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# Risk, Resilience, Inequality and Environmental Law

EDITED BY  
**Bridget M. Hutter**



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**Bridget M. Hutter**

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**Edward Elgar**  
PUBLISHING

Cheltenham, UK • Northampton, MA, USA

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Published by  
Edward Elgar Publishing Limited  
The Lypiatts  
15 Lansdown Road  
Cheltenham  
Glos GL50 2JA  
UK

Edward Elgar Publishing, Inc.  
William Pratt House  
9 Dewey Court  
Northampton  
Massachusetts 01060  
USA

A catalogue record for this book  
is available from the British Library

Library of Congress Control Number: 2017931760

This book is available electronically in the **Elgaronline**  
Law subject collection  
DOI 10.4337/9781785363801



ISBN 978 1 78536 379 5 (cased)  
ISBN 978 1 78536 380 1 (eBook)

Typeset by Servis Filmsetting Ltd, Stockport, Cheshire

Printed and bound by CPI Group (UK) Ltd, Croydon, CR0 4YY

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# Preface

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Environmental changes have generated some of the most pressing and difficult challenges of the 21st century. There has been a growing appreciation of their scale and interconnectedness and the ways in which they are the result of human activities. Environmental law used to represent one of the most important regulatory regimes in modern societies, but there are now questions about its ability to manage transnational risks and about the compatibility of law with major strategies for managing the environment. In this collection we focus on two important approaches: one which considers environmental challenges in terms of risks and another which has arisen as we have become increasingly aware of the levels of uncertainty involved in environmental management, namely resilience.

The relationship between resilience and inequality is central to this collection. Resilience approaches to environmental challenges appear to be more democratic and egalitarian than risk approaches, and this forms part of their attraction for some authors and policy-makers. The collection will subject these claims to some scrutiny. Resilience strategies may offer solutions to inequality but they are not without their difficulties, for example they too have uneven social effects. Moreover, there may be tensions between the law and its expectations of certainty, and resilience with its emphasis upon flexible responses to environmental risks and uncertainties.

This collection will address the role of law within this changing landscape and from a socio-legal perspective. The social, economic and political environments we live in are beset with uncertainties. We have witnessed the Brexit vote in the UK and Donald Trump becoming President of the United States, both of which generate uncertainties of all kinds including environmental uncertainties. The environmental effects of the UK leaving the European Union are unclear but a reduction in regulation was one platform of those leading the campaign to leave, and there are concerns that this and the economic consequences of the decision to leave Europe will have damaging implications for environmental protection. Cutting back environmental regulations was also part of the Trump election campaign including threats to withdraw the USA from the Paris Climate Agreement, an Agreement that many commentators already regard as dangerously inadequate and a weakening of transnational commitments

to tackle climate change. This context raises fears about environmental risks and also exacerbates the uncertainties around the role of law in the effort to manage the environment.

The collection includes chapters by established authors and also by upcoming scholars who are undertaking innovative research and pushing the discussion on resilience forward. It includes contributions from different disciplines and parts of the world. The collection considers some of the experiments in governance being tried in different parts of the world to accommodate differences and give voice to more diverse groups. It also considers how scientific developments to understand better the mechanisms and practices responsible for climate change offer possibilities for improving legal and insurance tools to manage environmental risks. The endeavour is to stimulate further debate, research and learning, and to hope that we can enhance well-being.

As always I am indebted to those who have supported me in putting together this edited collection. I am enormously grateful to each of the contributors: their chapters are fascinating and I appreciate the time and effort they gave to the collection. Pauline Khng very patiently and thoroughly copy-edited the manuscript, she was a joy to work with. Paz Concha provided invaluable research assistance at all stages of this project, helping with bibliographic searches and also with preparing the manuscript. She was meticulous and efficient and a great assistant throughout.

Clive Briault and Rebecca Elliot were generous with their time and read through the chapters I drafted and offered valuable comments when they had plenty else to do of their own. Finally the team at Edward Elgar should be thanked. Laura Mann initiated the original thinking when we discussed the possibility of a Handbook on risk and resilience in environmental law. But we quickly agreed to try something more experimental which would bring more social science thinking about inequality into the equation. Ben Booth and Iram Satti picked this up and have been very supportive in seeing the project through to publication.

This book is dedicated to my family, especially those in the next generation who are so dependent on the decisions we make today about the environment.

