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Introduction

Climate change is a global problem touching all nations, yet one that manifests itself in innumerable local forms that have their own immediacy in the domestic context. Any legal analysis of the response to climate change must, therefore, encompass multiple dimensions. Accordingly, this book is addressed to an Australian as well as an international audience. We have attempted to explain and contextualise Australia's regulatory responses to the problem of climate change within the global regulatory currents, analysing its domestic response as a case study in the international one. It is a premise of this book that in order to understand Australia's actions, it is necessary to highlight the salient international pressures and governance models affecting its decisions. In the course of doing so, the book also refines our understanding of the international climate change regime.

The regulation of climate change is an international responsibility. As we argue in Chapter 1, it is *necessarily* international. Nevertheless, we recognise that 'topdown' international rule-making is complemented by 'bottom-up' national and regional contributions to the shaping of legal concepts in the field. The steps that Australia is taking to introduce a framework for climate change regulation may have broader significance, as a model for legal developments elsewhere. The country responds to international regulation, but its own measures may also reverberate outwards and upwards. This dynamic makes the book a contribution to international climate law studies, with Australia serving as a recurrent illustration from the sphere of practical application.

Given this emphasis on international and Australian interactions in climate change law, the predominant focus of the book is on law in its 'public' dimensions. While private law issues such as tort liability are examined, typically these matters arise in the context of public regulation, such as the liability of statutory authorities. The book does not attempt to provide a comprehensive analysis of the private law pertaining to climate change law regulation in Australia; rather, it

focuses on the themes of climate governance at the international, transnational, and national levels. It explores concepts and arguments arising from the authors' research interests, which are also, we hope, of value to the general reader. While some chapters, especially in the earlier part of the book, are primarily concerned with international regulatory approaches to climate change, all chapters contain material on Australia's situation, with Chapters 4–5 and 9–11 analysing Australia's laws and institutions in considerable detail.

Arguments and themes

Before proceeding to an overview of the book's chapters, we provide a summary of the main contextual issues and themes that run through the book.

A global-scale problem

Climate change is a truly global problem caused by human activity around the world. It is gradually changing the whole of our natural and cultural environment. As such, it may be thought of as more than just another environmental problem, but instead as one that envelops and affects all others. It demonstrates as does no other phenomenon the impact that humans have on the natural world, and it challenges the systems humans have or are able to devise to limit their impact on the environment as no environmental problem has done before. From a legal point of view, climate law does not fit a pre-existing category. It does not slot easily into any developed branch of environmental law, for example, nor does it share all of environmental law's basic principles. As a global phenomenon, climate change establishes an entirely new framework within which our relationships with nature and with each other play out, but it also draws on existing law. Because it is such an influential framework, it has the potential to overwhelm smaller-scale environmental issues. The only other environmental problem with a claim to universality is anthropogenic ozone depletion. By comparison with climate change, though, it has been minuscule in its causes and impacts.

Fragmentation of the problem

The climate change problem could be solved by reducing anthropogenic greenhouse gas (GHG) emissions to a sustainable level. As with ozone-depleting substances, we know what the physical cause of the problem is and we know that if the cause is withdrawn, the problem will largely go away. At least causally, the situation is a straightforward one. Unfortunately, though, it is impossible in practice to approach the problem in simple terms. Social interests (including legal frameworks) carve up the climate change problem into many subordinate ones. In this way, additional concepts (poverty eradication, North–South inequity, nationalistic visions of economic expansion and dominance, differing

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philosophies about the limits of government, the ascendancy of materialistic values, etc.) are added to the mix. A problem with a clear solution fragments, not into simpler components, but into other complex problems whose solutions are less visible, as well as dependent on conflicting sets of preferences and values. (Nuclear power is climate-friendly: should we therefore tolerate more of it? If China's one-child policy is climate-friendly, should we tolerate more of *that*?) One consequence of the broadening of the nature of the inquiry into the several social causes of climate change is a broadening of the concept of 'climate law'.

Interdisciplinary character of a developing legal field

As a truly global problem, climate change makes immense new demands on lawyers, from students of the law to practising lawyers and academics. A basic understanding must be acquired of the contributions of other disciplines (science, economics, etc.) to framing and finding solutions to the problem of climate change. A new language heavy with scientific notions must be understood, and one must know how to operate on local, national, regional, and international levels of analysis even when dealing with a single concrete case (such as the extension of a coal mine). Legal precedent, which has been built around smaller-scale environmental issues, is helpful in some respects but not in others.

