Environmental Law and the Economic Impact on Australian Firms

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I. Introduction

In response to international awareness of environmental issues and the inadequacies of common law actions, legislation has been enacted by Australian governments to facilitate environmental protection. The *Environmental Protection Act 1994* (Qld) and accompanying *Environmental Protection (Interim) Regulation 1995* (Qld) is one example of government response to mounting public pressure to legislate for the environment. Investigation into the operation of the legislation exposes the costs faced by Australian firms in its application.

The legislation identifies a number of environmentally relevant activities and imposes licensing and reporting requirements on firms undertaking such activities. In view of these legislative requirements and the increasing public awareness of environmental issues over the last decade in Australia, it could be expected that firms undertaking environmentally sensitive activities will place greater importance on the management of environmental issues. If so, the greater prominence placed on environmental management may be reflected in disclosures made by the firm to its shareholders and other interested parties.

This article investigates the type and extent of costs currently imposed by the body of environmental laws in Australia with the discussion primarily focusing upon costs imposed due to the operation of environmental legislation in Queensland. Further, the article reports empirical analysis of management response to environmental issues where firms are undertaking environmentally sensitive activities.[1]

II. History of environmental protection law

The common law protects the private property rights of landowners to shape their own environment. On establishment of a proprietary or personal interest at common law, superior rights were given to the holder of the interest to protect the land from interference by others with a lesser interest. The redress at common law is primarily limited to actions in trespass, nuisance and negligence, each leading to the possible remedies of an injunction or an award of damages. In modern society these remedies are deficient.

While the majority of Australian environmental legislation is, on average, no more than twenty-five years old, environmental legislation is not solely the product of the twentieth century.[2] However, the primary focus of judicial and legislative action differed in the past. Initially, the perceived threat to public health rather than environmental quality concerns

1 Empirical Analysis was based on the legislation and regulations as at the date of annual reports considered. Any significant amendments to the legislation or regulations after this date have been referred to.

2 Bates GM, *Environmental Law in Australia*, 4th ed, Butterworths, Sydney, 1995 at 2. Anti-pollution legislation has existed in England since the late thirteenth century, while the common law courts heard anti-pollution actions as early as the fourteenth century.

resulted in both judicial actions and legislative activity. The development of early Australian legislation reflected the English evolution and was, therefore, piecemeal. Comprehensive pollution control and other conservation and environmental protection legislation has been a relatively recent development.

Heightened post-war standards of living and the discovery of health risks inherent with technological developments and exploitation of natural resources increased awareness of environmental issues, facilitating the rise of the conservation movement to political prominence in the 1960s. Both lobby groups and the international scientific community have placed pressure on governments to respond to environmental concerns. As a response, Australian Commonwealth, State and local governments, parallel with other nations, have enacted laws to facilitate the regulation and protection of the environment.

Australian environmental law evolved through three phases of development.[3] First, enactment of basic pollution control legislation governing emissions commenced in the 1970s. Second, environmental impact assessment and land-use laws ensuring environmental factors were addressed in planning processes were enacted in the 1980s. Finally, a national management perspective emerged in the late 1970s and mid 1980s. The latter was assisted by the introduction of domestic legislation by the Commonwealth, through the exercise of its external affairs power in conjunction with international treaties and conventions.

Legislating for the international protection of the environment continues to grow. Since sustainable development was recognised to be compatible with economic development at the 1972 Stockholm Conference, 870 bilateral and multilateral legal instruments addressing the environment have been created.[4] The subject matter of these instruments is far-reaching, including global pollution agreements, world heritage listings and trans-boundary emission agreements. The category of persons affected or interested has also expanded, encompassing nations, states, national and trans-national corporations, intergovernmental and non-governmental organisations.

III. The *Environmental Protection Act 1994* (Qld)

In response to the failure of the common law to adequately address environmental protection issues along with mounting public pressure, the Queensland State Government in 1994, passed the *Environmental Protection Act 1994* (Qld) (the Act) and accompanying *Environmental Protection (Interim) Regulation 1995* (Qld) (the Regulation). The provisions of the Act reflect the perceived importance by governments of objects such as 'ecologically sustainable development,'[5] necessitating the equal enforcement of industry and community supported environmental standards.[6] While the umbrella provisions in the Act and subordinate regulations reduce the number of separate enactments, the complexity of operation of the legislation itself is undiminished. The majority of provisions of the Act, having force and effect from 1 March 1995,[7] apply to individuals, businesses, industries, State and local governments, and the Commonwealth.[8]

The Act aims to protect the environment from harmful activities and, to this end, imposes an absolute duty upon community members not to undertake activities causing unlawful

3 Whitehouse J, 'Emerging Trends in Environmental Law' in *Environmental Law — How the Game has Changed*, LAAMS Publications, Sydney, 1991at 2.

4 Weiss E, *Environmental Change and International Law*, UN University Press, Japan, 1992 at 9.

5 Section 3 of the Act states 'The object of the Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which like depends.'

