

A photograph of a tree with a red safety platform and a blue safety net. The platform is made of wood and has a red mat on top. The net is made of blue mesh and is suspended between two trees. The background is a dense forest of green trees.

MENDING HOLES in the GREEN SAFETY NET

By Chris McGrath

Environmental law is a green safety net that protects us by maintaining clean water, clean air and a healthy place to live. It encompasses many areas such as land development, mining, fisheries, water pollution, climate change and endangered species. It can be costly and complex to navigate for government regulators, businesses, and ordinary people in the community. It also regularly gives rise to great political controversy, as the scenes of farmers burning copies of the draft Murray-Darling Basin Plan in recent years illustrate only too well.

The laws in Australia that form this green safety net, particularly federal laws, have recently been under attack as 'green tape'.¹ This term has become a negative political slogan that represents a sustained attempt to whittle away the

protections that have been established, particularly over the past 20 years.

The irony of this sustained political attack on environmental law is that it is the very success of these laws in maintaining or restoring a healthy environment in Australia that has bred

the complacency underpinning the attacks. Many people have forgotten the problems that these laws were created to solve. The danger is that when such laws succeed in maintaining and restoring a healthy environment, they are taken for granted and, over time, holes are allowed to grow in the safety net.

TWO STORIES OF PAST DAMAGE

Two stories of past damage because of lax environmental standards show how valuable the green safety net of environmental law is. The first concerns the dioxin contamination of Sydney Harbour by the Union Carbide factory at Homebush Bay. The toxic legacy of this factory is still present in the harbour today, and is the reason why a ban on commercial fishing and government recommendations against eating fish caught west of the Sydney Harbour Bridge are likely to remain in place for many years.

The second story involves litigation against a NSW local government, Armidale City Council, for allowing a residential subdivision on land that was heavily contaminated with toxic waste from a timber treatment plant. The council was found negligent and in 1998 was ordered to pay \$1,479,576 in damages and interest to a building company for losses associated with the contaminated land. Both these stories illustrate the importance of having environmental protections enshrined in law.

DIOXIN CONTAMINATION OF SYDNEY HARBOUR

One of the most shocking stories of environmental damage in Australia is the dioxin contamination of Sydney Harbour in the 1950s and 1960s, leaving a pollution legacy that will last for decades to come.

Dioxins are a group of chemically related compounds; persistent environmental pollutants that accumulate in the food chain, mainly in the fatty tissue of animals.² Dioxins are highly toxic and can cause reproductive and developmental problems, damage to the immune system, and can also interfere with hormones and cause cancer.³

The dioxin contamination of Sydney Harbour comes largely from an industrial site at Homebush Bay. From 1928, the site was used by Timbrol Ltd.⁴ In 1957, Timbrol was acquired by Union Carbide Australia Ltd, which became Zendel Industries

Ltd in 1988 and subsequently in 1991 was renamed Lednez Industries Ltd.⁵ The name changes followed the Bhopal gas disaster at the Union Carbide India Ltd pesticide plant in 1984.

History of bad site management

From 1928 until its closure in 1986, the site was used for the manufacture of a wide range of highly toxic chemicals, including timber preservatives, herbicides, pesticides and plastics.⁶ From 1949 until 1976, the site was used to manufacture the herbicides 2,4,5-T and 2,4-D,⁷ the ingredients for Agent Orange that was used as a defoliant in the Vietnam War.

To expand the area available for industrial use, extensive reclamation and dredging of Homebush Bay commenced in 1939 and continued up until 1970.⁸ As a result of both chemical manufacturing and the use of contaminated fill for reclamation, soil and groundwater on the site were highly contaminated by various chemicals, including dioxins.

Overflow during reclamation and uncontrolled release of stormwater and wastewater from the chemicals factory into Homebush Bay, as well as possible spills while loading and unloading ships, also contributed to heavy contamination of the bay by dioxins and other chemicals.⁹ This occurred until about 1970, when site management was improved to comply with the *Clean Waters Act* 1970 (NSW).