International climate law: Weak and non-directive

The UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol to the Convention affirmed pre-existing principles of international law. They established a framework of objectives and institutions with ongoing responsibility for bringing climate change under control. They also established reporting and compliance systems that have helped to harmonise the measurement of GHG emissions in developed states (but not vet in developing ones). Especially in procedural matters, the international regime has in many ways been effective. International rules with an impact on domestic systems have overwhelmingly pertained to reporting on country-level climate policies and measures, accounting for national GHG emissions, trading of international carbon credits and sovereign emission allowances, and compliance checks on national institutions charged with carrying out these functions. The procedural rules are more strictly applied to developed than to developing countries, but to some extent they apply to countries in both categories, and together with the fundamental principles set down in the UNFCCC (the precautionary principle, common but differentiated state responsibility, the interests of future generations, etc.), they may be said to constitute a rudimentary international (procedural) climate law. Substantively, however, there is less on which to report. Under the Kyoto Protocol, developed states have agreed to specific emission reduction commitments, with measurable outcomes, over a period of several years. The transfer of finance and technology

from North to South for emission reduction projects in developing countries has been occurring at a modest rate under the Protocol's Clean Development Mechanism, but other assistance to date (such as the project grants awarded by the Global Environment Facility) has been ad hoc.

While these are important first steps, the legal regime remains weak. The UNFCCC's fundamental principles include national sovereignty and the right to exploit natural resources and to create wealth. These have a strained relationship with measures to control climate change. The United States' rejection of the Kyoto Protocol, the unambitious mitigation targets of the Protocol's commitment periods, and the economic recession that struck developed countries in 2009 (early in the Protocol's first commitment period) have not merely failed to substantially strengthen the climate regime over the years; they have moderated its demands.

A principle of 'globally sustainable development'?

The pre-existing general legal principles affirmed in the UNFCCC and the Kyoto Protocol include that of 'sustainable development', but climate law requires a more powerful principle to respond to the larger environmental threat. That principle, which we call globally sustainable development, has yet to evolve – and there is no guarantee that it ever will. The existing principle of sustainable development simpliciter has a limited scope that does not necessarily extend beyond that of national interest. Globally sustainable development, by contrast, is the kind of legal principle that would fit the logic of the climate change problem. A public authority or government bound by the principle would be obliged to weigh global sustainability in decisions that have an environmental impact, even if no negative impact is expected within its own jurisdiction. The principle would oblige the authority to consider undesirable impacts, such as drought and sea-level rise, in other parts of the world. Courts in Australia have, on occasion, evinced moves in this direction, interpreting the domestic principle of 'ecologically sustainable development' as requiring attention to the global aspects of climate change, for example by balancing 'geographically narrower concerns' with 'the broader public good of increasing the supply of renewable energy' (Taralga case).

Entrenched climate politics in a fast-changing world

The UNFCCC and the Kyoto Protocol partitioned the world into groupings of responsibility and action/inaction based on a North–South divide (developed and developing countries). Twenty years later, the dichotomy no longer seems useful. For example, depending on how emissions are calculated, the countries of the South have overtaken those of the North in aggregate GHG emissions, and this presents a new difficulty in regard to the apportionment of responsibility and action on climate change. Related to this, economic growth in many countries of

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the North has slowed considerably. (Australia and countries with a similar resource base, such as Canada, are notable exceptions in this regard.) Fossil-fuel-intensive production has shifted to developing countries such as China and India, where economic growth has been strong but where income per capita is still relatively low. Among the poorest and least developed of the developing country group are some that are likely to suffer the harshest impacts of climate change. The global population is predicted to grow from seven to nine or even ten billion people by mid-century, with most of this growth occurring in developing countries. Energy supply will have to meet both the increasing demands of individuals and the increasing number of them. (The extent to which access to energy will grow equitably and sustainably is largely unknown.) Australia's own population is likely to grow to 35 million or more by mid-century, and the country's economy is likely to remain highly dependent on the mining of fossil fuels and close political ties with emerging (and GHG-polluting) economies. The United States and a handful of other countries would like to see an end to the North-South politics. They say that environmental goals cannot be met without broad-based obligatory reductions in GHG emissions, and that every country must make a contribution. Yet the United States government has never itself been a model contributor. Developing countries, defending the benefits bestowed on them twenty years ago by the UNFCCC and later by the Protocol, are surrendering their ground very reluctantly, citing requirements of equity. The world politics on climate change is not keeping up with the changing realities on the ground.

