Launch of

Justine Bell, *Climate Change and Coastal Development Law in Australia* (Federation Press, 2014)

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According to most scientific studies, climate change is real and it is happening. To a significant extent, the causes are anthropogenic. It is also getting worse. Total anthropogenic greenhouse gas emissions have continued to increase over the period 1970 to 2010, with larger absolute increases in the last decade compared to the three earlier decades.[1]

Two avenues to counteract climate change are ordinarily put forward: mitigation of those factors that contribute to climate change and adaptation to the effects of climate change. These two avenues are not in the alternative; both need to be pursued.

Mitigation action is needed to reduce the sources or to enhance the sinks of greenhouse gases, such as by reducing greenhouse gas emissions and reducing deforestation. However even if important mitigation action were to be taken now, its impact on the world's climate will not be seen in the short term. This is because past greenhouse gas emissions have already "locked in" a certain degree of climate change. There is, therefore, a need to also take action to adapt to the unavoidable impacts of climate change to which the world is already committed.[2] Further, the need for climate change adaptation action will become even greater the longer that climate change mitigation actions are delayed. The current Australian Governments' efforts to scale back mitigation efforts make taking adaptation action more important.

Adapting to the impacts of climate change is particularly important for human settlements in coastal areas of Australia. Climate change is expected to contribute to coastal hazards, including a rise in global sea levels, changes in the frequency and intensity of extreme weather events such as cyclones, increased flooding of coastal rivers and plains, and increased coastal erosion and storm-tide inundation.

[1] Ottmar Edenhofer et al, 'Summary for Policymakers' in 'Climate Change 2014: Mitigation of Climate Change' (Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, IPCC, 2014) 6.

[2] Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge University Press, 2006) 405; Brian J Preston, 'The Role of Courts in Relation to Adaptation to Climate Change' in Tim Bonyhady, Andrew Macintosh and Jan McDonald (eds), *Adaptation to Climate Change: Law and Policy* (The Federation Press, 2010) 158-160.

Climate change induced coastal hazards are likely to have severe impacts in Australia. The Climate Council's latest report, 'Counting the Costs: Climate Change and Coastal Flooding',[3] released today, identifies Australia's vulnerability to sea level rise. Sea level has already risen and continues to rise due to climate change.[4] Climate change exacerbates coastal flooding from a storm surge as the storm rides on higher sea levels.[5] Over half of Australia's coastline is vulnerable to recession from rising sea levels, with 80% of the Victorian coast, 62% of the Queensland coast and 40% of the New South Wales coast at risk.[6] At both Fremantle and Sydney, flooding events became three times more frequent during the 20th century as a result of sea-level rise.[7] Sea levels are likely to rise 40-100 cm through the 21st century.[8] With just 10 cm of sea level rise the risks of coastal flooding roughly treble.[9]

Australia is highly vulnerable to increasing coastal flooding because our cities, towns and critical infrastructure are mainly located on the coast. Australia's infrastructure has been built for the climate of the 20th century and is unprepared for rising sea level.[10] A sea-level rise of only 0.5 m would, on average, mean that a 1-in-a-100 year flood—a very rare event today—would occur every few months.[11] It could also involve a potential retreat of sandy shorelines by 25m to 50m.[12] Sydney is particularly vulnerable. It is likely that today's 1-in-100 year flood would occur every day or so by 2100.[13]

Australia's vulnerability to climate change induced coastal hazards is exacerbated by the fact that the vast majority of the population lives close to the coast. It is estimated that 85% of Australians live within 50 kms of the coast.[14] In 2009, there were nearly over 711,000 residential addresses (with on average multiple people living at each address) within 3 kms of the shore and less than 6 m above sea level.[15] With Australia's growing population and people's insatiable desire to live close to the sea, the number of coastal living people will only increase. Sea changers will get more than they bargained for!

