



Ministry for the
Environment
Manatū Mō Te Taiao

Waste Policy Discussion: The Potential Unintended Consequences of a National Waste Levy

**Analysis of the potential for unexpected
expenses or incentives related to the
introduction of a national levy on waste**

This paper has been prepared by the Ministry for the Environment to assist in the work being done on the use of waste levies and other options for funding waste minimisation activities. The views expressed in this paper are not the views of government which is considering its policy on waste funding options.

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1. Introduction

A national landfill levy is a common policy tool used by many OECD jurisdictions to manage aspects of waste expenditure. New Zealand is exploring a range of policy options for funding waste minimisation activities. One of the options available is a national landfill levy.

The character and scale of the unintended consequences (or perverse incentives) associated with levies are entirely dependent on the structure of the levy framework, how the levy is administered and who benefits from the revenues collected by a levy. The purpose of this paper is to discuss generically the unintended effects noted in jurisdictions charging levies, explore the scale and character of those effects and to inform an exploration of how these unintended effects could be overcome by good design.

This paper sets out the issues that were discussed at a workshop in Auckland on 23 June 2006. Waste levy experts from Australia were asked for their point of view regarding each issue, particularly in terms of:

- how much these issues have created concern, and have the concerns been realised under the current levy regimes?
- what design elements are suggested to overcome issues?

2. Background

The New Zealand Waste Strategy 2002 is the core waste policy document in New Zealand. A national waste levy represents one of a range of economic instruments that could be implemented to encourage achievement of the goals of the strategy. A national levy would require a statutory instrument to enable collection and distribution of levy revenues.

There has been some concern expressed over the nature of the levy, and where the effects of a levy will be directed. New Zealand has the advantage of comparing levy structures in other countries as a way of informing policy choices here.

In March 2006 the New Zealand High Court determined that the Local Government Act does not give territorial authorities the power to tax. This meant existing bylaws in Auckland and Christchurch were *ultra vires*. In response to this decision, a proposal for a national waste levy was drafted by a number of parties involved in the court case, including some of New Zealand's larger urban councils and waste companies.

This proposal outlines how a national levy could work and provides a useful basis for discussion around some of the unintended consequences of a national waste levy. In the context of the proposal for a national waste levy, feedback was sought from industry and local government. Where possible that feedback is incorporated into the discussion below.

3. Generic Elements of the Draft National Waste Levy Proposal

A “Draft Proposal for a Waste Levy in New Zealand” has been designed by a group of councils (Waitakere City, Rodney District, North Shore City and Christchurch City) and waste company representatives, facilitated by the Ministry for the Environment. Final disposal means waste destined for landfills and incinerators. Waste destined for cleanfills and monofills would be considered subsequently. Waste destined for export is not included.

The proposal is essentially a levy on all solid waste going to final disposal in New Zealand and has the following features:

- A uniform levy collected at all waste disposal facilities based on the weight of waste destined for final disposal; ie, it would not be paid on materials recovered for beneficial uses, including composted green waste.
- Incorporation of the levy directly into the charges for waste disposal.
- A system to account for and verify the collection of the levy and for payment of the levy to an administering agency.
- A mechanism to administer a system to collect and account for levy revenues (this could be a separate agency).
- A mechanism to distribute the revenue and account for the expenditure of the revenue.
- Funds either tied to waste activities or levy revenue appropriated by government for waste minimisation activities.

4. Definition of ‘Unintended Consequences’

An unintended consequence (or perverse incentive) is a driver that works against the objectives sought from the instrument. Perverse incentives produce unintended consequences, which may provide unexpected benefits or costs to business or government. For example, a law providing a reward for control of a pest may encourage individuals to farm the pest to claim the reward.