A weak climate law into the future

International climate change law is likely to remain weak and non-directive until at least 2020. Regulation in the period 2013–20 will be essentially an extension of that enacted between 2008 and 2012, which is to say unambitious and risky from a scientific point of view, as the window of opportunity to avoid dangerous climate change closes. In 2020, a new international legal regime is promised to come into effect. The new regime is expected to impose binding mitigation targets on states currently classified as 'developing'. The burden will of course be proportional to their capacities, but it is a notable break with the past in that this group of countries has so far been exempted from compulsory mitigation measures. The weakness of the existing legal framework does not imply a lack of progress. Every year there is some advancement. The Copenhagen Accord for the first time set a global limit for rising temperatures (2°C above the pre-industrial average). This limit is a significant top-down feature that the Kyoto Protocol lacks (the Protocol limits aggregate emissions, not global warming). On the other hand, the Copenhagen Accord traded ambitious goals for non-binding commitments by the largest polluters (countries including the United States, China and India), who had indicated that they would opt out of a stricter regime. Their participation in the Accord and the United States' agreement to consider participation in a post-2020 regime are a kind of progress.

The effect on Australia of a weak international climate regime is that the country has considerable discretion to decide on its own action - or inaction. Change in the country came about only very gradually in the 1992–2007 period, with targeted interventions in the renewable energy sector (mainly through the Mandatory Renewable Energy Target scheme to support growth in renewable energy sources). Since 2007, Australia has been middle-of-the-road in its reforms: doing neither too much nor too little, with a political stalemate contributing to the inertia. Obligatory reporting of GHG emissions by corporations in Australia went into effect in 2008, and a national emissions trading scheme was legislated in 2011.¹ In terms of its international obligations, Australia went from a negotiated emission limit under the Kyoto Protocol of 8 per cent above the 1990 level in 2008-12 to a self-selected unconditional target in the post-2012 period (5 per cent below 2000 emissions by 2020). Australia's target will in due course be quantified and inscribed into the Kyoto Protocol's second commitment period, and will become binding on the country, but apart from meeting this modest mitigation target, Australia is free to do as much or as little as it likes in response to climate change, for example in its ongoing financial and technical assistance to developing countries for adaptation and mitigation.

Little appetite for strong domestic regulation

Strong and coordinated domestic laws enforced in all major economies before 2020 would give our societies a chance to 'bridge the emissions gap' and keep warming below 2°C. But such laws are possible only if climate change and its effects on current and future generations are seen by a majority of people and states as a serious threat that is of the greatest policy priority. The evidence suggests that, at least since the Global Financial Crisis, this is not the case. This could be because the predicted impacts of climate change are long-term and very gradual, becoming apparent only over the course of decades, and thus lie mostly in the future. Moreover, problems facing future generations are hardly likely to be experienced in the present as substantial relative to the problems of the present. This phenomenon is manifest in the debates over the discount rates for future climate change impacts. Many people are in any case used to having to 'adapt' to changing circumstances, and by comparison with other issues presently occupying them - international terrorism and war, instability in employment and economic outlook, increasing urbanisation, globalisation of language and culture, rapid development and spread of technological innovations, changing constellations of economic and industrial power, the persistence of conventional, tangible environmental problems, and so on - people's adaptation to an almost

¹ The text of the Kyoto Protocol refers to 'emissions trading' (instead of 'emission trading'), and we have adopted that usage in this book. In other such constructs ('emission reduction', 'emission limitation', etc.) the usual grammatical form is employed, as indeed it is in the text of the international conventions.

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imperceptibly changing global climate may seem comparatively manageable or secondary.

