S U B M I S S I O N

TO THE

INQUIRY INTO THE MANAGEMENT OF AUSTRALIA'S WASTE STREAMS

BY THE

ENVIRONMENT, COMMUNICATION AND THE ARTS COMMITTEE

OF THE AUSTRALIAN SENATE

Part C

June 2008

If recycling is the answer – what is the question?

Prepared by:
NATIONAL ASSOCIATION OF RETAIL GROCERS OF AUSTRALIA
Level 5, 34 MacMahon Street
HURSTVILLE NSW 2220
Tel: 02 9580 5599
Fax: 02 9586 4777
Contact: Gerard van Rijswijk – Senior Policy Advisor
Email: gerardvan@narga.com.au

CONTENTS

Executive Summary

This submission addresses the following:

> *'If recycling is the answer – what is the question?'*

This question is put because the objective of achieving higher recycling rates – or higher rates of diversion of urban wastes from landfill - appear to be the justification for a range of policy positions. These include in some cases, the imposition of a container deposit scheme – or deposit tax – as a means of lifting recovery rates.

In almost all cases, the decision to recycle more has not been properly assessed in terms of need and overall community benefit.

Various reasons for the recycling of household and other wastes have been proposed over the years. This submission examines these reasons in the context of the overall waste stream and material flows, and concludes that, with the notable exception of paper and under certain circumstances, aluminium, there is little to recommend recovery of other packaging materials from the household waste stream.

However, embedded in each state's waste management legislation is the concept of a 'waste hierarchy' – a simplistic rule of thumb that guides policy, and a landfill waste reduction target that forever appears out of reach.

The general public is told 'recycling is good' and 'landfill is bad' and vast sums need to be spent to promote the former and avoid the latter.

Consumers pay for this diversion activity through higher council rates, higher product prices (which disadvantage local producers) and higher building costs. However they never see these additional costs and so assume that recycling is 'free'.

This submission concludes that current waste and recycling policies, focussed as they are on diversion from landfill and recycling, need to be reviewed in the context of true sustainability and community net benefit.

WHO WE ARE

The National Association of Retail Grocers of Australia (NARGA) is the peak national body representing the independent retail grocery sector in Australia. It is composed of and related to the following organisations:

- Retail Traders and Shopkeepers Association of NSW
- The Master Grocers Australia
- Queensland Retail Traders and Shopkeepers Association
- WA Independent Grocers Association
- Tasmanian Independent Retailers
- IGA Retail Network
- State Retailers Association of SA

Together these represent more than 5000 small to medium sized businesses employing over 100,000 people.

Retailers provide the interface between manufacturers and producers and the general public and are therefore significantly impacted by government efforts to 'manage' waste through regulation of elements of the supply chain for products and packaging, particularly where these impose additional requirements on retailers or where there is a call for allocation of retail space – e.g. through the placement of recycling bins.

Current waste policies impose considerable additional costs throughout the product supply chain – costs that are passed on to consumers in the form of higher grocery prices. It is suggested that such a review would show that many of the materials now targeted for recovery do not result in a net benefit and are better disposed of to landfill.

Australia's waste streams

Our first submission made a series of studies available by way of background to the Inquiry. The studies by researchers at the University of Melbourne quantified Australia's waste flows and set out a logical approach for its management.

They were:

- *Waste Flows in the Australian Economy,* Connor M A et al, May1995, University of Melbourne

- *Strategies for the Disposal of Solid Wastes in Australia,* Connor M A et al, November 1995, University of Melbourne

The first study showed that, over the one year study period Australia produced 4.6 billion tonnes of waste of which 5 million tonnes – or 0.1% was household solid waste. Yet it is this part of the waste stream that receives the greatest attention – and we are all told that diverting this waste can help 'save the planet'.

Of the 4.6 billion tonnes around 2.1 billion tonnes is solid waste, 2 billion tonnes is liquid waste and 0.5 billion tonnes is gaseous waste.

The numbers suggest that, in terms of overall 'waste reduction' targeting 0.1% of the waste stream – a part of the waste stream that represents waste in its most dispersed and least homogeneous form – is not cost-effective.

Running out of landfill?

When local government started to become more involved with recycling in the late 80's and state governments started to got interested soon thereafter, the most common rationale put forward was that we were 'running out of landfill.'

Whilst some cities have had problems siting landfills the cause of the problem is not shortage of holes in the ground waiting to be filled. More often than not it is the lack of forward planning, just like we are running out of hospital beds, old age facilities etc.

The first study mentioned above surveyed the materials quarried in and around the major cities – crushed rock, limestone, sand, gravel, clay etc. –

and found that some 165 million tonnes of these materials are used each year.

This means that we are creating holes in the ground at a rate more than 10 times faster than we can fill them with waste.

Clearly, shortage of landfill space is not a driver for recycling.

Waste diversion – avoiding landfill

The next rationale offered in support of recycling – which came into vogue after the Rio conference in 1992 – was the diversion of waste from landfill. We should avoid landfilling waste – even though landfilling met the public health and safety objectives of waste management at lowest community cost.

Countries and states started setting landfill diversion targets – 50%, 60%, 100% - the race was on.

There was, of course, a target within the Agenda 21 plan that was agreed at Rio, but it was not about taking waste out of landfill. Section 21-29 (c) states:

'By the year 1995, in industrialised countries, and by the year 2005 in developing countries, ensure that at least 50 per cent of all sewage, waste water and solid wastes are treated or disposed of in conformity with national or international environmental and health quality guidelines.'