5. Methodology

- A discussion document covering generic perverse outcomes potentially associated with the introduction of waste a waste levy was circulated to interested parties.
- Feedback on the generic perverse outcomes was included in the discussion document.
- A one day workshop was held in Auckland on 23 June 2006. The workshop was attended by Ministry for the Environment officials, local government, NGOs and industry.
- The first session of the workshop consisted of presentations given by Australian waste levy experts covering the implementation of levies in Victoria and New South Wales and the Australian Packaging Covenant.
- The second session involved discussion of different perverse outcomes as identified in the discussion document by panel members and participants.
- The final session of the workshop involved workshop participants identifying the design elements that should be used if a national waste levy were to overcome the perverse outcomes.
- Input from panel members and participants were used to produce this report.

6. Possible Adverse Effects from the Introduction of a National Waste Levy

6.1 Impact on product stewardship schemes

Levies on waste disposal have the potential to complement product stewardship schemes. Levies raise the cost of waste disposal and make alternatives more attractive. In some other countries, funds from levies have been used to support product stewardship schemes (for instance, assisting with start up costs).

Funding support from waste levies could create disincentives for product stewardship by discouraging industry self-funding initiatives and by discouraging industry ownership of the problem.

Careful design of waste levies and the allocation of their revenue will be critical to ensuring they support rather than work against product stewardship schemes.

The availability of funds may create other perverse incentives. For instance councils may have a vested interest in levy collection or less incentive to participate in national product stewardship schemes because they can fund local solutions under their control. For instance, recently some local authorities rejected an approach for contributions to the start-up costs to introduce the Resene “Paintwise” scheme (a product stewardship scheme collecting unwanted paint and packaging) into the Wellington region. This occurred partly because, for some of the councils, services for hazardous goods disposal are paid for by landfill charges. These local authorities considered the problem was being addressed to their satisfaction already – as long as ‘polluters’ were paying rather than ratepayers, it was not important which ‘polluter’ it was. Again, the size of the levy would be important in whether this issue was significant.

Businesses may see waste levy funds as an alternative to their meeting the costs associated with disposal of their product. This would be particularly true if the levy funds dwarfed business contributions.

Workshop discussion notes:

- Around 50% of packaged goods are imported and a levy would be unable to influence their manufacturers. The Australian Packaging Covenant has a mechanism to capture the externalities involved with packaging on imported goods.
- The Australian Packaging Covenant commits members to contributing to a fund that looks for ways to deal with problem wastes. In New Zealand similar (voluntary) mechanisms have been examined, particularly where glass is concerned.
- The potential relationship between product stewardship and levies in New Zealand is hard to define because product stewardship policy is still evolving.
- The Victorian levy provides capital grants to improve efficiency.

- Levies and product stewardship are different instruments. Computers may require \$1000/tonne to incentivise diversion, which is much higher than the rate of any levy.
- Victoria's funding of capital expenditure has incentivised business activity around recycling markets, and may offset the negative effects to industry, especially when the process is transparent and contestable.
- There are opportunities for product stewardship schemes to fund cleaner production initiatives through levy funds.
- Noted that waste levies and product stewardship need to work together.
- The waste levy in Victoria has not caused the abandonment of product stewardship schemes. Product stewardship is seen as complimentary and essential because it is an upstream mechanism compared to a waste levy
- Noted that the lack of cost benefit analysis is an issue for waste levies and product stewardship, both here and in Australia.

Conclusions based on the workshop:

Potential impacts on product stewardship schemes were ranked the most important issue by workshop attendees. There was a strong recognition for the need to align waste levy policy with product stewardship policy. It was recognised that impacts on existing or potential product stewardship schemes would depend on the structure of a levy and how funding was redistributed. There are some lessons that can be learned from Australia in terms of how the two instruments can work together, to encourage new opportunities in waste diversion and product stewardship initiatives.

6.2 Funding inequities

The establishment of a fund from the revenue generated by a waste levy could potentially lead to over-investment in waste minimisation. For example, financial help for councils to undertake collections may see materials collected even when there are not markets for the material, and pressure placed on industry to then help manage stockpiled material (eg, glass). The size of a levy would be an important factor. Where firms are currently recycling under market conditions, competition from new, subsidised ventures may cut the competitive advantage of the existing recyclers.

