

These concerns aside, *Climate Engineering and the Law* skilfully demonstrates that existing international and domestic law will play an important role in the governance of climate engineering technologies, but more targeted rules are needed to fill gaps in existing frameworks. Given the assumptions about the future availability and use of climate engineering technologies in modelling scenarios, it is essential that climate change lawyers are well-informed about these proposals and are prepared to contribute to the development of international and domestic governance. *Climate Engineering and the Law* is therefore an essential read for climate change lawyers. Climate engineering is the next big challenge for climate change law and policy. We hope that this book will inspire a new wave of critical legal scholarship on this issue, especially on the capacity of other domestic legal systems to govern climate engineering technologies.

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Compliance and Enforcement of Environmental Law (Volume IV, Elgar Encyclopedia of Environmental Law), edited by LeRoy C. Paddock, David L. Markell and Nicholas S. Bryner
Edward Elgar, 2017, 288 pp., £121.50 hb, ISBN 9781783477678

A strong and effective enforcement programme that enables officers to take appropriate action against environmental offenders is a necessary component of any robust regulatory regime.¹ It is somewhat surprising, therefore, that the book *Compliance and Enforcement of Environmental Law* is one of the first comprehensive transnational investigations of the law and practice of environmental compliance and enforcement. The book discusses both officially sanctioned and informal enforcement tools, as well as the theories behind environmental enforcement, providing a very useful inventory of the latest legal reforms and case studies in environmental compliance and enforcement. The book consists of 18 chapters and is divided into four parts, organized under the sub-themes of non-regulatory approaches to compliance (Part I), civil enforcement (Part II), criminal enforcement (Part III), and ‘special issues’ in compliance and enforcement (Part IV). Within these sub-themes, the book includes chapters focused on environmental management systems, enforceable regulations, settlement, and organizational liability for environmental crimes. It includes a collection of case studies that cut across multiple jurisdictions, from (developed) common law countries

¹ International Network for Environmental Compliance and Enforcement (INECE), *Principles of Environmental Compliance and Enforcement Handbook* (INECE, 2009).

such as the United States (US), to civil law traditions like Germany and Denmark. By and large, the book provides a thorough and informed overview of issues that arise in environmental enforcement and compliance. However, the book's disregard for the perspectives of developing countries is a profound omission from an otherwise solid publication.

Chapters 1 to 3 begin with a discussion of non-regulatory alternatives to traditional enforcement. They introduce the reader to theoretical justifications for non-regulatory approaches and the 'dilemmas' of traditional public supervision – namely, that it is reactive in nature, falls short of preventing incidents of violation, and could have limited potential in promoting compliance assurance (p. 43). The chapters also introduce readers to Environmental Management Systems (EMSs), the frameworks of processes and procedures that are used to ensure that an organization can fulfil all the tasks required to achieve its environmental and regulatory obligations. Collectively, the first three chapters provide a useful set of recommendations for when EMSs and other non-regulatory measures should and should not be used.

These chapters provide important perspectives regarding alternatives to strict enforcement. For example, Sarah Stafford (Chapter 1) starts by analyzing 'voluntary self-policing', focusing her analysis on the long-standing Audit Policy of the US Environmental Protection Agency (EPA). Under this policy, regulated entities that discover, report, and correct environmental violations through voluntary compliance audits may avoid financial penalties and regulatory enforcement.² Stafford argues that self-policing can allow regulators to more effectively use limited enforcement resources by encouraging regulated entities to voluntarily assess their compliance and take steps to prevent non-compliance. While Stafford's argument is somewhat convincing, it does not adequately address concerns that entities might engage in long-standing violations and then, on the eve of having their non-compliance discovered, perform an audit and avoid prosecution.

Martin de Bree and Han de Haas (Chapter 2) and Rachel Deming (Chapter 3) then discuss EMSs. Deming examines how international institutions, national governments, and trade associations have experimented with EMSs and promoted their implementation. She believes that 'EMSs have the potential to produce environmental performance benefits' (p. 57). De Bree and de Haas have a similar view. They examine the use of compliance management systems in public environmental supervision in the Netherlands by focusing on the use of industry-based management standards as compliance tools. De Bree and de Haas are of the view that, although traditional public supervision can promote compliance, its reactive nature and inability to prevent violations or ensure consistency are substantial shortcomings. The authors thus make a convincing case in favour of compliance management systems as proactive tools that aim to predict potential violations and prevent recurrence. De Bree and de Haas acknowledge that compliance

² Environmental Protection Agency, 'Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations', (2000) 65 *Federal Register* 19618.

management systems cannot be applied in every situation, and they note that public supervisors will need to adjust their attitudes towards regulated entities, and companies that implement these systems will require additional training and skills (p. 43). Despite these caveats, de Bree and de Haas make a compelling argument for non-regulatory and non-traditional compliance approaches.

