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Information contained in this newsletter is current as at March 2019
Commemoration to Rachel Pepper J and Rachel Walmsley

*The AER Editorial Board*

Justice Rachel Pepper and Rachel Walmsley, long time co-consulting editors of the *Australian Environment Review*, finished up their term with Volume 33. Over the past 8 years “the Rachels” have transformed the AER into a well-respected source of legal analysis and expert commentary. Their commitment to this publication has been unwavering, and the consistently high standard that audiences have come to expect of the AER is due in large part to their engaged and steady leadership.

Despite their own heavy workloads, both Justice Pepper and Rachel Walmsley have been generous in their support and guidance to commissioning editors, always open to ideas from the broader editorial panel, and rigorous in their attention to detail. It has been a profound privilege and a pleasure to work with them and to learn from them.

The entire *Australian Environment Review* editorial team extends our thanks and best wishes to the Rachels. They’ll be missed!
A mine that can’t be closed? The McArthur River Mine and regulatory failure in the Northern Territory

Kirsty Howey and Gillian Duggin ENVIRONMENTAL DEFENDERS OFFICE (NT)

Introduction

On 10 August 2018, the Northern Territory Environment Protection Authority (NTEPA) released its report assessing the environmental impacts of Glencore-owned McArthur River Mine’s (MRM) proposed Overburden Management Project (OMP) — a project designed to rectify the prior erroneous classification of the mine’s waste rock. The NTEPA recommended it proceed on the basis that it could be managed to avoid unacceptable environmental impacts and risks.

The NTEPA’s assessment of the OMP is the fifth public environmental impact assessment (EIA) in the mine’s 24-year operating history, sitting at the midpoint of the mine’s operating life. The assessment has given the public a rare snapshot of a raft of confounding and perhaps insoluble mine management issues, particularly relating to mine closure.

As this article explores, the OMP EIA demonstrates the complexity of environmental management difficulties posed by MRM across a vast timescale, highlights ongoing issues regarding the adequacy of the Northern Territory’s legal and regulatory framework and the regulators’ capacity to address the raft of existing and future significant environment impacts of the mine.

Mine history

MRM is located in the very remote Gulf region of the Northern Territory, some 60 km upstream from the predominantly Indigenous town of Borroloola. The McArthur River snakes through the mine site and, on its path downstream, cleaves the township of Borroloola in two before emptying into the Gulf of Carpentaria. It is a vital source of cultural, spiritual and physical sustenance for the Yanyuwa, Garrawa, Gurdanji and Mara peoples who live in Borroloola and the McArthur River catchment area, as documented most recently in the Borroloola township native title claim determination.

The mine’s history has been contentious. Assessments under the Northern Territory’s Environmental Assessment Act 1982 (EA Act) and Environmental Assessment Administrative Procedures 1984 (EAA Procedures) at junctures where MRM has sought approvals have provided the main opportunity for informed public scrutiny of the mine.

The first EIA was carried out in the early 1990s, when technological advancements enabled MRM to commence underground mining of the “Here’s Your Chance” lead/zinc/silver deposit that had been discovered in the 1950s. Underground mining was in full swing by late 1995.

In 2005, MRM sought approval to convert the mine to an open cut operation, which would controversially require the diversion of 6 km of the McArthur River to access the ore body under the river bed. There were two EIAs for the open cut project. The first resulted in a statement by Labor Environment Minister Marion Scrymgour that the proposal could not proceed without unacceptable environmental impacts:

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The assessment concludes that there are significant uncertainties over the long term environmental impact associated with diverting the McArthur River and managing an open pit mine in the river flood plain. The proposal does not therefore meet the test of sustainability—the EPA’s assessment provides a compelling argument for caution.

Although the Environment Minister did not have the power to refuse the project, this position was unprecedented. However, days later Chief Minister Clare Martin intervened, inviting an amended proposal from MRM that included a degree of re-engineering of the diversion channel. This proposed amendment triggered a second EIA. The NTEPA conceded an improvement in the diversion channel design, but noted a suite of significant remaining risks, including that contaminated seepage from mining operations would enter regional groundwater.

Six months after she had recommended a rejection of the open cut proposal, in August 2006, Scrymgour gave a guarded nod to the revised project while noting serious concerns about its impacts. Approvals by the Northern Territory Mines Minister under the Mining Management
Act 2001 (NT) (MM Act) and by the Commonwealth Environment Minister under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) followed.

Members of the Indigenous community were opposed to the open cut proposal, and in late 2006 native title claim groups extending from the mine site, along the McArthur River, and into the Gulf of Carpentaria commenced two sets of proceedings: in the Northern Territory Supreme Court challenging the mining approvals under the MM Act; and in the Federal Court challenging the Commonwealth approval under the EPBC Act. Traditional owners succeeded in the Northern Territory Supreme Court, but within 3 days of the judgment the Northern Territory Labor Government passed special legislation overriding the court’s decision to ensure the open cut mine could go ahead. Traditional owners also won in the Federal Court in December 2008 (on appeal), but not before MRM diverted the McArthur River, such that the decision could not provide any substantive relief. Commonwealth Environment Minister Peter Garrett approved the proposal under the EPBC Act in early 2009.

Rejection of the proposal by the Northern Territory Environment Minister and two sets of successful legal proceedings had been unable to halt MRM’s open cut proposal. These approvals, however, set the mine on its trajectory of environmental impacts for hundreds of years into the future.

In 2012, MRM (now owned by Glencore) embarked upon a fourth EIA process to obtain approvals to expand the production rate, including doubling the size of the open pit. This project was approved under the MM Act in June 2014.