Comment from Murray Parrish, Carter Holt Harvey Ltd:

“Paper recycling is an economically marginal activity at certain points in the cycle but is required to be kept going due to pulp mill economics requiring 24 / 7 360 day a year operation. Development and maintenance of markets for recycled paper products requires a stable supply and ongoing effort over the long term.

Artificial creation of a ‘market’ for recycled paper by way of ‘free’ capital for the development of a waste minimisation activity (biofuel burning, paper flower pots or whatever) will draw paper from existing activities and could therefore escalate the price. This will in turn represent commercial pressure on existing (unsubsidised) recycling operations and could contribute to their closure.

If any recycling activity is not of itself economically viable without subsidy, its support by way of levy funds represents a distortion. This may be acceptable on social or philosophical grounds but it must be realised that the activity will logically require subsidy for all time (on a commercial time scale) and could contribute to a decline in the viability of existing recycling.”

Workshop discussion notes:

- There was little evidence of over-collection of commodities in Victoria, except for organic waste collection where markets for recycled organic products are still being developed.
- The issue of subsidising uneconomic operations requires close scrutiny of the funding criteria and fund allocation methods. In a transparent fair process more effective/efficient operations should get funding compared to less effective or economic operations.
- There is the potential to make unwise allocations of levy money, and that the allocation of money collected would need provision of professional, directed expertise to the fund allocation body.
- A levy may raise issues of subsidised council operations competing against unsubsidised private operations. Regulation may need to ensure this does not occur.
- Funds under the national waste levy proposal would be spent under waste management plans, and that definitions for appropriate activities may need quite prescriptive criteria to avoid market inequalities.
- There would need to be a requirement for territorial authorities to report on where the funds are spent.
- Noted that levy funds will 'distort' the market. The intention of a levy is to galvanise market change and internalise some of the externalities associated with the cost of waste disposal.
- The Victorian approach encourages transparency on funding priorities and does not make a return on investment, but has a gearing ratio of around \$7 benefit to every \$1 invested.

Conclusions based on the workshop:

Well structured criteria that consider the role private industry currently plays in waste diversion will be important to ensure inequities do not result from the funding distributed. There will also be some need to ensure that funds allocated to councils are not directly in competition with private resources. There is recognition that councils already have a range of tools at their disposal to ensure the provision of waste diversion services under the Local Government Act 1974, that private industry does not have readily at their disposal. Council funding of waste initiatives will need to be targeted, if a proportion of funding is allocated directly.

This issue was rated the second most important of the 14 by attendees at the workshop.

6.3 Increases in the cost of recycling

Many recycling processes create waste that requires final disposal. A levy on waste disposed to landfill will increase the cost of processing the steel for recycling, and result in larger items being preferred for processing. For example Sims Pacific Metals in Otahuhu recycles end-of-life vehicles. The waste after cars are shredded is highly mixed and often contaminated with engine lubricants. The destination for this 'shredder flock' is landfill, where it would attract a levy. Sims Pacific note that increased disposal costs can not be passed on to suppliers of vehicles by paying them less for the vehicles because it will make the suppliers operations unprofitable and dismantle their collection network.

Conversely, funds from a levy could address issues associated with the management of end-of-life vehicles, such as setting up council infrastructure and resources to better manage the collection and disposal of end-of-life vehicles.

Workshop discussion notes:

- Waste levies may get imposed on items twice if it is first taken to landfill, before being removed for partial recovery (with the residual material returned for disposal).
- There is a public perception issue related to recycling being ‘free’ when it is not – often the costs associated with recycling are downplayed because there is a return perceived for the materials being recycled.
- The levy has the potential to disadvantage New Zealand businesses if the producers and/or manufacturers of imported material incur the costs associated with a levy on waste.
- If the levy is successful in reducing waste, the levy funds will dry up.
- Noted that in Victoria, the levy revenue is decreasing.

