

Reconciliation Ecology A science of imagining, creating, and sustaining habitats, productive environments, and biodiversity in places used, traveled, and inhabited by human beings

This point of view holds that while many of the persistent human actions of the past have stubbornly caused and perpetuated environmental problems, the solution to these problems can never be a world somehow bereft of human activity, work, inventiveness, and craft. Such a point of view does not deny the importance of making special places (conservation areas, for example) for wild animals, sensitive species, or rare ecosystems. But it does stress that the critical work of making a “greener” world will happen in cities, towns, laboratories, factories, and farms, amidst human activity, and not in an imaginary natural world, somewhere “out there.”

For all the weight of our own views, however, we strongly believe in the analytical challenges presented by *all* of the approaches described here. It is our intention, therefore, to present the most convincing and compelling arguments of the many and diverse ways of viewing society and environment. We insist that, while it is impossible for us to present a fully unbiased view of the many ways of thinking about nature, it is possible to present fair characterizations of many points of view, characterizations without caricatures. Only the reader can judge our success in this regard.

Suggested Reading

- Robbins, P. (2004). *Political Ecology: A Critical Introduction*. New York: Blackwell.
- Rosenzweig, M. L. (2003). *Win–Win Ecology: How the Earth's Species Can Survive in the Midst of Human Enterprise*. Oxford: Oxford University Press.