It was more about putting waste *into* landfill – the concern being the amount of waste being discharged into the environment, in the case of sewage and water wastes, and the amount of solid waste left uncollected.

Australia's response at federal and state levels was a landfill diversion target – proposed without a valid underlying rationale.

Resource Conservation / Resource Recovery

In October 2006 the Productivity Commission issued its final report into waste management.

Recommendation 6.1 and 6.2 in that report state:

'Australian, State and Territory waste legislation and strategies should be reformulated to focus on reducing risks – to human health, the environment and social amenity – from waste to acceptable levels. Objects that distract from this focus, such as those relating to resource conservation and upstream environmental protection should be removed'; and

'Waste management policy should not be used to promote resource efficiency (defined as the value added per unit of resource input). This is because measures of resource efficiency:

- *Do not take into account the use of all resources: and*
- *Often involve aggregating quantities of different materials in a way that does not take into account their individual market values or environmental impacts'.*[1]

The Commonwealth response to these recommendations confirmed the view that resource efficiency needed to be considered a part of waste policy development.

'The Commonwealth acknowledges that reducing the risks posed by waste to human health, the environment and social amenity are of vital, indeed primary, importance, but resource conservation and efficiency should not be neglected'; and

'The Commonwealth does not agree with this recommendation (6.2). Resource efficiency is an important goal fundamental to environmentally sustainable policies.[2]

However, no substantive argument for this position was forthcoming.

Let's look at the resource conservation situation.

Prior to councils taking over the running of kerbside programs, newsprint was recovered from households on the basis of its value as were glass beer bottles (then the dominant beer packaging). As the latter were refillable they could be sold back to the brewery and hence their recovery was self sustaining.

When aluminium cans came on the scene the inherent value of the aluminium supported a 'cash-for-cans' buy back program.

[1] Waste Management, October 2006, Productivity Commission Report No. 38, 20 October 2006
[2] Government response to the Productivity Commission's Final Report on the Inquiry into Waste Generation and Resource Efficiency in Australia, undated.

Cardboard was also being recovered from shops and supermarkets. The markets for secondary materials meant that these activities were self funding.

As materials used for packaging changed and as new materials were added, collection programs became more complex and more costly but, given that newsprint (household paper) and glass make up around 80% of recovered materials, the additional volumes recovered did not represent 'value for money'. We now have a situation where this recycling activity comes at a net cost to the community, a cost disproportionate to the value of the recovered materials.

Newsprint, cardboard and paper recycling can be seen as a recycling success story – substantial volumes are recovered and recovery of these materials is, for the most part, self-sustaining.

The case for recycling other materials is more doubtful.

Let's ask a few questions about extending the range of materials beyond those that pay for themselves – i.e. to glass, steel, plastics etc.:

Do the materials pose a problem in landfill? - No, they are inert.

Are the materials used in their manufacture in short supply? - No, we are a major exporter of metal ores and have sufficient stocks of the others.

Are the materials that are recoverable valuable enough to cover the cost of their recovery (or compete with other sources of the same materials? - No. They cannot generally compete without some form of subsidy.

Is the recovery of these materials self funding? - No. They need to be supported by a levy or tax.

Is the recovery of these materials risk free (OHS and public safety) - No. Workers and others are put at risk during transfer and sorting stages.

Is there anything to recommend the expenditure of public funds on this activity? - No. The activity is unsustainable – in the true meaning of the word.

Let's look at some examples:

Glass recycling

Glass is inert in landfill. Its main component is sand, one of the most plentiful materials on the planet. Its recycling is cost-negative and in many cases energy negative.

Much of the glass collected breaks in the collection vehicles which means that it can't be sorted for recycling and goes to landfill anyway[3].

Broken glass in the collection system also disrupts the recycling of other materials – particularly paper.

The National Packaging Covenant recently provided recyclers in Sydney with a grant of $400,000.00 to install a glass grinding system so that some of the broken glass can be recovered and so diverted from landfill. This energy intensive process grinds the glass back to sand-sized particles so that it can be used to displace sand in sand blasting applications – just so that it can be said that the material is being `recycled'. Of course the extra energy used further distorts the energy balance of glass recycling, which is already precarious. (The energy saved by recycling glass is consumed if the glass has to travel more than 160 km (100 miles))

Steel

It takes almost as much energy to make steel from recycled materials as it does to make steel from ore. i.e. there is no `energy' case for collecting steel cans from households.

Australia recycles around 3 million tonnes of steel each year from commercial sources (building materials, cars, appliances etc.). The quantity represented by collections of cans from households is about 1-2 % of the total amount of steel being recycled, but to get that additional 1 - 2% we need to send a truck past 7.5 million households once a week and sort the collected mix.

Further, we are not short of iron ore – we currently have an estimated 16.4 billion tonnes of this material (with more found in WA every time a prospector digs his spade into the dirt). So there is no `resource conservation' rationale for recovering steel cans.

[3] Figures of 80% for Sydney and 70% for Brisbane have been quoted.

Plastics

Firstly let it be recognised that most of the plastic used for packaging in Australia is not made from the component of oil that is used to produce fuel – rather it is made from those fractions that would otherwise by flared into the atmosphere. (*The Economist* Research suggests that some 150 billion cubic metres of gaseous material is still being flared each year because of the absence of processing facilities.) This suggests that recovering plastics does little to 'save' useful oil.