The second part of the book (Chapters 4 to 13) turns to the role of traditional compliance and enforcement. Chapters 4, 7 and 8 focus generally on the ideas of effective enforcement systems and appropriate enforcement designs. Neil Gunningham (Chapter 4) examines the question of how enforcement might best be conducted ‘to achieve policy outcomes that are effective’ in terms of reducing the incidence of social harm and be efficient for both duty holders and regulators, while also maintaining community confidence (p. 63). Gunningham explores ‘the roles of compliance and deterrence strategies’ of environmental enforcement and argues that the most widely applied mechanism for resolving the challenge of variegated compliance is that proposed by Ayres and Braithwaite,³ in which regulators use an ‘enforcement pyramid’ which employs advisory and persuasive measures at the bottom, mild administrative sanctions in the middle, and punitive sanctions at the top (p. 67). Cameron Holley and Darren Sinclair (Chapter 7) apply and extend the Ayres and Braithwaite proposal by discussing the issue of ‘enforcement strategies’ for ‘inspections, targeting and escalation’ (p. 111). They note that all regulators must confront the question of how best to achieve compliance and enforcement within their resource constraints. Holley and Sinclair first analyze the five key enforcement strategies: (i) the ‘soft’ and cooperative approach of advice and persuasion; (ii) the ‘hard’ and adversarial approach of rules and deterrence; (iii) responsive regulation; (iv) ‘pluralistic’ and multi-party smart regulation; and (v) risk-based regulation (p. 111). They then offer a practical overview of some key regulatory design considerations, such as clear timelines for compliance and clear identification of self-monitoring, reporting and record-keeping requirements that help to ensure that environmental regulations are enforceable. Michelle Sanders and Pieter Asbeek-Brusse (Chapter 8) close out these general examinations of enforcement by considering ‘what makes environmental regulations enforceable’ and the implications that enforceability issues may have on the integrity of the regulatory regime (p. 115). The chapter is insightful because it offers a practical overview and proposes some key design considerations that help to ensure that environmental regulations are enforceable.

Chapter 5 and 6 both explore the role of traditional common law remedies in environmental enforcement, and although the chapters present somewhat competing views about the role of common law enforcement, the conclusion in Chapter 6 is more compelling. Marie-Eve Arbour, in Chapter 5, discusses enforcement tools that evolve in the wake of traditional civil law, arguing that private law causes of action do not always offer suitable remedies to diffuse sources of pollution or widespread

³ I. Ayres & J. Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate* (Oxford University Press, 1992).

harm, such as climate change, as the core conditions for liability are lacking. Specifically, she argues that wrongdoers are difficult to pinpoint, causation is hypothetical, and damages are difficult to quantify (p. 82). The reader may find it easy to agree with these ideas when applying them to general environmental law principles like sustainable development, which do not seem to be compatible with the foundations of private law. Lynda Collins and Heather McLeod-Kilmurray (Chapter 6) offer a competing perspective, arguing rather more persuasively that tort law has always been a tool to protect human health and the environment and remains an important complement to regulatory measures (p. 96). The differing views in Chapters 5 and 6 work together to provide the reader with useful insights into how private law can enhance the protection of the environment, while also exposing the potential limitations of common law enforcement for global environmental harm.

Chapters 10 and 12 paint a helpful picture of civil penalties. Environmental regulators have found civil penalties particularly attractive because of their ability to deter future violations and to 'punish' violators through a non-criminal process (with the associated lower burden of proof). Brendan Grigg (Chapter 10) makes these points through his examination of the Australian experience with environmental civil penalty schemes contained in federal biodiversity protection laws, as well as state-based environmental law in South Australia. Australian civil penalty jurisprudence 'has openly acknowledged the capacity' of civil penalties to punish and, as a result, deter (p. 152). Grigg argues that the enactment of environmental civil penalty schemes in Australia has indeed had this deterrent effect. Although this chapter makes a strong case for civil penalties, the argument is somewhat one-sided and does not respond meaningfully to critiques of strict civil penalty schemes. In Chapter 12, Robin Juni then offers a comparative discussion of the use of administrative tribunals in the enforcement and penalty-setting process. She analyzes the US Environmental Appeals Board's review procedures and standards, and draws on other jurisdictions like Canada and the United Kingdom (UK), demonstrating that careful attention to both the substance and scope of review 'will assist both the agencies and the regulated community' in the application of any administrative enforcement process to specific cases (p. 173). Collectively, these chapters highlight the importance of civil penalties for environmental compliance and identify the risk that civil penalties, which are designed primarily for deterrence and recovery of any economic benefit resulting from environmental violations, could instead be punitive in nature.

