Environment and International Politics: Linking Humanity and Nature

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Environment is now a key component of international relations and, given the rising attention climate change receives in particular (Welzer, 2012), a matter that now has high priority in diplomatic circles. With states in danger of disappearing below rising seas and major disruptions to water supplies and food systems projected for future decades if steps to curb greenhouse gas emissions are not taken soon, environmental matters have become central to contemporary international politics, and to their academic study (Webersik, 2010). Environment emerged after the Cold War as a priority matter for scholarly analysis because scholars are concerned with matters of pollution, conservation and resources; but also because there are interesting analytical puzzles surrounding how the international system deals with them and the changes resulting from the introduction of new modes of governance, institutions, agencies, knowledge and norms.

How all these aspects might be studied as international relations is also not a simple matter, but given their importance they have increasingly impinged on scholarship. Likewise, the rise of International Relations as an Anglo-American 'discipline' – a matter more closely related to the rise of industrial powers than usually acknowledged (Ashworth, 2014) – has shaped the kinds of questions asked about environment and the assumptions about how environmental politics is to be included in the field. Frequently, this has led to technical issues of regime design, compliance and funding mechanisms being focused on matters of justice or perspectives from marginal places. A partial response to this were interesting case studies on social movements and how their norms have impinged on the formal deliberations of states and intergovernmental agencies (Lipschutz and Mayer, 1996), a matter of governance more widely understood than the narrower concerns of formal state government (Young, 1994).

Critics, who argue that environmental management arrangements that focus on technical matters frequently occlude complicated processes of global injustice and the displacement of marginal populations in the global polity, have challenged this narrow analytic focus and raised larger questions of global power, justice and conflict (Sachs and Santarius, 2007). The result is an intense series of academic debates in International Relations and cognate fields about what to study, for whom and with what policy implications for governance broadly conceived. Only sometimes do the traditional core themes of International Relations concerned with war, peace and security impinge directly on the environmental discussions.

'**The Environment**'

Many of the themes now frequently included under the rubric 'environment' are not necessarily understood in these terms by those who are affected by atmospheric change, water purity concerns, species loss, industrial pollution, land appropriation, deforestation and numerous other practices. The term 'environment' itself has also recently encompassed longstanding human debates about the role of nature in shaping the human fate and how humanity has in turn transformed natural conditions (Marsh, 1864; Glacken, 1967; Robin et al., 2013). Using environment as a term often lumps concerns with industrial pollution, technical fixes to production systems criticised for causing

consumption (Dauvergne, 2008), and fears on the part of many in the Global North that population growth will overwhelm agricultural productivity, leading to famine and social disaster (Robertson, 2012).

There has been a long-standing suspicion, by at least some in the Global South, that the formulation of environment is one that is used to control Southern peoples; clearly, in many cases environmental measures are used as a justification for undertaking development projects that cause displacements and suffering for poor people all in the name of universal causes (Miller, 1995). Traditional modes of managing forests, limiting hunting, and other communal arrangements are frequently not a good fit for state-based governance structures, the entities that are usually the subject of international agreements. The extensive use of the term sustainable development, now codified in the recently adopted overarching 2015 United Nations (UN) Sustainable Development Goals (SDGs), has long been a compromise argument ostensibly dealing with environmental protection while simultaneously offering aid and compensation to Southern states for what is sometimes understood as forgone development opportunities. Likewise, this rubric encompasses all sorts of technical innovations, matters of ecological modernisation that supposedly allow industrial processes to proceed without pollution. These discussions have been key to the dominant concern in recent environmental matters, the question of climate change, and how to tackle what is now understood as a global problem (Bulkeley et al., 2014).

Most recently, as the sheer scale of human activities gradually dawns on policymakers and the interconnections between various Earth system processes become clearer, both in new historical research (Davis, 2001; McNeill 2000; Hornborg, et al., 2007) and in scientific assessments of global change (Ellis, 2011; Steffen et al., 2004; United Nations Environment Program, 2012); the environment discussions have increasingly focused on how the rich and powerful parts of humanity will shape the future configuration of the planet. Clearly there are numerous failures of governance in trying to tackle the interconnected problems of what is increasingly called the age of the Anthropocene (Galaz, 2014). Will rapid climate change lead to deliberate attempts to change the atmosphere to slow or counteract global warming as in geoengineering, or will the powerful states and corporations act quickly to preclude the necessity of such drastic, and potentially conflict causing measures? While it may be premature to call current circumstances ‘the age of ecology’ (Radkau, 2014), such considerations are increasingly shaping matters of global politics.

