

# KEY VULNERABILITIES & LIMITATIONS IN THE MANAGEMENT OF HAZARDOUS WASTE AND ITS DISPOSAL

*Briefing Paper No. 3*

This paper outlines the process of developing a matrix to assess overall environmental regulatory performance, in the context of key vulnerabilities and limitations in the management of hazardous waste and its disposal.

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March, 2011



*Environmental harm is a crime*

## **We welcome feedback**

This is a 'work in progress' and we would appreciate any feedback on the matrix and other materials contained herein. Please email [r.d.white@utas.edu.au](mailto:r.d.white@utas.edu.au) or [diane.heckenberg@utas.edu.au](mailto:diane.heckenberg@utas.edu.au) with your comments.

Please include the phrase *Vulnerabilities and Limitations* in the subject line of your email.

Thank you

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## Introduction

The waste management area presents numerous opportunities for crime (Van Daele, Vander Beken & Dorn, 2007). This is acknowledged in relation to the illegitimate international trade and transportation of hazardous wastes (Clapp, 2002), the role of organised criminal syndicates in waste management (Pellow, 2004), and the illegal dumping of waste by legitimate corporations (Carter, 1999; Dorn, Van Daele & Vander Beken 2007).

The very nature of the industry – getting rid of sometimes dangerous substances at a competitive price – clearly opens up the prospect of wrongdoing (Dorn et al 2007: 2)

What is meant by hazardous waste, and the links between disposal of hazardous waste and specifically criminal activity, warrants closer scrutiny. Certainly from a criminological perspective, there is little knowledge of the scale of the problem in Australia, the types of criminality involved, or the precise nature of the disposal (e.g., illegal dumping, combining illegal with legal waste, illegal export). Aside from an investigation by the Australian Crime Commission and a recently released report by the Australian Institute of Criminology (see Bricknell 2010), few police investigators or academic researchers have examined the policing of hazardous waste disposal in the Australian context.

Findings by Bricknell (2010: xiii) are consistent with the international literature that draws a relationship between hazardous waste disposal and organized crime.

Waste disposal management has been infiltrated overseas by organised criminals and the business of dumping waste in Australia is not immune to similar penetration. The available evidence for an association with organised crime is presently anecdotal and specifics are lacking. However, the structure of the system, the ease in which waste can be transferred and the apparent formation of alliances between operators already working on the fringes of legal activity, makes it one of the likelier candidates for organised criminal activity (AIC Roundtable participants, personal communications 2009, cited in Bricknell 2010: xiii).

In 2001, the Independent Commission Against Corruption (ICAC) conducted a strategic assessment of the New South Wales waste sector to identify the associated corruption risks. The assessment identified many issues and corruption-related risks that needed to be addressed, for the following reasons:

- there is a history, internationally, of unscrupulous operators, behaviour has included threats and intimidation. Locally, there have been a number of cases of corrupt conduct in the industry
- many different organisations are involved in the industry ranging from small one-person operations to transnational companies
- the industry as a whole lacks a cohesive structure and tends to be ad hoc in focus and management (ICAC 2002: 4)

The assessment also found that ‘the waste sector exhibits a number of what ICAC termed “higher risk functions”

- Government’s role in the waste sector beyond establishing the statutory framework involves public officials regulating the industry by monitoring compliance with planning and environmental protection legislation (corruption risk: regulatory activity).
- Local councils are involved in supplying an essential service, waste collection, where demand can only be met by entering large and long-term collection contracts (corruption risk: allocation of scarce resource).
- State and local government are involved in multi-million dollar contracts with the private sector to manage the collection, transportation and processing of waste (corruption risk: contracting)
- Significant amounts of business on waste transfer and waste disposal facilities are conducted for cash (corruption risk: cash handling) (ICAC 2002: 4)

Over the past few years, the ICAC has worked on many cases of corruption or potential corruption in various aspects of the waste sector. The allegations they have received often refer to favouritism when tendering or contracting for waste management services. Other common allegations include:

- misuse or theft of public resources
- failure to make or keep proper records,
- fraudulently altering records (such as the tare weight for trucks entering and leaving tip sites), and
- bribery and collusion between interested parties (ICAC 2002: 4-5)

## Our Study

Comments by participants in our study acknowledge the sector's vulnerability and demonstrate awareness of the largely anecdotal evidence of organised crime in the sector and the types of perpetrators generally associated with the industry.