That said, the quantities of plastics recovered through recycling from households, translate into just minutes of worldwide oil use. (assuming plastics are 100% oil based). Put into other words, 100 years of plastic recycling from households represents less than a 1 day extension of world oil reserves over that 100 year period!

That is before we even take into account the energy used to collect, transport and process this material.

Again, plastics are inert in landfill – there is no 'impact' rationale for its recovery.

Yet, we are examining means to include additional materials into the plastics recycling collection system – all on the basis of increasing the recycling rate and diverting this inert material from landfill.

At no time have environment agencies that promote recycling on the grounds of resource recovery or conservation actually reported on our resource reserves (national and global) and shown that recovery of materials from households is either necessary and / or makes a meaningful contribution to the resources we need now or into the future. The above examples show that the answer to both questions is that the amounts involved in household recycling are insignificant.

Sustainability and Intergenerational Equity

The next rationale used to support recycling is the concept of *sustainability* or *intergenerational equity.*

Reading the waste plans and related materials put out by State governments, it appears that any material that is 'rescued' from landfill 'improves sustainability'. In fact, the words sustainable and sustainability

appear many times in such documents and are given a variety of meanings.

The concept of *sustainability* and *intergenerational equity* came to the fore after the *Brundtland Report (Our Common Future 1987).* Whilst this report does define sustainability in terms of looking after this generation in a way that considers future generations, few tend to quote that part of the report that suggests that resource use may need to increase substantially in order to look after the current generation properly.

Apart from Brundtland, sustainability has many definitions, but it is clear that it has a resource / environmental element, a social element and an economic element.

Expenditure of this generation's financial resources on activities that make no meaningful difference to the availability of resources is not sustainable, as those economic resources would be better invested on activity or infrastructure that advantages either the current or future generations. It could be argued that one of the resources we need to conserve, and not waste, is money, as this allows us to invest in the welfare of both the current and future generations. Many of our waste diversion activities are clearly a waste of money.

> *In what way is sustainability or intergenerational equity improved by wasting money on the facile policy of recovering materials of inconsequential value?*
>
> *Sustainability is not improved by such waste of the community's economic resources.*

It could be said that diverting this generation's financial resources for trivial gain is anything but sustainable.

This theme is further explored in the paper attached as Attachment A - *Wasteful Consumption and its impact on Waste.*

Extended Producer Responsibility (EPR)

The concept of an EPR tax first arose in Europe and forms the basis of much of the funding for recycling there. It was taken on as a concept by the OECD which produced guidelines on EPR in 2000.

In simple terms, EPR puts a tax on a package or product that is paid by the producer or marketer and passed on to the consumer through the product price. In this way the cost of recovering the package or product for recycling is incorporated into the product price as an additional (most often hidden) tax or levy.

The collection of these funds and often the management of the collection activity is coordinated through a cooperative formed by producers / marketers and is known as a Producer Responsibility Organisation (PRO).

Whilst EPR is another way of raising funds for recycling, it avoids any debate on the central issue of whether the targeted recycling activity is warranted or worthwhile. Furthermore, as government agencies no longer have to find these funds from general tax revenue, there is no incentive for them to consider the true worth of any recycling program that they propose. This theme is further examined in ATTACHMENT B - *Extended Producer Responsibility – An Analysis of Policy and Practice*

Container Deposit Legislation (CDL)

CDL is a special case of EPR, where the return mechanism for the goods in question is driven by an arbitrarily set value in the form of a deposit.

The common perception of a deposit scheme is one that applies to beverage containers. In most countries and states disappeared along with refillable bottles[4] – which used to provide the rationale for the deposit return system – i.e. the bottle itself was valuable enough to warrant its recovery. Bear in mind that these schemes were originally set up when bottles were hand-blown (the first mechanical bottler blowing machine did not come into operation until 1903.) and therefore quite valuable.

However, deposits are alive and well within the goods distribution system and apply to items such as pallets, beer barrels, soft drink concentrate containers, crates, etc. any re-usable item that has a significant value.

When it became more efficient to move to one-trip packaging, the deposit and its accompanying return system, was no longer required.

The public perception of deposits is that you pay your deposit and get it all back when the bottle or can is returned. There is not an awareness

[4] Market forces at work.

that the system is costly to operate and financed by additional fees which are not returnable. (e.g. the typical service fee in SA is 5c per container.)

That is the concept people respond to when asked whether or not they support container deposits – that and a dose of nostalgia. If asked the question in the context of awareness of additional fees, a large majority of respondents are not supportive of deposit schemes. (Some deposit schemes in the USA are more honest on this point – calling the deposit regime a `half-back' system – you pay 10c and get 5c back.)

Reality is quite different from current public perception. In order to run a deposit scheme there needs to be a return mechanism. In SA this is provided by a series of depots which are funded by the service fee.

These fees are additional to the fees householders are already charged through council rates to run their kerbside recycling system. It is an additional **tax** on recycling – a tax which everyone pays, whether or not they do the `right thing' by returning the container.

Those who litter these containers are also `taxed' the amount of the deposit which they loose. But those who put these containers into their council recycling bin are **also** taxed at the same rate as the litterer – a tax on good behaviour!