Beginning in 2014, a series of significant environmental incidents refocused public attention on MRM. Most seriously, parts of the northern waste rock dump combusted and appeared to be “on fire”, emitting large plumes of toxic smoke and sulfur dioxide into the atmosphere. This was closely related to the generation of acid mine drainage (AMD), which produces significant excess heat and leads to heavy metals dissolving into groundwater and surface water, with toxic consequences. After investigation, MRM determined that it had incorrectly classified the potentially acid forming (PAF) characteristics of its waste rock. Instead of its original estimate that 25% of its waste rock was PAF, the figure was found to be closer to 90%. Due to improved knowledge of the increased risk of significant environmental impacts from the mine, in June 2014 the NTEPA determined that a new EIA was required, leading to the OMP.

EIA and environmental regulation of mining in the Northern Territory: toothless tigers and black boxes

There are serious flaws in the Northern Territory’s euphemistically “flexible” environmental assessment laws. The EA Act is only six pages long, a 1982 artifact from the early days of Territory self-government when regulatory prescription was considered a brake on economic development. Neither the NTEPA nor the Northern Territory Environment Minister has the legal power to approve or reject projects, even in the case of a finding of unacceptable environmental impact (as occurred in relation to MRM’s open cut proposal).

Instead, the MM Act governs the approval and management of mining operations, including their environmental impacts. Interaction between this legislation and an EIA is limited.

Following an EIA under the EA Act and the EAA Procedures, which culminates in an assessment report prepared by the NTEPA, the Minister for the Environment must report to the Resources Minister, who has the power to approve mining operations under the MM Act. Although the Resources Minister must have regard to the outcomes of an EIA and must report to the NTEPA and Legislative Assembly if their decision is contrary to an assessment report issued by the NTEPA, there is no requirement to incorporate any recommendations that flow from the EIA process.

A mine must possess an authorisation and approved mining management plan (MMP) under the MM Act. MMPs are prepared by mine operators and include information such as the identification and description of the mining activities, management systems to address environmental, safety and health issues, and mine closure plans and costing. The Department of Primary Industry and Resources (DPIR) administers the assessment and approval of, and compliance with, MMPs in accordance with the Minister’s powers and obligations under the MM Act.

There are a number of inadequacies with the current environmental regulation of mining in the Northern Territory compared to other jurisdictions. In particular, the lack of enforceability of MMPs and the fact that the DPIR performs the role of both promoter and environmental regulator of the industry (leading to accusations of regulatory capture) both substantially undermine accountability.

Further, MMPs are deemed by the DPIR to be “confidential” documents. The key regulatory instrument governing the management of environmental issues at mine sites is therefore not publicly accessible. The lack of transparency surrounding the content of MMPs provides another significant barrier to accountability.
While MMPs are “confidential”, there is more public information about MRM’s operations than most Territory mines, due to its contentious and troubled history. Since 2006, it has been a condition of MRM’s authorisation that an independent body be appointed to monitor and report annually on its environmental performance (the Independent Monitor). Although the Independent Monitor has published detailed reports, its recommendations are not required to be implemented — and have often been ignored. For example, the Independent Monitor identified the waste rock classification system used by the mine as inadequate and requiring “immediate action” in its 2010 report, but regulatory action (i.e., the NTEPA requiring the OMP) was not taken until mid-2014. According to the current Independent Monitor, progress on its recommendations continues to be slow, and in relation to the core issue of groundwater management, for instance, “none of the issues [identified by the Independent Monitor], the majority of which are long term and affect large areas of the mine site, have been resolved.”

An uncertain future: a mine that can’t be closed?

For MRM to proceed with the OMP, it will require an amended authorisation and MMP to be approved by the Resources Minister. The Commonwealth Environment Minister will also need to issue an approval under the EPBC Act, given potentially significant impacts on nationally listed threatened species. Certificates issued under the Northern Territory Aboriginal Sacred Sites Act 1989 (NT) authorising the OMP are also outstanding.

The OMP is unusual as it was catalysed by an environmental problem, rather than mine expansion plans. This has dragged the mine’s management from the internal workings of the regulatory machine into the public domain. The EIA timeframe alone (now some 4.5 years since MRM’s original “notice of intent” that it would progress the OMP) is indicative of the struggles to find solutions for the serious emerging environmental issues presented by the site.

The most significant issue that the OMP responds to is the potential for AMD to be generated from the waste rock dump, open pit, and tailings storage facility causing onsite and downstream impacts to groundwater and surface water.

In response to this issue, the OMP proposes that the northern waste rock dump be redesigned, including by increasing its height from 80 m to 140 m and changing its lining. The OMP also proposes significant changes to plans for the closure, rehabilitation and monitoring of the mine. Mining would be extended by 10 years to 2047 (for tailing reprocessing), and tailings would be placed back into the open pit at the end of mining. MRM’s preferred option for closure would see, between 2048 and 2052, the open cut progressively fill with water, and the natural McArthur River course reconnected with the pit so that the river would flow through the open pit “lake”. Extraordinarily, MRM concedes that monitoring of the mine site would be required until 3037, some 1020 years into the future.

The NTEPA’s assessment report endorses some components of the OMP, including the redesign of the northern waste rock dump. It proposes that an “overarching environmental objective” be adopted to guide the future management of the mine — this being that the McArthur River be maintained in a healthy condition at all times. To achieve this, 30 recommendations are made to (inter alia) improve transparency, oversight, and management of the mine. Many are proposed to be incorporated as conditions of MRM’s authorisation or as part of its MMP.

While this may sound reasonable, a closer reading suggests that the NTEPA is struggling to manage the mine’s emerging environmental problems.

First, as noted previously, the Resources Minister is not legally required to incorporate the NTEPA’s recommendations as conditions. Even if they are incorporated, there remain serious questions about their enforceability and the efficacy of the regulatory system to ensure compliance.

