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Productivity Commission

Waste Management

Productivity Commission Inquiry *Overview*

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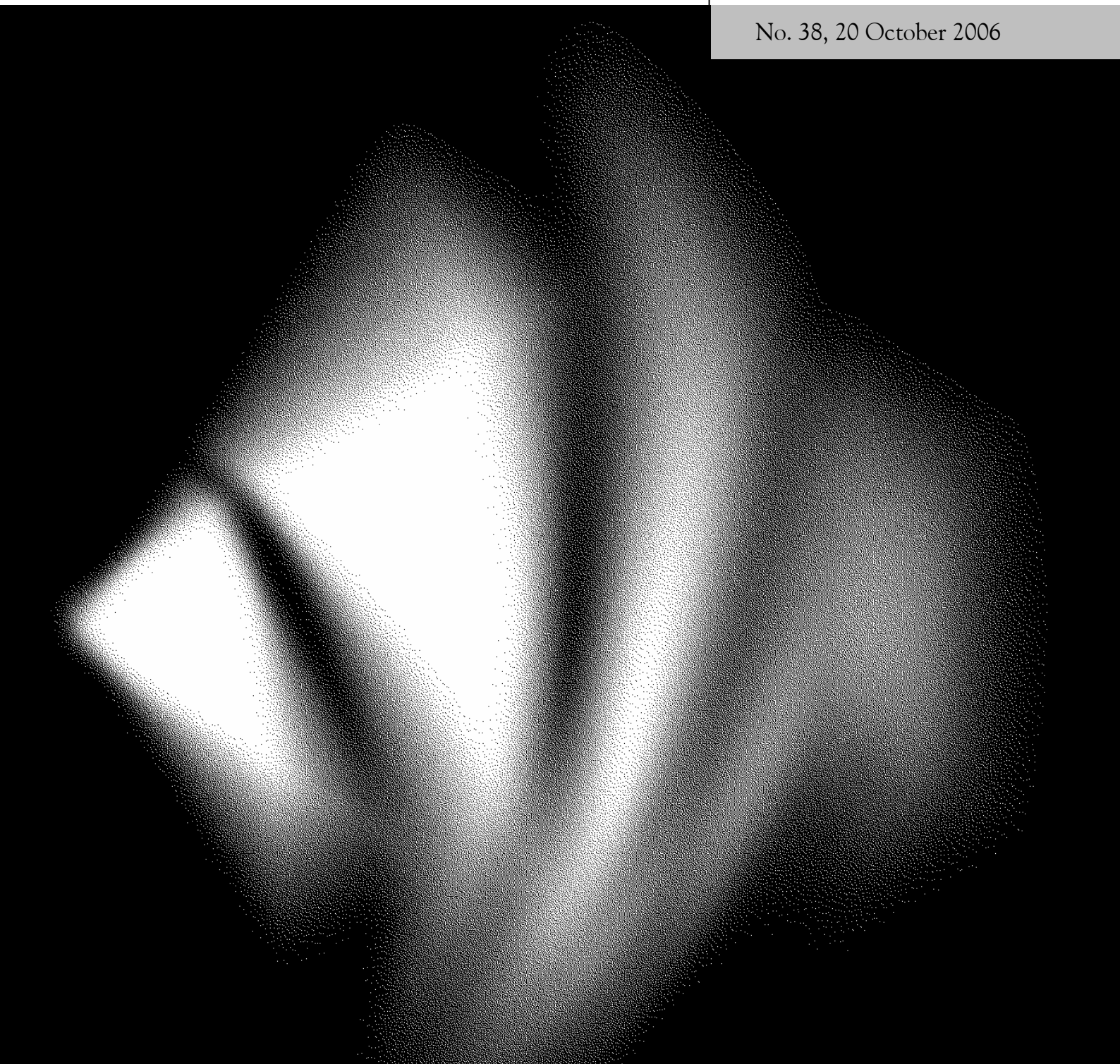

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The Productivity Commission

The Productivity Commission, an independent agency, is the Australian Government's principal review and advisory body on microeconomic policy and regulation. It conducts public inquiries and research into a broad range of economic and social issues affecting the welfare of Australians.

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OVERVIEW

Key points

- State and territory waste management policies contain some inappropriate and inconsistent objectives. These have led to some jurisdictions adopting unrealistic, and potentially very costly, waste minimisation targets.
- These policies are giving rise to some unsound interventions including:
  - using landfill levies to achieve waste diversion targets and raise revenue;
  - subsidising waste recovery options, such as alternative waste technologies, that are costly and have questionable environmental benefits; and
  - introducing mandatory product stewardship or extended producer responsibility schemes, where disposal problems have not been adequately demonstrated.
- Waste management policy should be refocused on the environmental and social impacts of waste collection and disposal, and supported by more rigorous cost–benefit analysis, if it is to best serve the community.
- As a general rule, policy makers should not use waste management policies to address upstream environmental impacts. Where warranted, these are much more effectively and efficiently addressed using direct policy instruments, and often already are.
- Directly addressing relevant market failures and distortions throughout product life cycles will assist markets to achieve the right balance between waste avoidance, resource recovery and disposal.
- Regulation of disposal has improved considerably in recent years, and where complied with, appears to have been very effective. However, compliance with landfill regulations could be improved considerably.
- Waste disposal fees should be based on the full social, environmental and financial costs involved. For landfills, this will require:
  - tightening regulatory compliance so that landfill gate fees include the costs of the regulatory measures needed to address disposal externalities; but
  - abolishing landfill levies (taxes) as these are not based on legitimate costs.
- Basic forms of pay-as-you-throw pricing for kerbside waste and recycling services, should be more widely adopted, with information on the actual costs for these services better communicated to households.
- In most large urban centres, for reasons of scale and planning (as with sewage and electricity), managing waste disposal is no longer best handled by local governments.
- The Australian Government should play a leadership role in facilitating (relevant) reforms, and where appropriate, developing sound, nationally consistent waste management policies.

