Climate change is an issue that transcends and exceeds formal political and geographical boundaries. Social scientists are increasingly studying how effective policies on climate change can be enacted at the global level, ‘beyond the state’. Such perspectives take into account governance mechanisms with public, hybrid and private sources of authority. Studies are raising questions about the ways state authority is constituted and practised in the climate arena and about the implications for how we understand the potential and limits for addressing the climate problem. This book focuses on the rationalities and practices by which a carbon-constrained world is represented, categorized and ordered. This book will enable investigations into a range of sites (e.g. the body, home, shopping centre, firm, city, forests, streets, international bureaucracies, financial flows, migrants and refugees) where subjectivities around climate change and carbon are formed and contested. Despite a growing interest in this area of work, the field remains fragmented and diffuse. This edited collection brings together the leading scholarship in the field to cast new light on the question of how, why and with what implications climate governance is taking place. It is the first volume to collect this body of scholarship, and provides a key reference point in the growing debate about climate change across the social sciences.

*Governing the Climate* is invaluable for three main audiences: social science researchers and advanced students in the field of climate change; the wider research community interested in global environmental politics and global environmental governance; and policy makers and researchers concerned more broadly with environmental politics at international, national and local levels.

JOHANNES STRIPPLE is an associate professor of political science in the Department of Political Science, Lund University, Sweden. His research interests lie at the intersection of international relations theory and global environmental politics. His recent research has covered European and international climate policy, carbon markets, renewable energy, climate adaptation, carbon sinks, and climate policy scenarios and governmentality around climate change, carbon and the earth system. He has published papers in journals such as *Review of International Studies*, *Global Governance*, *Critical Policy Studies*, *Global Environmental Change*, *International Environmental Agreements*, *Environment and Planning C*, *Environmental Politics*, *Environment and Planning D: Society and Space* and *Climate Policy*.

HARRIET BULKELEY is a professor of geography at Durham University, United Kingdom. Her research interests are in the nature and politics of environmental governance, and focus on policy processes, climate change and urban sustainability. She is coauthor of *Cities and Climate Change* (2003, with Michele Betsill) and of *Governing Climate Change* (2010, with Peter Newell), and coeditor of *Cities and Low Carbon Transitions* (2011, with Vanesa Castan-Broto, Mike Hodson and Simon Marvin). She has published widely on these topics, including articles in *Political Geography, Environment and Planning A, International Studies Quarterly, Global Environmental Politics* and *Environmental Politics*. 
GOVERNING THE CLIMATE

New Approaches to Rationality, Power and Politics

Edited by

JOHANNES STRIPPLE
Lund University

HARRIET BULKELEY
Durham University
Contents

Figures and Tables page vii
Contributors ix
Foreword: Order! Order in the House! xiii RONNIE D. LIPSCHUTZ
Preface xix
Abbreviations xxiii

Introduction: On Governmentality and Climate Change 1
JOHANNES STRIPPLE AND HARRIET BULKELEY

Part I Governmentality, Critical Theory and Climate Change

1 Bringing Governmentality to the Study of Global Climate Governance 27
EVA LÖVBRAND AND JOHANNES STRIPPLE

2 Experimenting on Climate Governmentality with Actor-Network Theory 42
ANDERS BLOK

3 Third Side of the Coin: Hegemony and Governmentality in Global Climate Politics 59
BENJAMIN STEPHAN, DELF ROTHE AND CHRIS METHMANN

4 The Limits of Climate Governmentality 77
CARL DEATH

Part II Cases of Climate Government: Theorizing Practice

5 Neoliberal Climatic Governmentalities 95
MARK WHITEHEAD, RHYS JONES AND JESSICA PYKETT

6 Making Carbon Calculations 111
SALLY EDEN
Contents

7 Smart Meters and the Governance of Energy Use in the Household  127
   Tom Hargreaves

8 Translation Loops and Shifting Rationalities of Transnational
   Bioenergy Governance  144
   Jarno Kortelainen and Moritz Albrecht

