

Queensland



Regulatory Impact Statement for SL 2000 No. 178

Environmental Protection Act 1994

ENVIRONMENTAL PROTECTION (WASTE MANAGEMENT) POLICY 2000 AND ENVIRONMENTAL PROTECTION (WASTE MANAGEMENT) REGULATION 2000

INTRODUCTION

Environmental protection

The Queensland Government is committed to protecting the environment through the development of an integrated environmental management program that allows for ecologically sustainable development (ESD).

Fulfilling this objective of ESD requires the provision of a regulatory framework within which wastes can be effectively managed to minimise or avoid adverse impacts on the environment (which includes people and natural resources), while at the same time allowing for economic development and improvement in the quality of life for all Queenslanders. To accomplish this task, it is proposed to enact an Environmental Protection (Waste Management) Policy (the Policy) and associated Environmental Protection (Waste Management) Regulation (the Regulation) as subordinate legislation under the *Environmental Protection Act 1994*.

While implementing new waste management legislation involves costs and consequences for the public and private sectors, costs should never be considered in isolation from benefits. These benefits include protecting environmental values, human health and safety, more efficient use of resources, and avoiding clean-up costs.

Where this document refers to the overall waste management framework of the Policy and the associated Regulation, the abbreviation EPP (Waste) will be used. Appendix 2 contains a glossary of some terms used in this document.

Need for new waste management legislation

Queensland's economy supports a modern industrial society with significant primary industry, commercial, industrial and government activity. An inevitable by-product of these activities is the generation of waste. Approximately 3000 tonnes of solid waste is generated each day in the south-east corner of Queensland alone. A high proportion of this is disposed to landfill.

The increasing complexity and quantity of wastes produced in Queensland has raised concern in recent years in the community, industry and all levels of government, particularly local government, which has the responsibility for waste management activities in their area. These concerns relate not only to the existing infrastructure being unable to adequately manage the waste generated, but also to the lack of a legislative framework or otherwise to control the incidence of unsound waste management practices, which can and have threatened human health and environmental values in Queensland.

There are many incidents of inappropriate waste management practices throughout the state. These can be as simple as discarding a cigarette butt on the ground or could be as harmful as indiscriminately dumping hazardous wastes. Examples are provided below. Continuation of current inappropriate waste management practices increases the pressure on the environment from the generation of wastes. For this reason, comprehensive integrated waste management legislation is needed.

Current legislation

Historically, responsibility for managing waste in Queensland primarily rested with Queensland Health under the *Health Act 1937* and its regulations (in particular the *Refuse Management Regulations 1983*). However, the *Refuse Management Regulations 1983* did not adequately address all waste management issues, in particular landfill management, waste management

planning and the special requirements for the management of certain wastes.

A number of other Acts, including the *Litter Act 1971*, the *Clean Air Act 1963*, the *Clean Waters Act 1971* and the *Radioactive Substances Act 1958* also dealt to varying degrees with waste issues. Historically also, much of this legislation was not enforced. This fragmented system where waste management was only partly addressed by a number of Acts and generally inadequately enforced has contributed to the emergence of a number of waste management problems which the EPP (Waste) aims to address.

Illegal dumping

The illegal dumping of wastes such as tyres, construction and demolition waste and chemicals has become a significant issue for the State Government and local governments because of the nature, frequency and the cost of cleaning up such occurrences. Incidents of illegal disposal and improper waste management and the costs involved in the clean-up and remediation of such incidents are also provided to illustrate the cost to the State Government, local governments and the community of illegal dumping (see Box 1).

Box 1. Examples of illegal dumping—

Gold Coast tyre dumps

A number of illegal tyre dumps were discovered in bushland areas on the Gold Coast. The estimated cost of removing, shredding and then correctly disposing of the tyres was more than \$10,000 for each incident.

Used oil disposal

A large quantity of used oil was disposed of on land at Yorkeys Knob, north Queensland. The clean-up cost incurred was approximately \$80 000.

Litter

Inappropriate depositing of litter reduces the aesthetic and property values of natural and built environments, pollutes waterways and injures or kills wildlife. Clear plastic is of particular concern in the marine environment where it can be mistaken for food. The State Government and local governments spend many millions of dollars each year removing litter from the environment (see boxes 2, 6 and 8).

Box 2. Example of the cost of litter—

Clean-up of Brisbane Koala Park

Approximately 400 tonnes of litter (111 loads of waste to landfill) were removed from Brisbane Koala Park by Brisbane City Council in 12 days in a project costing more than \$19,000.

Landfill management

A high proportion of Queensland's existing landfills have been poorly designed, not adequately operated or not optimally sited. Their impacts include surface and groundwater contamination, littering, dust problems, noise and odour nuisance, the risk of explosion, and the contribution to greenhouse gas emissions due to landfill gas (see Box 7). Engineering controls on landfills have also been unsatisfactory, generally paying inadequate attention to waste acceptance criteria, groundwater and landfill gas monitoring and post-closure care and maintenance. It should be pointed out that this was the "accepted" practice at the time. However, heightened community expectations and increased knowledge of the impacts warrant increased management standards at Queensland's landfills.

Generally, landfill disposal costs do not reflect the full (or true) costs including environmental costs such as leachate, odour and litter control. Thus there is little incentive for generators of waste to reduce disposal to landfill. The cost of 'cleaning up' a landfill is far greater than implementing correct engineering and management practices in the first place. (Estimates for the cost of undertaking remedial action on 'problem landfill sites' in the United States range from US\$20 to \$100 billion dollars)¹. Queensland's waste generation rates are also high, which exacerbates landfill management issues (see Box 3).

Box 3. Solid waste generation rates for municipal waste disposal in Australia—

State/Territory	Municipal waste disposal (‘000 tonnes/year)	Kilograms/ person/year
Queensland	2067	754
Tasmania	253	567
Australia	6090	521
Western Australia	802	519
New South Wales	2818	494
Victoria	1977	475
South Australia	551	395
Northern Territory	36	312
ACT	77	283

(The definition of municipal waste may vary between States, but broadly refers to domestic waste as well as similar waste collected from small industrial and commercial premises).

Source: Industry Commission (1990).

Local government management of waste

Throughout Queensland, the approach of local governments to waste management has been inconsistent. Such inconsistencies might be caused by geographic, social and economic constraints. However, while the landfill management issues mentioned above are a major component of local government waste activities, few local governments have an overall strategy in place to address all issues associated with managing the waste generated within their local area.

Hazardous wastes

At present, adequate control over the handling, transport and treatment of hazardous wastes is lacking. This can lead to improper and/or inadequate disposal. The increasing volume and complexity of wastes that require

special attention exacerbate this risk. There is no statewide system to track the movement of such waste and to ensure that hazardous wastes are treated and disposed of properly. Problems that arose from the Kingston toxic waste dump are a prime example of the inadequate controls on the management of hazardous wastes (see box 4).

A 1994 Criminal Justice Commission inquiry on liquid waste disposal in south-east Queensland found that lack of legislative, administrative and operational control over liquid waste (much of which is hazardous) disposal had allowed improper disposal practices to become the standard practice throughout much of the industry. The report stated that vast quantities of liquid waste had been unaccounted for in the previous 10 years.³

Box 4. An example of poor hazardous waste management—

Mt Taylor Park

At Kingston, south of Brisbane, a former gold mine was used to dispose of acid sludge, cyanide and oil processing wastes and finally municipal waste in the period from 1936–1967. Local government planning permitted residential and commercial development on, and adjacent to, the areas that contained the wastes. Complaints from residents about health problems and of a sludge material seeping to the surface began in 1986. After thorough investigation, more than 20 houses were required to be relocated to allow for the affected areas to be capped and sealed. This was completed in 1991. The total cost of this operation to date, including relocating infrastructure, the engineering required to seal the site and on-going monitoring, is approximately \$8 million.⁴

LEAD AGENCY ROLE — STRATEGY AND LEGISLATION

State responsibilities for waste management

In 1991, the Public Sector Management Commission reviewed responsibilities for waste management in Queensland and recommended that responsibilities under the *Health Act 1937* be transferred to the (then) Department of Environment and Heritage.⁵ Responsibility for waste management in Queensland was officially transferred to the Department of Environment (DoE) on 2 February 1996 when the *Refuse Management*

Regulation 1983, Sanitary Conveniences and Nightsoil Disposal Regulation 1976, and sections 95-99A of the Health Act 1937 were replaced by the Environmental Protection (Interim Waste) Regulation 1996 under the Environmental Protection Act 1994.

DoE is now the lead agency for environmental management with responsibility for ensuring development, co-ordination and implementation of a structure to provide for all waste management functions in Queensland. Responsible waste management is an important element in achieving ecologically sustainable development.

Waste Management Strategy for Queensland

Following extensive public consultation during 1994–95, the (then) Department of Environment and Heritage developed the Waste Management Strategy for Queensland. The Strategy endorsed by the Government in December 1995 recommends the establishment of a comprehensive, integrated framework for environmentally sound waste management. This requires effective management systems at the point of generation, during handling, storage, treatment and transport of waste and finally at the site of disposal.

New waste management legislation

The EPP (Waste) seeks to implement the relevant components of the Waste Management Strategy for Queensland and fulfil the waste management aspect of ecologically sustainable development in Queensland. The preparation of the EPP (Waste) is the next step in addressing those areas identified in the Waste Management Strategy for Queensland as amenable to regulation. The Regulation that accompanies the Policy contains prescriptive requirements for specific wastes and waste management activities. When enacted, the Regulation will in turn replace the *Environmental Protection (Interim Waste) Regulation 1996*.