Part III of the book (Chapters 14, 15 and 16), on criminal enforcement, broadly provides readers with theoretical justifications and some useful insights on the mental state requirements for environmental crimes. It begins with Susan Mandiberg's critical look at the controversial issue of the 'mental state' necessary to establish a criminal violation (Chapter 14). Mandiberg addresses the difference in the way in which mental state questions are considered in respect of regulatory crimes, such as environmental offences, and traditional crimes like homicide.

With regard to mental states regarding 'plans and motives,' she is of the view that environmental crimes might require prosecutors to prove that the defendant had a 'specific goal' or motive at the time of carrying out the offending conduct or caused

the result set out in the act element of the crime (p. 195). This mental state requirement could make criminal prosecution more difficult in the environmental context. Jeffrey Miller and Caroline Justice explore the question of organizational liability for environmental crimes (Chapter 15). They explain that civil law jurisdictions have adopted different approaches: from no corporate criminal liability (as in Germany), to limited corporate criminal liability (as in Switzerland), and finally to comprehensive corporate criminal liability (as in Denmark). The chapter argues that effective enforcement of environmental laws is promoted by providing regulators with an array of enforcement mechanisms and sanctions against all offenders. Finally, Heather McCready and Karina Barker critically examine the ‘intelligence-led enforcement’ model (Chapter 16). This approach uses tactical, operational, and strategic intelligence to inform decisions about how resources should be deployed and violations prioritized for enforcement, as a possible solution for the complex and transnational nature of environmental crimes. In supporting the argument for intelligence-led environmental enforcement, McCready and Barker base their conclusion on Guidetti’s view that ‘intelligence-led enforcement provides the processes and tools ... which increases an environmental protection agency’s credibility and ability’ to work with other enforcement agencies.⁴ Collectively, Chapters 14, 15 and 16 provide the reader with valuable theoretical and practical perspectives on criminal enforcement of environmental offences. They also highlight the difficulties associated with proving criminal liability, particularly for corporate violators, and thus signal that reform may be necessary to ensure that intentional violators are held accountable.

The final part of the book (Chapters 17 and 18) focuses on ‘special issues’, such as economic, management, and policy perspectives in environmental compliance and enforcement. Chapters 17 and 18 both focus on measurement. Jay Shimshack (Chapter 17) provides an empirical analysis of the tools for assessing the impact of environmental monitoring and enforcement actions in order to quantitatively measure deterrence. He shows that when measurement is wholly integrated into environmental compliance and enforcement management decisions, it enables regulatory agencies to achieve better environmental outcomes, higher compliance rates, improved fairness, a better understanding of regulated entities and environmental problems, and a higher return on investment. Shelley Metzenbaum (Chapter 18) then explores the why, what, and how to measure, and explains why effective measurement is essential for good government. It is useful for regulators, regulated parties, and other stakeholders, and need not be complicated or burdensome (p. 244). Both chapters demonstrate the critical role that data and measurement play in compliance and enforcement. Indeed, they are so important that it is not clear why the concepts are considered ‘special issues’ rather than integral parts of the enforcement regime or non-regulatory approaches to compliance discussed in Part I.

⁴ R. Guidetti, ‘Collaborative Intelligence Production’, in J. Radcliffe (ed.), *Strategic Thinking in Criminal Intelligence*, 2nd edn (Federation Press 2009), pp. 222–34.

Overall, the book offers to potential readers a good overview of the current status of environmental compliance and enforcement. It demonstrates the relatively strong growth of normative standards in compliance and enforcement, especially in developed countries. The book also provides useful information for policy makers seeking to strengthen the legal regimes in countries experiencing regulatory challenges. However, the book has a major shortcoming: it mainly uses case studies that focus on compliance and enforcement in countries of the Global North and therefore does not address the law and practice regimes of environmental compliance and enforcement in developing countries.⁵ Since the book purportedly aims to provide a thorough discussion of compliance and enforcement, it is hard to understand why developing countries are not covered, at least as a sub-theme, if not integrated into each section. Thus, while *Compliance and Enforcement of Environmental Law* will serve as a helpful guide in developed countries, its omission of developing countries makes it considerably less useful for much of the world.

This major shortcoming aside, the book offers a valuable contribution to the field of compliance and enforcement, informed by the comparative approach the authors use to assess and recommend improvements to laws and practices in developed countries. On the whole, the book is well structured, the research is thorough, and the presentation of materials is clear and accessible to readers. The book will be a valuable resource to academics, researchers, students, public authorities, and civil society organizations working in fields related to environmental protection, as well as to private (regulated) entities whose activities are likely to have substantial impact on the environment.

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⁵ See W.L. Adreen, 'Environmental Law and International Assistance: The Challenge of Strengthening Environmental Law in the Developing World' (2000) 25(1) *Columbia Journal of Environmental Law*, pp. 17–69.