Second, while many of the NTEPA’s recommendations are aimed at establishing governance mechanisms and improved management systems to support the better identification of and response to environmental issues, these measures (which are likely to be unenforceable) are not substitutes for the prevention of significant environmental damage. Given what has occurred to date, this may be impossible, given the scale and complexity of the mine’s environmental risks.

Third, there is a high degree of uncertainty about the impact mining practices will have on groundwater and surface water in the region for generations to come. A key challenge with managing AMD is that it occurs across a huge timescale. The impacts of AMD are often hidden or delayed, as water systems are slowly infiltrated. As Mudd explains, “once begun, AMD can continue to leach from mine wastes for decades or even up to millennia”, a proposition apparently accepted by MRM’s plan to monitor the mine for 1000 years post-closure. Further, the water systems around, under and downstream of the mine are characterised by uncertainty and unpredictability. Both the NTEPA and the Independent Monitor refer to the likelihood of connectivity between the mine, groundwater aquifers and the McArthur River, but also cite a lack of information...
about these interactions.\textsuperscript{20} It is difficult to understand how the mine site could have been properly regulated in the past, given this fundamental lacuna in the data.

Finally, and perhaps most concerning, the contentious issue of mine closure, rehabilitation and monitoring (which MRM proposes will involve reconnecting the McArthur River to the open pit “lake”, followed by 1000 years of monitoring) is sidestepped by the NTEPA. While the Independent Monitor has reiterated the centrality of “planning and preparing for closure of the mine … to the operation of the mine”,\textsuperscript{21} the NTEPA has deferred any decision on the final mine closure option until technologies improve and “more appropriate solutions”\textsuperscript{22} emerge. Such a deferral is arguably inconsistent with the precautionary principle (which the NTEPA purports to have applied) and with a legal requirement that an MMP include planning and costings for mine closure.\textsuperscript{23} It also raises questions about whether the NTEPA has in fact “endorsed” a different project than that proposed. It remains to be seen how the approving Ministers will reconcile these difficult matters.

By the Independent Monitor and the NTEPA’s own reckoning, the security bond (currently around half a billion dollars) is inadequate to remediate the site should MRM leave, even without the impossible task of provisioning for 1000 years of monitoring. To close the mine may leave the Northern Territory Government (and taxpayers) with an unfunded environmental disaster to attempt to remediate. Seeking short-term avoidance of liability, however, leaves Indigenous residents with no choice but to tolerate the mine, “entrenching as standard practice a dependence on continued mining to manage impacts that should not have been permitted in the first place.”\textsuperscript{24}

**Conclusion — a new regulatory era in the Northern Territory: too little too late?**

The current Northern Territory Labor Government has promised to overhaul the Northern Territory’s deficient environmental laws, including by introducing a separate environmental approval for the first time. Arguably, a key impetus for these reforms has included the regulatory failure associated with the state of MRM today. A public comment period on exposure drafts of the Environment Protection Bill 2019 (NT) and the Environment Protection Regulations 2019 (NT) recently closed.\textsuperscript{25} If implemented, the Northern Territory’s environmental laws will more closely resemble other jurisdictions in Australia. However, many uncertainties remain, including how this legislation will interact with the MM Act and other sectoral legislation. Further, some elements of the exposure drafts contain worrying concessions to industry influence, including provision for proponents to privately comment on draft environmental approvals and assessment reports before they are published. Controversially, the Northern Territory Government also recently backflipped on inclusion of open standing for judicial review and merits appeal rights in the proposed legislation following industry pressure.\textsuperscript{26}

If the Northern Territory Government can deliver on its election commitment, this may result in some changes to the future regulation of MRM. At a minimum, reform should establish more rigorous regulatory process when similar high-risk projects are proposed.

However, the reforms are too late to have an influence on the assessment and approval of the OMP. The scale of environmental damage at MRM is only just unfolding, and is likely to take many years to be fully understood — if ever. The most recent Independent Monitor report adds another risk not assessed by the NTEPA: the McArthur River may reconnect with the old channel, causing failure of the mine wall and the discharge of contaminated water into the river.\textsuperscript{27}

Richardson writes of how environmental law tends to “compress” time when compared with the impacts of the projects it purports to regulate.\textsuperscript{28} On its own assessment, MRM’s impacts will be felt for many multiples of the 50 years or so of its operating life, timeframes which are likely beyond the capacity of the NTEPA or the DPIR (and any regulator or mine) to manage. Those impacts will be most devastatingly felt by the Yanyuwa, Garrawa, Mara and Gurdanji peoples, whose livelihoods depend on the McArthur River and the aquifers to which it connects.

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Gillian Duggin acts for traditional owners in relation to ongoing environmental issues relating to the McArthur River Mine.

**Footnotes**


10. Above n 1, at 1.

11. Mining Management Act 2001 (NT), s 82.


13. Above n 11, s 40.


17. It is also worth noting that while the environmental impact statement (EIS) took nearly 3 years for MRM to produce, the public had only 6 weeks to respond (extensions of 2 weeks were given for those who asked). The three public submissions received raised a number of concerns with the OMP: MRM’s EIS supplement responding to these and government submissions was provided to the Northern Territory Government in early 2018 but was not released publicly until August 2018.

18. They include recommending the establishment of three panels of independent experts to oversee and report on the waste rock dump, the tailings storage facility and mine closure, the establishment of a community reference group, implementation of improved air, water and aquatic ecosystem monitoring programs, approval of an enforceable adaptive management plan, a 3-yearly audit of waste rock identification and handling performance, implementation of a groundwater interception and recovery system for the waste rock dump, and an independent assessment of the security bond: see above n 1.