In 1987, the then NSW State Pollution Control Commission served Union Carbide with a notice under the *Environmentally Hazardous Chemicals Act* 1985 (NSW) to remediate part of the site. Numerous notices were subsequently issued under that Act and the *Contaminated Land Management Act* 1997 (NSW).¹⁰ Extensive remediation of the site has since been carried out by the NSW government and a private contractor, Thiess Services.¹¹

The toxic legacy

While the heavily contaminated former Union Carbide site has been extensively remediated, dioxins from the site have spread throughout the sediments at the bottom of Sydney Harbour and Port Jackson. Dioxins formed as a by-product of the manufacture of timber preservatives and 2,4,5-T >>

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at the site have been linked by a characteristic chemical profile to the dioxin contamination in other parts of Sydney Harbour, and the site appears to be the major source of these contaminants in the harbour.¹²

It is impracticable to remediate the extensive area of the harbour that is contaminated. Dioxins from the contaminated sediments enter the marine food chain and are accumulated in fish, prawns and other organisms. The only practicable means to 'remove' the contaminants from the marine food chain is to allow other, clean sediments to cover the contaminants.¹³ For much of the harbour, this process will take decades.

Fishing bans have been in place around Homebush Bay since 1989, and were extended to parts of the Parramatta River in 1990.¹⁴ The extent of contamination from the site was not recognised until 2006, when all commercial fishing was banned in Sydney Harbour after tests revealed elevated levels of dioxin in fish and crustaceans in the harbour.¹⁵

Recreational fishing in the Harbour has not been banned but, based on advice from an expert panel, the NSW government recommends that:

- No fish or crustaceans caught west of the Sydney Harbour Bridge should be eaten.
- For fish caught east of the Sydney Harbour Bridge, generally no more than 150 grams per month should be consumed, except for species for which specific higher consumption limits have been established (for example, 1,200 grams of sand whiting).¹⁶

A study by the then NSW Department of Environment, Climate Change and Water suggested that much of Sydney Harbour remains contaminated by dioxins at levels that will make eating fish from much of the harbour unsafe for decades.¹⁷

Market and regulatory failure

From a policy and regulatory perspective, the contamination of Sydney Harbour is an example of market and regulatory failure.¹⁸ The free market failed to prevent the contamination, and Union Carbide paid for only a fraction of the clean-up. It is reasonable to infer that reducing costs to Union Carbide was one of the driving reasons for using contaminated fill in the reclamation work and for poor site management of contaminated stormwater leaving the site. The costs of contamination of the site, Homebush Bay and Sydney Harbour have largely been borne by the community. That is, the costs were externalised by the company.

Government regulation also failed to prevent the contamination. The lax regulation in the 1950s and 1960s allowed the poor management of the site and reclamation of Homebush Bay using highly contaminated substances. It was not until the enactment of the *Clean Waters Act* 1970 (NSW) that site management improved.

Environmental regulation is difficult

Regulating a site such as the former Union Carbide factory is difficult and requires government agencies with the technical and administrative capability as well as the legal powers to do the job. It is easy to look back and think, "how could the

government have missed this happening?" but it is important to recognise in this context that the Union Carbide factory was one of thousands of industrial sites spread across an enormous geographic area.

Record-keeping is an unglamorous topic that is easy fodder for businesses and commentators which rail against environmental laws as 'green tape'. For a complex site operating over decades, as did the former Union Carbide factory, record-keeping is essential for effective regulation. Multiply that for the thousands of industrial sites operating in a state as large as NSW and the task for government regulators is daunting.

Important lessons

One obvious lesson from this case is that poor environmental regulation allowing poor environmental management can lead to extensive contamination that is very costly and difficult to remediate. This contamination can affect the lives of millions of people and persist for decades. Cases such as this illustrate profound market failure and highlight the need for effective environmental laws.