Conclusions based on the workshop:

Particular concerns were noted where the waste generated in recycling processes is a significant proportion of the total. Australian experiences did not indicate that levies significantly impacted on the viability of recycling operations, however there were indications that costs may need to be passed on to disposers of goods that require recycling to cover the increased costs of residual waste disposal. The effects of a levy were disputed vigorously by Australian regulators and, in particular steel recycling industry representatives. Further work is needed to clarify the costs and benefits to recyclers of a levy.

Workshop attendees rated the issue third in terms of importance.

6.4 Illegal dumping of waste

For many councils, illegal dumping is an on going problem of varying significance. It has been argued that increases in disposal fees may lead to an increase in illegal dumping but to what extent and for how long is uncertain. Illegal dumping is the most noted of the perverse effects evidenced from the European levy structures.¹

Illegal dumping increases could occur in two ways:

- an increase in events
- an increase in the volume of waste disposed of through dumping.

Council expenditure on disposal of illegally disposed refuse could increase in three ways:

- increased events or volumes of waste to manage
- increased enforcement costs
- illegal refuse attracting a levy at the point of disposal charged to councils.

¹ ECOTEC (2000) Effects of Landfill Tax—Reduced Disposal of Inert Waste to Landfill.

Illegal dumping can be managed to a degree through education, through penalties under the Litter Act and through policies that make it easier for people to dispose of wastes legally. Public education is an important element of any action to introduce waste levies.

Comment from Nick Van Straaten, Far North District Council:

“While our Council has taken a proactive stance to waste minimisation and has been very successful in reducing tonnages to landfill to date, we are currently facing rising costs for waste disposal and also are dealing with significant issues relating to illegal dumping.”

New Zealand perspectives and experience show that where disposal charges have been increased this has not necessarily resulted in an increase in illegal dumping. Over the last decade landfill disposal prices have risen rapidly in most areas. There is little evidence to show that illegal dumping has risen directly as a result of increased disposal charges.

Workshop discussion notes:

- Illegal dumping can be driven by the high cost of disposal, but is not necessarily so – other factors include lack of enforcement, limited educational resources and undesirable consumer behaviour.
- Illegal dumping is not monitored well. Costs tend to be split across agencies.
- Noted that this is a significant issue for rural councils.
- Rebates were suggested for illegal waste accepted by councils, as long as the level of rebate did not incentivise illegal dumping as a means of disposal.
- Auckland City Councils incur a \$1.2m cost for managing illegal waste.

Conclusions based on the workshop:

There is no evidence of a correlation between illegal dumping with the levy in New South Wales or Victoria. Additional resources have also been provided for enforcement of illegal dumping from levy revenues. This was rated by workshop participants as the fourth most important issue out of 14.

6.5 Diversion to cleanfills

The proposed national levy proposes that material disposed of in cleanfills would not be subject to a levy. In 2002 the Ministry for the Environment produced a guide to the management of cleanfills which describes the waste acceptance criteria for cleanfills. Waste in cleanfills should be inert, non-hazardous and not present a fire hazard.

Often cleanfill activities are regulated as a permitted activity under the Resource Management Act which do not require resource consents and are not subject to compliance checks. If a need for a more rigorous evaluation of cleanfills occurred as a result of a levy on waste to landfill, it could be difficult for councils to effectually monitor and enforce.

Workshop discussion notes:

- Christchurch City Council has cleanfill bylaws in place under Part 31 of the Local Government Act 1974 that set a cost recovery levy of 60c per tonne. This is used to cover compliance costs.

- Regardless of the existence of a waste levy, the cost of landfill disposal means there is an incentive to do the wrong thing with waste that should go to landfill, and that a levy was unlikely to impact on the levels of illegal activity.
- In Victoria 15% of volume to landfill is ‘levy free’ material used for cover. Capping the amount of material available for use as landfill cover could be an effective means to control the abuse of operational purpose rebates.