When you put it all together the industry is open to exploitation – if you want to do it you can, if you do get caught you are going to get away with it (Participant, National Study)

The rumour-mill suggests there *is* organised crime (Participant, National Study)

There are organised individuals rather than organised crime - that is organised in their behavior - exploiting the industry (Participant, National Study)

The United Kingdom Serious Organised Crime Agency (SOCA) describes the types of perpetrators and diverse 'relationships that characterise organised criminal activities.

- Organised crime is defined as 'those involved, normally working with others, in continuing serious criminal activities for substantial profit, whether based in the UK or elsewhere'. Organised criminals that work together for the duration of a particular criminal activity or activities are what we call an organised crime group (SOCA 2011)
- Organised crime group structures vary. Successful organised crime groups often consist of a durable core of key individuals. Around them, there's a cluster of subordinates, specialists, and other more transient members, plus an extended network of disposable associates (SOCA 2011)
- Many groups are in practice loose networks of criminals that come together for the duration of a criminal activity, acting in different roles depending on their skills and expertise. Collaboration is reinforced by shared experiences (such as prison), or recommendation from trusted individuals. Others are bonded by family or ethnic ties – some 'crime families' are precisely that (SOCA 2011)
- Organised criminals make use of specialists who provide a service, sometimes to a range of crime gangs. Services include transport, money laundering, debt enforcement, or the provision of false documentation (identity crime underpins a wide variety of organised criminal activities) (SOCA 2011)

In addition, there are secondary, but no less serious crimes associated with waste disposal, such as the falsification of documentation and the clandestine processing of profits.

Money laundering is also rife among European criminal organisations involved in waste disposal and wildlife trafficking. The nature of these crimes implies a level of organised criminal contribution and, in some instances, there is. Hayman and Brack's (2002: 7) analysis, however, suggests that the majority of environmental crime is perpetrated by 'loosely organised networks of individuals with some specialist knowledge'. These networks can still be intricately woven, particularly the chain(s) of connection between the middle-men or suppliers (cited in Bricknell 2010: 7)

As an initial example of why all of this is important, Vander Beken and Balcaen (2006: 304, 305) illustrate the key opportunities for crime in the waste cycle.

**Table 3.1 : Risks in the Waste Cycle**

Illegal storage	In cases where an empty hangar is found filled with tyres or some other waste product with <i>no trace of the owner</i> of the hangar, the work of a crime group is suspected
Transboundary shipment/trafficking in toxic waste	Waste cycle is vulnerable to trafficking at 3 different stages: <b>1. Initial transfer</b> – from producer to firm specialising in waste management <b>2. Transit phase</b> – transport and storage activities can be run illegally, inspection of storage sites may be sporadic <b>3. Destination stage</b> – treatment, recycling and final disposal – illicit practices mean the waste ends up elsewhere
Illegal dumping of domestic, municipal and industrial wastes	Criminal groups take payment for disposal of the waste but dump it illegally
Illegal dumping of hazardous waste	Illegal dumping of hazardous waste is an activity in which the involvement of crime groups can be identified

Source: Vander Beken and Balcaen (2006: 304,305)

Drawing on this type of background information and informed more specifically by the European literature on waste management, we began building a picture of the overall vulnerability of the sector. We did this by gradually layering on top of the available overseas information relevant observations from reports at the State and Local level within Australia. We then included information based upon informal discussions with participants in our study from Queensland, Tasmania, Victoria and Canberra.

### ***The Four Perspectives***

The four perspectives in this paper have been compiled from the sources indicated and are represented in Tables 3.2 – 3.5 below.

1. **International/Regional** (see Table 3.2)

This table is informed by the European literature on the vulnerability and regulation of the hazardous waste sector (Vander Beken 2007; VanDaele, Vander Beken & Dorn 2007; Vander Beken and Balcaen 2006).

2. **State** (see Table 3.3)

This table is informed by two key reports – the Victorian Auditor-General’s report (VAGR 2010) on a State Regulator and the Ombudsman Victoria’s (OV 2010) on a municipal landfill

3. **Local** (see Table 3.4)

This table is informed by the Independent Commission Against Corruption (ICAC 2002) report on a Municipal operator/regulator.

4. **National** (see Table 3.5)

This table is informed by findings from preliminary discussions with a representative of the Australian Crime Commission and seventeen participants from Canberra, Brisbane, Melbourne and Hobart, responsible for regulating hazardous waste disposal in Australia at international, national and state level.