Overview

The amount of waste we generate, and its actual or potential impacts on the environment, have long been matters of concern to governments and the community generally. In recent times, increasing emphasis has been given to resource recovery — including reusing, recycling and extracting energy from waste. Ambitious targets are being set, and more advanced (but more costly) approaches to recovering waste are being promoted.

Against this backdrop, the Australian Government asked the Productivity Commission to undertake an inquiry into waste generation and resource efficiency. The focus has been on solid, non-hazardous wastes including: municipal waste; commercial and industrial waste; and construction and demolition waste.

The terms of reference are broad, but in essence ask the Commission to advise on strategies to address market failures associated with the generation and disposal of waste. In this context, market failure includes, but is not necessarily limited to, externalities. Externalities are the unintended costs and benefits of an activity that are experienced by people or organisations other than those directly involved in that activity. For example, a landfill may leak, causing damage (a negative externality) to a valued environment.

The Commission's charter and the terms of reference require that a communitywide approach be taken that considers all of the financial, environmental and social costs and benefits of different strategies (box 1). This approach necessarily challenges notions of waste being inherently bad and recycling being inherently good. Policies that minimise waste are not costless and more recycling is not always a better thing. As we try to recycle more and more waste, diminishing returns set in, costs rise, and the potential for perverse environmental outcomes increases.

For example, it might be possible to collect and recycle virtually all glass containers used in Australia. But after taking into account all of the costs and benefits — financial, social and environmental — this will simply not be justifiable for all locations and circumstances.

The question policy makers must then answer is whether the community has reached a suitable balance between waste avoidance, resource recovery and waste disposal, and if not, what governments might usefully do to redress the imbalance.

Box 1 **Waste policy should maximise net community benefits not resource efficiency**

The Commission's approach to this inquiry has been guided by the terms of reference and its charter as set out in the *Productivity Commission Act 1998*. These require that all costs and benefits of different policy options for addressing market failures be considered, and that government intervention be considered only if it produces net benefits to the community.

Another way of putting this is to say that government intervention should aim to assist markets to maximise the returns from using *all* resources — land, raw materials, energy, labour and capital. This requires that no other combination of resource use could lead to a higher level of community wellbeing. This approach recognises that scarce resources have alternative valuable uses, and may yield greater returns to the community in other areas, such as education, health or other environmental projects.

Environmental and social issues can be brought into this framework by giving appropriate recognition to relevant externalities. For example, the costs of disposing of waste to landfill include the owner's costs of operating the landfill (a private financial cost). But they might also include environmental costs (such as possible impacts on the community from any contamination of groundwater), and social costs (such as loss of amenity for people living nearby during the operational phase of the landfill). The private (nonfinancial) costs and benefits that people might experience through participating in recycling activities should also be considered.

All of these costs and benefits should be brought together in a social cost–benefit framework, and quantified wherever possible. This will assist decision makers to identify the policy option that maximises net benefit to the community, including impacts on the environment.

An alternative approach that many people have been promoting is that waste policy should maximise resource efficiency. Resource efficiency is used in the terms of reference and is often interpreted as maximising the returns from using one or more natural resources (raw materials and energy). For the economy as a whole, it is sometimes expressed in terms of gross domestic product per unit of natural resource input.

This concept has intuitive appeal — maintaining living standards while decreasing our call on natural resources would surely be a good thing. But resource efficiency has some major limitations as a practical policy tool. The most substantial of these is that it only focuses on part of the picture, the natural resource or resources in question. Maximising the return to these inputs without any regard to the amount of other inputs, such as labour or capital (or indeed other natural resources that might be left out of the initial consideration), will not give the best returns to the community. This is why the net benefit from all resources is a better measure of the return to the community generally, and why policy should focus on maximising net community benefits, not resource efficiency.

What is waste and how much do we produce?

Waste can be defined as any product or substance that has no further use or value for the person or organisation that owns it, and which is, or will be, discarded. But what is discarded by one party may have value for another. Thus, a broad approach to defining 'waste' can include products that are recoverable by others.

In 2002-03, Australia generated approximately 32.4 million tonnes of solid waste. Approximately 27 per cent of this came from municipal sources, 29 per cent from the commercial and industrial sector, and 42 per cent from the construction and demolition sector. Waste recovered for recycling in 2002-03 was approximately 15 million tonnes, almost half of the total generated in that year.

The wide variety of wastes covered, the varying composition of waste streams, and the different environmental impacts of different types of wastes, add a layer of complexity to the policy issues. A tonne of broken clay bricks has quite different impacts on the environment to a tonne of putrescible household waste. To adapt an old catchcry — 'wastes ain't wastes'.