Conclusions based on the workshop:

It was not considered that the impact of a levy on disposal would significantly increase or incentivise the disposal of materials to cleanfill, and that this was more appropriately considered in terms of enforcement under the Resource Management Act 1991. The issue of whether or not operational purpose rebates would be considered as part of a levy structure needs some further investigation. Overall the issue was ranked fifth out of the 14 issues.

6.6 Increased costs associated with disposal make industry less competitive

Some people see the levy as an additional cost that would make some industries less competitive internationally, for example with China.

Comment from Ket Bradshaw, Plastics New Zealand:

“The waste levy could have the unintended consequence of being an additional tax that reduces the competitiveness of NZ manufacturing, which is already under stress from Chinese manufacturing and imports.”

Workshop discussion notes:

- It is debatable whether the cost of a waste levy would have a noticeable impact on business, however it needs to be seen in conjunction with a range of other factors including high energy costs and rates.
- Some businesses already have significant expenditures on environmental issues and a levy might affect this.
- The Victorian experience is that at \$20 dollars per tonne the levy is not a significant cost to businesses and there is an opportunity to recycle to avoid it.
- Noted that the business cost of disposing of waste is minimal compared to the business cost of resources.

Conclusions based on the workshop:

While it is noted that the imposition of a levy may affect businesses financially, the general Australian experience has proved the cost to business of increased disposal fees to be a very small proportion of total costs. It was generally recognised that if the purpose of a levy was to pass the cost on to the producer of the waste, this effect was not likely to be an unintended consequence, or perverse effect.

Workshop attendees rated the issue sixth out of the 14, in terms of importance.

6.7 Increased use of farm dumps

Waste levies may lead to the increased use of farm dumps as a way of disposing of farm wastes. This is not a good alternative since under many regional plans the sites are permitted activities and are not engineered for the collection of leachate or landfill gases. The use of farm dumps is discouraged by district councils. The extent of farm disposal is difficult to quantify and enforce.

It is hard to tell how much effect a levy would have on the increased use of farm dumps, and education will play an important role in encouraging the use of more sustainable and less polluting forms of disposal. Levy revenue could also have a positive effect if rural waste collections were to be subsidised from one of the funding pools.

Workshop discussion notes:

- On farm disposal has always been an issue in Victoria. It is not clear whether the waste levy has made a difference.
- Noted that there is an education programme in place in Victoria to reduce farm dumping.
- On farm disposal is also a risk in New Zealand. Farm dumping is a permitted activity in many regions, for example Northland Regional Council, Environment Waikato, Environment Canterbury and Otago Regional Council. Permitted activities are subject to less monitoring, compared to activities that require resource consents.

Conclusions based on the workshop:

There is no evidence from Australia that there has been a significant increase in farm dumping as a result of levy imposition. Targeted education programmes and development of guidelines can manage issues associated with on farm disposal and there is potential for rural refuse collection to be subsidised from levy funds, should the environmental, social and economic benefits justify this in the future. This issue was rated seventh out of the 14 by attendees at the workshop.

6.8 Materials recovered for energy from waste facilities being subject to a levy

The proposal under discussion determines incineration as final disposal and makes no distinction between materials recovered for the purpose of energy production, and facilities constructed for the purpose of waste reduction and final disposal. The perverse effect is to discourage use of resources that are impracticable to recycle or reuse, but may be recovered as a fuel or material substitute.

There are several examples of waste to energy facilities that use waste products as a fuel for heat, for example Holcim's cement kiln in Westport takes waste oil from the oil industry's product stewardship scheme and uses it to replace coal. 'Energy from waste' plants provide a legitimate secondary use of the embodied energy in products destined for disposal.