Science and Politics

Prior to the 1960s there were precursors to the idea of a single global entity that might be regulated and managed; such things as conventions on migratory birds, like the one signed by the United States (US) and the United Kingdom (UK), on behalf of Canada in 1918, did attempt to grapple with what is now understood as the international dimensions of nature conservation. But it is only in the second half of the twentieth century that these became a focus for widespread attention by academics and policymakers (see Brown, 1954; Thomas, 1956). This has been driven by a combination of rapid economic growth, political pressure from domestic environmental constituencies worried about pollution, population, parks and nature protection, and growing international environmental organisations epitomised by the rise of Greenpeace in the 1970s, as well as crucial innovations in science that have focused attention on issues that require international cooperation to address, perhaps mostly pointedly, the depletion of stratospheric ozone.

The rise of concern about what became known as a global environment is also in part a spin-off of Cold War concerns with geophysics. The international geophysics year (in fact 18 months) in 1957/8 was driven in part by efforts and scientific cooperation across the Cold War divide, but also by military concerns about dominating and controlling atmospheric spaces. (What has become the iconic graph of our times, the so-called Keeling curve of rising carbon dioxide concentrations in the atmosphere measured atop a mountain in Hawai’i, has its origins in the international geophysics year.) The fallout from nuclear weapons tests carried around the earth by winds made it clear that the global atmosphere was one interconnected system. These concerns lead to the partial nuclear test ban treaty in the early 1960s, a treaty that was simultaneously an attempt to constrain the arms race between the superpowers, and one that was also the first global atmospheric environmental treaty (Soroos, 1997).

As Edwards (2010) makes clear, these scientific endeavours, and in particular the emergence of meteorology and

weather forecasting, and the subsequent invention of weather satellites have been crucial parts of the rise of a global sensibility as the backdrop for human activities. While global trade and television may have knitted the world together in the processes we have now, after the Cold War, come to call globalisation, some of the key factors have been environmental sciences and the practical spin-off of relatively reliable weather forecasts. Likewise, damage done to the stratospheric ozone layer from high altitude nuclear tests raised further concerns about the upper atmosphere in the 1950s. These issues of ozone depletion subsequently came to a head in the 1980s when stratospheric depletion over the Antarctic caused a flurry of scientific investigations that confirmed that chlorofluorocarbons (CFC) were scavenging ozone in the upper atmosphere and threatening terrestrial life due to the increased penetration of solar Ultraviolet B (UVB) radiation. The resultant scientific debate fed directly into negotiations to eliminate CFC production globally and the Montreal Protocol of 1987 and subsequent extensions of these arrangements to constrain other ozone depleting substances (Litfin, 1994).

Science also drove rising concerns about pollution in the 1950s, although the huge death toll from coal fire-generated smog in London, in particular, did not need much scientific analysis to explain what happened or prompt the passing of clean air legislation in the UK. In the US, Rachel Carson's (1962) book *The Silent Spring*, with its analysis of the indirect damage that widespread pesticide use had caused to ecosystems and bird populations, drew attention to the unintended effects of the chemical industry and brought intense pressure to bear to produce regulation of chemical pollution. Automobile smog in Los Angeles emphasised the environmental hazards of industrial production and suburbanisation, and connected up with longstanding issues of urban reform and city planning (Howard, 1898).

Concerns about resource depletion and shortage of key commodities have long been at the heart of geopolitical concerns (Le Billon, 2012). General fears of resource depletion have long preoccupied state governments; in the late eighteenth century it was fears of wood shortage and inadequate forestry management. Thomas Malthus (1970) feared that the population would grow faster than its ability to feed itself, and his famous essay has shaped many of the predominant modern narratives that specify scarcity as the human condition, even as the extraordinary productivity of industrial systems repeatedly belies the assumption. Likewise, in the 1960s Paul Ehrlich (1968) linked population concerns drawn from ecological studies of wildlife to the larger angst over pollution and resource depletion in the US with his bestseller 'The Population Bomb'. Early attempts to model the Earth system included such resource exhaustion patterns and produced a hugely popular report on 'The Limits to Growth' (Meadows et al., 1974). Richard Falk (1971) explicitly linked population, inadequate food production and fears of nuclear apocalypse into a discussion of international relations and global political reform.