19. Above 9, at 11.

20. To take just one example, the Independent Monitor cites a number of uncertainties relating to groundwater connectivity which affect modelling, including “the likely presence of a deep groundwater pathway between the underground mine and either [the] McArthur River or Barney Creek”: above n 16, at 4–112. The NTEPA notes that data on groundwater connectivity is deficient and will be needed before management decisions can be made: above n 1, at 96.


22. Above n 1, at 102.

23. Above n 11, s 40(2)(g).


Is environmental law keeping pace with scientific innovation?

Erika J Techera THE UNIVERSITY OF WESTERN AUSTRALIA

Summary

Rapid advances in science and technology provide many opportunities and pose some environmental challenges. Law must respond, but inherently tends to develop slowly and react to environmental problems rather than the innovations themselves. Therefore, this article questions whether law is keeping up with the current pace of change. Law must evolve more swiftly with the development of new technologies to simultaneously avoid negative impacts and harness the benefits.

Introduction

Environmental law is inherently linked with science; it is scientific information that alerted the world to point-source and cumulative impacts of pollution, the effects on species of over-harvesting, habitat loss and land use change, as well as concerns such as invasive species and climate change. These issues continue to affect the health of the environment and ecosystems as human populations expand and their natural resource demands and cumulative impacts grow. Simultaneously, new scientific innovations and technologies are continuously being developed, seemingly at an ever-increasing rate. They include a vast array of novel products and materials, engineering infrastructure developments, and technologies with potentially damaging and/or beneficial outcomes. This article explores the role that law has to play amidst these developments.

The focus of this article is the ocean environment as history has shown that innovation has often worked against marine health. This is most profoundly illustrated by commercial fishing where developments in gear and equipment have vastly improved efficiency for fishers, at the expense of sustainable utilisation of resources. Vessels are increasingly larger and able to operate in more remote locations for longer periods, and they can harvest more species, sometimes indiscriminately, using aggregation devices to attract fish into stronger, larger nets. The result is that there are fewer fish in the sea than ever before, and increasingly wild stocks are being over-harvested.1 New responses to ocean-based technologies are needed in two areas: to avoid unsustainable impacts, and to find ways to utilise these tools to benefit the environment and the law.

A second reason to focus on the marine environment is that it is becoming an ever more crowded space. Shipping, fishing, mining, tourism, and energy production, together with recreational and socio-cultural uses, all place pressure on the ocean environment. This is likely to increase as states pursue “blue economy” goals focused on further development of marine areas and growing wealth from the oceans.2 The legal response to this complexity has been to develop the concept of marine spatial planning (MSP) to deal with competing users, multiple uses and cumulative impacts on marine areas.3 Whilst MSP is a valuable planning tool, it may not be adequate to proactively and prospectively manage and utilise scientific innovations.

There is no doubt that scientific advances and technological developments can greatly benefit society, but to take full advantage and reap all the rewards, environmental law must respond in three key ways. First, to avoid adverse impacts and unacceptable risks posed by new innovations, appropriate standards and regulatory frameworks must be developed before damage becomes evident. In other words, law must respond directly to the innovations, not just the impacts. Second, law can facilitate the development of new environmentally benign inventions, discoveries and innovations. Third, law must engage with new technologies so that it can benefit from developments, particularly those that contribute to efficient and effective implementation and enforcement of environmental law. These proposals are explored below through examples of legal responses to scientific innovations, past and present.

A short overview of environmental law responses to innovation

In exploring the interface of environmental law and scientific innovation, it is important to remember that law can play two roles: regulatory and facilitative. The regulatory role is relatively straightforward and involves the setting of standards, prohibition of certain behaviours, authorisation of permissible activities, prescription of rules and enforcement of them. Law can also play a much more facilitative role to encourage better than minimum standards, to create a positive environment for innovation and to support new technologies. Both aspects
of the law are needed to keep pace with science, technology and innovation, but can it move fast enough to do so?

Our track record to date is not all that good, easily seen in the context of the current and predicted impacts of climate change. Scientists first suspected that anthropogenic emissions of greenhouse gases could change the climate in the 19th century, and by the 1960s this theory was widely accepted. Yet the international community and national governments are still trying to keep pace with the emerging science about how to respond, and it is becoming increasingly clear that we may be too late to prevent significant global impacts.

Marine debris, in the form of plastics and microplastics, is another area where the warnings were given early, with more recent studies extending beyond the pollution issues to identify human health and other risks. The versatility of plastics (inertness, durability, low density, and low production cost) led to rapid growth in production and use resulting in a problem of monumental scale that defies easy solutions. The majority of this marine debris come from land, and yet we have no international law, and little domestic legislation, on land-based marine pollution. Recent legal developments have seen plastic bag bans and restrictions on single use plastics, but these responses have come late. In essence, we have failed to regulate production and consumption across the whole life cycle of plastics. The opportunity has been missed to heed scientific warnings and/or proactively respond to scientific innovations including by curbing new production methods that have led to the rapid expansion of plastic use. The United Nations has now “declare[d] war on ocean plastic”; and legal scholars have belatedly responded with suggested regimes that seek to limit further production. The clean-up of existing debris in our oceans will be left to scientists, engineers and environmental managers to solve.

Although the outlook appears bleak we do have some success stories where law has successfully responded to environmental problems and effectively reduced future impacts. Two examples illustrate how legal action can match the pace of problems and turn around a trend of environmental damage. Despite several major oil tanker accidents resulting in devastating environmental damage, environmental damage from oil tanker spills has been halted through the setting of standards that mandate, for example, using scientific-engineering developments such as double hulls in oil tankers. A second example is the legal regime governing ozone depleting substances. Here the story gets even better as the international community reacted to scientific information about the damaging effects of chlorofluorocarbons (CFCs) before the damage to the ozone layer reached its peak. Furthermore, the legal framework was adopted before there were known substitutes for these substances. So not only did the law respond to a scientific problem, the legal solution relied on innovations yet to emerge.