6 Section 6 of the Act states 'This Act is to be administered, as far as practicable, in consultation with, and having regard to the views and interests of, industry, Aborigines and Torres Strait Islanders under Aboriginal tradition and Island custom, interested groups and persons and the community generally.'

7 Section 2(1) of the Act. Section 2 of the Regulation sets out limited exceptions to the commencement date.

8 Section 19 of the Act.

environmental harm.[9] However, certain exemptions from enforcement procedures exist where a conducted activity is harmful to the environment but in compliance with an Environmental Protection Policy (EPP), Environmental Management Program (EMP), Environmental Protection Order (EPO), Environmental Authority, or Emergency Direction.[10] This format represents an attempt to balance economic activity and environmental harm. Effectively, a commercial agreement may exist whereby the polluter pays proportionately for the amounts of harm permitted to be caused to the environment. Any excess over the prescribed or agreed levels will result in the implementation of penalty provisions.

The purpose of the legislation is twofold: first, to prohibit the release of contaminants in general; second, to regulate activities involving the release of particular contaminants. Each are considered below.

1. General duties

The Act creates a duty to protect the environment by integrating environmental considerations into decision-making. The 'general environmental duty' requires all members of the community to ensure environmental harm is minimised or prevented by taking all reasonable and practicable steps before undertaking any activity that causes or is likely to cause environmental harm.'[11] In deciding if measures taken are reasonable, regard must be had to broad and subjective factors such as the nature of the harm or potential harm, the sensitivity of the environment, the current state of technical knowledge, the likelihood of successful application of different measures and the financial implications of the different measures as they relate to the particular activity.[12]

A breach of the general environmental duty does not of itself give rise to a civil right or remedy.[13] The importance of compliance lies in the availability of a defence to any charge of causing unlawful environmental harm.[14] That is, if a firm performs an activity in breach of the Act ('serious environmental harm,'[15] 'material environmental harm'[16] or an 'environmental nuisance'[17]) and such an activity is not authorised under the EPP, EMP, EPO, Environmental Authority or Emergency Direction.[18] Any unauthorised activity amounts to the offence of causing 'unlawful environment harm'[19] thereby allowing the penalty provisions to operate.

Firms are prohibited from causing 'serious' or 'material environmental harm' or an 'environmental nuisance'. A wide variety of potential harm is canvassed due to the breadth of the definitions. For example, any adverse effect or potentially adverse effect, whether temporary or permanent, and of whatever magnitude, duration or frequency, on an environmental value, whether direct or indirect is sufficient.[20] Furthermore, any non-trivial or non-negligible harm or actual or potential loss or damage to property greater than $5,000[21] or irreversible harm (or potential harm) to the environmental value, or harm of a widespread nature or of high impact[22] also brings the Act into operation. Any unreasonable or likely interference with environmental value due to noise, dust, odour or

9 Section 36 of the Act.
10 Section 119 of the Act.
11 Section 36(1) of the Act.
12 Section 36(2) of the Act.
13 Section 21(3) of the Act.
14 Section 119(2)(b) of the Act.
15 Section 17 of the Act.
16 Section 16 of the Act.
17 Section 15 of the Act.
18 Sections 120–123 of the Act.
19 Section 119(1) of the Act.
20 Section 14 of the Act.
21 Section 16 of the Act.
22 Section 17 of the Act.

an unhealthy or unsightly condition due to contamination has the same consequence.[23]

A further duty rests upon all persons becoming aware of serious or material environmental harm being caused or threatened. For example, failing authorisation, an employee must inform the company or, if the company is unable to be notified (or the person is not an employee), the administering authority (the Department of Environment and Heritage) must be informed in writing within a reasonable time.[24] Failure to do so results in a penalty of $6,000. The fine itself may be ineffective to ensure compliance, but the associated attention such a fine invokes is substantially detrimental to firm and management reputation. Although the actual notice is inadmissible, the act of giving notice is admissible in the legal proceedings. The Act mandates the giving of notice, irrespective of whether the notice is self-incriminating in ongoing legal proceedings. This duty amounts to a serious limitation upon the defence of any legal actions and imposes significant costs, both financial and politically related, on the firm.