Goal of the EPP (Waste)

The legislation will apply to all generators of waste. The goals of the EPP (Waste) are to—

- (a) reduce the actual and potential impacts on human health and the environment caused by waste;
- (b) establish an integrated framework for the minimisation and management of waste in accord with the principles of ecologically sustainable development;
- (c) reduce the overall quantity and toxicity of waste generated by households, and the community;
- (d) promote efficiency in the use of resources; and
- (e) achieve continuous improvement in the standard of waste management activities, public and private.

The proposed legislation focuses on areas identified during the development of the Waste Management Strategy for Queensland and in further consultation with key interested parties. These areas include management of solid wastes, landfills, the State Government and local governments' roles in waste management, hazardous wastes, litter, clinical and related wastes. For further detail, see Policy objectives.

The EPP (Waste) will implement the waste management component of the *Environmental Protection Act 1994* (the EP Act). The EPP (Waste) is subordinate legislation, made under section 23 of the EP Act. The EPP (Waste) draws on the EP Act for—

- (a) legal authority and scope, including the process of preparation;
- (b) environmental objectives; and
- (c) regulatory mechanisms, including environmental authorities and management programs, financial assurances, standard criteria, environmental offences, original decisions and appeal procedures.

The EPP (Waste) augments the EP Act's framework by providing the community, industry and administering authorities with guiding principles and regulatory tools to implement best practice waste management in Queensland. DoE will provide non-statutory guidelines and undertake training and educational programs to assist the implementation of and compliance with, the new waste management legislation.

REGULATORY IMPACT STATEMENT

When proposed subordinate legislation likely to impose appreciable costs on the Queensland community is being developed, the *Statutory Instruments Act 1992* requires the relevant department to prepare a Regulatory Impact Statement (RIS). The objective of this RIS is to—

- (a) explain the background, objectives, grounds for government involvement and the intent of the proposed waste management legislation;
- (b) compare the legislation with two alternatives, namely economic mechanisms and self-regulation; and
- (c) detail the likely costs and benefits of the legislation, and where practical and appropriate, quantify those benefits and costs.

This RIS follows the format set down in the *RIS Guidelines* developed by the Department of Tourism, Small Business and Industry, in accord with the requirements of Part 5 of the *Statutory Instruments Act 1992*. For clarity, the RIS should be read in conjunction with the draft Policy.

Title

Environmental Protection (Waste Management) Policy 1997, and Environmental Protection (Waste Management) Regulation 1997

Authorising law

(s.44(a) *Statutory Instruments Act 1992*)

The Environmental Protection (Waste Management) Policy is to be made under section 23 of the *Environmental Protection Act 1994*.

The Environmental Protection (Waste Management) Regulation is to be made under section 220 of the *Environmental Protection Act 1994*.

Policy objectives

(s.44(b) *Statutory Instruments Act 1992*)

The overall objective of the EPP (Waste) is to manage waste that is generated, transported, stored, treated or disposed of and to minimise its effect on the environment, amenity and public health and safety in Queensland.

The legislation aims to establish equitable means of reducing environmental harm associated with the generation of waste without lowering the standard of living and quality of life that Queenslanders currently enjoy. To achieve this, the responsibility for waste reduction and management must lie with all parties including the State Government, local governments, industry (including primary producers) and the community.

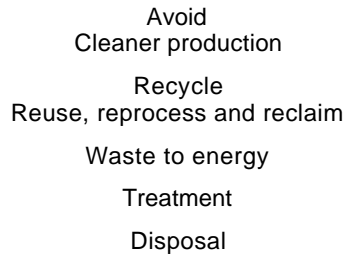
The EPP (Waste) includes areas in which the existing framework is limited and there is an identified need to address specific waste management issues. Prescriptive and non-prescriptive regulatory tools will be employed where applicable.

WASTE MANAGEMENT HIERARCHY AND PRINCIPLES

Waste management hierarchy

The EPP (Waste) encourages management of wastes in accord with the hierarchy of waste management practices. Figure 1 sets out the management practices that should be employed in the order of most preferred to least preferred. However, the Policy does state that the use of a practice not in accord with the order of the hierarchy is acceptable where it can be established that less environmental harm will result from the use of that practice than any other practice.

Figure 1. Waste management hierarchy—



Waste management principles

The Policy outlines a number of waste management principles that are a selection of internationally accepted principles that guide and promote efficient use of resources, the prevention of pollution and the responsible management of waste. These are—

- (a) **‘Polluter pays’ principle:** This requires, as far possible, that all costs of containing or eliminating pollution are borne by those who cause pollution. Polluters should be responsible for all costs of pollution prevention. These include direct capital costs of pollution abatement and costs associated with monitoring and enforcement.
- (b) **‘User pays’ principle:** This requires that all identifiable costs associated with the use of a resource should be included in the market price of goods. Such costs include operating expenses, capital outlays, administration, monitoring, government fees and charges and the costs for treatment and disposal of wastes. This is to ensure that waste minimisation is not discouraged because of artificially low resource prices and service charges.
- (c) **Producer responsibility principle:** Producers share responsibility with consumers and government for minimising any environmental harm caused by waste that is generated from the production and proper use of their products. This responsibility includes contributing towards the provision of appropriate management systems for such waste. However, producers are not responsible for environmental harm which results from the use of their products in a manner that constitutes a breach of the general environmental duty (section 36 of the EP Act).

Specific objectives — Environmental Protection (Waste Management) Policy

Many enterprises in Queensland may not be conducting their businesses according to the waste hierarchy. From an economic perspective, this is likely to contribute to a poor competitive position as knowledge and its application (among other things) achieves optimal use and allocation of resources, which the hierarchy encourages.

The Policy outlines a number of waste management planning mechanisms aimed at facilitating the implementation of best practice waste management by industry and government. The Policy explains the content and format of the waste management mechanisms. See also Legislative intent for an explanation of these mechanisms.

The specific objectives of the waste management mechanisms are—

- (a) Waste management plans—
 - (i) To encourage industry to address waste planning, in accordance with the waste management hierarchy, and incorporate it into their business plans; and
 - (ii) to ensure that waste that is generated is managed effectively and efficiently with minimal adverse impact on the environment and public health.
- (b) Cleaner production plans—
 - (i) To promote waste avoidance (cleaner production) as the preferred method of waste management; and
 - (ii) to encourage cleaner production as an integral component of responsible business planning.
- (c) Industry waste management agreements—
 - (i) To provide a structured mechanism for negotiation and agreement on the most effective and efficient measures to reduce and manage wastes on an industry wide level; and
 - (ii) to build cooperative relationships between industry, government and the community in relation to waste management.
- (d) Extended producer responsibility—

- (i) To ensure that consumers are provided with advice and information about managing certain wastes produced from the use of particular products, as well as the product itself; and
 - (ii) to recognise that producers/distributors of products have a responsibility to consider their role in waste management options for those products when they become a waste.
- (e) Life cycle assessments—
- (i) To require the manufacturers of specified products to assess and minimise the impacts on the environment resulting from those products and to include those costs in that of the product; and
 - (ii) to identify all options for improved waste management, following a ‘cradle to grave’ approach.
- (f) Local government waste management strategies and plans—
- (i) To promote an integrated approach by local governments to assessing, providing, promoting and implementing waste management options and activities; and
 - (ii) to provide a framework allowing waste management and planning activities to be undertaken cost-effectively (economies of scale) through regional co-operative approaches.
- (g) State agency responsibilities—
- (i) To ensure that State Government agencies undertake waste planning;
 - (ii) to minimise the generation of waste from State agencies; and
 - (iii) to ensure that all waste generated by State agencies is managed effectively and efficiently with minimal adverse impact on the environment and public health.

**Specific objectives — Environmental Protection (Waste Management)
Regulation**

The Regulation outlines specific management requirements for a number of wastes and waste management practices. See Legislative intent for further explanation. While the EP Act contains general offence provisions, components of the Regulation will have specific offences to aid in achieving compliance. Objectives of the major components of the Regulation are—

- (a) Landfill management—
 - (i) To ensure relevant standards for landfills in Queensland are achieved; and
 - (ii) to ensure landfill operators address closure and post-closure care and maintenance of waste disposal facilities.
- (b) Clinical and related wastes—
 - (i) To ensure appropriate procedures are in place for managing clinical and related wastes; and
 - (ii) to protect human health and the environment from infectious wastes.
- (c) Regulated wastes—

(See glossary for definition of regulated waste).

 - (i) To ensure that appropriate practices are in place for managing regulated wastes;
 - (ii) to reduce the quantity of regulated waste generated;
 - (iii) to reduce the hazard to human health and the environment posed by regulated wastes;
 - (iv) to provide a practical system for classifying and managing regulated waste; and
 - (v) to encourage the reuse and recycling of regulated wastes.
- (d) Litter—
 - (i) To reduce the instances of littering; and
 - (ii) to increase the regulatory and enforcement powers of governments to better manage litter.

What is the case for Government involvement on the grounds of public interest?

The need for new legislation has been outlined previously in the discussion on the inadequacy of the current legislative framework and the waste management problems that have arisen because of it. (see Need for new waste management legislation.)

