The Future is Not Inevitable
Judging the Impact of Greenhouse Gas Emissions in Australian Climate Change Litigation

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THE FUTURE IS NOT INEVITABLE:
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ABSTRACT

What is the relevance of replacement sources of coal, and the greenhouse gas emissions they may cause, to a decision on whether to approve a new coal mine under mining and environmental protection legislation in Queensland, Australia? The question is explored from two perspectives. Does the existence of replacement sources of coal have any bearing on the impact that the mine is anticipated to cause? If not, is it otherwise relevant as part of a deliberative process in balancing the benefits and drawbacks of approving the mine? To critically assess the causal perspective, insight is drawn from the Australian law of negligence and homicide and how those bodies of law deal with potential replacement sources of the same harm. Relevance to a deliberative process is assessed within the framework of administrative law and by examining the effect of permitting consideration of replacement sources. Insight is drawn from the evaluation of a number of other coal mines and greenhouse gas emitting developments at the state and federal level as well as the assessment of other environmental impacts. I argue that replacement sources are not relevant to assessing the impact of a mine on global greenhouse gas emissions levels from either perspective. The Queensland climate cases have received some attention in the literature, though minimal attention has been paid to the causal perspective and none to the deliberative approach. This thesis will contribute to the further understanding of climate change litigation in Australia.

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TABLE OF ABBREVIATIONS

ACF	Australian Conservation Foundation
ACT	Australian Capital Territory
ALCA	Attributional Life Cycle Assessment
AFMA	Australian Fisheries Management Authority
CCA	Criminal Code Act
CCAQ	Coast and Country Association of Queensland
CCS	Carbon Capture and Storage
CLA	Civil Liability Act
CLCA	Consequential Life Cycle Assessment
CLWA 2002	Civil Liability (Wrongs) Act 2002 (ACT)
CMTPCA 1995	Consent to Medical Treatment and Palliative Care Act 1995 (SA)
CO_2	Carbon Dioxide
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Cth	Commonwealth
EPA 1994	Environmental Protection Act 1994 (Qld)
EPBCA 1999	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
ESD	Ecologically sustainable development
FCA	Federal Court of Australia
FOE	Friends of the Earth
GBR	Great Barrier Reef
GHG	Greenhouse Gas
$GtCO_2e$	Gigatonne of Carbon Dioxide Equivalent
HCA	High Court of Australia
IPCC	Intergovernmental Panel on Climate Change
JRA 1991	Judicial Review Act 1991 (Qld)
LCA	Life Cycle Assessment
MRA 1989	Mineral Resources Act 1989 (Qld)
$MtCO_2e$	Million Tonnes of Carbon Dioxide Equivalent
NSW	New South Wales
NSWLEC	New South Wales Land and Environment Court
QCA	Queensland Court of Appeal
QLC	Land Court of Queensland
Qld	Queensland
QSC	Supreme Court of Queensland
SA	South Australia
Tas	Tasmania
UNFCCC	United Nations Framework Convention on Climate Change
Vic	Victoria
WA	Western Australia
WA 1958	Wrongs Act 1958 (Vic)

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INTRODUCTION

On 7 April 2017, the High Court of Australia dismissed an application by local environmental NGO, Coast and Country Association of Queensland (CCAQ), for special leave to appeal a decision by the Queensland Court of Appeal.[1] The case, *Hancock Coal v Kelly (No 4)*, concerns the approval of the Alpha coal mine.[2] In order to proceed with the development, the miner, Hancock Coal, must obtain a mining licence pursuant to the Mineral Resources Act 1989 (Qld) and an environmental authority pursuant to the Environmental Protection Act 1994 (Qld). Both Acts permit objections to be raised by third parties.[3] CCAQ objected to the mine on the basis of the contribution it would make to anthropogenic climate change from the extraction, transport and burning of coal. Over the mine's 30 year life, total greenhouse gas (GHG) emissions from these activities are estimated to be 1,800 million tonnes of carbon dioxide equivalent ($MtCO_2e$).

The Land Court of Queensland, which first heard the case on its merits, found that the mine would have no impact on global GHG emission levels as its coal, and associated GHG emissions, would simply be replaced by another source, due to market demand, if the mine was refused. As there would be no change in global emissions levels, the mine could not be said to have any adverse effect on the climate. Both the Supreme Court and Court of Appeal held that this factual finding was not susceptible to judicial review.[4]

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[1] *Coast and Country Association of Queensland Inc v Smith* [2017] HCATrans 74.

[2] [2014] QLC 12.

[3] MRA 1989, s260; EPA s216 (11 December 2012 reprint).

Intuitively, the outcome in this case is difficult to grasp. How is it possible that there will be no climate harm done by what would be one of the largest coal mines in the world? What concept of causation is at play here? How can what otherwise might occur, if the project is refused, be relevant to deciding that the project should be approved? How can this be the law? It is from this point of incomprehension that this thesis begins. The core task of the thesis is to analyze, critique and make sense of this case.

This Chapter seeks to set the stage for this sense making. It is divided into three parts. Part one introduces the scientific and policy context relevant to the case. Part two discusses the methods and the rationale for focusing on this particular case, as well as provides an overview of the thesis. Part three addresses the contribution that this thesis will make to the academic literature on climate change litigation.

Climate Change: The Phenomenon and its Challenges

The "greatest challenge of mankind", the issue that will "define our era" and a threat larger than international terrorism – these are just some of the ways world leaders and opinion-makers have characterized climate change.[5] Furthermore, the leading scientific body, the Intergovernmental Panel on Climate Change (IPCC), has concluded that the

[4] *Coast and Country Association of Queensland Inc v Smith* [2015] QSC 260 ('Alpha Supreme Court judgment); *Coast and Country Association of Queensland Inc v Smith* [2016] QCA 242 ('Alpha Court of Appeal judgment').

[5] Andrew Pierce, 'Global Warming is Mankind's Greatest Challenge, says Prince' *The Times* (London, 28 October 2005) (quoting the Prince of Wales); Ban Ki-moon, Address to *The Future in our Hands: Addressing the Leadership Challenge of Climate Change* (United Nations Headquarters, New York, 24 September 2007) <www.un.org/webcast/climatechange/highlevel/2007/pdfs/sg.pdf> accessed 8 January 2018; 'Global Warming 'Biggest Threat'' *BBC News* (London, 9 January 2004) <news.bbc.co.uk/1/hi/3381425.stm> accessed 8 January 2018 (quoting Sir David King, the UK Government's chief scientific advisor at the time).

warming of our planet is "unequivocal" and that humans are the culprits.[6] This section briefly outlines some key aspects of climate science and international and Australian climate policy.

While the subject matter of this thesis is climate change litigation, it is important to clarify at this early stage that the focus of the dispute between parties is the contribution the mine will make to global GHG *emissions* and not *anthropogenic climate change*. The fact that anthropogenic climate is occurring globally was never in dispute between the parties. The extent to which it could be said to effect Queensland was questioned by the miner in front of the Land Court, however the Land Court did not address the matter and so it can be set aside.[7] It is, therefore, only necessary to consider the science related to GHG emissions and their immediate effect on temperature, and not any further downstream impacts.[8] As the predominant greenhouse gas released as a result of the mining activities will be carbon dioxide (CO_2), the discussion focuses on that gas.

The Immediate and Irreversible Effect of Releasing CO_2

Every tonne of CO_2 released has a physical effect on the Earth's atmosphere.[9] It contributes to additional warming for as long as it remains in the atmosphere and is not absorbed by the oceans or biosphere.[10] The *extent* of the additional warming depends

[6] Lisa V Alexander and others, *Climate Change 2013: The Physical Science Basis – Summary for Policymakers* (CUP 2013) 4, 15.

[7] ch 3.

[8] For a discussion of each link in the chain, see: Michael Duffy, 'Climate Change Causation: Harmonizing Tort Law and Scientific Probability' (2009) 28 Temp J Sci Tech & Envtl L 185, 189-201.

[9] David Archer, *Global Warming: Understanding the Forecast* (2nd edn, Wiley 2012) 35.

on a number of factors and is not uniform over time. A tonne of CO_2 released today only has about three-quarters of the impact on the Earth's energy budget that it would have had if it had been released during the pre-industrial era.[11] The reason for this variance is due to non-linearities in the carbon-climate cycle. For instance, the ability of the oceans and biosphere to absorb CO_2 decreases as the amount of CO_2 in the atmosphere increases. Each tonne becomes more potent as it remains active in the atmosphere for longer. By contrast, each additional tonne will have less of a physical impact on the energy balance of the atmosphere itself, due to the band saturation effect, making each tonne less potent.[12] To a certain extent, these processes and other non-linearities will cancel each other out. The point for present purposes is simply that every tonne has a physical effect.

Due to the length of time that it will take natural processes to remove anthropogenic CO_2 from the atmosphere, the IPCC concluded that climate change caused by elevated CO_2 levels is 'irreversible on [a] human time scale'.[13] There are a number of processes which remove CO_2 from the atmosphere, each working on a

[10] The absorption by the ocean causes its own problems as CO_2 increases the acidity of the ocean. Ocean acidification is the evil twin of anthropogenic climate change and poses a huge threat to marine life, especially the Great Barrier Reef: Scott C Doney and others, 'Ocean Acidification: The Other CO_2 Problem' (2009) 1 Annual Review of Marine Science 169. It has been raised by climate objectors in a number of cases in Queensland; however it has received little judicial attention. The findings of no net impact would be equally applicable to it and so it is not considered here.

[11] Myles Allen and others, 'Scientific Challenges in the Attribution of Harm to Human Influence on Climate' (2007) 155 U Penn LR 1353, 1358-1359.

[12] Pond visibility is a useful proxy to understanding the saturation effect. In clear water, it is easy to see the bottom of the pond. Adding a little bit of silt quickly impedes that ability, however adding further silt will only have a marginal impact on the depth to which one can see into the pond. The same is true of CO_2. For a general introduction to the band saturation effect and from which the pond analogy is drawn: see Archer (n 9) 34-38.

[13] Philippe Ciais, Christopher Sabine and others, 'Carbon and Other Biogeochemical Cycles' in Thomas F Stocker and others (eds), *Climate Change 2013: The Physical Science Basis* (CUP 2013) 469.

different timescale.[14] The terrestrial biosphere begins to absorb CO_2 immediately and for decades following its release. The ocean absorbs CO_2 at the sea surface for centuries, while its drawdown into the deep ocean, as a result of chemical reactions with sea floor sediments, takes thousands of years.[15] CO_2 is also removed through a weathering process with minerals in igneous rocks; however, this process takes place over several hundred thousand years. In quantitative terms, about a third of CO_2 emissions will be removed from the atmosphere within a few decades of release, between 15-40% will remain after a thousand years, while 10-25% will still remain after 10,000 years.[16] CO_2 emissions from a mine will have the greatest impact in the decades after they are released, but some of its adverse effects on warming will persist for centuries to millennia.[17]

These two aspects of the climate phenomenon distinguish it from many other environmental problems.[18] Ecological systems are often thought of as having 'assimilative capacity', that is, the ability to manage the impact of an activity without it causing environmental harm.[19] A species is able to handle a certain number of non-

[14] ibid 472-3.

[15] Over hundreds of years, the ability of the ocean to absorb CO_2 will decrease as the dissolved CO_2 increases the acidity of the ocean, thereby reducing its solubility. (Solubility also decreases as the ocean warms). On the order of thousands of years, chemical reactions between dissolved CO_2 and sea floor sediments will start to restore the pH balance of the ocean, thereby increasing its ability to drawdown more atmospheric CO_2.

[16] Ciais (n 13).

[17] See generally: Katharine L Ricke and Ken Caldeira, 'Maximum warming occurs about one decade after a carbon dioxide emission' (2014) 9 Environ Res Lett 124002; Kirsten Zickfeld and Tyler Herrington, 'The time lag between a carbon dioxide emission and maximum warming increases with the size of the emission' (2015) 10 Environ Res Lett 031001.

[18] Richard J Lazarus, 'Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future' (2009) 94 Cornell LR 1153, 1164-1166.

[19] Lee Godden and Jacqueline Peel, *Environmental Law: Scientific, Policy and Regulatory Dimensions* (OUP 2009) 207-209.

natural deaths per year without suffering harm to the population as a whole. A river system is able to tolerate a certain level of pesticide runoff without an adverse impact. Some thresholds are set by regulation: air quality is only considered harmful to human health if pollutants reach a certain concentration sustained over a set period of time. Due to the regenerative effect of many systems, the continuation of an activity will not lead to increasing levels of environmental harm. A species can tolerate some non-natural deaths each year. Air pollutants are washed out in precipitation events and so do not concentrate in the atmosphere even with constant emissions. Climate change is different. The extent of warming the Earth will experience is a function of the cumulative total of greenhouse gases in the atmosphere.[20] Every additional tonne makes the situation worse.

Committed to the Past, but not the Future

It is important to distinguish between the irreversibility of the effect of CO_2 once released and the extent to which further warming can be avoided.[21] To do so requires an understanding about how we use the concept of committed warming.[22] To start with, let's assume all greenhouse gas and aerosol emissions ceased today. How much warming is society committed to due to the irreversible effects of CO_2? In the short-term (i.e. the next decade), the answer is a few tenths of a degree (0.25-0.5°C) of

[20] Myles R Allen and others, 'Warming caused by Cumulative Carbon Emissions towards the Trillionth Tonne' (2009) 458 Nature 1163; H Damon Matthews and others, 'The Proportionality of Global Warming to Cumulative Carbon Emissions' (2009) 459 Nature 829.

[21] H Damon Matthews and Susan Solomon, 'Irreversible Does Not Mean Unavoidable' (2013) 340 Science 438.

[22] Bill Hare and Malte Meinshausen, 'How Much Warming are we Committed to and How Much can be Avoided?' (2006) 75 Climatic Change 111.

additional warming.[23] After that peak, temperatures would begin a slow decline, returning to today's level of warming over the next two centuries. Aerosols are included in this thought experiment as they often go hand in hand with the activities that result in greenhouse gas emissions. Aerosols have a cooling effect and thus currently mask some of the warming that would otherwise already have been experienced. Thus, the small increase in temperature above present levels is due to the removal of the masking effect of aerosols, rather than any delay in the climate system. In essence, the present global mean temperature is the level of warming to which society has already committed itself to due to its past actions. This committed warming is referred to as the 'zero emissions commitment'.[24] It is irreversible from the perspective of the natural carbon cycle as discussed above.[25]

Of course, ceasing all emissions today is unlikely to occur; therefore, society will experience some further warming in the future due to the continuation of GHG emissions. How much more depends on how quickly emissions can be phased out. The inertia here is not climatic, but societal, and the rate of decarbonisation depends on social, economic and technological conditions and assumptions.[26] Studies have explored the extent of the commitment under various assumptions, such as, no early

[23] H Damon Matthews and Kirsten Zickfeld, 'Climate Response to Zeroed Emissions of Greenhouse Gases and Aerosols' (2012) 2 Nature Climate Change 338. See also: Matthew Collins, Reto Knutti and others, 'Long-term Climate Change: Projections, Commitments and Irreversibility' in Thomas F Stocker and others (eds), *Climate Change 2013: The Physical Science Basis* (CUP 2013) 1104, 1106-1107.

[24] Collins, Knutti and others (n 23) 1104.

[25] The only way present warming can be lowered is through widespread technological intervention to actively remove GHG emissions from the atmosphere and sequester these emissions underground, a process referred to as bio-energy carbon capture and storages. See generally: Jasmin Kemper, 'Biomass and Carbon Dioxide Capture and Storage: A Review' (2015) 40 International Journal of Greenhouse Gas Control 401.

[26] Hare and Meinshausen (n 22) 116.

retirement of existing energy and transport infrastructure.[27] A key finding is that the greatest portion of this societal commitment derives from the infrastructure that we have yet to build and not that which is already built.[28] Some scientists have called for this type of commitment to be reflected in the GHG emissions accounting of new fossil fuel-burning power stations and the development of new reserves, like coal mines.[29]

There is a third form of commitment and the one which has caused the most confusion. It evaluates the extent of the warming to which society is already committed by holding the composition of the atmosphere constant.[30] Under this approach, it is estimated that a further 0.6°C of warming is expected by 2100.[31] GHG emissions are not assumed to go to zero, but remain at some unknown level. As the natural carbon cycle would otherwise begin to remove CO_2 from the atmosphere, some GHG emissions are required to keep the composition of the atmosphere constant. It is beyond the scope of this thesis to explore the origins behind this approach, however, it must be noted that the ultimate objective of the Framework Convention on Climate Change,

[27] Steven J Davis, Ken Caldeira, H Damon Matthews, 'Future CO_2 Emissions and Climate Change from Existing Energy Infrastructure' (2010) 329 Science 1330. A related branch of research looks at the issue in terms of the extent of the emissions budget that is consumed in relation to an adopted temperature limit: Céline Guivarch and Stéphane Hallegatte, 'Existing infrastructure and the 2°C target' (2011) 109 Climatic Change 801; Christoph Bertram and others 'Carbon lock-in through capital stock inertia associated with weak near-term climate policies' (2015) 90 Technological Forecasting and Social Change 62.

[28] Davis (n 27).

[29] Steven J Davis and Robert H Socolow, 'Commitment accounting of CO2 emissions' (2014) 9 Environ Res Lett 084018; H Damon Matthews, 'A growing commitment to future CO_2 emissions' (2014) 9 Environ Res Lett 111001

[30] Collins and others (n 23) 1103.

[31] James Hansen and others, 'Earth's Energy Imbalance: Confirmation and Implications' (2005) 308 Science 1431.

adopted in 1992, is to stabilize the *concentration* of GHG emissions at a level that would avoid dangerous climate change.[32]

The papers adopting this approach used terminology like 'unrealized warming',[33] warming 'in the pipeline'[34] or 'guarantee[d] continued warming'[35] or the 'extreme lower bound' of climatic changes to come.[36] While the intention of the authors of these papers was to prompt a policy response,[37] the language of inevitability feeds into a narrative of the futility of reducing emissions since society is committed to warming regardless or that climate harm will only occur at some (distant) point in the future.[38] In response, some have argued that the zero emissions approach better represents the floor to which society is committed and should be taken as the baseline against which to compare harm from future emissions.[39] There is no warming 'in the pipeline', no commitment to future warming in a geophysical sense. The extent to which society is committed to future warming is entirely a matter of choice and depends on decisions taken today.

[32] United Nations Framework Convention on Climate Change (adopted 4 June 1992, entered into force 21 March 1994) UNTC XXVII.7 (UNFCCC), art 2.

[33] J Hansen and others, 'Climate Response Times: Dependence on Climate Sensitivity and Ocean Mixing' (1985) 229 Science 857.

[34] Hansen and others (n 31).

[35] TML Wigley, 'The Climate Change Commitment' (2005) 307 Science 1766, 1769.

[36] ibid.

[37] Hansen (n 33) 857: "This yet to be realized warming calls into question a policy of "wait and see" regarding the issue of how to deal with increasing atmospheric carbon dioxide and other trace gases"; Wigley (n 35) 1766: "Avoiding these changes [in temperature] requires, eventually, a reduction in emissions to substantially below present levels."

[38] H Damon Matthews and Andrew J Weaver, 'Committed Climate Warming' (2010) 3 Nature Geoscience 142; Ricke and Caldeira (n 17).

[39] Matthews and Zickfeld (n 23).

I do not wish to suggest that any of the judges involved in the Alpha case or other climate cases have been mistaken in his or her views about the concept of committed warming specifically. In fact, the concept was not even discussed. Rather my interest in this concept is that it illustrates that even those who work directly on climate change have difficulty in unpacking some of the assumptions made about the future. It is therefore not a stretch to imagine that deciding on possible future worlds, against which to evaluate the impact of a mine, may have proven problematic in a legal setting. The concept, in its zero emissions form, also reinforces the title of the thesis - that the future is not inevitable - but one of choice.

In summary, the only warming to which society has already committed itself is that associated with past actions. The extent of future warming is a function of the amount of CO_2 that society decides to release. Every additional tonne will have an immediate and irreversible effect on the climate. This physical effect is important to the discussion of what will happen in the 'actual' world in which the mine is approved, while the cumulative effect is important for considering what it means to protect the environment, a key objective of many environmental protection statutes.

Climate Policy

The United Nations Framework Convention on Climate Change, the Kyoto Protocol and the Paris Agreement, agreed in 1992, 1997 and 2015 respectively, are the three major instruments through which the international community has sought to respond to anthropogenic climate change.[40] The ultimate objective of the Convention is to

[40] UNFCCC (n 32); Kyoto Protocol to the United Nations Framework Convention on Climate Change (adopted 11 December 1997, entered into force 16 February 2005) UNTC XXVII.7.a; Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) UNTC XXVII.7.d. See generally:

stabilize: 'greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.'[41] Binding emissions reduction targets were adopted for developed countries under the Kyoto Protocol, pursuant to that objective. The Protocol has been superseded by the Paris Agreement, which has near global participation, and under which all parties agreed to take action on GHG emissions.[42]

To further the Convention's objective of avoiding 'dangerous' anthropogenic climate change, the Paris Agreement aims to limit global warming above pre-industrial levels to 'well below' 2°C.[43] To respect this temperature limit, under Article 4 countries agreed to 'aim to' reach a peak in global GHG emissions 'as soon as possible', followed by 'rapid reductions' 'so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century'.[44] Put differently, before 2100, global GHG emissions should be reduced to net zero emissions. This commitment is in line with what the

Daniel Bodansky, 'The United Nations Framework Convention on Climate Change: A Commentary' (1993) 18 YJIL 451; Sebastian Oberthür and Hermann E Ott, 'The Kyoto Protocol: International Climate Policy for the 21st Century' (Springer 1999); Daniel Klein and others (eds), *The Paris Agreement on Climate Change: Analysis and Commentary* (OUP 2017).

[41] UNFCCC, art 2.

[42] Donald Trump has indicated his intention to withdraw from the Agreement in June 2017: Office of the Spokesperson 'Communication Regarding Intent to Withdraw from Paris Agreement' (US Department of State, 4 August 2017), <https://www.state.gov/r/pa/prs/ps/2017/08/273050.htm> accessed 8 January 2018; Paris Agreement, art 4(2), (4). Developed countries will continue with absolute reductions in emissions, while less developed countries may begin by limiting their emissions.

[43] Paris Agreement, art 2(a). The Earth has already warmed 1°C since the Industrial Revolution: Climate Analytics, 'Global Warming Reaches 1C above preindustrial, warmest in more than 11,000 years' (undated) <http://climateanalytics.org/hot-topics/global-warming-reaches-1c-above-preindustrial-warmest-in-more-than-11000-years.html> accessed 8 January 2018.

[44] Paris Agreement, art 4(1).

IPCC says is necessary in order to have a chance of respecting the 2°C temperature limit.[45]

For the longest time, Australia was viewed as a laggard on climate policy by the international community.[46] It followed the lead of the United States and did not ratify the Kyoto Protocol, even after securing a generous emissions reduction target.[47] This lack of action on climate change is one of the reasons why Australian environmental groups decided to pursue legal avenues.[48] The first climate case was brought in 1994, with a steady stream of cases from the mid-2000s to the present.[49] A change in federal leadership, with the defeat of the Howard Government in 2007, ushered in a new approach to climate policy.[50] The country ratified the Kyoto Protocol and adopted federal carbon pricing, though not without difficulty.[51] Federal carbon pricing has since been repealed following another change of government in 2013.[52] Australia signed the

[45] Leon Clarke, Kejun Jiang and others, 'Assessing Transformation Pathways' in Ottmar Edenhofer and others (eds), *Climate Change 2014: Mitigation of Climate Change* (CUP 2014) 431.

[46] William Hare, 'Australia and Kyoto: In or Out? (2001) 24 UNSWLJ 556.

[47] Clive Hamilton and Lins Vellen, 'Land-use in Australia and the Kyoto Protocol' (1999) 2 Environmental Science and Policy 145.

[48] Stephanie Long, 'Could litigation provide equity where the Kyoto Protocol is failing?' 29 AltLJ 92. See generally: Chris Hilson, 'New Social Movements: The Role of Legal Opportunity' (2002) 9 Journal of European Public Policy 238.

[49] *Greenpeace Australia v Redbank Power Company* (1994) 86 LGERA 143; *Australian Conservation Foundation v Minister for Planning* [2004] VCAT 2029; *Gray v Minister for Planning* [2006] NSWLEC 720; *Wildlife Preservation Society of Queensland Proserpine/Whitsunday Branch v Minister for the Environment & Heritage* [2006] FCA 736; *Anvil Hill Project Watch Association v Minister for the Environment and Water Resources* [2007] FCA 1480; *Re Xstrata Coal Queensland* [2007] QLRT 33.

[50] Andrew Macintosh, Deb Wilkinson and Richard Denniss, 'Climate Change' in Chris Aulich and Mark Evans (eds), *The Rudd Government: Australian Commonwealth Administration 2007-2010* (ANU E Press 2010).

[51] Macintosh, Wilkinson and Denniss (n 50); Kate Crowley, 'Pricing Carbon: The Politics of Climate Policy in Australia' (2013) 4 WIREs Climate Change 603.

[52] Kate Crowley, 'Up and Down with Climate Politics 2013-2016: The Repeal of Carbon Pricing in Australia (2017) 8 WIREs Climate Change e458.

Paris Agreement on Earth Day 2016 and ratified the agreement in November of that year. It has adopted an emission reduction target of 26-28% below 2005 levels by 2030.[53] For present purposes, it is Australia's ratification of the Paris Agreement, with its net zero goal, rather than the country's 2030 target, that is most significant. It provides context for the interpretation of the Queensland legislation under which the mine is assessed.

Methods

A Comparative 'Key'

Drawing comparisons within a legal system can be as enlightening as between different systems.[54] In this thesis, I draw a comparison between the legal domains of negligence and homicide and the administrative law/environmental planning context in which GHG emitting projects are evaluated. The unit of comparison is the approach taken to the construction of a hypothetical world and the relevance of standby factors to the legal analysis. By standby factor,[55] I mean a factor that has the potential to cause the same harm as the immediate factor considered in the legal analysis. In this case, coal from another mine is the standby factor as it has the potential to contribute the same amount to global GHG emissions as coal from the Alpha mine.

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[53] *Australia's Intended Nationally Determined Contribution to a new Climate Change Agreement* (Commonwealth of Australia, August 2015), <http://www4.unfccc.int/ndcregistry/pages/Party.aspx?party=AUS> accessed 8 January 2018.

[54] Matthew Dyson, 'Ligations Divide and Conquer: Using Legal Domains in Comparative Legal Studies' in Geneviève Helleringer and Kai Purnhagen (eds), *Towards a European Legal Culture* (Nomos 2014); Matthew Dyson (ed), *Comparing Tort and Crime: Learning from across and within Legal Systems* (CUP 2015).

[55] The 'standby' terminology is drawn from Uwe Murmann, 'Problems of Causation with Regard to (Potential) Actions of Multiple Protagonists' (2014) 12 Journal of International Criminal Justice 283.

To understand the value of this comparison it is necessary to say a few words about how one can interpret the finding of the Land Court that the Alpha mine will have no impact on global GHG emissions. The statement can be interpreted in one of two ways. It can be a causal statement: the mine will have no effect on global greenhouse gas emission levels. Alternatively, it can be a deliberative one: the mine will have an effect if it proceeds, however, because it has also been found that those emissions would occur in the absence of the mine, due to the demand for coal, it is decided that no weight should be assigned to the emissions (and impacts) originating from the mine.[56] If the statement is causal, our analytical interest is in the construction of the hypothetical world against which the presence and absence of the mine is compared. If the statement is deliberative, our interest is in the permissibility of considering standby factors as part of that analysis.

Analyzing the law of negligence and homicide helps with the task of examining both the causal and the deliberative interpretations of the no net impact argument. Both areas of law require that the tortious or criminal act or omission be a factual cause of the wrongdoing. Exploring how a factual connection is determined in these areas assists in exposing the contrasting approaches adopted by the parties in the Alpha case. These two areas of law also have different approaches to the relevance of standby factors to the broader legal analysis, which helps frame the discussion of the relevance of standby factors in an environmental protection context. How the laws of negligence and homicide address these two matters is the subject of Chapter 2.

[56] On the deliberative nature of Australian administrative decision-making, see Elizabeth Fisher, *Risk Regulation and Administrative Constitutionalism* (Hart Publishing 2010) 127-130.

The comparison of the operation of causation has received some attention from scholars. Steel compared its operation in tort and criminal law finding significant unity in the approaches.[57] Burns and others have explored the comparison between tort and criminal law in the Australian context.[58] While Barnett has argued that there is value in analyzing causal and remoteness rules in common law and equity.[59] But there has been little discussion of causation in an environmental planning context.[60] Some judges have expressed reservations about importing private law concepts about causation into an administrative law setting.[61] However, those judges accepted that there was a need for a factual connection between project and impact.[62] The comparison developed in this thesis is not with the operation of the concept of causation in negligence and homicide, writ large, which is focused on attributing liability. It is solely focused on the factual connection between acts or omissions and the harm caused and the construction of the hypothetical world against which to make the comparison as well as the role of standby factors.

[57] Sandy Steel, 'Causation in Tort Law and Criminal Law: Unity or Divergence?' in Matthew Dyson (ed), *Unravelling Tort and Crime* (CUP 2014).

[58] Kylie Burns and others, 'Australia: a land of plenty (of legislative regimes)' in Matthew Dyson (ed), *Comparing Tort and Crime: Learning from across and within Legal Systems* (CUP 2015) 389-390.

[59] Katy Barnett, 'Equitable compensation and remoteness: not so remote from the common law after all' (2014) 38 UWALR 48.

[60] But see Meredith Gibbs, 'Considering Cumulative and Indirect Greenhouse Impacts: How far should Decision Makers go?' in Wayne Gumley and Trevor Daya-Winterbottom (eds), *Climate Change Law: Comparative, Contractual and Regulatory Considerations* (Thomson Reuters 2008).

[61] *Gray* (n 49) [83]; *Wildlife Preservation Society* (n 49) [57]; *Anvil Hill* (n 49) [39]. See also Lee Godden and Jacqueline Peel, 'The *Environment Protection and Biodiversity Conservation Act 1999* (Cth): Dark Sides of Virtue' (2007) 31 Melbourne University LR 106,128 (who argue that tortious concepts of causation are 'a backward step' for environmental planning legislation. Their concern is more with the extent of proof required to establish a link, which is not a concern here.)