Enhancing environmental law responses to innovation

Plastics are not the only issue looming on the horizon and we risk repeating mistakes of the past in other areas. In fields such as synthetic biology and nanotechnology, traditional environmental law is difficult to apply. The science shows that these innovations have unique and novel properties and therefore environmental governance regimes cannot simply be transposed or extended to these areas. Synthetic biology holds considerable promise by redesigning to enhance, or creating entirely new, organisms, but risks damaging natural species and ecosystems as they interact with genetically modified counterparts. With nanoparticles come new dangers including damage to DNA affecting humans, other species and whole ecosystems. Inevitably many of the risks cannot be fully known as yet, but because these innovations can be used in a myriad of ways and across the entire globe, a cautious approach is essential. International, and much national, environmental law has sought to address this issue through the precautionary principle, which requires measures to be taken to protect human and environmental health even in the absence of scientific certainty that harm will occur. When and the extent to which this principle is applied will be critical. If these innovations are not proactively regulated and managed promptly, then this will only leave the option of belatedly responding to problems after they occur.

A different kind of example can be seen in current debates around decommissioning offshore infrastructure in Australian waters. This country has a relatively young oil and gas industry, with the first offshore infrastructure now facing decommissioning as it reaches its end of life. Currently, Australian legislation favours, though does not mandate, complete removal of this infrastructure. Yet the marine science shows that in many cases ecosystems have developed around underwater structures, and engineering options have developed to allow for in situ decommissioning to convert old infrastructure into artificial reefs. In the context of a changing ocean environment and increasing pressure on marine species and habitats, this is an area where responsive regulation is needed to appropriately harness the benefits of this new scientific and engineering knowledge.

Law facilitating innovation

Beyond regulation there is another role that law can play — proactively facilitating innovation. Although it
is often said that environmental law and regulation impose costs on industry, other research indicates that appropriate environmental standards can catalyse innovation and enhance competitiveness.\textsuperscript{20} This was the case in relation to the ozone protection regime, where mandated phase outs of CFCs triggered the development of less damaging substitutes.

In order to repeat this success, it is important to construct legal architecture that does not stifle innovation, but rather encourages the development of better products, methods and technologies. Merely requiring the use of the best available technology may not be sufficient. Law can be more proactive by, for example, signalling the potential for technological developments, creating certainty that investments will be seen as valuable, playing a role in information gathering, fostering continuous improvement and generating pressure for innovation.\textsuperscript{21}

**Utilising innovations for effective compliance and enforcement**

As noted at the beginning of this article, technological developments have often been used to harvest marine species more efficiently, but the reciprocal benefits for compliance and enforcement have not been fully pursued. A key example in this context is the use of remote sensing technologies which allow information to be collected about species or areas from long distances. These technologies have been used to assist fishers locate harvests through the use of sonar and echo sounders for example. More recently, attention has turned to how technologies such as satellites and remotely operated vehicles (ROVs) can assist the implementation and enforcement of law. ROVs have been used by industry to monitor underwater infrastructure including pipelines (to check for leaks and other damage) and they could also be used more widely to provide underwater surveillance.\textsuperscript{22} Indeed it is this technology that has demonstrated the abundant life that has formed around offshore infrastructure, supporting the case for in situ decommissioning. Legal frameworks could mandate the use of remote sensing technologies for other licensed activities such as aquaculture, for example, to monitor nutrient loads and water quality and to maximise efficient fish feeding.

Satellites, cloud computing and machine learning are being used by some organisations to track the movements and activities of suspected illegal fishers.\textsuperscript{23} Satellites are also being used to monitor and track endangered species with greater accuracy and less impact.\textsuperscript{24} Legal frameworks could require the use of these technologies for general surveillance and to monitor for breach of licence conditions or illegal activities. Limited data sharing between industry and government, and between nations, remains an issue. Attention needs to be given to encouraging collaborative arrangements to ensure efficient, and where relevant multiple, use of the information. Where these technologies can generate evidence for enforcement proceedings, rules must provide for admissibility of this evidence, as well as quality assurance, presentation and interpretation of the data they provide.\textsuperscript{25}

Other technologies are also being developed that could have significant applications for regulators. For example, drones are now commonly and relatively cheaply available, but predominantly used by hobbyists. They are not yet routinely used for oceanic surveillance and law enforcement, although increasingly used for scientific monitoring.\textsuperscript{26} Of course the impact of drones also needs to be assessed and managed. Drones tend to be regulated through privacy laws and air space regulations, largely to protect humans,\textsuperscript{27} and if drone use is to be expanded, greater attention needs to be paid to wildlife disturbance and managing impacts on species and ecological interactions.\textsuperscript{28}

**Enhancing the law-technology interface**

It is clear that new technologies and scientific innovations are being developed at a rapid pace and law is challenged in keeping up. This article has demonstrated that we do have success stories and no doubt there are many more in other jurisdictions. In order to move forward, it will be important to facilitate interaction between lawyers and scientists and engineers and technicians. Considerable recent attention has been given to the need for multi-, cross- and interdisciplinarity and this will be critical if law is to keep pace with innovation. Beyond providing a forum for discussion and exchange of ideas, it will perhaps be necessary to create “taskforces” charged with identifying technologies and innovations that require rapid responses either in the form of legal regulation or use by regulators.

What is also clear is that even within the field of law, different actors must work more closely in order to embrace innovation. Legal professionals working with the law, advising clients or working within corporations have valuable experience and expertise to share. Government lawyers charged with making new law or reforming legal frameworks must work with these practitioners as well as legal researchers who can share success stories drawn from diverse regimes and jurisdictions.