What is the worst possible consequence of Government inaction and how likely is it to occur?

Failure of the Queensland Government to introduce new waste management legislation could lead to the following concerns—

- (a) The *Environmental Protection (Interim Waste) Regulation 1996*, is due to expire on 31 December 1997. If agreed by Government, this Interim Regulation would have to be extended to ensure that Queensland is not left without legislation in place to specifically address waste management issues.
- (b) The failure to introduce new legislation to implement a regulatory framework for consistent waste management decision-making will lead to a continuation of the existing uncoordinated, ad hoc approach to waste management across the state. This could result in the imposition of unnecessarily tight licence conditions on industry to address a perceived environmental health risk.
- (c) Decision-making and actions would be inconsistent with national strategies, policies and guidelines, resulting in market distortion.
- (d) Regulatory and enforcement mechanisms for managing wastes would be limited to those under the EP Act.
- (e) For areas already negatively affected by inappropriate waste management, there would be limited mechanisms for restoring the identified environmental values.
- (f) Continued industry and local government uncertainty on standards and management practices required.

If the Government did nothing, the worst possible consequences would include—

- (a) illegal dumping;
- (b) serious or material environmental harm;
- (c) impacts on public health;
- (d) inappropriate management of waste resulting in degradation of the environment, water quality, air quality and land; and
- (e) negative economic impacts or risks of economic impacts on major Queensland industries such as tourism and agriculture.

Legislative intent

(s.44(c) *Statutory Instruments Act 1992*)

The overall intent of the EPP (Waste) is to—

- (a) improve the management of wastes generated, transported, stored, treated and disposed of in Queensland;
- (b) reduce the amount of waste generated;
- (c) reduce incidents of illegal dumping of wastes;
- (d) increase the amount of materials reused, reprocessed or reclaimed;
- (e) reduce administrative and legislative overlap;
- (f) instil an ethic of continuous improvement in the management of wastes in Queensland by governments, industry and the community; and
- (g) improve the quality, amenity and aesthetics of the environment.

The legislation will apply to all generators of waste including industry, State agencies and corporations, institutions such as schools and universities, hospitals, local government and individuals in the domestic context. Although the focus of the legislation is on wastes generated by industrial, commercial and government activities, members of the public have a responsibility to minimise environmental harm in their daily dealings at home, work and recreation. Therefore they should avoid or minimise actions that may unnecessarily generate waste or inappropriately dispose of waste into the environment.

The legislation will establish and co-ordinate acceptable waste management practices throughout the state and in doing so set the long-term management goals and standards for waste management.

WHAT ARE THE OBLIGATIONS, RIGHTS AND CIRCUMSTANCES THAT ARE IMPOSED OR CHANGED BY THE EPP (WASTE)?

An explanation of the major components of the EPP (Waste) is given below.

Waste management plans

Holders of environmental authorities for both devolved and non-devolved activities under the EP Act may be required to submit a Waste Management Plan (WMP) in which they identify the wastes they produce and detail the methods of management of those wastes in accord with the waste management hierarchy in order to minimise the potential for environmental harm. The discretionary power to request WMPs from environmental authority holders will reside with the relevant administering authority (see Policy, ss12–13).

Persons submitting WMPs will be required to have those Plans audited every two years (see Policy, s20), and to report on waste management variables in their annual return or report to the administering authority (see Policy, s14).

Cleaner production plans

Operators of specified environmentally relevant activities or those generating large quantities of hazardous waste may be required to submit Cleaner Production Plans (CPPs), detailing inputs and outputs of the production process and options for implementation of cleaner production techniques (see Policy, ss16–19).

Local government waste management strategies and plans

The Policy requires the development and implementation by local government of a waste management strategy and plan every five years. These documents may also be developed on a regional basis by a group of local governments. They should be developed in consultation with the community and industry and be publicly available. It is also proposed that the strategy and plan be audited every two years to determine the extent and success of implementation (see Policy, ss23–27).

Industry waste management agreements

An industry might offer to develop an Industry Waste Management Agreement (IWMA) or the chief executive of DoE may require that an industry sector or specified industry members develop such an agreement. This provides a way for certain industries or producers of waste to determine and declare the most effective and efficient measures to avoid, reduce or manage waste on an industry-wide scale. An IWMA pertains to an industry body, or industry member. Such an approach to environmental protection complements the development of industry codes of practice and facility-specific programs by allowing industry members to develop their own targets and strategies, in consultation with government, the community and one another. It is not intended that these IWMA's will duplicate similar agreements at the national level (see Policy, ss34–39).

Provision of certain information

Producers of goods for the domestic market may be required to provide information and advice about managing any regulated wastes produced from the use or consumption of such products, including the product itself, to persons who use or consume those products (see Policy, s41).

Life cycle assessment

Companies manufacturing products which are likely to cause significant environmental harm may be required to undertake a life cycle assessment (LCA) of those products. The criteria for such a requirement are related to

the generation of hazardous wastes and the risk to the receiving environment (see Policy, ss42–45).

State agency responsibilities for waste management

Provisions are made for the State Government to encourage and facilitate waste minimisation, recycling and better management of wastes through the State Purchasing Policy, and to require tenderers for government contracts to address relevant waste management issues. Each State Government department or agency will also be required to prepare and implement a State Agency Waste Management Plan (see Policy, ss28–33, 46–48).

Regulated waste recycling approvals

The Regulation proposes an option for recycling regulated waste through the use of a recycling approval (RA). This will allow an activity, other than regulated waste storage, treatment or disposal, to use regulated waste, without requiring an environmental authority (see Regulation, ss8–18).

Clinical and related waste

Special requirements will apply for the handling, storage, treatment and disposal of clinical and related wastes. Non-domestic generators of such waste will be required to submit a Clinical and Related Waste Management Plan (see Regulation, ss19–29).

Landfill management

Baseline requirements on operators concerning the management of landfills, including closure and post-closure care and maintenance (see Regulation, ss30–35).

Litter management

More effective management of litter via replacement of the *Litter Act (1971)* with updated litter management controls and enforcement mechanisms (see Regulation, ss66–74).

Exemptions

Exemptions may be granted from particular regulatory requirements of the EPP (Waste) for holders of certified quality assurance (AS9000 series) or environmental management systems (ISO14000), (see Policy, s40). To ensure that the legislation does not create unnecessary requirements on those already adequately addressing waste management, the Regulation also specifies that a person who carries out a waste management practice in accordance with current and appropriate practices, is deemed to have complied in all respects with the Regulation. (see Regulation, s5).

Why is the legislative approach reasonable and appropriate?

The legislative approach is reasonable and appropriate because—

- (a) the existing regulatory approach has failed to effectively reduce and manage wastes and litter;
- (b) it provides principles and mechanisms to be used as a basis for efficient and effective waste management;
- (c) industry, local government and the community are seeking guidance on requirements, standards and actions for waste management;
- (d) it is an integrated approach which encourages consistency in the management of wastes;
- (e) it provides for appeals, exemptions and enforcement;
- (f) it requires those producing a particular waste to manage that waste effectively (producer responsibility) at the same time as giving flexibility in choosing the most appropriate methods of waste management;
- (g) it contains self-regulatory and enforcement elements;
- (h) it is consistent with the National Strategy for Ecologically Sustainable Development, the National Waste Minimisation and Recycling Strategy as well as cleaner production principles; and
- (i) it is based on extensive consultation with interested parties including that during the preparation of the Waste Management Strategy for Queensland and the EP Act (see Appendix 1).

The public consultation paper on the environmental protection legislation published in late 1993 contained a detailed proposal for the legislation to contain Environmental Protection Policies (EPPs). This legislative approach to waste management through development of an Environmental Protection (Waste Management) Policy was supported strongly in the submissions that responded to the proposal.

Implementation of the EPP (Waste) will be supported by education, training and guidelines provided by DoE. It will also be subject to review every seven years (see below).

Assessment and review

The EPP (Waste) is subject to assessment and review every seven years, thereby allowing business to undertake future planning with confidence while providing the Government with the opportunity to adjust the Policy in line with changing community attitudes and the results of assessment of defined key performance indicators and targets (see Policy, ss49-50). Industry, local government and community feedback will be sought for the seven-year review.

Education, training and guidelines

The Department will conduct education and training programs to heighten community, industry and government awareness and understanding of waste management issues and responsibilities. Additional advice focusing on types of wastes and specific management requirements will be given in guidelines. Guidelines are non-statutory, but can be used to assist in achieving compliance. Guidelines will be developed on a wide range of waste management issues, including, but not limited to—

- (a) local government waste management strategies and plans
- (b) operational standards of waste management facilities
- (c) cleaner production techniques
- (d) landfill management
- (e) landfill monitoring
- (f) landfill costing

- (g) industry waste minimisation and management practices
- (h) waste management planning
- (i) requirements for annual reporting
- (j) waste assessment and auditing
- (k) management of clinical and related waste
- (l) management of regulated waste
- (m) management of building and demolition wastes
- (n) management of quarantine wastes
- (o) cost–benefit analysis of waste management operations, assessment; and
- (p) life-cycle analysis
- (q) management of transfer stations.

Consistency with the authorising law

(s.44(d) *Statutory Instruments Act 1992*)

How would the proposed legislation contribute to the achievement of the objectives of the authorising law?