[62] *Anvil Hill* (n 49) [34].

It must be emphasized that this thesis does not adopt a comparative *approach*. If that were the case, one would expect Chapter 3 to address how the construction of hypothetical worlds *is* done and answer the question of whether standby factors *are* relevant to environmental law. This descriptive account of the law would be followed by an analysis of the similarities and differences in the three areas of law. Chapter 3 does not do this. Rather it uses the insights drawn in Chapter 2 as a *key* to unlock or reveal the approaches adopted by the parties to the Alpha case, inform the analysis and to support a prescriptive claim regarding how the construction of hypothetical future worlds ought to be done in environmental law.

Case Selection and Analysis

The Alpha case was selected as the focus of the analysis because it is the case which has received the most judicial attention on the question of the mine's contribution to anthropogenic climate change. The issues raised in Alpha are not, however, limited to it. A number of recent decisions by the Land Court have also found that approving other mines will not have an impact on GHG emissions due to coal market demand.[63] Furthermore, the Alpha mine is one of seven proposed mines to begin exploitation of the Galilee Basin, an area heretofore untouched by coal mining, making more objections likely.[64] The continued acceptance by the Court that new coal mines will have no impact on global emissions will significantly affect how potential contributions to anthropogenic climate change are assessed in the state going forward.

[63] *Xstrata Coal Queensland v Friends of the Earth* [2012] QLC 013; *Adani Mining Pty Ltd v Land Services of Coast and Country Inc* [2015] QLC 48; *New Acland Coal Pty Ltd v Ashman (No 4)* [2017] QLC 24.

[64] *Hancock* (n 2) [2], [46]-[47].

Reliance on the coal market demand argument is not limited to Queensland. It was also adopted by the Commonwealth Minister of the Environment in his assessment of a Queensland coal mine under federal environmental protection legislation.[65] Judicial review of this decision by the Federal Court was sought by another environmental group and an appeal considered by the Full Federal Court, both of which upheld the approach adopted by the Minister.[66] This case is briefly considered in Chapter 3 as well.

The analysis in Chapter 3 is based on the written submissions of parties, expert reports and judgments.[67] It also considered the transcript of the High Court hearing of the application for special leave, which is publicly available. Unfortunately, the cost of obtaining transcripts foreclosed any analysis of the oral submissions before the lower Courts. There is no provision under the Recording of Evidence Regulation 2008 (Qld) to permit access to transcripts which have already been prepared.

To properly consider the relevance of what might otherwise occur, the subject of Chapter 4, it is necessary to broaden the scope of the analysis beyond the Alpha case and to look at the evaluation of GHG emitting developments in other settings. Chapter 4 therefore draws from both other federal and state climate cases and departmental assessments.

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[65] Greg Hunt, 'Statement of Reasons' (Carmichael Coal Mine and Rail Infrastructure Project, Minister of the Environment (Cth), EPBC2010/5736, 14 October 2015).

[66] *Australian Conservation Foundation v Minister for the Environment* [2016] FCA 1042 ('ACF first instance'); *Australian Conservation Foundation v Minister for the Environment and Energy* [2017] FCAFC 134 ('ACF Full Federal Court').

[67] Many of the submissions and expert reports are publicly available at: Environmental Law Australia, 'Alpha Coal Mine Case' <http://envlaw.com.au/alpha-coal-mine-case/> accessed 8 January 2018.

Thesis Overview

Chapter 2 analyzes how the law of negligence and homicide have approached the construction of the hypothetical world against which to assess the causal effect of a tortious or criminal act or omission, as well as the role standby factors play in the analysis. It demonstrates that standby factors have no role to play in identifying a factual connection between an act or omission and harm. In homicide, these factors have no role in the legal analysis. However, in negligence, what might otherwise have occurred may be relevant in the assessment of damages. Chapter 2 also discusses the greater role that counterfactual reasoning plays in proving a causal connection in cases of omission compared with positive acts.

Chapter 3 analyzes the Alpha case at each stage of its judicial treatment. It outlines how the parties have adopted contrasting approaches to establishing factual causation and argues that the Coast and Country Association of Queensland's approach is correct. Put differently, it illustrates how a finding that the mine will have no impact, as a causal statement, adopts the incorrect approach to establishing a factual connection.

Chapter 4 addresses the deliberative interpretation of a finding of no impact. In order to establish a material error of law, it must be established that it is impermissible, pursuant to the statutory framework under which the mine is evaluated, to consider what might otherwise occur. The Chapter makes the argument for why what might otherwise occur ought to be irrelevant to an assessment of the mine. It also considers the limited prospects of success of such an argument, given the current tide of judicial opinion to the contrary.

Conclusion remarks summarize the arguments made.

Contribution to the Literature

Climate change litigation is a relatively new phenomenon both in Australia and globally. While a handful of cases arose in the 90s,[68] litigation has grown exponentially since the mid-2000s.[69] Climate cases have been brought in two dozen countries.[70] Australia is the second most litigious jurisdiction after the USA.[71] The legal issues and subject matter of the cases is diverse. Some of the most high profile cases have been public nuisance or public trust cases in the USA and now the Netherlands.[72] In Australia, the vast majority of cases are judicial or merits review of regulatory approvals of GHG emission intensive projects on the basis of their contributions to anthropogenic climate change[73] or other developments for failing to consider the

[68] *City of Los Angeles v National Highway Traffic Safety Administration* 912 F 2d 478 (DC Cir 1990); *Redbank* (n 49).

[69] D Markell and JB Ruhl, 'An Empirical Assessment of Climate Change in the Courts: A New Jurisprudence or Business as Usual?' (2012) 64 Fla LR 15; UNEP, *The Status of Climate Change Litigation: A Global Review* (UNEP 2017); 'U.S. Climate Change Litigation' (Sabin Center for Climate Change Law 2018) <http://climatecasechart.com/us-climate-change-litigation/>; 'Non-U.S. Climate Change Litigation' (Sabin Center for Climate Change Law 2018) <http://climatecasechart.com/non-us-climate-change-litigation/> accessed 6 January 2018.

[70] Markell and Ruhl (n 69), Sabin Center (n 69), UNEP (n 69); R Lord and others (eds), *Climate Change Liability: Transnational Law and Practice* (CUP 2012).

[71] UNEP (n 69) 11.

[72] *California v General Motors* 2007 WL 2726871 (ND Cal); *Comer v Murphy Oil USA* 585 F 3d 855 (2009), 607 F 3d 1049 (2010); *Connecticut v American Electric Power* 131 S Ct 2527 (2011); *Native Village of Kivalina v ExxonMobil* 696 F 3d 849 (9th Cir 2012); Our Children's Trust <https://www.ourchildrenstrust.org/us/federal-lawsuit/> accessed 8 January 2018; *Urgenda Foundation v The State of the Netherlands (Ministry of Infrastructure and the Environment)* ECLI:NL:RBDHA:2015:7145.

[73] (nn 1, 2, 4, 49, 63, 66); *Thornton v Adelaide Hills Council* (2006) 151 LGERA 1; *Drake-Brockman v Minister for Planning* [2007] NSWLEC 490; *Your Water Your Say v Minister for the Environment, Heritage and the Arts* [2008] FCA 670; *Gray v Macquarie Generation* [2010] NSWLEC 34; *Haughton v Minister for Planning* [2011] NSWLEC 217; *Hunter Environment Lobby v Minister for Planning* [2011] NSWLEC 221 & *Hunter Environment Lobby v Minister for Planning* (No. 2) [2012] NSWLEC 40; *Dual Gas v Environment Protection Authority* [2012] VCAT 308.

impacts of anthropogenic climate change, especially sea level rise, on the project ('adaptation cases').[74] The issue of climate change has also arisen in the approval of wind farms,[75] the sentencing of protesters,[76] refugee claims,[77] and others. The focus here is solely on objections to projects that contribute to anthropogenic climate change.

The climate litigation scholarship has grown in lock step with the expanding case law. It is not possible to do justice to its breadth of consideration here. Scholars have focused on mapping and classifying current case law,[78] exploring hypothetical private[79] or international law[80] claims, providing individual case commentaries,[81]

[74] See e.g. *Walker v Minister for Planning* [2007] NSWLEC 741; *Gippsland Coastal Board v. South Gippsland SC & Ors (No. 2)* [2008] VCAT 1545; *Aldous v Greater Taree City Council* [2009] NSWLEC 17.

[75] See e.g. *Taralga Landscape Guardians Inc v. Minister for Planning* [2007] NSWLEC 59.

[76] *Wenny Theresia v DPP* [2007] NSWDC 237; *R v Moylan* [2014] NSWSC 944.

[77] *0907346* [2009] RRTA 1168; *1004726* [2010] RRTA 845; *1207806* [2012] RRTA 643.

[78] For early surveys see e.g. J Gupta, 'Legal Steps Outside the Climate Convention: Litigation as a Tool to Address Climate Change' (2007) 16 RECIEL 76; for more comprehensive ones see Markell and Ruhl (n 69); Sabin Center (n 69); Lord and others (n 70); for typologies, see e.g. NS Ghaleigh, ''Six Honest Serving-Men': Climate Change Litigation as Legal Mobilization and the Utility of Typologies' (2010) 1 Climate Law 31.

[79] DA Grossman 'Warming Up to a Not-So-Radical Idea: Tort-based Climate Change Litigation' (2003) 28 Colum J Envtl L 1; Nicola Durrant, 'Tortious Liability for Greenhouse Gas Emissions? Climate Change, Causation and Public Policy Considerations (2007) 7 Qld U Technology L & Justice J 403; Peter Cashman and Ross Abbs, 'Liability in Tort for Damage Arising from Human-Induced Climate Change' in Rosemary Lyster (ed) *In the Wilds of Climate Law* (Australian Academic Press 2010) 235; G Kaminskaité-Salters, *Constructing a Private Climate Change Lawsuit under English Law: A Comparative Perspective* (Kluwer Law International 2010).

[80] Roda Verheyen, *Climate Change Damage and International Law: Prevention Duties and State Responsibility* (Martinus Nijhoff Publishers 2005).

[81] Charles Berger, 'Hazelwood: A new lease on life for a greenhouse dinosaur', Kirsty Ruddock, 'The Bowen Basin Coal Mine Case: Climate Law in the Federal Court', David Farrier, 'The Limits of Judicial Review: Anvil Hill in the Land and Environment Court', Chris McGrath, 'The Xstrata Case: Phyrrhic Victory or Harbinger' all in Tim Bonyhady and Peter Christoff, *Climate Law in Australia* (The Federation Press 2007).

reimagining actual cases from environmental[82] or feminist perspectives,[83] assessing litigation's direct or indirect regulatory impact,[84] exploring the performative and/or disruptive nature of litigation,[85] examining the sentencing of climate protestors,[86] or discussing the role of the courts in adjudicating climate change.[87] Scholars have also sought to address particular legal hurdles faced by litigants, such as causation.[88] Others have begun the empirical work necessary to support private law claims through compiling GHG inventories of the 'carbon majors', those corporate or state-led entities

[82] Felicity Deane and Katie Woolaston, 'Coal mines and wild law: A judgment for the climate'; Julia Dehm, 'Quantifying the environmental impact of coal mines: Lessons from the Wandoan case, Xstrata Coal Queensland Pty Ltd v Friends of the Earth Brisbane Co-Op'; Kate Galloway, 'Coast and Country Association of Queensland Inc v Minister for Environment and Heritage Protection' all in Nicole Rogers and Michelle Maloney (eds), *Law as if Earth really mattered - The wild law judgment project* (Routledge 2017).

[83] Jacqueline Peel, '*Wildlife Preservation Society of Queensland Proserpine/Whitsunday Branch Inc v Minister for the Environment and Heritage* [2006] FCA 736 Addressing Climate Change Inequities: The Contribution of a Feminist Judgment' and Lee Godden 'Judgment' in Heather Douglas and others (eds), *Australian Feminist Judgments: Righting and Rewriting Law* (Hart Publishing 2014).

[84] WCG Burns and HM Osofsky (eds), *Adjudicating Climate Change: State, National, and International Approaches* (CUP 2009); J Lin, 'Climate Change and the Courts' (2012) 32 Legal Studies 35; Jacqueline Peel and Hari M Osofsky, *Climate Change Litigation: Regulatory Pathways to Cleaner Energy* (CUP 2015).

[85] Nicole Rogers, 'Climate Change Litigation and the Awfulness of Lawfulness' (2013) 38 AltLJ 20; Elizabeth Fisher, Eloise Scotford and Emily Barritt, 'The Legally Disruptive Nature of Climate Change' (2017) 80 MLR 173.

[86] Michelle Macdonald, 'Environmental Activism via Direct Action: The case of R v Moylan (2014) 29 Australian Environment Review 278.

[87] See e.g. Brian J. Preston, 'The Contribution of the Courts in Tackling Climate Change' (2016) 28 JEL 11; Philippe Sands, 'Climate Change and the Rule of Law: Adjudicating the Future in International Law' (2016) 28 JEL 19; D Farber, 'Preventing Policy Default: Fallbacks and Fail-safes in the Modern Administrative State' (2012) 121 Yale LJ Online 499; R Epstein, 'Beware of Prods and Pleas: A Defense of the Conventional Views on Tort and Administrative Law' (2011) 121 Yale LJ Online 317; B Ewing and D Kysar, 'Prods and Pleas: Limited Government in an Era of Unlimited Harm' (2011) Yale LJ 350; D Gifford, 'Climate Change and the Public Law Model of Torts: Reinvigorating Judicial Restraint Doctrines' (2010) 62 SCLR 201.

[88] Duffy (n 8). Though causation is often addressed as part of a broader analysis: J Smith and D Shearman, *Climate Change Litigation: Analysing the Law, Scientific Evidence & Impacts on the Environment, Health & Property* (Presidian 2006); D Kysar, 'What Climate Change Can Do About Tort Law' (2011) 41 Envtl L 1.

with significant historic emissions.[89] A significant focus of the scholarship in Australia has been on the adaptation cases.[90]

Writing back in 2007 about the emergence of a 'climate law', Bonyhady called for an assessment of the 'common features' of the case law: "Although the outcomes in particular cases have been shaped if not determined by specific legislation and policies, we need to identify issues, principles and approaches that apply across the climate law domain in Australia."[91] Not surprisingly, recent scholarship has focused on the Queensland Land Court cases, evaluating the progress made across the cases,[92] the role of scientific evidence,[93] reimaging individual cases from an environmental (wild law) perspective[94] or evaluating how the impact of GHG emission are assessed from a causal standpoint.[95] The contribution of this thesis is to reveal and explain the contrasting approaches by the parties through a comparison with other areas of law. This thesis

[89] Richard Heede, 'Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854-2010' (2014) 122 Climatic Change 229.

[90] Jacqueline Peel and Lee Godden, 'Planning for Adaptation to Climate Change: Landmark Cases from Australia' (2009) 9 SDLP 37; Brian J Preston, 'The Role of Courts in Relation to Adaptation to Climate Change' in Tim Bonyhady, Andrew Macintosh and Jan McDonald, *Adaptation to Climate Change: Law and Policy* (Federation Press 2010); Bruce Thom, 'Climate Change, Coastal Hazards and the Public Trust Doctrine' (2012) 8 Macquarie JICEL 21; Jacqueline Peel and Hari M. Osofsky, 'Sue To Adapt?' (2015) 99 Minnesota LR 2177, 2211-2246; Marion Manifold and Brad Jessup, 'Shifts in Victorian Climate Law and the Planning System: Intersected Views from the Field and Academia' (2016) 39 UNSWLJ 1652. See also: Tayanah O'Donnell and Louise Gates, 'Getting the Balance Right: A renewed need for the Public Interest Test in addressing Coastal Climate Change and Sea Level Rise' (2013) 30 EPLJ 220; Justine Bell and Mark Baker-Jones, 'Retreat from retreat - the backward evolution of sea-level rise policy in Australia, and the implications for local government' (2014) 19 LGLJ 23.

[91] Tim Bonyhady, 'The new Australian climate law' in Tim Bonyhady and Peter Christoff (eds), *Climate Law in Australia* (The Federation Press 2007) 8, 13.

[92] Justine Bell-James and Sean Ryan, 'Climate Change Litigation in Queensland: A Case Study in Incrementalism' (2016) 33 EPLJ 515.

[93] Nicole Rogers, 'Making Climate Science Matter in the Courtroom' (2017) 34 EPLJ 475.

[94] Galloway (n 82).

[95] Kane Bennett, 'Australian climate change litigation: Assessing the impact of carbon emissions' (2016) 33 EPLJ 538.

also addresses the relevance of considering what might otherwise occur to the broader deliberative process characteristic of administrative decision-making. This latter aspect of the case has not received any scholarly attention.

This chapter has outlined the key elements of climate science and policy relevant to the broader context of the Alpha case, the methods and approach used in the research, and the contribution it will make to the literature on climate litigation. We now turn our attention to the law of negligence and homicide.

CHAPTER 2:

HYPOTHETICAL WORLDS AND STANDBY FACTORS IN NEGLIGENCE AND HOMICIDE

This Chapter explores the role of counterfactual reasoning in the law of negligence and homicide. Specifically, it is interested in the relevance of standby factors (being factors capable of causing the same outcome), in either the establishment of a factual connection or elsewhere in the legal analysis, and the role counterfactual reasoning plays in proving a factual connection.[96] It will demonstrate that what might otherwise have happened due to standby factors is not relevant to establishing a factual connection in either the law of negligence or homicide. It also plays no role in the imposition of criminal responsibility in homicide. However, it is relevant to the assessment of damages in negligence. These differences can be explained by the different purposes that these areas of law seek to achieve: punishment of the individual and protection of society versus returning a victim to the position she would have been in absent the negligence. From an evidentiary perspective, I will show that there is a difference in the manner in which acts and omissions are proved, with counterfactual reasoning playing a much greater role in the case of omissions.

The value of drawing comparisons between the law of negligence, homicide and the Alpha case is in the insight it is able to reveal.[97] In Alpha, the miner argued that the GHG emissions from the coal mined would be emitted by coal from another source in the event that the Alpha mine was not approved. As there would be no difference in global GHG emissions, it could not be said that the project would cause any separate harm to the climate. Analyzing the differences in the role of counterfactual reasoning

[96] (n 55).

[97] Dyson (n 54).

to the legal analysis in negligence and homicide will help to clarify and explain the approaches taken by the litigants in the Alpha case as well as reveal the legal error in the reasoning of the Land Court, all of which is the subject of Chapter 3.

This Chapter is divided into three parts. Parts I and II address the relevance of standby factors to the legal analysis in the law of negligence and homicide respectively, while Part III examines the role of counterfactual reasoning in proving a causal connection.

The Role of Standby Factors in Negligence

Common Law vs Statute

Historically, the law of negligence was a creature of the common law, however, all states and territories undertook significant tort reform in the early 2000s.[98] At the time, the country was facing an insurance crisis and it was argued that these reforms were needed in response.[99] The effect of these reform efforts was to take what was a unified body of law across the country and introduce significant differences between the jurisdictions.[100]

[98] Civil Law (Wrongs) Act 2002 (ACT), Civil Liability Act 2002 (NSW), Civil Liability Act 2003 (Qld), Civil Liability Act 1936 (SA), Civil Liability Act 2002 (Tas), Wrongs Act 1958 (Vic), Civil Liability Act 2002 (WA). The Northern Territory only adopted reforms with respect to the calculation of damages: Personal Injuries (Liabilities and Damages) Act (NT). It continues to apply the common law with respect to causation and sees little value in adopting legislation which would only further diversify the law: Northern Territory Law Reform Committee, *Tort Law Reform in the Northern Territory* (No 41, Legislative Assembly of the Northern Territory 2014) 26.

[99] Danuta Mendelson, 'Australian tort law reform: Statutory principles of causation and the common law' (2004) 11 JLM 492.

[100] ibid.

With respect to legal causation, all jurisdictions required that the following elements be established:

- (a) that the negligence was a necessary condition of the occurrence of the harm (***factual causation***), and
- (b) that it is appropriate for the scope of the negligent person's liability to extend to the harm so caused (***scope of liability***).[101]

The differences among the jurisdictions relate to whether this requirement extends beyond negligence to other torts,[102] the extent of any exceptions to the necessity requirement for factual causation,[103] and how the hypothetical question of what a person harmed would have done in the absence of negligence should be evaluated.[104] These differences are largely irrelevant to the aspects of causation of interest here, which may still be treated as uniform among the jurisdictions, though where relevant they are noted in the discussion below. Changes were made to the assessment of damages, primarily in terms of imposing caps on awards, however, these are not central to the discussion below and so may be set aside.[105]

The common law approach to causation in Australia remains one of commonsense.[106] Quoting from Lord Reid, Mason CJ noted in *March v Stramare*:

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[101] CLA 2002 (NSW), s5D(1).

[102] Negligence: CLWA 2002 (ACT), s45; CLA 2002 (NSW), s5D; CLA 1936 (SA), s34; WA 1958 (Vic), s51. Most civil claim for damages: CLA 2003 (Qld), ss4(1), 11; CLA 2002 (Tas), ss10, 13. Liability for harm caused by fault: CLA 2002 (WA), ss5A, 5C.

[103] Exceptional: CLA 2002 (NSW), s5D(2); CLA 2003 (Qld), s11(2); CLA 2002 (Tas), s13(2). Appropriate: WA 1958 (Vic), s51(2); CLA 2002 (WA), 5C(2). The exception in ACT and South Australia is limited to the evidentiary challenge when only the risk of harm, rather than a contribution to harm, can be established: s45(2) and s34(2), respectively.

[104] CLA 2003 (Qld), s11(3); CLA 2002 (NSW), s5D(3); CLA 2002 (Tas) s13(3); WA 1958 (Vic), s51(3); CLA 2002 (WA), s5C(3). ACT and South Australia Acts do not address this matter.

[105] See e.g. CLWA 2002 (ACT), ch7; Personal Injuries Proceedings Act 2002 (Qld).

[106] The most frequently cited case is *March v E & MH Stramare* (1991) 171 CLR 506. The common sense approach to causation is not limited to the law of negligence and pre-dates this case: see e.g. *Royall v The Queen* [1991] HCA 27, *Campbell v The Queen* [1981] WAR 286. See also Margaret Beazley 'Damage' in Carolyn Sappideen and Prue Vines (eds), *Fleming's the Law of Torts* (10th edn, Thomson

"[t]he common law tradition is that what was the cause of a particular occurrence is a question of fact which "must be determined by applying common sense to the facts of each particular case"."[107] However, in recent years, the Australian High Court has repeatedly questioned whether common sense 'can provide a useful, still less universal, legal norm'[108] and that it could not be used without explaining and unpacking why a finding was, in fact, a matter of common sense.[109]

The differences, if any, between the statutory and common law approaches to causation is not entirely clear. The High Court has clarified that the common law concept includes two questions: "a question of historical fact as to how particular harm occurred; and a normative question as to whether legal responsibility for that particular harm occurring in that way should be attributed to a particular person", though noted that the distinct nature of these two inquiries had 'tended, by and large, to be overlooked in the articulation of the common law'.[110] Such an articulation, however, appears to be in contrast to the approach adopted by Mason CJ in *March*, who explicitly rejected the bifurcated approach.[111] In any event, the common law concept now appears to pose the same structured inquiry as required by statute. The High Court has also clarified that any assessment of the scope of liability should follow common law

Reuters 2011) [9.60]. For the evolution of the approaches taken to the concept of causation over the last century, see Keith Mason, 'Fault, causation and responsibility: Is tort law just an instrument of corrective justice?' in Ian Freckelton and Danuta Mendelson (eds), *Causation in Law and Medicine* (Ashgate 2002).

[107] *March* (n 106) 515.

[108] *Comcare v Martin* [2016] HCA 43 [42].

[109] *Wallace v Kam* [2013] HCA 19 [23].

[110] ibid [11].

[111] *March* (n 106) 515.

precedent until 'confronted and overruled'.[112] However, it has declined to decide whether establishing factual causation would differ under the statute or common law.[113] The present discussion proceeds on the basis of the statutory approach.

As the present focus is on the use of counterfactual reasoning and the relevance of standby factors, the discussion focuses on the first inquiry: establishing a factual connection. This is also the aspect of the concept most relevant to the assessment of environmental impact. The second inquiry is an entirely normative endeavour which seeks to limit liability. While consideration of environmental impacts will also require limits, I submit that these limits are determined by the relevant statute. Any reference to the concept of causation would only confuse, rather than clarify, the situation. I will return to this matter in Chapter 3, however, for now, the focus shall remain on factual causation.

The Nature of Necessity

The statutory requirement to establish factual causation is that the defendant's breach is a "necessary condition" of the plaintiff's harm.[114] Necessity is tested through the application of the 'but for' test.[115] The test requires a counterfactual comparison between a hypothetical world without the breach and the actual world with the breach. If the injury does not occur in the hypothetical world, then we are able to conclude that it was a necessary condition of the injury in the actual world. Put differently, *but for*

[112] *Wallace* (n 109) [22].

[113] *Adeels Palace Pty Ltd v Moubarak* [2009] HCA 48 [44]; *Strong v Woolworths Ltd* [2012] HCA 5 [28].

[114] CLA 2002 (NSW), s5D(1)(a); CLWA (ACT), s45(1)(a); CLA (Qld), s11(a)(a); CLA 1936 (SA), s34(1)(a); CLA 2002 (Tas), s13(1)(a); WA 1958 (Vic), s51(1)(a); CLA 2002 (WA), 5C(1)(a).

[115] *Strong* (n 113) [18]; *Wallace v Kam* (n 109) [16].

the defendant's breach, the plaintiff's injury would not have occurred. In exploring the relevance of standby factors, the first question to arise is whether such factors play any role in this counterfactual comparison for establishing factual causation? The answer is no.

Before addressing why that is so, it is useful to distinguish standby factors from other actual contributions to harm and the differences in the counterfactuals for each. One of the well-known limitations of the 'but for' test is its failure to identify factors as causes in cases where multiple independent and sufficient causes are present.[116] The classic example is two hunters A and B, who simultaneously and independently shoot a hiker in the woods, fatally injuring her. The acts of both hunters occur in the actual world, subtracting the act of one hunter from the counterfactual world still leaves the second hunter, her bullet and a dead hiker. Equally problematic for the 'but for' test are cases in which the contributions are both unnecessary and insufficient to cause injury on their own.[117] Imagine if harm will be caused to a river by 5 units of pollution, but 10 independent polluters each contribute one unit or a group of corporate executives vote unanimously to sell a product they knew to be toxic, though only a majority was required to pass the decision.[118] Again all of these contributions have occurred in the actual world, however, removing one unit of pollution or one vote from the hypothetical world will not change the outcome. The common law has long recognized the need for

[116] *Strong* (n 113) [18].

[117] Jane Stapleton, 'Unnecessary Causes' (2013) 129 LQR 39. No event is ever caused by one factor (a fire needs a match, oxygen, something to burn, etc), I use sufficiency here in the sense that the factor, along with these other background elements, is sufficient to cause the outcome.

[118] Drawing on examples given in Richard W Wright, 'Causation in Tort Law' (1985) 73 California LR 1735, 1793, Stapleton (n 117) 43-44 (drawing on the facts of a 1990 German Federal Supreme Court case). See also James G. Stewart, 'Overdetermined Atrocities' (2012) 10 Journal of International Criminal Justice 1189 (discussing examples of corporate decision-making to sell goods into apartheid South Africa).

an exception in cases of multiple sufficient causes and considers these to be causes of the outcome notwithstanding the failure of the 'but for' test.[119] The situation with respect to unnecessary and insufficient contributions is less clear.[120] It is unclear how such cases would be dealt with in a statutory context. However, some Civil Liability Acts allow for exceptions to the necessity requirement in 'exceptional' or 'appropriate' cases.[121]

The point for present purposes is that multiple sufficient causes or insufficient contributions all occur in the actual world. Standby factors do not occur in the actual world, but could or would have if the defendant's act or omission had not and thus could or would have resulted in the same harm. Standby factors have the potential to pre-empt the causal effect of the factor of interest. Are these factors also problematic for identifying the factual cause of an outcome?

If our task was to develop a metaphysical account of factual causation in which causation is reduced to counterfactual dependence,[122] then standby factors would cause a problem for identifying causes much in the same way that multiple sufficient causes or insufficient contributions do.[123] To modify the plot from the 2001 British murder

[119] *March* (n 106); *Chappel v Hart* (1998) 195 CLR 232 [116] (Hayne J considered two fires, instead of two hunters, each sufficient to cause damage to property, though both fires merge into one and cause the destruction); *Strong* (n 113) [28]. The Ipp Report considered that this common law exception was well-established and made no recommendation to modify it: DA Ipp and others, *Review of the Law of Negligence Final Report* (Commonwealth of Australia 2002)

[120] Stapleton (n 117) notes that there has been little judicial consideration of the issue.

[121] (n 103). The High Court noted the possibility of addressing this problem under these exceptions, however, did not need to decide the point in *Strong* (n 113) [26], [28].

[122] See generally: David Lewis, 'Causation' (1973) 70 Journal of Philosophy 556.

[123] Michael S Moore, *Causation and Responsibility: An Essay in Law, Morals, and Metaphysics* (OUP 2009) 419-425. Judges have long sought to distinguish the law's task in assessing causation from that of the philosophers: *The National Insurance Co of New Zealand Ltd v Espagne* (1961) 105 CLR 569, 591

mystery, *Gosford Park*, imagine a housekeeper at a grand country estate poisons the master of the house, however, if she had not, the valet would have stabbed him to death.[124] The stabbing is the standby factor, while the poisoning is the cause of death. However, in a hypothetical world without the poisoning, the Master still would have died due to the action of the valet. As the task here is not to provide such a metaphysical account of the operation of the concept of causation in law, but rather to approach the question from how the law operates in practice, these concerns may be set aside.