Information gathered for these tables, together with literature and reports on organised crime and waste-specific crimes, informs the matrix of limitations and vulnerabilities presented in this paper. Our idea was to develop a tool to assess overall environmental regulatory performance in relation to the management of hazardous waste and its disposal.

The development process began with exploring definitions of organised crime, the nature of organised criminal groups, key motivations for organised criminals to infiltrate companies, and the characteristics of organisations vulnerable to infiltration (see Gosling 2009; Shanty and Mishra 2008; UK Serious Organised Crime Agency (SOCA); Hartfield, 2008; Finckenauer 2005; Ruggiero 2010). This triggered an interest in specific examples

of criminal activity in the hazardous waste industry (see Ciotti 2008; Szasz 1986; Grey et al 2010; Bricknell 2010; Massari and Monzini (2004); the characteristics of crime and criminals in other domains such as the black market in tiger products in China (see Gosling 2009); the global problem of electronic waste (see Gibbs, McGarrell and Alelrod 2010) and issues of corruption (see Tillman 2009; ICAC 2002).

Drawing on the European literature concerning the vulnerability of the hazardous waste sector to organised crime and the risks inherent in the waste cycle (Vander Beken 2007; Van Daele, Vander Beken & Dorn 2007; Vander Beken and Balcaen 2006), we formulated a preliminary list of key vulnerabilities. Dorn et al (2007), for instance, note various vulnerabilities, such as ‘the conflict between economic and environmental interests which creates incentive for illegal profit maximization’ (p. 6); ‘a corporate culture that considers protection of the environment to be less important than profits’ (p. 6); ‘the considerable savings to be made by illegal disposal’ (p. 3); unfair competition and declining prices which act as deterrents to new [legitimate] market entrants as well as a market that becomes unattractive to new entrepreneurs because of its bad reputation.

This literature provided the first ten vulnerabilities.

1. Economies of scale
2. Nature and value of waste
3. Legislative ambiguity
4. Complex regulatory environment
5. Regulatory capture
6. Waste classification
7. Compliance rather than enforcement
8. Systems and processes
9. Risks in the waste cycle
10. Prosecution, sentencing and greening of the judiciary

The focus then turned to Australia and a recently released Victorian Auditor General’s Report (VAGR 2010) on a state Environmental Protection Agency, and the Ombudsman Victoria’s Report (OV 2010) on a municipal landfill, which added two further vulnerabilities:

11. Information management
12. Governance

Review of a report by the Independent Commission Against Corruption (ICAC 2002) concerning corruption risks at local municipal level, in particular the “corruption risks in a nutshell” (See Appendix 1), contributed two further vulnerabilities.

13. Conflicts of interest
14. Monitoring contractor performance

Finally, the thematic coding of preliminary findings from informal discussions with the participants in our study, against the 14 indicators above, revealed a further four vulnerabilities.

15. Investigatory capacity and expertise
16. Resources
17. Collaboration
18. Politicisation

At this point it became clear that several of the indicators could be more accurately described as limitations (drawbacks) rather than vulnerabilities (exposure). From there it was a matter of systematically examining and refining the definitions for each indicator. These 18 vulnerabilities and limitations are defined in Figure 3.1.

**Figure 3.1: Key Vulnerabilities & Limitations**

- 1. Economics versus ecology**  
Conflict between economic and environmental interests creates incentives for illegal profit maximisation
- 2. Characteristics of waste**  
Crime risks vary according to the type of product
- 3. Legislative definitions**  
New definitions of waste that open up opportunities for crime
- 4. Complex Regulatory Environment**  
Conditions under which regulation takes place
- 5. Regulatory Capture**  
Regulators compromised by those they regulate
- 6. Waste Classification**  
Ambiguity as to which wastes are hazardous
- 7. Compliance rather than enforcement**  
Administrative controls focused on licensing and site inspections, rather than enforcement
- 8. Simplification of procedures**  
Procedural changes, including simplification and streamlining that create opportunities for illegal activities
- 9. Risks inherent in the Waste Cycle**  
Vulnerability to illegality and illegal dumping
- 10. Prosecution & Sentencing**  
Environmental crime is not “real crime”
- 11. Information Management**  
All the systems and processes for the creation, distribution, use, storage, and retrieval of information
- 12. Governance**  
Effective and efficient management practices and general processes of ethical governance
- 13. Conflicts of Interest**  
Pressures on organisational unit to perform multiple roles and attempt to service various constituencies at the same time
- 14. Monitoring Contractor Performance**  
Ongoing monitoring and assessment of performance over time and relative to regulatory frameworks
- 15. Investigatory Capacity and Expertise**  
Considerable variation in pre-service and in-service training, and in use of coercive and investigatory powers
- 16. Resources**  
Under staffed, under- funded and frequently under appreciated
- 17. Collaboration**  
Nature of partnerships and partnership practices both in terms of horizontal (across diverse agencies and occupational spheres) and vertical (top-bottom interaction) collaborations
- 18. Politicisation**  
Influence of powerful sectional interests on regulatory processes and outcome