2. Regulated activities

As previously stated the second purpose of the Act is to regulate activities involving the release of particular contaminants. The release may not attract criminal or civil liability where authorisation by way of licence or other approval has been obtained.[25] However, in the absence of validly granted authorisation, a release of contaminants by way of any Environmentally Relevant Activity (ERA), breaching the general environmental duty and causing 'unlawful environmental harm' will expose the person responsible for that activity to a range of criminal, civil and administrative remedies. The effectiveness of this format of legislation is dependent upon the cost-benefit assessment of each firm. Management will assess the substantial financial incentives and dis-incentives for compliance, the aspect of control necessary for the firm in conducting each of its operation, and the effectiveness of penalty provisions, before deciding on future courses of action.

a. Environmental protection policies (EPPs)

EPPs provide issue-specific standards and criteria for particular environmental problems. The scope of these policies is limited to the extent that they must refer to the environment or anything that affects or may affect the environment.[26] Policies may be made for the following:

* contaminants;
* particular industries or activities;
* technologies or processes;
* environmental values;
* waste management;
* land, air or water quality;
* noise; or
* litter.[27]

Currently water, noise and air policies have been issued, imposing broad duties. While it is foreseeable certain industries or groups of firms conducting a particular activity may be subject to more regulation than others under future EPPs, regulation of individual firms where compliance is not possible in the short term, is more likely occur under EMPs or EPOs.[28]

23 Section 15 of the Act.
24 Section 37 of the Act.
25 Section 119 of the Act.
26 Section 24(1) of the Act.
27 Section 24(2) of the Act.
28 This is meant only as a general proposition on the likely subject of future EPPs. Certainly if a single firm was conducting operations on a large scale, or was the first in what the government or public perceives to be a future growth industry, an EPP may indeed be developed to provide protection to the environment.

b. Environmental management programs (EMPs)

Where compliance in the short term is not possible, through either voluntary application or legislatively required submission of a draft programme approval may be given for an EMP. Activities that would otherwise amount to a breach of provisions may be permitted by an EMP,[29] however breaching an EMP is also a serious offence.[30] Assuming inability to comply with the current EPP, management of a firm will be given time to improve operations to compliance level without fear of prosecution, avoiding both the financial and reputational costs associated with litigation.[31] Furthermore, firms are able to negotiate with the government for firm or site specific conditions. However, negotiation is costly, both in time and proprietary information. Success will be highly dependent upon political considerations.

EMPs entail further costs, both monetary and time-related. In addition to costs of preparation, firms are liable to pay fees required for consideration of the draft program,[32] costs of the prescribed form of public notice of submission,[33] costs of the administering authority obtaining any necessary further information,[34] and opportunity and proprietary information costs associated with possible conferences involving any interested parties' submissions on the proposed operations.[35] Management must also obtain expert advice or follow best industry practice. After establishment of the necessary procedures, monitoring programs are implemented to ascertain current levels of firm emissions in order to be able to reduce such emissions to the required limits. Expense of such procedures is highly prohibitive in the short term relative to firms not subject to regulation. Preparation and compliance with such management programmes potentially gives rise to opportunity costs in addition to increasing the general operating costs such as increasingly necessary legal consultation fees.

c. Environmental authorities

Operations essential to civilisation cannot be made completely benign to the environment. A strategy has been developed of categorising activities in accordance with their potential to harm the environment and regulating in proportion to the possible harm. Firms may apply for environmental authorities to conduct closely controlled and monitored environmentally damaging activities without fear of recourse.

Obtaining an environmental authority is a three step process. The first step is to determine whether the activity proposed or currently occurring is an 'environmentally relevant activity' (ERA).[36] ERAs are prescribed by the Governor-In-Council if the activity will (or may) result in a contaminant being released and such a release will (or may) cause environmental harm.[37] Comparison of the activity is made against the listing of currently prescribed ERAs in the Interim Regulations.[38] Other states have not prescribed ERAs to this level, instead, broad definitions encompassing similar concepts have been utilised, thereby minimising opportunities to avoid application of the legislation, as is possible under the specific activity regulations in Queensland.

The second step is to determine the type of authority required. Prescribed ERAs are

29 Section 119 of the Act.
30 Section 96 of the Act.
31 Section 81 of the Act. Protection from notification of breaches may also be included in the approved program pursuant to section 82.
32 Section 84 of the Act.
33 Section 85 of the Act.
34 Section 86 of the Act.
35 Section 87 of the Act.
36 Sections 38–40 of the Act.
37 Section 38 of the Act.
38 Schedule 1 Regulation.

deemed either Level 1 or Level 2 depending on the risk of environmental harm.[39] Environmental authorities fall into categories of licences or approvals respectively.[40] The conduct of a Level 1 ERA without licence carries a penalty of $30,000.[41] The carrying out of a Level 2 ERA without approval carries the maximum penalty of $12,375.[42] The Regulation lists both Level 1 and 2 ERAs, with eighty-five in total. ERAs are categorised under eighteen different headings:

(1) Agricultural activities (4 ERAs)
(2) Chemical, coal and petroleum products activities (8 ERAs)
(3) Community infrastructure and services (2 ERAs)
(4) Electricity, fuel burning and water supply activities (3 ERAs)
(5) Extractive industries and mining activities (4 ERAs)
(6) Fabricated metal product activities (7 ERAs)
(7) Food processing (9 ERAs)
(8) Land development and construction activities (2 ERAs)
(9) Metal products activities (3 ERAs)
(10) Miscellaneous activities (13 ERAs)
(11) Non-metallic mineral product manufacture (7 ERAs)
(12) Recreational and sporting activities (1 ERA)
(13) Sawmilling, woodchipping and wood product manufacturing (3 ERAs)
(14) Transport and maritime services (6 ERAs)
(15) Waste disposal (4 ERAs)
(16) Waste recycling and reprocessing (5 ERAs)
(17) Waste transport (2 ERAs) and
(18) Regulated waste treatment and storage (2 ERAs)[43]