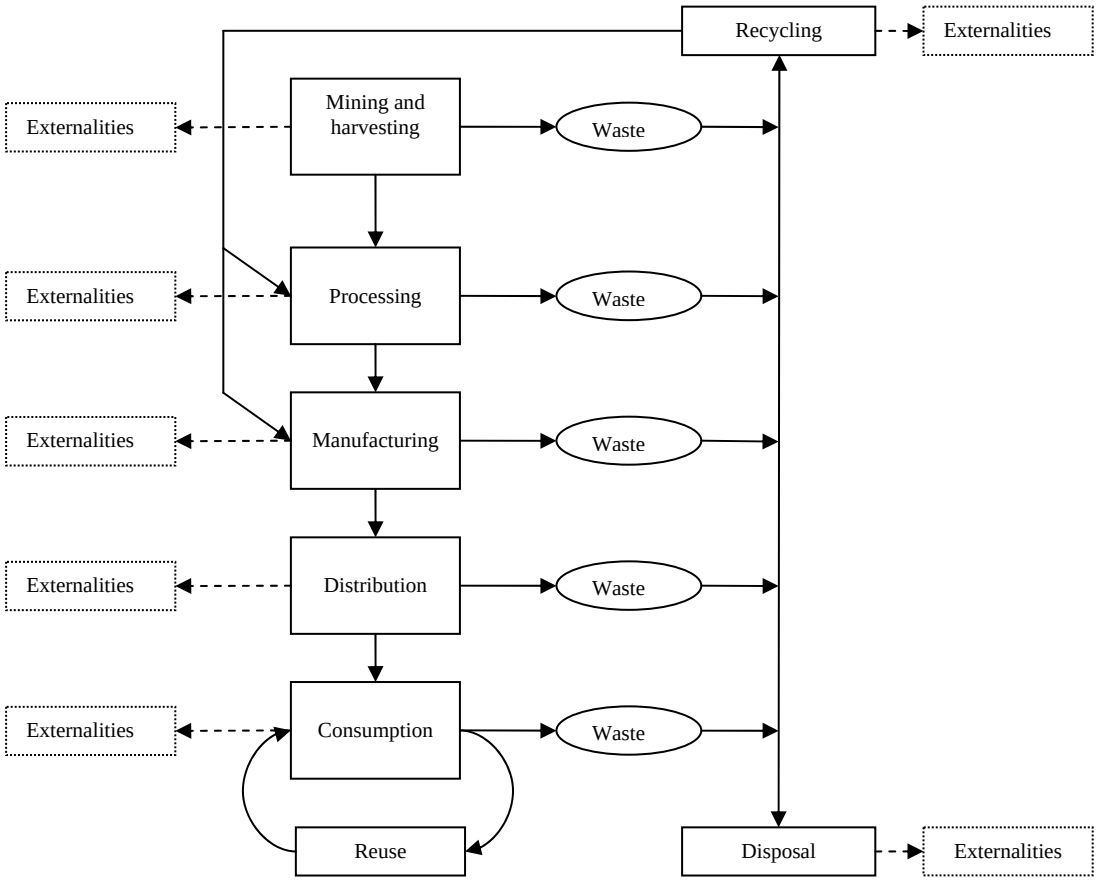
How big a problem is waste?

Waste is perceived to be a problem for many reasons, but the three reasons most often cited are that: waste disposal can harm the environment and human health; space for landfills is claimed to be becoming scarce; and waste is the end product of a life cycle process that can have upstream environmental and resource depletion implications (figure 1). Some people also take an essentially moral view of waste generation, arguing that it is symptomatic of wasteful and undesirable overconsumption.

Unintended environmental and social costs of waste disposal

The main method of waste disposal in Australia is landfill. This can cause environmental and social externalities through leachate discharges, gaseous emissions, loss of visual amenity, foul odours, and harbouring of disease-carrying pests. The main alternative is incineration, which if not properly controlled, can produce toxic emissions. Other externalities arise through illegal dumping and littering.

Figure 1 **Disposal and recycling in the product life cycle**



This diagram is a simplified representation of what can happen in a product's life cycle, from the time natural resources are mined (in the case of nonrenewable resources) or harvested (in the case of renewable resources), through the stages of processing, manufacturing, distribution (including wholesaling and retailing activities) to where it is consumed. Waste can be generated at all points in the life cycle, not just in the post-consumer phase. It can be either disposed or recovered in some way (represented here as recycling).

The diagram also shows that environmental and other externalities can occur at each stage in a product's life cycle. From a waste management perspective, downstream externalities are those that might arise from disposal or recycling (including the waste collection and transport associated with these activities). Upstream externalities occur prior to the point at which waste is generated. For example, the 'externalities' boxes on the left hand side of the diagram indicate the externalities that might occur upstream of, or prior to, final consumption.

It is difficult to generalise about the extent of the externalities associated with landfills. Some pollutants can be persistent and have the potential to be harmful if they escape. But not all wastes cause problems in disposal. Most construction and demolition waste is relatively inert, and hence does not give rise to many emissions. What is clear is that the environmental impacts of modern landfills (that is, those that are properly located, engineered and managed) are much lower than old landfills.

The Commission has reviewed the available estimates and considers that, where such modern landfills include gas capture and electricity generation, the externalities are likely to be no more than $5 per tonne of waste. Without gas capture, the external costs could be up to $24 per tonne for wastes with high levels of organic content, due mainly to the costs of greenhouse gas emissions. Inert wastes appear to produce negligible externalities in landfill.

Availability of landfill space

It is sometimes argued that Australia is running out of suitable space to use as landfills, and hence landfilling is an unsustainable practice. Typically, landfills have used old quarry or mine sites in or near urban areas. Generally speaking, Australia is creating new holes faster than we are filling old holes with waste. But it is where those holes are located, and their geological suitability for landfills, that are the crucial issues. Overlaying this are the concerns of many people about having a landfill in their 'backyard'.

The Commission considers that these issues are not insurmountable and can be addressed for the most part through the market and appropriate planning frameworks. To the extent that landfill space near an urban area becomes scarce, rising gate fees will make it financially worthwhile to transport the waste further afield, thus opening up possibilities for new landfills, and encouraging more recycling.

Upstream issues

Avoiding waste, or increasing the amount of waste recovered, can have environmental impacts in the product life cycle upstream from where it is created (figure 1). These can be grouped into two main categories: environmental externalities avoided, and sustainability issues. Externalities associated with the harvesting of renewable resources, and the extraction of minerals, can include greenhouse gas emissions, water and air pollution, landscape degradation, and loss of biodiversity. Sustainability concerns include the equity considerations of

consuming resources today that might not be available for future generations (box 2), and managing resource depletion.