These themes all interconnected in the 1960s in the US and the UK, in particular, and generated what is now known as the environmental movement (O'Riordan, 1976). The Greenpeace innovation of taking non-violent direct action to the high seas and using television footage of the confrontations created political dramas that highlighted the politics of environment (Wapner, 1996). Simultaneously, the first pictures of Earth from the Apollo moon programme showed a fragile blue marble set against the dark backdrop of space confirming a sensibility of global interconnectedness. A flurry of environmental legislation was passed in the US at the end of the 1960s and in the early 1970s. The first 'Earth Day' happened in 1970.

Global Environment

All this generated considerable political attention outside the US too, and the UN Conference on the Human Environment was convened in Stockholm in 1972. The unofficial background report to the conference was written by Barbara Ward and Rene Dubos (1972) and titled 'Only One Earth'. The NASA cover photograph of 'Earth rising' on the British Penguin edition encapsulated the key message of the report. The conference was boycotted by the Warsaw Pact countries and attended by only a few heads of state, but generated considerable attention – not least when Indira Gandhi insisted that poverty was the worst kind of pollution and that developed states should not use environmental arguments to stymie the development aspirations of poor and post-colonial states. Perhaps the most important legacy of this conference is that these matters were firmly placed on the international agenda and the, admittedly very poorly resourced, United Nations Environment Program (UNEP) was established to move deliberations on how the international community should respond ahead.

Subsequently, discussions on the international law of the sea and notions of the common heritage of mankind broadened concerns about environmental matters to cover the oceans as well as terrestrial, outer space and atmospheric matters (Vogler, 1995). Environmental change and geopolitics were once again interconnected in 1983, when research into the possibilities of a nuclear winter in the aftermath of a nuclear war between the superpowers suggested that prompt fatalities from nuclear detonations would be followed by a dramatic fall in global temperatures due to dust and smoke in the atmosphere (Turco et al., 1983). The ecological consequences from this rapid onset climate change might, it was argued, terminate civilisation. These discussions once again linked climate to the central concerns of international relations, and simultaneously made it clear that human activity was capable of changing the basic geophysics of the planetary atmosphere.

Nuclear winter concerns were supplemented by both the Chernobyl nuclear reactor meltdown in 1986 and the growing alarm about ozone depletion. Simultaneously, discussions of sustainable development were afoot leading to the publication of the World Commission on Environment and Development's *Our Common Future* in 1987. The 'Brundtland Report' as it is often called, after the Norwegian chair of the commission, set the stage for the huge UN Conference on Environment and Development in Rio de Janeiro in 1992, where the United Nations Framework Convention on Climate Change (UNFCCC) was launched. But critics were quick to point out that despite all the hype about saving the world and dealing with development issues, the rich and powerful states and corporations were primarily concerned with business as usual rather than dealing with poverty or new modes of economic activity that would make the future sustainable for marginal peoples and places (*The Ecologist,* 1993).

These rising concerns with environment, as the Cold War wound down, followed many of the dominant themes in International Relations scholarship at the time. These approaches continue to shape how many studies are formulated. Partly their impetus comes from international relations but it is important to emphasise that they are also shaped by how environmental issues are framed in domestic politics, and by larger political trends. The focus on international organisations and liberal political economy has shaped much of the discussion of international regimes and the importance of epistemic communities in facilitating agreements (Keohane and Nye, 1977). International Relations' core concern has long been with warfare and the dangers of and how to prevent international conflict. In the aftermath of the Cold War conflict theorists looked at environmental conflict and the possibilities of resource conflicts as a source of warfare. Larger concerns with political economy have emphasised the importance of global inequities and the role of production and trade in shaping how pollution, land use and resource extractions play out across the globe.

Regimes

Garrett Hardin (1968) published a hugely influential article that suggested that many resource problems could be understood in terms of a 'tragedy of the commons', a misleading historical analogy that has generated numerous studies in environmental politics. Complaints from activists in the 1970s (Roberts, 1979) and subsequent careful work on resource systems by Elinor Ostrom (1990) – for which she eventually won the Nobel economics prize – make clear that commons systems have frequently had effective management systems, and that the enclosure and removal of traditional patterns by the expansion of extractive commercial arrangements frequently causes degradation. But the analogy is very suggestive in international relations, where oceans and atmosphere have no central authority to regulate activities and regime theorists frequently invoke Hardin's (1968) formulation in discussions of, as in Vogler's (1995) terms, the global commons.