Although there is a clear need to take adaptation action in Australia, there are many challenges to overcome, including numerous legal and policy issues. This is the task

[3] Will Steffen, John Hunter and Lesley Hughes, 'Counting the Costs: Climate Change and Coastal Flooding' (Report, Climate Council, 2014).
[4] Ibid iv.
[5] Ibid.
[6] Ibid 3.
[7] Ibid 16.
[8] Ibid iv.
[9] Ibid.
[10] Ibid.
[11] Ibid.
[12] Ibid.
[13] Ibid.
[14] Australian Government Department of Climate Change, 'Climate Change Risks to Australia's Coasts: A First Pass National Assessment' (Report, Department of Climate Change, 2009) 14 <http://www.climatechange.gov.au/sites/climatechange/files/documents/03_2013/cc-risks-full-report.pdf>.
[15] Ibid 75.

that Justine Bell assays in her new book, *Climate Change and Coastal Development Law in Australia*. The stated purpose of the book is to provide a comprehensive analysis of the range of legal issues that are likely to arise in Australia as governments, the private sector and communities formulate and undertake adaptation action to address the impacts of climate change on coastal residential developments.

Adaptation action broadly falls into four categories:

- *Protection or defence* – reducing the probability of a coastal hazard event occurring, such as by construction of a sea wall to prevent or reduce the impacts of sea level rise or coastal inundation.

- *Retreat* – reducing the potential effects from a coastal hazard event occurring, such as removal of development and human settlements from coastal hazard areas.

- *Accommodation* – implementing measures to cope with the effects of a coastal hazard event, such as raising buildings and structures above projected flood levels or using building materials that are resistant to periodic inundation.

- *Avoidance* – avoiding development in coastal hazard areas, generally only possible in areas that have not already been developed.

The choice of the appropriate adaptation approach involves difficult policy and legal issues. Different approaches may need to be adopted for new developments and existing developments. New developments are easier to regulate than existing developments. Planning and environmental laws entrench rights of existing development, making retrospective regulation difficult.

There are costs of adapting and not adapting to climate change. Justine Bell gives the example that adapting to sea level rise might involve the costs of acquiring sea side residential properties but failing to adapt might result in the costs of emergency accommodation for affected residents, disaster relief payments, new permanent accommodation and lost home contents.

The Climate Council's report, 'Counting the Costs: Climate Change and Coastal Flooding', makes the same point. If the threat of sea level rise is ignored the projected increases in economic damage caused by coastal flooding are massive. More than $226 billion in commercial, industrial, road and rail, and residential assets are potentially exposed to flooding and erosion hazards at a sea level rise of 1.1 m, a high end but quite plausible scenario, by 2100.[16] Almost 250,000 homes worth

[16] Ibid.

about $72 billion are vulnerable to a 1.1 m rise in sea levels around Australia.[17] The assets at risk will only increase as Australia's population grows. The current annual cost of natural disasters of $6.3 billion will double by 2030 and almost quadruple by 2050.[18]

One of the problems is the failure to require the internalisation of the external costs when planning decisions are made, such as when approvals for coastal development are given. There needs to be "whole of life" costing or life-cycle costing of coastal developments, including the costs of adaptation action that will be incurred when coastal hazard events strike. For example, developments on land highly susceptible to sea level rise, erosion, or storm surge inundation should bear the costs of protection or defence against, retreat from, or accommodation of coastal hazards. Such costs should not be borne by the government or the community. Yet too often, the government and the community bear a significant proportion of the costs of loss and damage caused by coastal hazard events and of the repair and adaptation actions taken.

Justine Bell's book examines the laws and policies that regulate both new and existing coastal development.

Chapter 2 provides an overview of the legislative and policy frameworks of each of the six States and of the Northern Territory for planning new coastal developments. The chapter concisely summarises the key coastal policies and legislation regulating the planning and approval of new developments in coastal areas.

Chapter 3 builds upon this overview and considers specific legal approaches to controlling development in coastal areas susceptible to sea level rise, erosion and storm surge inundation. Use is made of case studies of planning schemes of local governments in Victoria (Geelong City Council and East Gippsland Shire Council), Tasmania (Clarence City Council), Queensland (Brisbane City Council and Gold Coast City Council) and New South Wales (Byron Shire Council). These planning schemes illustrate different ways to regulate new development in coastal hazard areas, depending on whether the local government seeks to avoid a risk, accommodate it, defend against it, or provide for future retreat.