Slow pace of domestic climate law

Initiatives at the country level are varied in their methods and are not always implemented through legislation. Change comes slowly through conceptual shifts (for example, greenhouse gases have been redefined as pollutants in some jurisdictions, including in the state of Victoria in Australia), technical interventions (carbon taxes and emissions trading schemes), support for a more varied energy mix, and changes in popular values. The problem with this alternative approach is that it only incidentally addresses climate change: the motivating force is not reduction of carbon emissions, as such, but the need to modernise the economy through efficiency gains (including greater efficiency in the ongoing combustion of fossil fuels), maintain competitiveness in the technology sector, and hedge against commercial risks in a low-carbon economic future. From a climatic perspective, the modest emission reductions that this soft form of intervention has delivered in Australia and elsewhere lack coordination, as they are not part of a planned and comprehensive contribution to an agreed global atmospheric stabilisation. The Copenhagen Accord's 2°C warming limit has not yet been translated into obligatory concrete actions. Still, steps towards greater sustainability make sense in economic terms, even if they do little to halt climate change. There is also the possibility that incremental actions taken now in a number of countries may produce a snowball effect, accelerating ambitious action.

Integration and regulatory coordination

Within domestic climate change regulation, the emerging trend of making use of a range of measures – for example an emissions trading scheme coupled with complementary measures addressing such matters as energy efficiency, renewable energy, and offsets - raises complex questions about how the different regulatory regimes will interact, without conflicting, to ensure a coordinated response to problems of emission reduction and adaptation. These questions are only now beginning to receive substantial attention in the literature on law and policy. Less attention has been paid to regulatory coordination between measures for GHG mitigation and those relating to adaptation to climate change, even though there is often an intimate connection between the two. Another looming challenge concerns the issue of integration: that is, how regulatory measures to address climate change will affect broader areas of environmental management, such as water allocation or biodiversity conservation. Questions of integration are particularly pertinent where - as in the case of the Australian carbon farming legislation - there is an attempt to achieve other benefits in addition to climate change regulation.

Chapter overview

The book commences in Chapter 1 ('Climate law: Meaning and context') with an examination of law's role within the international climate change regime: its sources, the new concepts it introduces or demands, and its relationship with other disciplines that contribute to our understanding of, and response to, climate change. An important preliminary point discussed in this chapter is the unique character of the climate change problem: it is a singular problem, one experienced globally, with global causes and effects. As such, the nature of the problem supports universal action against the causes of climate change, but by the same token, it creates a disincentive for corrective action that is not widespread and coordinated. Other sections of the chapter show that human wealthrelated needs and aspirations, as well as social and infrastructural momentum in the use of fossil fuels, make it difficult to establish the conditions for widespread and coordinated action to control climate change. We conclude the chapter with an overview of the basic scientific argument for the existence of climate change and its impacts. Chapter 1 thus introduces several concepts, relationships and themes that are relevant to the book as a whole.

The international climate change regime is reviewed in Chapter 2. Here, we focus primarily on the UNFCCC's conceptual foundations. We inquire into the success of the Convention in tackling global emissions. The essential elements of the Kyoto Protocol are also introduced in this chapter. Subsequent chapters return to the most important of these elements of the international regime to develop them further. The UNFCCC, for all the generality of its text, has been extensively developed in party decisions – and its development continues apace. Considering that the United States, and as of 2011, Canada, have rejected the Kyoto Protocol, the UNFCCC remains the one and only global climate change treaty. It is no exaggeration to say that the very possibility of avoiding dangerous climate change hangs on the thread of the UNFCCC's negotiation process.

The activities of measuring, reporting and verifying state greenhouse gas emissions are foundational to our response to climate change. The international climate change regime, which parcels out responsibility for action to states, needs a way to know whether states are responding in line with their treaty obligations; if they are not, it must be able to bring them into line. Chapter 3 ('Measurement and verification of state emissions and legacy of the Kyoto Protocol's compliance system') focuses on the Kyoto Protocol's demanding system of checks and penalties for the reporting of emissions by Annex I parties. The Protocol's system of integrity in reporting is overseen by a Compliance Committee, unprecedented on the international stage, which operates rather like a court of law. There have been relatively few instances of reporting-related non-compliance to date, possibly due to the very existence of a Compliance Committee. In addition to keeping states compliant with their reporting obligations under the Protocol, the Committee is empowered to

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deal with the situation where an Annex I country fails to meet its quantified emission cap for a commitment period. The Kyoto Protocol's first commitment period expires in December 2012. Because emissions from the 2012 calendar year will not be verified until several months after they are submitted to the UNFCCC's Secretariat in 2013, the Compliance Committee's power to deal with non-compliance with emission caps will not be tested before mid-2014. The prospect of non-compliance with GHG caps was enough to drive Canada out of the Kyoto Protocol in December 2011.

