

RESEARCH HANDBOOK ON
**Intellectual Property
and Climate Change**

Edited by
Joshua D. Sarnoff



Research Handbook on Intellectual Property and Climate Change

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Joshua D. Sarnoff

Professor of Law, DePaul University College of Law, USA

RESEARCH HANDBOOKS IN INTELLECTUAL PROPERTY

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RESEARCH HANDBOOK ON INTELLECTUAL
PROPERTY AND CLIMATE CHANGE

RESEARCH HANDBOOKS IN INTELLECTUAL PROPERTY

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Research Handbook on Intellectual Property and Climate Change
Edited by Joshua D. Sarnoff

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1. Introduction

Joshua D. Sarnoff

Over the next few decades, tens of trillions of dollars will be needed for the development and dissemination of a wide range of new technologies to upgrade infrastructure and to mitigate and adapt to the effects of climate change (climate change technologies).¹ As the Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC) put it, human ‘survival depends on our improvement of technology’.² Climate change is expected to cause dramatic changes to weather patterns; to adversely affect health (particularly for vulnerable populations), ecosystems, food production and water availability; to displace populations and disrupt land and resource ownership; and to interfere with existing patterns of satisfying basic human needs.³ These developments, and the ability of society to mitigate and adapt to climate changes, will be affected in numerous ways by intellectual property rights. This book provides an introduction to the interactions of climate change with the global intellectual property, innovation, human rights and international trade systems.

The book is designed for policy makers, academics and students, business people, and other members of civil society. Its principal purpose is educational in a broad sense – it may be used in negotiating strategy rooms and corporate boardrooms as well as in classrooms. The goal is to provide a short and useful overview of the concerns and social challenges that have arisen or are likely to arise at the intersections of environment law, public policy, international trade, government regulation and private markets, and intellectual property. It also seeks to provide a readily accessible tool for future reference, identifying the principal texts and academic papers (in each addressed topic area) that have been generated to date.

Although technology, and its effective and efficient development and transfer, is a central focus of the book, many chapters are devoted to issues and concerns that do not address technology. Rather, they focus on social interactions and concerns, and on government regulation and protection of non-technological interests or price concerns, such as false commercial representations regarding ‘green’ products and protection of the public’s privacy when using climate-friendly smart-grid technologies.

As will be evident from reading the various chapters, the issues raised by the intersection of climate change and intellectual property are numerous, and the conflicts that will be engendered will consume substantial amounts of public attention and money. The concerns generated will also direct social activity and activism in new and likely unforeseen ways. As with any short review at the inception of major social developments, it is necessarily incomplete and cannot anticipate many (much less all) future events. Further, significant delays were encountered from the initiation of the project in the 2010 timeframe, and since the chapters were written some things have changed and additional analyses of the issues have appeared. Editing of the book was completed just after the adoption by the United Nations Framework Convention on

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Climate Change (UNFCCC) of the Paris Agreement at the end of 2015.⁴ Nevertheless, the issues identified and the approaches discussed should provide the basic outlines on which these future developments will unfold, particularly as the Paris Agreement itself contains only voluntary national emission reduction commitments that are to be periodically reviewed (separately and collectively) and revised as needed to assure the goal of keeping temperature rise ‘well below 2°C above pre-industrial levels’.⁵ Further, the Agreement contemplates that governments will continue to rely on both public-sector non-market approaches and private-sector market approaches to financing and technology transfer in order to achieve climate change mitigation and adaptation goals.⁶ Thus, analyses presented herein should remain highly cogent. The book should withstand the test of time.

The book chapters are organized into five broad and general categories. The first set (Chapters 2 to 7) provides basic information on climate science and the international environmental and intellectual property treaty context, as well as some views on the geo-politics of climate change and international enforcement of intellectual property, environmental and climate change-specific treaties. The second set (Chapters 8 to 10) discusses underlying philosophical perspectives, addressing human rights, religious concerns, and developmental considerations relating to climate change. The third set (Chapters 11 to 15) addresses the differing approaches to the development and transfer of technologies, focusing on government technology funding choices (including reliance on private markets and intellectual property rights), university-based technology development and transfer, and competition law policies and concerns. These chapters also include a detailed discussion of relevant international trade principles and concerns, and a separate discussion of government procurement. The fourth set (Chapters 16 to 22) focuses on specific doctrinal areas of intellectual property law, specifically patents, trade secrets, copyrights and digital rights, data access and sharing, trademarks and certification marks, and related legal subjects – specifically standard-setting and privacy protection – that are likely to engender concerns and disputes in regard to climate change technologies. The final set (Chapters 23 to 26) describes some of the most important contexts in which climate change-related intellectual property concerns are likely to arise – energy, transportation, agriculture and natural resources/forestry. These chapters focus on four economic sectors where technology development, use and dissemination are likely to be critical to mitigation and adaptation strategies. A very limited preview of each chapter follows.

In Chapter 2, which begins the materials on basic information and context, David Hunter provides an overview of climate science and of the myriad effects of climate change. He then relates the science and effects to general environmental regulatory, economic, technological, and financial policy options for mitigation of and adaptation to climate change. These basic facts frame the concerns regarding which climate policy and law have developed – as discussed in subsequent chapters – and to which they will continue to respond.