Box 2 **Ecologically sustainable development policy considerations**

Sustainable development is generally interpreted as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987, p. 43). Similar approaches have been adopted in Australia. In 1992, Australian governments endorsed the National Strategy for Ecologically Sustainable Development, an objective of which is to enhance individual and community wellbeing by following a path of economic development that safeguards the welfare of future generations.

The issue of sustainability is complicated by the diversity of things we pass on to future generations. These include:

- *human capital* — knowledge and understanding;
- *man made capital* — economic and social infrastructure; and
- *natural capital* — biodiversity, renewable and nonrenewable resources and ecological integrity.

Additions to, or conservation of, any of these types of capital are likely to contribute to sustainability (or at least improve the endowment we pass on to future generations). To some extent it might be possible to substitute one type of capital for another. Thus, sustainability might be achieved even where some nonrenewable resources become heavily depleted. However, some natural resources, such as clean air and water, are not readily substitutable.

Apart from these essential resources, we do not know with any precision what the resource needs of future generations will be, so it is difficult to know what needs to be conserved. Further complicating this issue, it is likely that technological change will mean that we will be able to do more with less, and we might be able to switch our dependence on some non-renewable resources to other non-renewable, or renewable resources. And as known reserves become scarce, prices will rise, stimulating exploration and development of new reserves, greater recycling, conservation through greater efficiency of use, and the development of substitutes (where this is possible). Besides, the economically-recoverable amount of the sorts of natural resources typically recovered for recycling — such as iron, aluminium, copper, and silica — has tended to increase over time, not diminish.

Further issues arise in considering who should be asked to make sacrifices for the welfare of future generations: the more advanced economies that currently account for a high proportion of resource consumption, or the less developed economies for whom economic growth is a means of lifting current standards of living from much lower levels.

To the extent that there is a case for intervention, such upstream issues are best addressed as directly as possible, not through waste management policy. Using

waste management policy to address these issues is likely to be inefficient and ineffective. For example, the kerbside recycling of steel cans might lead to a small decrease in the domestic demand for steel (and hence iron ore), and less environmental externalities from mining and processing. But it is likely to be far less effective than applying direct policy instruments to address particular upstream problems. This is especially the case where the problems are specific to particular mine sites or practices. In addition, any benefits from curbing domestic consumption would be illusory if the iron ore conserved were redirected to exports, as is likely for a major minerals exporter such as Australia.

Taking indirect action through waste management policy also presumes that direct actions are not being taken, or that the upstream externalities that have not been addressed are substantial. Yet with the exception of a comprehensive response to greenhouse gas abatement, a host of existing policies already address directly most known upstream externalities occurring in Australia. If greenhouse gas abatement is the major unresolved issue, and resource recovery reduces greenhouse gas emissions, some cautious downstream intervention — such as subsidies for kerbside recycling — might be justifiable. However, government intervention to address climate change would be more effectively and efficiently achieved through a comprehensive national approach. Once this were done, any downstream interventions predicated on greenhouse gas benefits would need to be re-examined and, where relevant, removed.

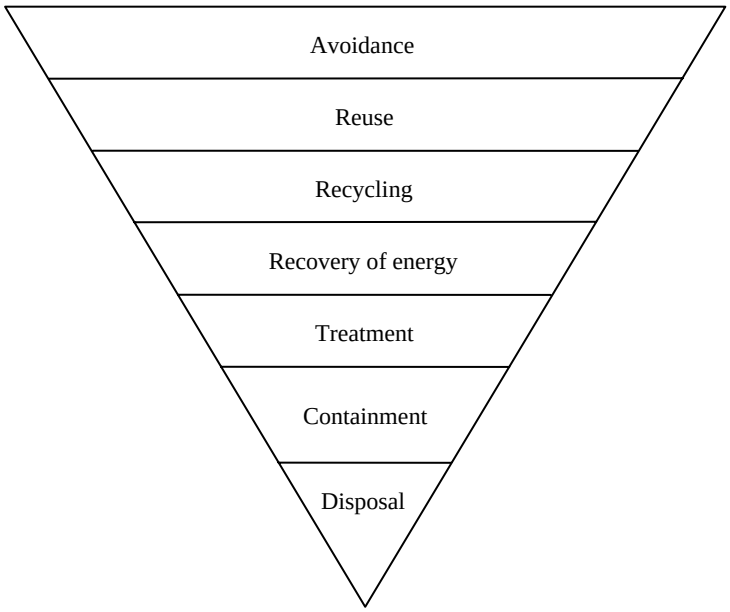
The rate at which we deplete nonrenewable resources is a concern to many people. Yet increasing scarcity will induce rises in prices that dampen demand and encourage exploration for new supplies and substitution to other materials. It also makes recycling more attractive. Such dynamic responses mean extraction rates for nonrenewable resources should be left largely to markets to determine, provided all relevant market failures and distortions have been addressed. The Commission considers that waste policies are unlikely to be an effective way of addressing ‘resource scarcity’ issues.

The Commission is not recommending that market failures further upstream in the product life cycle should be ignored. Quite the contrary — direct intervention at various points throughout the product life cycle should be continued and where necessary supplemented by additional measures. This would help ensure that product prices reflect all relevant costs. Complemented by awareness raising campaigns that help consumers make more informed choices, this will also help address concerns about over-consumption.

Targets and the waste hierarchy

Many State and Territory Governments have developed waste management strategies based around the concept of the waste hierarchy (figure 2). Under this approach, waste avoidance is argued to be preferable to reuse, reuse to recycling, and so on. Disposal is seen to be the least desirable option. In compliance with this approach, many jurisdictions have set targets for diverting waste, some going so far as to aim for zero waste to landfill. This approach is inconsistent with good policy principles.