**Table 3.2**  
**Key Vulnerabilities and Limitations – International (Europe)**

<b>Vulnerability</b>	<b>Examples</b>
<p><b>1. Economics versus ecology</b> <i>Conflict between economic and environmental interests creates incentives for illegal profit maximization</i></p>	<ul style="list-style-type: none"> <li>• Considerable cost savings to be made by illegal disposal</li> <li>• Market concentration (through mergers and acquisitions) exerts competitive pressure on smaller companies, making them more vulnerable to infiltration by illegal entities</li> <li>• Ecological solutions are least profitable from an economic point of view</li> </ul>
<p><b>2. Characteristics of waste</b> <i>Crime risks vary according to the type of product</i></p>	<ul style="list-style-type: none"> <li>• Inelastic price – increase in price does not equally reduce demand for service;</li> <li>• Value stability in relation to growing costs related to environmental issues eg cost avoidance crimes such as misrepresentation and illegal dumping</li> <li>• Integrity – quality/physical nature of the waste is subject to manipulation eg co-mixing of liquids, mirror entries (wastes considered hazards only if they exceed certain thresholds), and the re-use/recycling market</li> </ul>
<p><b>3. Legislative definitions</b> <i>New definitions of waste that open up opportunities for crime</i></p>	<ul style="list-style-type: none"> <li>• Lack of clarity in legislation enables parties to argue that exports are ‘products’ rather than hazardous wastes</li> <li>• Ambiguity about which wastes are hazardous and therefore subject to legislation eg depleted uranium</li> <li>• Lack of clarity or coherence leading to poor implementation of regulations or no implementation at all</li> </ul>
<p><b>4. Complex regulatory environment</b> <i>Conditions under which regulation takes place</i></p>	<ul style="list-style-type: none"> <li>• Regulatory loopholes – poor regulation of waste brokers, absence of appropriate regulations, quality of regulation</li> <li>• When stricter regulation on a service is introduced this provides incentives to offer the service illegally (more cheaply)</li> </ul>
<p><b>5. Regulatory capture</b> <i>Regulators compromised by those they regulate</i></p>	<ul style="list-style-type: none"> <li>• Agencies vulnerable to corruption due to complexity of their role as issuers of permits, enforcers of compliance, and the private nature of their procedures</li> <li>• Close working relationships between regulator and specific industries and firms, including governance</li> </ul>
<p><b>6. Waste Classification</b> <i>Ambiguity as to which wastes are hazardous</i></p>	<ul style="list-style-type: none"> <li>• What is and is not included (eg radioactive, clinical)</li> <li>• Questions over who regulates which wastes</li> </ul>
<p><b>7. Compliance rather than enforcement</b> <i>Administrative controls focused on licensing and site inspections, rather than enforcement</i></p>	<ul style="list-style-type: none"> <li>• Issues of enforcement – different levels of enforcement between countries means developing countries often lack the means to protect themselves from unwanted waste imports</li> <li>• Issues of capacity – quality and quantity of enforcement highly variable, and tendency is toward ‘soft’ rather than ‘hard’ end of compliance-enforcement continuum</li> </ul>
<p><b>8. Simplification of procedures</b> <i>Procedural changes that create opportunities for illegal activities</i></p>	<ul style="list-style-type: none"> <li>• Simplification of a procedure to recover hazardous waste can result in a decrease in oversight providing opportunity for crime</li> <li>• Use of subcontractors, middle men and brokers decreases transparency, reducing the risk of detection of illegal practices</li> <li>• Tender practices that turn a blind eye to known dodgy waste treatment operators</li> </ul>
<p><b>9. Risks inherent in the waste cycle</b> <i>Vulnerability to illegality and illegal dumping</i></p>	<ul style="list-style-type: none"> <li>• Vulnerability of the waste cycle to trafficking at three stages – initial transfer, transit phase, destination</li> <li>• Illegal storage of hazardous wastes with no trace of the owner</li> <li>• Taking payment for disposal of waste but dumping it illegally</li> </ul>
<p><b>10. Prosecution and Sentencing</b> <i>Environmental crime is not ‘real’ crime</i></p>	<ul style="list-style-type: none"> <li>• There can be collective and unclear victimisation, which gives law enforcement agencies no easy starting point for investigations</li> <li>• Courts may not place great ‘value’ on the nature of the offence</li> </ul>