9 Governing Mobile Species in a Climate-Changed World  160
   Juliet J. Fall

10 Measuring Forest Carbon  175
   Heather Lovell

11 Climate Security as Governmentality: From Precaution to Preparedness  197
   Angela Oels

Part III   Future Directions

12 The Rise and Fall of the Global Climate Polity  219
   Olaf Corry

13 Climate Change Multiple  235
   Samuel Randalls

   Conclusion: Towards a Critical Social Science of Climate Change?  243
   Harriet Bulkeley and Johannes Stripple

Index  261
Figures and Tables

Figures

3.1 McKinsey’s global GHG abatement cost curve V2.1.     page 63
3.2 Abatement cost curve of the Indonesian forestry sector.  64
6.1 Social networking as peer pressure from WWF’s carbon calculator. 122
7.1 GEO’s real-time display monitors. 132
8.1 Governance generation and loops of translation in the Finnish bioenergy governance system. 148
8.2 Consumption of stumps and roots for energy production in Finland 2000–10. 153
12.1 Planetary boundaries pictured. 230

Tables

5.1 Origins and modes of operation of the behaviour change agenda 100
6.1 Benchmarking examples from online carbon calculators 121
10.1 Examples of use of the Measurement, Reporting and Verification (MRV) storyline by diverse organizations – state and nonstate 182
10.2 GOFC-GOLD author survey findings and analysis 187
10.3 Examples of forest carbon MRV standards 189
11.1 Reading ‘securitization’ with Foucault’s concept of governmentality 203
Contributors

Moritz Albrecht is a postdoctorate researcher in the Department of Geographical and Historical Studies at the University of Eastern Finland. His research focuses on relational approaches to environmental governance and sustainable spaces with a current focus on forestry and bioenergy.

Anders Blok is an assistant professor in sociology at the University of Copenhagen, Denmark. His research focuses on the knowledge politics of global environmental change, and he is the author (with Torben E. Jensen) of *Bruno Latour: Hybrid Thoughts in a Hybrid World* (Routledge, 2011).

Harriet Bulkeley is a professor of geography at Durham University. Her research is concerned with the practice and politics of environmental governance, and focuses particularly on issues of climate change, energy and urban sustainability.

Olaf Corry is a lecturer in international relations at The Open University, United Kingdom. He has published articles on risk and security, climate change politics, environmental politics and social movements as well as the book *Constructing a Global Polity: Theory, Discourse and Governance* (Palgrave Macmillan, 2013).

Carl Death is a senior lecturer in international political economy at the University of Manchester. Prior to moving there in August 2013 he was at Aberystwyth University. His work focuses on environmental politics in Africa and Foucauldian perspectives on international politics.

Sally Eden is a reader in geography at the University of Hull, United Kingdom. She researches how diverse actors understand and shape the environment and has focused particularly on sustainable consumption, eco-certification and public engagement in environmental management.

Juliet J. Fall is a professor in geography at the University of Geneva, Switzerland. She has written about transboundary governance, protected areas, biodiversity policy and invasive species, as well as the history of geographical thought.
Contributors

Tom Hargreaves is a lecturer in environmental science and policy at the University of East Anglia, United Kingdom. His recent research has focused on sustainability transitions, pro-environmental behaviour change and sustainable lifestyles, and the impact of energy feedback on everyday life and social practices.

Rhys Jones is a professor of historical geography at Aberystwyth University. His work looks at various aspects of national identity and emerging forms of citizenship.

Jarmo Kortelainen is a professor of human geography at the Department of Geographical and Historical Studies, University of Eastern Finland. His research broadly covers issues related to the spatiality of natural resource governance, especially forest questions.