Figure 2 **A waste management hierarchy**



Source: Victorian Government (2005).

Although target setting may be a useful way of improving performance where targets relate to sound policy objectives, have been rigorously set, and clear lines of accountability can be established, these conditions are inherently difficult to achieve with respect to waste diversion. In practice, waste diversion targets have tended to be set using technical and other criteria that are highly unlikely to maximise net benefits to the community. A better approach would be to address all relevant market failures and allow the market to establish the most appropriate balance between disposal and resource recovery.

Similarly, waste management options should not be dictated by the simple priorities suggested by the waste hierarchy. High order options in the hierarchy may not necessarily be better than lower order options, once all of the costs and benefits to

the community have been considered. Policy makers and regulators might profess to use the waste hierarchy as a broad framework, but in practice it appears to have had an inordinate influence on waste management policy.

Some jurisdictions have been (directly and indirectly) subsidising the installation of alternative waste technology facilities (for municipal waste) as a means of achieving their targets, despite the dubious net environmental benefits of such facilities. Waste management policy should aim to achieve the best possible outcomes for the community, not prescribe one technical solution at the expense of others. Yet jurisdictions' adherence to the waste hierarchy and waste diversion targets can favour policy options that have higher net costs to the community than other alternatives.

Choosing good policy instruments

A variety of policy instruments have been used in different jurisdictions, with varying degrees of success. These include regulation, pricing measures (including landfill levies), and extended producer responsibility or product stewardship schemes.

Regulation of disposal has tightened considerably

The regulation of landfills has tightened considerably in recent times (though more could be done to enforce existing standards). While landfill operators have some freedom to design their landfills to most efficiently meet licensing requirements, jurisdictions often also prescribe certain features drawn from 'best practice' guidelines. Prescription has the advantages of clarity and certainty, but it can stifle innovation and impose additional costs. It would be more appropriate to consider landfill proposals on how they would reduce the risk of adverse outcomes to acceptable levels, rather than require particular features. Furthermore, it is crucial that regulatory solutions are tailored to match the circumstances of particular landfills, and that they only address the externalities produced by the landfill, not upstream issues.

Currently, some environmental regulators require that landfills install gas capture systems. These systems can have many benefits, including reducing greenhouse gas emissions, the risks of fires and explosions, and unpleasant odours. While landfill gas capture might prove to be one of the more cost-effective greenhouse gas abatement options, this would best be judged within the framework of a comprehensive national greenhouse response. Regulatory requirements to install such systems should be reviewed, whenever this occurs.

Given that most externalities emanating from modern, fully-complying landfills seem to have reached acceptably low levels, any further tightening of the regulations would need to be carefully evaluated.

The other main alternative for disposing of some wastes — incineration — is also tightly regulated, and in some Australian jurisdictions effectively banned altogether. Although capital intensive, incineration can be combined with energy recovery facilities and appropriate flue gas treatment to provide an environmentally acceptable alternative to landfill. In Europe, where incineration is common, regulations require the use of technologies that have effectively eliminated damaging levels of pollution. Lifting the effective bans on the use of incineration of certain wastes in Australia, while insisting on appropriate performance standards, would appear to be long overdue.

Other waste management regulation is designed to limit processes, and sometimes products themselves. Foreshadowed regulation to reduce the use of plastic shopping bags is one example. Governments should ensure that any such regulation is likely to deliver a greater net benefit to the community — including impacts on the environment — than other policy options. But, based on evidence available to the Commission, the case for proceeding with the phase out of plastic bags appears particularly weak. A more cost-effective approach to addressing the underlying issues of concern would be to target plastic-bag litter directly.

Getting prices right will help

If the prices for waste disposal, virgin materials, and manufactured goods reflected the full costs involved — including environmental and social externalities — markets would be the best way of determining the appropriate mix of resource recovery and disposal. Where these externalities have been addressed through regulation or market-based instruments, costs would already be internalised in the prices of goods and services (including landfill gate fees). Such pricing would also allow consumers' willingness to pay for recycling and waste services to be gauged directly. But further refinement of waste disposal price signals is not straightforward.

Varying charges according to the amount of waste can be difficult

Many firms arrange their own waste disposal services and pay according to how much they generate. In contrast, most households are charged a flat annual fee and, therefore, have no incentive to reduce the amount of waste they dispose (until they have filled their bin). This may exacerbate the extent of any downstream disposal externalities.

Some local governments have introduced a modest degree of variability into their charging arrangements. The most simple of these involves an additional fee for the use of a larger than standard bin. Broader adoption of these pay-as-you-throw approaches is warranted, where this is cost effective. More explicit cost-based charging arrangements for kerbside recycling would also be appropriate.

Cost recovery has not been fully implemented

Cost recovery means setting disposal fees to cover the financial, environmental and social costs. However, this depends on levels of compliance, which for some landfills are relatively poor. State and Territory Governments should do more to ensure that all landfills comply with appropriate environmental licence conditions, and that government-owned landfills adopt sound charging policies. This would also promote competitive neutrality between government and private sector providers.

Landfill levies

Most Australian jurisdictions impose a levy on waste disposed to landfill, which users must pay in addition to gate fees. In some cases, levies vary according to the type of waste and location. The primary purpose of levies now seems to be to discourage waste being sent to landfill, and thus to support the achievement of waste diversion targets. Levies are also used in some cases for raising revenue, with some or all of the revenue hypothecated (earmarked) for environmental projects.

Levies might encourage waste diversion from landfills and achievement of targets, but unless based on the environmental and social externalities of the landfill, will send the wrong price signals to users. Their use as revenue raising devices is not supported, nor is hypothecation to particular expenditure programs. Hypothecation introduces rigidities into public sector financing and is rarely warranted.