**Table 3.3**  
**Key Vulnerabilities and Limitations – State (Victoria)**  
**[Additional]**

<b>Vulnerability</b>	<b>Examples</b>
<p><b>11. Information Management</b>  <i>All the systems and processes for the creation, distribution, use storage and retrieval of information</i></p>	<ul style="list-style-type: none"> <li>• Proliferation of databases, data discrepancies and disparate information systems with little integration</li> <li>• Range of legacy systems requiring updating or replacing</li> <li>• Poor quality of information - lack of consistency, duplication, out dated information; poor and fragmented record-keeping practices</li> <li>• Heavy reliance on EPA staff knowledge to retrieve documents</li> <li>• Data integrity and reliability in doubt</li> <li>• Data based on information transporters, waste producers and receivers provide to the agency, representing only the hazardous waste the agency is informed about</li> <li>• Uncertainty surrounding file security and maintenance</li> </ul>
<p><b>12. Governance</b>  <i>Effective and efficient management practices and general processes of ethical governance</i></p>	<ul style="list-style-type: none"> <li>• The Environmental Review Panel (ERP), the mechanism for senior management review, guidance and decisions on enforcement matters not meeting all its objectives or performing its role as intended - lacks transparency, one member of the panel with a potential conflict of interest</li> <li>• While the ERP recorded the outcome of discussions they did not document the reasons for their decisions</li> <li>• ERP requires clarification and documentation of roles and responsibilities, rules governing membership (including conflicts of interest) and a process for performance monitoring</li> <li>• Agency unable to provide assurance about the effectiveness of its enforcement activities, particularly in relation to timeliness, consistency and appropriateness of enforcement action; significant limitations in terms of good governance and public accountability</li> </ul>

**Table 3.4**  
**Key Vulnerabilities and Limitations – Municipal (NSW)**  
**[Additional]**

<b>Vulnerability</b>	<b>Examples</b>
<p><b>13. Conflicts of interest</b>  <i>Pressures on organisational unit to perform multiple roles and attempt to service various constituencies at the same time</i></p>	<ul style="list-style-type: none"> <li>• Acting as both operator and regulator can sometimes leave local government authorities with competing or conflicting public duties.</li> <li>• Sometimes agencies have to regulate themselves</li> <li>• The pressure on agencies, especially councils, to maintain a continuous waste service can induce them to overlook operator deficiencies in other areas such as environmental protection</li> </ul>
<p><b>14. Monitoring contractor performance</b>  <i>Ongoing monitoring and assessment of performance over time and relative to regulatory frameworks</i></p>	<ul style="list-style-type: none"> <li>• Agencies can lose revenue, damage their reputations and allow environmental damage to occur if they do not properly record and monitor poor contractor performance</li> <li>• Research on the public-private interface found that over half of the private sector contractors believed the public sector rules and regulations were pointless</li> <li>• A strong audit culture helps agencies and councils minimise the risks associated with poor contractor performance</li> </ul>