Standby factors do not pose a challenge to identifying factual causes because the counterfactual comparison is done with the benefit of hindsight.[125] The construction of the hypothetical world is constrained by what facts the law knows with hindsight. As Glanville Williams explained: "the imaginary subtraction of the alleged causal fact must not be accompanied by the invention of any other imaginary facts in its place, however likely it may be that such a replacement would have occurred in reality."[126] In the modified *Gosford Park* example, the stabbing did not occur in the actual world and thus cannot be added to the counterfactual. It is only the poisoning which must be subtracted and when that is done it is clear that the death would not have occurred.[127] A

[124] In the movie, the valet, played by Clive Owen, does, in fact, stab the (already) dead master.

[125] Jane Stapleton, 'An 'Extended But-For' Test for the Causal Relation in the Law of Obligations' (2015) 35 OJLS 697, 703-708. Steel agrees with Stapleton: (n 57) 243. The 'prism of hindsight' is problematic in instances when the establishment of a causal connection rests on what an individual would have done had the breach not occurred as there is the potential for singling out factors which were of little significance at the time: *Rosenberg v Percival* (2001) 205 CLR 434, 441 (Gleeson CJ). To account for the risk of hindsight bias, evidence from the individual is inadmissible unless unfavourable to her interests: see (n 104); Mendelson (n 99) 506-509.

[126] 'Causation in the Law' (1961) 19 CLJ 62, 72. In the case of omissions, it is necessary to allow the addition of an imaginary fact (the fulfilment of the breach) in order to determine whether a causal connection exists: 73.

[127] Stapleton, 'An 'Extended But-For' Test' (n 125) 703-4 discussing a comparable example.

factual cause is not simply a necessary condition for the outcome, but a necessary condition with the benefit of hindsight. Jane Stapleton refers to this as 'hindsight necessity'.[128]

There is little disagreement amongst scholars on this point.[129] However, three further lines of evidence can be drawn upon to support this view of how the law operates. The first is intuition.[130] No one would disagree with the statement that the housekeeper is the cause of the master's death. Second, judges do not identify pre-emption as one of the limitations of a counterfactual 'but for' analysis. The two limitations repeatedly noted by the Court are the potential of a counterfactual analysis to be under or over-inclusive.[131] The underinclusiveness is derived from its inability to identify factors as causes in situations of overdetermination as described above (multiple sufficient causes or the aggregate effect of otherwise insufficient contributions) and not situations of possible pre-emption. The concern with respect to overinclusiveness is derived from the fact that a counterfactual analysis will identify more factors as necessity conditions of an outcome than the law may wish to hold responsible for that outcome and is in no way related to matters of possible pre-emption.[132] The third line of support may be drawn from the law regarding the

[128] ibid 705.

[129] HLA Hart and Tony Honoré contended that in a case with a "hypothetical alternative cause the generally accepted view is that defendant's wrongful or criminal act has *caused* the harm": *Causation in the Law* (2nd edn, OUP 1985) 249 (emphasis added); Katy Barnett and Sirko Harder, *Remedies in Australian Private Law* (CUP 2015) 59; Michael D Green, 'The Intersection of Factual Causation and Damages' (2006) 55 DePaul LR 671, 680.

[130] Moore (n 123) 419.

[131] *March* (n 106); *Strong* (n 113).

[132] Concerns related to over-inclusiveness are addressed at the second stage of the causal inquiry and are entirely normative.

assessment of damages.[133] Consideration of the assessment of damages both reinforces the law's commitment to hindsight necessity and illustrates where standby factors are relevant for the legal analysis.

Damages and the Relevance of What Might Have Been

In negligence, the purpose of awarding compensatory damages is to return the victim to the state she would have been in without the wrongdoing. In 1880, Lord Blackburn expressed this general principle as follows:

> [W]here any injury is to be compensated by damages, in settling the sum of money to be given for ... damages you should as nearly as possible get at that sum of money which will put the party who has been injured, or who has suffered, in the same position as he would have been in if he had not sustained the wrong for which he is now getting his compensation.[134]

This oft-quoted passage has been cited approvingly by the High Court many times.[135] In undertaking such an assessment for lost earning potential, it has long been held that one should consider the possibility that some other factor (premature death,[136] another injury, sickness or unemployment) may have caused a similar outcome.[137] Put differently, the risk that standby factors may materialize and lead to the same reduction

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[133] Green (n 129).

[134] *Livingstone v Rawyards Coal Co* (1880) 5 App Cas 25, 39.

[135] *Harriton v Stephens* [2006] HCA 15 [81] (Kirby J collecting citations; His Honour dissented in this judgment, but not on this point).

[136] For a dramatic American example, see *Dillon v Twin State Gas & Electric Co* 85 NH 449, 163 A 111 (1932) 114-115. In that case, a boy was electrocuted when he grabbed for negligently maintained wires in an attempt to break his fall off of a bridge. Electrocution was the cause of death, though the Court noted that damages ought to be reduced based on the likelihood of his shortened lifespan: "Although he died from electrocution, yet, if by reason of his preceding loss of balance he was bound to fall except for the intervention of the current, he either did not have long to live or was to be maimed. In such an outcome of his loss of balance, the defendant deprived him, not of a life of normal expectancy, but of one too short to be given pecuniary allowance, in one alternative, and not of normal, but of limited, earning capacity, in the other."

[137] *General Motors-Holden's Pty Ltd v Moularas* (1964) 111 CLR 234.

in earning capacity is relevant to assessing damages. The plaintiff is entitled to damages for the tortious wrongdoing, but not to the extent that the vicissitudes of life would have led to the same outcome.

The extent of the reduction depends on the certainty that the same outcome would have materialized. In *Malec v JC Hutton*, a plaintiff became unemployable when a disease contracted through his employer's negligence led to the development of a neurotic condition.[138] Had this condition not developed, it was likely that the plaintiff would have become unemployable in the future due to a pre-existing back condition, which may also have led to the development of his neurotic condition.[139] The Court found that what might otherwise have occurred in the past or what may occur in the future (hypothetical or future events) are relevant to the assessment of damages, and that those damages should be reduced in line with the likelihood of their occurrence.[140] In *Faulkner v Keffalinos*, the plaintiff had been injured in two successive car accidents by the time damages were assessed.[141] As a result of the first negligent accident, he suffered a reduction in wages as he was no longer able to undertake certain work. After the second accident, he was not able to work at all. The trial judge did not take into account the effect of the second accident in his assessment. The High Court reduced the award on the basis that the judge had failed to properly account for the vicissitudes of life.[142] The possibility that another accident could limit the plaintiff's earning

[138] (1990) 169 CLR 638, 640.

[139] ibid 641.

[140] ibid 639, 643. See also: Personal Injuries (Liabilities and Damages) Act (NT), s21(2).

[141] [1971] 45 ALJR 80.

[142] ibid 81, 85, 88.

capacity had materialized and that effect needed to be taken into consideration in assessing the award.[143]

It is important to stress that the question of causation was not before the Court in either *Malec* or *Faulkner*. From this absence it may be inferred that the possibility that a standby factor (the back injury) or an actual factor (the second accident) could or did cause damage was unproblematic for the determination of factual causation.[144] In *Malec*, the Court simply noted that past facts are to be determined on the balance of probabilities and, while there may be some uncertainty as to what indeed happened, once a finding has been made, they are taken as certain and as having occurred.[145] In *Faulkner*, Windeyer J noted:

> In cases of successive injuries, legal logic is apt to become enmeshed with philosophical notions of cause and effect. … It seems to me that in [addressing the situation in the common law] the first essential is to distinguish between liability for the consequences of a tortious act and the ascertainment and measuring of those consequences.[146]

Put differently, the causation of *damage* is separate from the assessment of *damages*.[147]

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[143] ibid, 85 (Windeyer J). See also: *DNM Mining Pty Ltd v Barwick* [2004] NSWCA 137, [37]-[47] (a miner who suffered a back injury at work had his economic losses reduced after he suffered neck and shoulder injuries when his car struck a cow); *K'Mart Australia Ltd v McCann* [2004] NSWCA 283, [49]-[54] (a shopper negligently injured by falling merchandise in a supermarket had his past economic losses reduced after he subsequently suffered a serious stress heart attack which impeded him from working for a period of 16 months); *Connolly v Burton* [2007] NSWSC 1484, [148]-[154] (loss of future earning capacity of a stuntman negligently injured on-set is reduced after he is diagnosed with pancreatic cancer and deemed to have a 'radically shortened' life expectancy); *Jobling v Associated Dairies Ltd* [1982] AC 794 (HL).

[144] In *Malec*, it may have been problematic at trial, as the judge found that while he was satisfied that the neurotic condition was brought on by the negligently contracted disease, it was equally likely that the neurotic condition suffered at the time of the trial was from another cause. However, this would appear to be an evidentiary matter, rather than a conceptual one. The finding was reversed by the Full Court.

[145] *Malec* (n 138) 639, 642-643.

[146] *Faulkner* (n 141) 84.

[147] Stapleton, 'Unnecessary Causes' (n 117).

The potential standby or actual factors in *Malec* and *Faulkner* are non-tortious. Whether the law adopts a different approach when the hypothetical or actual successive factor is also tortious is a matter of dispute. In the British case of *Baker v Willoughby*, the plaintiff suffered two successive, independent, tortious injuries to the same leg.[148] The first, a car accident, left the plaintiff with a stiff leg. The second, a robbery during which the plaintiff was shot, necessitated that the leg be amputated. The House of Lords held there would be no reduction in damages caused by the initial tortfeasor on account of the robbery, with the robbers only being responsible for any additional loss caused.[149] To the extent the loss relates to future earning capacity, it is incongruous with the approach adopted in *Faulkner*. *Baker* has been widely criticized and its acceptance in Australia is questionable.[150] Even if it were accepted, it does not detract from the general point that what might otherwise occur is irrelevant to factual causation, it only modifies the conditions under which what might or did otherwise occur is relevant to the assessment of damages.

[148] [1969] UKHL 8, [1970] AC 467 (HL).

[149] ibid 493-4 (Lord Reid with whom Lord Guest, Viscount Dilhorne and Lord Donovan agreed), 496 (Lord Pearson).

[150] Windeyer J expressed 'misgivings' as to its correctness in *Faulkner* (n 141) 85. In *DNM Mining* (n 143) [44], the NSW Court of Appeal declined to decide its correctness: "It is not necessary to decide whether *Baker v Willoughby* is good law so far as it stands for a different result where the later independent event is tortious. … It may be that *Baker v Willoughby* can be justified on the rationale of ensuring that the victim of successive tortious injuries receives full compensation, although it is not easy to see why that should be at the expense of the first tortfeasor." Writing extra-judicially, Justice Beazley noted: "It would seem that the only difference between the [*Baker* and *Jobling*] is that in the one case the subsequent event was tortious and in the other it was non-tortious. The distinction seems somewhat feeble and I suspect that the *Jobling* approach, approved by Windeyer J in *Faulkner v Keffalinos* … would prevail in Australia." 'Causation and statutory determinism: The Civil Liability Act 2002 (NSW), s 5D' (2013) 87 ALJ 591, 599. Cf Kit Barker, Peter Cane, Mark Lunney and Francis Trindade, *The law of torts in Australia* (5th edn, OUP 2012) 553: "the position regarding additional causes appears to be that if both are tortious the first tortfeasor is liable for all the loss except that attributable solely to the second tort. If one of the causes is non-tortious the tortfeasor is only liable for so much of the loss as is attributable solely to the tort regardless of whether the non-tortious cause precedes or succeeds the tort."

In summary, an analysis of academic commentary and Australian case law shows that the identification of factual causes of negligent injuries is done with the benefit of hindsight necessity and for which consideration of what might have otherwise occurred, due to the presence of standby factors, is irrelevant. These standby factors are properly considered at the assessment of the damages stage in the legal analysis.

The Role of Standby Factors in Homicide

Criminal law in Australia is primarily state-based.[151] In some states and territories, the law is entirely codified (Queensland, Western Australia, Tasmania and the Northern Territory),[152] some rely on the Australian Model Criminal Code (Commonwealth and the Australian Capital Territory),[153] while others rely on a mix of the common law and statute (New South Wales, South Australia and Victoria).[154] While there are differences in the law of homicide between the jurisdictions, these differences are inconsequential to the present discussion which draws on both the common law and code provisions.[155]

The causation of death is a component of the offence of murder or manslaughter. It is comprised of the same two structural elements as can be found in negligence.[156] A factual connection is required between the act or omission and

[151] Simon Bronitt, 'Australia' in Kevin Jon Heller and Markus D Dubber (eds), *The Handbook of Comparative Criminal Law* (Stanford UP 2011) 50-51. The federal government may only enact criminal laws incidental to a federal head of power under the Constitution or in relation to the territories.

[152] Criminal Code Act 1899 (Qld); Criminal Code Act Compilation Act 1913 (WA); Criminal Code Act 1924 (Tas); Criminal Code Act (NT).

[153] Criminal Code Act 1995 (Cth); Criminal Code 2002 (ACT).

[154] Crimes Act 1900 (NSW); Criminal Law Consolidation Act 1935 (SA); Crimes Act 1958 (Vic).

[155] Simon Bronitt (n 151) 78-79.

[156] *Krakouer v State of Western Australia* [2006] WASCA 81 [21]; Ken Arenson, Mirko Bagaric and Peter Gillies, *Australian Criminal Law in the Common Law Jurisdictions* (4th edn, OUP 2015) 51-52;

death.[157] The connection must be of such a nature that it would be appropriate to impose criminal responsibility.[158] It has also historically been approached as a matter of common sense.[159] The similarity in the structural elements does not mean that the tests employed for each element or the results are the same for both areas of law.[160]

To establish both factual and legal causation, a factor must be a 'substantial' contributor or cause of an outcome.[161] In most cases, causation will 'not [be] controversial'.[162] Whether a substantial contribution need also be a necessary one in order to establish factual causation is an interesting question and one to which I shall return in a moment. If causation is problematic, it will more likely be due to the second stage of the inquiry as to whether causal responsibility ought to be imposed in a particular situation.[163] For instance, under what circumstances should an assailant be held responsible for the actions of a victim fleeing the scene,[164] when the immediate

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David Lanham, 'Principles of Causation in Criminal Law' in Ian Freckleton and Danuta Mendelson (eds), *Causation in Law and Medicine* (Ashgate 2002).

[157] *Krakouer* (n 156) [22]

[158] ibid [23]. This latter inquiry is referred to as legal causation (rather than the scope of liability).

[159] *Royall* (n 106).

[160] However, there does seem to be significant unity between the two: Steel (n 57); *Arulthilakan v The Queen* [2003] HCA 74.

[161] Factual cause: *R v Franklin* [2001] VSCA 79 [55] (Brooking JA): In cases where injuries have been inflicted by "two or more assailants, acting independently and at substantially the same time. … it is enough for the jury to enquire whether the attack of the accused made a substantial contribution to the death." The High Court has expressed support for this test in obiter remarks: *Krakouer v State of Western Australia* [2006] HCATrans 581. See also *R v McCarthy* [2015] SASCFC 177 [128], [336]-[342], [345]; *Krakouer* (n 156) [39]; *R v Carter* [2003] QCA 515 [21]. Legal cause: *R v Hallett* [1969] SASR 141; *McAuliffe v The Queen* (1995) 183 CLR 108, 118; *Arulthilakan* (n 160) [35], [53]. For a discussion of other tests, see *Royall* (n 106).

[162] *Royall* (n 106) 441 (McHugh J).

[163] ibid.

[164] ibid.

cause of death is exposure to the elements,[165] for the provision of drugs,[166] or for the actions of a co-accused.[167] As with negligence, the 'but for' test is inadequate in such circumstances as it will cast the net of criminal responsibility too broadly.[168] Generally, if the chain of events leading to death includes a voluntary and informed act of an adult, any causal responsibility on the part of the accused will be negated, otherwise the accused action must be a 'substantial cause'.[169]

Hindsight Take Two: Death When It Occurs

The law of homicide is concerned with the factors which contributed to death *when it occurs*.[171] As the Full Court of the Supreme Court of Victoria noted: "Homicide is really the acceleration of the event."[172] In *R v Adams*, Devlin J (as he was then) noted: "It did not matter whether Mrs. Morrell's death was inevitable and that her days were numbered. If her life were cut short by weeks or months it was just as much murder as if it was cut short by years."[173] The Tasmanian Criminal Code is explicit on this point,

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[165] *R v Hallett* (n 161).

[166] *Burns v The Queen* [2012] HCA 35. The mere supply of the drug is insufficient as the voluntary and informed act of ingesting the drug is the causative element of death. The Court did not decide whether assistance in administering a drug would be a sufficient causal connection [89] (cf *R v Carter* (n 161) in which the accused was found guilty of murder for injecting the deceased). There cannot be a voluntary and informed decision to take drugs when the user is under the mistaken belief as to the contents of those drugs: *R v Hill* [2014] QCA 107 [57]. In that case, the accused were convicted of murder for supplying a lethal dose of heroin under the pretense that it was amphetamines. Leave to appeal on causation refused: *Hill v The Queen* [2014] HCATrans 191.

[167] *Arulthilakan* (n 160).

[168] ibid [35]: "One of the dangers of a "but for" test of causation is that, in some cases, it is capable of indicating that a negligible causal relationship will suffice". See also: [57].

[169] *Royall* (n 106), *Burns* (n 166) [14], [86].

[171] Stapleton, 'Unnecessary Causes' (n 117).

[172] *R v Evans and Gardiner (No 2)* [1976] VR 523, 527.

[173] [1957] Crim LR 365, 375.

defining killing as: "causing the death of a person by an act or omission but for which *he would not have died when he did*, and which is directly and immediately connected with his death."[174] Other codes do not contain this temporal specification.[175] However, killing has been interpreted as being when death occurs. As McLure J explained in one Western Australian case: "[i]n the criminal law context, it is the death as and when it occurred that is in issue, not some potentiality or even inevitability of death at some other, even marginally later, time."[176] Many codes also have provisions specifying that any factor which hastens death constitutes a cause.[177]

The temporal dimension of the harm is salient for two purposes. First, it suggests that questions of necessity will be less of a concern for the law of homicide. The more specific or individuated the harm, the more elements will be necessary to produce it.[178] Two blows to the head may each be sufficient to cause death, however if death only occurred when it did because of the contribution of both, then both are necessary.[179] Second, and more relevant for present purposes, it establishes that any standby factor which was capable of also causing death is irrelevant to establishing a causal connection.[180]

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[174] s153(2).

[175] CCA 1899 (Qld), s270; CCA 1913 (WA), s270; CCA (NT), s149C.

[176] *Krakouer* (n 156) [75].

[177] CCA 1899 (Qld), s 296; CCA 1913 (WA), s273; CCA 1924, (Tas) s154(d). The Tasmanian provision refers to hastening death in someone suffering from 'disease or injury which would itself have caused death.' The Queensland and Western Australia provisions are narrower, referring to 'some disorder or disease arising from another cause', however these provisions do not exclude 'ordinary principles of causation': *Krakouer* (n 156) [37]. There is no acceleration provision in the Northern Territory code.

[178] Stapleton, 'Unnecessary Causes' (n 117).

[179] *Krakouer* (n 156).

[180] Eric Colvin, 'Causation in Criminal Law' (1989) 1 Bond LR 253, 254.

Identifying those factors which did contribute to death when it happened is also done with the benefit of hindsight.[181] To return to the *Gosford Park* example, in the movie (as opposed to the modified example above), the Master was both poisoned by the housekeeper and stabbed by the valet. Medical evidence would have established that death was by poisoning and not the stabbing. The appropriate counterfactual is, therefore, one without the housekeeper's poisoning and in which the Master does not die when he did. The fact that he was subsequently stabbed by the valet a short time later poses no difficulty to causal identification. Hart and Honoré considered this to be the 'generally accepted view'.[182] A real life example may be found in *R v Cengiz*.[183] In that case, medical evidence established that the deceased had already died by the time he was run over, twice, by his sister. His sister stood to inherit a significant sum of money on his passing. It was alleged that she had smothered him to death, but this could not be proven beyond a reasonable doubt. Epileptics, of which the deceased was one, are known to suffer from sudden unexpected death syndrome and thus the man may have died suddenly of natural causes before being run-over. The sister was convicted of attempted murder.[184] The appropriate counterfactual is one without the onset of sudden unexpected death syndrome and in which the brother would not have died when he did. The fact that his sister wanted to, and would have succeeded in, killing him a short time later (medical evidence established that being run over would

[181] Stapleton, 'An 'Extended But-For' Test' (n 125) 700.

[182] (n 129) 249 (emphasis added). See also Glanville Williams, 'Causation in Homicide' (1957) Crim LR 429, 431; Murmann (n 55) 288-290 (writing from a Germanic perspective on international criminal law).

[183] [1998] 3 VR 720 (the case was overruled by the High Court on an unrelated matter: *Dyers v The Queen* [2002] HCA 45 [9]).

[184] The defence had argued that it was possible that the man died from natural causes and the sister panicked and ran over him to make it look like a hit and run, however this hypothesis was rejected by the jury.

have been fatal), made no difference to the identification of his actual cause of death.[185] "Man dies but once."[186] And only she who caused the death can be held criminally responsible for murder.

Gosford Park and *Cengiz* are examples of an initial causal factor (the housekeeper, sudden unexpected death syndrome) pre-empting the potential causal effect of the standby factors (the valet, the sister). The converse is equally true. As the Full Court of the Supreme Court of Victoria explained:

> [I]f a victim received from one assailant an injury which would or might ultimately result in death, but before that event occurred he received from another assailant a further injury which accelerated his death, the second assailant would be regarded as having caused the death for the purposes of the law of homicide, whereas the first assailant would only be guilty of an attempt to commit homicide.[187]

Hall considers the case of an individual being thrown off the top of the Empire State Building by one assailant but shot and instantly killed by a second independent assailant prior to hitting the ground.[188] It is the second assailant who is guilty of causing death as the appropriate counterfactual is one in which he does not fire the shot and the victim does not die at that point in time. The fact that the victim would have been killed when

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[185] See also *R v Darrington* [2016] VSC 60 [5]-[6] (the accused fired three bullets at the deceased, he was found not to be criminally responsible for the first shot, however as it could not be proven that the victim was still alive at the time of the second bullet, the accused was convicted of attempted murder). For a Canadian example, see Jillian Bell, 'Forcillo attempted murder verdict explained' (*CBC News*, 25 January 2016) < http://www.cbc.ca/news/canada/james-forcillo-sammy-yatim-verdict-explained-1.3419217> accessed 8 January 2018; Wendy Gillis, 'What we didn't know before the James Forcillo trial' (*thestar.com*, 20 January 2016) < http://www.thestar.com/news/crime/2016/01/20/what-we-didnt-know-before-the-james-forcillo-trial.html> accessed 8 January 2018 (An on-duty police officer had fired two volleys of shots at a man armed with a knife, standing inside a streetcar. A jury found the first volley, which was fatal, to be justified, but the second to be unlawful and so convicted the officer of attempted murder.)

[186] *People v Dlugash* (1977) 363 NE 2d 1155, 1159. (The victim was shot twice in the chest by one assailant and four times in the head by a second assailant a few minutes later. The prosecution could not prove that the victim was still alive at the time of the second shooting and so the second assailant could only be convicted of attempted murder. Due to procedural peculiarities, accessory liability for the murder was not available.)

[187] *R v Evans* (n 172) 527-8.

[188] As discussed in Hart and Honoré (n 129) 243.

he hit the pavement seconds later is inconsequential. The first assailant is guilty of attempted murder as her actions are pre-empted by the second. If we modified the *Gosford Park* example so that the poison had not yet taken effect before the Master was stabbed, then the valet would be guilty of murder.

It is important to distinguish cases of pre-emption from ones in which the acts of two independent assailants both contribute to death. In *Krakouer v State of Western Australia*, the deceased suffered two successive blows to the head, one from each of the assailants, who were taken to have acted independently, and later died in hospital from his injuries.[189] The medical evidence established that either blow would have been fatal, but that each contributed to death in this case.[190] Both assailants were convicted of murder. It would not have been open to the first assailant to argue that the effects of his blow had been pre-empted by that of the second. Unlike the fall or the poison which have not yet taken effect on the deceased, the blow did have a physical effect which contributed to death in this case. Glanville Williams notes that there may be 'difficult question[s] of evidence' distinguishing these two types of cases, however *Krakouer* is not one of them.[191] As it happened, it was the second assailant who appealed the conviction on the basis that it could not be proven that he contributed to the death of a mortally wounded man.[192] This evidentiary argument was rejected by the Court of Appeal of Western Australia.[193] It did not matter that the second assailant struck a

[189] (n 156).

[190] ibid [40], [80].

[191] Williams, 'Homicide' (n 182) 432.

[192] *Krakouer* (n 156) [60].

[193] ibid [40], [80]. Special leave to appeal denied: *Krakouer* (n 161).

dying man, as the deceased was "then still alive" and his blow made a substantial contribution to the death.[194]

In summary, standby factors are not relevant to the establishment of factual causation in homicide which, like negligence, are identified with the benefit of hindsight necessity.

Standby Factors are No Defence

While standby factors play no role in the identification of the cause-in-fact of death, do they factor in somewhere else in the legal analysis? As we saw with the law of negligence, what might otherwise have occurred through standby factors is relevant to the assessment of some damages. Would what other actors have done in the situation be relevant for the imposition of criminal responsibility on the actual perpetrator? The answer is clearly no. The fact that another would otherwise have done the same act or omission producing the same outcome is no defense, excuse or justification for one's own actions.[195]

As arguing that one should not be held criminally responsible for one's own actions on the basis that the actions of another would have ensured the same result is antithetical to the law of homicide, it is not surprising that there is little case law to illustrate this point. In the Solomon Island case of *Viu v Regina*, the deceased had been seriously injured falling from a tree, and was subsequently violently kicked by the

[194] *Krakouer* (n 156) [40], [80].

[195] David Lanham and others, *Criminal Laws in Australia* (Federation Press 2006) 10-96. See e.g. CCA 1913 (WA), ss22-25, 27-32, 246, 248; CCA 1899 (Qld), ss 22-25, 27-31, 271-273, 304-304B, 314A(3); CCA 1924 (Tas), ss12-14, 16-20, 39, 46.

accused.[196] The extent of the injuries from the fall, including whether or not they were fatal, was unknown. However, medical evidence established that the cause of death was consistent with the injuries sustained by the assault and not from the fall. The accused challenged this finding, arguing that his actions could not have caused the fatal injury and that these must have come from the fall. The argument was rejected by the Court of Appeal. The Court of Appeal went on to note that it was no defence to argue that the deceased was already suffering a serious injury:

> We consider that the appellant cannot raise any form of defence from the fact that the deceased was already suffering from a serious injury before the appellant delivered the fatal kicks.[197]

The fact pattern in *Viu* is comparable to *Krakouer* and there is no reason to believe that Australian law would be any different.[198]

The most poignant rejection of this argument comes from a German post-WWII case discussed by Hart and Honoré.[199] The accused argued that he should not be found guilty of unlawful deprivation of freedom of some Jews because, had the accused not done so, others would have detained them. The German Federal Court of Justice in Criminal Matters (Bundesgerichtshof in Strafsachen), understandably, disagreed.

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[196] [1994] SBCA 6; CA-CRAC 007 of 1994. At least two of the three judges in this case are part of the Queensland judiciary.

[197] ibid.

[198] *Viu* was decided on the basis of an acceleration provision in the Solomon Islands Penal Code, s200(d). The Tasmanian provision is functionally equivalent (CCA 1924 (Tas), s154(d)) referring to the acceleration of "any disease or injury", however both Queensland and Western Australia provisions are more limited referring to 'some disorder or disease arising from another cause' rather than a disease or injury: CCA 1899 (Qld), s296; CCA 1913 (WA), s273. In *Krakouer*, Steytler P questioned whether the blow inflicted by the first assailant could be characterized as either a 'disease or disorder', but ultimately found whatever the proper construction of this acceleration provision, it did not exclude 'ordinary principles of causation' which require an actual substantial contribution: (n 156) [35]-[39]. These differences in the codes do not detract from the general point that it is no defense to say that death would have occurred shortly in any event.

[199] Hart and Honoré (n 129) 249.

It is necessary to distinguish the defence available regarding the administration of palliative care. Alleviation of pain and suffering in terminally ill patients may incidentally hasten death and thus it is conceivable that such actions could attract criminal liability.[200] While there is no 'special defence', the common law has long held that doctors would not be criminally responsible in such instances.[201] It is known as the doctrine of double effect. In the British case of *R v Adams*, a doctor was accused of murdering an elderly patient to whom he had prescribed and administered large doses of morphine and heroin.[202] The doctor contended that it was merely a matter of pain relief.[203] In summing up for the jury, Devlin J noted:

> The law knew of no special defence in this category, but that did not mean that a doctor who was aiding the sick and dying had to calculate in minutes or even hours, perhaps not in days or weeks, the effect on a patient's life of the medicines which he would administer. If the first purpose of medicine - the restoration of health - could no longer be achieved, there was still much for the doctor to do, and he was entitled to do all that was proper and necessary to relieve pain and suffering even if the measures he took might incidentally shorten life by hours or perhaps even longer.[204]

While case law on this issue is scarce, it is widely believed that the common law position in Australia is no different.[205] The common law position is also reflected in a number of the state criminal codes.[206] For the present purposes, it is important to note

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[200] CCA 1899 (Qld), s296; CCA 1913 (WA), s273; CCA 1924 (Tas), s154(d). See generally: Meredith Blake, 'Doctors Liability for Homicide under the WA Criminal Code: Defining the Role of Defences' (2011) 35 UWALR 287.

[201] Blake (n 200).

[202] (n 173).

[203] ibid 375-376.

[204] ibid 375.

[205] BP White, L Willmott and M Ashby, 'Palliative care, double effect and the law in Australia' (2011) Internal Medical Journal 485, 487. In Tasmania, some think it would be prudent to clarify the position even though it is assumed that the common law position applies: House of Assembly Standing Committee on Community Development, *Inquiry into Palliative Care* (No 8, Parliament of Tasmania 2017) 38-40. A bill, modelled after South Australian legislation, Consent to Medical Treatment and Palliative Care Act 1995 (SA), is currently before the House of Assembly: Care and Consent to Medical Treatment Bill (No 19) 2016 (Tas), cl 15.