Much of local government support for CDL derives from the information given by SA councils to their interstate colleagues about the additional revenue available from the deposit items put into the recycling system. What is not so obvious is the additional cost associated with sorting those items in order to reclaim the deposits.

Deposit schemes impose a series of additional costs. Apart from the need to set up and fund a separate return mechanism, there is the compliance costs at manufacturer, marketer and retail levels associated with charging and accounting for the deposit, and the additional cost to the environment associated with personal transport to the collection depot.

Those proposing CDL for states other than SA, where it already exists, assume that on its introduction, material recovery rates will spontaneously move to a higher plane – equivalent to the levels of recovery achieved in SA where the legislation has been in place for nearly 30 years and the practice of charging and redeeming a deposit has been in continuous use for more than 100 years. (The collection depots were called `*Marine Store Dealers* – a term associated with the time of sail!).

Overseas experience suggests that recovery rates under new schemes will build slowly and that there is no guarantee that high rates will result.

The more critical question however, is whether, given the arguments presented above, whether higher recovery rates are, in fact, desirable.

The reality is that, when it comes to material recovery for recycling, the higher the recovery rate, the more likely it is that the recovery of the additional material is unsustainable.

CDL imposes a tax on recycling behaviour, an additional cost impost that cannot be justified in terms of net community benefit.

ATTACHMENT C provides a more detailed briefing on the container deposit tax:

Recycling Targets

Governments in each state have set targets for waste diversion. The National Packaging Covenant (NPC) has also set a target of 65% (by 2010) for packaging recycling.

Whilst the NPC makes it clear that the agreement is a cooperative arrangement between the three levels of government and the packaged goods sector, the target somehow is being interpreted as a target for industry – even when they are not the people actually running the recycling collection programs. i.e. they are asked to be responsible for an outcome they cannot directly influence.

The downside of not achieving this arbitrarily set target is that industry could be 'punished' by the introduction of container deposit legislation.

Ironically, it is not industry that will suffer, but consumers who will have to pay the higher prices for products once CDL costs have been incorporated into the product price.

It is easy to set an arbitrary target but it appears that little though has been given as to whether the target is realistic and achievable. There is also little understanding of the reality that higher targets simply translate into increased community costs. Higher targets do not necessarily translate into an increase in environmental benefit (let alone net community benefit) as the additional materials that need to be

recovered to achieve that target are increasingly recovered under less than ideal circumstances.

There is no evidence to suggest that the target setting process has involved any detailed analysis of costs, benefits and consequences – or of the genuine need for the recovery of the targeted materials on resource scarcity grounds.

So let us examine the concept of a recycling target and the capacity of a system to achieve it.

% Recovered = C x A x P x M x CE x S x Y

Where:

C = Proportion of the population covered by the scheme

A = Awareness of the recyclability of the item concerned

P = Participation rate (i.e. proportion of people that participate in the scheme)

M = Material participation rate (proportion of participants that chose to put a particular material out for recycling)

CE = Collection efficiency

S = Sorting efficiency

Y = Yield from the recycling process.

It is soon recognised that if each of these steps is 90% efficient, recovery is less than 50%.

It is also obvious that the values vary by material type, being high for say newsprint and low for some types of plastic.

Let's put some 'real'[5] numbers into the equation for a material that is recognised as 'recyclable'.

[5] Numbers have been chosen to illustrate a best case scenario for a material in a kerbside system

C = 88% - The proportion of Australian households covered by a recycling scheme

A = 95% - The proportion of householders who know this material is recyclable

P = 80% - The proportion of households that participate (the true figure is lower)

M = 90% - The proportion of households that choose to recycle this material (for many materials this proportion is lower)

CE = 98% - The proportion that survives the collection process. (see glass)

S = 95% - The proportion of material that is correctly sorted

Y = 90% - The proportion that is recovered by the recycling process.

The net result is a 50% recovery of material. Given that some of the factors used above are optimistic – where did the 65% NPC target come from? Clearly not from any detailed assessment of what was possible!

Note that newsprint reports and achieves a much higher recycling rate (75-78%). This is because the rate is boosted by returns from newsagents and from the newspaper printing facilities. It does not mean that high rates can be achieved by other materials.

The formula approach illustrates how difficult it is to recover high proportions of material through a kerbside collection system. All parts of the system – and particularly the consumer / householder component – need to be fully engaged and efficient. This is difficult to achieve.

Note that this is NOT an argument for imposing yet another system to supplement kerbside collection in order to boost recovery rates. The theme of this submission is to show that targeting higher recovery rates cannot be supported on the basis of net community (including environmental) benefit. They are not sustainable.

Greenhouse Gas (GHG) considerations

There is a perception that recycling can contribute to the reduction of carbon entering the atmosphere. However, the picture is quite complex and may warrant a review of current practice. Some examples follow:

- Paper pulp manufacture uses energy derived from forestry resources that is carbon neutral. Recycling paper however, uses energy from the grid which, in the case of Australia, is mostly fossil fuel based.

- As paper is derived from a renewable resource, using at as a source of carbon neutral energy has been examined in Europe.

- Depositing paper in landfill is a means of locking up carbon, depending on the conditions in that landfill.

- GHG concerns may militate against the recycling of heavy materials such as glass which have significant transport impacts.

- Given that many plastics are derived from waste petroleum products and contain long chain carbon based molecules, their deposition in landfill may represent a way of locking up carbon.