In Europe there are differential levy charges for plants with an energy recovery component, in recognition of the resource recovery and climate change benefits (reduction of methane gas emissions and the substitution of 'virgin' fossil fuels). In all jurisdictions the waste that requires final disposal post the extraction of embodied energy attracts the levy, and some jurisdictions (such as Norway) introduce a required level of energy production, in order for the facility not to attract a waste levy.

Workshop discussion notes:

- Some businesses are interested in energy from waste, and that there is an important distinction between (a) incineration for the purpose of reduction and disposal and (b) energy recovery. Many European jurisdictions charge differential rates based on the amount of energy produced.
- It is important to qualify what is meant by final disposal, as there is real potential to recover some of the embodied energy in residual waste for energy or as a substitute for 'virgin' fossil fuel consumption.
- Victoria's levy is a landfill levy but incinerators are not common.

Conclusions based on the workshop:

Energy from waste facilities are generally defined as resource recovery facilities in overseas jurisdictions, with some efficiency measure placed on energy output to minimise abuse of any rebate or exemption. Waste destined for final disposal after the recovery of energy would be subject to a levy.

Workshop attendees rated the issue eighth out of the 14, in order of importance.

6.9 Disposal of waste to other media

When the cost of solid waste disposal increases relative to other options it makes the other options more economic. A positive consequence of this is when waste is recovered for further beneficial uses. A perverse outcome occurs when an increase in the cost of solid waste disposal encourages waste disposal by incineration or discharge into the sewerage system.

The Ministry for the Environment has enacted National Environmental Standards to improve air quality in urban areas. An increase in the use of home incinerators for waste disposal could counter the work done to encourage improved air quality. The costs associated with more enforcement required to prevent a rise in on site incineration of refuse, would be a perverse effect.

Workshop discussion notes:

- Resource recovery is effectively another 'media', and the levy would hopefully encourage some movement in this direction.
- If incinerators are an issue, the Ministry for the Environment should have banned burning outright, and there is still the option to do this through the RMA if such a move is considered desirable or necessary.
- Biosolids are not caught by the waste levies in Victoria and New South Wales.

Conclusions based on the workshop:

While it was recognised by the Australian experts and other attendees at the workshop that alternative disposal could be an issue it was generally accepted that this was less of an issue than others. Workshop attendees did not rank this as a significant issue but noted that there was a need for levy design to consider the potential for this outcome.

6.10 Waste flight/waste tourism

The term ‘waste flight’ is used to describe the shift in spatial patterns of waste disposal that arise from differences in the price of waste disposal. Other things being equal, waste transporters will dispose of waste at the least cost disposal at different locations. The non-uniform introduction of local waste levies will alter the relative costs between waste disposal facilities with levies and facilities without levies. Some waste will then go to disposal facilities without levies that would otherwise have gone to the facilities where levies have been introduced.

Several concerns have been expressed about the possibility of waste flight, particularly from waste management companies. Concerns include:

- waste disposal shifting to facilities (or countries) with lower environmental standards than those incorporating levies resulting in increased environmental impact
- the impact of levies on competition (the playing field is tilted against those facilities that have to pay levies).

The extent and consequences of ‘waste flight’ is very uncertain and is dependent on the amount of any levy, the presence and distance of competing disposal facilities and the relative costs of fuel, labour and other expenditure items.

Workshop discussion notes:

- There is evidence in New Zealand of waste moving 200-300 km to cheaper facilities.
- There is evidence of waste moving from Wellington to Kapiti to take advantage of free tipping (organic waste).
- Noted that waste operators will balance transport and landfill cost, if it is economic to move waste to a distant landfill, this will occur.

Conclusions based on the workshop:

A levy applied consistently across the country is unlikely to effect waste flight due to the uneven price structure of fees and charges at landfills. More effective mechanisms were needed to control waste pricing and there was recognition for the need for increased consistency in how waste disposal operators, particularly councils, price the cost of disposal.