[206] CCA 1899 (Qld), s282A; CCA 1913 (WA), s259; CMTPCA 1995 (SA), s17(1). In the explanatory notes to the amendment introducing this provision in the Queensland code, it was said that the provision

that it is the benefits to the patient in terms of pain relief that justifies the action and underpins the doctrine of double effect and not the fact that the individual is likely to die soon in any event.[207]

What these two sections have sought to establish is that standby factors play no role in establishing factual causation, which is determined with the benefit of hindsight. The possibility that the same outcome may have occurred in any event is relevant to the assessment of damages in negligence as the purpose of compensatory damages is to return the person to the position she would have been in without the wrongdoing. If the harm would have occurred in any event, the claim for compensation is vitiated. By contrast, one of the purposes of criminal law is to punish a perpetrator for the crime she has committed and to protect society.[208] What others might have done is, therefore, never relevant.

The analysis thus far has proceeded on the basis that the past facts are known. It has explored the conceptual relevance of what might otherwise have occurred. However, to say that an outcome would likely have occurred in any event can have a number of meanings. A second meaning is that the harm would have occurred in any event because the factor of interest has no actual causal effect on bringing it about. It is

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did not constitute a change in the law but was merely a reflection of the common law position: Explanatory Notes to the Criminal Code (Palliative Care) Amendment Bill 2003, 2. No mention was made of the common law position in the second reading of the South Australian act: South Australia, *Parliamentary Debates*, Legislative Council, 11 August 1994, 114-115 (Diana Laidlaw, Minister for Transport). On possible differences between the common law and the statutory defences, see: White, Willmott and Ashby (n 205).

[207] White, Willmott and Ashby (n 205) 486.

[208] David Lanham and others, *Criminal Laws in Australia* (Online supplement, Federation Press 2006) <http://www.federationpress.com.au/pdf/Lanham%20Ch1B.pdf> accessed 8 January 2018.

to this evidentiary question and the role of the counterfactual reasoning in establishing a factual connection to which we now turn.

EVIDENTIARY ROLE OF THE COUNTERFACTUAL

It goes without saying that it must be proven to the requisite standard that a negligent or criminal act or omission did, in fact, caused the harmful outcome. I do not wish to embark on an epistemological discussion of the nature of proving such a connection; however, there is one key difference that exists between proving acts and proving omissions.

Counterfactual reasoning generally plays a greater role in proving a causal connection between omissions and harmful outcomes than it does in the case of acts. As Gaudron J explained in *Bennett v Minister of Community Welfare*:

> Leaving aside cases involving some positive act and those in which an omission can be treated as a positive act, a case based on omission or a failure to act will, in certain respects, fall for analysis in a way that differs from that appropriate for a case based on a positive act. Thus, in the case of a positive act, questions of causation are answered by reference to what, in fact, happened. In the case of an omission, they are answered by reference to what would or would not have happened had the act occurred.[209]

For positive acts, there will often be direct evidence of the contribution: medical evidence of the physical effect of a blow to the head or the effect of being run over by a car.[210] The same can be said of omissions which can be treated as positive acts. If one fails to properly secure a brick wall which collapses and kills a bricklayer or one fails to properly secure a child who falls off a ride and is injured; it is our knowledge of collapsing walls and the effects of gravity on an unsecured child that establishes the

[209] (1992) 176 CLR 408, 420.

[210] See e.g. *Krakouer* (n 156) and *Cengiz* (n 183).

causal connection.[211] What the counterfactual would be in both instances is obvious; however its use is unnecessary. Likewise if proper medical attention could not arrest the effects of arsenic poisoning, then the failure to provide that care had no effect on the death of the patient.[212] Again, it is the physical effects of the poisoning, and not the counterfactual, that is the most salient.

In cases of many omissions, the causal role that they played in bringing about an outcome will not be immediately apparent. Would a shooting of fellow patrons by a disgruntled restaurant-goer have been prevented by the presence of security guards at the entrance of the establishment?[213] Would properly trimmed road-side foliage have improved visibility of both the driver and pedestrians so as to avoid a car accident?[214] Would a more detailed instruction manual have altered the behaviour of technicians who failed to detect a defect that led to a helicopter crash?[215] Would the provision of

[211] These examples draw on the fact patterns in *R v Moore* [2015] NSWCA 316 and *R v Clark* [2007] QCA 168. Causation was not an issue in either case.

[212] *Barnett v Chelsea and Kensington Hospital Management Committee* [1969] 1 QB 428.

[213] *Adeels Palace* (n 113) (After having left a restaurant due to an altercation, a disgruntled patron returned with a gun, shooting one seemingly random victim who had the misfortune to slip and fall while trying to get away and a second man who had been involved in the original altercation. The fact that security guards may have altered the outcome was insufficient to prove a factual connection: [47]-[50]. The guards may have been able to delay the entry enough to allow the first victim to escape, however it is equally possible their presence would have made no difference to a determined gunman. Cf David Hamer, ''Factual Causation' and 'Scope of Liability': What's the Difference?' (2014) 77 MLR 155, 175.

[214] *Pledge v Roads and Traffic Authority* [2004] HCA 13. The Court of Appeal had reversed the finding of a trial judge based on largely uncontested evidence that the foliage had obstructed views and contributed to the accident. The Court of Appeal undertook detailed calculations as to whether there was sufficient time to stop under various assumptions. The High Court considered these attempts to reconstruct such a detailed hypothetical world to be speculative, that the foliage did contribute on the basis of the evidence before the trial judge and that there no reason for the Court of Appeal to have overturned the finding: [1], [15], [45]-[49].

[215] *Robinson Helicopter Company Incorporated v McDermott* [2016] HCA 22. While no breach was found, the Court noted that a more sophisticated instruction manual would have made no difference to avoiding an accident, as the instructions would not have changed the behaviour of the technicians who failed to detect the defect during routine inspections: [87].

safety equipment have avoided a work place accident?[216] Would warning of the inherent risks of a medical procedure have resulted in a patient deciding to postpone or cancel treatment, thus avoiding the materialization of the risk?[217] The examples are endless.

In each case, the Court will need to work through the effect that the security guards, pruned road-side foliage, a detailed manual, the availability of safety equipment and the effect of the warning would have had in a hypothetical world, in order to ascertain whether the harm could have been avoided. In doing so, the Court will rely on evidence, such as whether the employee would have used the equipment and whether that use could have prevented the accident or whether the patient would have heeded the warning and altered her behaviour.[218] However, the evidence is to support the

[216] *Duyvelshaff v Cathcart & Ritchie Ltd* (1973) 1 ALR 125 (a plumber, who was injured when he fell 20 feet from an unsecured plank, did not establish that he would have used a safety belt had it been provided); *Quigley v Commonwealth* (1981) 35 ALR 537 (quarantine inspector would not have sought assistance from a second crew member in order to safely board a ship and thus the injury sustained would not have been avoided).

[217] A causal connection is established 'without difficulty', if the patient would not have undergone treatment at all, as in the counterfactual world in which the treatment does not take place, there is no possibility of the injury arising: *Wallace* (n 109) [19], [29]. Correspondingly, if a patient would have proceeded with the treatment, even if adequately warned of the risks, a causal connection is not made out as, in the counterfactual world in which the patient was adequately warned, the treatment, and resultant injury, still occur when they would have: *Rosenberg v Percival* (n 125); *Wallace* (n 109) [18]. If the patient would have undergone the treatment at a later date, a causal connection is also established as, in a counterfactual world in which the treatment took place at another time, it is unlikely, on a balance of probabilities, that the risk would have materialized given its rarity: *Chappel* (n 119); *Wallace* (n 109) [20]; *Paul v Cooke* [2013] NSWCA 311 [88] (a failure to diagnose case in which the time delay did not alter the risk profile of the injury). The last category highlights the law's commitment to 'hindsight necessity' as discussed above. The injury would not have occurred 'when it did' and was statistically unlikely to occur at any future point or in any counterfactual world. The High Court acknowledges that establishing factual causation in this category is 'more controversial': *Wallace* (n 109) [20]. The controversy arises from the fact that some within academia, and the judiciary, both within Australia and abroad, do not think a causal connection can be established in such cases: Tony Honoré, 'Medical non-disclosure, causation and risk: *Chappel v Hart*' (1999) 7 Torts LJ 1; *Chappel* (n 119) (McHugh and Hayne JJ); *Chester v Afshar* [2004] UKHL 41; [2005] 1 AC 134. The dispute is not focused on whether the failure to warn satisfies the 'but for' test, but rather whether that is the appropriate test to be applied. The High Court made clear in *Wallace* that the 'better analysis' is to find that a causal connection has been established: [20].

construction of a hypothetical world, rather than the direct effect of the omission in the actual world.

Crimes through omission will only arise when a person is under a positive duty to act in a certain way.[219] In a homicide context, the issue will most often arise in instances of manslaughter by criminal negligence.[220] The failure to seek medical assistance is a prime example. The evidentiary challenge is whether the death would have been avoided if the duty had been fulfilled in a hypothetical world. In *R v Taktak*, it was not possible to establish that a failure to obtain medical attention would have made any difference to the deceased's death from a heroin overdose due to the uncertainty around the time of death and thus the time available for such treatment to be sought.[221] In *R v Ray*, a man died of a heart attack after being tied up during the course of a burglary.[222] The accused were charged with manslaughter by criminal negligence, however it was dismissed on the basis that there was no case to answer because the necessary causal link had not been established. His Honour found that at most the breaches (failure to remove the restraints, obtain medical assistance or perform CPR)

[218] On the types of evidence the Court will consider when constructing a counterfactual world in a failure to warn case, see Tina Cockburn and Bill Madden, 'Proof of causation in informed consent cases: Establishing what the plaintiff would have done' (2010) 18 JLM 320.

[219] *Director of Public Prosecutions (Cth) v Poniatowska* (2011) 244 CLR 408 [29] (French CJ, Gummow, Kiefel and Bell JJ).

[220] (1988) 14 NSWLR 226. To establish manslaughter by criminal negligence, it is necessary to establish that the accused owed a duty of care to the deceased, that the breach of that duty was a substantial cause of death and that the breach was of such a nature as to attract criminal punishment: *Nydam v The Queen* [1977] VR 430; *R v Taktak*, 239-240, 250; *R v Moore* (n 211) [142]-[144].

[221] *Taktak* (n 220) 251. See also: *Burns v The Queen* (n 166) [109]. *Burns* is a failure to seek medical attention in an overdose case. The joint judgment questioned whether causation could be proven. As no duty was found to exist between the drug supplier and user, it was unnecessary to decide the point.

[222] [2014] VSC 178.

reduced the deceased's chances of survival and to find otherwise was 'an exercise in speculation'.[223]

This chapter has focused on counterfactual analysis in negligence and homicide, however two other cases, one from equity and one brought under the Trade Practices Act 1974 (Cth) for misleading or deceptive conduct, ought to be considered, as they are referenced by the miner.[224] In the equity case, *Beach Petroleum NL v Kennedy*, Beach Petroleum NL, one company within a corporate group, was defrauded of assets through a restructuring scheme implemented across the corporate group by some of its own directors for their benefit.[225] After failing to collect on damages awarded from the original fraudsters, the company brought a claim against some of the solicitors involved in the transactions for breach of their fiduciary duty. The NSW Court of Appeal found that the solicitors had not breached any duties they held.[226] In obiter, the Court noted that the trial judge's finding was one open to be made on the evidence.[227] The trial judge had found that even if there had been a relevant breach, it

[223] ibid [41]-[42].

[224] Causation in equity is a complex matter and one that need not be unpacked for the present purposes. See generally Sirko Harder, 'Equitable compensation for a fiduciary's non-disclosure and hypothetical courses of events' (2011) 5 J Equity 22; Katy Barnett, 'Equitable compensation and remoteness: not so remote from the common law after all' (2014) 38 UWALR 48. Under the Trade Practices Act 1974 (Cth), now known as the Competition and Consumer Act 2010 (Cth), "a person who suffers loss or damage by conduct of another person", such as misleading or deceptive conduct, may recover that loss: ss52, 82. 'By' in this context means the common law approach to causation, that of common sense, except as otherwise modified by the Act, though recent case law has questioned the usefulness of a common sense approach, instead emphasizing the need to assess causation within the statutory context: *Wardley Australia Ltd v Western Australia* (1992) 175 CLR 514, 525; *Travel Compensation Fund v Tambree* [2005] HCA 69, (2005) 224 CLR 627, 642-643.

[225] [1999] NSWCA 408.

[226] ibid [236], [430]-[433].

[227] ibid [434]-[451]. The Court distinguished this case from *Brickenden v London Loan and Savings Co* (1934) 3 DLR 465. In that case, Lord Thankerton held that a fiduciary found to be in breach of a duty by non-disclosure of material facts could not argue that the injured party would have proceeded with the transaction in any event. The court cannot 'speculat[e] as to what course the constituent, on disclosure, would have taken': 469.

would not have caused any loss as the directors would have persisted with the transactions in any event. In *Finishing Services v Lactos Fresh*, a leaseholder had not objected to the notification of a rent increase within the prescribed time limit.[228] The leaseholder argued that the notification was invalid on account of its ambiguity, but also brought a claim against the owner's real estate advisor for misleading and deceptive practices under the Trade Practices Act 1974. It was alleged that the real estate advisor had misled the owner as to the true value of the market rental. The owner increased the rent on the basis of this advice, which, in turn, caused the leaseholder to suffer a loss. The primary judge held that it could not be established that without the allegedly misleading quote, the owner would have behaved differently and proposed a lower rent increase.[229] To make such factual findings would "border upon speculation," especially considering that there was evidence to suggest that the owner found the figure he had been provided to be 'a bit low'.[230] The decision was upheld on appeal to the Full Federal Court.[231] In each case, the causal effect of the breach is in question and is considered through assessing what the likely behaviour of the directors or the owner would have been in a hypothetical world without the breach.

The purpose of considering evidentiary matters in establishing a factual connection is two-fold. The first is to highlight that to say that an outcome would have happened in any event in this context is to say that the actual factor of interest had no causal effect. The second is to highlight that counterfactual reasoning plays a much

[228] [2006] FCAFC 177.

[229] ibid [32]. Even if such a connection could have been proven, the judge considered that the real estate advisor would not be responsible for the loss on the grounds that the leaseholder had failed to object to the rent increase notice: [33], [37].

[230] ibid [32].

[231] ibid [37]-[38].

greater role in establishing a causal connection as one must play out how events would likely have unfolded in the absence of the omission, rather than simply subtracting the factor from the hypothetical world and determining whether harm would have been avoided. In this analysis, there are no standby factors, but a question of whether the actions of individuals (directors, landlord, helicopter pilot technicians, patients, employees and so on) would have been different. The point may seem slightly obscure; however, it is relevant to how one makes the argument about whether the behaviour of the consumers of the coal mined (power plant operators) would be altered in a world without a particular coal mine.

In addition to an analysis of these evidentiary matters, this chapter has sought to make two points. The first is that the law does not suffer from the same challenges that philosophers do in identifying causal contributors. The law operates with the benefit of hindsight and frames its analysis based on how the actual world transpired. The second is that standby factors are not relevant to the imposition of criminal liability but may be relevant to the assessment of damages for negligent wrongdoing.

Evaluating the future impacts of a proposed greenhouse gas emitting project is a forward looking task. As such, the law has a choice to make regarding the construction of a *future* hypothetical world against which to compare the actions and consequences of a proposed development and how standby factors play into such an analysis. These matters are considered in the next chapter.

CHAPTER 3: ALPHA AND ITS IMPACT ON GLOBAL GHG EMISSIONS

This Chapter analyzes the Alpha case and how parties and the courts have evaluated the impact the mine will have on global GHG emissions. It is divided into five parts. The first part considers the judicial and statutory context in which the Alpha case arose. Part two considers the threshold question of whether or not GHG emissions from the burning of coal fall within the purview of the relevant legislation. The next two parts analyze the case in front of the Land Court and on judicial review. In part five, the insights drawn from the law of negligence and homicide in Chapter 2 are used to reveal the contrasting approaches adopted by parties as to the causal effect of the mine on global GHG emissions and to argue for the correct approach.

I will refer to Coast and Country Association of Queensland as CCAQ or the climate objector and Hancock Coal as the miner. Reference to the mine by name (Alpha) is with respect to the case as a whole, while I will refer to the specific Court when discussing each judgment.

Judicial and Statutory Context

To undertake mining activities in Queensland, both a mining lease under the Mineral Resources Act 1989 (MRA 1989) and an environmental authority issued pursuant to the Environmental Protection Act 1994 (EPA 1994) are required.[232] Both statutes allow for

[232] Substantial amendments to the EPA 1994 came into force in early 2013, however, these changes do not apply to *Hancock*: Environmental Protection (Greentape Reduction) and Other Legislation Amendment Act 2012 (Qld). Reference is made here to the applicable Reprint 11B, with reference to the current section of the Act in parenthesis. In 2014, further legislative changes modified who could object, under either Act, and the matters that the Land Court could consider when making its recommendation. Following the election of a minority Labor government in early 2015, many of these changes have been reversed. In any event, they do not affect the cases considered here. See: Mineral and Energy Resources (Common Provisions) Act 2014 (Qld); State Development and Public Works Organisation and Other Legislation Amendment Act 2015 (Qld); Mineral and Other Legislation Amendment Act 2016 (Qld).

third party objections to be made.[233] The objections are heard by the Land Court. This section provides an overview of the Land Court, the history of the Acts and the matters that they require the Land Court to consider in its deliberations.

The Land Court

The Land Court was established in 1898 and is the second oldest continuously operating court of Queensland.[234] It is a specialised court comprised of a President and Members, who exercise both judicial and administrative powers.[235] When hearing objections under the MRA 1989 and EPA 1994, the Land Court exercises its administrative power.[236] In exercising this function, the Court's task is to assess the merits of the mining application in light of various statutory provisions, discussed below, and determine the preferable decision.[237] In doing so, the Court is required to balance a number of competing factors. This thesis is not concerned with exploring this

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[233] EPA 1994, s216 (now s182); MRA 1989, s260(1) The Department of Environment and Heritage Protection is a Statutory Party to objections under the EPA 1994: s219(4)(1) (now s186).

[234] Land Court of Queensland, *Annual Report 2007-2008* (Land Court of Queensland 2008) 4-6; *Annual Report 2012-2013* (Land Court of Queensland 2013) 1.

[235] Land Court Act 2000 (Qld) s4(1), s13. While the Court may be comprised of members with non-legal backgrounds (s16(4)(b)), all climate-related cases were heard by those with legal backgrounds.

[236] *BHP Billiton Mitsui Coal Pty Ltd v Isdale* [2015] QSC 107 (Philip McMurdo J) [34], [48]; *Dunn v Burtenshaw & Anor* [2010] QLAC 5 [47]; *Adani* (n 63) [13]. Notwithstanding the administrative nature of this function, the Land Court has historically operated in a more adversarial setting as if it were adjudicating civil claims, rather than the less formal and more deliberative process common to other administrative tribunals. A recent Supreme Court decision, *BHP Billiton*, has thrown the Land Court into some turmoil regarding its powers and procedures when exercising its administrative functions; however, these are not salient for present purposes: Fleur Kingham, 'The Land Court of Qld - The Challenge of an Administrative Function' (Environmental and Planning Court Tribunals workshop, Auckland, April 2017) 2-3 < http://www5.austlii.edu.au/au/journals/QldJSchol/2017/11.html> accessed 8 January 2018; FY Kingham, 'Hearing Objections to Mining Projects: an Enigma Wrapped in Obscurity?' (Queensland Environmental Law Association Conference, Gold Coast, May 2017) <http://www5.austlii.edu.au/au/journals/QldJSchol/2017/23.pdf> accessed 8 January 2018.

[237] *Drake v Minister for Immigration and Ethnic Affairs* (1979) 46 FLR 409. The Court is not bound by the rules of evidence and must exercise its jurisdiction in accordance with "equity, good conscience and the substantial merits of the case without regard to legal technicalities and forms or the practice of other courts": LCA 2000, s7; MRA 1989, s268(2).

balancing process writ large or explaining case outcomes, rather it is specifically focused on the question of whether it is permissible for a decision-maker to consider what might otherwise occur in the absence of the particular mining project under consideration as part of those deliberations.

The Land Court does not possess the power to approve the mine itself, but makes a non-binding recommendation to the relevant Ministers as to whether or not the mine ought to be approved or refused.[238] The inability to approve or refuse a mine directly is in contrast to the powers of the New South Wales Land and Environment Court (NSWLEC),[239] and has long been a source of frustration, criticism and debate.[240]

The extent of the Land Court's consideration of environmental matters is not limited to objections under the EPA 1994; however it would be inappropriate to characterize the court as a specialist environmental court like the NSWLEC or the Queensland Planning and Environment Court.[241] Historically, the Land Court dealt with financial aspects of Crown leasehold lands.[242] Its jurisdiction has expanded significantly in modern times, with more than 40 statutes bestowing jurisdiction on the Court.[243] Jurisdiction of mining matters was transferred to the Court in 2007 from the

[238] MRA 1989, s269(1)(b); EPA 1994, s222 (now s190). The Ministers must take into consideration this recommendation when making their own decisions: MRA 1989, s271; EPA 1994, s225 (now s194).

[239] See e.g. *Bulga Milbrodale Progress Association Inc v Minister for Planning and Infrastructure* [2013] NSWLEC 48.

[240] Kingham, 'Hearing Objections' (n 236).

[241] Michael Rackemann, 'The Planning and Environment Court of Queensland' (Asian Judges' Symposium, Manila, July 2010), <http://www.austlii.edu.au/cgi-bin/viewdoc/au/journals/QldJSchol/2010/36.html> accessed 8 January 2018.

[242] QLC *Annual Report 2007-2008* (n 234) 4-6.

[243] LCA 2000, s5; Land Court of Queensland, *Annual Report 2015-2016* (Land Court of Queensland 2016) 4-5.

Land and Resource Tribunal.[244] In terms of volume, the Court considers a few dozen objections under the EPA 1994 each year; however the vast majority of its cases relate to land valuation appeals, applications for, and objections to, mining tenements and compensation claims under the MRA 1989 and other matters.[245] It is, therefore, not surprising that its judgments frequently draw heavily on the jurisprudence of the NSWLEC with respect to principles of ecologically sustainable development.[246] It may be that this lack of specialization on environmental matters contributed to the findings in the Alpha case.

Mineral Resources Act 1989

Mining law in Australia extends back to Settlement and beyond.[247] A primary objective of this regulation has long been to encourage and facilitate mining.[248] Over time, however, there has been greater public concern regarding the need to consider environmental harm caused by mining.[249] The Mining Act of 1968 made no reference to environmental concerns; however "encourag[ing] environmental responsibility in

[244] Land Court and Other Legislation Amendment Act 2007. The Tribunal had itself assumed jurisdiction for mining matters from the Mining Wardens Court in 2000. For a history of the Wardens Court, see: QLC, *Annual Report 2014-2015* (Land Court of Queensland 2015)1-3.

[245] QLC, *Annual Report 2015-2016* (n 243) 9. Though few in number, objection hearings can be lengthy. The New Acland coal mine hearing lasted close to 100 days and is the longest in the Court's history: *New Acland* (n 63) [19], [36].

[246] On the development of these principles by the NSWLEC, see Eloise Scotford, *Environmental Principles and the Evolution of Environmental Law* (Hart Publishing 2017).

[247] CW O'Hare, 'A History of Mining Law in Australia' (1971) 45 ALJ 281; Kingham, 'Hearing Objections' (n 236) 4-8.

[248] O'Hare (n 247) 293. The long title of the Mining Act 1968 is 'an act to provide for the encouragement and regulation of mining within the state of Queensland'; MRA 1989, s2(a).

[249] *Sinclair v Maryborough Mining Warden* (1975) 132 CLR 473. On this case, see Phillip Toyne, *The Reluctant Nation: Environment, Law and Politics in Australia* (ABC Books 1994) 16-31. For Western Australia, see Jennifer Hart and Alex Gardner, '*Re Warden Calder; Ex Parte Cable Sands (WA) Pty Ltd* Environmental Objections in the Mining Warden's Court' (1999) 18 AMPLJ 28.

prospecting, exploring and mining" was included as an object of its 1989 replacement.[250] Enhancing environmental protection was one of the major changes touted by the government when it introduced the 1989 Act.[251] The Act was amended in 1995 to strengthen its environmental provisions in the wake of a damning report outlining non-compliance by mines with environmental regulations and extensive rehabilitation costs born by the state.[252]

Section 269(4) of the MRA lists thirteen matters that the Land Court must 'take into account and consider' when making a recommendation. The three relevant to the present purpose are whether:

> (j) there will be any adverse environmental impact caused by those [mining] operations and, if so, the extent thereof; and
> (k) the public right and interest will be prejudiced; and
> (l) any good reason has been shown for a refusal to grant the mining lease.[253]

Measures to encourage mining and environmental responsibility have the potential to be at loggerheads with one another. Environmental groups and other stakeholders were concerned that the government department responsible for administering the Act was beholden to mining interests and thus incapable of achieving its environmental

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[250] MRA 1989, s2(d).

[251] Queensland, *Parliamentary Debates*, Legislative Assembly, 7 September 1989, 546 (MJ Tenni, Minister for Mines and Energy). The MRA bill was withdrawn and reintroduced by a new Minister following further consultation with constituencies. The main environmental provisions were unchanged in the reintroduced version. The brief second reading speech on reintroduction did not mention environmental concerns: Queensland, *Parliamentary Debates*, Legislative Assembly, 5 October 1989, 1383-1386 (RC Katter, Minister for Mines and Energy).

[252] Jacqueline Peel, 'An Environmental Revolution in the Queensland Mining Industry or Just a Changing of the Guard? An Analysis of the New Regime for the Environmental Regulation of Mining under the Environmental Protection Act (Qld) (2001) 20 AMPLJ 137.

[253] Others include whether the appropriate size and shape of lease and term is sought, the land is mineralised, will be adequately developed and that the applicant has the necessary technical and financial capabilities to do so, represents an appropriate use of land and will conform with sound land use management, past performance of the application, any disadvantages to the rights of others and compliance with the provisions of the Act.

objectives.[254] In 2000, the environmental management of mining activities was transferred to the state Environmental Protection Agency, pursuant to a 1998 election promise of the Beattie government.[255] Notwithstanding that the assessment and oversight of environmental management was transferred to the EPA 1994, the object of the MRA 1989 (to encourage environmental responsibility) and the requirement for the Land Court to consider environmental impacts and the public interest remained unchanged.[256] Thus, while the core of the assessment of environmental considerations takes place under the EPA 1994, environmental matters are still relevant and must be considered under the MRA 1989.[257] Put differently, it is possible that a lease could be refused on environmental grounds. This is a significant point. Whether the scope of assessment under each Act extends to include GHG emissions from the burning of the coal mined is addressed in the next section. The law on this point is not settled, however the majority view of the Court of Appeal is that these emissions can only be considered as part of the public interest under the MRA 1989 and not the EPA 1994. Therefore, the fact that the MRA 1989 requires some consideration of environmental matters is important for the discussion of the permissibility of considering what might otherwise occur, a matter addressed in Chapter 4.

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[254] Nicolee Dixon, *Environmental Controls over Mining: The Environmental Protection and Other Legislation Amendment Bill 2000* (Legislation Bulletin No 12/00, Queensland Parliamentary Library 2000) 2; Peel (n 252) 137-138.

[255] Environmental Protection and Other Legislation Amendment Act 2000 (Qld); Dixon (n 254) 2.

[256] On the amendments generally, see: Dixon (n 254); Peel (n 252).

[257] *De Lacey v Kagara Pty Ltd* [2009] QLC 77 [171]: "Furthermore, the retention of s.269(4)(j), which requires the Court to take into account whether there will be any adverse environmental impact caused by the mining operations and, if so the extent thereof, must be considered. Section 269(4)(j) was retained in the MRA despite the transferral of core environmental conditioning matters to the EPA."

Environmental Protection Act 1994

The Environmental Protection Act 1994 was part of a series of legislative developments across Australian states in the 1990s.[258] It represented a significant departure from previous approaches to environmental regulation, placing a much greater emphasis on pollution prevention rather than end-of-pipe solutions.[259] While the Act has been significantly amended over the years, its basic function remains the imposition of a general duty to protect the environment, the assessment and approval of activities that have the potential to harm the environment and the creation of offences for non-compliance. As noted above, environmental regulation of mining was transferred to the Act in 2000.

The object of the Act is: "to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (*ecologically sustainable development*)."[260] It imposes a general environmental duty on all Queenslanders not to: "carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to

[258] Neil Gunningham and Darren Sinclair, 'New Generation Environmental Policy: Environmental Management Systems and Regulatory Reform' (1998) 22 Melbourne ULR 592

[259] Gunningham and Sinclair (n 258); Queensland, *Parliamentary Debates*, Legislative Assembly, 9 September 1994, 9535-9538 (MJ Robson, Minister for Environment and Heritage).

[260] s3.

prevent or minimise the harm".[261] It also imposes a duty on those administering the Act to do so in a manner that 'best achieves' its objectives.[262]

It is an offence to unlawfully cause serious or material environmental harm.[263] Environmental harm is defined as "any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance."[264] An environmental value is "a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety" or one proscribed by policy or regulation.[265]

Environmental harm may be "caused by an activity—

(a) whether the harm is a direct or indirect result of the activity; or
(b) whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors."[266]

[261] s319(1). The duty is not self-enforcing. Rather if a person does not comply with the general environmental duty, an environmental protection order may be issued and for which non-compliance is an offence: s358 (d)(i); s361. See generally, Neil Gunningham, 'Should a general "duty of care" for the environment become a centerpiece of a "next generation" environment protection statute?" (2017) 34 EPLJ 198.

[262] s5

[263] ss437-438. 'Material' environmental harm is that which is 'not trivial or negligible in nature, extent of context', while 'serious' environmental harm is 'irreversible, of a high impact or widespread;' or 'caused' to an 'area of high conservation value' or 'special significance', such as the Great Barrier Reef: ss16(1)(a), 17(1)(a)-(b).

[264] s14(1).

[265] s9.

[266] s14(2).

In determining whether to recommend the granting of an environmental authority under the Act, the Court must consider, *inter alia*, what is called the "standard criteria".[267] These criteria include:

- the principles of ecologically sustainable development
- the "character, resilience and values of the receiving environment"; and
- the public interest.