Costs vary according to the different impact on the environment due to the level of operation. Licence fees vary with the production capacity of plant assets. This method of determination imposes the same fee on a firm with low actual production and thus lower environmental impact, as on a firm operating at full plant capacity. This acts as an incentive for under-investment in capital assets. Hence, the Act and Regulation impose costs on a firm to comply with environmental protection legislation depending upon both the type and level of activity carried out by each individual firm.

A criticism of the legislation is that it fails to distinguish between the various types of ores, minerals or chemicals processed and their differential impact on the environment. Although granting of authorities for mining (a Level 2 activity) are delegated to local governments, methods of mining and associated environmental impacts differ substantially with the type of mineral. The impact of operations on the environment is dependent upon both the type of extraction method utilised and the level of activity. Furthermore, the technology used to extract, smelt or mill will impact upon the level of waste products and

39 Section 38(2) of the Act, s 4(1) and Schedule 1 Regulation.
40 Schedule 4 of the Act.
41 Section 39 of the Act.
42 Section 5 Regulation.
43 For the purposes of the data produced the categories provided are based on information available as at 1995 and taken from Schedule 1 of the *Environmental Protection (Interim) Regulation 1995* (Qld). It should be noted that since that date there have been minor amendments to the Regulation. For example the *Environmental Protection (Interim) Amendment Regulation (No 4) 1996* (Qld) provides sub-categories for several of the ERAs specifying a sliding scale of annual fees for these sub-categories. Further, new categories, for example, pig farming have been included as an environmentally relevant activity.

emissions. Again, the legislation does not provide any formal guidance as to these matters. It will fall to individual EMPs to address any differences in technology and pollutant levels.

The third step in obtaining an environmental authority is for the firm to apply to the administering authority in prescribed form. The application must be supported by information relevant to the likely risks to the environment, details of waste, minimisation strategies and accompanied by payment of the application fee.[44] Applications made post 1 March 1996 attract an application fee of $200 for Level 2 approvals, while licence applications cost $200 plus an amount equal to the annual licence fee for that activity.[45]

As a condition of the granting of a licence firms may be required by the Department to give financial assurance in the form of a bank guarantee, bond, insurance policy or another form considered appropriate.[46] Factors such as the environmental record of the firm, degree of risk of harm by the activity proposed and the likelihood of action being required to restore the environment can be used to justify the assurance. Thus, firms also face the cost of satisfying potential guarantors as to the firm's environmental commitment.

Possible additional monetary and opportunity costs may arise through the requirement for public notice of the application inviting submissions from interested parties.[47] The Act prescribes that consideration must be given to the 'standard criteria' when the authority is deciding on the fate of the application.[48] The Authority has 28 days to consider the application which potentially imposes substantial diseconomies on a firm's operations. Prescribed criteria for consideration include items such as additional information given in relation to the application, any report on the firm's suitability to hold or continue to hold an authority, or views expressed at a conference relevant in the decision of whether or not to grant the application, or the conditions upon which such authority should be granted.[49] Regard may also be had to the financial implications of the authorities as they relate to the type of activity or industry firms would operate under the authority; applicable EPPs; Commonwealth, State and local government plans; environmental impact studies; submissions of interested parties; public interest; and any other matter prescribed.[50]

The legislation also provides for general regulation of waste management activities through ERAs.[51] Licence fees differ depending on the particular activity and whether the waste is categorised as 'general' or 'regulated.'[52] As might be expected by current publicised environmental concerns, ozone depleting substances, in addition to falling under the 'regulated' waste provisions,[53] are subject to a separate regulatory regime.[54] The regime governs operation and maintenance of 'controlled articles[55] and places restrictions upon activities involving 'controlled substances.'[56] The regulations are broad, specifying persons

44 Section 41 of the Act.
45 Section 44 and Schedule 6 of the Regulation.
46 Section 115 of the Act. See also sections 116–118 for further information on procedures for showing why assurances are not required, amending or discharging assurances and claiming on assurances.
47 Section 42 of the Act.
48 Sections 43 and 44 of the Act.
49 Section 44 of the Act.
50 Schedule 4 of the Act.
51 See Numbers 73–85 Schedule 1 Regulation.
52 Regulated waste is defined in Schedule 10 to the Regulation as non-domestic waste not mentioned in Schedule 8 of the Regulation and it includes for an element any chemical compound containing the element; anything that has contained a regulated waste; and regulated waste that has been treated or immobilised. General waste is any waste that is not regulated.
53 See inclusion in Part A of Schedule 8 to the Regulation thus bringing Numbers 75(e), 76, 81 and 83-85 of Schedule 1 of the Regulation into operation.
54 Part 3 of the Regulation.
55 Schedule 10 of the Regulation provides that a controlled article is an article that contains or uses a controlled substance as a working fluid in the operation or structure of the article (with certain exceptions).
56 A controlled substance is defined in Schedule 9 to the Regulation as chloroflurocarbons, halons, carbon tetrachloride and Methyl Chloroform. See also Schedule 10.