This approach, focusing on the design of international agreements and the institutional innovations and norms that support them, draws on liberal international thinking and focuses on the collaborative possibilities in international matters that shape treaties and protocols to govern such matters of commons beyond the jurisdiction of states (Young, 1994). It has been extended to analysis of aid arrangements and also development assistance related to environmental management (Haas et al., 1993). Frequently, these are matters of trade restrictions, using mechanisms to prevent the transboundary movement of commodities, such as in the case of ivory as a way to remove financial incentives for killing animals. The Convention on the International Trade of Endangered Species is an exemplary case.

Crucial to the formation of many regimes are matters of technical knowledge and, related to this, technical standards for measuring and monitoring environmental matters (Haas, 1990). The construction of epistemic communities with shared scientific knowledge and agreed modes of specifying problems and crafting procedures and techniques are necessary prerequisites for international management of complicated problems, like ozone depletion. The case of ozone emphasises the point that environmental matters are often highly technical (Litfin, 1994). No one can actually see the depletion of stratospheric ozone; the complicated chemistry of ozone scavenging involves the breakdown of CFCs and reactions catalysed by ice particles in stratospheric clouds over Antarctica, and the measurement of ozone concentrations is a technical matter that requires complicated measuring devices. Hence, the importance of shared scientific understandings in drafting agreements and ensuring compliance. Despite the relevance of dealing with ozone depletion, it is worth emphasising the various industries, notably strawberry growers in California, that have claimed strategic exemption from such arrangements; a pattern of industrial evasion and delay in dealing with environmental regulations connected up with political campaigns of obfuscation and denial that has hampered governance efforts only most obviously in the case of climate change (Jacques, 2009).

Environmental Security

In the context of the 1980s, with rising worries about ozone, fallout from Chernobyl, rapid deforestation and burning in Brazil, chemical disasters such as Bhopal, and nascent concerns about climate change causing weather disruptions and water shortages; it was not hard to point to the insecurities that environmental matters caused in many places. The World Commission on Environment and Development (1987) suggested that poor use of resources and rising scarcities might well lead to conflict and, as such, sustainable development was understood as a necessary prophylactic.

But as Thomas Homer-Dixon (1991) pointed out, the simple assumption in the policy discussion that this was the next major security threat after the Cold War dissipated needed serious scholarly analysis before it could be claimed as a security issue. The subsequent discussion linking security to environment suggested that environmental change frequently provided opportunities for cooperation rather than conflict, and that where environmental conflict did occur it was highly unlikely to lead to interstate warfare however much small-scale violence might be entailed (Homer-Dixon, 1999). Early on in this discussion, Daniel Deudney (1990) argued that the military was probably the last institution that should be used to deal with environmental matters given that it was singularly ill equipped for the practical tasks at hand.

All this has been revisited more recently in discussions of climate and the possible security implications of a rapidly changing world, work that suggests more radical rethinking of the role of modern states in the provision of security (Brauch et al., 2011; Dalby, 2009). The critical work on environmental conflict in the 1990s also pointed to the importance of understanding how the global political economy was driving environmental change (Suliman, 1999). Likewise, it has become increasingly clear that the processes of development are frequently very disruptive to rural communities and traditional ways of life; a matter now often understood in terms of slow violence around particular extractivist resource projects (Nixon, 2011). Quite who is insecure and where needs careful analysis in discussions of environmental security (Barnett, 2001).

Political Economy

Industrial responses to environmental regulation followed a number of strategies in response to the rise of environmental concerns from the 1960s onwards. The most obvious innovations were a series of technical fixes to prevent pollution. Scrubbers and filters on effluent pipes were followed by more sophisticated processes that aimed to eliminate waste products by being much more efficient in the use of raw materials. Sophisticated permit systems that permitted cleaner producers to sell pollution allowances to less efficient producers with an overall industry wide cap on emissions were used to curtail acid rain in North America (Ellerman et al., 2000), a cap and trade market mechanism that is now being reinvented in attempts to deal with climate change. All these innovations, a matter of ecological modernisation (Mol, 2003), use sophisticated regulations to reduce the environmental burden of particular industries but do not address the overall expansion of the global economy nor the inequities in its system. As such, these fit with the overall political economy of neoliberalism, in which states facilitate capital accumulation as first

priority and use market mechanisms to do so.

While attention to international regimes and the epistemic communities that link rules and regulation to environmental technical practices focuses on the structure and dynamics of international organisations and the finer points of state strategies in the bargaining processes that create regimes, there is a larger literature that draws from more critical work in political economy looking at production, accumulation and the role of wealth and power in shaping environmental politics (Elliott, 2004; Newell, 2012). The subtitle to Matthew Paterson's 2000 volume,*Understanding Global Environmental Politics*, is phrased 'Domination, Accumulation, Resistance' to emphasise the importance of the political economy in resource and environment issues.