BMH



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## PART I

### Introduction



# 1. Risk, resilience and inequality: current dilemmas in environmental regulation

**Bridget M. Hutter**

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As our understandings of environmental risks develop so too do the ways we try to manage them. Over the past few decades there has been a change in our knowledge of the damaging effects we have on our environment. There has been a widening recognition that the environmental problems we face are acute and that they are not just local but national, transnational and global. Local problems can have global effects and the mass accumulation and interaction of individual instances of damage to our environment are, according to the worst case scenarios, threatening the long-term future of the planet. We also appreciate more keenly the deep inequalities attaching to both the exacerbation of environmental risks but also their ill-effects. There has also been a change in the way we see and frame problems in terms of risk. Risk narratives imply that we are able to anticipate and control the risks threatening us. Yet the environmental changes we experience challenge this social project. They suggest a level of uncertainty and even contestation about environmental problems and how to cope with them. Indeed, there is growing recognition that some of the ways we manage environmental risks have perverse and regressive effects on different populations.

These changes raise questions about how suited the law is to manage the environment in the 21st century. In the 20th century environmental law represented one of the most important regulatory regimes in modern societies but it now faces a number of significant challenges. There are issues about the compatibility of law with notions of risk and the complex conceptual apparatus of terminology and strategies that has emerged in response to our contemporary understandings of the environmental risks we face. These include questions about the ability of the law to manage transnational risks and to embrace uncertainty and change.

This chapter will first outline some of the most prominent environmental issues we face, including changes in our understandings of environmental

risks, uncertainties and damage, and the inequalities attaching to them. It will then discuss the various strategies for managing these risks that have gained traction, focusing in particular on risk and resilience perspectives and the ways in which they may relate to environmental law and its ability to act as a governance device for the environmental challenges we now encounter. The overall collection aims to develop our theoretical understanding of risk, resilience and inequality as it relates to environmental regulation. This demands that we also interrogate the conceptual murkiness surrounding some of the approaches that are emerging before we are able to theorise about how best the law can play a role in promoting environmental concerns and facilitating greater equality.

## ENVIRONMENTAL RISKS<sup>1</sup>

Very broadly, environmental risks are threats of actual or potential harm to the environment and consideration of the probability of these adverse consequences occurring. Of key importance in understanding these risks is appreciating the interdependence of the physical and social environments, in particular that risks to the physical environment have impacts on social environments and even more importantly, that risks to the physical environment are the result of human activity. It is for this reason that some commentators differentiate the Holocene, where environmental change was seen to occur naturally, from a new era, the Anthropocene, where human activity has emerged as a major force for environmental change.<sup>2</sup> It is also why existing critical social theory positions challenging the distinctions between the social and the natural have been revitalised (Chakrabarty, 2009). The focus of this collection is on the role that law can play in limiting the environmental damage we are causing.

The environmental risks we face are multiple, complex and interconnected. They affect the climate, ecology, biosphere and oceans.<sup>3</sup> Their causes are manifold and compound. Industrial activity has resulted in atmospheric, aquatic and ecological pollution arising from the use

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<sup>1</sup> This section is intended as a basic introduction to some of the main issues under discussion so as to give some perspective on the challenges involved in the environmental area. It is not intended to be an exhaustive or high-level discussion.

<sup>2</sup> See Crutzen and Stoermer, 2000 who introduced the term, derived from geology. Note it is still a contested term. See eg. Malm and Hornborg, 2014; Monastersky, 2015.

<sup>3</sup> Rockström et al, 2009, Steffen et al 2015 set out some of the major risks as part of their planetary boundaries research.



of chemicals, pesticides and various kinds of industrial, radioactive and human waste. Industrial and household burning of fuel and cars are major sources of air pollution. Industrial waste is also a major contaminant of water sources and soil, as are pesticides. The depletion of the natural resources generates and exacerbates environmental risk, for example, deforestation, overgrazing, poor agricultural and water management and overfishing which are in part a result of overpopulation (eg. Royal Society, 2012). Related to this is growing urbanisation which can generate significant environmental risks: in wealthy countries where consumption of natural resources and the generation of emissions may be high and in poorer countries where there are health risks and concerns about the ability of infrastructure to keep pace with the rise in population and to do so in sustainable ways which do not add to emissions (United Nations University and Institute for Environment and Human Security, 2014). Moreover, there are complex interrelationships between different sources of risk. Rapid urbanisation for example, may result from rural migration because of droughts and land degradation, in turn this movement may increase sedimentation and place high demands on the local ecology which can lead to further resource depletion. It may also generate high levels of waste which, in turn, can affect the availability of resources and harm biodiversity and threaten to add to emissions and so on (World Economic Forum, 2015).<sup>4</sup>

The consequences of these risks becoming realities are stark. Water and soil contamination seriously affects biodiversity and, in turn, contaminates the food chain and renders land and water infertile. At its most extreme the risks are the extinction of species of plants and animals, and habitat destruction for plants, animals and human beings (Department for Environment, Food and Rural Affairs, 2015; Global Biodiversity Outlook 4, 2011; 2.; International Union for Conservation of Nature Annual Report, 2015: 4; World Wide Fund for Nature (WWF) Living Planet Report, 2014).