At the time Alpha was considered, the principles of ecologically sustainable development were defined as those set out in the 1992 National Strategy for Ecological Sustainable Development.[268] The overarching goal of the Strategy was to develop in a way that "improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends".[269] The core objectives and guiding principles sought to balance economic development with the needs of current and future generations as well the protection of biological diversity and maintenance of essential ecological processes.

The extraction of coal, its transportation to the end-user and the consumption by the end-user are the three major sources of GHG emissions associated with mining. The first question that must be addressed is the extent to which each of these sources can be considered under the MRA 1989 or the EPA 1994. Put differently, which GHG emissions may be considered when evaluating:

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[267] s223(c) (now s191(g)). The standard criteria are defined in Schedule 4 of the Act.

[268] Consideration has since been limited to the precautionary principle, intergenerational equity and conservation of biological diversity and ecological integrity: Environmental Protection (Greentape Reduction) and Other Legislation Amendment Act 2012 (Qld).

[269] Reproduced in *Xstrata* (n 63) [255].

- the adverse environmental impact caused by mining operations
- the public interest under both Acts
- the other standard criteria under the EPA 1994; and
- whether there is any other good reason to refuse the mining lease.

The vast majority of GHG emissions come from the burning of coal by the end-user. If these GHG emissions do not fall within the scope of assessment, the question of what might otherwise occur in the absence of the mine due to market demand becomes moot. The scope of assessment of these Acts is addressed in the next section.

Scope of Assessment: Mine Attributable GHG Emissions

Introducing Scope 3 Emissions

It is useful to begin the discussion about the scope of assessment with a few words about terminology. In the early 2000s, the American think-tank, the World Resources Institute, and the World Business Council for Sustainable Development, a global business non-governmental organization, developed a GHG inventory system for corporate entities, called *The GHG Protocol*.[270] This system of classification of GHG emissions has become the international standard. An entity's emissions are divided into three 'scopes' depending on the level of control the entity has over them:

- 'Scope 1 emissions' are those emitted directly from sources owned or controlled by the entity;
- 'Scope 2 emissions' are those emitted indirectly, such as the emissions associated with the electricity consumed by an entity; and
- 'Scope 3 emissions' are all other indirect emissions that are a consequence of an entity's activities, but are emitted by sources not controlled or owned by that entity.[271]

[270] World Resources Institute and World Business Council for Sustainable Development, *The GHG Protocol: A Corporate Accounting and Reporting Standard* (Revised edn, WRI/WBCSD 2004).

[271] ibid 25.

It is estimated that the total lifecycle GHG emissions associated with the Alpha coal mine will be 1.8 $GtCO_2e$. Emissions resulting directly from the mining operation itself, its Scope 1 emissions, will average 0.35 $MtCO_2e$ per year for a total of 11 $MtCO_2e$ over the project's 30 year life.[272] These emissions are from diesel usage, land clearance and the release of methane gas during the extraction of coal. The mine will lead to the release of a further 0.55 $MtCO_2e$/yr for a total of 18 $MtCO_2e$ from its electricity consumption.[273] These are its Scope 2 emissions. The largest source of GHG emissions is from the transportation and end-use of coal, which accounts for 61 $MtCO_2e$/yr for a total of 1,829 $MtCO_2e$.[274] These are its Scope 3 emissions.

There is no dispute between the parties that consideration of Scope 1 and 2 emissions falls within the scope of the MRA 1989 and the EPA 1994. The question is whether Scope 3 emissions may be considered under either or both Acts.

Scope of the MRA 1989 and the EPA 1994

The Alpha case was not the first time the Land Court had considered objections to a coal mine, under the MRA 1989 and EPA 1994, on the basis of its contribution to anthropogenic climate change. In *Xstrata Coal Queensland v Friends of the Earth Brisbane*, another environmental organization, the Brisbane chapter of Friends of the Earth (FOE), raised similar objections to the development of the Wandoan coal mine.[275] Member Smith, who heard the Alpha case, drew heavily from the assessment of the

[272] Chris Taylor, 'Expert Report' (QLC, MRA082-13/EPA083-13, 30 May 2013) 10.

[273] ibid 11.

[274] ibid 11-12.

[275] (n 63).

Land Court President in the Wandoan opinion. The President had found that the reference to 'operations' in MRA s269(4)(j) limited the scope of assessment to those GHG emissions directly associated with the mine (i.e. Scopes 1 and 2). As environmental authorities under the EPA 1994 are issued for mining activities, the President found that the scope of assessment of the standard criteria, including the public interest, was also limited to those emissions directly associated with the mine.[276] Regarding the public right and interest under MRA s269(4)(k), the President said the following:

> The issue of climate change is clearly a matter of general public interest and a matter which may militate against the grant of the proposed leases. However, it is only one of a number of matters that the Court must weigh up in considering whether the public right and interest will be prejudiced by the project. The Court must balance all of the relevant considerations, including the economic and associated benefits of the project proceeding.[277]

The Wandoan case was not appealed due to FOE's concern over the potential for an adverse cost ruling.[278]

In Alpha, Member Smith agreed with the President's assessment that the scope of the inquiry under MRA s269(4)(j) was limited to mining emissions alone.[279] Both the Supreme Court and Court of Appeal agreed with this interpretation of the statute.[280] Regarding the public interest under MRA s269(4)(k), the Member interpreted the reference by the President to 'the issue of climate change' in *Xstrata* as including those GHG emissions related to the transportation and consumption of coal (i.e. Scope 3).[281]

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[276] (n 63) [597], [602].

[277] (n 63) [576].

[278] Bell-James and Ryan (n 92) 525.

[279] (n 2) [216].

[280] *Alpha Supreme Court judgment* (n 4) [39]; *Alpha Court of Appeal judgment* (n 4) [1], [33].

The Supreme Court agreed with this interpretation.[282] The Court of Appeal did not decide this point; however the majority appeared to accept the correctness of the Supreme Court's approach.[283] The President of the Land Court followed this approach in a subsequent objections hearing over another coal mine.[284]

The scope of assessment under the EPA 1994 is less clear cut. While Member Smith voiced his agreement with the Land Court President as to the scope of the EPA 1994, the portion of *Xstrata* reproduced in *Hancock* did not include the President's explicit finding that Scope 3 emissions do not fall within the scope of the public interest under the EPA 1994.[285] The miner appears to have interpreted Member Smith's conclusions regarding the public interest as applying to both Acts (an interpretation which was not in the miner's interest).[286] The Supreme Court, while agreeing with the Member's interpretation, did not always clarify to which Act it was referring when discussing the public interest.[287] The President of the Land Court in a subsequent case, and CCAQ in its submissions to the Court of Appeal on Alpha, both interpreted the Supreme Court's reasons as holding that Scope 3 emissions are to be considered as part of the public interest under the EPA 1994.[288] The majority of the Court of Appeal

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[281] (n 2) [218].

[282] *Alpha Supreme Court judgment* (n 4) [39].

[283] *Alpha Court of Appeal judgment* (n 4) [42]. The President of the Court of Appeal, Justice McMurdo, did not discuss this provision in her opinion.

[284] *Adani* (n 63) [447].

[285] (n 2) [212], [216]; *Xstrata* (n 63) [602].

[286] Hancock Coal, 'Written Submissions' (QSC, 4249/14, 29 August 2014) [36(b)].

[287] *Alpha Court of Appeal judgment* (n 4) [39] cf [41]. It is also not clear to which GHG emissions, Douglas J is referring in [34] when noting that the issue is relevant under the EPA 1994.

[288] CCAQ, 'Outline of Argument' (QCA, 9986/15, 30 October 2015) [49]; *Adani* (n 63) [455].

acknowledge this possible interpretation of the Supreme Court opinion, but considered that on a fair reading of the Supreme Court's entire judgment the reference to the public interest was with respect to the MRA 1989 alone.[289]

The majority of the Court of Appeal disposed of the appeal on the basis that it was not impermissible to take into consideration what might otherwise occur in the absence of the mine.[290] It was, therefore, unnecessary for the majority to consider the correctness of this construction of the EPA 1994. The President of the Court of Appeal, Justice McMurdo, wrote a separate opinion in which Her Honour found that given the broad scope of the object of the Act and definition of environmental harm, GHG emissions from the transportation and burning of coal do fall within the scope of assessment of the EPA 1994.[291] The High Court dismissed the special leave application on the basis that this case was not 'a suitable vehicle' to resolve the matters raised.

The main take away from this Byzantine affair is that Scope 3 emissions may be considered as part of the public interest under MRA 1989 and that the law is unsettled with respect to the EPA 1994. I say unsettled because of the language used by the High Court in dismissing the application for special leave, and the divergent treatment by the Court of Appeal. Calling a case an "unsuitable vehicle" to resolve a question is often indicative of error.[292] It may be contrasted with a phrase like 'there is no reason to

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[289] *Alpha Court of Appeal judgment* (n 4) [42]. Bennett notes that finding Scope 3 emissions relevant to the public interest under the EPA but not under other aspects of the standard criteria, such as ESD principles, is illogical: (n 95) 542.

[290] (n 4) [45], [47].

[291] (n 4) [11].

[292] Ben Wickham, 'The procedural and substantive aspects of applications for special leave to appeal in the High Court of Australia' (2007) 28 Adelaide LR 153, 157-158.

doubt the correctness of the decision' for which one could have more confidence in the lower court judgment. There is no way of knowing what error the High Court had in mind when it dismissed the case, however given the divergent views by the Court of Appeal, the scope of assessment under the EPA 1994 is a strong contender. In the absence of a High Court ruling, or further consideration by the Court of Appeal, the position of the majority of the Court stands. We therefore find ourselves in the very peculiar situation of being able to consider the effect of Scope 3 emissions as part of the public interest under an Act whose primary purpose is to promote mining, but not under an Act, whose primary purpose is to protect the Queensland environment. The holding has implications for establishing the impermissibility of considering what might otherwise occur. It is arguably easier to establish the irrelevance of that factor under the EPA 1994 than it is under the MRA 1989. We shall return to this question in Chapter 4.

The Parties' Perspectives

It is beyond the scope of this thesis to analyze the parties' submission on the question of the appropriate scope. However, three points are important. The first is that these submissions formed a significant portion of CCAQ's case, especially to the Land and Supreme Courts. The second is that both parties relied on causation-based arguments to support their submissions.

In Chapter 2, little attention was paid to the question of legal causation / scope of liability. The purpose of the concept of causation in both negligence and homicide is the attribution of responsibility.[293] Establishing a factual connection to the wrongdoing

[293] *The National Insurance Co of New Zealand Ltd v Espagne* (n 123), 591 (Windeyer J) "Law is not concerned *rerum cognoscere causas*, but with attributing responsibility to persons."

is insufficient to ground responsibility, as it casts the net too widely, hence the need for the second prong of the causal inquiry. It is clear that from a functional standpoint, a mechanism is needed to draw the boundaries around relevant environmental impacts. In theory, it may be possible to trace a line both up and downstream of an activity to countless potential environmental impacts, casting the net so wide that any evaluation collapses under its own weight. The question is how to set those boundaries. A complete answer is beyond the scope of this thesis. Suffice it to note that from a practical standpoint, limits will be imposed by the inability to make a convincing case that a connection can be found, even with due regard for the precautionary principle. Second, the terms of the statute will provide the necessary guidance, as 'operations' in the MRA 1989 or the expansive definition of environmental harm under the EPA 1994, has done here. Resort to private or criminal law concepts is not appropriate as the task is to consider whether to approve a project and not to assign responsibility.[294] It is possible to think of the miner as 'responsible' for environmental impacts when conditions on a project's approval are imposed that require the mitigation or offsetting of an impact. However, one must also remember that the Court may decide that the environmental impacts associated with the mine are unacceptable and thus recommend that it be refused. There is no concept of responsibility on the part of the project proponent at play in instances of refusal.

The third, and most salient, point is related to the impact of the first two. The time spent on debating the appropriate scope of assessment, the ensuing confusion as to what was decided and the reliance on causal arguments all contribute to the difficulty in

[294] Godden and Peel (n 61); Bennett (n 95) 545 cf Gibbs (n 60).

seeing or distinguishing the other causal argument: the evaluation of a change in global GHG emissions. It is to this question we now turn.

Land Court and the Merits of the Case

Climate Objectors

CCAQ objected to the Alpha mine on the basis that the project would '*increase* the likelihood, severity and longevity of the environmental harms that will result from climate change' through its GHG emissions from the extraction, transportation and use of the coal mined.[295]

CCAQ based its objection on the premise that allowing the mine to proceed *will* result in GHG emissions which will in turn contribute to anthropogenic climate change. Anthropogenic climate change will have adverse effects globally as well as in Queensland.[296] It focused the core of its expert evidence and submissions on establishing the significance of this contribution as the fact that anthropogenic climate change is occurring and the quantum of GHG emissions to be released were not in dispute.[297] It relied on the concept of a global carbon budget to communicate the significance of the mine's contribution. A global carbon budget is the total amount of GHG emissions that can be emitted within a given timeframe that will enable the world to stay below a chosen temperature threshold of warming with some degree of

[295] CCAQ, 'Objection Form' (QLC, MRA082-13/EPA083-13, 20 February 2013) 1(c), 2(c) (emphasis added).

[296] CCAQ, 'Closing Submissions' (QLC, MRA082-13/EPA083-13, 18 October 2013) [7], [97].

[297] David Karoly, 'Likely Impacts of Greenhouse Gas Emissions from the Alpha Coal Mine' (Expert Report, QLC, MRA082-13/EPA083-13, 1 July 2013); CCAQ, 'QLC Closing Submissions' (n 296) [117]-[119].

confidence.[298] Under the Paris Agreement that limit has been set as 'well below' 2°C above pre-industrial levels.[299] CCAQ's expert calculated that the mine's GHG emissions would consume 0.3% of the remaining 2°C budget.[300] CCAQ argued that considerable weight ought to be given to the climate impacts of the mine and that the Court recommend project refusal.[301]

The carbon budget calculations were not the only evidence of the mine's climate impacts before the court. A second climate objector, a concerned citizen, adduced expert evidence on the marginal impact that the mine's GHG emissions would have on global average temperature warming, coral reef bleaching, species at risk of extinction and social costs.[302] Using a simple, but widely used, climate model, the expert estimated that all GHG emissions from the mine would cause between 0.013-0.032°C of additional warming.[303]

The Miner

Climate change is caused by the extent of greenhouse gases emitted globally. In the miner's view, environmental harm would only arise if the mine resulted in an *increase* in global GHG emission levels. If global GHG emission level were unchanged by the

[298] Malte Meinshausen and others 'Greenhouse-Gas Emission Targets for Limiting Global Warming to 2°C' (2009) 458 Nature 1158.

[299] Paris Agreement, art 2.1(a).

[300] Karoly (n 297) [28].

[301] CCAQ, 'QLC Closing Submissions' (n 296) [118]-[119], [121].

[302] Roger Jones, 'Assessment of Selected Aspects of the Alpha Coal Project with respect to Climate Change' (Expert Report, QLC, MRA082-13/EPA083-13, 2 July 2013).

[303] ibid [12].

approval of the mine, then the mine could not be said to cause any adverse impact on the climate. The miner argued that global demand for coal would ensure that the same amount of coal was consumed, and thus the same amount of GHG emissions released, regardless of whether or not the Alpha mine was approved, as such the mine could not be said to cause any environmental harm.[304] In its words, the Alpha coal mine would have 'no net impact' on GHG emissions.[305] In fact, it was argued that as coal from the Alpha mine was more energy efficient than average, refusing the project and replacing that coal from another source may actually lead to an increase in global GHG emissions.

In support of its causal claim of no change in GHG emissions, the miner drew on analogies with the operation of causation in other areas of law. It noted:

> [A]s in other areas of discourse, an activity cannot properly be characterised as a cause of an impact if the impact would have occurred in any event. Here the alleged impact on the (global) environment will occur in any event (as the same quantity of coal will be burnt overseas irrespective of whether it is obtained from the Alpha mine or another mine).[306]

It cited the failure to warn medical negligence case, *Chappel v Hart*, and the equity case of *Beach Petroleum NL v Kennedy*, discussed in Chapter 2.[307]

[304] Hancock Coal, 'Written Submissions' (QLC, MRA082-13/EPA083-13, 18 October 2013) [45], [88]-[93].

[305] ibid [45].

[306] ibid [46].

[307] *Chappel* (n 119) [32]; *Beach Petroleum* (n 225) [449]-[450]; Hancock Coal, 'QLC Submissions' (n 304) [228].

In alternate, the miner argued that even if one could establish an increase in global GHG emissions, it would not be possible to establish a factual connection between those GHG emissions and any adverse impact in Queensland: "the emissions are too insignificant and too far removed from Queensland to be linked in any scientific way to any adverse environmental impact in Queensland".[308] To constitute a cause, an activity must make a material contribution to the impact.[309]

The miner adduced evidence from a coal market expert and a climate policy expert to support its assertion that the demand for coal was robust.[310] The coal market expert contended that "if the proposed Alpha Coal Mine did not proceed, the coal which would have been supplied from the proposed Alpha coal mine will readily be supplied by alternative suppliers."[311] A climate policy expert concurred that refusing the mine would be economically inefficient and environmentally ineffective as it would only lead to the shifting of mining efforts overseas and result in an equivalent amount of coal consumption and GHG emissions.[312]

[308] Hancock Coal, 'QLC Submissions' (n 304) [46]. The Statutory Party also adopted the view that the mine's emissions were insignificant, noting that they represented a 'miniscule percentage of total global emissions', and thus could not be said to give rise to serious or irreversible environmental harm: Chief Executive administering the Environmental Protection Act 1994, 'Outline of Submissions' (QLC, MRA082-13/EPA083-13, 18 October 2013) [87]. The Statutory Party did not make any submissions with respect to the contention that the mine would not cause a net impact on the environment.

[309] Here reference was made to *March* (n 106) 514; *Henville v Walker* (2001) 206 CLR 459 [60], [106]. Hancock Coal, 'QLC Submissions' (n 304) [228].

[310] Andrew Offen, 'Expert Report' (QLC, MRA082-12/EPA083-13, 30 May 2013).

[311] ibid 3.

[312] Jon Stanford, 'Expert Report' (QLC, MRA082-13/EPA083-13, 30 May 2013).

The Replies

CCAQ characterized the miner's no net impact argument as one of 'deflected responsibility' which rested on the proposition that 'if we don't do it then someone else will'.[313] It argued that there was no textual foundation in either Act to support the approach.[314] "Nothing in either the EPA or the MRA suggests that a relevant impact ceases to be an impact simply because it is possible that equivalent environmental harm will be caused by some other project."[315] To adopt the miner's approach would be simply to 'ignore' the contribution of this mine.[316] The 'hypothetical possibility' that coal from another mine might cause the same environmental harm if Alpha is not approved does not detract from the fact that Alpha '*will* make a significant partial contribution to climate change occurring' if it is approved.[317] If the argument were accepted, it would preclude the Court from considering any GHG emissions as it is equally applicable to Scope 1 and 2 emissions to the extent that these would be replaced by another Australian mine in the absence of Alpha.[318]

Notwithstanding the fact that CCAQ considered the argument to have no merit, it did also challenge the evidence adduced by the miner in support of the contention.[319] It provided expert evidence on the costs of various electricity generating technologies over the next 30 years, including the falling costs of renewable energy (wind and solar)

[313] CCAQ, 'QLC Closing Submissions' (n 296) [112].

[314] ibid [113].

[315] ibid [114].

[316] ibid [114].

[317] ibid [95].

[318] ibid [114].

[319] ibid [128]-[140].

in order to challenge the assertion that coal demand would, in fact, remain robust over this period.[320]

The miner countered that it was in no way attempting to deflect responsibility or asking the Court to 'ignore anything.'[321] There was nothing to ignore as there was no change in global GHG emissions. It reiterated that '[i]n judging what is a result of the Alpha mine and what is an impact of it, it is at least necessary to compare the position if the activity proceeded with the position if the activity did not proceed.'[322] The miner also sought to capitalize on the fact that CCAQ had chosen not to have its expert comment on the price effects of project refusal, even though being 'apparently qualified to do so', as further evidence of the robustness of coal market demand.[323]

Land Court Judgment

The Land Court agreed with the miner that refusing the project would have no effect on global GHG emissions as the demand for coal would ensure that the same amount of coal was burnt in any event and thus that no harm would be caused to the Queensland environment.[324] This factual finding made any questions of the appropriate scope of assessment under the two Acts moot, even though, as discussed above, the Court had found that Scope 3 emissions may be considered as part of the public interest under the MRA 1989.

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[320] Antoine Nsair 'Report on Future Prospects for Electricity Generation Technologies over the Life of the Alpha Coal Mine' (Expert Report, QLC, MRA082-13/EPA083-13, 11 July 2013).

[321] Hancock Coal, 'Written Submissions in Reply' (QLC, MRA082-13/EPA083-13, 23 October 2013).

[322] ibid [127].

[323] ibid [121].

[324] (n 2) [229]-[232].

> [T]he [coal market evidence] would necessarily lead to the conclusion that global Scope 3 emissions will not fall if Alpha does not proceed as the coal will simply be sourced from somewhere else.
>
> Put another way, *it is the demand for electricity* to the extent that it is met by coal-fired generators *that causes the Scope 3 emissions*, and the facts as set out in this case clearly show that Alpha is but one of a myriad of suppliers, both local and around the world, who will seek to meet this existing demand.
>
> I can sympathise with the position of the objectors who see GHG emissions rising, and the likely adverse climate change consequences that will flow should nothing be done to alter the course that the world is heading down. I have no reason to doubt the eminent expert evidence that was presented in this case to that effect. However, I must *on the evidence of this case determine that it is the demand for coal-fired electricity, and not the supply of coal from coal mines, which is at the heart of the problem.*
>
> Clearly, the possibility of dire consequences from climate change is a matter which falls to be addressed by the international community and the Federal Government. Even if it were within the jurisdiction of this Court (which apart from "Public Interest" principles I have found it not to be) then the *clear and unambiguous facts of this case show that there will be no reduction of GHGs if the Alpha mine is refused*, and, indeed, depending on the source of replacement coal, such replacement coal may well, on the evidence, result in an increase in GHG emissions.[325]

The Land Court considered that the argument of no net impact appeared to apply with equal force to Alpha's Scope 1 and 2 emissions, to the extent that Alpha is replaced by another Australian mine.[326]

In concluding that there was no change in global GHG emissions, there were no adverse climatic impacts attributable to the mine and thus no basis upon which to refuse it on climate change grounds. In the end, the Land Court recommended refusal due to the potential adverse effect on groundwater. The Court was unsatisfied with the nature of the evidence regarding these impacts.[327] The Court held that it would be against the public interest to grant the mining lease until all the necessary water licences had been secured. It did make an alternative recommendation, to approve the project, once such

[325] ibid [229]-[232] (emphasis added).

[326] ibid [249].

[327] ibid [396]-[400], [412]-[414], [425]-[426].

licences had been obtained. The assessment and granting of water licences falls under the Water Act 2000 (Qld) and was not a matter before the Land Court.

Judicial Review

The Climate Objector

CCAQ applied for judicial review of the Land Court's decision to the Supreme Court of Queensland, appealed that decision to the Court of Appeal and sought special leave to appeal to the High Court, which was denied.[328]

Its grounds of review in the Supreme Court were numerous, but essentially boil down to a failure to consider a relevant matter (Scope 3 emissions) and the taking into consideration of an irrelevant one (harm that may otherwise arise from the consumption of coal from alternative sources: "replacement harm").[329] In the Court of Appeal, the grounds narrowed to taking into consideration an irrelevant matter (replacement harm) under both Acts.[330] CCAQ only sought review of the EPA 1994 before the High Court,[331] where it raised two special leave questions:

> (1) Whether Scope 3 emissions fell within the definition of environmental harm under the EPA 1994 and, if they did;
> (2) Whether 'a factual finding that there would be no reduction in total global greenhouse gas emissions if a mine is refused require[d] the conclusion that approval of the mine will not cause environmental harm under the EP Act, in circumstances where

[328] CCAQ, 'Application for a Statutory Order of Review' (QSC, 4249/14, 6 May 2014); CCAQ, 'Notice of Appeal' (QCA, 9986/15, 2 October 2015); CCAQ, 'Application for Special Leave to Appeal' (HCA, B65/16, 25 October 2016).

[329] CCAQ, 'QSC Application' (n 328) [6]-[7], [13]-[16]; CCAQ, 'Outline of Argument' (QSC, 4249/14, 11 July 2014) [2(b)]. CCAQ also raised non-climate related grounds in its initial application for review and sought a separate review of the subsequent decision by the EPA Minister to grant an environmental authority, however none of these matters are relevant to the present inquiry.

[330] CCAQ, 'QCA Application' (n 328).

[331] By this point, it was clear that Scope 3 emissions were within the scope of the public interest under the MRA 1989.

> the mine, if approved, will allow the production of coal the combustion of which will, as a factual matter, contribute to climate change?'[332]

Part of the change in grounds was due to the findings on the scope of assessment discussed earlier.

With respect to the change in global GHG emissions, CCAQ's submissions remained in essence those put to the Land Court. The impact of the mine should be evaluated on the basis of what it will do, if approved, and to consider any matter that would have the effect of negating this relevant impact was not permitted. In the Supreme Court, the bulk of its submissions addressed the question of the scope of assessment and whether Scope 3 emissions fall within it.[333] In front of the Court of Appeal, the reasons for why the scope extended to include Scope 3 became those for why considering replacement harm was irrelevant.[334]

As for the miner's argument that the mine would not, in fact, cause any change in global GHG emissions, CCAQ submitted:

> The attraction of [the miner's] argument appears to arise when causation of environmental harm is considered in the abstract, in neglect of the principles in *Allianz Australia Insurance Ltd v GSF Australia Pty Ltd* (2005) 221 CLR 568 (*Allianz*) and in neglect of the statutory scheme. It is no doubt attractive, in the abstract, to postulate that, if I don't do it, someone else might do so.[335]

[332] CCAQ, 'HCA Application' (n 328) [4]-[5].

[333] CCAQ, 'QSC Outline of Argument' (n 329) [56]-[57], [64]-[84], [87]-[89], [97]-[114].

[334] These include: the object of the EPA, the duty it imposes on the Land Court to exercise its powers in a way that best achieves the object of the Act, the ability to achieve ecologically sustainable development, and the need to consider the environmental harm which is made lawful with the granting of an environmental authority: (n 329) [56]-[58], [60]-[62]. It will be remembered that the EPA creates offences for causing material or serious environmental harm in the absence of such approval.

[335] CCAQ, 'QSC Submissions' (n 329) [61].

It conceded that predicting the future is factually uncertain.[336] However, from a legal standpoint, CCAQ noted that there is:

> [A] strangeness [in] the notion that a certain person's unlawful activity (causing environmental harm) should be ignored because some other actor in the market may cause similar harm. No other unlawful actor could argue that the impact of her actions should be ignored because another actor might have stepped in to cause the same harm.[337]

It elaborated in its appeal submission that if that were the case: "no hired killers could be prosecuted."[338] It was also noted that the notion of 'replacement harm' could be applied to other environmental harms and could be used by any developer, in any jurisdiction, who would otherwise be replaced by a competitor.[339] It cited no case law in support of these propositions.

The Miner

The Land Court had agreed with the miner that the Alpha coal mine would have no impact on global GHG emission levels and thus cause no environmental harm to Queensland. The crux of the miner's submissions to the Supreme Court was that, as a *factual* matter, this finding by the Land Court was not reviewable.[340] In the Court of Appeal, the miner argued that even if CCAQ's approach was adopted, taking into account what would otherwise happen was a permissible matter and questions of weight are for the Land Court to decide.[341]

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[336] ibid [62].

[337] CCAQ, 'QSC Submissions' (n 329) [63]; CCAQ, 'QCA Submissions' (n 288) [58].

[338] CCAQ, 'QCA Submissions' (n 288) fn106.

[339] CCAQ, 'QCA Submissions' (n 288) [54]-[55], [58].

[340] Hancock Coal, 'QSC Written Submissions' (n 286) [50].

[341] Hancock Coal, 'Written Submissions' (QCA, 9986/15, 14 December 2015) [7]-[9], [19]-[29].

It argued that the approach taken by the Land Court to compare the state of affairs with and without the project is in line with authority.[342] Reference was made to a Federal Court case concerning another coal mine assessed under federal environmental protection legislation in which the presiding judge noted that: "the appropriate method to determine the impacts of a project is: "[t]he relevant impact must be the difference between the position if the action occurs and the position if it does not.""[343] The miner reiterated its point that Alpha's Scope 3 emissions could not constitute a 'cause' of environmental harm as they made no difference to global GHG levels.[344] It noted that while the 'but for' test had been rejected as the exclusive test of causation; it remained useful as a negative criterion, citing passages from *Roads and Traffic Authority v Royal*, *Chappel v Hart* and *Finishing Services*.[345] The miner asserted that Alpha's Scope 3 emissions failed this test.

The miner criticized CCAQ submissions as proceeding on the basis that the mine's Scope 3 emissions 'will cause' environmental harm, stating that there was no finding of fact that the mine will cause 'actual' environmental harm.[346] "That is the very point which was decided against CCAQ on factual grounds."[347] It noted that a proper account of the Land Court's reasons show that the Court, in fact, found the opposite: that another entity '*will* supply coal' if Alpha does not proceed.[348]

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[342] ibid [14].

[343] ibid [14].

[344] ibid [25].

[345] Hancock Coal, 'QSC Submissions' (n 286) [72]; Hancock Coal, 'QCA Submissions' (n 341) [25].

[346] Hancock Coal, 'QSC Submissions' (n 286) [46]; Hancock Coal, 'QCA Submissions' (n 341) [6].

[347] Hancock Coal, 'QCA Submissions' (n 341) [16].

[348] Hancock Coal, 'QSC Submissions' (n 286) [40]; Hancock Coal, 'QCA Submissions' (n 341) [14].