Energy from Waste

Many countries in Europe and in our region derive high material recovery rates from the fact that they burn their waste to recover the energy – feeding the resultant energy into the grid and as heated water or steam for domestic and industrial uses.

As the greater proportion of waste currently going to landfill is organic in origin, much of this energy is carbon neutral.

An added advantage is that metals such as steel and aluminium are also recovered without the cost associated with separate collection and sorting.

Good recycling and bad recycling and how to tell the difference.

Whilst much of the current recycling focus is the recovery of materials from the domestic waste stream, most recovered materials actually come from the commercial sector – the exception again being newsprint.

The bulk of cardboard comes from supermarkets and shops, the major proportion of fine paper from printers' off-cuts etc.

Good recycling is recycling that recovers useful materials without imposing unnecessary costs on the community.

Recycling tends to work well when there are significant volumes of relatively valuable / recoverable, clean materials at few locations, close to markets.

Household recycling represents the antithesis of this ideal – the material collected is highly dispersed, non-homogeneous and contaminated.

Examples of good recycling include:

- The use of regrind in plastic moulding operations
- In-house use of glass cullet in glass manufacture
- In-house use of reject / off-cut steel in steel mills
- Reprocessing of roll ends, off-cuts in paper mills
- The recovery of paper from printers
- The recovery of scrap from metal processors / can makers
- The recovery of reject glass (and other materials) from glass customers

When these examples are examined, it is easy to see how different they are to the recovery of materials from households and why the kerbside systems are not self-sustaining or sustainable.

Costs imposed by a recycling focussed waste policy.

Many cost-benefit / lifecycle studies have been conducted comparing the various methods that can be used to manage consumer / household waste.

Studies of recycling tend to start with the material at the kerb, leaving out impacts within the home associated with preparing the materials and the value of personal time spent collecting and sorting.

Such studies also tend to include the value of emissions foregone due to the fact that recycled materials have replaced the need to produce new raw materials. This practice is controversial for a number of reasons including the fact that emission associated with that production process may have already been internalised through licensing or other means, the quality differenced between new and recycled materials (which reduces their substitutability), yield factors and the fact that production of the new materials do not, in fact, decline.

Apart from the costs associated with the recycling activity itself which tend to be captured by such analysis of costs and benefits, a range of other costs are imposed on society which tend not to show up in these studies. These include:

- Costs associated with recycling incentives, principally landfill taxes and levies. A $50.00 per tonne landfill tax translates into an additional $50.00 on the household council rate bill, given that a typical family disposes around a tonne of waste per year.

- Costs associated with the various schemes used by governments to promote recycling and waste diversion, including the National Packaging Covenant.

- Management costs within departments at federal and state levels and at the local government level, including 'waste education' activities.

- Costs imposed on individual companies pressured to make their packaging 'recyclable' – often at the expense of using lower cost / lower impact materials

- Opportunity costs associated with the inability to use innovative packaging / product solutions because these are 'not recyclable'.

- Costs associated with the distortion of markets inherent in current approaches to waste management and recycling.

The recovery of organic waste

Given that the systems for the recovery of paper and packaging from households are now well established, attention is shifting to the recovery of garden waste. Whilst recovering council parka and garden waste may make sense, the rationale for the proposed recovery of relatively small quantities of materials from 7.5 million individual households needs to be re-assessed.

Nationally it may be possible to recover around 2 million tonnes of 'green' waste. Apart from problems associated with contamination that affects the quality of any resulting compost product, the quantity that is recoverable needs to be compared with the estimated 400 million tonnes of organic material available in the farming and forestry sectors.

Arguments based on taking urban green waste 'back to the farm' are rather like arguing for taking 'coals back to Newcastle.'

Again it appears that any policy analysis that has been undertaken has lacked the necessary 'big picture' element. i.e. 'How does what we propose work in a wider context of material availability and material flows.'

Drink Container Recycling Bill 2008

It is not clear which head of power the Bill relies upon in order to impose obligations on States, Territories and others. It may well be unconstitutional.

Putting that issue aside, the Objects of the proposed Act suggest, inter alia, that the intention is to 'ensure the environmentally sustainable management and reuse of used beverage containers' and to 'support economic recycling options for used beverage containers'.

However, as has been shown in this submission, current recycling approaches, let alone any increase in recycling that could come about as a result of this Act, are not sustainable, nor is a deposit based container recovery system economic.

Conclusions

Current waste and recycling policy relies on a number of rationales that suggest that diversion of waste from landfill has net beneficial outcomes. This submission shows that the rationales advanced are quite shaky and lacking in substance.

There is little evidence that the diversion of inert packaging materials from landfill has genuine merit in terms of reducing impact or conserving resources needed by current or future generations.

However, current policy settings have resulted in an approach that sets targets for the diversion of waste from landfill and the recovery of recyclables. As the recycling targets appear to be out of reach (at least within the timelines proposed) some suggest the container deposits are the answer to their achievement.

Little evidence is available to suggest that the achievement of any resulting increase in material recovery is worthwhile or results in net

community benefit, suggesting that the additional cost associated with a deposit scheme represents poor value for money.

ATTACHMENT A

Wasteful Consumption and its impact on Waste

Gerard van Rijswijk BSc (UNSW) MEL (USyd)
Senior Policy Advisor
National Association of Retail Gocers of Australia

Abstract:

Public concerns about wasteful consumption are explored in the context of public understanding of waste management and waste-related environmental impacts.