The overall objective of the *Environmental Protection Act 1994* is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development). The objective of the EP Act is to be achieved by a program that includes developing environmental protection policies.

The Policy is one of several EPPs that will be subordinate legislation to accompany the EP Act. It contributes to the objective of the EP Act by detailing mechanisms for reducing the quantity and toxicity of waste generated and specifying management requirements for the handling, transport, treatment and disposal of wastes that are produced. It is therefore consistent with the authorising law.

Consistency with other legislation

(s.44(e) *Statutory Instruments Act 1992*)

If the proposed legislation is not consistent with the policy objectives of other legislation, what is its relationship with that legislation? Numerous other pieces of existing Queensland legislation deal with waste management to varying degrees. Consultation has been undertaken with other Departments and Office of Parliamentary Counsel to ensure a coordinated approach to waste management in Queensland and therefore no duplication between existing waste legislation and the proposed EPP (Waste).

Alternatives

(s.44(f) *Statutory Instruments Act 1992*)

What are the alternative ways of achieving the Policy objectives of the subordinate legislation and why were they rejected?

Two alternative strategies that were considered as means to achieve the policy goals of the proposed EPP (Waste) previously described are economic mechanisms and self-regulation.

Economic mechanisms (including waste disposal levies)

The use of waste disposal levies is seen as an effective tool in achieving the objective of reducing waste generation. These levies can be applied as a pre-disposal levy on specified goods or as a solid waste levy, payable when solid waste is finally disposed of to landfills. The primary purpose of a solid waste levies is to reflect the true costs of waste disposal and provide funding for the appropriate management of waste facilities. Waste disposal levies provide the incentive, and act as a signal, for waste generators to reduce the amount of waste produced.

Pre-disposal levies 'place' an economic value on waste products, thus reducing the likelihood of dumping. Pre-disposal levies can be applied to specific goods, to encourage efficient and effective management at all stages in the life cycle of the product. A proportion of the levy can then be returned to managers of each stage in the life of the product. The use of disposal

levies is supported by some industries.

Solid waste levies are currently in use in Victoria, South Australia and New South Wales for waste disposed to landfills and are to be introduced in Western Australia in 1998. These levies are also utilised by regulatory authorities in other countries. The primary objective for the application of solid waste levies is to reduce market distortions in waste disposal pricing thereby encouraging a reduction in the overall amount of waste disposed to landfills.

The potential advantages of economic mechanisms include—

- (a) a reduction in the overall amount of waste generated;
- (b) long-term reduction in the amount of waste disposed to landfills;
- (c) encouraging the application of waste minimisation techniques such as cleaner production;
- (d) providing funding for appropriate management of waste disposal facilities; and
- (e) a continuing incentive for waste generators to consider alternative methods of production and encourage the use of recycled materials.

The possible disadvantages of economic mechanisms include—

- (a) the complexity of applying a pre-disposal levy to many types of products;
- (b) the cost of administration and auditing;
- (c) potential increases in reporting and monitoring costs by industry and local government;
- (d) increased illegal waste disposal and littering;
- (e) short-term reduction in gross profit margins for some industries;
- (e) penalising certain sectors, for example the rural sector, that might find a disposal levy difficult to pass on in the price for goods; and
- (f) resistance by landfill operators to ‘collect’ money on behalf of the State.

A solid waste levy was rejected by local government in Queensland in

late 1995, and a pre-disposal levy on tyres and oil was rejected by the State Government in early 1997.

Self-regulation

The self-regulatory approach places the responsibility on industry, government and the community to manage its own waste within the framework of existing legislation, namely the EP Act. This would enable the Department to reduce inspections significantly and limit the number and scope of licence conditions placed on industry and local government. This reduction in activity would reduce licence fees and redirect resources into investigating, auditing and prosecuting those causing unlawful environmental harm.

Expanded third-party rights and higher penalties under the EP Act would increase the incentive for industry to internalise costs of environmental assessment and monitoring. Such an approach would ensure that those activities that presented the greatest potential risk to the environment faced the highest costs and conversely those activities which pose minimal environmental risk would face greatly reduced costs.

To safeguard environmental quality, firms could be required to acquire certification to particular standards such as AS9000 Quality Assurance or ISO14000 Environmental Management System series. Private sector environmental consultants could undertake certification of such systems under a system similar to that currently operating in Victoria.

Possible advantages of the self-regulatory approach include—

- (a) greater flexibility of action by industry to meet the EP Act's objectives;
- (b) greater internalisation of costs (supporting the polluter and user pays principles);
- (c) potential reductions in government costs, benefiting licensees and taxpayers; and
- (d) transferring some current Departmental tasks to the private sector resulting in cost savings while increasing the resources available for the investigation and prosecution of major environmental offences.

Possible disadvantages of the self-regulatory approach include—

- (a) no consistency of approach across the State or within industry sectors;
- (b) formal quality assurance certification is likely to be prohibitively expensive for many small businesses;
- (d) the Department's role in such a system would be essentially reactive rather than pro-active;
- (e) harm to the environment or human health as a result of negligence or cost-cutting by industry leading to improper waste management practices;
- (f) the cost of initiating private legal action would deter many individuals and communities;
- (g) a socially inequitable situation could occur where disadvantaged groups were obliged to accept a lower level of environmental quality than applied elsewhere;
- (h) cost cutting by industry and the community may lead to increased illegal dumping of waste; and
- (i) lack of community confidence in industry and government ability to effectively control waste.

Neither of the above alternatives has been totally rejected. While the Policy is currently based on regulatory mechanisms, it includes some components of the above options in that it provides exemptions from some regulatory requirements for persons having accredited quality assurance or environmental management systems or standards, rewards good performance with reduced fees, and provides for the development of industry-based waste management programs.

Cost–benefit assessment

(s.44(g) *Statutory Instruments Act 1992*)

The aim of this cost–benefit analysis is to indicate the possible costs and benefits on the interest groups of the State Government, local governments, business and the community of implementing, maintaining and enforcing the regulatory option.

Environmental management is now recognised as an integral component of the economic system. However, quantifying the benefits of environmental protection (the protection of designated environmental values) is often very difficult and sometimes impossible. The uncertainty of the nature of the long-term and cumulative impacts on the environment add to the difficulty of determining economic impacts.

There are costs and benefits in the short, medium and long term. For example, costs might be incurred by a company in the short term as a result of legislative requirements but, in the medium and long term, the company could reduce the amount of waste produced and identify other efficiency improvements in the amount of raw materials and energy used in their operations, resulting in economic benefits. Many cleaner production techniques have achieved significant cost reductions and the pay-back period for the capital outlay is generally less than three years. The benefits of increased environmental protection, as a result of regulation, flow on to the community and future generations, thereby meeting the inter-generational equity requirements of the National Strategy for Ecologically Sustainable Development.

The costs and benefits of the EPP (Waste) can be tangible or intangible. Where possible, the benefits are quantified. Where intangible impacts result, these are qualified in detail to allow value judgements to be made.

Methodology

Cost-benefit assessments usually take the whole community as its reference point. However this RIS focuses on the impacts of the EPP (Waste) on the main client groups of government, (broken up into State Government and local government) business and the community. (Benefits and costs to government may be construed as benefits and costs to the community). Qualitative assessment of costs and benefits have been gathered from the following sources—

- (a) estimations provided by Department project leaders responsible for each part of the Regulation;
- (b) internal departmental budget figures;

- (c) local government; and
- (d) State Government departments.

ANTICIPATED COSTS AND BENEFITS TO GOVERNMENT, BUSINESS AND THE COMMUNITY

Costs and benefits to the Queensland Government

While development and implementation costs are significant, medium to long-term savings are expected for the State Government through the improved standard of all waste management activities in Queensland.

Development of the Environmental Protection Policy and associated Regulation

The estimated cost to the State Government of developing the EPP (Waste) so far totals approximately \$390,000. This includes key interested party and initial public consultation, preparation and release of draft documents, travel costs and a percentage of salaries and associated administrative costs of DoE staff involved with the development of the legislation.

Implementation costs — Department of Environment

Approximately \$250,000 of the 1997–98 budget allocation of the Waste Management Branch of DoE will be for the implementation of the EPP (Waste). These funds are for activities and programs co-ordinated through the Waste Management Branch in DoE Central Office. Additional DoE staff for waste management have been employed in recent years in Regional offices. Primarily these staff have been employed for dealing with waste issues. On enactment, they will oversee its implementation from Regional offices. The annual cost of these staff to the Department is approximately \$830,000 for 14 positions.

Allocations have not been estimated for subsequent years after

enactment. Continuing costs might be incurred for providing training and education for industry, local government and the community, professional services, printing of brochures and for data collection and analysis.

State agency waste management plans

The legislation recognises that State Government is a significant generator of waste. The Policy requires State Government departments and agencies to develop and implement State agency waste management plans. The cost of developing these plans will average about \$30,000 for each department. However, the actual cost for each department will vary significantly, given the wide variation in size of departments and agencies and the types and quantities of waste they generate.

To date, State agencies have not been required to formally address waste reduction and avoidance. The requirement for each State Government agency to prepare State agency waste management plans should lead to considerable improvement not only in how waste is managed by the State Government but also in more efficient use of resources. Identifying areas of inefficiency and options for reducing, recycling and reusing waste will lead to reduced waste generated and in turn, reduced input and waste disposal costs in the medium to long-term. The EPP (Waste) will ensure that the public sector is accountable for its waste generation, handling and disposal and improve its efficiency in waste management.