A further important lesson to draw from this case is that managing and regulating sites such as the former Union Carbide factory is difficult, complex, technical, and may involve activities spanning decades that cause severe, cumulative impacts with long-term effects. The Bhopal gas disaster at the Union Carbide India Ltd pesticide plant in 1984 killed thousands of people immediately, sparking an urgent response. But the contamination of Homebush Bay was a gradual disaster that grew from poor management of the site over decades. Even the knowledge of the chemicals involved, such as the herbicides 2,4,5-T and 2,4-D, is a technical and complex matter. Government agencies require the technical and administrative capability, including adequate record-keeping, to deal with thousands of industrial sites across a huge area.

LITIGATION OVER CONTAMINATED LAND IN ARMIDALE

A second story illustrating the value of environmental law involves litigation over a residential subdivision of land at Armidale in NSW that was heavily contaminated with toxic waste from a timber treatment plant. The trial decisions of Burchett J,¹⁹ from which the following history is drawn, shows a litany of poor regulation and serious pollution.

History of appalling site management

In 1967, the Armidale City Council approved an application by a company, Arthur H Hasell & Company Pty Ltd (Hasell), for re-zoning land at Martin Street, Armidale, for industrial uses and the construction of a timber treatment plant. The company proposed to use a large pressure cylinder (22 metres long, having an inside diameter of 1.8 metres) to impregnate telephone poles and other timber items with creosote, a wood preservative. Among many other chemicals, creosote contains polycyclic aromatic hydrocarbons (PAHs), phenols, and creosols. Of these three, PAHs are the most common ingredient. They are organic compounds with a number of

toxic effects, including carcinogenicity.²⁰

The timber treatment plant commenced operation in 1968 and, virtually immediately, pollution incidents were recorded by council officers. On 22 August 1968, minutes of a meeting involving a council inspector and representatives of Hasell recorded that the inspector spoke of ‘the creosote finding its way onto a grassed area on the opposite side of the street’ and that ‘a site inspection indicated that creosote spillage from either end ... of the cylinder was finding its way into the storm water system’.²¹

Steps agreed to rectify the problems proved to be inadequate and council records over the following years showed many incidents concerning the escape of creosote. Creosote was found in a creek some 200-300 metres away and in the road adjacent to the plant. There were ongoing complaints and council recorded in 1970 that whenever it rained ‘creosote flowed into the creek’.²²

In 1970, the council approved plans for the installation of two new tanks to contain tanalith, a toxic, complex salt containing arsenic in the form of copper chrome arsenate. Council received assurances from Hasell that further pollution incidents would be avoided. This proved to be a false hope and pollution incidents continued in following years.

In late 1976, about 3,000 gallons of copper chrome arsenate escaped from the site when the cylinder was opened when it was half full. A large quantity of liquid poured out, entered the drainage system, and heavily contaminated a section of the nearby creek.

Following this incident, the NSW State Pollution Control Commission sent a notice to the timber treatment operator to construct an earth bund (embankment) around the site and to cease discharging wastes from the premises. Earth bunds were constructed in 1977 in response to this notice and prevented further spillages escaping from the treatment works, but contamination of the site itself continued.

The use of the land as a timber treatment plant continued until 1979 or 1980 when the plant was relocated to a different area of Armidale.

Evidence of a former employee

A former employee at the timber treatment plant who gave evidence at the trial described the complete lack of any proper disposal system for waste from the site. One of the jobs he and other workers did was to get rid of waste from the timber treatment cylinder. He gave evidence that it was tipped into 44-gallon drums then dumped elsewhere on the site. He personally used four or five different locations on the site where he frequently tipped out the drums, but he noticed that other workmen tipped drums elsewhere on the site as well as in the spots he used. He said disposal of the waste around the site ‘was rampant, you know, they used to tip out in various places here and there’ around the site and ‘that is the only way they got rid of the liquid’. He was the workman who opened the southern door of the cylinder on the occasion when there was an escape of some 3,000 gallons of tanalith. He said ‘it just gushed out’ and ‘flooded the whole area’. He described it as ‘an enormous amount’, the force of which almost knocked him over.²³