**Conclusion**

The interface between law, technology and innovation must be strengthened. Lawmakers must engage with science and technology to ensure law responds more
rapidly to new knowledge, and also creates an environment to catalyse innovation. Futureproofing the law is an inherently challenging goal, but greater efforts must be made to find an appropriate balance to protect biodiversity and environmental health, whilst not stifling innovation. In essence, science must be better embedded in law and that also includes the use of innovative technologies in implementing and enforcing the law. Only then will the full benefits of innovation be reaped, and perverse outcomes avoided.

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This article is based on a presentation given at the 2018 National Environmental Law Association Conference, “Innovation in Environmental Law”.

Footnotes
14. For a consideration of some of these issues, see A Baran “Nanotechnology: legal and ethical issues” (2016) 8(1) Economics and Management 47. In relation to the USA, see J C Monica (ed), Nanotechnology Law, Thomson Reuters, 2018.
23. See, for example, Global Fishing Watch, https://globalfishingwatch.org/.


Case note: Krajinovic v Heath

Hannah Barta and Sarah Wilson PAGE SEAGER LAWYERS

Introduction

This case note considers the recent decision of the Supreme Court of Tasmania in Krajinovic v Heath.1 On 24 August 2018, Pearce J dismissed Mr Darko Krajinovic’s (Mr Krajinovic) appeal against his sentence, upholding Magistrate Simon Cooper’s decision at first instance.

Mr Krajinovic was subject to various charges associated with unlawfully demolishing a heritage listed house and clearing two significant trees located on his property at Mt Stuart in Hobart, Tasmania (the Property). He was charged with a total of nine offences under various Acts, including the Land Use Planning and Approvals Act 1993 (Tas) and the Environmental Management and Pollution Control Act 1994 (Tas), and ultimately fined a collective total of $225,000.

In refusing the appeal, Pearce J held that the sentence imposed was not manifestly excessive. His Honour affirmed Magistrate Cooper’s conclusion that Mr Krajinovic “displayed an utter disregard for both the law and the rights of [his] neighbours”.2

As one of the largest fines imposed for this type of offence in Tasmania, the decision sets a strong precedent for the imposition of significant penalties for blatant breaches of planning and environmental laws. In doing so, the court reiterated that such breaches undermine the objects of Acts which are for the benefit of the whole community.3

Pearce J highlighted, in cases involving serious breaches of environment and planning laws, the need to ensure that a penalty imposed will not simply be treated as another development cost.4 His Honour emphasised the importance of deterrence as the overriding consideration in imposing the sentence.5

Background

Mr Krajinovic purchased the Property at auction in late 2016. The Property was located within an area regulated by the Hobart Interim Planning Scheme 2015 (Planning Scheme).

The house located on the Property was listed as a “heritage place” in the Historic Heritage Code and the trees were listed as “significant trees” in the Significant Trees Code under the Planning Scheme.

The contract signed by Mr Krajinovic upon purchase of the Property stated that he acknowledged that the Historic Heritage Code and Significant Trees Code of the Planning Scheme applied to the Property. Further, the auctioneer advised those attending the auction that there was asbestos in the house.

Mr Krajinovic was not authorised to undertake any works in relation to the house or the trees without obtaining a planning permit from the Hobart City Council in accordance with the Land Use Planning and Approvals Act.

On 26 February 2017, Mr Krajinovic cleared the trees and demolished part of the house (the Works). He had not applied for or been granted a planning permit for the Works nor did he have the relevant licence to undertake the demolition work or arrange for appropriate removal of the asbestos prior to demolishing the house.

On the day the offences were committed, Mr Krajinovic was advised on two separate occasions by Hobart City Council officers, including a senior cultural heritage officer, that the Works were unlawful and should cease. Despite these directions, Mr Krajinovic proceeded with the Works until finally ordered to cease by the police.

The offences

Mr Krajinovic was charged with nine offences arising from the unlawful Works, including:

- undertaking a development contrary to a planning scheme, contrary to s 63(3) of the Land Use Planning and Approvals Act
- performing demolition work without a valid demolition permit, contrary to s 189 of the Building Act 2016 (Tas)
- failing to comply with several requirements under the Building Regulations 2016 (Tas) (eg, demolishing a building without having first removed all known hazardous materials)
- wilfully and unlawfully causing an environmental nuisance, contrary to s 53(1) of the Environmental Management and Pollution Control Act 1994 (Tas)
- performing “building services work” without holding the relevant licence or having undergone the approved training, contrary to s 22A(1) of the Occupational Licensing Act 2005 (Tas)

The total maximum fine for all nine offences was $353,200. Mr Krajinovic was sentenced by Magistrate Cooper to pay a total fine of $225,000.
While Mr Krajinovic pleaded guilty to all nine
offences, he appealed against the total sentence imposed
on the basis that it was manifestly excessive.

The Supreme Court’s reasoning
In relying on prior decisions where courts had intervened on appeal of a sentence for being manifestly excessive, Pearce J held that the sentence was not “outside the proper limits of the wide discretion vested in the magistrate”. Pearce J noted that the total fine was only 62% of the maximum penalty that could have been imposed.

Mr Krajinovic’s counsel argued that Magistrate Cooper had erred by concluding that the only mitigation arose from the plea of guilty, that not enough weight was given to the plea, and erred with respect to his assessment of the level of the applicant’s criminality.

His Honour made a number of noteworthy remarks that have broader application to planning and environment offences generally:

- Deterrence will be an important factor for offences under planning and environmental legislation. His Honour noted that the principal purpose of the sentence in matters of this nature was to deter others from acting in disregard of the laws. This was particularly so where the offending development work involved a commercial aspect.
- The risk to public health and safety as a result of breaches of environmental laws should be given considerable weight in sentencing.
- In considering offences under the Environmental Management and Pollution Control Act and the Land Use Planning and Approvals Act, regard may be had to the intent and objects of those Acts. Namely, his Honour noted:

> The prohibition on development without application for, and grant of, a valid planning permit, ensures that proposed development may be assessed by the planning authorities, with public involvement, against these objectives.