State Purchasing Policy and Government contracts

The Policy commits the Queensland Government to reviewing the State Purchasing Policy to minimise the generation of waste produced and encourage the use of recycled and recyclable materials. Tenderers for Government contracts will be required to address waste management issues such as wastes likely to be generated and methods to minimise that waste. Given that the State Government purchases goods and services worth more than \$6 billion a year, these mechanisms should have a considerable impact on the amount of waste generated by the public sector.

Clinical and related waste requirements

The major State Government producers of clinical and related waste are Queensland Health and the Department of Primary Industries, Fisheries and Forestry.

The extra handling, treatment and disposal requirements for infectious wastes (which is a subset of clinical and related waste) compared with general waste, is typically more expensive. The Regulation specifies that infectious waste must be treated to render it non-infectious before disposal to landfill. This will mainly affect generators outside of south-east Queensland, as Brisbane and surrounding areas are already served by adequate treatment facilities.

Depending on their current treatment options, generators of clinical and related waste in rural areas may have to transport the waste longer distances to the nearest approved treatment facility or install their own treatment facility. However, the Regulation recognises that some generators, especially those in remote areas, might not be able to implement provisions immediately, due to high transport costs and inaccessibility of treatment and disposal facilities. In such situations, the facility can apply for an exemption, or spell out its existing management practices and propose how it will work towards meeting the requirements.

Under the Regulation, any person (including any Government department) who generates clinical and related waste will be required to submit a clinical and related waste management plan. These plans will address and investigate options for reuse, recycling and segregation of wastes to reduce the overall amount generated which in some cases should lead to significant costs savings. For example, segregation of general waste from infectious waste will reduce the amount of waste needing to be treated which, as stated above, is an expensive alternative to landfill. Hospitals can be seen as facilities in which there are potentially significant savings to be made in the area of waste management (see box 5).

The requirements in the Regulation will impose extra costs on Queensland Health and any other State Government Departments generating clinical and related waste, through modifications to operations and in some circumstances, the provision of new infrastructure, to ensure that such waste is segregated, handled, transported, treated and disposed of properly.

In 1996, Queensland Health introduced its *Guidelines for the Management of Clinical and Related Wastes in Public Health Care Facilities*. Since, numerous public health care facilities have increased the standard of their waste management operations with subsequent savings made in waste management and disposal costs. The Regulation requires all (non-domestic) generators of clinical and related waste to submit waste management plans; this will therefore ensure consistency in the improvement of the standard of waste management of these facilities, reducing possible health risks associated with waste management.

Box 5. Examples of improved waste management in hospitals—

Flinders Medical Centre

Flinders Medical Centre is a 500-bed teaching hospital in Adelaide, employing more than 3000 staff. In 1991, a waste audit conducted at the facility identified numerous areas where cost savings could be made. These were in the areas of recycling of general waste, segregation of infectious waste, recycling of oil, silver recovery from radiology chemicals and ceasing the use of disposable crockery in the staff cafeteria. The total annual saving to the hospital in operating costs was \$300,000. The expenditure required for these changes was paid back in less than 12 months. A 50 percent reduction in general waste and a 35 percent reduction in infectious waste was achieved.⁶

This example shows that significant cost savings can be made in the area of waste management at health care facilities.

Improved standard of waste management in Queensland

The EPP (Waste) will provide a clear framework for the effective management of waste in Queensland. The focus on waste minimisation and management aims to ensure fair and equitable responsibility is borne by all generator of wastes with Queensland. This will result in a long-term reduction in government management costs and a more effective control of wastes by all generators. Reduced future clean-up costs which are usually borne by the State Government would be expected. Several examples of improper waste management and the costs borne by the State Government are given.

Box 6. Examples of State Government costs of litter clean-up.

Roadside litter clean-up in Brisbane

The Department of Main Roads issues contracts for collecting roadside litter. In

the Brisbane area alone (on State and national roads only) more than 4000 cubic metres of litter was collected in 1996–97. The cost for collection and disposal exceed \$1 million for the year.

Litter and illegal dumping —Beerburrum State Forest

Illegal dumping is a substantial problem, particularly dumping of car bodies. Rangers estimate the clean-up and removal of such waste costs between \$10,000 and \$15,000 a year in that area alone. The risk of fires resulting from these items is also a significant concern.

The examples in Boxes 4 and 6 indicate a few of the costs which the State Government currently faces in addressing improper waste management practices. Many other examples could be given. With tighter controls on waste management which the EPP (Waste) would provide, the provisions for offenders to either clean-up or fund the clean-up of areas affected by improper waste management activities and on-the-spot fines, the Queensland Government should benefit in the medium to long-term from reduced clean-up and remediation costs.

The risk of injury to workers involved in waste handling should be reduced. Savings could be made throughout the waste management industry, due to reduced worker absenteeism and reduced workers' compensation claims. This would be a secondary benefit. Workers' compensation claims in the Waste Merchants and Waste Removal industry is considerable. In 1995–96, total claims exceeded \$800,000. This figure excludes common law costs.

Grants

Though the proposed legislation, DoE encourages local governments to form regional groupings for the purpose of regional waste management and to develop a waste management strategy and plan for waste management across those local government areas. As such, DoE has allocated \$200,000 in the 1997–98 budget to assist local governments form regional waste management groupings. Similar grants are likely to be allocated in subsequent years with the total reaching \$800,000.

Costs and benefits to local government

Local governments play a major role in the management of waste in

Queensland. They have a shared responsibility for monitoring, approving and ensuring that waste management works (collection, transport, storing, treating and disposing of waste) are carried out appropriately within in their jurisdictions. Any subordinate legislation dealing with waste management issues has the potential to have a significant cost impact on local governments. One of the main costs will be ensuring compliance with the closure and post-closure requirements for landfills.

Compliance costs: Landfill post-closure care and maintenance

The EPP (Waste) does not impose any additional landfill management requirements and operating standards other than requiring closure and post-closure care and maintenance planning.

This requirement is being put on landfill operators to reduce the risk of environmental problems in the local area often caused by sub-standard operation and decommissioning of landfills. These include the pollution of groundwater with landfill leachate and the problems associated with landfill gas migration (see Box 7). It should be highlighted that more than 200 cities and towns in Queensland rely on groundwater in whole or in part for town water supply.

Increased closure and post-closure requirements for landfills will increase costs for local governments in ensuring that their landfills do not begin or continue to cause environmental harm after they have ceased to accept waste and have been decommissioned. The Regulation states that all operators of landfills will be responsible for closure and post-closure maintenance of a site until the facility no longer poses a risk of harm to the environment. The costs imposed on each landfill operator will depend on factors including the amount and type of waste received at the landfill, hydro-geological conditions of the site, the costs of materials needed for decommissioning of the site and the length of time that the site is required to be maintained.

Box 7. Potential impact of landfill: groundwater contamination and landfill gas migration—

Groundwater contamination in Australia

A report commissioned by Department of Primary Industries and Energy in 1987⁷ included an inventory of groundwater contamination incidents. A total of 106 incidents of groundwater contamination were identified. In 14 cases, the contaminant source was landfill leachate. However, the report stressed the

extent of groundwater pollution documented in the inventory could be regarded only as a partial indication of the problem, that is, a groundwater contamination incident might only be discovered when someone gets sick! The report concluded that:

1. Velocities in most groundwater systems are low, leading to very long lag times before contamination is detected;
2. Remedial works are very expensive and not always successful; and
3. Hydro-geological criteria for waste disposal sites need to be developed.

Why landfill gas control?

The uncontrolled movement of methane can be a serious problem at some landfills. Problems arise when methane, which is highly explosive, accumulates in buildings on or near landfill sites. Other problems include odour nuisance, damage to vegetation and the risk of asphyxiation. In terms of contributions to the greenhouse effect, methane is considered to have up to 20 times the impact of carbon dioxide. There are numerous examples from overseas of damage to property, human injuries and casualties as a result of inadequate landfill gas control.⁸ The loss of methane from landfills in this manner may also be considered a waste of energy.

As an example of post-closure costs, a facility that would serve 100 000 people (roughly the size of Townsville or Toowoomba) and have 20-years post-closure maintenance requirements, would cost about \$2.30 for every tonne of waste accepted at the landfill, or \$210,000/year (based on a per capita annual generation rate of 900kg).⁹ If this situation is applied across Queensland (population 3.2 million) the total cost would be approximately \$8 million a year. These figures are based on modern engineering practices at a landfill accepting a large amount of waste. Smaller, rural landfills will not generally require such comprehensive post-closure maintenance due to the amount and type of wastes received, the nature of the receiving environment and local hydro-geological conditions. DoE has developed a landfill costing model to help local governments determine the cost of new landfill developments and the full cost pricing for waste deposited at a landfill. This model was used for the estimations above.

A factor to consider at any landfill is that the costs of post-closure care and maintenance, (including monitoring) will depend on the landfill operator being to satisfy DoE that it no longer poses a risk of harm to the environment. Given that local governments need to plan now for future expenditure, this expenditure should be budgeted for progressively. The benefit to the local government and the community from improved landfill

management is derived from reduced environmental harm from landfills. Local governments benefit by avoiding the more expensive option of having to remediate sites at a later date, the cost of which is considerably higher.