Basing levies on the environmental and social externalities of the landfill would be very difficult to achieve in practice. Externalities vary according to location, the type of waste and how the landfill is constructed and managed. Varying the levy to account for these differences with any precision is virtually impossible, and would also encourage evasion by waste disposers to gain the cheapest disposal option. The practical response might be to average the levies across all landfills (or a class of landfills), but this would give no incentive to improve landfill practices. To the extent that regulation and other policies already address externalities, levies duplicate existing costs. No matter how they are set, landfill levies increase the incentive to illegally dump waste — a serious problem in some locations.

On balance, the Commission does not favour the use of landfill levies, but rather regulation that reduces externalities to acceptable levels, and better enforcement. In this way, gate fees can internalise the environmental and external costs that would otherwise occur, and hence provide appropriate price signals to landfill users.

Kerbside recycling

Kerbside recycling is undoubtedly valued by many households, yet it almost invariably increases the financial costs of waste management. A substantial environmental return would often be necessary if it were to achieve net benefits for the community.

The support for kerbside recycling, and resource recovery generally, stems in part from the alleged upstream benefits. But while some upstream issues warrant intervention, these would be more effective and efficient if undertaken directly, not through waste management policy. Furthermore, some commonly quoted assessments of the upstream benefits of kerbside recycling are, in the Commission's view, greatly exaggerated.

Care also needs to be taken in the design and application of kerbside recycling if it is to achieve the best returns to the community. Taking a harder nosed approach to restricting the items collected might be appropriate. For example, glass is a marginal proposition in comingled collection systems, due to a combination of its relatively low value, its high sorting costs, its inertness in landfill and its contaminating influence on other recyclables. In some locations, far from markets and processing opportunities, undertaking any kerbside recycling is probably not worthwhile, even after accounting for all of the environmental benefits.

Household support for kerbside recycling needs to be tested through more explicit cost-based charges, and informed through better education and awareness raising.

Extended producer responsibility and product stewardship schemes

As noted earlier, policy makers have increasingly turned to approaches that target producers, or distributors, of products that are deemed to be problematic for one reason or another. These are called extended producer responsibility (EPR) or product stewardship (PS) schemes.

EPR and PS schemes (which generally require producers to take more responsibility for end-of-life disposal or recovery) can include a variety of policy instruments, such as take-back schemes, advance disposal fees, deposit refunds, and awareness raising. Typically, EPR and PS schemes involve separating the target product from the waste stream it is found in (for example, mobile phones in municipal solid

waste), and using dedicated means for its disposal or recovery. To fund this, levies are often used.

Some EPR and PS schemes operate on a voluntary basis, but increasingly they are being implemented through co-regulation. In this model, industry is charged with the task of developing a 'self-regulatory' scheme, and the Australian, State and Territory Governments back this with regulation that picks up free riders, effectively making participation mandatory. The Australian Government and relevant industry groups have been keen to ensure that policy develops on a more coordinated basis where national issues are at stake.

A number of schemes already exist or are in the pipeline. One of the most notable is the National Packaging Covenant (NPC). Others include an existing waste oil scheme and foreshadowed schemes for televisions and tyres. Like the NPC, it is understood that these new schemes will be introduced via a National Environment Protection Measure, and implemented by the jurisdictions through regulations.

The proliferation of EPR and PS schemes is a concern, because, among other things:

- there is little evidence to suggest that the problems to which many of these schemes are being directed are sufficient to justify the costs of intervention;
- they are vulnerable to the influence of vested interests; and
- financial incentives in some schemes appear to be based on the waste hierarchy, not net benefits to the community.

Further mandatory schemes should only be introduced where a net benefit to the community can be demonstrated and other policy options would not deliver a greater net benefit. These conditions are unlikely to be satisfied unless:

- there are considerable benefits to the community from avoiding the product's inappropriate disposal, possibly because it is hazardous;
- the parties that need to be targeted to make the requirements effective can be readily identified and held accountable; and
- compliance can be readily monitored and enforced.

The effectiveness of the NPC will be reviewed in 2008, with some parties already calling for it to be substantially strengthened and/or extended. The Commission considers that the nature of this review should be changed to focus on the costs and benefits of various options, including not continuing with the NPC.

To ensure future schemes have a sound basis, the Commission recommends two reforms. First, policy objectives should be reformulated to focus on reducing risks — to human health, the environment and social amenity — from waste to

acceptable levels. Waste avoidance and resource recovery may be outcomes of achieving this objective, but they are not objectives justifying government intervention in their own right. Second, there should be a requirement that, before intervening, governments consider the findings of an independent review of a product's alleged adverse impacts. The review should define exactly what the problem is, attempt to quantify its magnitude, and describe what actions might address the problem. It should also make a preliminary assessment of the likely costs and benefits of intervention.

As part of good regulatory practice, the effectiveness and efficiency of all existing schemes should be reviewed as a matter of course.

The role of local government is changing

The role of local government in waste management is changing, particularly in large urban areas. Technical, regulatory and policy developments mean that waste management and recycling facilities are becoming bigger and more sophisticated. These developments are exacerbating planning and operational issues for all but some of the larger local governments.

Local governments in urban areas are increasingly forming partnerships to jointly negotiate with suppliers of waste services, but this is not without its problems. Not the least of these is that it does nothing to resolve the tensions between local governments over where such facilities should be located. In some states, regional approaches have been adopted, but if these do not have appropriate expertise or capital backing, and are unable to address the 'not-in-my-backyard' reactions to planning issues, they can prove little more effective. To address these issues, State and Territory Governments should consider:

- declaring major waste and resource recovery facilities to be projects of state or regional significance, where this is not already the case; and
- passing the responsibilities for waste disposal to appropriately-constituted regional waste authorities, particularly in those larger urban centres where the majority of local governments do not have the scale or resources to efficiently and effectively handle such roles.