to whom restrictions apply,[57] equipment affected,[58] particular controls on refrigeration and air-conditioning equipment, manufacture of plastic foams, halon flooding systems or portable halon extinguishers,[59] and precise restrictions on aerosols and sterilisation equipment.[60] Such costs include monitoring, purchase of equipment, and ongoing, often costly, expert inspections.

Any necessary or desirable conditions may be prescribed on the granting of an authority. Restrictions on future operations may relate to the installation and operation of plant or equipment in a stated way at a stated time, prohibitions on alteration or replacement of plant or equipment installed in licensed places, or the taking of steps minimising the likelihood of environmental harm.[61] A contravention of any condition of a licence will result in penalties, which will vary depending upon whether the breach is wilful.[62] These conditions act as incentives for adoption of best practice so as to enable negotiation of licensing conditions. However, best practice adoption and the relative incentives will be a function of firm size and the uncertainties of the political process.

The legislation provides for self-monitoring and rewards for best practice environmental measurement. If firms prove co-operative, potential rewards include reduction of future licence fees, writing of licence conditions by the firm and removing or reducing governmental involvement in activities. However, the issue of self-monitoring is a controversial one. The level to which firms would exploit the opportunity is dependent upon the incentives to implement best practice environmental management as balanced against ever-increasing evidence of gathering costs and expensive environmental initiatives. Management will consider various incentives including financial incentives (fee reduction or returns), control of the firm (avoidance of legislation and monitoring by external bureaucratic parties), and fear of prosecution (cost benefit comparison as to penalties for non compliance as opposed to compliance costs). The complexity of these issues is increased via uncertainties relating to non-detection, non-prosecution for minor infringements, negotiated agreements and court leniency.[63]

While the Legislation is controversial in its adoption of a self-monitoring and best practice reward scheme, the Department of Environment and Heritage have issued a set of environmental management guidelines aimed at producing consistency and accountability in those administering the Legislation.[64] To this extent industry is provided with a set of guidelines as to the approach adopted by the Department in the enforcement of the Legislation. The Department adopts a responsible approach to environmental protection preferring to devote resources to both prevention and cleaning rather than litigation, with any initial dealings aimed at resolution.

57 This includes the owner or possessor of a controlled article, manufacturer/importer of the controlled article, person charging equipment with an ozone-depleting substance, person releasing an ozone depleting substance from equipment, buyer or seller of ozone depleting substance or manufacturer, installer, operator, servicer, maintainer or decommissioner of relevant equipment pursuant to sections 7–14, Schedule 2 para 4, and Schedule 3 of the Regulation.

58 This includes dry-cleaning, motor vehicle air conditioning, commercial or industrial refrigeration. sterilisation equipment or halon fire extinguishing devices pursuant to sections 16–19 and Schedule 3 of the Regulation.

59 Sections 21–32 of the Regulation.

60 Sections 19–20 of the Regulation.

61 Section 46 of the Act.

62 Section 70 of the Act.

63 Klingham F, 'The Impact on Environmental Practice of the Environmental Protection Legislation' 1995 (3) *Australian Environmental Law News* 62.

64 Queensland Department of the Environment and Heritage, *Environment Management Guidelines: Enforcement Guidelines for the Environmental Protection Act 1994*, 1995.

3. Enforcement provisions

The Act's enforcement provisions operate on the occurrence of one of two events. First, a complaint can be made by the public or notification by an employee, or by the company itself, that serious or material environmental harm has occurred, or is threatened. This will result in an inspection, unless the activity has exemption due to an EPP, EMP, EPO or environmental authority. A decision will then be made upon whether or not the provisions of the Act have been breached. The enforcement provisions contained in the Act itself must be read in conjunction with the Department of Environment and Heritage enforcement guidelines.[65] While the guidelines do not have legal status and, therefore, are not legally binding on any party there is a legitimate expectation that departments and agencies involved in the enforcement will adhere to such recommendations.

One of the major advantages of the present legislation is the provision for third party rights. For example, section 194(1)(d) provides that a person with no proprietary, material, financial or special interest may apply with leave of the Supreme Court for an order to remedy or restrain a breach of threatened or anticipated offence against the Act. Such provisions allow any member of the public to bring an action on an environmental matter. Thus, firms now face an expanded class of potential litigants.