In Chapter 3, Sanford Gaines describes the international environmental law treaty framework that relates to climate change. He provides a brief history of the development of the relevant international environmental law through the UNFCCC Paris Agreement of 2015, including the Vienna Convention for the Protection of the Ozone Layer and its associated Montreal Protocol and adoption of the general approach of

differentiating responsibilities between developed and developing countries. He then offers a more detailed overview of central treaties for climate change – the UNFCCC and its associated Kyoto Protocol – and discusses some of the climate obligation flexibility and technology transfer mechanisms of its operation (in particular, the Clean Development Mechanism and Joint Implementation). Finally, he sketches some of the major features of the Paris Agreement that will govern international climate change law going forward and that are relevant to intellectual property and technology transfer issues.

In Chapter 4, Daniel Gervais discusses the international intellectual property treaty law context in which climate change issues will be addressed, focusing in detail on the World Trade Organization (WTO) Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS Agreement) and referencing important provisions of other intellectual property treaties (specifically the World Intellectual Property Organization's Paris Convention on Industrial Property and Berne Convention on Copyrights and Related Rights). He then explains the political dynamics at play in the development of these treaties, which will remain at play in regard to climate change issues in their continued operation through intergovernmental administrative and negotiating bodies.

In Chapter 5, Carlos Correa articulates developing countries' concerns with the international environmental treaty approach of relying on intellectual property rights without change from the current intellectual property treaty regime. In particular, he describes prior (and controversial) measures to modify the approach to such rights that have been proposed in the context of UNFCCC negotiations, which are likely to recur in implementing efforts to address climate change. These measures focus on: compulsory licensing; efforts to exclude climate change technologies from the patent system; revoking patents; and limiting patent duration.

In Chapter 6, Peter Drahos discusses the lessons for climate change negotiators that can be learned from the much longer history of international intellectual property negotiations and treaty developments, which might assist states to negotiate new commitments to reduce greenhouse gas emissions. In particular, he notes the need for more time for the climate regime to develop – as well as the lack of time available to avoid serious consequences of climate change – and identifies reinforcing mechanisms of a networked series of multilateral and bilateral treaties, sectoral approaches and business organization involvement that could lead countries to better address the negative externalities of climate change.

In Chapter 7, Peter Yu discusses the difficulties of enforcing international intellectual property and environmental treaties, and the lessons these experiences may provide for climate change treaty enforcement. He focuses on three levels. The first is enforcing state adoption and implementation of the relevant substantive treaty obligations. The second is disagreements over the international standards for enforcement in treaties. The third is the adequacy of the agreed-upon enforcement measures. These three levels of conflict are likely to arise in regard to whatever international climate change instruments are developed and obligations are imposed.

Chapter 8, which begins the discussion of human rights, religious and economic development concerns, excerpts from a report by the International Council on Human Rights Policy (ICHRP).⁷ The ICHR report focuses on technology transfer and the human rights dimensions of climate change, and was principally drafted by Stephen

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Humphries based on research commissioned by ICHRP. In particular, the work of Simon Caney commissioned for the report identifies three different normative claims for the transfer of climate change technologies from developed countries to the least privileged in the world, which differ in their implications and in regard to the human rights they affect. The affected rights include: the right to life; the right to health; and the right to the basic means of subsistence. The different types of normative claims are: (1) adaptation-based claims, to permit individuals to enjoy their human rights despite experiencing climate harms; (2) mitigation-based claims, to permit enjoyment of human rights without contributing to climate change; and (3) restitution-based claims, to provide compensation to those who have been unfairly deprived of their 'fair share' of the public good of the atmosphere's absorptive capacity. The different claims imply different forms, allocations, and uses of transferred technology. Significantly, relying on human rights principles may help with both negotiation and implementation of international climate change obligations.

In Chapter 9, Robert Musil addresses the religious dimensions of climate change, with specific reference to the context of American religion and politics. He describes the growth of Christian and Jewish concerns with the environment and with climate in particular, and the influence that religious activism has had on climate politics and policy development in the United States. His focus on religious views re-emphasizes the moral choices posed by climate change that are framed in the ICHRP report.

In Chapter 10, Dalindyabo Shabalala provides a developing country perspective on technology transfer obligations of developed countries, pursuant to the principles of historical responsibility for climate change and of common but differentiated responsibilities as enshrined in the UNFCCC. In particular, he focuses on causes of past failures of technology transfer, the linkages of human rights to technology transfer obligations, and concerns over intellectual property rights posing a barrier to the development and transfer of climate change technologies. His chapter thus sets the stage for the next two sections of the book, which address the different market and governmental approaches to promoting the development and transfer of technologies, as well as the institutions involved in and choices of approach to specific intellectual property doctrines and the concerns that these alternatives raise.

Chapter 11 transitions to general considerations regarding how technology can be developed, and the different issues that can arise from both governmental and market-based approaches. Chapter 11 excerpts from a previous article that I wrote⁸ addressing the broad set of governmental choices regarding how to promote the development and transfer of climate change technologies. These choices can be broadly classified into five general categories, although many forms of government technology promotion have similar features and thus could be fitted into multiple categories. The five categories are: subsidies; procurement; development by government entities; creation of commons; and market regulation in its various forms, including the creation of intellectual property rights, regulation of products and market behaviors, and regulation of prices and competition. The excerpt discusses the rudimentary state of comparative analysis of the relative effectiveness of these choices of approach, and develops a taxonomy of the choices that identifies some of their particular and overlapping features.