Some regulations impede resource recovery

Inconsistencies in the regulatory requirements of the states and territories are creating problems for industry and discouraging resource recovery. In particular, differences in definitions, waste classification systems and exemption processes mean that some materials are being more heavily regulated in some jurisdictions

than others. Greater coordination of classification and exemption systems, and less reliance on prescriptive definitions is required.

Another impediment is that some product standards and government purchasing practices continue to favour the use of virgin over recycled products. Some jurisdictions have made welcome improvements to product standards, adopting a performance-based approach. But old habits die hard, and many participants argued there was still room for improvement.

Role for the Australian Government

While states and territories hold most of the policy levers in waste management, the Australian Government has significant coordinating and leadership roles to play. It also has the crucial power to levy indirect taxes — a virtual necessity in implementing most mandatory EPR and PS schemes. The Commission considers that the Australian Government could play a more significant role by:

- supporting research into the significant externalities caused by waste disposal;
- playing a leadership role in the development of EPR and PS schemes by insisting on clear objectives, and that thorough identification of the problem precedes the development of such schemes;
- ensuring rigorous adherence to its regulatory impact assessment guidelines (and encouraging states and territories to do likewise);
- working with states and territories to develop and implement consistent waste classification systems and databases;
- refining information, education and awareness programs to help ensure the community is well informed about the costs and benefits of waste management options, particularly with respect to issues of community concern and misunderstanding (such as energy-from-waste options); and
- ensuring that upstream market failures that concern waste policy makers are reviewed by other relevant ministries, and where appropriate, addressed directly.

Concluding remarks

Waste management policy should primarily be focused on reducing social and environmental risks from waste collection and disposal to acceptable levels. The Commission considers that policy makers have become distracted by the pursuit of other, waste hierarchy inspired, objectives — such as minimising waste and conserving resources — and given insufficient regard to whether their interventions would actually lead to net benefits to the community.

Directly addressing relevant market failures and distortions throughout product life cycles will assist markets to determine the right balance between waste avoidance, resource recovery and disposal. Waste management policy can play its role in this process, but it should not be used to indirectly address upstream environmental and social issues. Many of these impacts may warrant intervention, but these would be (and often already are) much more effectively and efficiently addressed using direct policy instruments.

Unfortunately, much waste management policy in Australia has been initiated with insufficient consideration of all of the likely financial, environmental and social costs and benefits. Waste disposal problems, and community support for the remedies proffered, are too often simply asserted, rather than demonstrated. Many interventions have certainly gone too far. In particular, landfill levies, direct and indirect subsidies for alternative waste technology facilities, and some EPR and PS schemes, are not justified.

The reforms the Commission is proposing will help achieve a more appropriate balance between waste avoidance, resource recovery and disposal by, among other things: requiring a more rigorous approach to identifying environmental problems; tightening regulatory compliance; and reinforcing the roles of prices and awareness raising in assisting the community to make more informed choices (table 1).

As in other areas of environmental policy, the way forward is not always intuitively obvious. But what is clear is that simple rules such as ‘recycling is good, more is better’, are no substitute for sound policy-making procedures. Policy makers and community attitudes need to be guided by open and rigorous analysis of costs, benefits and risks, if waste management policy is to best serve the community.

Table 1 **Summary of main issues and the way forward**

The current situation	*The Commission's preferred approach*	*Main benefits of change*
Landfills can damage the environment (chapters 4, 9 and 12 and appendix B)		
• Regulation has tightened considerably, but tends to be prescriptive. Where regulations are complied with, environmental damage is reduced to low levels.	• Make regulation as performance based as possible and tailored to the circumstances of each landfill.	• Desired level of pollution control achieved at lower cost. • Allow operators maximum flexibility in meeting environmental standards.
• Enforcement of regulations appears variable and lax and some (local-government owned) landfills do not recover their full costs.	• Tighten enforcement of the regulations, thus internalising environmental costs. • Ensure full cost recovery of government-run landfills.	• Less risk of environmental damage. • Full cost pricing (including environmental costs) will promote the right level of recovery.
• Landfilling is discouraged through landfill levies. Levy revenue is often earmarked for environmental projects.	• Remove the levies as regulations are a better way of addressing externalities. • Raise funding for projects through general revenue.	• Inappropriate cost impost on the community removed. • Better assessment of the merits of projects funded.
Waste avoidance and resource recovery can be good for the environment (chapter 4)		
• The upstream benefits of resource recovery vary according to circumstances. Downstream external benefits are small.	• Address upstream sources of externalities directly (for example, require mining operations to meet specified standards) and greenhouse gas abatement nationally.	• Far more effective and efficient responses to upstream environmental issues. • Lower risk of perverse outcomes.
• Maximising resource efficiency (the return to one or more natural resources) is a major determinant of policy. • But, as a partial indicator, resource efficiency fails to consider the returns from using all inputs.	• Policy should be guided by consideration of all inputs and all costs and benefits, whether financial, environmental or social in nature.	• Policies are more likely to maximise the returns to the community generally.
• Resource recovery is promoted through landfill levies, subsidies, state strategies etc.	• Make support for resource recovery as transparent as possible using direct policy instruments.	• Transparent subsidies and charges help householders and others make better choices.
• The waste hierarchy is used to help guide policy and set waste diversion targets.	• Waste policy should be guided by assessments of all costs, benefits and risks.	• Avoids costly measures that do not deliver commensurate environmental benefits.
• Targets have been set for recycling and waste diversion in various jurisdictions.	• Discontinue use of targets as they are difficult to set at an optimal level.	• Full cost pricing will give the right balance between disposal and recovery.
• In line with the hierarchy, waste avoidance is seen as highly desirable.	• Greater adoption of pay-as-you-throw methods for both recycling and disposal.	• Reduction in waste generation commensurate with full costs of collection and disposal.