This paper explores these public concerns. They are linked to concepts of resource depletion and intergenerational equity. The impact of product and packaging on the waste stream is assessed as is the trend towards dematerialisation.

The paper asks and seeks the answer to the key questions of optimising resources, reducing overconsumption of materials in the household waste stream, and shows how an examination of the system can point to means of reducing the level of overconsumption and hence waste.

Topical examples are drawn from items in the waste stream – newspapers, plastic shopping bags, food waste, and computers. These are used to demonstrate how waste, impact and consumption are linked and how the recognition of the nature of that linkage can be used to optimise resource use.

Key words:

wasteful, overconsumption, impact, packaging, plastic bags, newsprint, food waste, computers, dematerialisation.

Current perceptions of western country consumption patterns are that they are wasteful and contribute to increasing flows of waste to landfill. Concepts of 'wasteful consumption' and 'overconsumption' are, in the mind of the general public, linked to concerns about resource use and sustainability.

Developed nations are seen as using more than their 'fair share' of the earth's resources and as disposing of disproportionately larger quantities of waste.

Public concern vs understanding

'Wasteful consumption' is seen in a variety of contexts. It is variously described as consuming more than we need, consuming in a way that is 'unsustainable',

consuming in a way that 'produces too much waste', or linked to 'wasteful lifestyles'.

'Overconsumption' has similar connotations, although technically it has been described in economic, environmental, social and even medical terms. Economists see overconsumption as a lack of balance between the availability of supplies and the rate at which these are used; environmentalists see it in the context of natural resource use; sociologists see it in terms of personal allocation of available resources and doctors relate overconsumption to obesity.

Both are politically and emotionally charged terms and linked to concepts of waste and wastage, landfill impacts, the ideas of 'running out of landfill space' and 'running out of resources'. The issue is often described in moralistic or judgemental tones.

Whilst there is ample data on the amount of material disposed to landfill by households, the data does not tell us the extent to which the associated consumption was 'wasteful' (excess to fulfilling needs)
There is very little information available on the extent of wasteful consumption or overconsumption and much of what has been written is subjective in nature – i.e. the author decides what is 'wasteful'.

One attempt to quantify 'wasteful consumption' is a study by the Australia Institute[6] based on a consumer questionnaire in which respondents are asked to quantify the dollar value of a range of purchases disposed of unused. It concluded that the value of food waste disposed of in any one year exceeded $5 billion. If ABS food sales figures[7] are used as a basis, this survey suggests that less than 5% of food purchased is wasted, implying that the system of food distribution and use is quite efficient.

The Australian Food and Grocery Council[8] confirm that food waste amounts to 2.2 million tonnes per year and landfill data confirms that food waste is a significant component of the waste stream. I will come back to the matter of food waste later.

A general review of other papers suggests that people tend to overuse or over-consume resources at home and at work as represented by a range of practices including the purchase of new products before the old one is worn out (cars, computers, other electronics, appliances etc.) or that goods are inappropriately packaged or 'over-packaged'.

[6] Hamilton C. et al, Wasteful Consumption in Australia, Discussion Paper No. 77, March 2005, The Australia Institute
[7] ABS Cat. 8501019
[8] 2003 Environment Survey, AFGC

Much of the debate on these issues and of the link between consumption and waste takes place in the popular media, and has resulted in the perception that:

- The creation of waste is, per se, wasteful
- Australians are a wasteful people
- We are running out of landfill space
- Landfill has a disproportionately high environmental impact and
- We are running out of resources

Some of these perceptions were addressed by the Productivity Commission in its recent report[9] on waste management.

The Commission concluded (among other things) that:

- *'Comparisons between Australia's waste management outcomes – in terms of waste generation, recycling and disposal – and those of other countries should be made with caution' (P. xlv),*
- '*Generally speaking, Australia is generating new holes faster than we are filling old holes with waste.' (P. xxix)* and
- *'The total external costs of properly-located, engineered and managed landfills that incorporate efficient gas capture (with electricity generation) are likely to be less than $5 per tonne of waste. (P. xlv)*

These conclusions suggest that there is a significant gap between public perception of waste and waste realities.

Resource Depletion and Intergenerational Equity

A popular view is that we need to be 'less wasteful' for reasons of 'intergenerational equity' - that 'sustainability' requires us to consider the needs of future generations. This concept is advanced without any assessment of how much we have in the way of resources and of what the resource needs of future generations may be.

An item in the London Times in 1894 suggested that, given the rate of growth of the city, London would soon be knee deep in horse manure. Those looking to the needs of the future would have considered it essential to conserve the supply or production capacity of horse feed. Of course the advent of motorised transport changed all this.

Home lighting in the 18th and 19th century was based on candles and whale oil until replaced by gas and mineral oils and later by electric light. No-one would suggest that at that time it would have been prudent to slow the harvesting of whales for future generations' lighting needs.

[9] Productivity Commission 2006*, Waste Management*, Report No. 38, Canberra

More recently, the telecommunication industry was reliant on copper wire and, given usage trends faced an acute shortage of copper only solved by the invention of optical fibre.

> ***It is difficult to predict the future and determine, with accuracy, future resource needs.***

Australia is a resource rich nation and a major exporter of resources. Compared with the volumes of resources we produce and export, the quantities of materials recovered from households for recycling are, in relative terms, insignificant (paper excepted).