Alternatively, firms may voluntarily disclose the existence of a breach resulting in an environmental management program being mandated. For example, if wastewater has contaminant levels above what is mandated under the EPP guidelines, enforcement will then follow the procedures prescribed: scheduled inspections; possible licensing; environmental management policies; or environmental protection orders.

If information is required to determine if the applicable provisions have been breached then an environmental audit[66] or investigation[67] will be undertaken, at the firm's expense, before the determination of whether the Act has been breached. On determination of a breach, the nature of the breach, relevant environmental harm and the behaviour of the licensee (if applicable) will be considered before enforcement measures ranging from EPOs, injunctions or prosecution, are put into operation.

Prior to adopting more serious enforcement measures an infringement notice may be issued. An infringement notice is designed to deal with easily remedied, one-off breaches. Such a notice will be most suitable where the breach is minor, the factual situation is clear, normal operating procedures should have prevented the breach and the notice will operate as a deterrent.[68]

It has already been stated that the Department of Environment and Heritage prefer to adopt non-litigious measures in resolving an environmental breach. To this extent the guidelines provide that a decision to prosecute should be based on a consideration of all relevant factors amounting in an assessment of the likelihood of success. Factors to be considered will include:

* seriousness or otherwise of the offence;
* the amount of harm or potential harm to the environment;
* mitigating or aggravating circumstances;
* whether an offender has been dealt with previously without prosecution;
* the possible length and expense of a court hearing;
* the likely outcomes of the sentencing process;

65 Note 64.

66 Section 72 requires an environmental audit when the administering authority is satisfied that the licensee is not complying with licence conditions or a person is not complying with an environmental protection policy or management program.

67 Section 73 of the Act.

68 Keim S, 'Enforcement Guidelines for the *Environmental Protection Act 1994* (Qld)' (1995) 1(1) *Queensland Environmental Practice Reporter* at 15–16.

* whether others are to be prosecuted; and
* any precedent which may be set by not instituting proceedings.[69]

a. Environmental protection orders (EPOs)

Where a firm refuses to co-operate, legally enforceable measures in the form of EPOs can be used to force a clean-up or cessation of an activity. An EPO may be issued by the Department due to a failure by a company to prepare a necessary EMP, or submit an environmental evaluation if unlawful environmental harm is believed to have been or being caused, or to enforce compliance with the Act's general environmental duty, environmental protection policies or conditions of a licence.[70]

Again, the legislation has the potential to impose substantial costs on firms. EPOs can require taking of stated actions within specific time limits, prohibit the starting or ceasing of a particular activity indefinitely or for a stated period, immaterial of the costs involved. Potential expenses range from monetary outlay to comply, to the possible prohibition of utilising a more efficient production method due to its environmental impact. Creditor, shareholder, lobby group, governmental and business community reaction due to adverse publicity is also a major factor towards avoiding such a situation.

b. Penalties

Executive officers are assigned the duty of ensuring that the corporation complies with the Act.[71] The definition provided in the legislation is broadly drafted and encompasses persons even indirectly concerned at any level of management of the corporation.[72] That is, the directors and company secretary, in addition to management, are potentially subject to liability under the Act and will, therefore, be concerned with corporate compliance.[73] Further, an offence by the corporation will correspondingly result in an offence by the executive officers,[74] unless the officer has demonstrated due diligence to ensure compliance or the officer could not influence the corporation's actions.[75] The Queensland Department of Environment and Heritage has issued separate guidelines outlining the considerations in a decision to prosecute an executive officer under the Act.[76]

Penalties imposed vary depending upon the type of harm, and if the harm to the environment was caused wilfully and unlawfully or merely unlawfully. 'Wilful' harm denotes acting intentionally, recklessly or with gross negligence.[77] The causation of unlawful material environmental harm gives rise to a maximum penalty of $62,625 for an individual, including an officer, and $313,125 for the corporation.[78] The occurrence of wilful or unlawful, serious environmental harm gives rise to maximum penalties of $312,375 or five years imprisonment per individual, or $1,561,875 if the offender is a corporation.[79] A wilful breach of provisions of an EPP, such as the continuing of waste-water disposal, could result in a maximum fine of $62,625 per individual, or $313,125 for a corporation.[80] Provision is also made for an offence if prescribed contaminants[81] are

69 Note 68 at 17.
70 Section 109 of the Act.
71 Section 183(1) of the Act.
72 Schedule 4 of the Act.
73 This position reflects *AWA Ltd v Daniels t/a Deloitte Haskins & Sells* (1992) 7 ACSR 759 where it was recognised that management, rather than directors, of modern corporations guide the day-to-day operations.
74 Section 183(2) of the Act.
75 Section 183(4) of the Act.
76 Queensland Department of the Environment and Heritage *Environment Management Guidelines: Due Diligence Guidelines*, 1995.
77 Schedule 4 of the Act.
78 Section 121(2) of the Act.
79 Section 120(1) of the Act.
80 Section 124(2) of the Act.
81 Broadly defined in section 11 of the Act.

released into the environment or the placing of such contaminants where they could reasonably be expected to cause serious or material environmental harm.[82]

In light of the scope of the penalty provisions, in addition to providing for the possibility of additional costs to firms via both monetary and non-monetary penalties on non-compliance, the legislature has provided officers of corporations with strong incentives to ensure firms act in the environment's best interests.