Eva Lövbrand is an associate professor at the Centre for Climate Science and Policy Research at Linköping University in Sweden. Her research is located at the interface of political science, science and technology studies and environmental studies. Her research interests revolve around the role of science and expertise in global environmental governance in general, and climate governance in particular.

Heather Lovell is a reader in geography at the University of Edinburgh, United Kingdom. Her research analyses contemporary socio-technical transitions catalysed by climate change (low-energy housing, carbon markets/accounting), paying close attention to the policies, practices and politics of innovation.

Chris Methmann is a Fellow at the Institute of Political Science at the University of Hamburg, Germany. His recent research has focused on poststructuralist approaches to global climate governance, the climate security nexus and Green Economy discourses. His most recent publication is *Deconstructing the Greenhouse: Interpretive Approaches to Global Climate Governance* (Routlege, 2013, with B. Stephan and D. Rothe).

Angela Oels is a temporary full professor in international politics at the University of Hagen, Germany. Her recent research has focused on climate governmentality studies, critical security studies and the climate-induced migrant.

Jessica Pykett is a lecturer at the University of Birmingham. Her work focuses on citizenship and the practices of governing, the geographies of education and the formation of neurological and psychological citizen subjectivities.

Samuel Randalls is a lecturer in geography at University College London. His research explores diverse approaches to climate change, including science-policy dynamics, security and ethics.
Contributors

Delf Rothe is a researcher at the Helmut-Schmidt-University Hamburg. He has recently worked on security discourses of climate change, risk and security from a poststructuralist perspective and on methodology.

Benjamin Stephan is a research Fellow at the Centre for Globalisation and Governance, part of the KlimaCampus at the University of Hamburg. His research is concerned with REDD+ and the role of deforestation in global climate governance as well as carbon markets. He recently coedited a special issue of Environmental Politics 21(4) with Matthew Paterson on The Politics of Carbon Markets.

Johannes Stripple is an associate professor in the Department of Political Science, Lund University, Sweden. His recent research has covered European and international climate policy, carbon markets, renewable energy, sinks, scenarios and governmentality around climate change, carbon and the earth system.

Mark Whitehead is a professor in environmental geography at Aberystwyth University. His work focuses on various aspects of environmental governance, and incorporates research on sustainable cities, pro-environmental behaviour and eco-governmentality.
Governmentality is about order, and the chapters in this book report on a particular type of climatic order, one that threatens disaster if we do not obey but whose power to deliver cuts directly against normal human behaviours and social practices. But why? Human beings, it would seem, desire order in their lives. This is as much a neurological claim as a social one: we are, after all, constituted as human beings through our social relations with others, through our individual locations within social orders, through the shared practices that render us human. Humans have never been solitary animals, notwithstanding parables of individualistic ‘states of nature’. In the trees and on the plains of Africa, survival depended on relations with others. Our situation today is very different, yet some verities have not changed: we face a world of risk and uncertainty – or, so we are reminded daily – one whose order is subject to disruption and destruction and which depends, therefore, on self-comportment and common behaviour in ways that seek to stave off the chaos of an unpredictable universe and an unknowable future. As individuals in (neo)liberal societies, however, we are reluctant to recognize our complex social constitution. We are constantly implored to seek our own interests, to ‘innovate’, to act in ways that contribute to the very disorder we fear so much. As Marx and Engels warned, ‘all that is solid melts into air’. How, then, can order be maintained?

In the ‘olden days’, religious authority filled this role. If the world showered misfortune on some and good fortune on others, surely this was due to the will of whatever deity governed the cosmos (recall Job). When god(s) proved insufficient for this purpose, as in seventeenth-century England, responsibility for household order was taken on by Hobbes’s ‘mortal god’, who governed and disciplined in the (capitalist) interest of his subjects. This entity, in turn, became the nation-state, whose nationalist structures and demands provided a governmental grid within which citizens and subjects could exist in properly oriented and orderly fashion. By the middle of the twentieth century, the great nationalist explosions and implosions were, increasingly, rendering fragile the authority of the state and its capacity to order the polity. Somewhat paradoxically, the post–World War II ‘golden era of capitalism and socialism’
loosed onto the world the current wave of high individualism, in which authority has been delegated to the sovereign consumer, as it were, and order, both at home and across the world, has come to depend on her or his ‘right conduct’. It hardly seems a coincidence that capitalist globalization, climate concerns and communist collapse all took place more or less concurrently, or that the rise of what we call religious and market fundamentalisms also emerged over roughly the same time.