The resource depletion debate needs to take place within a context of a full understanding of the resources available to Australians, as this would show us whether these were being 'over-consumed' or whether they needed to be conserved for the use of future generations. Waste and recycling policy appears to have been determined without the benefit of such analysis.

Australia has access to large quantities of primary resources. We have proven reserves of minerals to last us well into the future, yet it is claimed that metals should be collected from households to conserve resources. The following table suggests that 'resource depletion' concerns are unfounded.

Resource	EDR[10]	Household Use p.a.
Bauxite (to make aluminium)	7.8 billion tonnes	44,000 tonnes
Iron ore (for steel production)	16.4 billion tonnes	60,000 tonnes

Further, the primary material used to manufacture glass is sand, which is one of the most plentiful materials on the planet, and paper, another material collected kerbside, is made from renewable resources. Plastics used within the home make up a relatively small subset of total petroleum product use.

> ***The materials collected from households for recycling do not appear to be so scarce as to warrant their conservation.***

> ***Given our resource reserves, consumption of these resources by households would not appear to be 'wasteful' nor could these levels of use be considered 'over-consumption' or an 'unsustainable' level of consumption.***

Another way of looking at the household resource use picture is in terms of resource flows. A study[11] of key economies by the World Resources Institute

[10] Economic Demonstrated Resources – Geosciences Australia
[11] Adriaanse A. et al, Resource Flows: The Material Basis of Industrial Economies, World Resources institute, 1997

showed that, typically, 84 tonnes[12] of (solid) resources are needed to support each person every year. Given that the typical Australian generates around 200 Kg of waste (exclusive of green waste), the maximum proportion of resources available for recovery from households is 0.2% of that resource flow. In other words, Australians collectively use around 1.7 billion tonnes of resources each year, of which approximately 4 million tonnes are recoverable at kerbside.

> ***The data suggests that the quantity of materials disposed by households does not have a significant impact on resource use / resource depletion, nor is it indicative of 'over-consumption'.***
>
> ***The volume and proportion of resources involved do not provide a sound or valid basis for waste policy based on 'resource recovery' or 'resource conservation', particularly as additional resources need to be used to recover these materials.***
>
> ***The current emphasis in waste policy on 'resource recovery' does not appear to be based on a rigorous assessment of the resources we have available, our rates of resource use and future resource needs.***
>
> ***Most materials targeted for recovery are inert in landfill and their recovery can only be justified if it is done at no net community cost (i.e. it is commercially viable).***

'Wasteful consumption' or 'overconsumption', are terms often used in the context of sustainability. Whilst many commentators quote the Brundtland Commission report's definition of sustainability, which points to the need to consider future generations, the part of the Brundtland report that calls for a '5 – 10 fold increase' in world productive activity over the next century to meet the needs of the world's poor (addressing under-consumption) is not often quoted. Brundtland argued that this level of world economic product had to be reached in order for sustainable development to be achieved[13].

Sustainability has many definitions, but it is clear that it has a resource / environmental element, a social element and an economic element. Expenditure of this generation's financial resources on activities that make no meaningful difference to the availability of resources is not sustainable, as those economic resources would be better invested on activity or infrastructure that advantages either the current or future generations. It could be argued that one of the resources we need to conserve, and not waste, is money, as this allows us to invest in the welfare of both the current and future generations.

---

[12] Derived from results of study: USA 84 tons, Japan 46 tons, Germany 86 tons, Netherlands 84 tons.

[13] 'Our Common Future' Report of the World Commission on Environment and Development, United nations, 1987

In what way is sustainability or intergenerational equity improved by wasting money on the facile policy of recovering materials of inconsequential value?

Sustainability is not improved by such waste of the community's economic resources.

The disparity between levels of consumption in the developed and the developing world can be overcome by increasing 'world productive activity'. Reducing developed country consumption will not achieve that objective.

Resource use optimisation - a means of reducing consumption

A primary task society has to perform is the use and distribution of resources in the form of energy, food and consumer products. At a practical level, the most significant component of that task is the daily distribution of food.

This task involves the delivery of the right quantity (and quality) of food to each individual as it is needed. The system of production and delivery must be flexible enough to cater for a wide variety of tastes, needs and usage situations, and at the same time ensure that the food supplied is safe.

The efficiency of this system is the key to the reduction of wasteful consumption (i.e. that proportion of the food that enters the household that becomes waste), and hence waste.

The efficiency of the system can be improved by improving product and pack design – providing a better match between portion size and usage situation, for example - or improving the preservation capability of the package, resulting in reduced waste due to spoilage.

System efficiency can also be improved by fine tuning the distribution system, for example by providing purchase opportunities closer to home (or place of consumption) and / or providing product in quantities better matched to the immediate needs. One systematic way of doing this in the food sector is through prepared food – food from restaurants, sandwich bars, fast-food outlets and school canteens, or pre-prepared meals from supermarkets.

The third way of reducing waste is through greater 'in home' efficiency. This involves finding better ways of meeting the needs of the changing food service patterns in households or other food service situations.

How does packaging contribute?

Many who are concerned with waste generation and / or resource use see packaging as waste or as wasteful. There are mentions of concerns about 'over-packaging' on almost every EPA website, as well as an encouragement to purchase unpackaged or lightly packaged goods, as a way of reducing 'resource consumption'.