IV. Further legislative costs

Aside from the costs imposed across all industries by environmental protection legislation such as the Queensland Act and subordinate regulations, firms operating in specific industries face additional legislative expense due to the nature of their activities. The operations of industries which have the potential to adversely affect land are highly regulated. For example, firms operating petroleum or mineral exploration projects face costs of obtaining a permit, lease or other authority under the *Petroleum (Submerged Lands) Act 1967* (Cth) and associated State enactments. Firms may be required to maintain adequate insurance to cover expenses or liabilities likely to arise in connection with any other activities carried on in pursuance of the permit.[83] Provisions such as the *Mineral Resources Act 1989* (Qld) require applicants for mining leases and holders of such leases to address environmental protection and rehabilitation of any disturbed areas. Extended liability, encompassing directors and other officers of a corporation, is also the subject of statutory enforcement as seen in the *Mines Regulation Act 1964–1983* (Qld). Provision is made for liability of mine managers for any environmental damage resulting from the mine. Hence, costs relating to environmental laws imposed upon firms will vary depending upon the operations of the individual firm and resulting applicability of over 300 separate Acts relating to the environment currently in force in Australia.

V. Implications for Australian firms

The discussion of the Queensland legislation demonstrates the extent to which costs are imposed upon firms due to environmental initiatives. Although not an exhaustive portrayal of the governing laws to which firms are subject, the article illustrates the recent measures undertaken by the various levels of government and the extent of impact upon firms operating in the Australian business arena. Compliance costs and potential monetary and non-monetary penalties for non-compliance are considerable, despite provisions incorporating self-regulation. The concern as to the effectiveness of self-regulation given the uncertainties of financing, firm control and fear of prosecution adds to the likelihood of further intervention by the government. Instigation of measures due to international conventions, increasingly organised conservation groups and general public concern, will only increment these costs.

The legislation described in the previous sections identifies a number of environmentally relevant activities and imposes licensing and reporting requirements on firms undertaking such activities. In view of these legislative requirements and the increasing public awareness of environmental issues over the last decade in Australia it could be expected that firms undertaking environmentally sensitive activities will place greater importance on the management of environmental issues. If so, the greater prominence placed on environmental management should be reflected in disclosures made by the firm to its shareholders and other interested parties. The firm's annual report is likely to be a major medium for such disclosures.

82 Section 125 of the Act.

83 Section 97A of the *Petroleum (Submerged Lands) Act 1967* (Cth). A similar requirement is contained in section 60 of the *Minerals (Submerged Lands) Act 1981* (Cth).

Environmental protection legislation reflects mounting public concern regarding environmental issues, rather than preceding it. Hence, we expect that firms operating in environmentally sensitive industries will make environmental disclosures to mitigate the concerns of the general public, even in the absence of the Act. However, such annual report disclosures are purely voluntary and are often aimed at managing public perceptions of actual or potential environmental damage caused by the firm's operations. In contrast, the Act objectively identifies activities that carry a relatively high risk of harm to the environment. A survey of Australian company annual reports was conducted to investigate whether environmental disclosures appear to be a response to public perceptions of environmental harm or whether such disclosures mirror the true environmental risks associated with the activities specifically targeted by the Act.

To determine (a) whether disclosures relating to environmental management have increased over time and (b) whether firms conducting environmentally sensitive activities make greater levels of environmental disclosures than other firms, the annual reports of 153 listed Australian corporations, for the period 1988 to 1995, were surveyed.[84] The annual report listing of each firm's principal activities was inspected to ascertain the number and type of environmentally relevant activities (as defined in the Act) conducted for each firm/year. The number of environmentally relevant activities undertaken by each firm was then scaled by the total number of activities undertaken by the firm.

To measure the extent of annual report environmental disclosures, an equally weighted index was constructed. The index consists of a listing of all possible disclosure items relating to environmental management, with each firm measuring a proportional or relative score on the index. The individual score for any particular firm is a measure of the extent of environmental disclosure made in its annual report, relative to all other sample firms.

Table 1, below, summarises the mean levels of disclosure for the sample firms over the 8 year period 1988 to 1995. Since the levels of environmental disclosure are on average considerably higher for mining firms than for other industries, disclosure levels for miners are shown separately. Two clear trends emerge from the data presented. First, mining firms make far more extensive disclosures than industrial firms. This is an intuitive result, given the destructive nature of most mining operations. Second, disclosure levels are increasing over the test period, the only exception here being 1992, when disclosure levels fell for both groups.