An interesting question, touched upon in the book, is the nature and duration of development approvals. Typically, development approvals are of indefinite duration and run with the land, giving rights to but also binding successors in title. This feature of development approvals is useful to bind successors in title to obligations to take adaptation action. But it can also reduce flexibility and adaptation options because of the existing use rights created. Discriminating use of time limited development approvals would increase flexibility and the range of adaptation options available.

[17] Ibid 22.
[18] Ibid 31.

Chapter 4 examines the specific legal approaches to managing exposure to coastal hazards for existing developments in developed areas. While the adaptation option of risk avoidance is usually not achievable, accommodation, defence or retreat strategies to mitigate the impacts of sea level rise, erosion and temporary inundation may be available and appropriate.

The primary focus of chapter 4, however, is on how governments can implement retreat strategies where existing developments are threatened by sea level rise, erosion or temporary inundation. Removal of land from private ownership through a land acquisition process is suggested as the most appropriate way for governments to pursue retreat and reduce human exposure to the impacts of these coastal hazards. Conversion of homes to public ownership and their demolition also allows for the beach and important coastal ecosystems to migrate inland, thereby ensuring that they are not lost to development.

The chapter provides a comprehensive and thoughtful discussion of land acquisition, both by compulsory process and voluntary buy-backs; compensation for land acquisitions; and innovative options of land swaps and transferrable development rights.

Governments may chose, however, not to remove properties from private ownership by land acquisition but instead impose restrictions or prohibitions on the use of land and buildings in areas at risk of sea level rise, erosion or inundation. Whilst land owners are entitled to compensation for the acquisition of their land, their entitlement to compensation for restrictive regulation is less clear.

Chapter 5 analyses this issue of the entitlement to compensation for loss suffered by restrictive regulation. This is less of a problem under Federal law, where Commonwealth constitutional provisions require acquisition of property on just terms. But it is a problem under State laws where there is no such constitutional entitlement.

Numerous cases have established that State planning, environmental and other laws that regulate or impose restrictions on the use of land do not involve the acquisition of land. It has been held that State planning statutes, on their commencement, took away the proprietary right to subdivide and develop private land without approval, and gave no compensation for the loss. But they did enable land owners to obtain approval by complying with any conditions which might be imposed. In the case of coastal subdivision, for example, approval might be obtained for the subdivision of one area of the land subject to a condition requiring dedication of another area (such as a foreshore reserve) free of cost and without compensation. Such a conditional approval does not involve confiscation of the area required to be dedicated. Rather, for the giving up of one area a quid pro quo is received, namely the restored right to subdivide and develop the other area: see *Lloyd v Robinson* (1962) 107 CLR 142 at 154; *Western Australian Planning Commission* (2004) 221 CLR 30 at 52-53.

Interesting questions arise, however, where State and Commonwealth laws interact. If a regulatory restriction is imposed by a State government but it is done at the request of, for the benefit of, or pursuant to a grant from the Commonwealth government, does it attract the Commonwealth constitutional protection of compensation on just terms? Chapter 5 considers these questions, discussing recent High Court cases concerning regulatory restrictions on clearing of native vegetation and water entitlements.

The analysis of the regulatory takings doctrine in the United States is informative. However, I discern little enthusiasm in the Australian judiciary to embrace the regulatory takings doctrine and its application in Australia is likely to be dependent on express legislative incorporation.

Chapter 6 looks at a different strategy – that of communicating to landholders and prospective purchasers of property information on land use restrictions applying to the property and information on the level and type of coastal hazard risks posed to the property. Communication of this information helps shift responsibility and allows landholders and prospective purchasers of land to decide the risks that they are prepared to accept and the adaptation actions that they wish to take to reduce the risks.

The chapter examines mechanisms for registering and recording information on land titles and the obligations for mandatory disclosure of information by sellers of property. In respect of the latter, I recall thinking at the time of the litigation concerning development at Sandon Point in New South Wales (*Walker v Minister for Planning* [2007] NSWLEC 741; (2007) 157 LGERA 124; *Minister for Planning v Walker* [2008] NSWCA 224; (2008) 161 LGERA 423) that the subdivider of the residential subdivision on the flood-constrained coastal plain would need to disclose to potential purchasers of the residential allotments the heightened risk of flooding and inundation caused by climate change. One source of the obligation to disclose such risk information is the Australian Consumer Law (see Sch 2 to the *Competition and Consumer Act 2010*). Section 152(1) makes it an offence for a person, in trade or commerce, in connection with the sale, or possible sale, of an interest in land to make a false or misleading representation concerning the location of the land, the characteristics of the land, or the use to which the land is capable of being put or may lawfully be put, amongst other matters. The seller of the residential lots would therefore be obliged to provide information about the location of the lots on a flood-constrained coastal plain, the heightened risk of flooding and storm surge inundation under foreseeable climate change scenarios, and the implications of these risks for the location, design, building materials, and construction of residential development on the lots.