'Replacement coal' will cause the same level of emissions, therefore there can be no attributable or 'replacement' harm.[349] The miner argued that CCAQ ignored or otherwise attempted to discount this finding.[350] It dismissed CCAQ's analogy to criminal law and the 'strangeness' of taking into consideration what others might do as "difficult to understand" and of "no apparent bearing" on the considerations of the Land Court.[351]

The miner submitted that it was not necessary for the Land Court to consider the effect of *releasing* Scope 3 emissions in 'isolation' from the global context and noted that the Land Court had not made any findings in this regard.[352] Even if the Land Court's finding could be so described, there was no legal error in also considering what would otherwise occur in the absence of the project. That factor would clearly be a 'logically relevant matter' which fell within the breadth of considerations required under both Acts.[353] As CCAQ did not seek review on the basis of irrationality, the question of the relative weight to assign to these factors was for the Land Court to decide and not open to review.[354]

[349] Hancock Coal, 'QCA Submissions' (n 341) [15].

[350] Hancock Coal, 'QSC Submissions' (n 286) [40]; Hancock Coal, 'QCA Submissions' (n 341) [6].

[351] Hancock Coal, 'QSC Submissions' (n 286) fn52.

[352] ibid [41], [45].

[353] Hancock Coal, 'QCA Submissions' (n 341) [25], [29].

[354] ibid [28]

The Supreme Court

The Supreme Court held that the Land Court's factual finding that there would be no impact on global GHG emissions as a result of the mine was one open to be made on the evidence and not susceptible to review.[355] In other words, the Land Court did not err by not considering Scope 3 emissions, even though it had determined that these emissions fell within its jurisdiction under the MRA 1989.

The Supreme Court considered the argument that taking into consideration the 'notional environmental harm that might be caused by another coal mine somewhere else in the world' was an irrelevant matter to be unpersuasive. Douglas J noted:

> Although the objective of the EPA is environmental protection in the context of ecologically sustainable development, it does not require the learned member to ignore what is likely to happen elsewhere in the world, even if this particular mine does not go ahead. These were essentially matters for the Land Court and do not reveal legal error in the approach to its factual finding.[356]

The Court of Appeal

The Court of Appeal agreed that the factual findings made by the Land Court, that the mine would have no impact on global GHG emission levels, were beyond the scope of judicial review.[357] The Court noted the differences between the parties as to the effect the mine would have on global GHG emissions.[358] In the Court's opinion, it was unnecessary to decide whether the Land Court had found that the mine would have an effect on global GHG emissions but assigned it no weight on account of "replacement

[355] Hancock Coal, 'QSC Submissions' (n 286) [41], [45].

[356] ibid [46].

[357] *Alpha Court of Appeal judgment* (n 4) [13], [42]-[43].

[358] ibid [44]-[45].

harm" from another source or whether it found that there would be no net impact on account of "replacement coal". In other words, it was unnecessary to decide whether the finding was a causal or a deliberative one. The reason being that it could not be established that considering replacement harm was an irrelevant matter.[359] The function of the Land Court is to 'consider' the enumerated elements under each Act.[360] It is up to the Court to determine the appropriate weight to assign to these elements. The centrality of the concept of environmental harm in the EPA 1994, its objective to protect the Queensland environment or the duty it imposes on those administering its functions to act in a manner which best achieves this objective do not alter the fact that the question of weight remains one for the Land Court.[361] The Court concluded by noting that:

> Even upon the premise that the Land Court was obliged to seek to further that object when considering the recommendations to be made to the EPA Minister, the member was not obliged to ignore evidence to the effect that global greenhouse gases would not be increased by the mine proceeding.[362]

High Court of Australia

The High Court dismissed the application for special leave using language indicative of an error in the lower court reasoning.[363] It could be limited to the proper scope of the EPA 1994 or the approach taken to assessing global GHG emissions or both. It is impossible to know which one it may be. By the time the case had reached the High Court, the EPA Minister had already approved the environmental authority. The Court would, therefore, have been required to consider the validity of the Minister's decision

[359] ibid [45].

[360] ibid [46].

[361] ibid [47].

[362] ibid [47].

[363] Wickham (n 292).

in addition to the other grounds of review sought. That matter had not been considered by the Court of Appeal. Many of the questions raised by the Court during the hearing were directed to this matter and it likely contributed to the Court's determination that this case was not a 'suitable vehicle'.[364]

The transcript of the hearing provides little insight into the Court's thinking on assessing the impact to global GHG emissions. Justice Keane asked a series of questions related to the finding by the Land Court that the event would happen anyway, that the original objection raised by CCAQ had been on the basis that the mine would *increase,* and not simply release, GHG emissions, and how the factual findings by the Land Court were directed to that question.[365] These are only questions and thus do not reveal the Court's thinking. To argue otherwise would be to speculate widely. However, they do highlight the need to address these matters squarely.

Before turning to that assessment, it is useful to make a brief detour to consider the Federal Court challenge to the Carmichael mine. It raises similar questions as the Alpha case and illustrates that these matters are not unique to the specific legislative context of Queensland.

Federal Detour: The Carmichael Mine

The Carmichael mine is the largest of the proposed coal mines in Queensland's Galilee Basin and has been the subject of numerous legal challenges, including in front of the

[364] (n 1).

[365] ibid, ln 304-305, 572-575, 584-585, 589-591, 609-610.

Land Court and at the federal level.[366] A detailed analysis of this mine is beyond the scope of this thesis; however I would be remiss if I did not mention the challenge made to the Commonwealth Environment Minister's decision to approve that project under federal legislation, the Environment Protection and Biodiversity Conservation Act 1999 (EPBCA 1999), as it raises substantially the same issues as in Alpha.[367]

The EPBCA 1999 is both broader and narrower than the MRA 1989 and the EPA 1994. It is broader in the sense that there is no doubt that Scope 3 emissions fall within the purview of the Act, but narrower in that it is only concerned with the adverse effect these emissions will have on a short list of matters of national environmental significance.[368] One such matter is the Great Barrier Reef.

In deciding whether or not to approve a project under the Act, the Minister must consider (a) 'matters relevant to any matter protected' and (b) 'economic and social matters'.[369] Within these two broad categories, the Minister must take into consider an enumerated list of specific factors, such as the principles of ecologically sustainable development and various environmental assessment documents, as well as considerations specific to each matter of national environmental significant.[370] The Minister is explicitly prohibited from taking into account a matter which does not fall within that scope.[371]

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[366] See: Environmental Law Australia <http://envlaw.com.au/carmichael-coal-mine-federal-court/> and <http://envlaw.com.au/carmichael-coal-mine-case/>.

[367] (n 66).

[368] *ACF Full Federal Court* (n 66) [38], [56].

[369] EPBCA 1999, s136(1).

[370] EPBCA 1999, ss136(2), (4), 137-140.

In his statement of reasons for approving the mine, the Minister accepted the estimates of the total lifetime quantity of GHG emissions to be *released* from the mining, transport and consumption of coal ($4.7GtCO_2e$).[372] However, he did not consider that it was possible to quantify any net change in global GHG emission levels from the consumption of coal due to a number of variables, which, in turn, made it impossible to evaluate any potential impact these emissions would have on global temperature and by extension, the Great Barrier Reef.[373]

> While the proponent has identified a quantity of overseas GHG emissions that may result from burning the coal, these emissions are not a direct consequence of the proposed action. *The actual quantity of emissions that is likely to be additional to current global GHG emissions depends on a range of variables*. They include: *whether the coal replaces coal currently provided by other suppliers* …
>
> I found that the quantity of overseas GHG emissions from the Carmichael Coal Mine and Rail project proceeding is subject to a range of variables. It is possible to determine a possible total quantity of these emissions that may occur, as provided under paragraph 136. However, *determining the actual net emissions* from the transport by rail, shipping and combustion of the product coal that would occur as a result of the project, after taking account of the variables outlined above, *is speculative* at this stage. *It is therefore not possible to draw robust conclusions on the likely contribution of the project to a specific increase in global temperature*. As a result it is difficult to identify the necessary relationship between the taking of the action and any possible impacts on relevant matters of national environmental significance which may occur as a result of an increase in global temperature.[374]

Notwithstanding these difficulties with quantifying the net impact of the mine, the Minister considered that any GHG emissions which did occur would be addressed through international emission control frameworks.[375] Therefore the Minister did not

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[371] EPBCA 1999, s136(5).

[372] Hunt (n 65) [136].

[373] ibid [138], [140].

[374] ibid. The other two reasons are: "whether the coal is used as a substitute for other energy sources, and the efficiency of the coal burning power plants". As the Minister accepted the estimates of total GHG emissions, any uncertainty over the efficiency of power plants can be set aside. Any question of substitution raised the same issue as considering replacement coal.

[375] ibid [141]. Correspondingly, domestic emissions from the mining operations would also be adequately addressed through national and state climate policy [139].

consider that the GHG emissions from the mine would pose an unacceptable threat to the Great Barrier Reef or other protected matters and approved the project.[376]

The Australian Conservation Foundation (ACF) sought judicial review of this decision on the basis that the Minister had misconstrued the nature of the impacts to be considered.[377] At first instance and on appeal to the Full Federal Court, ACF stressed that the impacts which must be considered are those that will occur in a 'physical cause and effect' sense if the project proceeds.[378] Any consideration of the net change in the atmosphere on account of other sources is irrelevant. There is no discussion of why impacts ought to be assessed on a 'will occur' basis. In the Minister's view, the manner in which 'impact' is defined in the Act required that a change in global GHG emissions must be established separate from what would otherwise occur.[379] There was no 'mistake' in the Minister's approach, far from being 'irrelevant', whether a net increase in GHG emissions would occur, was 'essential' to determining the relevant impacts.[380]

At first instance, the Federal Court found no reviewable error in the Minister's approach.[381] ACF's case was characterized as seeking to review the merits of the Minister's factual determination that the mine would have no net impact on combustion

[376] ibid [48], [53], [56], [192].

[377] *ACF first instance* (n 66) [68].

[378] *ACF first instance* (n 66) [68], [74]; *ACF Full Federal Court* (n 66) [46].

[379] *ACF first instance* (n 66) [91].

[380] Minister for the Environment, 'Outline of Submissions' (FCA, QUD1017/2015, 26 April 2016) [33].

[381] *ACF first instance* (n 66) [165].

emissions.[382] The Full Federal Court, in dismissing the appeal, also considered ACF to be challenging the merits of the decision.[383] It found it curious that ACF did not challenge the decision on relevancy grounds, given its insistence on the irrelevancy of other sources of coal.[384]

Making Sense of Alpha: The Causal Perspective

It is possible to interpret the finding that the Alpha mine will have no impact on global GHG emissions in two ways: as a causal statement or as a deliberative one. By causal, I mean that the mine will have no impact on global GHG emissions. This is the approach adopted by the miner. Under a deliberative approach, both the impact that the mine will have on global GHG emissions and the fact that another mine would likely produce the same harm in the absence of the first are considered. CCAQ adopts this approach, but argues that consideration of the other mine is irrelevant and ought to be given no weight. The difference in approaches is reflected in the contrasting terms used by the parties: 'replacement coal' which produced no net impact' versus 'replacement harm' which substitutes harm caused by the mine with that of another. CCAQ's deliberative approach is also based on a different view of how a change in global GHG emissions is caused.

This section addresses the causal approach to changes in GHG emissions. It uses the comparative 'key' from the law of negligence and homicide to reveal the approaches adopted by the parties. It argues for the correctness of CCAQ's approach.

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[382] ibid [174].

[383] *ACF Full Federal Court* (n 66) [49], [58].

[384] ibid [49].

It concludes by considering some of the reasons why the Courts have decided the point against CCAQ. Much of this analysis is equally applicable to the Carmichael case, however the focus remains on Alpha.

Constructing the Future: The Role of Hindsight Necessity

The Parties

CCAQ objected to the Alpha coal mine on the basis that allowing it to proceed would cause an *increase* in global GHG emissions as a result of mining operations and the transportation and consumption of the coal produced. In its view, the *release* of GHG emissions *will* cause this *increase* in global levels and will result in harm to the climate globally and within Queensland. ACF adopted a comparable approach.

The miner challenged the assertion that there would be any change in global GHG emission levels as a result of the mine. Demand for coal would ensure that this level was reached, regardless of whether or not the mine was approved or refused. The mine would not cause any environmental harm as it would make no difference to global levels. The Land Court agreed with this factual premise, while the Supreme Court found no reviewable error. The Commonwealth Minister adopted the same approach which was found to be without error by the Full Federal Court.

The two approaches reveal different approaches to the construction of a hypothetical world against which to determine the causal effect of the mine's approval and the importance of counterfactual reasoning in proving this effect. In Chapter 2, I reviewed how both the law of negligence and homicide determine a factual cause. In neither case, does the possibility of the same harm occurring in the future from another

source, or the likelihood that past harm would equally have occurred due to a standby factor, pose a problem for the identification of the factual cause. In each case, the law benefits from hindsight necessity. In the case of omissions, greater emphasis is placed on using counterfactual reasoning to establish the causal effect of the omission.

The approach adopted by CCAQ and ACF is based on hindsight necessity. When they make the causal claim that the release of GHG emissions by the mine will cause environmental harm, they are doing so on the basis of a comparison between the future world in which the project is approved and a hypothetical world in which it is not. There is no uncertainty as to what will occur in the 'actual' future world. The project is simply evaluated on the basis of what it proposes to do: mine a certain amount of coal for export. It is on this basis that the 'actual' future world is constructed with these *additional* GHG emissions. The fact that a power plant operator may burn coal sourced from another mine as a replacement is irrelevant to this task. It cannot occur in the 'actual' future world: as a power plant operation can only burn coal from one source at a time and it cannot be added to the hypothetical as this is contrary to hindsight necessity. In essence, CCAQ and ACF's approach may be thought of as evaluating the project from the perspective of its end of life looking backwards and assuming that all coal, for which permission has been sought to extract, is extracted and consumed. While it is a comparison which takes place in the future, it is structurally the same as how the law of negligence or homicide approach the question of factual causation.

The miner and the Commonwealth Minister do not apply hindsight necessity. In evaluating what will occur in the future, they allow the possibility that replacement coal

can be added to the hypothetical world.[385] In comparing the actual future in which the mine is approved to a world without approval yields no difference as the replacement coal ensures that the outcome is unchanged. The miner cited a number of cases in support of the proposition that an "activity will not be regarded as a cause of the impact if the impact would have occurred in any event": *Chappel v Hart, Beach Petroleum, Roads and Traffic Authority, Finishing Services*.[386] The proposition itself is as unremarkable as it is uncontroversial. To be a cause of an outcome, one must be a necessary factor in bringing it about. This is the essence of the 'but for' test. Yet, the miner is not applying the 'but for' test as negligence and homicide do, but without hindsight necessity.

The selection of cases used to support its assertion is noteworthy. While the portions of the judgements cited by the miner support its general remarks about the 'but for' test, all of the cases involve situations in which the causal effect of the act or omission was in question, and, with the exception of *Roads*,[387] that the necessary proof was established with the assistance of counterfactual reasoning. *Chappel v Hart* is a medical negligence case in which a doctor failed to warn the patient of a risk associated

[385] The Minister found that the effect of replacement coal was too uncertain to draw any conclusions with respect to changes in global GHG emissions which prohibited any further analysis of the potential impact of such a change on the GBR.

[386] Hancock Coal, 'QLC Submissions' (n 304) [228(b)]; Hancock Coal, 'QSC Submissions' (n 286) [72]; Hancock Coal, 'QCA Submissions' (n 341) [25].

[387] In *Roads and Traffic Authority v Royal* [2008] HCA 19, the authority was in breach of its duty of care for failing to improve the visibility at an intersection at which a car accident occurred. As with the other cases cited, there was the question of the causal effect of the breach. However, it was decided on the basis of direct evidence from eye witnesses to the effect that poor visibility had not played a role in this particular car accident, rather than through the use of counterfactual reasoning. That said, cases of this type, namely a breach of an authority by failing to address poor visibility at locations where traffic accidents occur, will often be resolved by using counterfactual reasoning regarding what the drivers/pedestrians would have done if visibility had not been an issue: see *Pledge v Roads and Traffic Authority* (n 214) [15] (the failure to properly trimmed road-side foliage was found to have obstructed the view of a driver and pedestrians and contributed to a child being struck by on-coming traffic).

with an operation, which materialized.[388] In *Beach Petroleum*, solicitors had allegedly breached their fiduciary duty with respect to some transactions that defrauded a company of its assets for the benefit of some of its directors. In *Finishing*, a real estate advisor had allegedly misrepresented the state of market rentals to a landlord who issued a rent increase notice to a leasee. In each case, it is not clear what causal effect the doctor's omission, solicitors' breach, or advisor's misrepresentation had on the actions of the patient, company directors or landlord in the actual world. This effect is explored using counterfactual reasoning to consider what the patient, directors, or landlord would have done had the wrongdoings not occurred. In *Chappel*, it was held that the patient would not have gone ahead with the surgery at that time and thus that the omission materially contributed to the harm done. However, in *Beach Petroleum* and *Finishing* it could not be established that the behaviour of the directors or landlord would have been any different and thus the breach and misrepresentation did not contribute to the outcomes. The structural analogy for Alpha is to ask whether the presence or absence of the mine will have an effect on the behaviour of the power plant operators. The miner's answer is no: the power stations will continue to consume coal regardless.

Drawing comparisons with negligence and homicide also helps to explain CCAQ's reliance on criminal law analogies. What might otherwise occur is never relevant to the imposition of criminal liability and thus not only does it implicitly support the adoption of hindsight necessity regarding the causal finding, it also supports the argument that replacement harm is irrelevant.

[388] (n 119).

The Law

Does hindsight necessity have any role to play in the forward-looking assessment of environmental impacts? I believe it does. Notwithstanding the temporal difference between adjudicating past events and evaluating future actions, there is no basis to support such a departure. To do so would wreak havoc with the evaluation of future environmental impacts. As CCAQ pointed out, the argument is not limited to climate change, but could equally apply to endangered species or groundwater impacts.[389] A miner could argue that its killing of an endangered species as part of land clearing will have no causal impact because the species is likely to go extinct in the near future anyway[390] or that its drawing down of groundwater is of no causal effect because if it is not approved, another mine in the same watershed will be and will impact groundwater all the same. Granted, it may be more challenging to adduce evidence to support such claims; however, the point ought to be rejected on a conceptual basis and not an evidentiary one.

The future is uncertain and predicting what will actually happen is difficult. The task of the Court in considering the environmental impacts of a project is not, however, to predict 'the future' writ large, but to evaluate the causal effect of a proposal in a future in which the proposal is approved and proceeds on the basis of the parameters outlined in the application documents. Contrary to the miner's assertions, there is no relevant uncertainty with respect to what will happen in the actual future in which the mine is approved. Of course, the mine may never actually be built or it may close prematurely. However, these uncertainties can be set aside. The miner is seeking

[389] CCAQ, 'QCA Submissions' (n 288) [54]-[55]; Bennett (n 95) 547.

[390] *Leatch v National Parks and Wildlife Service* (1993) 81 LGERA 270, 284.

approval to develop a coal mine with a specific level of production and for which robust estimates of the quantum of GHG emissions associated with these activities can be calculated.[391] As there is no uncertainty in the actual future, there is no need to rely on counterfactual reasoning as the effect of extracting the coal on the behaviour of power plant operators is known: they will burn it.

This lack of uncertainty differentiates the GHG aspect of this case from many other environmental assessments. Often the precise causal effect that a project will have on the environment will not be known. In *Hancock*, there was expert disagreement over the causal effect the mine would have on groundwater and any dependent ecosystems in the actual future world.[392] Even with extensive expert evidence, it was not possible for the Court to come to any firm conclusion as to the likely impacts.[393] Instead, it adopted a precautionary approach, recommending refusal until further research could be done.[394] Dealing with situations of limited knowledge of potentially significant environment impacts is precisely the reason why there is the precautionary principle. One may argue that such uncertainties exist with respect to anthropogenic climate change, particularly at the local level. That may very well be the case.[395] However, these challenges are irrelevant to the question of how to determine a change in GHG emissions, for which there is no relevant uncertainty.

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[391] Taylor (n 272).

[392] (n 2) [137]-[200], [282]-[295].

[393] ibid [295].

[394] ibid [144], [197], [396]-[400], [406], [412]-[414].

[395] The miner did dispute whether a 'scientific' connection could be established between GHG emissions and harm to the Queensland environment.

In finding that the demand for electricity, and not the Alpha coal mine, was the cause of Scope 3 emissions, the Land Court erred in its approach to determine factual causation of environmental harm. As a result, it did not consider any of the climate evidence presented to it, even though it found that there was 'no reason to doubt [this] eminent expert evidence'.[396] Specifically, it did not consider to what extent the mine would consume the remaining global carbon budget or the marginal impact the mine would have on global temperature, coral reef bleaching and other adverse effects.[397] The Land Court, therefore, failed to consider a relevant matter as part of the public interest under the MRA 1989, and possibly the EPA 1994.

The comparison with the law of negligence and homicide illustrates the divergent views between the parties as to the use of hindsight necessity in determining the causal effect of the mine. It also provides support for the correctness of CCAQ's approach to causation. The Land Court and Supreme Court disagreed. As the task set in Chapter 1 was to make sense of this case, we must ask ourselves why this is so?

A Perfect Storm: Counterfactuals and Climate Change

Causation is one of the most challenging concepts in law. Climate change is one of the most challenging environmental problems facing society today. Together they form a potent mix. The case for hindsight necessity in negligence and criminal law is not a difficult one to make. It corresponds with our intuition. Yet, it has plagued

[396] (n 2) [231].

[397] The lack of any mention of this evidence is in contrast to the long extracts from Hancock's coal market experts and the joint reports which were reproduced in the judgment: (n 2) [224]-[227]. There was one brief mention of different temperature scenarios at [206], however this appears to be in the context of the quantum of GHG emissions involved and does not engage with the global carbon budget concept directly.

philosophers who do not work within the practical boundaries set by a particular case. The experience of the Alpha case suggests that when the law turns its attention to the future, it may lose its way. The idea of hindsight necessity, while, fundamental to the operation of negligence and homicide, is one that is rarely articulated.[398] Adding climate change to the mix makes it even easier to lose the way.

In Chapter 1, I discussed the challenge even those within climate policy circles have had in coming to terms with the concept of committed climate change, specifically in distinguishing a geophysical component from any assumptions about how society is likely to develop. In accepting the coal market evidence, the judge may have been influenced by some notion of committed warming. In its concluding paragraph to the Carmichael case, the Full Federal Court noted:

> *The Minister was not satisfied that the overseas emissions would contribute to increased levels of greenhouse gases and, therefore, further rises in temperature. He did not say that the overseas emissions would not contribute to the maintenance of current levels of greenhouse gas emissions and present temperature levels. There may be good grounds for disagreeing with the Minister's decision, but that is not our concern in an appeal limited to the lawfulness of that decision.* We see no justification for the assertion that he did not take into account the possible impacts of the overseas emissions on the level of greenhouse gases in the atmosphere, the consequences thereof and their impact on the Reef and on the protected matters. In our view the Minister's reasons reflect a proper discharge of his statutory duty.[399]

With respect, the Full Court misunderstands how the phenomenon of climate change works. The present level of temperature warming is due to past emissions and not 'the maintenance of current levels'. Any future emissions which occur *will* contribute to *further* warming. In other words, in the future, every *release* of GHG emissions will *increase* the total GHG emissions in the atmosphere, provided one accepts hindsight necessity.

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[398] Stapleton, 'An 'Extended But-For' Test' (n 125).

[399] *ACF Full Federal Court* (n 66) [61].

Neither the Land Court nor the Federal Court specialise in environmental matters. The Land Court does consider matters under the EPA 1994; however this is only a small portion of its work, especially compared to other specialist courts. The lack of regular assessment of environmental matters may also have contributed to the evaluation of GHG impacts.

Assumed, Not Articulated

The manner in which CCAQ argued its case likely contributed to the outcome. The question of the appropriate manner in which to construct the hypothetical world against which to evaluate the impact of the mine was never put to the Land Court directly. CCAQ appears to have assumed that once it established that the scope of assessment under each Act extended to the consideration of Scope 3 emissions that this was the end of the matter.[400] By establishing scope, it established that the GHG emissions *will* contribute to anthropogenic climate change. In the early stages of the case, CCAQ also failed to appreciate that the miner disputed Alpha's contribution to global GHG emissions levels.[401]

By not articulating a causal justification for why the mine ought to be assessed on the basis of what it will do, the miner was able to characterize CCAQ's case as one going to the merits of the decision and its displeasure with the weight assigned by the Land Court. In the absence of an unreasonableness ground, those matters are outside the scope of judicial review.

[400] CCAQ, 'QLC Submissions' (n 296) [99], [101]-[109].

[401] CCAQ, 'QLC Submissions' (n 296) [111]; Hancock Coal, 'QLC Submissions in Reply' (n 321) [127].

Distinguishing Causation from Relevancy

An error in the approach to assessing the change in global GHG emissions caused, while material, is not the end of the matter. There is still the question of the permissibility of considering replacement harm. Replacement harm is clearly irrelevant to s269(4)(j) which is focused solely on the adverse impacts the mine will cause. It is not immediately apparent as to whether consideration of the public interest would be limited in this manner. Replacement harm is irrelevant to the determination of the cause-in-fact adverse effects of the project,[402] but whether it may be included in the deliberations on its own merits as a separate element to be considered remains an open question. Irrelevance will have to be established for a reason other than impermissible to a causal analysis.

The Court of Appeal did not decide between the causal or deliberation view of the no impact finding as it considered that the irrelevance of replacement harm had not been established. It is to this question, we now turn.

[402] To say that there must be a concept of causation underpinning the consideration of the public interest, even in the absence of explicit statutory text, cannot be a controversial point. It would be nonsensical to find that the water quality in the South East city of Brisbane falls within the public interest in relation to an evaluation of a mining project in the North West part of the state if the two locations are in unconnected watersheds.

CHAPTER 4 - THE LAWFULNESS OF REPLACEMENT HARM

Having established that the impact a mine *will likely cause* should be assessed on the basis of what the mine *will do* if approval is granted; the question that remains is the permissibility of considering replacement harm as part of the decision-making process. This chapter argues that replacement harm is not a permissible factor and to consider it is irrational. It develops the argument in three ways: by examining the effect allowing such an argument would have on the assessment of the impact of other mines and GHG emitting projects, highlighting its inconsistency with the evaluation of other impacts, and by distinguishing the mining context from other types of developments. It concludes with an assessment of the prospects of establishing this ground of review. However, it is necessary to begin with an evaluation of the circumstances under which a reviewing court will intervene.

Unlawful Consideration

It is a long standing ground of judicial review that it is an improper exercise of power to take an irrelevant matter into consideration when making a decision.[403] Taking such a factor into account "can be seen to reflect an extraneous or improper purpose or to render the decision arbitrary or capricious."[404] If the factor was material to the decision made, the decision is invalid.[405] A matter, however, is only irrelevant if there is an express or implied limitation on the factors which may legitimately be considered in the

[403] Judicial Review Act 1991 (Qld), s23(a); *R v War Pensions Entitlement Appeal Tribunal, Ex Parte Bott* (1933) 50 CLR 228, 242-3; *R v Trebilco, Ex parte FS Falkiner* (1936) 56 CLR 20, 27 (Latham CJ), 30, 32 (Dixon J).

[404] *Lo v Chief Commissioner of State Revenue* [2013] NSWCA 180 [9] (Basten JA).

[405] *Minister for Aboriginal Affairs v Peko-Wallsend Ltd* (1986) 162 CLR 24, 40.

decision-making process.[406] As legislation does not often include a detailed list of matters which must not be considered, the focus will be on whether such a limitation is implied. In making that determination, one must have regard to the subject matter, scope and purpose of the Act.[407] Thus whether or not this ground of judicial review is made out is a question of statutory interpretation and how broadly or narrowly a statute is construed.

Given the broad discretion often bestowed on decision-makers in mining or environmental protection legislation, it may be difficult to sustain the argument that a matter is irrelevant but rather one that ought to be given little or no weight. Traditionally, the question of weight is for the decision-maker to decide, unless there is some statutory indication to the contrary.[408] In reviewing administrative actions, the role of the court is limited:

> It is not the function of the court to substitute its own decision for that of the administrator by exercising a discretion which the legislature has vested in the administrator. Its role is to set limits on the exercise of that discretion, and a decision made within those boundaries cannot be impugned … a court should proceed with caution when reviewing an administrative decision on the ground that it does not give proper weight to relevant factors, lest it exceed its supervisory role by reviewing the decision on its merits.[409]

That is not to say a Court will never examine the reasoning process to determine if excessive weight has been given to a factor of minimal importance. However, as Mason J noted in *Peko-Wallsend*, the preferred ground is *Wednesbury* unreasonableness.[410] Establishing that ground is a high bar, and one rarely reached, as

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[406] ibid.

[407] *Peko-Wallsend* (n 405) 40; *Arnold v Minister administering the Water Management Act 2000* [2010] HCA 3 [78].

[408] *Peko-Wallsend* (n 405) 41.

[409] ibid 40-41, 42.

the decision must be so unreasonable that no other decision-maker would have reached it.

Like its many endemic species, Australian administrative law is a unique breed, though its historic roots draw on both American and British traditions.[411] Under the Australian Constitution, there is a strict separation of powers. One consequence of which, as Taggart explains, is that:

> On the constitutional law side, the High Court has 'enthusiastically enforced … the separation of judicial power' as an implied constitutional power, striking down legislation that intrudes upon the judicial power. But when it comes to administrative law the price to be paid for that strength on the constitutional side is considerable restraint; limiting the courts to enforcing the 'law' and drawing a sharp divide between law, on one side, and 'policy' and 'the merits', on the other; a divide the courts say they cannot and will not cross.[412]

In recent years, however, it would appear that the High Court is becoming more open to undertaking more substantive judicial review.[413] *Minister for Immigration and Citizenship v Li* is often cited as the origin of this approach.[414] In their joint judgment, Hayne, Kiefel and Bell JJ noted that the requirement to meet a standard of legal reasonableness when exercising discretionary administrative power is not limited to instances in which an outcome is so unreasonable that no reasonable decision-maker would have made it.[415] It also applies to the reasonableness of the reasoning process

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[410] *Peko-Wallsend* (n 405) 41; *Associated Provincial Picture Houses Ltd v Wednesbury Corporation* [1948] 1 KB 223. See also JRA 1991 (Qld), s23(g).