Table 1
Mean Disclosure Score by Year

Sub-Sample	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
Mining	7.62	10.13	12.77	14.88	13.85	15.40	16.18	17.65
Industrial	2.46	4.73	6.28	7.12	1.16	8.11	7.79	8.24

84 Sample selection procedures were as follows. We randomly selected 200 companies from the Australian Graduate School of Management (AGSM) annual report collection held at the University of Queensland Economics Library. The AGSM annual report collection consists of the top 500 Australian companies (by market capitalisation) each year. From the initial 200 firms, banking and finance companies were deleted and firms were also deleted if they did not have a complete time series of annual reports for the 8 year survey period. A list of sample firms is available from the authors on request.

Table 2, below, summarises the Pearson correlation coefficients[85] between involvement in individual environmentally relevant activities and the levels of annual report disclosures relating to environmental issues. The survey data for the 8 year period used was pooled for the purpose of calculating the correlation coefficients.[86] For ease of exposition, only the correlation coefficients that are statistically significant at $p<0.10$ or better are included. Once again the sample is split into mining and industrial sub-groups.

Table 2
Pearson Product-Moment Correlation Coefficients Between Levels of Disclosure (DISC) and Environmentally Relevant Activities (ERA#)

Variable	*Mining*	*Industrial*
	DISC	DISC
ERA2	–0.107	0.243**
ERA5	0.272**	0.268**
ERA8	0.206	0.241*
ERA9	0.349**	0.202
ERA10	–0.012	0.231*
ERA13	0.168	0.382**

* Significant at $p<0.10$
** Significant at $p<0.05$ (Two tailed tests)
ERA2 = Chemical production and petroleum storage;
ERA5 = Mining, exploration and extraction;
ERA8 = Land development;
ERA9 = Metal foundry/working;
ERA10 = Plaster manufacture, pulping/paper manufacture, printing, tobacco processing;
ERA13 = Sawmilling, woodchipping and wood product manufacturing.

Table 2 indicates that ERA5 (mining, exploration and extraction) is significantly positively associated with disclosure levels for both mining firms and for industrial firms diversified into mining. ERA7 (metal foundry/working) is significantly related to the extent of environmental disclosure for mining firms but not industrials, suggesting that it is the mining activity, rather than the metal foundry/working, that drives greater annual report disclosure levels. Within industrial firms, ERA2 (chemical production and petroleum storage), ERA8 (land development), ERA10 (plaster manufacture, pulping/paper manufacture, printing, tobacco processing) and ERA13 (sawmilling, woodchipping and wood product manufacturing) all demonstrate a positive association with annual report disclosure at conventional significance levels.

85 Correlation coefficients measure the direction and strength of the relationship between two linearly related variables. Thus, a high, positive relationship between two variables indicated that increases in the values of one is associated with increases in the value of the other. Correlation coefficients can take on values from -1 a perfect negative correlation) to $+1$ a perfect positive correlation). We use statistical significance to interpret the strength of the correlation coefficients shown in Table 2.

86 The correlation coefficients were also calculated on a year by year basis and the results are in general consistent with those shown in Table 2.

Given that there are 18 categories of environmentally relevant activities identified by the legislation, it is somewhat surprising that there are so few significant relationships between the involvement in an environmentally relevant activity and disclosure levels. For example, waste transport activities (ERA17) could potentially cause considerable damage to the environment yet firms involved in such activities do not make extensive disclosures about their environmental management programs. Possibly such firms deploy information sources other than the annual report to disclose such information to interested parties. Alternatively, this result could be explained by the prominence of specific environmental issues in Australia. In particular Australia's greatest environmental threat has been recognised as land degradation, an issue likely to be of greater concern to the Australian public than other forms of environmental damage, such as air or water pollution.[87] Hence, firms that conduct activities which impact directly on the land, such as mining or woodchipping and sawmilling, are subject to a greater level of political scrutiny than firms conducting activities such as waste transport.

VI. Conclusion

The major advantage of the Act is it permits industries with operations inherently environmentally sensitive to enter into a binding agreement with the Department of Environment and Heritage to state obligations in conducting operations and obviate the fear of prosecution. However, the consequence of this is that industry must understand environmental performance relevant to their operations. This introduces a need for the expense of monitoring firm and industry performance. Data is also needed to formulate EMP, EPP and licence conditions. Thus, monitoring and reporting of performance is an essential and expensive component of the Act's effectiveness in controlling environmental impacts of firms' operations. Many firms possess incentives to provide information due to possible future benefits. However, costs of compliance are prohibitive. Differential licence fees based on production capacity rather then actual production impose dis-incentives on industry operations. Lack of differentiation between types of metals and chemicals processing also fails to satisfy the polluter-pays principle and potentially impacts upon business investment decisions. Due to the number of international treaties to which Australia is a party the body of environmental legislation will continue to undergo rapid growth, thus posing further costs.[88]

87 Note 21.
88 Note 2 at 3.