It was also noted that despite the Ministry for the Environment guidelines in place for full cost accounting of landfill disposal, these were not being adhered to by territorial authorities. It was considered the issue could be best managed through appropriate regulations on waste disposal operators regarding pricing structure. While workshop attendees did not rank this as a significant issue, it is noted that this needs to be addressed if levies are designed to target inconsistencies in the price of disposal.

6.11 Cross subsidy issues/fairness

Waste levy revenue based on weight only will be largely contributed to by industries that are major waste generators (eg, construction/demolition industry), however it would be unlikely that a similar percentage of the funds collected would be distributed back to the construction and demolition sector. In effect, revenue raised from construction and demolition activities would subsidise waste minimisation activities for other industries.

Workshop discussion notes:

- A national waste levy fund will essentially need to in part target, or be redistributed, to people that are paying into it.
- However, there also needs to be some assessment that is based on the volume and potential harm associated with current disposal practice for the waste stream, and where the best value can be retrieved from the resources that are diverted.
- There are upstream and downstream externalities of current waste disposal practises, such as resource depletion and decreases in the amenity value of properties (public or private), which need to be considered in allocation, for example, the cost of importing raw materials for the manufacture of ‘virgin’ packaging or building products.
- Waste sent to final disposal should attract a levy. This will determine what a sector’s contribution will be, and in certain cases this will incentivise waste diversion with industry sectors to avoid a levy.

Conclusions based on the workshop:

Cross subsidy issues will need consideration in regards to the structure of the levy. However, they were not rated by workshop attendees as being significant in comparison to the other issues being raised.

6.12 Increased use of insinkerators

Increasing the cost of solid waste disposal may lead to an increased use of insinkerators (waste disposal units) to dispose of food wastes. This is not a good alternative since this simply shifts the waste from the solid waste stream to the liquid waste stream and increases the demand on wastewater treatment plants.

Comment from Deborah Morley, Watercare:

“Insinkerators can only assist in disposing of the liquefiable waste from households and as such this would not pose an issue to wastewater treatment plants. Our concern surrounds whether this would encourage trade waste users to think more laterally about what can be sent down a sewer. This could have significant knock on effects particularly if you bring in a contaminant or hazardous based assessment for the levy charge ...”

Workshop discussion notes:

- The cost of disposing of solids through the wastewater treatment system is approximately \$1000/tonne.
- ‘Insinkerators’ are banned in certain parts of Europe.

Conclusions based on the workshop:

If the imposition of a levy resulted in the increased use of insinkerators, there are mechanisms in place to resolve problems. The issue was not rated by workshop attendees as being significant in comparison to the other issues being raised.

6.13 Materials destined for final disposal weighted the same, regardless of potential hazard or harm

Materials disposed in landfill have varying environmental impacts. There have been some attempts to quantify this. The recent draft report from Australia's Productivity Commission measures the disposal externality that different materials attract, ranging from \$25.00 a tonne for organic materials through to \$5.00 or less for relatively inert materials. The perverse effect is dependent on the design of the levy:

- It is unlikely that a levy designed to encourage waste minimisation activities would be used to encourage diversion of asbestos or other hazardous substances from landfill.
- If a levy is designed to change behaviour, it is likely that one behaviour change not desirable would be alternative disposal options for hazardous wastes. The externality created by incentivising uncontrolled dumping may be greater than the benefit derived from the levy.

Workshop discussion notes:

- The issue of inadvertently discouraging the safe disposal of asbestos was an issue in Victoria, but typically a higher levy rate on hazardous waste is desirable due to the increased costs associated with safe disposal.
- Increased price is an incentive to dump wastes rather than take them to landfill, however effective regulation of illegal dumping has been enhanced through levy funds in Australian jurisdictions.

Conclusions based on the workshop:

It is not always the case that increased disposal fees result in increased illegal dumping. The effect will depend on the rate of the levy and the weight of the material. Education plays an important role in the promotion of compliant disposal. Levy revenue can fund infrastructure for the safe management of hazardous waste.