Residential development approved

In 1982, Hasell sold the land to another company, Basia Holdings Pty Ltd (Basia), which applied in 1984 for a residential subdivision in two stages. Council approved the first stage, but Burchett J found on the evidence in the later trial that:

‘Arsenic and PAH are present, in the main, in the upper layer of gravelly ground, which could have been removed and replaced before the land was subdivided. Once houses were erected, the problem was magnified. Arsenic and PAH are carcinogenic as well as toxic, and where both are involved there may be a synergistic effect, presenting a particular hazard in areas in which young children may play ... and vegetables grown in backyard gardens may take up substances from the soil. ... there is also evidence that turning over of the soil has revealed visible creosote, and the offensive smell of creosote has invaded homes on the land.’²⁴

In 1985, Basia sold the land for the second stage of the residential subdivision to Alec Finlayson Pty Ltd (Finlayson), which applied to council to subdivide the land into 27 lots for housing. Council approved the application and Finlayson proceeded with the development. In subsequent years, Finlayson made further applications for development of the land, bought surrounding land, and constructed and sold houses on the land.

It was only in 1990, after much of land had been built on, that the serious contamination was revealed by >>

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a statement made on television by the Mayor of Armidale. The announcement caused a furore and put a stop to further work on the land. Finlayson was compelled to cancel a contract and, so strong was the reaction against it that, as the developer of a residential development on contaminated land, its residential building business came to an abrupt end.

Litigation

Finlayson sued the council and Basia, but the claim against the latter did not proceed, as it was in liquidation.²⁵ No claim was made against Hasell, presumably due to lack of proximity and the deep pockets of the council's insurer.²⁶ The proceedings were brought in the Federal Court as they initially involved an application under the *Trade Practices Act 1974* (Cth) and in negligence, but the former claim was dropped at the hearing.

Burchett J found that the council had breached its duty of care in approving the development of the land and awarded \$1,479,576 in damages and interest to Finlayson.²⁷ The decision was upheld on appeal.²⁸

Stronger laws

The significant failures in the regulation of contaminated land, such as at Homebush Bay and Armidale, triggered new laws such as the *Contaminated Land Management Act 1997* (NSW). The regulation and management of contaminated land is now much stronger. Contaminated land registers and strong powers to prevent and remediate contamination are now common. These registers involve a large amount of unglamorous record-keeping. Their scale is enormous, covering millions of parcels of land and activities that may cause contamination. They are now normally checked during the sale of property and in assessing applications to develop land. They are important aspects of the green safety net created by modern environmental laws.

While the new laws are much stronger, the need for ongoing monitoring and effective regulation never goes away. The *Finlayson* case in Armidale shows that while council staff knew of the poor management of the site, little was done to improve the bad practices. Council's ineffective regulation allowed the serious contamination of the site, nearby creek and the surrounding area. The same situation can occur anywhere and at any time, so there is no alternative but to continue the thankless and time-consuming tasks of monitoring and enforcing laws to prevent contamination that can cause harm.

CONCLUSION

It is easy to forget that lax standards in past environmental regulation led to serious problems. The contamination of Sydney Harbour and the *Finlayson* case illustrate these past problems. These stories also provide valuable lessons in the difficulty and complexity of environmental regulation. There are no simple solutions to these issues and no way around the need for ongoing monitoring, record-keeping and enforcement.

Certainly all environmental laws should be subject to regular review to make them as efficient, effective and

equitable as is practicable. That approach is simply what standard texts on policy design recommend.²⁹ But attacking the green safety net of environmental laws as 'green tape' fails to recognise the history of environmental problems that our modern system was created to overcome and the successes that have been achieved.