Deforestation is a particular concern, especially of the rainforests which are thought to house more than 50 per cent of the world's biodiversity. Deforestation is also a concern as forests play an important role in mitigating climate change.<sup>5</sup> Indeed, the most dramatic environmental risks have been most discussed with respect to climate change which refers to

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<sup>4</sup> These publications emphasise the word 'risks' as they believe that with careful planning the worst effects can be averted (see below). See also Newman, 2006 who argues that the impact of cities on climate change can look very different according to how it is framed.

<sup>5</sup> <http://www.worldwildlife.org/threats/deforestation>

changes in the weather, including temperatures and precipitation, of a city, region or the planet.<sup>6</sup> The Intergovernmental Panel on Climate Change (IPCC) (2007: 1.1) refers to climate change as:

... a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity.<sup>7</sup>

The Stockholm Centre's Resilience Group identify climate change and biosphere integrity as two core planetary boundaries through which other boundaries operate (Steffen et al, 2015). Climate change is core because it refers to 'the amount, distribution, and net balance of energy at Earth's surface' which 'sets the overall conditions for life'. Biosphere integrity refers to the totality of all ecosystems and their biota and 'play a critical role in determining the state of the Earth system, regulating its material and energy flows and its responses to abrupt and gradual change . . . Diversity in the biosphere provides resilience to terrestrial and marine ecosystems.' This high-level framework is intended to facilitate an understanding of environmental risks at a scientific level. Nevertheless, it does help us gain some perspective on the nature, scale and complexity of environmental risks.<sup>8</sup> Other documents help us to appreciate more the relationship with human activities.

The IPCC Fifth Assessment Report 2014 (2015) concluded that warming of the climate systems because of human activities was 'unequivocal' and 'unprecedented' – 'The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen' (1.1). In addition, there has been an increased incidence of extreme events. The Report warns that: 'Continued emission of greenhouse gases will cause further warming and long-lasting, some irreversible, changes in

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<sup>6</sup> <http://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-is-climate-change-58.html>

<sup>7</sup> The IPCC differentiates its definition from that of the UN 'where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods' (UN 1992: 7).

<sup>8</sup> The Stockholm approach is not without its critics. See for example, [http://dotearth.blogs.nytimes.com/2015/01/15/can-humanitys-great-acceleration-be-managed-and-if-so-how/?\\_r=0](http://dotearth.blogs.nytimes.com/2015/01/15/can-humanitys-great-acceleration-be-managed-and-if-so-how/?_r=0) and <http://www.stockholmresilience.org/21/research/research-news/7-2-2012-addressing-some-key-misconceptions.html>

all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks' (2). Moreover, the Report predicts that in addition to exacerbating the existing risks, new risks will be generated for the physical and human environments. In particular, they identify high levels of species extinction during and beyond the 21st century, risks to coastal and low-level areas because of sea-level rises and a serious threat to food security.

We should not convey the impression that the risks we are discussing are universally agreed. There is contestation of the evidence of environmental risks. The debates about environmental risks are multidisciplinary and complex. Different disciplines and authors use similar terms in slightly different ways, there are debates about definitions and methodologies, and of course interpretation of the results.<sup>9</sup> Put another way, there are debates about the definitions of risk, the probabilities and overall risk assessments.

The contestation of the evidence partly relates to debates about whether we are referring to environmental risks or discussing environmental uncertainties, where the risks are not calculable (Knight, 1921). Part of the reason for the uncertainty is that the past is no longer such a good predictor of the future. For example, climate change is altering the patterns and the incidence of environmental damage and disasters. It is resulting in new environmental uncertainties which raise basic questions about the status of historical data and whether or not it is a sound basis on which to identify risks and plan for the future (Cox, 2012; Morgan and Stallworth, 2013). This centralises the relationship between learning from past events and being open to the unexpected questions crystallised in the juxtaposition between resilience and anticipation. It also poses particular challenges for law and its ability to cope with uncertainty and play a meaningful role in managing the complex environmental risks and uncertainties that confront us (see below).

Overriding the 'fine print' and detail of the precise parameters of the environmental risks we encounter, there is more general agreement that the implications of these changes are potentially drastic and catastrophic. We have already seen the potential risks to food security, habitation and the availability of water, there are also serious health and energy effects and these are unequal in their effects.

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<sup>9</sup> The footnotes above have noted some of these points of contention.