Workshop attendees did not consider the issue relatively significant.

6.14 Stockpiles of source separated material awaiting recycling options – aesthetic and contamination concerns

The economics of recycling often relate to the quantity of material available for recycling. A levy designed to fund waste minimisation activities could provide the incentive to stockpile materials to achieve economies of scale. There is a risk stockpiles will have negative aesthetic effects and increase the risk of contaminating land used for stockpiling. Examples of materials are tyres, electronic waste, end-of-life vehicles and whiteware.

Stockpiles also provide habitat for vermin and other disease vectors. In Europe some levy structures (eg, Sweden) include restrictions on how long materials can be stored without attracting a levy. The Resource Management Act 1991 also provides controls that may be used to manage the negative effects of stockpiled materials.

Workshop discussion notes:

- Some degree of stockpiling is occurring already, and there are regulations controlling the effects of this in the Resource Management Act 1991 and the Health Act 1956.
- Stockpiling can be an issue for electronic waste due to the hazardous nature of some components. However, in Australia electronic waste recycling relies on levy funds to be sustainable.

Conclusions based on the workshop:

Workshop attendees did not consider the issue significant compared to the others noted, because there are controls in place to manage the issues associated with stockpiling.

7 Discussion

The second part of the workshop focussed on identifying the design elements that could assist in ensuring a waste levy did not create the unintended consequences. The following points were noted in the discussion:

- Exemptions for recyclers were seen as a way of avoiding increased costs associated with disposal, although many noted that exemption systems were open to abuse and were expensive to administer.
- The criteria for a fund would require extensive scrutiny in development and a recommendation was made to follow the example of other successful funds such as Transfund.
- Territorial authority spending should be limited to items prescribed in council waste management plans, with scrutiny from a national agency with the power to resolve conflicts between private business and territorial authorities. An alternative suggestion was to make 100% of the levy fund contestable.
- The central agency involved in administration of levy funds would require skills and experience commensurate with the waste industry and national priorities for waste reduction.
- The effects of illegal dumping would require stronger compliance regimes than are available. Levy funds were seen as essential for covering costs associated with compliance, enforcement and potentially disposal levies for illegally dumped waste collected by councils.
- Landfill operators may require assistance to standardise weighbridge equipment and measuring systems to make a levy system fair and equitable. There may be requirements to regulate weighbridge systems and fund initial acquisition.
- To ensure New Zealand businesses are not disadvantaged by waste levies that are not paid by importing competitors, a national levy would need to be complimented by product stewardship legislation that passed costs on to the manufacturers of waste packaging and redundant consumer goods.

8 Conclusion

The following table ranks the unintended consequences in order of importance:

Unintended consequence/perverse outcome
Impact on product stewardship schemes
Funding inequities
Increases in the cost of recycling
Illegal dumping of waste
Diversion to cleanfills
Increased costs associated with disposal make industry less competitive
Increased use of farm dumps
Materials recovered for energy from waste facilities being subject to a levy
Waste flight
Cross subsidy issues / fairness
Materials destined for final disposal weighted the same, regardless of potential hazard or harm
Increased use of insinerators
Disposal of waste to other media
Stockpiles of source separated material awaiting recycling options – aesthetic and contamination concerns

It is difficult to ascribe undesirable effects or behaviours specifically to waste levies, based on the Australian experience. While the effects on individual businesses are worth noting, generally levy systems operate in the way they were intended. There is likely to be pressure for rebates/exemptions, but Australian advice is to keep the options for rebates to a minimum.

A well designed levy will require considerable development before implementation to avoid unintended consequences. Legislation for levies in Australia just introduced levy making powers, to allow for design time. The two jurisdictions represented each had different reasons for the levy. The Victorian levy is more designed to raise revenue to fund waste minimisation activities. The NSW levy is designed more to be a disincentive to waste generation.