[411] Peter Cane, 'The making of Australian administrative law' (2003) 24 ABR 114; Michael Taggart, ''Australian Exceptionalism' in Judicial Review' (2008) 36 FLR 1.

[412] Taggart (n 411) 5.

[413] Mark Aronson, 'The Growth of Substantive Review: The Changes, their Causes and their Consequences' in John Bell and others (eds), *Public Law Adjudication in Common Law Systems: Process and Substance* (Hart Publishing 2016).

[414] [2013] HCA 18; Aronson (n 413).

[415] *Li* (n 414) [68].

used to reach such a decision.[416] The more specific errors, such as taking into account irrelevant considerations, may be indicative of unreasonableness in the reasoning process; however, the standard is not limited to these errors alone.[417] Likewise, Chief Justice French noted that the requirement for 'rationality' goes beyond avoidance of particular errors as the "freedom … left by the statute cannot be construed as attracting a legislative sanction to be arbitrary or capricious or to abandon common sense."[418]

Ultimately, the joint judgment held that:

> Whether a decision-maker be regarded, by reference to the scope and purpose of the statute, as having committed a particular error in reasoning, given disproportionate weight to some factor or reasoned illogically or irrationally, the final conclusion will in each case be that the decision-maker has been unreasonable in a legal sense.[419]

The requirement to be reasonable or rational in one's reasoning does not mean that it is now open to the courts to wade into the merits of the decision; that limitation on the scope of judicial review remains.[420] Nor is this greater openness to substantive review shared by all members of the Court. Gageler J, though not disagreeing with the outcome in *Li*, thought that the *Wednesbury* unreasonableness standard remained unchanged and its occurrence rare.[421] That said, it would appear that for a majority of the court what is unreasonableness is no longer as high a bar as it once was and there is a greater willingness to consider the rationality of the decision-making.

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[416] ibid [68]. The Chief Justice noted at [26]: "The rationality required by "the rules of reason" is an essential element of lawfulness in decision-making. A decision made for a purpose not authorised by statute, or by reference to considerations irrelevant to the statutory purpose or beyond its scope, or in disregard of mandatory relevant considerations, is beyond power."

[417] ibid [71]-[72].

[418] ibid [28].

[419] ibid [72].

[420] ibid [30], [66].

[421] ibid [113].

In the absence of explicit statutory guidance, there may be little practical difference between establishing the implicit irrelevance of considering a particular matter versus its irrationality. The interplay between irrelevant considerations and irrationality in decision-making is illustrated by *Plaintiff M64/2015 v Minister for Immigration and Border Protection*.[422] In that case, an asylum seeker had arrived in Australia unlawfully by sea. He obtained a protection visa and applied for visas for his family overseas. The federal government had adopted informal limits on the number of visas available and the basis upon which priority ought to be granted. It was argued that both of these elements were irrelevant considerations with respect to this individual applicant and that the priority policy was otherwise irrational or inconsistent with the Act.[423] The Court disagreed.[424] The point for present purposes is that while the gravamen of the claim is that these factors matter little in the decision-making, the grounds for making that argument may be both irrelevancy and irrationality.

Consideration of Scope 3 emissions falls within the scope of the public interest under the MRA 1989, and if one adopts Justice McMurdo's interpretation of the EPA 1994, under the public interest of that Act as well.[425] In *Adani*, the Land Court President noted that: "The public interest involves a discretionary balancing exercise of the widest import confined only so far as the subject matter and the scope and purpose of the statute may enable."[426] To argue that consideration of replacement harm is

[422] [2015] HCA 50.

[423] ibid [41]-[42], [45]-[47]. It was not argued that the decision was so unreasonable that no other decision-maker would have made it: [55].

[424] ibid [43]-[44], [48], [50].

[425] *Alpha Court of Appeal judgment* (n 4) [11], [42].

[426] *Adani* (n 63) [43].

irrelevant, one would need to establish that it is not in the public interest to take it into account.[427]

In arguing that replacement harm is irrelevant, I shall focus on the effect that permitting such an element would have on the analysis and how this is inconsistent with the evaluation of other environmental impacts and incompatible with the objects of the MRA 1989 and the EPA 1994. I will use the terms irrelevant and irrational interchangeably as part of the reason why a consideration is irrelevant is because to allow its consideration would be irrational.

Irrationality I: No Mine May Ever Impact the Environment

Allowing consideration of the effect of replacement harm creates the potential that no mine will ever be found to adversely impact global GHG emissions. An examination of a number of the recent Queensland coal mining cases bears this argument out. In the four most recent objections to Queensland coal mines on climate grounds,[428] it has been accepted that the mine would have no adverse impact on the environment in the sense that the mine's contribution to global GHG emissions would occur in any event due to market demand.[429]

[427] With respect to the Carmichael federal case, consideration of replacement harm would have to fall outside the scope of 'matters relevant to any matter protected' and 'economic and social matters' in order to be deemed irrelevant under the EPBCA 1999. It is beyond the scope of this thesis to consider that Act.

[428] Objections to a fifth mine were made, however the climate aspect of the case was not pressed, no doubt because of the limited success in other challenges: *Hancock Galilee Pty Ltd v Currie* [2017] QLC 35 [66], [76], [79], [89], [280].

[429] *Xstrata* (n 63) [581], [605]; *Hancock* (n 2); *Adani* (n 63) [449], [456]; *New Acland* (n 63) [9], [1093]-[1094].

These mines will produce at least 7 $GtCO_2e$ during their lifetimes. By way of comparison, the USA, the world's second largest emitter, releases less than 7 $GtCO_2e$ per year.[430] Even if one were to accept, for the sake of argument, that refusing one mine would make no difference, the argument quickly loses any persuasive value as it is applied to more and more mines. It is simply incorrect to say that refusing all coal mines would make no difference to global atmospheric levels of GHG emissions.

Queensland is not the only jurisdiction in which replacement coal has been considered. As discussed in Chapter 3, the Commonwealth Minister of the Environment considered the effect of replacement harm to be relevant to an assessment, under the EPBCA 1999, of the Carmichael mine's potential impact on the Great Barrier Reef.[431] However, unlike Queensland, consideration of replacement harm in other jurisdictions is not uniform.

In earlier assessments of mining projects under the EPBCA 1999,[432] decision-makers appear to have assigned no weight to the effects of replacement coal in determining whether a coal mine needed to be assessed under the Act or as part of the approval process.[433] In each case, the Minister's delegate treated the GHG emissions to

[430] ClimateWatch, 'Historical GHG emissions' <https://www.climatewatchdata.org/ghg-emissions?breakBy=location&source=22&version=1> accessed on 8 January 2018.

[431] Hunt (n 65).

[432] An empirical assessment of all mining decisions is beyond the scope of this thesis and would be difficult to undertaken based on publicly available information. Written reasons for a decision are only prepared when requested and these are not systematically made available on the EPBC public notice website: see Department of the Environment and Energy, 'EPBC Act Referrals List' (Commonwealth of Australia 2018) <http://epbcnotices.environment.gov.au/referralslist/> accessed on 8 January 2018. The statements considered here were mentioned in other climate litigation or otherwise available on the internet.

[433] Isaac Plains & Sonoma mines: Mark Flanigan, 'Affidavit' (FCA, QUD216/2005, 5 October 2005); Alex Rankin, 'Statement of Reasons' (Anvil Hill Coal Mine, Department of the Environment and Heritage (Cth), EPBC2007/3228, 18 April 2007); Vicki Middleton, 'Statement of Reasons' (Moolarben

be *released* as a result of the mining, transport and use of coal as 'additional'.[434] In at least one case, the Anvil Hill coal mine, the no net impact argument was explicitly before the delegate.[435] Even though the delegates found the emissions to be additional, none of the mines were considered to have a significant impact on any protected matters on the basis that this additional contribution was small, and the link between these emissions and harm to any protected matters, while theoretically possible, was speculative.[436]

In a number of its assessments, the NSW Department of Planning has noted that refusing mines would not have any effect on reducing global GHG emissions.[437] The weight that the Department has given to this factor appears to vary: in some cases, the determinative element appears to be the Department's view that the quantum of GHG

Coal Mine Project, Department of the Environment and Water Resources (Cth), EBPC2007/3297, 26 November 2007) quoted in Australian network of environmental defender's offices, Submission to the Inquiry into the operation of the *Environment Protection and Biodiversity Conservation Act 1999* (ANEDO 2008) 36.

[434] Flanigan (n 433) [29], [41]; Rankin (n 433) [33]; Middleton (n 433).

[435] The miner made the argument in its response to public submissions expressing concern over anthropogenic climate change. Umwelt, *Anvil Hill Project Environmental Assessment - Response to Submissions Part A* (Centennial Hunter 2006) 63: "The Project should be assessed in the abovementioned context, namely that: the demand for coal will continue for at least the next few decades; and denying the right to develop the Anvil Hill Project will not result in a decrease in GHG emissions. If the Anvil Hill Mine is not developed, the coal which would have been produced will be provided by another mine in NSW, Queensland or elsewhere." This document was considered by the delegate during her deliberations: Rankin (n 433) [10].

[436] Flanigan (n 433) [22], [24], [29], [41]; Rankin (n 433) [28], [30], [32], [33]; Middleton (n 433).

[437] NSW Department of Planning, *Director-General's Environmental Assessment Report* (Moolarben Coal Project, Department of Planning 2007) 42; NSW Department of Planning, *Director-General's Environmental Assessment Report* (Anvil Hill Coal Project, Department of Planning 2007) 21-22, 25; NSW Department of Planning, *Director-General's Environmental Assessment Report* (Ulan Continued Operations Project, NSW Department of Planning 2010) 37-38; NSW Department of Planning and Infrastructure, *Director-General's Environmental Assessment Report* (Warkworth Extension Project (09_0202), NSW Department of Planning and Infrastructure 2011) 60; NSW Department of Planning and Environment, *Environmental Assessment Report* (Springvale Mine Extension Project (SSD 5594), NSW Department of Planning and Environment 2015) 59-60.

emissions involved is relatively small,[438] while at other times, the fact that replacement harm would produce the same effect appears to be given greater weight.[439]

It is not known how the NSW Land and Environment Court would evaluate the relevance of replacement harm under that state's environmental planning legislation. In *Hunter Environment Lobby v Minister for Planning*, the climate objector had originally sought to impose a requirement to offset the mine's Scope 3 emissions as part of the conditions of approval.[440] Over the course of the hearing, it dropped its objections to Scope 3 emissions and focused on securing offsets of the mine's Scope 1 and 2 emissions.[441] In light of these changes, the miner did not press the no net impact argument. Pain J undertook a detailed assessment of the climate evidence, which included an evaluation of the marginal impact of the mine on global temperature, and paid little heed to the coal market evidence.[442] It may be inferred from this treatment of the evidence that little weight would have been assigned to the replacement coal argument; however, a definitive ruling awaits determination in another case. The question before the NSWLEC in *Gray* was whether the scope of the relevant statute extended to include Scope 3 emissions and thus that case says nothing of whether consideration of replacement harm would be permitted.[443] While arguing that there was

[438] Ulan (n 437); Warkworth (n 437).

[439] Moolarben, Anvil, Springval (n 437). The power station to which Springvale supplies its coal argued the opposite - that it had no other source of coal - when the Court of Appeal found that the Planning Assessment Commission had erred in its assessment of water-related impacts: Michael Slezak, 'Miner supplying Mt Piper power station seeks urgent hearing over invalid licence' (*The Guardian*, 15 September 2017) <https://www.theguardian.com/environment/2017/sep/15/miner-supplying-mt-piper-power-station-seeks-urgent-hearing-over-invalid-licence> accessed 8 January 2018.

[440] *Hunter Environment Lobby* (n 73).

[441] ibid [34].

[442] ibid. Cf [42]-[52] to [23]-[25].

[443] *Gray* (n 49).

no error in excluding Scope 3 emissions from consideration, the miner did note in oral, but not written, submissions that replacement coal would ensure the same GHG emissions in any event.[444] In *Bulga*, one of the disputes between the parties had been whether such analysis needed to include the costs of damage caused to society by Scope 3 emissions.[445] If those costs would be incurred in any event, it would be unnecessary to include them in this particular mine's economic assessment. The Chief Justice found the economic assessment of the mine to be of limited value, but made no mention of climate damage costs in the discussion of its many flaws.[446]

Determining the preferable outcome in any given case is a balancing act. Reasonable decision-makers may assign different weight to the same considerations. In this sense, the fact that there is a variety of approaches at the federal or state level is understandable and not indicative of any error. Yet, demand for coal has existed throughout this period. The ubiquity of this demand makes it difficult to see how it would not apply in all instances. Therefore, these differences in decision-making suggest that like cases are not being treated alike. It is akin to selectively recognizing gravity. Consistent decision-making would require that the argument be accepted in every instance or not at all. As the effect of accepting it in all instances would be to remove from consideration the impacts of climate change, a matter which otherwise

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[444] Transcript of Proceedings, *Gray v Minister for Planning* (NSWLEC, 06/40870, Pain J, 7 November 2006) 30, ln27-36: "this court obviously should take judicial notice of, at least insofar as the coal that's going to Macquarie Generation, *those generators are going to be burning at peak or near peak levels for the foreseeable future*, having regard to what's going to happen to New South Wales electricity generation. *They're going to be burning coal from some source, it happens to be from this source*, they're going to be scope 1 emissions from Macquarie Generation that are *going to happen in any event*." © State of New South Wales through the Department of Attorney General and Justice with the approval of the Land and Environment Court. Reproduced with permission. Emphasis added.

[445] *Bulga* (n 239) [466].

[446] ibid [470]-[496].

falls within the scope of assessment, the preferable choice is to disregard replacement harm entirely.

Irrationality II: No GHG Emitting Development may ever Impact the Environment

It may be tempting to want to dismiss the replacement argument as some artifact of coal mining and the fact that most emissions occur overseas. However, to do so would be in error. We live in a fossil-fuel based economy. As such, the argument that if a certain development is refused, its product or service will simply be provided by another GHG emitting source, is equally available in other contexts, such as electricity generation or urban developments. This section considers three such examples where the argument has been made. The purpose of this section is to reinforce the irrationality of permitting consideration of replacement sources as doing so could remove all GHG emissions from consideration under environmental protection legislation.

Redbank Power Station

In 1994, Greenpeace Australia challenged a proposal for a new power plant, the Redbank Power Station, on the grounds that it would contribute to climate change.[447] Redbank was not simply another coal-fired power station, but one that would be run on the waste by-product from the washing of coal, known as tailings.[448] Burning this waste would release greater than average CO_2 emissions, as this material is more emissions-intensive than burning coal.

[447] *Redbank* (n 49).

[448] Traditionally, tailings have been stored in decommissioned mining pits onsite.

Under the provisions of the NSW Environmental Planning and Assessment Act 1979 in force at the time, the NSWLEC was required to take into consideration 'the impact of th[e] development on the environment'.[449] Experts on both sides agreed that the appropriate comparator against which to assess the impact of Redbank was other power generators, rather than on the basis that the station represented a new and additional source of GHG emissions.[450] In other words, the extent to which Redbank would have an impact on the environment was based on how much worse it was compared to the power generation system at that time. The experts disagreed on the assumptions to be made about how that system would evolve. The company argued that Redbank would displace power from the four most polluting coal-fired power stations in the state for its entire 30-year life.[451] Greenpeace considered that assumption untenable, arguing that after a decade Redbank would begin to compete against lower GHG emitting sources, like natural gas or renewable energy.[452]

There is no explicit discussion in the judgment about how an 'impact' on the environment ought to be considered. It appears that Chief Justice Pearlman considered

[449] s90(1)(b).

[450] All expert assessments were conducted on a net impact basis: George Wilkenfeld, 'The Impact of the Proposed Redbank Power Station on Projected Greenhouse Gas Emissions, and Comparison with Other Means of Meeting Projected Energy Needs' (Expert report, NSWLEC, 10217/1994, 21 June 1994); Thor Hibbeler, 'Environmental Assessment' (Expert report, NSWLEC, 10217/1994, 15 July 1994); Roy Alper, 'Policy Analysis' (Expert report, NSWLEC, 10217/1994, 15 July 1994). The Greenpeace expert (Wilkenfeld) did stress the importance of the absolute GHG emissions to be released in a supplemental report and during his testimony, however accepted during cross-examination that the net basis was appropriate: Wilkenfeld, 'Expert Report', 7; Transcript of Proceedings, *Greenpeace Australia v Redbank Power* (NSWLEC, 10217/94, Pearlman CJ, 9 September 1994) 22.

[451] During the environmental assessment process, the company had claimed that the power plant would actually yield a net *reduction* in GHG emissions. Notwithstanding its own expert's calculation, it maintained that a net reduction was still possible during the hearing. Even if a net increase occurred, the contribution would be *de minimis*: Transcript of Proceedings, *Greenpeace Australia v Redbank Power* (NSWLEC, 10217/94, Pearlman CJ, 5 September 1994) 19, 40-41, 51, 55-57, 65, 73.

[452] Wilkenfeld (n 450).

that both the absolute and net impact of the project were relevant. Her Honour accepted that: '[t]he project will emit CO2, which is a greenhouse gas, and will contribute to the enhanced greenhouse effect' and that this is 'a matter of national and international concern.'[453] However, Her Honour ultimately found that the 'greenhouse issue' did not outweigh all other factors,[454] as current government policy did not place constraints on individual action, nor prohibit fossil-fuel based energy development, and that the net impact Redbank would have on GHG emissions was uncertain.[455] In effect, consideration of the net impact lessened the importance of the 'greenhouse issue' in the ultimate balancing of considerations. Redbank was, in essence, allowed to discount the extent to which it would cause environmental harm on the basis that other power generators would cause the same harm in its absence.

Hazelwood Power Station

In 2004, International Power Hazelwood ("Hazelwood"), one of the dirtiest coal-fired power generators in the country, sought to develop a new coal field in order to secure coal for its power station until 2031.[456] Without it, the station would close in 2011. The development was assessed by a state planning panel as well as by the Commonwealth under the EPBCA 1999. At the state level, the Minister sought to exclude Scope 3 emissions from the panel's assessment, however the Victorian Civil and Administrative Tribunal determined that this was in error.[457] At the

[453] *Redbank* (n 49) 153.

[454] ibid 155. Her Honour approved the development on the basis that it would have other environmental benefits (namely, tailing disposal and reduced sulphur dioxide (SO_2) and nitrous oxides (NO_x) emissions).

[455] ibid 153-154.

[456] *ACF* 2004 (n 49) [3].

Commonwealth level, a delegate initially decided that the development only needed to be assessed in relation to its disturbance of a threatened tree species.[458] A third party requested that this decision be reconsidered and that the effect that Scope 3 emissions would have on rainfall in the Gippsland Lakes catchment be assessed. The Gippsland Lakes are a Ramsar Convention declared wetland protected under the EPBCA 1999.[459]

The Commonwealth Scientific and Industrial Research Organisation (CSIRO), a federal scientific research agency, was commissioned by Hazelwood to assess the project's impact on climate change, the results of which were submitted to both the panel and the Commonwealth.[460] Using an earlier version of the climate model used in Alpha, the CSIRO estimated the marginal impact on temperature increase that would be avoided if the power station closed early. The full effect, in terms of absolute GHG emissions avoided from premature closure, was not initially assessed. Instead, on instruction from Hazelwood, CSIRO modelled the extent of warming which would be avoided assuming that Hazelwood was replaced by black coal or natural gas. In effect, Hazelwood sought to argue that its impact on the climate was limited to the extent to which it was more polluting than any replacement source.

The Planning Panel disagreed with Hazelwood's approach. In its view, the 'more relevant' baseline against which to evaluate the climate impacts of the

[457] See generally: Berger (n 81) 161-172.

[458] Anne-Marie Delahunt, 'Decision on Controlled Action' (Hazelwood Mine, Environment Australia (Cth), EPBC2003/903, 21 January 2003).

[459] Convention on wetlands of international importance especially as waterfowl habitat (adopted 2 February 1971, entered into force 21 December 1975) 996 UNTS 245.

[460] PH Whetton and PJ Durack, *Climate Change Impacts in Latrobe Valley from the Hazelwood Mine Westfield Project* (CSIRO Atmospheric Research 2004).

development was the total savings of all the GHG emissions if the power station closed down.[461] An estimate of this impact was ultimately provided to the panel.[462] The approach adopted by the Commonwealth is not known, however, it was determined that the proposal would not have a significant impact on the Gippsland Lakes.[463]

Hazelwood is another example of a power generator trying to discount the full impact that its power station would have on GHG emission levels, if approved, on the basis of the emissions profile of any replacement power. In contrast to Redbank, the Planning Panel did not consider this approach to be the preferred method of evaluating climate impacts.[464]

Urban Development

In 2007, a local university student, Matthew Drake-Brockman sought judicial review of the NSW Minister of Planning's decision to approve the concept plan for the redevelopment of an old brewery into commercial and residential space in central Sydney.[465] The redevelopment was extensive, spanning 11 blocks, and incredibly

[461] Robin Saunders, Geoff Angus and Bob Evans, *Hazelwood West Field EES - Final Panel Report* (Planning Panels Victoria 2005) 114, 120.

[462] ibid 114.

[463] The action was approved in relation to the threatened tree species only: Ian Gordon Campbell, 'Decision to Approve the Taking of an Action' (Hazelwood Mine, Minister of the Environment and Heritage (Cth), EPBC2002/903, 2 December 2005).

[464] Notwithstanding this preference, the Panel did consider the energy replacement options in its policy discussion and in relation to the economic costs of climate impacts: Saunders (n 461) 114, 179-182.

[465] *Drake-Brockman* (n 73).

energy inefficient. The city's Deputy Lord Mayor, who was among those opposed to the unsustainable design, described it as "an urban coal mine".[466]

Mr. Drake-Brockman alleged that the Minister had failed to consider the principles of ecologically sustainable development, particularly the precautionary principle and intergenerational equity.[467] Part of his argument rested on the fact that an assessment of the quantum of GHG emissions that the project would release had not been done and thus the Minister had insufficient information to undertake the 'careful evaluation' of any serious or irreversible environmental harm required by the precautionary principle.[468] To illustrate, the nature of the information which would have been available to the Minister, Mr. Drake-Brockman adduced expert evidence on the absolute GHG emissions associated with the construction and operation of the redevelopment.[469]

The Minister contested whether the project would, in fact, lead to a net increase in GHG emissions and thus, whether a failure to consider those emissions would make any difference, had such a failure occurred:[470]

> [T]he Court should not infer that the supposed concern raised by the Applicant does in fact have any merit. The people who will live in the housing proposed to be built at the

[466] Sydney Deputy Lord Mayor, Councillor Chris Harris letter to NSW Premier, Hon. Morris Iemma, 7 March 2007, <http://www.chrisharris.org.au/wp-content/uploads/2007/03/Harris%20letter%20to%20Iemma.pdf> accessed 8 January 2018.

[467] One of the objects of the Environmental Planning and Assessment Act 1979 (NSW) is to 'encourage' ecologically sustainable development including the precautionary principle and intergenerational equity: s4(1), s5.

[468] Matthew Drake-Brockman, 'Outline of Submissions' (NSWLEC, 07/40186, 23 July 2007) [65]-[66].

[469] Trevor Lee, 'Expert Report' (NSWLEC, 07/40186, 5 July 2007). Each year, the development would emit 0.021 $MtCO_2e$ which was equivalent to 0.45% of the city of Sydney's annual GHG emissions. GHG emissions associated with the construction were 0.597 $MTCO_2e$.

[470] As a general matter, the Minister argued that ESD principles had, in fact, been considered: Minister for Planning, 'Outline of Submissions' (NSWLEC, 07/40186, 23 July 2007).

> site must live somewhere. Those who work in the offices must, if they are to have such employment, be provided with a workplace. Any new building will involve production of GHG. Yet this particular site has the enormous advantage of being close to the city, to four educational institutions (three universities and a TAFE), to Central Railway Station and to a large number of bus routes. It is for these reasons that the Minister has not admitted, in his Points of Defence, that the proposed development will produce any *net increase* in GHG emissions.[471]

The project developer made the same argument.[472] Similar to the climate objector in Alpha, Drake-Brockman did not engage with the net impact argument itself, but rather insisted that all project impacts must be considered.[473]

Jagot J held that the legislative regime did not require the level of analysis sought by Mr. Drake-Brockman.[474] In obiter, Her Honour commented that:

> The fact that the respondents admitted that climate change generally induced by greenhouse gas emissions poses a risk of serious and irreversible harm to the environment and the development would involve the production of greenhouse gases is not (as the applicant appeared to assume) decisive. *The respondents did not concede any net increase in greenhouse gases* and Mr Lee's evidence does not establish this. *Mr Lee's evidence is a calculation of absolute emissions disregarding the fact that* the project involved redevelopment of a former industrial site and the *people who will live and work in the development must already live and work somewhere else*. But these observations themselves involve an impermissible trespass on the merits of the decision.[475]

While these remarks are brief and in obiter, they do suggest that Jagot J thought that replacement urban development emissions would be a relevant factor for the decision-maker in evaluating ESD principles, particularly the precautionary principle.

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[471] ibid [139] (emphasis in original).

[472] Transcript of Proceedings, *Drake-Brockman v Minister for Planning* (NSWLEC, 07/40186, Jagot J, 25 July 2007) 10 ln42-52, 11 ln1-8. The net impact approach to urban developments is not limited to Australia. For an American example see: Michael H. Zischke and Sarah E. Owsowitz, 'Climate Change and the California Environmental Quality Act' (AB32 & CEQA Forum, 7 December 2007): "land use development projects for the most part do not "create" greenhouse gas emissions - such projects typically "move" the emissions from one area to another, as an existing driver moves from one area to the other, with some incremental increase or decrease, depending on the particular situation."

[473] Drake-Brockman (n 468) [49].

[474] *Drake-Brockman* (n 73) [126].

[475] ibid [132(5)].

What these three cases illustrate is that in a fossil-fuel based economy, it will always be possible to argue that GHG emissions will occur in the absence of a development. One can easily reformulate each of these examples to make a demand argument: It is the demand for electricity and places to live that ensures that the same impact will occur from replacement power sources or dwellings. The argument is not limited to mines and overseas activities.

It must be acknowledged that these examples are from a decade ago or more. One could make the argument that with the rapid increase in renewable energy or advent of more energy efficient building options, it is no longer factually sound to assume the continuation of a fossil-fuel based economy. As a consequence, it cannot be substantiated that in the absence of project approval, the replacement source will be a fossil fuel based power station or energy inefficient building and therefore no 'discounting' of the impacts of any new development can occur.[476] One could also seek to distinguish the global coal market by arguing that the tipping point in that sector had not yet been reached. However, this misses the point. If one of the fundamental purposes of environmental protection legislation or environmental responsibility in mining is to determine whether the impacts of a project are acceptable, those impacts ought to be evaluated on a worst case basis, i.e. the total GHG emissions to be released. To allow for some discounting of the totality of these impacts on the basis that the coal, power, or buildings will simply be replaced by others is to undermine this purpose.

[476] In a more recent example, NSW Department of Planning's assessment of the concept plans for two new coal or gas-fired power stations focused on the total GHG emissions to be released. However, the department did commission an independent assessment of the net impact these power stations would have on the state's energy sector emissions. Judicial review of the concept approval was sought on the basis that climate impacts needed to be considered, not simply the GHG emissions produced. All parties proceeded on the basis that the project ought to be evaluated based on the GHG emissions to be released. See: NSW Department of Planning, *Director-General's Environmental Assessment Report* (Bayswater B Power Station, Department of Planning 2009) 27-36; *Haughton* (n 73).

Irrationality III: Replacement Activities are Always Possible

It is a useful thought experiment to consider the replacement argument in the context of other impacts. If, as I argue, the phenomenon of climate change is obscuring the ability to see the irrelevance of the argument, then considering its operation elsewhere should bring clarity. Three impacts are considered here.

Will Pesticide Always Find its Way to the Reef? An Alternative Look at Nathan Dam

In *Queensland Conservation Council v Minister for the Environment and Heritage*, a conservation group sought review of the Commonwealth Environment Minister's decision not to consider the possible impact of increased pesticide runoff from farm irrigation on the Great Barrier Reef (GBR) as a consequence of building a new dam (the Nathan Dam).[477] The Federal Court held that such impacts did fall within the scope of assessment under the EPBCA 1999.[478] In Alpha, the miner sought to distinguish this case on the basis that construction of the dam was responding to the need for a reliable water supply in the area which, in turn, would '*enable*' the expansion of farming.[479] It was submitted that this expansion was precisely the 'reverse' of the factual matrix for the Alpha mine where it had been found that the mine would not increase the global supply of coal. "In other words, the impact in this case is driven by the demand for coal, whereas the impact in that case was driven by the supply of water."[480] With

[477] [2003] FCA 1463.

[478] The decision was upheld on appeal to the Full Court: *Minister for the Environment and Heritage v Queensland Conservation Council Inc* [2004] FCAFC 190.

[479] Hancock Coal, 'QSC Submissions' (n 286) [78]. The argument was also made on appeal in which it was said that the dam '*would* lead' to adverse effects but that it had been found by the Land Court that this mine '*will not*': Hancock Coal, 'QCA Submissions' (n 341) [36].

[480] Hancock Coal, 'QSC Submissions' (n 286) [78].

respect, supply and demand are two sides of the same coin and do not serve as a basis to distinguish these cases.

Let us assume that had the dam not been constructed, the alternative means of *supplying* water to *enable* cotton farming would have been to truck it into the area or to build a pipeline. Let us further assume that one of these alternatives would have been implemented in the absence of the dam, because expanding cotton farming was identified as a pressing need. In such a situation, would one conclude that there would be no net impact on the GBR from pesticide runoff as the need to supply the water would ensure that the runoff would occur in any event? Would this replacement harm be a permissible consideration under the EPBCA 1999 as either 'matters relevant to any matter protected' and 'economic and social matters' or would it be dismissed as an irrelevant one?[481] It is submitted that such a fact would be deemed irrelevant as the effect of allowing it would be to effectively remove from consideration the adverse impact of pesticides on the Reef. The proponents of each project (the dam, trucking and the pipeline) would be able to argue that its development would have no net effect on the Reef.

Can We Harm Endangered Species if They are Doomed Anyway?