For instance, Brisbane City Council has recently announced a \$100 million, 10-year initiative to remediate current and former landfill sites in the city which are causing or beginning to have a detrimental impact on the local environment. While the figure given above on post-closure care and maintenance cost is substantial, instigating proper engineering practices throughout the life of a facility (including post-closure) would be far cheaper than attempting remediation later. In addition, an estimate of the costs of remediating a contaminated groundwater site (from the US), is approximately AUD\$37 million.¹⁰ This figure does not include other costs incurred such as possible health costs, loss of productivity and other flow-on negative impacts and costs to the community.

Waste management planning

The Policy requires local governments to develop a waste management strategy and plan for their area within two years of commencement of the Policy. Local governments may opt to form regional groupings and develop a waste management strategy and plan cooperatively.

Waste management planning by local government, especially when developed through regional co-operation with other local governments, can result in a number of benefits for local governments and the community. These include—

- (a) ensuring a consistent, co-ordinated approach to waste management;
- (b) fewer, better managed and safer waste facilities;
- (c) potentially increased level of service;
- (d) improved economies of scale through more efficient use of existing plant, equipment and resources and avoiding unnecessary duplication across local government areas;
- (e) reduced costs through spreading costs over a larger rate base; and
- (f) potentially more cost efficient and effective recycling programs with better secondary market opportunities through larger

guaranteed volumes.

The requirement for waste management planning by local government will result in the re-assessment of waste management needs, including an evaluation of existing landfills and, rationalisation or sharing of facilities and resources. A regional co-operative approach recognises the social, economic and environmental constraints within regions and will result in a more efficient and effective waste management service to the community. Several local governments already share facilities and resources for waste management.

The formation of regional groups for the purpose of regional waste management has begun. The Far North Queensland Regional Organisation of Councils (FNQROC) is implementing its regional solid waste management strategy. The cost of developing the strategy was around \$70,000. This was spread over the eight local governments involved. Environmental consultants may assist in the development of regional strategies. The costs incurred in each region will be influenced by the geographical, demographic and socio-economic characteristics of the area.

As mentioned, DoE has allocated funds to help waste management strategies and plans to be developed co-operatively by local governments. Throughout Queensland, at least 10 more distinct regional groupings of councils are anticipated to be formed.

Waste reduction by industry, community and government and waste management planning by local governments is expected to increase the expected life of landfills due to the diversion of waste from landfill via waste avoidance, reduction, recycling and waste-to-energy. This benefits local government and the community because the need for considerable capital investment on new landfills is delayed. This allows more thorough waste management planning to be undertaken. With the expansion of the waste management industry throughout the world, cost saving alternatives to landfill may emerge in the interim.

Enforcement and administration

The EPP (Waste) will not significantly increase the costs to local government of enforcing the EP Act. Staff and extra resources have already been acquired in most cases to administer the responsibilities devolved to

local government. If local governments exercise their discretionary power under the EPP (Waste) in regard to Waste Management Plans from level 1 environmental authority holders, a slight increase in the time required for administering licences and approvals, would be expected.

Training costs

DoE has conducted introductory training sessions on waste management in several local government areas. Training for local government staff on implementing and operating the legislation and guidelines will be provided. DoE provides EP Act training and guidelines, model licence conditions and a computer database at minimal cost to local governments.

Illegal dumping and litter

On enactment, Part 6 of the Regulation will replace the *Litter Act 1971*. While the EP Act has provisions for offences of causing environmental harm and nuisance, the Regulation will contain specific illegal dumping and litter offences. These provisions will provide local governments with appropriate legislative powers to address litter and illegal dumping problems in their areas. Examples given indicate that litter and indiscriminate dumping of wastes is a significant concern and cost to local government.

Box 8. Costs of litter clean-up to local government—

Bowen Shire Council

Council reports that the area has problems with litter and dumping on or near beaches. This small council currently budgets approximately \$10,000 a year for litter clean-up, but this is not nearly enough.

Redland Shire Council

Illegal dumping in bushland areas is of particular concern to Redland Shire Council. The estimated direct cost to Council of litter removal and illegal dumping clean-up is at least \$50,000 a year.

Brisbane City Council

In the budget for 1996–97, \$6.4 million was allocated for operations aimed at removing litter from the environment. This equates to a cost of about \$20 a ratepayer.¹¹

Other local governments have indicated that litter and illegal dumping is a

significant problem, but were unable to supply cost figures as their budgets did not have a specific allocation for litter clean-up. However, as funds for clean-ups undertaken by councils must be taken from other areas, there may be a negative effect on the level of some services provided to the community by the local government.

Given the specific offences and the attached penalties and provisions to force offenders to fund the clean-up or to carry it out themselves, a decline in the number of incidents and the cost to local government would be anticipated in the medium to long-term. Local governments will receive revenue from fines imposed on individuals or companies that contravene the Regulation.

Costs and benefits to business

Complying with the legislation will impose some costs on business in the short term. In the long term, positive benefits should come through adopting cleaner production methods and reduced waste management costs because of less waste generated. Costs will vary in relation to the nature and quantity of waste produced and requiring management. However, many costs have already been incurred by industry as a result of implementing the EP Act.

Management costs

These costs accrue from reviewing the legislation, developing WMPs (see below) if applicable, implementing cleaner production programs and providing training for staff in better waste management practices. The costs might include a review of their compliance with legislation and a waste audit to assess current waste management status (see Waste audits below). Under section 50 of the EP Act, the administering authority can amend licence conditions because of the enactment of an environmental protection policy. The EPP (Waste) would not significantly alter those costs to businesses that have already incurred them under requirements of the EP Act.

Waste management mechanisms

The Policy places no 'across the board' extra requirements on industry.

As previously discussed, the Policy outlines a number of mechanisms for waste management planning that may apply to some businesses. These are—

- (a) waste management plans
- (b) cleaner production plans
- (c) life cycle assessment
- (d) extended producer responsibility
- (e) waste management audits

To minimise unnecessary regulation, duplication of existing requirements and cost on industry, the waste management mechanisms are targeted at businesses that meet certain pre-determined triggers only. The cost of the waste management mechanisms is site specific and would vary considerably, depending on a number of factors. These include—

- (a) size and type of business;
- (b) the amount and type of waste produced;
- (c) the standard of waste management activities currently undertaken; and
- (d) whether environmental/waste management consultants are used or the work is carried out internally.

Administering authorities will have discretionary power to request that environmental authority holders prepare and submit Waste Management Plans (WMP). Set criteria are outlined in the Policy to assist administering authorities in deciding whether or not a WMP should be prepared. The discretionary nature of WMPs restricts this legislative requirement to those environmental authority holders, considered by the administering authority, to need to critically assess how and why their waste is generated and how it might be best managed.

Life Cycle Assessment (LCA) aims to assess the impacts on environmental values resulting from the production, use and disposal of a product manufactured or imported into Queensland. The Cleaner Production Plan (CPP) aims to improve process efficiency while at the same time, preventing or reducing pollution and to conserve resources. (Cleaner production is the preferred method of waste management in the waste

management hierarchy. See fig.1.)

Training may be necessary for staff in the areas of proper handling and segregating of wastes, cleaner production methods and legislative requirements.

The Policy requires manufacturers or importers of products for the domestic or household market that contain or result in the production of a regulated waste to provide information on appropriate waste management to consumers. This will be a cost on producers developing methods to relay the required information to consumers. A delayed commencement date of this provision will enable producers to develop cost effective methods to relay the information required.

Guidelines will be produced to assist businesses to undertake waste management mechanisms. The legislation also requires WMPs and CPPs to be audited every two years to ensure compliance with the proposed actions. This audit can be conducted by a person accredited under a recognised training program to conduct a waste management audit which could be the holder of the environmental authority or an employee. This flexibility will allow firms to carry out the audits internally, potentially reducing costs. DoE will produce a guideline to help companies preparing waste audits. The knowledge gained from audits will help the process of continuous improvement and efficiency gains and avoid a return to poor practices.

While the primary aim of the waste management mechanisms outlined above is to minimise waste,

financial savings result from the identification and exploitation of opportunities for input substitution, product reformulation, product process modification, improved operation and maintenance, closed loop recycling and labour savings. Many businesses, large and small, have reduced waste (and costs) while maintaining or improving output. Businesses that implement waste management planning (including cleaner production) can secure—

- (a) reduced waste and environmental impact;
- (b) decreased disposal costs;
- (c) increase productivity;

- (d) savings in energy and water usage costs;
- (e) improvements in product quality;
- (f) increased market share;
- (g) improved public image;
- (h) reduced worker absenteeism;
- (i) increased workplace health and safety by reducing the use and/or generation of hazardous substances; and
- (j) an increased profit margin.

The Policy outlines the procedures to be followed in the development of an Industry Waste Management Agreement (IWMA). An industry can nominate to develop an IWMA or the chief executive of DoE might require an industry or specified industry members to develop such an agreement, where a need for such an agreement has been identified. This provides a way for certain industries or producers of waste to determine and declare the most effective and efficient measures to avoid, reduce or manage waste industry-wide. Costs can be incurred in developing and implementing the IWMA if significant changes in business processes are identified, but these are expected to be offset by savings in the medium term.