Climate governance and governmentality are not simply analytical concepts or a set of disciplining and ordering practices; they are also near-functional epistemes that (re)construct social power and social relations through certain types of ontological stories, myths, fabulosities of necessary authority and order. It is here that social science might play its most important role: explaining how such narratives emerge and why. Consider apocalypse (Ἀπόκαλυψις), a Greek term found in the New Testament that means ‘an unveiling or unfolding of things not previously known and which could not be known apart from the unveiling’.¹ In more commonsense parlance, ‘apocalypse’ has come today to be associated with the world’s end, whether Divine, biogeophysical, celestial, stellar, biological or nuclear: that end will come, inevitably, although we can never know until it happens. For those fatalistic or religious, good human behaviour now might either put off or hasten what must come, sooner or later. Those less resigned to such a fate seek to predict, anticipate and prepare for apocalypse, thereby preventing it and allowing the business of life to proceed, in confidence and an expectation of order (much as Hobbes’s Leviathan). Like the apocalyptics of religion, however, those arising from science require ‘good’ human behaviour as well. Otherwise, we shall almost surely experience a future of mortal threat.

But people tend to be a disorderly lot in the absence of discipline and habitus; they do not obey well and, notwithstanding the tale of Adam Smith’s Invisible Hand, they rarely generate order in the pursuit of individual interests and sovereignty. It is to this end, we may surmise, that apocalypse, whatever its cause or occurrence, fulfils a necessary social need for an all-encompassing ontology, an account of why humans are here and what their purpose is in the natural order of things. Apocalypse warns, in effect, that if we do not get our shit in order, the shit will hit the fan. The stories told about climate change offer such apocalyptics and the morals to those tales instruct listeners on what is to be done. Yet, while science can tell us what we might (or should) do, it cannot compel us to do what it commands. It is the social sciences that may shed some light on this conundrum.

I do not think it is necessary to review the many apocalyptic narratives of climate change with which most readers of this book will be familiar. But it is probably important to point out that we live in a world of disenchantment, one mostly devoid of supernatural deities and in whose hands our futures lie. Notwithstanding the resurgence of religiosity in many parts of the world, moreover, we humans have become

imbued with the notion that we possess the power of the gods to transform and even destroy the world through our material actions and activities. Hence, it is also incumbent upon us to save it. This is a considerable task and would seem to require a good deal more than environmentally conscious consumers or prescient scientists. Less evident is why the world needs saving, because it will continue to exist whether we are here or not. Nor is it evident what might mobilize humanity in this effort – if the nuclear era ontology ‘One world or none’ with its threat of rapid annihilation could not bring us together, why should another apocalyptic, however real, do any better?

Dear reader, you can probably see where this is going: whether true or not, narratives of climate catastrophe are not merely about saving the world, they also provide a near-theological meaning to human existence and, in so doing, propose particular forms of authority and order as the prerequisites for fulfilment of human purposes on Earth. While this conclusion might seem far from and irrelevant to a discussion of how climate governmentality operates or what practices it mandates or why it seems not to work at the international level, I would propose that the ontologization of climate change helps to clarify why those who dissent from it are called ‘sceptics’ and ‘nonbelievers’ and why we have such faith in the authority of the IPCC’s ‘scientific consensus’ even if we seem reluctant to act on it.