Endangered species are often under threat from multiple sources. It may therefore be possible to argue that in the absence of a development, individual members of an endangered species may be harmed by another source, in which case, the adverse effect on the survival of the species would be the same. Stein J rejected just such an argument

[481] s136.

in *Leatch v National Parks and Wildlife Service*.[482] In that case, before construction on a roadway could commence, 'take or kill' licences were needed for an endangered species under the National Parks and Wildlife Act 1974 (NSW). Building the road would fragment and reduce the habitat of an endangered possum. The city council had argued that the long-term survival of this species was 'threatened in any event by increasing residential development and the possibility of the construction of the Nowra by-pass in fifteen to twenty years time.'[483] Stein J dismissed the argument, noting: 'These prognostications are difficult for the Court to place great store in because they seem to be assuming that the endangered fauna may die out anyway at some future point in time, so why worry about conserving them now.'[484]

The reasoning of the Tasmanian Resource Management and Planning Appeal Tribunal in *Tarkine National Coalition v West Coast Council* is illustrative of the approach taken when evaluating impacts on endangered species.[485] The case concerned planning approval for an iron ore mine in western Tasmania. The mine would increase traffic to and from the mine site and thus, the likelihood of incidental killing of the Tasmanian Devils. Vehicular killings are one of two main threats to the Tasmanian Devil.[486] The other is a universally fatal disease: the devil facial tumor disease. Modelling suggests that this endangered animal could become extinct in the next 25-35 years.[487] In *Tarkine*, it was found that the disease had not yet spread to the local area

[482] *Leatch* (n 390).

[483] ibid 284.

[484] ibid 284.

[485] [2013] TASRMPAT 103 [50]-[51].

[486] Mark Butler, 'Statement of Reasons' (Minister for the Environment, Heritage and Water (Cth), EPBC 2012/6339, 4 September 2013) [35].

around the mine; however, it would likely do so in the near future. The Tribunal accepted the proposition that the imminent arrival of the disease in the area made it all the 'more important' to reduce the adverse effect of any incidental killing.[488] In other words, even though these animals may soon be afflicted by a fatal disease, this does not 'discount' the need to minimize other sources of harm but rather reinforces the need for them. These decisions fall under the Environmental Management and Pollution Control Act 1994 (Tas). That Act requires that any person exercising power under the Act do so in a manner that furthers its objectives.[489] These objectives include the promotion of sustainable development and the facilitation of economic development. To argue that the Tasmanian Devils would die in any event and therefore the incidental killings are unlikely to have a net impact on survival seems contrary to the promotion of sustainable development and an irrelevant factor.

At first glance, *Re Nature Conservation Council of NSW and Minister for Environment and Water Resources* may seem like a counterpoint.[490] In that case, the Commonwealth Administrative Appeals Tribunal was tasked with reviewing the merits of a decision made by the federal Environment Minister to declare the NSW Ocean Trap and Line Fishery an approved wildlife trade operation under the EPBCA 1999. The declaration was needed in order to lawfully export spanner crabs.[491] To be declared an approved wildlife trade operation, the Tribunal had to be satisfied that the

[487] ibid [32].

[488] *Tarkine National Coalition* (n 485) [50]-[51].

[489] s8.

[490] [2007] AATA 1876. See generally: Rachael de Hosson, 'The limits of merits review and the EPBC Act: Grey nurse sharks, fisheries and the AAT' (2010) 27 EPLJ 223.

[491] *Re Nature* (n 490) [29].

operation would 'not be detrimental to … the survival' of the grey nurse shark, a critically endangered species.[492] Demographic modeling suggests that the shark population could be in permanent decline due to its low fecundity alone.[493] In other words, extinction may already be inevitable. Fishing related deaths will only accelerate the decline and speed up the date of extinction.[494] The Tribunal accepted that two non-natural female deaths per year would likely mean the ultimate extinction of the population.[495] At that time, at least nine female deaths were occurring per year from fishing, of which only half were within the commercial fishery.[496] As the deaths outside of the commercial fishery were sufficient to threaten the survival of the shark, it held that the commercial fishery would not be detrimental.[497] In other words, the commercial fishery deaths were unnecessary to the extinction of grey nurse sharks. One may disagree with the narrow interpretation of survival adopted by the Tribunal,[498] however, for our purposes, the case is not one of accepting replacement deaths as part of discounting the effect of the commercial fishery, but one of disregarding unnecessary contributions to actual harm.

It is an unfortunate fact of modern society that many species are likely to go extinct or become critically endangered.[499] However, the 'inevitability' of this outcome

[492] EPBCA 1999, ss303FN(3)(b)(i), 303GJ(1)(h).

[493] *Re Nature* (n 490) [89]-[90].

[494] ibid [91]-[93].

[495] ibid [123].

[496] ibid [123].

[497] ibid [125].

[498] de Hosson (n 490) 231-232 argues that detriment ought to have been interpreted more broadly to include any adverse contribution to species survival, including unnecessary ones.

does not detract from the need to consider the impacts of each project on a species, with no consideration given to possible replacement deaths. Just because a project may have an adverse effect on a species does not mean that it will not be approved.[500] It does mean that in deciding whether or not to grant approval the harm it *will* cause is considered while the possibility of replacement deaths is not.

The 'Ridiculousness' of Replacement Economic Benefits

Economic benefits of a project are often touted as outweighing all other considerations. If coal from a particular mine can be replaced by another mine, this raises the question of whether its economic benefits are also 'replaceable'. An objector in one of the recent mining cases attempted to make such a case.

In *New Acland*, the miner's modelling of the economic impacts was based on the assumption that the supply curve would not shift as a result of increased production.[501] In essence, it was assumed that if the mine did not proceed, other suppliers would simply increase their own production by an equivalent amount.[502] An objector argued that if one accepts that there is no net increase in supply and assumes that the replacement coal would be sourced from another Queensland or Australian mine,[503] then it must be concluded that there is also no net economic impact to the

[499] Gerardo Ceballos, Paul R Ehrlich and Rodolfo Dirzo, 'Biological annihilation via the ongoing sixth mass extinction signaled by vertebrate population losses and declines' (2017) 114 PNAS E6089.

[500] *Friends of Tumblebee v ATB Morton* (No 2) [2016] NSWLEC 16 [231]-[232].

[501] (n 63).

[502] Whether this is a tenable assumption in economic theory is beyond the scope of the thesis and irrelevant to the point. The evidence was accepted by the Land Court, notwithstanding a challenge by one objector's economist as being 'inconsistent with basic microeconomics': ibid [999], [1001], [1004].

[503] There was no evidence presented as to the likely source of any replacement coal supply.

region.[504] If the environmental harms associated with coal are not attributable to a mine, based on its ability to be sourced from elsewhere, then the same must be said of the economic benefits which flow from it. This miner submitted that:

> *[I]t is ridiculous to suggest that the benefits of the Revised Expansion Project would be nil, because of the possibility that some or all of the coal that was to be supplied from this project, could instead be supplied from another project in Queensland*. It is submitted that there is always the possibility that an alternative mine in Queensland will be able to produce coal that is not able to be supplied by another mine in Queensland.[505]

The Land Court rejected the objector's argument on principle and as unsubstantiated in this case,[506] noting:

> If it were to be accepted, then any assessment of the economic impact of a proposed mine would be adversely affected by an assumption that another second mine in the region, state or Australia could replace its supply if it does not get approval. *The assessment of the second mine would then be effected in the same manner*.[507]

It is beyond my expertise and the scope of this thesis to assess how economic impacts ought to be analyzed or how that analysis differs from evaluating environmental impacts; however, a prima facie case of inconsistency is apparent to the layperson. There does not seem to be any rational basis upon which to reject the argument in relation to economic benefits but not with respect to global GHG emissions.

The foregoing analysis yields two points. The first is that it illustrates that the effect of permitting consideration of replacement harm is to remove consideration of any GHG emissions. This effect is not limited to Queensland or mining. Evidence of its acceptance may be found in other states and federally and for a variety of GHG-emitting projects. It also highlights how allowing such a consideration appears to be at

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[504] *New Acland* (n 63) [1005].

[505] ibid [1007].

[506] ibid [1008]-[1009], [1019].

[507] ibid [1008].

odds with the evaluation of the project impacts be they environmental (endangered species) or otherwise (economic). The effect of negation and the inconsistency with other impacts support a case for deeming replacement harm irrelevant and irrational.

The second point is that the tide of judicial opinion and departmental practice seems to run counter to that conclusion. The arguments that I have made for irrelevancy and irrationality, while more elaborate, are of a similar kind to those made by CCAQ and rejected by the Courts in Queensland.[508] The federal judiciary found no error in the Commonwealth Minister considering what might otherwise occur in the absence of a mine. Some NSWLEC judges appear open to considering replacement effects as part of evaluating non-mining projects (*Redbank* and *Drake-Brockman*). Departmental practice is mixed with some proceeding on the basis of the additionality of GHG emissions, while others have taken note of the likelihood of replacement sources. It would appear that only the Victorian Planning Panel has rejected consideration of the effect of replacement sources when evaluating climate impacts. It would appear that I am swimming against the tide of permissibility.

There is one final argument to make in the case of irrelevance. It is that considering replacement harm is, in fact, a relevant matter *in some cases*. To distinguish between cases in which it is relevant from those in which it is not requires us to return to the beginning of the thesis and consider the phenomenon of climate change, its attributes and the concept of committed warming.

[508] CCAQ, 'QCA submission' (n 288) [54]-[55].

Relevancy is Context Dependent

In its submissions, CCAQ frequently drew on criminal law analogies in support of its contention that to consider what might otherwise occur is irrelevant. As the purpose of imposing criminal liability for homicide is to punish the perpetrator and protect society, what might otherwise have happened is never relevant to that task. Can it really be said that what might otherwise occur is never relevant to considering the sustainability of a project? On its face, that factor does seem relevant to decision-making focused on balancing environmental, social and economic concerns. After all, if the same environmental harm is likely to occur in any event, why not reap the economic benefits that may flow from it? In considering that question, it is useful to refer to the technical literature on environmental assessments, specifically Life Cycle Assessments (LCA).[509]

The purpose of LCA is to assess the potential environmental impact of a consumer product or service through its lifetime by assessing the inputs and outputs of the system.[510] There are two broad ways to conduct the analysis.[511] Attributional LCA (ALCA) determines the environmental impacts the creation or provision of a particular product or service *will have* if it proceeds (in our case GHG emissions).[512] It does so by looking retrospectively from the end of the project to determine what difference it

[509] See generally Mary Ann Curran (ed), *Life Cycle Assessment Handbook: A Guide for Environmentally Sustainable Products* (Scrivener Publishing 2012). I am grateful to Matthew Brander for bringing this literature to my attention.

[510] Reinout Heijungs and Jeroen B. Guinée, 'An Overview of the Life Cycle Assessment Method - Past, Present, and Future' in Mary Ann Curran (ed), *Life Cycle Assessment Handbook: A Guide for Environmentally Sustainable Products* (Scrivener Publishing 2012) 15.

[511] Göran Finnveden and others, 'Recent developments in Life Cycle Assessment' (2009) 91 J Environmental Management 1.

[512] Though assessments are occasionally done for just one aspect, such as a product's carbon footprint, many argue that this is not representative of LCA and loses many of the benefits of analysis: Curran (n 509). As LCA is only used here for illustrative purposes, one need not be concerned with a focus on only one impact.

made. Consequential LCA (CLCA) is prospective. It makes assumptions about how the real world is likely to evolve in the future and then seeks to determine what difference the introduction of a product or service will make. It has long been recognized that which method (ALCA or CLCA) would be most appropriate depends on the purpose of the inquiry.[513]

To focus on the *release* of GHG emissions, and the environmental harm it will cause, is to adopt an attributional approach. To seek to determine whether the introduction of a new source of coal will result in any change in the projected state, national, or global GHG emission levels is to adopt a consequentialist approach. From a causal standpoint, as was argued in Chapters 2 and 3, the attributional approach is the correct one to be taken in evaluating impacts under mining and environmental protection legislation.[514] However, the attributional approach does not make consideration of what might otherwise occur irrelevant to the decision-making process. Rather, the fact that there is this alternative method of evaluating the effect of a project (CLCA) seems to *support* its relevancy as well as explain its attractiveness.

Yet, there is a critically important distinction to be made and it is between those activities which are part of a transition to a carbon-free world and those which perpetuate a fossil-fuel based society. I submit that replacement harm would be relevant in an assessment of the former, but irrelevant in the case of the latter.

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[513] Tomas Ekvall, Anne-Marie Tillman and Sverker Molander, 'Normative ethics and methodology for life cycle assessment' (2005) 13 Journal of Cleaner Production 1225; Curran (n 509).

[514] How the LCA community itself conceptualizes causation is a matter of dispute: see Richard J. Plevin, Mark A. Delucchi and Felix Creutzig, 'Using Attributional Life Cycle Assessment to Estimate Climate-Climate Mitigation Benefits Misleads Policy Makers' (2014) 18 J Industrial Ecology 73; Edgar Hertwich, 'Understanding the Climate Mitigation Benefits of Production Systems: Comment on "Using Attributional Life Cycle Assessment to Estimate Climate-Change Mitigation …"' (2014) 18 J Industrial Ecology 464.

The transition to a carbon-free society will not occur overnight. During this period, projects that emit GHG emissions will be approved. Consideration of replacement harm may be relevant to that decision-making process *if* project approval would lead to *less* harm than may otherwise be the case. In such circumstances, a decision-maker would consider both the absolute amount to be released, and its acceptability, as well as the net *reduction* the project would likely produce.

Examples of this type of deliberation can be found in the case law. In *Dual Gas*, the Victorian Civil and Administrative Tribunal considered a novel technology's potential to produce net reductions in power sector GHG emissions to be a relevant factor for the evaluation of its consistency with state environmental policy.[515] One may dispute the weight to be assigned to this factor or question the factual validity of the analysis claiming a net reduction (as environmental groups did in that case), however that does not detract from the permissibility of the consideration. In *Champions Quarry v Lismore City Council*, the NSWLEC accepted that a net reduction was a relevant consideration in principle, even though it was not substantiated in that case.[516] A sandstone quarry had argued that, given its proximity to the local market, approving its expansion proposal would result in a reduction of transport (Scope 3) emissions compared to sourcing material from greater distances; however there was insufficient evidence to gauge the extent of any claimed benefits.[517] In both cases, considering what

[515] (n 73). The proposed power station would produce electricity from a combination of coal and natural gas and is less polluting than convention coal-fired stations. On the facts as found by the Tribunal, the power station would *not* lead to a net reduction in GHG emissions. The Tribunal imposed a condition on approval to the effect that an equivalent amount of more polluting generating capacity had to be retired before the project could proceed in order to ensure that the claimed net emissions reduction would, indeed, materialize.

[516] [2011] NSWLEC 1124 [371]-[372].

might otherwise occur is relevant because the proposed project would produce an improvement over the status quo.

The continued extraction of fossil fuel resources does not improve the status quo but perpetuates it.[518] It exacerbates anthropogenic climate change, rather than seeking to address it. The objects of the EPA 1994 and the MRA 1989, when interpreted in light of an understanding of anthropogenic climate change, support this distinction. The goal in the Paris Agreement to reduce GHG emissions to net zero further strengthens this argument.

The object of the EPA 1994 is to "protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends".[519] It is not possible to *protect* the environment and continue to emit GHG emissions. As discussed in Chapter 1, releasing CO_2 into the atmosphere is irreversible on human timescales and each additional molecule will have an added impact on global temperature warming. Under the Paris Agreement, countries agreed to net zero emissions by 2100.[520] To avoid dangerous anthropogenic climate change pursuant to

[517] The quarry owner had also stated his intention to compete for business further afield, which would have negated any potential savings from shorter haulage distances to current markets. A full life cycle analysis would be necessary in order to ascertain the full effect of the proposal.

[518] The miner did argue that its coal is cleaner burning than likely replacement sources and thus would represent a reduction compared to those sources. While that argument would be relevant if a decision-maker *had* to choose between two coal mines, it is not relevant to the question of whether to approve a particular mine and perpetuate resource extraction.

[519] s 3.

[520] I accept that the means of achieving the net zero emissions reduction target is not defined in Article 4. It could be achieved by phasing out the vast majority of GHG emissions, with residual emissions (say from certain agricultural practices for which there is no substitute) offset through biosequestration. Alternatively, GHG emissions may remain at some substantial level, coupled with widespread adoption of carbon capture and storage technology (CCS) to sequester emissions underground. However, as CCS

the Framework Convention and the Paris Agreement, and protect the Queensland environment, it is necessary to transition away from GHG emissions. This is not to say that all mining projects must be refused. It is within a decision-maker's power to approve a project notwithstanding the fact that it will cause environmental harm. However what protection means in this context is that factors which would undermine it must be excluded.

The case with respect to the MRA 1989 is not as straightforward. Its objectives include 'encourag[ing] and facilitate[ing] … mining' as well as 'encourag[ing] environmental responsibility in … mining'.[521] Consideration of replacement harm seems well within the scope of encouraging and facilitating mining. After all, if the harm is likely to occur in any event, it should not be relied upon to the detriment of the particular project. For replacement harm to be irrelevant, the encouragement of environmental responsibility must necessitate its exclusion. So what does 'environmental responsibility in … mining' mean? The Court of Appeal noted 'in … mining' "describes the area of activity within which "environmental responsibility" is intended to be encouraged by the Act".[522] These comments were made with respect to s269(4)(j) which is limited to mining operations. The Court did not comment on its relevance to the public interest under s269(4)(k).[523] As it has been found that Scope 3 emissions fall within the scope of the public interest, reference to 'in … mining' must

technology is currently commercially unviable and unproven at the scale it would need to be to allow GHG emissions to continue at any meaningful scale, that possibility is set aside. In *Dual Gas*, CCS and its impact on project GHG emissions was not given any weight specifically for these reasons: (n 73) [208], [281]-[282].

[521] s 2(a),(d).

[522] *Alpha Court of Appeal judgment* (n 4) [32].

[523] ibid [32].

be broad enough to include those emissions as well.[524] Encouraging 'environmental responsibility' suggests the taking of actions on the part of the miner that would promote environmentally friendly behaviour. These could include mitigation or offsetting of GHG emissions. In the context of the Land Court's consideration of the public interest, it may mean consideration of the adverse impacts of the mine *to the exclusion* of the effect of replacement harm. To be responsible is to properly consider what will happen if the mine is approved and not to ignore this fact on account that some other source may produce the same outcome. The retention of this objective in the Act following the 2000 amendments further supports the need to consider environmental matters. Whatever may be the proper interpretation of the MRA 1989, it is clear that the argument for the irrelevancy of replacement harm is harder to make under the MRA 1989 than the EPA 1994.

Having illustrated how the acceptance of replacement harm can negate consideration of the actual effects of mining and distinguished it from situations in which replacement harm may be relevant, what are the prospects of success for this ground of review?

The Awfulness of Lawfulness?[525]

It should not come as a surprise that Courts have traditionally only invalidated decisions where the statutory context clearly (and often explicitly) indicated that a relevant matter was not considered or that an irrelevant one was considered.[526] Environmental groups

[524] I noted that the Land Court President held otherwise in *Xstrata*, however that was prior to the deliberations of the Supreme Court and Court of Appeal: (n 63) [557].

[525] I am borrowing the term from Nicole Rogers, who in turn, has borrowed it from others: (n 85).

have had little success when they have moved beyond the question of *whether* a matter was or was not considered to any assessment of *how* that was done.[527] It must be noted that the claim made is often a failure to adequately consider particular environmental impacts or the principles of ecologically sustainable development, rather than assigning too much weight to an element of minimal significance, as would be the case here. However, the point remains that courts have been reluctant to undertake such a review for fear of trespassing on the merits of a decision.

There is little evidence that the openness of the High Court to a more substantive review (largely in migration cases) has had any effect on the assessment of lower courts in environmental planning cases.[528] For instance, in *Tarkine National Coalition v Minister for Sustainability, Environment, Water, Population and Communities*, the rationality of conditions imposed to assuage the effects of mining on the Tasmanian Devil were challenged with reliance on *Li*. Marshall J dismissed the ground, viewing it as an attempt to infringe upon the merits of imposing the particular condition.[529] His Honour relied on Gageler J's opinion in *Li* that unreasonableness in

[526] Relevant matters not considered: *Australian Conservation Foundation v Latrobe City Council* (2004) 140 LGERA 100 [49]; *Tarkine National Coalition Incorporated v Minister for Sustainability, Environment, Water, Population and Communities* [2013] FCA 694 [49], [60]; *South East Forest Rescue v Bega Valley Shire Council* [2011] NSWLEC 250 [92], [150], [157]-[158]. Irrelevant matters considered: *Bannister Quest v Australian Fisheries Management Authority* (1997) 77 FCR 503, 539-540, 546-547, 550 (AFMA took into consideration irrelevant social and equity considerations in deciding upon a permit).

[527] Generally: Andrew Edgar, 'Extended Standing - Enhanced Accountability? Judicial Review of Commonwealth Environmental Decisions' (2011) 39 FLR 435, 455-459; Andrew Edgar, 'Between rules and discretion: Legislative principles and the "relevant considerations" ground of review' 2013 20 AJ Admin L 132. On climate grounds: *South East Forest Rescue* (n 526) [167]-[184]; *Haughton* (n 73) [164]-[186], [205]-[207]; *Drake-Brockman* (n 73). Developers have also had little success: *Esposito v Commonwealth* [2015] FCAFC 160 [128].

[528] Andrew Edgar, 'Between rules and discretion' (n 527) 140-141; *Haughton* (n 73) [164].

[529] (n 526) [81]-[82], [84]-[85].

Australia was unchanged,[530] notwithstanding that Gageler J appears to be in the minority on this point.

One of the drivers behind the shift to more substantive review in the migration context does not exist in an environmental setting: Attempts by Parliament to oust the purview of the Court.[531] At one time, it was not possible to challenge decisions made under the Migration Act 1958 (Cth) on *Wednesbury* unreasonableness grounds. The unavailability of this ground prompted the Court to focus on the need for rationality in decisions, distinguishing it from unreasonableness as traditionally conceived. In an environmental context, actual or threatened changes have focused on limiting the ability of concerned citizens, and not the courts, to intervene.[532] Though when attempts by governments to limit the purview of the Court through privative clauses have been made, they have been rejected.[533] The largely discretionary nature of much environmental and mining legislation does not bode well for environmental groups.

To this general context, one must add the fact that both the Court of Appeal of Queensland and the Full Federal Court did not think it was irrelevant for the respective decision-makers to consider the effect of replacement sources. In the Carmichael case,

[530] ibid [84].

[531] Aronson (n 413); Stephen Gageler, 'Impact of Migration Law on the Development of Australian Administrative Law' (2010) 17 AJ Admin L 92.

[532] See (n 232) for a discussion of the Queensland government's legislative amendments, most of which have now been undone. The Commonwealth government accused environmental groups of misusing the open standing provisions under the EPBCA 1999, calling it 'lawfare', and threatened to amend the Act. By contrast, empirical studies have shown that there is no evidence of frivolous or vexatious use of litigation by these groups. See Chris McGrath, 'Myth Drives Australian Government Attack on Standing and "Environmental Lawfare"' (2016) 33 EPLJ 3; Andrew Macintosh, Heather Roberts and Amy Constable, 'An Empirical Evaluation of Environmental Citizen Suits under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth)' (2017) 39 Sydney LR 85.

[533] *Haughton* (n 73) [77], [80].

ACF argued that the Minister had erred by not following the 'framework of rationality' for approving developments as set out in the EPBCA 1999.[534] These attempts to rely on *Li* were dismissed as the specific grounds of review sought by the applicant did not include unreasonableness.[535] It does not help matters that, at present, Scope 3 emissions may only be considered as part of the public interest under the MRA 1989.

Under the environmental protection laws of Australia, the decision-maker has broad discretionary power in determining whether to approve or refuse a project. The opportunities for oversight by the Courts, whether in judicial or merits review, are limited. It is open to any decision-maker to decide that the short-term economic benefits of a mine outweigh any environmental harms that the mine may cause, including irreversible climate impacts. A decision-maker may accept that national or global efforts to reduce GHG emissions will be adequate to address those emissions from coal. She may determine that the quantum of GHG emissions involved is insignificant. These determinations are evaluative judgments and are only open to challenge on unreasonableness grounds.[536] Consideration of replacement harm is of a different order as it obfuscates what will happen.

Climate change is a global phenomenon, which requires a global solution. It is true that if Australia reduced its national emissions to zero, it would still suffer additional climate harm if other countries did not do the same. The Great Barrier Reef may still perish. However, the global nature of the problem simply means that all

[534] ACF, 'Outline of Submissions' (FCA, QUD1017/2015, 5 April 2016) [22], [24]-[26].

[535] *ACF first instance* (n 66) [153].

[536] Past attempts to challenge reliance on state and federal climate policy as a means to address climate change have been unsuccessful: *Haughton* (n 73) [209]-[215].

countries must act. It cannot serve as a universal excuse to allow decision-makers to continue to make environmentally harmful decisions, without considering the full effect of those decisions. Australia only has control over the actions within its territorial borders, including what to do with its fossil fuel reserves. It must decide whether it is acceptable that Australian coal harms the Australian Reef. Permitting consideration of replacement fossil fuels frustrates this task and ought to be rejected.

The bar to establishing the irrelevance of replacement harm is a high one. It may be that society is stuck with the awfulness of lawfulness for now. However, the greater openness of the High Court to substantive review and the need for rational decision-making can only help climate objectors in the future.

CONCLUSION

This thesis has explored the question of the relevance of replacement sources of coal, and the greenhouse gas emissions they may cause, to the approval of new coal mines under Queensland mining and environmental protection legislation through an analysis of a recent case from the Land Court and its subsequent judicial review. The thesis approached the question from two perspectives: the relevance of replacement sources to causation and as one element in a deliberative decision-making process.

To explore the causal question, it drew insights from the law of negligence and homicide. Through this comparison, it was able to show how the miner relied on cases of omissions in which the causal effect of the omission was not known. Under such conditions, it was appropriate to ask whether the hypothetical world without the breach would be any different and in so doing allowed consideration of replacement sources of coal. I argued that it is inappropriate to draw parallels between the assessment of causation in cases of omissions and the evaluation of impacts from a mine. Instead, the mine ought to be evaluated on the basis of what it proposes to do. What might otherwise occur, due to replacement sources, is irrelevant. In essence, the law should continue to apply hindsight necessity in forward looking assessments. The comparison with negligence and homicide was also able to explain the approach adopted by the climate objector and its reliance on criminal law analogies.

Causation is often said to be one of the most challenging areas for climate litigation, especially tort claims. The focus here has been on its operation in a forward-looking environmental planning context. However, that does not mean this research cannot provide insight to other types of climate litigation. In this case, climate change

obscured the ability to see the appropriate place for considering the relevance of replacement sources. A comparative analysis revealed this difficulty and helped structure the legal analysis. In a negligence claim, it will be equally important to be clear about the relevance of what might otherwise have occurred at each stage of the analysis. There can be no doubt that a comparable argument - that the tortious emissions of entity X made no difference to the injury suffered by the plaintiff - will be made. It is imperative that that argument be dissected into matters of factual causation and damages. To argue that tortious emissions had no cause-in-fact effect because of the possibility of standby emissions must be dismissed on the basis of hindsight necessity. Whether the fact that some GHG emissions may have been unnecessary for the injury is relevant will depend on whether a jurisdiction requires that a contribution be necessary to the outcome, or whether a material, but unnecessary, contribution to the outcome is sufficient. The fact that other emissions would have occurred at a later date, thus ensuring that the same harm would have eventually occurred, is a question that must be addressed at the damages stage of the analysis. Whether these emissions were of innocent or tortious origin may have a bearing on the damage calculation.

On the deliberative approach, it is clear that environmental protection and mining legislation bestow broad discretion on decision-makers to determine the preferable outcome with respect to individual projects. I made the case for why the effect of replacement coal ought to be excluded from these deliberations as it is both irrelevant to the subject-matter and scope of the legislation and irrational to consider it. Through a survey of other cases and departmental assessments, I show that the argument is not unique to Queensland but has been considered with respect to other mines and other types of GHG-emitting developments. In so doing, I also illustrated

how its widespread acceptance would effectively remove the consideration of the contribution of a project to anthropogenic climate change as part of the evaluation process. I sought to distinguish anthropogenic climate change from other environmental problems due to its cumulative and irreversible nature. To give meaning to legislative objectives to protect the environment and encourage environmental responsibility, one must accept that any future emissions are additional and cause future harm, to the exclusion of what might also occur.

Nicole Rogers describes the structural limitation of a precedent-bound, conservative judiciary to radical change as the 'awfulness of lawfulness'.[537] While the argument for irrelevance is made, I accept that the bar is a high one and may not be reachable, particularly if climate objectors can only base their arguments on the Mineral Resources Act 1989 (Qld). The awfulness may win, for now.

In the introductory remarks to *Thompson v Smiths Shiprepairers*, a case about employer negligence in failing to adequately protect employees from industrial noise, Mustill J commented on the historic acceptance of deafness as inevitable:

> It has been known for at least 150 years that persons working in conditions of excessive noise are liable to suffer deafness. In 1886 Thomas Barr delivered a paper which described many of the most important features of what is now called noise-induced hearing loss. … Everyone knew this, but nobody did anything about it. Apathy and fatalism prevailed amongst workers, employers, trade unions and legislators alike. Deafness was treated as an inescapable fact of shipyard life. … In consequence, there are now thousands of people still alive whose work has caused them to become hard of hearing.[538]

[537] Rogers (n 85).

[538] *Thompson v Smiths Shiprepairers (North Shields) Ltd* [1984] 1 QB 405, 408-409.

His Honour went on to find that once information was known about the effects of industrial noise on hearing loss and ear protection available, employers could no longer rely on the general apathy towards deafness.

We know enough about climate change to act now. Future impacts are not inevitable but based on decisions taken today. If Australian coal is mined, it will be Australian coal that contributes to future harm. Whatever else might have occurred will be irrelevant. Nothing in this thesis should be taken as arguing that mining developments must be refused because of their environmental impact, only that they must be assessed on the basis of the impacts that they *will cause* to the exclusion of what might otherwise occur, in order to give meaning to the law.

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