None of this is surprising given the roots of many discussions of resources in Thomas Malthus' pessimistic perspective, nor is the importance of trade measures in the international regulation of environmental matters. But it does point to the fact that a focus solely on regimes and forms of knowledge is always in danger of losing sight of the economic factors that drive production decisions, land use allocations and the effectiveness of government regulation of pollution and resource use (Stevis and Assetto, 2001). Clearly, if the world is to find pathways to green futures, these issues of political economy will be crucial (Clapp and Dauvergne, 2005). All of these issues have become especially pressing in the discussions of climate change.

Climate Change

Thinking about climate change in terms of a regime similar to the one that has successfully constrained ozone depletion (and in particular restricted greenhouse gas emissions) – while dealing with the pattern of demands from developing countries that developed ones provide financial compensation for climate adaptation and forgone development projects that might rely on carbon fuel systems – has had limited success despite the Kyoto Protocol negotiated in the 1990s. Much of the recent International Relations scholarship on climate change has looked at the finer points of negotiation, the strategies of bargaining at the Conferences of the Parties (COP) of the UNFCCC and more recently the alliances between various international 'clubs' (Nordhaus, 2015).

Research has also focused on the financial mechanisms that have been used as tools in attempts to deal with climate change, carbon offsets and clean development mechanisms and related market arrangements in the burgeoning cap and trade schemes around the world (Newell and Paterson, 2010). But the inadequacy of these arrangements have become a pressing issue in climate policy and International Relations scholars have been looking at more complex ideas of governance that spread well beyond the traditional arenas of interstate relations (Bulkeley et al., 2014). In the process, they challenge political scientists to think through what political incentives might move climate policy forward more efficaciously (Keohane, 2015). This not least because of the continuing discrepancies between Northern and Southern perspectives on what needs to be done and who is to blame for climate change (Chaturvedi and Doyle, 2015).

All this seems to be necessary because there is obviously a large gap between existing governance mechanisms and the tasks that need to be tackled in a rapidly changing world (Galaz, 2014). To do so may require that other aspects of international relations or global politics engage with the current global situation. Recently, Ken Conca (2015) has pointed out that within the UN system, environmental matters have largely been disconnected from efforts to think seriously about human rights and peace. Dealing with environment as a matter of better laws between states and better forms of development within them has ignored UN concerns with peace and with human rights. Perhaps, Conca (2015) suggests, tackling environment in terms of rights and peace making might lead to more useful advances in both policy and scholarly inquiry.

Anthropocene Futures

While state sovereignty is a principle of world order that underpins the current system, it has long been clear that environmental matters are no respecter of frontiers (Leichenko and O'Brien, 2008). This insight is exemplified by the use of the term Anthropocene to emphasise that the rich and powerful parts of humanity are causing the sixth extinction event in the planet's history (Kolbert, 2014), while transforming numerous facets of the biosphere (Steffen

et al., 2011). This formulation is now key to innovative thinking that transcends the intellectual strictures of the state system (Hamilton, Bonneuil and Gemenne, 2015).

Campaigns to tackle climate change are taking shape in many parts of the world, tied into protests against the depredations of mines, forest clearing and dam building, and other extractivist projects (Klein, 2014). These protest campaigns in turn are once again raising questions about the locus of authority in the global system and hence leading to further work by scholars on the role of social movements and global civil society in shaping international relations and a larger critical evaluation of the limits of traditional approaches to environmental politics (Death, 2014).

Failure to deal seriously with climate change, in particular, and the larger transformations of other Earth system elements already underway, in general (Steffen et al., 2015), is likely to lead to arguments for artificially modifying Earth system temperatures by such geoengineering projects as stratospheric aerosol injection (Burns and Strauss, 2013). While this thoroughly alarms critics of environmental modification, not least because of the potential of such projects to exacerbate international tensions (Hamilton, 2013), the future is likely to see such discussions rise in prominence in international relations unless policies for dealing with global change become much more effective soon.

Given the speed and scale of global transformations now in motion and the failures to integrate matters of ecology into larger concerns with peace, human rights and militarism (Amster, 2015), the old environmentalist question of 'who speaks for Earth?' is an ever more pressing issue for International Relations. Among the key new themes for the current generation of scholars are questions of how to end the fossil fuel era (Princen et al., 2015) and the urgent matter of facilitating transitions to much more sustainable patterns of life.

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