**Table 3.5**  
**Key Vulnerabilities and Limitations – National**  
**[Additional]**

<b>Vulnerability</b>	<b>Examples</b>
<p><b>15. Investigatory capacity and expertise</b>  <i>Considerable variation in pre-service and in-service training, and in use of coercive and investigatory powers</i></p>	<ul style="list-style-type: none"> <li>• You get the role, you get the powers</li> <li>• It takes a long time to skill an [investigator] up</li> <li>• No ability to investigate, investigations too complex, onus of proof too high, investigators not equal to the task, no ability to do proactive investigation</li> <li>• One thing we don't have is an informant network</li> <li>• Coercive powers – right of entry to commercial premises because they are a public place, but on the other hand, farms pose a dilemma – we're not trained to deal with farmers</li> <li>• Authorised officer training differs across states – some internal, some external, sometimes a combination of both</li> <li>• Generalist specialist vs Specialist generalist eg diversity of investigators such as ex police, lawyers, science degrees</li> <li>• Good practice model exists at federal level - 3 tiers of investigators with different powers (highest have arrest powers), approval at different levels within the organisation; appointment at each tier based on SKER (skills, knowledge, experience, resources) and character. Investigators can move (up or down) between tiers, depending on SKER</li> </ul>
<p><b>16. Resources</b>  <i>Under staffed, under funded, and frequently under appreciated</i></p>	<ul style="list-style-type: none"> <li>• We have relied on people a lot, rather than training a lot – train once and then go out into the big wide world – there is no re-training</li> <li>• We have tended to rely on individual key people</li> <li>• We have good people, but we don't support them well</li> <li>• Career structures – limited by public service levels</li> <li>• Licenses have gone up 10 fold, but staff have not increased to cope with them and revenue resources are drying up and staff numbers capped as an organisation</li> <li>• Capacity, resources and expertise <i>are</i> issues</li> </ul>
<p><b>17. Collaboration</b>  <i>Nature of partnerships and partnership practices both in terms of horizontal (across diverse agencies and occupational spheres) and vertical (top-bottom interaction) collaboration</i></p>	<ul style="list-style-type: none"> <li>• We work as individuals [investigator], you work out who you need</li> <li>• Influencing factor in lead agency [at Federal level] is where the harm occurs [eg border/post-border] – what offence, which legislation, which agency</li> <li>• Type of waste determines which agency at State level (eg clinical waste Health) Co-regulators – Mines and Energy, Chem Unit, Health Department, Occupational Health and Safety, Department of Employment, Economic Development and Innovation</li> <li>• Work with the police if there is a safety issue (eg wildlife issues) Ranger goes with police for safety reasons</li> <li>• No co-ordination around Australia, no consistent standards</li> <li>• We usually support Council rather than Council supporting us</li> <li>• EPA is a support agency for the Country Fire Service, CFA is the lead agency and EPA clean up/provide recommendations on air quality. If there is an offence EPA (if nobody injured), Worksafe (if somebody injured)</li> <li>• There is not a lot of communication across government agencies</li> <li>• Jurisdictions don't talk to one another</li> </ul>
<p><b>18 Politicisation</b>  <i>Influence of powerful sectional interests on regulatory processes and outcomes</i></p>	<ul style="list-style-type: none"> <li>• Direct instructions from high level political leaders, such as government ministers to desist in certain investigations</li> <li>• Shift of policy and funding emphasis from environmental law enforcement areas to other policy areas such as climate change and sustainability</li> <li>• Influence of industry in working with government in drafting and setting policy and procedures</li> </ul>

**Table 3.6**

**Synopsis of Vulnerabilities & Limitations**

	<b>Criteria</b>	<b>International [Europe]</b>	<b>State [Victoria]</b>	<b>Local [Municipal NSW]</b>	<b>National The Study</b>
<b>1</b>	Economics versus ecology	√	√	√	√
<b>2</b>	Characteristics of waste	√		√	√
<b>3</b>	Legislative definitions	√	√	√	√
<b>4</b>	Complex regulatory environment	√	√	√	√
<b>5</b>	Regulatory capture	√		√	√
<b>6</b>	Waste classification	√	√	√	√
<b>7</b>	Compliance rather than enforcement	√	√	√	√
<b>8</b>	Simplification of procedures	√	√	√	√
<b>9</b>	Risks inherent in the waste cycle	√	√	√	√
<b>10</b>	Prosecution and Sentencing	√	√		√
<b>11</b>	Information Management		√		√
<b>12</b>	Governance		√		√
<b>13</b>	Conflicts of interest	√	√	√	√
<b>14</b>	Monitoring contractor performance	√	√	√	
<b>15</b>	Investigatory capacity and expertise		√		√
<b>16</b>	Resources	√	√		√
<b>17</b>	Collaboration		√		√
<b>18</b>	Politicisation			√	√

√ = evidence of vulnerability or limitation in this jurisdiction in existing literature, reports or study findings

## Looking to the Future

The use and need for horizon scanning as an intellectual exercise and planning tool is related to the idea that many threats and opportunities are presently poorly recognised. Accordingly, a more systematic approach to identification and solution of issues is required rather than reliance upon ad hoc or reactive approaches. For example, Sutherland et al. (2009: 1) point out that “the need for horizon scanning of environmental issues is illustrated by the recent failure to foresee both the widespread adoption of the range of biofuels currently in use, and the environmental consequences of biofuels production”. Horizon scanning can provide insight into risks (potential problems) and harms (actual problems). Coupled with concepts such as paradoxical harm (refers to apparently contradictory yet consciously chosen forms of harm), and the mobility of harm (transference), horizon scanning provides a mechanism to discern where emerging threats (and positive opportunities) may arise and potential strategies for mitigating or adapting to these (White and Heckenberg 2011).