Over the past 20 years, Australian governments have mended many of the holes in the green safety net of environmental law to better protect society from harm. Those holes should not be allowed to re-appear by dismantling the better laws that are now in place. ■

Notes: **1** For example, A Hepworth, 'Companies urge war on environmental "green tape"', *The Australian*, 11 April 2012. **2** World Health Organisation, 'Dioxins and their effects on human health', Factsheet No. 225, May 2010, available at <http://www.who.int/mediacentre/factsheets/fs225/en/index.html> **3** *Ibid*. **4** Parsons Brinckerhoff, *Environmental Impact Statement: Remediation of Lednez Site, Rhodes and Homebush Bay – Technical Paper 2 (Site History)* (Parsons Brinckerhoff, Sydney, 2002), p2.1, available at <http://www.rhodesremediation.com.au/files/downloads/Lednez/TECHPAPER2.pdf>. **5** *Ibid*, p2.1. **6** *Ibid*, Table 4.1, p4.1. **7** *Ibid*, Table 4.1, p4.1. **8** *Ibid*, pp3.1-3.7. **9** *Ibid*, p4.1. **10** *Ibid*, pp5.3-5.4. **11** See the Homebush Bay Remediation homepage at <http://www.rhodesremediation.nsw.gov.au/> and the Rhodes Remediation homepage at <http://www.rhodesremediation.com.au/>. **12** GF Birch, C Harrington, RK Symons, and JW Hunt, 'The source and distribution of polychlorinated dibenzo-*p*-dioxin and polychlorinated dibenzofurans in sediments of Port Jackson, Australia' (2007) 54 *Marine Pollution Bulletin*, 295-308. **13** A Davies, 'The poison that got away', *Sydney Morning Herald*, 30 October 2010. **14** Parsons Brinckerhoff, note 4 above, p5.3. **15** See NSW Department of Primary Industries, 'Questions and answers on dioxins in fish and crustaceans in Port Jackson', available at http://www.dpi.nsw.gov.au/fisheries/recreational/info/sydney-closure/Questions_and_Answers. **16** *Ibid*. **17** The report is referred to by A Davies, 'Harbour spots with fish you should reject', *Sydney Morning Herald*, 30 October 2010. **18** See S Dovers, *Environment and Sustainability Policy: Creation, Implementation, Evaluation* (Federation Press, Sydney, 2005). **19** *Alec Finlayson Pty Ltd v Armidale City Council & Anor* [1994] FCA 1198; 51 FCR 378; 123 ALR 155; and *Alec Finlayson Pty Ltd v Armidale City Council* [1997] FCA 1517. **20** See D Sutherland, 'Brief science of creosote' (Washington State Department of Natural Resources, 2008), available at http://www.dnr.wa.gov/Publications/aqr_cleanup_creosote_brief.pdf. **21** *Alec Finlayson Pty Ltd v Armidale City Council & Anor* [1994] FCA 1198; 51 FCR 378; 123 ALR 155 at [4]. **22** *Ibid* at [7]. **23** *Ibid* at [25]-[31]. **24** *Ibid* at [33]. **25** S Gow and L Taylor, 'Contaminated land – legal liabilities for local government and a possible response' (1996) 1 *Local Government Law Journal*, 154-63 at 155. **26** *Ibid*, p155. **27** *Alec Finlayson Pty Ltd v Armidale City Council* [1998] FCA 170. **28** *Armidale City Council v Alec Finlayson Pty Ltd* [1999] FCA 330; 104 LGERA 9. **29** For example, C Althaus, P Bridgman and G Davis, *The Australian Policy Handbook* (4th ed, Allen & Unwin, Sydney, 2007); Dovers, see note 18 above.

Dr Chris McGrath is a barrister and senior lecturer at the University of Queensland. He thanks Gavin Birch and Emma Thompson Brewster for their technical guidance on dioxin contamination. **PHONE** 0438299097
EMAIL chris.mcgrath@uq.edu.au