Chapter 4 ('Development of climate law in Australia') departs from the international focus of the preceding chapters to delve more deeply into the development of climate law at the domestic level, focusing on the situation in Australia. The chapter identifies various drivers for the emergence of a body of Australian climate law – now much more substantial with the addition of federal legislation on carbon pricing and carbon farming – including the role that courts have played in bringing the climate change issue to the public's attention and highlighting the part that general environmental law frameworks and principles may play in climate change regulation. The remainder of the chapter traces the main stages in the evolution of Australian climate law and policy, from the 'no regrets' measures favoured by the Howard government to current efforts to introduce an emissions trading scheme that will 'price' greenhouse emissions.

'Putting a price on carbon' has become a dominant response to climate change, both at the international level and in the climate law of many countries. As discussed in Chapter 5 ('Putting a price on carbon: Regulatory models and emissions trading schemes'), this approach responds to a conception of climate change as a problem of 'market failure' requiring regulatory correction. We consider the different regulatory models that have been introduced to deal with climate change at the domestic level, focusing particularly on carbon taxes and the most common measure: emissions trading schemes. The chapter outlines emissions trading schemes operating around the world, including the influential EU scheme, before turning to discuss the Australian carbon-pricing mechanism and its supporting infrastructure.

The Clean Development Mechanism of the Kyoto Protocol, examined in Chapter 6, is a remarkably original and successful contribution of the climate change regime to the relationship between developed and developing countries. It is fascinating also from a legal point of view, for it creates myriad new legal relationships that transcend national jurisdictions and are delicately balanced by new institutions at the international level. The CDM is designed to smooth the transition of both developed and developing countries to greener economies by facilitating the creation of emission reduction projects in developing countries. The projects generate attractively priced credits that developed countries purchase to write off, or counterbalance (offset), some of their emissions at home. In the process, finance, technology and know-how flow into developing countries to accelerate environmentally sustainable development. Chapter 6 illustrates the workings of the CDM through a detailed case study and explains

why Australia is likely to be dependent on the CDM's continuation long into the future. Many NGOs campaign against offsetting emissions, and to date there have been several proven scams to supply them with ammunition. Thus, while CDM offsets are counted upon by states to assist their transition to a low-carbon economy and to transfer funds and technology to developing countries, the environmental integrity of an international system heavily reliant on offsetting will remain open to serious doubt.

Forests store vast amounts of carbon. Deforestation and forest degradation add carbon to the atmosphere, thus contributing to climate change. An expanding forest, by contrast, takes carbon out of the atmosphere. Forested regions in developing countries, which include almost all remaining tropical forest, are at risk of anthropogenic deforestation and degradation. Their preservation and enhancement are critical to any strategy to avoid dangerous climate change. Yet the international climate change regime has been slow to prove itself in this area. The CDM has had a small capacity to protect forests, but its drawback is that it is project-based and does not operate at the country-wide level required for a holistic approach to forests. In substance, the world's vulnerable forests remain unregulated under the international legal climate regime. Chapter 7 considers the still early stages of the emerging scheme under the UNFCCC, called REDD or REDD+, to protect forests in developing countries by setting reference levels for existing forest-carbon stocks (or for GHG emissions from forests) and rewarding countries for maintaining their stocks or expanding them (or reducing their forestry emissions). The UNFCCC's REDD scheme is far more complex than the Kyoto Protocol's CDM, laying down an unprecedented multilevel legal as well as political challenge. Australia has already invested millions of dollars in the establishment of REDD+.

Chapters 6 and 7 therefore deal with aspects of finance and technology transfer from North to South, channelled through the two distinct programs of the CDM and (in the future) REDD. However, climate-related finance and technology transfer to developing countries covers an area much larger than that occupied by those two special-purpose mitigation programs. A principle of international law that is very nearly settled is that the wealthier countries to an international agreement must assist those with lesser capacity to meet their obligations under the treaty. Financial assistance to developing parties was a fundamental demand since the earliest days of climate negotiations, but no general, permanent solution to the challenge was settled upon before late 2010, when the UNFCCC parties agreed to the establishment of the Green Climate Fund. A Technology Mechanism was agreed to in the same year. Chapter 8 ('Climate finance, technology transfer, and capacity-building for sustainable development') reviews these developments from a legal perspective, as well as Australia's contributions to the distribution of finance and technology under the international climate change regime.

Chapter 9 ('Legal and regulatory frameworks for transition to a low-carbon economy') examines the legal frameworks for climate change mitigation