

FOREWORD

THE HON JUSTICE BRIAN J PRESTON*

Climate change, according to most scientific studies, is real and is happening. To a significant extent, the causes are anthropogenic. Urgent action is called for, first, to address the anthropogenic causes of climate change, including anthropogenic sources of greenhouse gas emissions and anthropogenic removal of sinks such as forests and vegetation, with a view to abating climate change in the future; secondly, to adapt to the consequences of climate change that is already occurring and that will continue to occur by reason of greenhouse gas emissions caused by past and present human activity; and thirdly, to remedy the damage and loss caused by reason of anthropogenic climate change.

Formulating the action required and ensuring that such action is taken, necessitates development of a policy and a legal framework. Development of such a framework involves consideration of environmental, economic and social factors – the three pillars of ecologically sustainable development. It requires both a multidisciplinary and an interdisciplinary approach.

The policy and legal framework to address climate change and its adverse effects is still being developed, both internationally and nationally. Nevertheless, some of its features are emerging and can be identified. This issue of the University of New South Wales Law Journal Forum assays the task of identifying features of the policy and legal framework that is being developed. The articles in this issue examine different facets of the framework, and do so from different perspectives.

Some articles examine the features of the laws designed to mitigate climate change, or to adapt to the consequences of climate change, or to remedy damage or loss caused by climate change. One article views the problem from those who will be responsible for taking mitigative action, such as industries responsible for greenhouse gas emissions, notably the mining and energy industries. Other articles advocate viewing the problem from the perspective of those who are at risk of being affected by climate change or by action to mitigate climate change. They advocate a human rights based approach, including consideration of the rights of indigenous people.

The diversity of perspectives represented in this collection of articles is illustrative of the complexity and multifaceted nature of the problem and of the solutions to address climate change and its adverse impacts. An overview of the

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diversity of coverage of the articles can be provided by grouping the discussion under the three main types of action, namely action to mitigate climate change, action to adapt to climate change, and action to remedy damage and loss caused by climate change.

Action to mitigate climate change involves two main categories: reduction in anthropogenic greenhouse gas emissions by sources and removal of greenhouse gases by sinks.

Reduction in greenhouse gas emissions can be achieved both on the supply side and on the demand side. On the supply side, the main measure being pursued is an emissions trading scheme. An emissions trading scheme is a means of causing emitters of greenhouse gases to internalise the external environmental costs of their emissions. Parties with obligations under an emissions trading scheme, such as the major sources of greenhouse gas emissions, including the mining and energy industries, determine the most cost effective means of reducing greenhouse gas emissions. Australia is still developing its emissions trading scheme. Martijn Wilder and Louisa Fitz-Gerald summarise the current policy of the scheme being developed in Australia, as evidenced in the Garnaut Review and the Australian Government's Carbon Pollution Reduction Scheme Green Paper. Associate Professor Rosemary Lyster also briefly summarises the emerging scheme. Professor Peter Christoff critiques the targets which have been set in this scheme.

Although most of the current attention is on statutory emissions trading schemes, voluntary carbon markets also have, and will continue to have, a role to play. Wilder and Fitz-Gerald remind us of the important role voluntary carbon markets can play. Christoff reminds us of the environmental concerns we must bear in mind when setting the terms of such strategies and schemes.

Industries that are significant sources of greenhouse gas emissions will need to mitigate their emissions, including by pursuing efficiency measures to reduce their emissions. Grant Anderson discusses some of these measures for the mining and energy industries. Anderson also discusses the impact that an emissions trading scheme would have on the mining and energy industries.

The volume of greenhouse gas emissions from the energy industry can also be reduced by substituting renewable energy for fossil-fuel energy. Lyster, Wilder and Fitz-Gerald, Anderson and Professor Rosemary Rayfuse each discuss the role renewable energy can play in reducing greenhouse gas emissions.

Fires are a source of greenhouse gas emissions. Annual burning of native vegetation across northern Australia and of crops such as sugarcane or crop stubble, is a significant concern. Abatement of fire, through better fire management, can mitigate greenhouse gas emissions. Emily Gerrard discusses the role indigenous people in Australia can play in fire abatement programs.

On the demand side, reduction of demand for products, such as energy, that cause greenhouse gas emissions in either their production or consumption, can result in a reduction of their greenhouse gas emissions. Demand-side management and energy efficiency are, therefore, supplementary measures that can be beneficial in reducing greenhouse gas emissions. Lyster highlights the role such supplementary measures can play.

Removal of greenhouse gases by sinks can be achieved by various means. Biosequestration, or sequestration of carbon by the planting and preservation of forest and vegetation stocks, is currently the most commonly employed means of removing greenhouse gas emissions. Biosequestration raises a number of legal questions, including the processes for the generation of credits from such activities and the legal interactions between the varying forms of carbon rights and carbon permits. Nicola Durrant explores these legal issues in biosequestration.