Chapters 7 and 8 consider the legal liability issues arising in coastal hazard areas. Chapter 7 focuses on the legal risk issues for governments (both local and State) responsible for regulating development in coastal hazard areas. First, it considers

administrative law challenges to development decisions made by government. These challenges may be by way of merits review or judicial review. The chapter surveys the key judicial decisions throughout Australia involving merits review and judicial review of coastal planning decisions. Secondly, the chapter considers the tortious liability of government entities, both in negligence and nuisance. Finally, it examines statutory limitations of liability.

Chapter 8 discusses the legal liability implications for non-government entities, including property developers, engineers and architects, infrastructure operators, landholders, and polluters for sea level rise. As Justine Bell concedes, many of the potential legal actions against these entities are speculative, as there is little legal precedent. Nevertheless, her discussion is perceptive and timely.

The final chapter, Chapter 9, considers the role of insurance and economic responses. This is an important discussion. Insurance companies play an increasingly important role in driving and facilitating climate change adaptation action. Insurance companies' business involves assessing risks, including risks posed by climate change. They need to be at the cutting edge of climate change science and use predictive models and data to ascertain how risks are likely to change. In response, insurers adapt their insurance offerings but also advocate for climate change adaptation action. Insurers may withdraw from markets at high risk of coastal hazards. This may influence planning law and policy and discourage new development in these high risk areas. An example given is the role insurers played in ensuring flood mitigation works were put in place in the flood prone towns of Roma and Emerald in Queensland. Insurers may also restrict insurance for houses lacking protective measures or built to inadequate standards. Again, this may influence building law and policy as well as individual home owner behaviour.

The discussion on the role of insurance prompted me to think of other ways in which insurance could be beneficial in ensuring effective adaptation to climate change. For example, approvals for new developments in coastal hazard areas could require, by way of a condition, that the developer insure any required biodiversity offsets for damage caused by coastal hazard events, such as sea level rise, erosion, storm surge inundation or flooding.[19] Insurance payouts could be used to rehabilitate or replace with equivalent habitat the damaged biodiversity offset areas. Another example is that protection or defence structures, required to be constructed by the approval, could also be required to be insured for damage caused by coastal hazard events.

Chapter 9 provides a useful summary of current insurance availability for loss or damage caused by sea level rise, erosion, storm surge and temporary inundation. The chapter also considers the relationship between government and insurance.

[19] This was required by the conditional approval granted in *Gerroa Environment Protection Society Inc v Minister for Planning and Cleary Bros (Bombo) Pty Ltd* [2008] NSWLEC 173 at [133] and *Gerroa Environment Protection Society Inc v Minister for Planning and Cleary Bros (Bombo) Pty Ltd (No 2)* [2008] NSWLEC 254 (condition 16(a)(v) of Sch 3 required insurance of the conservation area).

The comparative analysis of the National Flood Insurance Program in the United States, and the lessons for Australia, is informative.

In conclusion, Justine Bell's book is a timely and topical contribution to the existing literature on adaptation to climate change. It has breadth as well as depth of coverage. It provides a comprehensive overview of the legal and policy issues but also engages in an insightful and detailed analysis of particular issues. The research underlying the book is thorough. The book will be of interest and use to governmental policymakers, legal practitioners and other professionals, property developers and insurers, and academics working in the field of adaptation to climate change.

I commend the book and am pleased to be able to launch it.

May Justine Bell's book rise in fame just as the sea levels will inevitably rise with climate change, may it surge in popularity just as there will storm surges, and may Justine be inundated with accolades just as there will be storm-tidal inundation. I officially launch *Climate Change and Coastal Development Law in Australia* on the warming seas.