So far as I am aware, Michel Foucault did not make connections between the concept and organization of governmentality and its theological antecedents and contemporary elements, although the role of religious authority over the individual body is only too evident in works such as *Discipline and Punish*. Foucault did make clear the extent to which liberal governmentality relies on self-comportment under the strictures of the social power that constitutes each of us as individuals in societies. At the same time, self-discipline is a thin reed on which to base a household and world order (and the production) necessary for societal reproduction and world salvation. That may be why emergent forms of climate governmentality – carbon calculators, neoliberalism and the ‘nanny state’, so-called smart meters, climate conflicts, even tradable emission permits – have become a few of the many ‘technologies of surveillance’ that, in concert with political economy and security, are being deployed to ensure that prescribed practices are followed faithfully. People are not to be trusted with their own fate (or faith). Whether this latter proposition is an accurate one or not – I hesitate to use the word ‘true’ – I cannot say. But an old and troubling paradox is embedded in this claim about human ‘nature’: free will is too dangerous to be permitted, especially if it leads to the diminution or overthrow of authority and further disruption of order – or, in this case, climate disaster.

Here, I want to turn briefly to one more contradictory feature of climate governmentality as it appears in this volume: the enterprise of modelling and its foundation in old theological debates about free will and determinism. Models, we are frequently reminded, are not ‘reality’, even though they often come to be treated as such. We know that the real, material world is chaotic and disorderly, notwithstanding ‘laws of
nature’; even human will and determination are not enough to ensure that intended outcomes will be accomplished purposefully and reliably (I take this point to be the essence of Foucault’s method of genealogy). Nevertheless, people’s ability and capacity to imagine the future and make choices about it are, aside from the constraints of social power, relatively open, and the well-meaning pursuit of self-interest by many can be disastrous for all. Free will could lead to apocalypse.

Modelling seems to offer an escape from this fate. What if we were really able to calculate the consequences of our activities; could we then not counsel, command or coerce individuals to act properly (as would Leviathan and as predicted by Robert Heilbroner)? Could we not turn a world of uncertainty and danger into one of predictability and safety? Could we not then do away with the risks of free will and replace them with the comfort of a known and determinable future? If uncertainty about the future could be eliminated, we could get on with the business of life (Hobbes again). A known future may well be preferable to the unknown one, but even the effort to get there rests on the identification of critical ‘variables’ and political and social efforts to ensure these remain within necessary bounds (physical bounds and limits might stand in the way of many futures, but that does not mean we will not try to exceed them). Where human behaviours are concerned, consequently, modes of social discipline may be required, ones that place limits on free will in the name of desired, safe futures. Of course, as social scientists, we know only too well that it is difficult to make things foolproof, inasmuch as fools are such clever people. Often, moreover, the best-laid plans can lead to outright disasters, whether through ignorance, oversight or just plain fortuna. Control and determinism are limited. None of this is to say that it would be good public policy to leave well enough alone, to adopt a laissez faire approach to climate change and let happen what may. But hubris in human endeavour is always a good idea; pursue simple and straightforward approaches rather than complex, arcane ones. That is why, in a society such as ours, carbon taxes appear preferable to carbon markets, although both rest on notions of altering human practices through governmentality.

At the end of the day, governmentality has to be regarded as a feature of modern life and society, a perspective well illustrated by the chapters in this volume. Governmentality is not a particular form of discipline and punishment characteristic of specific types of government and governance, as is often thought. It is not a specific disposition of power that, somehow, renders dissent, opposition and resistance impotent. It is not so much like a steel web as a spider’s. We cannot wriggle free, to be sure, but neither are we so trapped as to be immobilized. At the same time, some manifestations of governmentality seek to be more like steel webs than spiders’ from fear that too much freedom may lead to the collapse of the social web. Navigating between the Scylla and Charybdis of those two possibilities will require all the political and social wisdom and action of which we humans are capable.
If libertarian economics are the governmental set of hegemonic ideologies and practices that have ruled the world from the 1970s to the present, climate governmentality seems poised as a potential replacement, although the victory of this ‘new’ hegemony over the older one is by no means certain (the new is struggling to be born from the old, but it is not nearly that new). Where the ideologies of the twentieth century promised one sort of paradise or another – none of which were delivered – climate governmentality offers a restoration of an imagined golden age when climate was benign and human impacts were limited. We should be under no illusions that, in the pursuit of climate governmentality, enlightenment and reason may, somehow, sweep across the planet and put an end to the irrationalities of the past millennia. There has never been a real golden age, whether of climate or government. And Leviathan is a myth, too.