The Policy also contains provisions for annual reporting on waste data by businesses required to submit or be involved in a WMP, CPP, LCA or an IWMA. (It is not anticipated that a business would be required to undertake more than two of these waste planning mechanisms at any one time). The cost of collecting such data will be higher in the first year after enactment than in subsequent years. However, DoE will develop standardised returns to assist holders to collect and provide the information in a consistent format. This information will be useful for DoE and businesses in observing and measuring of trends in waste generation rates.

Exemptions

Mechanisms for waste management planning are not intended to duplicate or replace an existing appropriate waste management system employed by a business. For this reason, the Policy states that companies that employ approved or certified quality assurance and environmental

management systems to achieve standards which specifically address and provide certainty in complying with waste management issues relevant to the EPP (Waste) will be recognised through reduced or no extra regulatory requirements. Similarly, Government departments and local governments may also be granted exemptions from waste management regulatory requirements.

The Regulation also specifies that a person who carries out a waste management practice, (those that do not or are unlikely to cause environmental harm) in accord with current and appropriate practices, is deemed to have complied in all respects with the Regulation, notwithstanding the relevant provisions and responsibilities under the EP Act.

Regulated waste

The requirements for regulated waste in the EPP (Waste) focus on avoiding its generation, reducing illegal dumping and increasing the opportunities for reusing and recycling such wastes.

In Queensland at present, the recycling or reprocessing of regulated waste is an environmentally relevant activity requiring a licence under the EP Act. The Regulation, proposes an option for recycling of regulated waste through use of a regulated waste recycling approval. This will allow a non-environmentally relevant activity or an environmentally relevant activity that has a primary activity other than regulated waste storage, treatment or disposal to use regulated waste to receive and use regulated waste for specified purposes.

To achieve this, the producer, transporter and user must submit to the administering authority their agreement to a specified arrangement that demonstrates the proposed action will not lead to any adverse environmental impact. This should encourage the recycling of regulated wastes without the need for and costs of obtaining an environmental authority associated with regulated waste recycling.

The conditions of a recycling approval might require record keeping and reporting, and some sampling, analysis and monitoring of the waste. However, the net impact should be a benefit because of the reduced regulatory obligations, the ongoing nature of the agreement and the

increased use of regulated waste as a useful, recyclable material (where suitable uses can be found) and thus not requiring treatment and/or disposal, which is invariably a more expensive option.

Waste tracking system

The Regulation will include a comprehensive system to monitor the movement of certain wastes. The system was originally proposed to be implemented as a separate regulation under the EP Act; and was the subject of a separate RIS, published in January 1996.¹² When the Regulation is submitted for drafting to Parliamentary Counsel, the waste tracking component will be included.

Clinical and related waste requirements

The Regulation specifies particular segregation, handling and storage requirements for clinical and related waste. The Regulation also requires infectious waste to be rendered non-infectious before placing in landfill. This requirement will predominantly affect country areas in which infectious waste is not presently treated before landfilling, due to the small quantities generated and the distance to appropriate treatment facilities.

Any person generating (non-domestic) clinical and related waste will be required to submit a clinical and related waste management plan to DoE, within 12 months of the commencement. This plan outlines the development and implementation procedures and actions to manage waste in accord with the requirements of the Regulation. These plans will encourage segregation of wastes, thus reducing the quantities that are required to be rendered non-infectious and so minimise high disposal charges. Other secondary benefits include—

- (a) standardisation of handling and disposal activities;
- (b) reduction in injuries caused by poor handling practices of infectious wastes; and
- (c) opportunities for companies to enter the industry sector for handling, treatment and disposal services and manufacture of equipment.

Expenditure may also be required on vehicles used for the transportation

of infectious wastes. If waste is to be transported, or held in the vehicle, for periods of greater than 12 hours, vehicles will need to be capable of refrigerating the waste.

Waste assessments

A waste assessment is an investigation to determine the waste management status of the facility, associated environmental impacts and options for reducing impacts. An assessment is a key tool in identifying sources and quantities of waste, developing waste minimisation strategies and promoting awareness among staff. Costs of assessments will vary with the size and complexity of the activity.

Assessments are being undertaken by many large enterprises, but there is a need to increase their use among small and medium-sized businesses. While environmental assessments represent an additional cost to some small businesses, there are potentially major benefits through the identification of cost savings from reduced waste and from 'cleaner' and more efficient production processes, reduced future liability, improved public relations and increased employee health and safety. DoE will provide a guideline on assessments to assist businesses.

Disposal costs

While the increased standard of management of landfills and adoption of full-cost pricing might increase waste disposal costs to industry, the introduction of these costs will create an incentive for industry to use methods to avoid and reduce the amount of waste generated and to find uses for the wastes generated.

The benefits listed below are potential secondary benefits of the EPP (Waste).

Competitive ability

The competitive position of Queensland industries is affected by the costs imposed upon it. Increasing regulatory costs has the potential to reduce the competitiveness of industry in gaining greater share of interstate and international markets. However, costs under the EP Act, while higher than

those previously imposed in Queensland, are in line with or still lower than those in place in other Australian states and Territories. Industries that actively pursue waste reduction strategies should achieve more effective and efficient production methods, reduced compliance costs and an increase in gross profit margins. Poor environmental performance is often an indication of poor operational and manufacturing process efficiency. These benefits should lead to an enhanced competitive position nationally and internationally.

Compliance costs specifically associated with environmental protection generally represent a minor component of the total cost structure of Queensland industry. The impact on that cost structure of the proposed EPP (Waste) is likely to be small. The Australian Bureau of Statistics gathers information on expenditure on environmental protection measures by industry, householder and public sector groups. Of the total expenditure Australia-wide on environmental protection measures in 1993–94, industry spent approximately \$1.6 billion, which accounted for less than half a percent of gross domestic product.¹³

Market environment

The EPP (Waste) will raise waste management standards across Queensland and be supported by explanatory guidelines which will provide direction and advice to assist compliance with the legislation. Certain provisions of the EPP (Waste) will have phase in dates to allow a smooth implementation of those provisions for industry, the State Government and local governments. For those who cannot achieve standards immediately, the EP Act provides for draft Environmental Management Programs, which allow for a gradual achievement of compliance. The combination of these mechanisms should encourage fair competition in the marketplace and allow for a smooth transition to the new legislation. The result should be to develop a stable market environment with no impediments to long-term decision-making and industry growth.

The current world trend is towards cleaner and ‘greener’ methods of production. The market in Australia for environmental technology and services has undergone considerable expansion over the last decade. There is also pressure from consumers for an increase in the standard of waste management, coupled with a rise in demand for ‘green’ products, for

example those with less packaging and produced by companies perceived to be 'environmentally responsible'. These issues present opportunities for companies who apply pro-active measures in environmental and waste management to reap the benefits. Positive public relations and an improved industrial image will be additional secondary benefits.

Waste management industry development

The waste management industry in Queensland will have real opportunities to expand as a result of implementation of the EPP (Waste). There will be a significant increase in demand for cleaner production technologies and services, waste management and minimisation equipment, monitoring services, landfill engineering services and waste assessment and auditing services, thereby increasing employment and turnover in the waste management industry.

The incentive to develop better technology is addressed through a focus on best practice environmental management and integrated waste management. The shift away from prescribing specific equipment to prescribing environmental outcomes which must be achieved is expected to encourage technical innovation. Experience in environmental management might be a marketing tool for international sales, particularly in developing countries. The waste management industry would then have the potential to export its technology and services world wide. The size of the world market for environmental management technology is currently estimated at more than US\$200 billion a year.¹⁴

COSTS AND BENEFITS TO THE COMMUNITY

Product and service price

Product prices generally should not increase because the EPP(Waste) will promote and reinforce better waste management practices. However, some producers could pass on additional costs for initial waste management and administration activities.

At present, many local governments do not charge to accept waste deposited at their landfills. Due to the increased costs of operating landfills and pressure for cost recovery through full cost pricing, most local government landfill operators could begin to charge or raise current charges for waste deposited at their landfills. The extent of passing on of costs is difficult to determine, owing to the wide variety of local factors, the extent of cross subsidisation, the increasing competitiveness of the waste management industry and the removal of barriers to trade as addressed in the National Competition Policy.

Local governments will possibly also increase rates to generate funds for ensuring that existing facilities comply with legislation and for the decommissioning and management of former sites so that problems are not left for future generations to resolve. For instance, in June 1997 Brisbane City Council announced a levy of around \$28 a year to fund such activities. However, the EPP (Waste) requires only post-closure monitoring of facilities that cease to accept waste after enactment. The likely cost of post-closure maintenance was mentioned in the costs and benefits to local government section above. Owing to the wide range of factors that impact on local government costs, an estimate of the impact that post-closure maintenance will have on local government charges is not feasible.

Environmental protection and amenity

Studies have shown that community support for the protection of the environment in Queensland is increasing. In 1992, an Australian Bureau of Statistics survey indicated that 71 percent of those surveyed believed that environmental protection was as important as economic growth and a further 19 percent believed that the environment was more important. This increased slightly in 1994. A large majority (77 percent) believed that the environment would be more important in 10 years.¹⁵

Many Queenslanders now participate in recycling activities including kerbside collection schemes and drop-off centres. These attitudes indicate that increasing the standard of waste management in Queensland will be viewed as a benefit by the community as a whole.

The EPP (Waste) will lead to improvements in environmental amenities by reducing the overall amount

of waste produced and the extent of littering and illegal waste disposal, improved waste treatment options, and better disposal methods. These changes will create positive changes in utility or welfare of consumers and producers, which are typically extremely difficult to quantify.