One emerging issue on a global scale is industrial stock piles. For example, in early October 2010, a thick red torrent of sludge burst from a reservoir at a metals plant 100 kilometres south of Budapest. At least seven people died as a result of the sludge surge, some went missing and over one hundred persons were physically injured as the toxic substance flowed into nearby villages and towns. The toxic sludge reached the Danube River several days later, from where it could flow into six other European countries before reaching the Black Sea: Croatia, Serbia, Romania, Bulgaria, Ukraine and Moldova. An ecological and social disaster for Hungary thus simultaneously poses an environmental threat to surrounding countries, and the human inhabitants, ecosystems and animal life of these.

**Table 3.7: Case examples of stockpiling in Australia**

<b>Abattoir waste</b>	Wodonga Rendering fined \$5841 for stockpiling 4000 tonnes of rotting abattoir waste at a Carroll’s Lane property on the outskirts of the city (Thomas 2010)
<b>POPs waste</b>	"What people don't realise is that there is a burgeoning stockpile of POPs waste in Australia and no treatment capacity," (Bell, National Toxics Network, quoted in Salleh 2010)
<b>HCB’s</b>	Orica’s (previously ICI) toxic stockpile of HCB’s allowed to accumulate. (eg 60,000 barrels+) – Proposed destination for disposal, Denmark- currently being contested in Denmark

<b>Radioactive waste</b>	Australia has total holdings of around 4300 cubic metres of radioactive waste. Sources include radioactive medical, scientific and industrial waste; spent nuclear fuel from Australia's reactor at Lucas Heights near Sydney and site contamination from British nuclear weapons tests conducted in South Australia in the 1950s (Holland, cited in Environmental Defenders Office WA 2007: 21)
<b>Tyres</b>	It is estimated that around 18 million waste tyres (measured in equivalent passenger units) are generated in Australia each year. The disposal or re-use of waste tyres varies greatly between States and Territories but overall nationally, it is estimated that about 57% of waste tyres go to landfill and 13% are disposed of inappropriately through illegal dumping (EPA SA 2010)
<b>Drycleaning waste</b>	The Fremantle Steam Laundry in Hamilton Hill burst into flames in the early hours of May 13. Fire fighters ordered some nearby residents to evacuate because the factory had a stockpile of the dry cleaning chemical perchloroethylene (PCE). (Wainwright, 2010)
<b>E-waste</b>	Australia has a stockpile of toxic e-waste totalling well over 123 million items (Angel, 2008)

This issue of stockpiling and its potential consequences also emerged as a key issue in the present study. As such, it constitutes a specific area of vulnerability that requires further ongoing investigation vis-à-vis issues pertaining to the disposal of hazardous waste.

**Table 3.8 : Stockpiling as an horizon issue**

<b>Horizon Issue</b>	<b>Examples of comments</b>
<p><b>Stockpiles</b></p> <p><i>An important issue is the mobility and transferability (air, water, soil; cross-border pollution) of toxic stockpiles</i></p>	<ul style="list-style-type: none"> <li>• Stockpiling is an issue</li> <li>• Lots of e-waste still goes to landfill</li> <li>• Mining tailings</li> <li>• Agricultural chemicals</li> <li>• Lead acid batteries</li> <li>• Spent acid wastes from galvanising</li> <li>• Legacy wastes from sewage treatment plants</li> <li>• Fertilizers, soil conditioners</li> <li>• What they can stockpile is governed by the conditions of their license</li> <li>• For us to remove and dispose of them [stockpiled tyres] would cost in the vicinity of \$375,000 – the generator declares bankruptcy – they obtain the commercial advantage and the state pays</li> </ul>

## **Conclusion**

This briefing paper provides an outline and background to the development of a matrix tool that can be used to assess overall environmental regulatory performance, in the context of key vulnerabilities and limitations in the management of hazardous waste and its disposal within Australia. From our perspective, the crucial issues pertaining to the policing of hazardous waste relate to both the vulnerabilities and limitations of current practices, and the potential problems that demand attention now, before future calamity occurs.