Ronnie D. Lipschutz
Santa Cruz, California
Preface

This book arose from an increasing sense of frustration with how the social sciences have engaged with the climate change issue. Starting with assumptions about the sovereign state and the sovereign individual, the social science of climate change has come to be understood broadly either as a matter of international politics or as concerning personal preferences. Enquiries have thus been polarized according to alternative scales of action (international or personal) and slipped into particular disciplinary areas, which has defined and guarded what the politics within those scales of action is, and could be, about. In bringing this volume together, our intention has been to explore what an engagement with critical social and political theory could instead bring to the study of climate change. Our intention was to seek a new set of insights into the ways climate change is creating new forms of social order, and the ways these are structured through the workings of rationality, power and politics. Governing the climate, as both a scholarly and practical effort, we feel, has to be about interrogating the many diverse sites in which a carbon-constrained and/or rapidly warming world is represented, categorized and ordered. Households, markets, forests, migratory species, renewable energy and displaced persons are all examples of sites where subjectivities around climate change and carbon are formed, forged and contested. Climate governance, when approached in the general, tends to become an empty concept, unable to grapple with the way the climate issue becomes interwoven in our lives and how we organize our societies. Our response is instead to populate this terrain and to explore the specificities through which climate governance takes place.

The impetus for organizing a workshop on ‘rethinking climate governance’ came from Philipp Pattberg, VU University Amsterdam, who chaired the EU COST Action on ‘Transformation of Global Environmental Governance’ on which Harriet served as a founding member. We approached and encouraged a diverse set of critical social and political scholars, many of whom did not previously know about each other or who did not see their work as part of a larger stream of thought, to come to a workshop at Lund University. In June 2011 we hosted ‘Governing the Global Climate
Preface

Polity: Rationality, Practice and Power,’ which drew together around forty scholars from across many disciplines and with a diverse set of backgrounds. The meeting was made possible through generous funding by the EU COST Action IS0802 and BECC, the Swedish government’s strategic focus on climate change hosted by the Faculty of Science at Lund University. We would like to extend our heartfelt thanks to all scholars for two vibrant days of excellent presentations and inspiring conversations. It was clear to us that while a growing body of work is turning to critical political and social theories – including those derived from Foucault, those termed ‘Actor-Network Theory’, and various forms of discourse analysis – the field remains fragmented and diffuse. The idea for this volume emerged as one means to try to bring these perspectives into conversation, and we are indebted to the chapter authors who enthusiastically answered our call for bringing our efforts together. Through several iterations of the chapters and through the possibility to share, learn and comment on each other’s work, the authors have with considerable energy and passion made the book possible. Ronnie D. Lipschutz, who has inspired each of us in opening up this debate, was gracious enough to provide the thought-provoking foreword. As has been clear while working on this book, the climate issue may challenge existing theoretical conventions, approaches and methods and have thus much to offer to mainstream social science and the way we understand our social and material present, but this is an enterprise that requires much puzzling through and we are grateful to our colleagues for sharing this journey with us.