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Table 1 (continued)

The current situation	*The Commission's preferred approach*	*Main benefits of change*
Community support for recycling should count (chapters 6 and 11)		
• Surveys show high levels of community support for recycling, but less is known about the strength of this support. • Support for recycling does not always extend to a willingness to purchase products with recycled content.	• More direct testing of people's preferences and willingness to pay for recycling. • Governments should provide better information on, and promote debate about, the costs and benefits of recycling and other waste management options.	• Community and policy makers able to make better informed waste management choices.
Waste legislation should reduce risks to acceptable levels (chapters 3, 6 and 7)		
• Some of the objects of existing State and Territory legislation are inappropriate and inconsistent. They include reducing harm to the environment, but also include adherence to the waste hierarchy, using less resources, and avoiding waste.	• Overriding objective should be to reduce risks to human health, the environment and social amenity to acceptable levels. • Waste avoidance and resource recovery are not objects justifying government intervention in their own right.	• Help avoid perverse outcomes, for example, that recycling is maximised irrespective of net environmental benefits. • Reduce net costs to the community.
Extended producer responsibility or product stewardship schemes may be warranted in some circumstances (chapter 10)		
• Governments have urged industries to adopt extended producer responsibility (EPR) or product stewardship (PS) schemes for many products. • There is rarely a thoroughly-researched and clearly-justified case for government intervention.	• Use much clearer, earlier and more rigorous processes for identifying where government intervention is warranted. • Ensure focus is on potential harm to human health, the environment and social amenity. • Give closer consideration to other approaches, including doing nothing.	• EPR and PS schemes are only adopted when there is likely to be a net benefit to the community.
Plastic-bag litter can cause problems (chapter 8)		
• Plastic-bag litter is unsightly and may harm marine wildlife. • Governments plan to phase out plastic shopping bags by the end of 2008.	• Identify the nature, extent and underlying causes of plastic-bag litter. • Evaluate recent plastic-bag reduction efforts. • Examine whether other options — such as tougher anti-litter laws and targeting away-from-home sources of plastic-bag litter — would be more effective.	• Adoption of the most effective and efficient response to the problem of plastic-bag litter.

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Table 1 (continued)

The current situation	*The Commission's preferred approach*	*Main benefits of change*
Institutional and regulatory factors can impede resource recovery (chapter 12)		
• Classifying materials as waste sometimes impedes opportunities for them to be recovered for recycling.	• Improve exemption processes to help ensure recovery opportunities are not unduly constrained.	• Better recovery of materials, particularly from industrial waste streams.
• Some product specifications favour use of virgin materials.	• Make product specifications performance based wherever possible.	• Better recovery, as materials judged on performance, not origin.
Local governments face considerable challenges in providing waste services (chapter 12)		
• Local governments deliver kerbside collection services. Many also own, or contract for the supply of, resource recovery and disposal services. • Planning, scale and technology issues are requiring regional solutions to waste disposal and resource recovery. In response, different models for regional groupings of councils have emerged.	• In large urban centres, State Governments should investigate moving waste disposal and resource recovery services to appropriately-constituted regional bodies. Collection could still be managed through local government. • Retain existing arrangements in rural areas with technical and other advisory help from State and Territory Governments.	• Better matching of tasks with responsibilities and capabilities. Regional approach to planning commensurate with regional impacts. • Potential for waste services to be delivered at lower cost, due to scale efficiencies in contract management.
Using waste to generate energy can be a useful form of resource recovery (chapters 4 and 8)		
• Energy-from-waste plants (for disposal of municipal solid waste) are not strictly prohibited in Australia, but are out of favour with many policy makers and the community. • Technological developments have provided the potential for flue emissions to be safely controlled. • Such plants are used in many developed countries.	• Modern, well-regulated energy-from-waste facilities, while financially costly, would have minimal net negative environmental externalities where they displaced fossil fuels used in electricity generation. • Cement kilns meeting all relevant environmental standards should not be prevented from using waste as an energy source.	• Better utilisation of wastes that might otherwise be sent to landfill. For example, packaging that is not readily recyclable would provide useful energy recovery with no adverse environmental implications.
Waste data are needed for developing sound policy (chapters 2 and 13)		
• Waste data are inconsistent and incomplete. • The data are influenced by the requirements and regulatory structures of the different jurisdictions. • Past attempts at establishing a national waste database foundered because it was costly and lacked support.	• EPHC should coordinate the development of a nationally-consistent data set for waste management. • Adopting common definitions would be an important first step. • Data should only be collected where there is a clear policy need.	• Enable comparisons of waste management performance across jurisdictions. • Enable each jurisdiction's waste management performance to be compared against their policy objectives.

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Table 1 (continued)

The current situation	*The Commission's preferred approach*	*Main benefits of change*
Life cycle assessment can be used in estimating costs and benefits (chapter 4 and appendix B)		
• Life cycle assessment (LCA) can be used to identify some of the environmental impacts of production processes, from raw material extraction to final disposal. • Some researchers have used LCA in estimating the costs and benefits of waste management policies. • The costs and benefits thus derived are not adjusted for the risks of environmental damage occurring. Nor do they take into account some upstream policies that address externalities.	• Deficiencies relating to risk adjustment and failure to take upstream policies into account mean LCA must be used cautiously in estimating the costs and benefits of waste policies. • Some of these deficiencies might be able to be overcome (at some cost), but given that waste policy should focus on downstream externalities, this should not be given a high priority. • Where LCA is used, consideration should be given to referring any upstream issues identified to relevant upstream policy makers.	• Prevent highly unreliable estimates of costs and benefits from influencing policy development. • Help to refocus waste policy on the main policy-relevant market failure — downstream externalities.