His Honour also relied on the remarks of Hasluck J in *Swan Bay Holdings Pty Ltd v City of Cockburn* in relation to penalties for planning offences:

> Planning controls exist for the benefit of the community as a whole. Their efficacy depends not only upon formal enforcement but also upon a pervasive culture of general observance and respect for the underlying communal purpose. This requires that breaches of the law be underpinned by significant penalties in order to deter infringements.

- While a plea of guilty will ordinarily attract a reduction in sentence, it may be outweighed by the need for general deterrence.

In applying these matters to the facts and Mr Krajinovic’s conduct, Pearce J agreed with Magistrate Cooper that the predominant sentencing consideration was that of general deterrence to others, particularly where there can be considerable commercial gain as a result of such breaches. His Honour noted that the demolition of the house and the trees resulted in greater potential for development of the Property, and the Property value had thereby been substantially increased.

Further, it was noted that Mr Krajinovic offered no explanation for why he made no enquiry during the 5 months between the date of the auction and the date of the Works regarding the need for a permit or licence. Nor did he cease his conduct even after being told on the day by Council officers that permits were required.

In considering Mr Krajinovic’s conduct as a whole, and all factors relevant to sentence, his Honour was not satisfied that the sentence imposed was excessive and gave rise to error. Accordingly, the appeal was dismissed. In addition, Mr Krajinovic will also be liable for the Hobart City Council’s costs of the hearings in the Magistrates Court and of the appeal in the Supreme Court.

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**Footnotes**

2. Above n 1, at [35].
3. Above n 1, at [29] per Pearce J.
4. Above n 1, at [32] per Pearce J.
5. Above n 1, at [25].
6. Above n 1, at [44].
8. Above n 1, at [44].
9. Above n 1, at [36] per Pearce J.
10. Above n 1, at [30] per Pearce J.
12. Above n 1, at [34] per Pearce J.
13. Above n 1, at [29] per Pearce J.
15. Above n 1, at [38] per Pearce J.
16. Above n 1, at [30] per Pearce J.
17. Above n 1, at [12] per Pearce J.
18. Above n 1, at [41] per Pearce J.
19. Above n 1, at [41] per Pearce J.
Case note: Chief Executive, Office of Environment and Heritage v Clarence Valley Council

Dominic Smith LAND AND ENVIRONMENT COURT OF NEW SOUTH WALES

Introduction

The concept of restorative justice conferencing has created opportunities to redress the harm perpetrated by the destruction of Aboriginal cultural heritage. In the case of Chief Executive, Office of Environment and Heritage v Clarence Valley Council, the Land and Environment Court of New South Wales (LEC) ordered the defendant to participate in a restorative justice conference with the local Aboriginal community. In those proceedings, the defendant, Clarence Valley Council (the Council), pleaded guilty to harming an Aboriginal object contrary to s 86(2) of the National Parks and Wildlife Act 1974 (NSW) (NPW Act).

Restorative justice engages the offender, the victims and the community in resolving the “aftermath of the crime”. In that case, the court determined that restorative justice conferencing was an appropriate order to make because the affected local Aboriginal community could be given the opportunity to express its concern about the harm caused by the commission of the offence and what the appropriate remedy should be. This case note briefly outlines the decision’s procedural history and the penalty imposed on the Council, including the role of restorative justice in sentencing.

Factual and legislative background

In July 2013, the Council’s field operations staff lopped a culturally modified scar tree located in Grafton, New South Wales. The scar tree was an Aboriginal object for the purposes of s 86(1) of the NPW Act and was of cultural significance to the Gumbaynggirr people. After the tree was lopped, the Council was issued with, and subsequently paid, a penalty notice for harming an Aboriginal object under s 86(2) of the NPW Act.

The lopping of the scar tree, however, exacerbated an existing decline in the tree’s health. The Council therefore removed the tree on 19 May 2016. The Council self-reported that the tree had been removed on 20 May 2016.

The Chief Executive of the Office of Environment and Heritage (OEH) commenced a prosecution against the Council for harming an Aboriginal object contrary to s 86(1) of the NPW Act. The Council pleaded guilty to the offence. After the first day of the sentencing hearing, the Council agreed to participate in a restorative justice conference with representatives from the affected local Aboriginal community.

On 22 November 2018, the Council and the local Aboriginal community attended a restorative justice conference, mediated by an experienced restorative justice facilitator. The Council formally apologised to, and negotiated an agreement with, the local Aboriginal community.

The facilitator provided a report to the court outlining the terms of the agreement between the Council and the local Aboriginal community. The Council agreed to commitments including the initiation of a tree restoration project for the scar tree, the establishment of Aboriginal heritage consultation processes through the Clarence Valley Aboriginal Advisory Committee and the arrangement of cultural awareness education programs for Council staff.