Matt Lloyd at Cambridge University Press responded to our book proposal with great enthusiasm and has, together with Sarika Narula at Cambridge, been very supportive throughout the book production process. We are also very thankful to the reviewers of this book who, while being encouraging and supportive, also challenged us to articulate our arguments and specify our contribution. While putting the volume together, we have benefitted from the excellent editorial assistance of Adis Dzebo and Angie Sohlberg, both in the Department of Political Science, Lund University. Our work with this book has been made possible through financial assistance from the Low-Carbon Energy and Transport Systems (LETS) project, financed by the Swedish Environmental Protection Agency (among others); the Fair and Feasible Climate Change Adaptation (Fair-Ad) Project, financed by the Swedish Research Council and the Swedish Research Council FORMAS; and the Leverhulme Prize Fellowship held by Harriet over the years 2008–12 from The Leverhulme Trust.

Finally, but as always, our families (Gunilla and Pete) have not only supported and encouraged our work, but also provided meaning and context. Our kids – Siri, Alma, Walter, Sigge, Elodie and Théa – who are on track to grow up in a world four degrees warmer than today (if the trajectories of greenhouse gas emissions are not dramatically altered) remind us of why we feel it is important that social science renew and widen its engagement with the climate issue. They also have the burden and the curiosity of having ‘book writers’ in the house, a world that can often seem strange, iso-
lated and distracted from daily life. One day when Johannes was walking to daycare and school with the kids, one of them asked, ‘why do you write a book if you are a researcher?’ While her idea of doing research revolved around ‘measuring’ and ‘discovering’ things, he tried to answer that it is also important to tell others about your findings and insights in order to inspire them in their research and their activities. She sceptically responded, ‘but isn’t that boring to write a whole book?’ He responded that this book has not been boring at all to write, not least because of the great help from our friends in writing it. In that spirit, we hope that we have offered inspiration in the growing debate about climate change across the social sciences, and that our children may have different stories to tell.

Johannes Stripple and Harriet Bulkeley
Lund University
Durham University
Abbreviations

AGW  Anthropogenic global warming
ANT  Actor-network theory
BEG  Bioenergy governance
CCP  Cities for climate protection
CDM  Clean development mechanism
CO₂  Carbon dioxide
COP  Conference of the Parties
CPS  Secretariat of the Swiss Commission for Wild Plant Conservation
CRAG  Carbon rationing action group
DECC  Department of energy and climate change (UK)
DEFRA  Department for environment, food and rural affairs (UK)
ETS  Emission trading scheme
EU  European Union
GCM  Global circulation model
GEO  Green energy options
GHG  Greenhouse gas
GISP  Global invasive species programme
GMO  Genetically modified organism
GOFC-GOLD  Global observation of forest and land cover dynamics
GTOS  Global terrestrial observing system
ICLEI  International Council for Local Environmental Initiatives
IMO  International Meteorological Organization
IPCC  Intergovernmental Panel on Climate Change
IR  International relations
LULUCF  Land Use, Land Use Change and Forestry
MRV  Measurement, reporting and verification
NGO  Nongovernmental organization
NREAP  National renewable energy action plans
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODE</td>
<td>Ordonnance fédérale sur la dissemination des organismes dans l’environnement</td>
</tr>
<tr>
<td>PES</td>
<td>Payments for ecosystem services</td>
</tr>
<tr>
<td>RED</td>
<td>Directive on renewable energy</td>
</tr>
<tr>
<td>REDD</td>
<td>Reducing emissions from deforestation and forest degradation</td>
</tr>
<tr>
<td>RTD</td>
<td>Real-time display</td>
</tr>
<tr>
<td>SBSTA</td>
<td>Subsidiary body on scientific and technical advice</td>
</tr>
<tr>
<td>SOA</td>
<td>Spheres of authority</td>
</tr>
<tr>
<td>STS</td>
<td>Science and technology studies</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
</tr>
<tr>
<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
</tr>
<tr>
<td>WMO</td>
<td>World Meteorological Institute</td>
</tr>
<tr>
<td>WWF</td>
<td>World Wide Fund for Nature (previously named the World Wildlife Fund)</td>
</tr>
</tbody>
</table>