Biosequestration can also raise issues for indigenous people. Gerrard gives examples, including the problem that market incentives for carbon sinks will lead to large scale forest plantations and a consequential loss of traditional country and ecosystems. She also comments that measures to mitigate climate change reduce ecosystems to only their carbon absorbing capacity, squeezing out their cultural, spiritual and other values for indigenous people.

Geosequestration involves the capture and secure storage of greenhouse gas emissions in geological formations (notably carbon dioxide) from sources such as fossil fuelled electricity power stations. This can be done in terrestrial geological formations or in sub-seabed offshore formations, such as exhausted oil and gas wells. Rayfuse briefly notes this means of carbon sequestration.

The oceans represent the largest natural sink on earth and are capable of absorbing vast quantities of atmospheric carbon dioxide. Carbon sequestration can occur naturally, but can also occur by anthropogenic means, such as ocean injection in deep oceans, or by enhancing the oceans' absorptive capacity through techniques like ocean fertilisation. As Rayfuse explains, ocean fertilisation involves the addition of nutrients, such as iron, nitrogen and phosphorus, to stimulate the growth of phytoplankton which converts dissolved carbon dioxide into organic carbon. While most of the phytoplankton is consumed by larger organisms which transpire most of the carbon dioxide back into the water column, at least some of the dead phytoplankton and other faecal matter from organisms sinks before it decays, taking the carbon along with it to the deeper oceans and sediments. Although it then ultimately decays, slowly releasing the carbon dioxide back into the water column, this process occurs over a period of hundreds of years. Accordingly, once incorporated into the deep ocean sediments, the carbon is sequestered for an environmentally relevant time.

Ocean fertilisation raises challenging legal issues, particularly international legal issues, which are explored by Rayfuse in her article.

Formulating mitigative action is one thing; ensuring mitigative action is taken is another. Law obviously has a role in requiring the taking of mitigative action. Enforcement of the law through litigation is also important. There is a growing body of climate change litigation in national and international adjudicative fora. At the national level, plaintiffs, particularly in the United States, have used tort law to ensure climate change mitigation and adaptation. Causes of action include nuisance, both public and private, negligence and civil conspiracy. Regulatory bodies have litigated under trade practices laws for false or misleading conduct or representations in relation to the environmental credentials, include the carbon emissions of products and services. Litigants have used administrative law to

bring climate change issues before the courts. In particular, litigants have instituted judicial review and merits review proceedings to challenge administrative decisions or conduct relating to environmental issues, such as planning proposals and their impacts.¹

Mitigation of climate change is often the primary focus of action in relation to climate change. However, with some impacts of climate change having occurred already and others being likely to occur in the near future, adapting to these modifications in the ecosystem, is, as the Stern Review noted, a 'vital part of a response to the challenge of climate change.'²

The impacts of climate change will be particularly acute in coastal areas of Australia. Robert Ghanem, Kirsty Ruddock and Josie Walker examine the adequacy of laws in responding to climate change impacts on the coast. Their observation is that very few laws address climate change impacts, with the consequence that the potential impacts of climate change on coastal populations and land uses are often ignored or addressed in a piecemeal or ad hoc manner. In contrast, however, an innovative approach to climate change is being adopted by the courts around Australia. They refer to some of the recent court decisions addressing adaptive action to climate change.

It is also particularly necessary to formulate and implement adaptive action to ensure the protection of the human rights of disadvantaged people. The Hon John von Doussa QC urges the adoption of a human rights based approach for policy development and as a bench mark against which policy and resource allocation is evaluated. This approach should apply to particular climate change responses relating to local communities (particularly those of indigenous people) in Australia, to immigration policies for people seeking to come to Australia to escape environmental catastrophes in their homeland, or to funding adaptation measures overseas.

The third category of action is to remedy and make reparation for damage or loss caused by climate change. The law of torts is a branch of the law of obligations. The legal obligations to refrain from harm to another and, if harm is done, to repair it or compensate it, are imposed not by agreement, but, independently of agreement, by enforcing the general law. The torts of nuisance, both public and private, and negligence, have traditionally been used to address harm to the environment, such as by pollution of land, water or air. Recently, plaintiffs are turning to these tortious causes of action to obtain redress for harm caused by climate change induced by anthropogenic greenhouse gas emissions.

¹ BJ Preston, 'The Role of the Courts in Relation to Adaptation to Climate Change' in Tim Bonyhady, Jan McDonald and Andrew Macintosh, *Adapting to Climate Change: Australian Law and Policy* (2008).

² Sir Nicholas Stern, *Stern Review on the Economics of Climate Change* (2006) HM Treasury 405 <http://www.hm-treasury.gov.uk/Independent_Reviews/stern_review_economics_climate_change/sternreview_index.cfm> at 18 September 2008.

This issue of the University of New South Wales Law Journal Forum provides a valuable overview of the body of climate change law that is emerging in Australia. With the reality of climate change and its consequences becoming starker, this body of law will only increase in coverage and complexity in the near future.