Issues

Following the restorative justice conferencing, Preston CJ of the LEC was required to determine an appropriate sentence pursuant to s 21A of the Crimes (Sentencing Procedure) Act 1999 (NSW) (Sentencing Act). His Honour was required to take into account relevant factors, including:

- the objective seriousness of the offence
- the significance of the prescribed maximum penalty
- the objective seriousness and foreseeability of the harm
- the outcome of the restorative justice conference
- the Council’s early guilty plea, demonstrated remorse, and its assistance to the authorities

Decision

Weighing the considerations contained in s 21A of the Sentencing Act, Preston CJ of the LEC ordered the Council to:

- first, pay $300,000 to the Grafton Ngerrie Local Aboriginal Land Council under s 86(1) of the NPW Act to fund research and educational programs on local Aboriginal cultural heritage
second, publish notices stating that the Council had committed an offence contrary to s 86(2) of the NPW Act
third, notify each of the Local Aboriginal Land Councils in its local government area and the Clarence Valley Aboriginal Advisory Committee of the offence and its consequences under s 205(1)(b) of the NPW Act
fourth, establish and conduct cultural skills development workshops for the Council’s staff in accordance with s 205(1)(f) of the NPW Act
fifth, pay the OEH’s costs of $48,000 pursuant to s 257B of the Criminal Procedure Act 1986 (NSW)

The restorative justice conference was taken into account in sentencing
Having regard to his earlier decision in Garrett v Williams, Preston CJ of the LEC first determined the nature and role of restorative justice in sentencing. His Honour held that restorative justice conferencing was not a substitute for the court determining the appropriate sentence for the Council’s breach of the NPW Act. Rather, the court must determine the appropriate sentence in accordance with the factors outlined in s 21A of the Sentencing Act. The outcomes of restorative justice conferencing could, however, be considered as part of mitigating factors demonstrated by the offender.

The Council breached the objects of the NPW Act
Preston CJ then determined the objective seriousness of the offence, taking into account the nature and purpose of the NPW Act. An offence against s 86(1) of the NPW Act carried a maximum penalty of $1,100,000 for a corporation, reflecting the community concern in protecting and conserving Aboriginal cultural heritage. The NPW Act protected Aboriginal cultural heritage in order to avert the concomitant consequence of cultural loss for present and future generations.

An aggravating factor was the seriousness and foreseeability of the harm. There was evidence demonstrating that the Aboriginal community had suffered emotional harm because of the permanent loss of the culturally significant scar tree. The harm was reasonably foreseeable because the Council was aware that the scar tree constituted an Aboriginal object after initially lopping the tree.

Preston CJ characterised the Council’s conduct as reckless because the Council had failed to implement practical measures to prevent, control or mitigate the harm occasioned by it. Having been issued with a penalty for lopping the scar tree, the Council had agreed to implement a range of preventative actions in response to the incident. The Council had failed to execute those measures. His Honour found that the Council was aware that noncompliance with these actions could foreseeably result in the Council’s field operations staff harming the scar tree again.

The Council had expressed remorse and pleaded guilty at the earliest opportunity
Some of the mitigating factors included the Council’s early guilty plea, its demonstrated remorse, its assistance to the investigating authorities, and a lack of prior convictions for environmental offences. OEH agreed that the Council had voluntarily and quickly self-reported the offence and had assisted with its investigations.

Preston CJ found that the Council was genuinely remorseful and unlikely to reoffend. In reaching this conclusion, his Honour took into account the Council’s public apologies in two local newspapers and the Council’s willingness to participate in, and pay for, the restorative justice conference. He held that the Council was also entitled to the maximum discount of 25% because of its early guilty plea.

Implications
In imposing the penalty, the court took into account the retributive, restorative and preventative purposes of sentencing under s 3A of the Sentencing Act. In other words, the penalty imposed balanced the community’s view on the need to protect Aboriginal cultural heritage against the Council’s genuine efforts to implement preventative action and engage in cultural heritage preservation with the local Aboriginal community.

The decision demonstrates a willingness by the LEC to adopt restorative justice principles when sentencing for Aboriginal cultural heritage offences. There is an inherent public benefit in the offender and victims...
agreeing on a tangible outcome for redressing harm to Aboriginal cultural heritage and to the environment.\textsuperscript{14}

In the latest draft of the Aboriginal Cultural Heritage Bill 2018 (NSW) (the draft Bill), cl 142 suggests additional orders that the court can make for restorative justice conferencing.\textsuperscript{15} That clause includes orders requiring the offender to undertake rehabilitative works or provide financial assurance for an organisation to carry out a project to restore or enhance Aboriginal cultural heritage.

However, these provisions do not establish a regulatory framework to ensure that the restorative justice conferencing satisfies the statutory object outlined in cl 3(b) of the draft Bill. That clause seeks to:

…establish effective processes for conserving and managing Aboriginal cultural heritage and for regulating activities that may cause harm to that heritage so as to achieve better outcomes for Aboriginal people and the wider NSW community.

Further amendments necessary to ensure that the draft Bill meets this statutory object in the context of restorative justice would include:

- a mechanism to determine who are the affected persons or groups required to participate in restorative justice conferencing (including any statutory notification requirements)\textsuperscript{16}
- integration of restorative justice agreements into court orders\textsuperscript{17}
- the establishment of an independent authority to identify and notify victims of Aboriginal cultural heritage offences
- the establishment of an independent authority with further statutory powers to regulate the offenders’ compliance with the terms of any restorative justice agreement\textsuperscript{18}

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**Tipstaff to the Hon Justice Rachel Pepper**  
**Land and Environment Court of New South Wales**

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**Footnotes**

3. Above n 1, at [12], citing Garrett v Williams (2007) 151 LGERA 92; [2007] NSWLEC 96; BC200700986 at [41]–[51].
4. Above n 1, at [23].
5. Above n 1, at [23].
6. Above n 1, at [34], citing Chief Executive of the Office of Environment and Heritage v Crown in the Right of New South Wales National Parks and Wildlife Service which is a part of the Office of Environment and Heritage) [2016] NSWLEC 147; BC201610306 at [116].
7. Above n 1, at [69].
8. Above n 1, at [64].
9. Above n 1, at [59].
10. Above n 1, at [86]–[88].
11. Above n 1, at [83]–[85].
12. Above n 1, at [78], [118].
15. See Aboriginal Cultural Heritage Bill 2018 (NSW), cl 142.
17. Above n 2, at 289.
18. Above n 2, at 292.
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