Prevention costs

Many benefits of the EPP (Waste) for the community are in the form of avoided costs. The costs to the community are considerably less than would be required to clean-up a contaminated groundwater supply, or the potential legal liability of such an incident. Examples of the costs of improper waste management that the community as a whole currently faces have already been given in this document.

The EPP (Waste) will incorporate a comprehensive waste tracking system to monitor the movement of certain wastes to ensure that they are treated and disposed of properly. Costs should be saved in the areas of clean-up of illegally disposed waste, loss of productivity from the impacted soil and water, preservation of tourism through maintenance of natural ecosystems and less public health costs due to pollution related illnesses.

NATIONAL COMPETITION POLICY

What is the impact of the proposed legislation on competition — to what extent does it impose or encourage any restrictions?

The National Competition Unit of Queensland Treasury has examined the EPP (Waste) and contends that it does not extend the restrictions on competition.

FUNDAMENTAL LEGISLATIVE PRINCIPLES

(S.44(h) *Statutory Instruments Act 1992*)

To what extent is the proposed legislation consistent with fundamental legislative principles?

The *Legislative Standards Act 1992* outlines a number of fundamental legislative principles. These principles require that legislation has sufficient regard to the rights and liberties of individuals and the institution of Parliament.

The EPP (Waste) is consistent with these fundamental legislative principles.

Conclusion

The regulatory mechanisms comprising the Environmental Protection (Waste Management) Policy and associated Regulation is recommended for adoption.

The advantages of the regulatory mechanism for government will be incentives for growth in the waste management equipment and services sector, reduced future clean-up costs, flexibility in enforcement and administration of waste management activities and providing a more effective and efficient waste management framework than the fragmented, incomplete legislative arrangements currently operating. The legislation will give the State Government and local governments a clear understanding of their respective roles and responsibilities with regard to waste management activities. The Government will benefit from better processes to address litter and illegal dumping problems.

As expected, when dealing with protection of the environment and public amenity, many benefits of the EPP (Waste) are in the form of intangibles, for example reduced but unquantifiable environmental degradation caused by poor waste management practices and the conservation of natural resources. Further benefits are expected in the form of development of the waste management industry, reduced risk or threat to vital Queensland industries such as agriculture and tourism resulting from environmental and

ecosystem degradation and costs saved from inappropriate waste management.

Compliance with the legislation may impose costs on industry, the State Government, local governments and the community in the short-term. However, through opportunities for future cost savings identified via the waste planning mechanisms, the net impact will be a positive one in the medium to long-term. These secondary benefits of increases in production efficiency, will lead to an increase in competitiveness, allowing Queensland industry the opportunity to capture greater market share in strategic industries.

The benefits to the community of the legislation are substantial. The individual components of the Policy and the Regulation are all aimed at reducing waste, and ensuring that waste that is produced is managed properly. The components are targeted at areas that have been identified as requiring improved control or management framework. In the medium to long term, the overall impact of the implementation of the EPP (Waste) will be a significant reduction in the impact and risk to the community and the environment posed by wastes. Those risks relate to reduced quality of the Queensland's environment and public health resulting from the inadequate or inappropriate management of wastes.

Acknowledgments

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Thanks also to Professor Tor Hundloe, Director, Technology Management Centre, University of Queensland, for comments on a draft version of this document.

APPENDIX 1 — CONSULTATION PROGRAM

Two rounds of public consultation have been completed for the EPP (Waste).

First round of community consultation

The first round of community consultation on the Environmental Protection Policies for Air, Noise, Water and Waste was done in November 1993 in conjunction with the second round of consultation on the Environmental Protection Bill. Advertisements about the development of the Policies were placed in *The Courier-Mail* (weekly for two consecutive weeks), the *Sunday Mail* and 23 Queensland regional and local papers on five days in early November 1993. Interested persons were asked to contact the Department for further information. Copies of the *Environmental Protection Policy Outlines* document and details of public meeting venues were distributed to 1867 persons and groups including—

- (a) individuals and community groups;
- (b) environment and conservation groups;
- (c) industrial or commercial companies or associations;
- (d) farmers or agricultural associations;
- (e) law firms or associations;
- (f) consultants or associations;
- (g) financial organisations or associations;
- (h) other professional associations;
- (i) Aboriginal and Torres Strait Islander groups or councils;
- (j) educational institutions (primary, secondary and tertiary);
- (k) Queensland local governments and associations;
- (l) Queensland Government departments and agencies;
- (m) non-Queensland State and local government authorities;
- (n) non-Queensland non-government agencies and associations;
- (o) Commonwealth Government departments and agencies;

- (p) Members of the Legislative Assembly; and
- (q) licensees.

Public meetings

In November 1993, 26 public meetings were held in 11 locations across Queensland. The Bill and the Policies were discussed at these meetings where most of the above groups were represented. Submissions on the Policy Outline document were requested by 31 January 1994. Department officers also held meetings at the request of individual organisations including Brisbane City Council, Mt Isa Mines, Ampol, the Clean Air Society and the Urban Development Association.

Waste Management Strategy for Queensland

The first step toward an integrated framework for the management of wastes in Queensland was carried out with the development of the Waste Management Strategy for Queensland. A Consultative Committee on Waste Management comprising representatives of industry, local government, key State Government agencies and conservation groups assisted in the development of the Strategy. Approximately 30 public meetings were held throughout the State. The Waste Management Strategy for Queensland also invited and received public submissions. A final strategy was prepared and endorsed by Government in late 1995 and recommended that the Government establish a comprehensive, integrated framework for environmentally sound waste management.

Waste Tracking Regulation

A proposal to introduce a statewide Waste Tracking Regulation was raised in the Waste Management Strategy for Queensland. A key interested parties group was formed to develop drafting instructions and provide continuing input to the Regulation. Numerous public and group meetings were held throughout the state. A draft Waste Tracking Regulation and accompanying Regulatory Impact Statement were released for public comment in February 1996.

Consultation for waste management legislation

A series of 11 workshops were held in 10 regional centres in 1996. The need for a associated waste management regulation was identified as a result of consultation. Key interested parties for each of the components covered by Regulation were identified and invited to attend meetings held throughout the state. A series of tele-conferences which included representatives from the State Government and local government and industry were also held. Numbers and representation of attendees are as follows: local government — 162, State Government — 99, Industry — 100, Community — 6, Professional — 8.

Key interested parties consultation groups — EPP (Waste)

A Waste Management Consultative Panel comprising representatives from State Government departments, industry, local government and conservation groups was formed in July 1996 to provide input into the development of the Policy and Regulation. Consultation with the Panel was on a regular basis. Input to the legislation was also sought from members of the Local Government Waste Management Working Group (LGWMWG). Formed in October 1996, members include local government environmental health officers and local councillors from around Queensland, Department of Local Government and Planning, as well as the Waste Management Officer of the Local Government Association of Queensland (LGAQ). Consultation has also been undertaken with representatives of key Queensland Government departments and DoE Regional officers.

Waste management conferences/workshops

DoE Waste Management Branch has co-ordinated a number of conferences/workshops to facilitate the preparation of the Policy and Regulation. Conference titles were: Compost; Waste Stream Analysis; Hazardous Waste; Medical Waste; Tyres; Landfill, Construction and Demolition; Litter, Packaging and the Environment; and Used Oil Management.

APPENDIX 2 — GLOSSARY

Terms used in this document

“Administering authority” means chief executive of DoE or, for matters, the administration and enforcement of which has been devolved to a local authority under section 196 of the EP Act, the local government.

“Environmental authority” means a licence or approval issued under the EP Act, to carry out an environmentally relevant activity (ERA). Level 1 ERAs are required to be licensed, level 2 ERAs require an approval.

“Environmentally relevant activity” means an activity listed in Schedule 1 of the *Environmental Protection (Interim) Regulation 1995*.

“Regulated waste” until the enactment of the EPP (Waste) means a non-domestic waste listed in Schedule 8 of the *Environmental Protection (Interim) Regulation 1995* and 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. The EPP (Waste) proposes a new definition as follows—

“Regulated waste” means a waste which—

- (a) contains a significant quantity and concentration of a contaminant;
or
- (b) the contaminant exhibits hazardous characteristic because of its toxicity, carcinogenicity, mutagenicity, teratogenicity, flammability, corrosivity, reactivity, ignitability or infectiousness, through its physical, chemical or biological characteristics; or
- (c) the waste may cause environmental harm if improperly transported, treated, stored disposed or otherwise managed.

Regulated waste may include a contaminant listed in Schedule 8 of the *Environmental Protection (Interim) Regulation 1995* and may be classified by waste type. Regulated waste does not include waste which is disposed to a sewer under a permit pursuant to the Sewage and Water Supply Act, waste which is discharged to a water body in accord with an authority under the *Environmental Protection Act 1994*, or a gaseous discharge or emission.

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While information about legislation on this site has been prepared with care, the information is only a guide. Neither the Queensland Government nor the Department of Environment accepts liability for any decisions or any actions taken on the basis of information included or not included here.

People operating or intending to operate under legislation administered by the Department of Environment are advise to seek advice, legal if necessary, about the current Acts, Regulations and other subordinate legislation.

ENDNOTES

1. Laid before the Legislative Assembly on . . .
2. The administering agency is the Environmental Protection Agency.