## Appendix 1: Corruption Risks in a Nutshell

	Factors Generating risk	Corruption risks in a nutshell
1	Attitude towards waste	Waste generators often have a fragmented view of the waste cycle and a related concern with minimising waste disposal costs. As a result, they sometimes deliberately or unthinkingly classify and dispose of waste improperly. Lack of awareness about the waste sector means there is little public pressure for the industry to be more accountable for its practices (ICAC 2002: 10)
2	Nature of the waste sector	Unscrupulous operators can be attracted to the waste sector by the profits to be made by operating outside the regulated waste industry and the relatively low risk of detection. The community's intolerance to waste build-up means that waste companies can exert considerable market power. Councils and agencies may be influenced or feel pressure to overlook improper practices or award further contracts to existing contractors to ensure that services are not interrupted (ICAC 2002: 13)
3	Value of waste	The Government's new policy direction emphasises that waste can be an asset with value, whether economic or environmental or both. Agencies face the risk of losing the income they might generate from recovered resources through theft, misappropriation and the illegal disposal of waste (ICAC 2002: 16)
4	Complex regulatory environment	The waste sector is a complex regulatory environment. It is still unclear whether the new structure will address the perceived weaknesses in the old regulatory framework. The new Government policy calls for waste minimisation and increased resource recovery. However, less waste may mean less business for some parts of the waste sector. This could give industry less incentive to support the new policy and considerably more incentive to thwart it (ICAC 2002: 18)
5	Conflicting roles of government	Public agencies in the waste sector often act as both operator and regulator. This can result in them having competing or conflicting duties. The pressure on agencies, especially councils, to maintain a continuous waste service can induce them to overlook operator deficiencies in other areas, such as environmental protection (ICAC 2002: 20)
6	Risk and regulatory functions	Public agencies in the waste sector often act as both operator and regulator. This can result in them having competing or conflicting duties. The pressure on agencies, especially councils, to maintain a continuous waste service can induce them to overlook operator deficiencies in other areas, such as environmental protection (ICAC 2002: 23)
7	Waste Classification	The licensing system is very complex. Many operators require a license in order to work. Regulators can improperly exercise their discretion in this area. Operators can save money by fraudulently classifying waste or understating quantities to reduce costs (ICAC 2002: 26)
8	New technology and new markets	The Government's role as a sponsor and promoter of new markets and technology exposes it to new risks. Government will be closely involved with the private sector in these roles. This may lead to conflicts of interests and opportunities or pressures to support particular products or pursue personal benefits (ICAC 2002: 29)
9	Grants administration	Grant schemes can be poorly administered and monitored providing opportunities for misuse or waste of public funds (ICAC 2002: 31)
10	Tendering for waste services	The price pressures in the waste industry can encourage tenderers to try to influence public officials to favour their tenders. Agencies can be pressured to contract again with existing operators in order to ensure continuity of service or avoid lengthy and costly litigation (ICAC 2002: 33)
11	Contract Administration and audit	Agencies can lose revenue, damage their reputations and allow environmental damage to occur if they don't properly monitor contractor performance. If poor performance is not monitored and recorded, bad contractors avoid responsibility for their performance and can win further public contracts in the future, without changing their performance (ICAC 2002: 37)
12	Dealing with poor contractor performance	Long-term waste contracts can make it difficult for councils to deal with performance issues. Councils may be wary of taking any action that could interrupt waste collection. Poorly administered contracts provide opportunities for corrupt behaviour, which can cost agencies dearly in financial and reputation terms. Agencies can lose considerable amounts of revenue if contracts are badly managed (ICAC 2002: 41)
13	Public sector values and business ethics	Some private sector contractors may be unaware or do not understand the standards of ethical behaviour required of public officials. Similarly, some contractors may not be aware that these standards also are required of them when they do business with a public official or agency. If they are not educated otherwise, contractors may think it is acceptable to offer a public official an inducement, a bribe or a part-time job to get a favourable result (ICAC 2002: 43)
14	Threats to regulators	Regulators can be vulnerable to threats to their safety and intimidation by operators seeking to influence them. They may not report incidents due to fear of reprisals (ICAC 2002: 44)
15	Detecting illegally dumped waste	Industry and the public can make substantial savings by illegally disposing of waste. Regulators can be offered inducements to ignore this illegal disposal (ICAC 2002: 46)
16	Cash handling at transfer stations & waste disposal facilities	Facilities that accept cash and have poor accountability systems provide opportunities for fraud (ICAC 2002: 48)
17	Bypassing weighbridge procedures	Facilities that have poor systems for recording weight and controlling access provide opportunities for Fraud (ICAC 2002: 50)

Source: Tabulated from ICAC (2002: 10-50)

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