Such views imply that over-packaging is rife (i.e. that there are significant gains to be derived from packaging reduction), or that packaging represents a significant proportion of resource use. It is also implied that the community has sufficient knowledge of the food distribution and preservation system to be able to determine the optimum level of packaging for a particular product.

In reality, marketers see packaging as a cost that detracts from profits and hence are reluctant to use more packaging than is absolutely necessary. The packaging used is matched to the need within each product's distribution system and the level of protection needed for each individual consumer pack and contents.

A large proportion of packaging used in the distribution of products does not end up with the final consumer. The proportion of packaging that does so depends on the relative protection provided by the primary and the secondary pack.

A study conducted in the dairy industry prior to the development of the NSW Dairy Industry Plan showed that around 70% of all packaging used in the distribution of milk did not reach the final consumer, but was re-used or recycled within the sector.

Packaging's role is to ensure that the product that reaches the consumer is safe and remains intact. Increasingly the system is tending towards pack combinations that minimise the amount of packaging material that comes into the household and relies more on the intermediate packaging for product integrity and protection. This intermediate packaging is recovered for re-use or recycling from retailers.

This dematerialisation of packaging is evident in the new packs coming onto the market, with glass being replaced by light weight plastics, paperboard or pouch packs, and the increased use of laminates. Each packaging type has itself also undergone significant light-weighting.

As a result the amount of packaging material available for recovery from households will continue to decline, even though the number of products packaged continues to increase. It should be noted that these changes are driven by competition and the need to reduce the costs associated with the commodities used to manufacture packaging, not by means of regulation.

Early in this paper mention was made of the amount of food wasted at the household level. Packaging reduces such waste by extending the shelf life of food and making it available in situation appropriate portions.
The fact that the food is processed prior to packaging means more of the waste is retained at the factory (for reprocessing) and less waste enters the household waste stream. The following examples show this trend:

Product	Contents	Pack Wt.	Waste Avoided
Frozen Peas	1 Kg	5g pouch	1.65Kg
Orange Juice	1 L	30 g carton	1.2 Kg

Further, the wastage rate of packaged food is typically 3%, which is significantly less than the 10 – 15% of wastage identified in the fresh food sector, and the 30 - 50% loss rate typical for countries that lack access to packaging – 'under-packaging' generates more waste than does 'over-packaging'.

Relatively new to the packaging scene is smart packaging or active packaging, which can further enhance packaging's food safety and preservation role.

> ***Whilst the use of packaging is seen by some as symptomatic of 'wasteful consumption' or 'over-consumption', packaging has a valid role in the food distribution system – one that reduces overall levels of waste and food wastage.***

Examining the product system

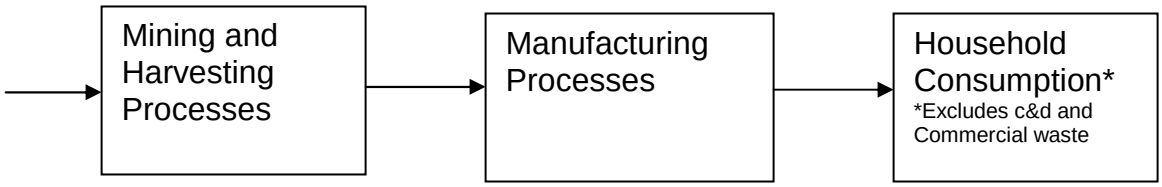
The political decision to recover recyclables from households appears to have been made without any detailed analysis of the goods and services supply system to determine at what point in that chain the most resources are expended and at what point most of the waste is generated.

If resource use is to be optimised through 'resource recovery' and / or 'waste reduction' it is worth knowing which parts of the supply chain are the most resource and waste intensive.

An insight into this question is provided by a study[14] conducted by researchers at the University of Melbourne, which found that the most waste is generated at the extraction / harvesting stage and the least waste at the household (or consumption) level, as shown by the following diagram[15]:

[14] Connor M A. et al. Waste Flows in the Australian Economy, May 1995, University of Melbourne.
[15] Ibid, p. 17, modified to highlight household contribution.

RESOURCES TO WASTES – QUANTITIES PER ANNUM



2054 MILLION TONNES (97.8%) **38 MILLION TONNES (1.8%)** **7 MILLION TONNES (0.3%)**

The same study showed that the farming and forestry section generates close to 400 million tonnes of organic residues, two orders of magnitude more than the quantities of 'green organics' available from households.

The study again showed that the proportion of the resource flow available for recovery from households is quite small (0.3%). The study concluded:

> ***'Careful analysis is required to determine whether available funds should be spent on reducing flows to landfills, or whether such funds might be better spent on other waste disposal problems; and***
>
> ***Despite the popular belief that reducing the flow of consumer wastes to landfill will conserve resources, the saving is likely to be quite small. Far greater conservation can be achieved by other means.'***[16]

Product examples: Newsprint

Although newsprint is recyclable and is being recycled at world record rates in Australia, it is a resource intensive means of distributing information when compared with electronic information distribution alternatives. Is this 'wasteful consumption'?

Newsprint is the core material for most kerbside recycling programs. The question is, how long will this continue to be the case?

Newspapers are moving their content to the internet and will, in the future, be largely web based. Advances in technology will see portable 'newspapers' appear in 'electronic paper' form, dramatically reducing the amount of paper flowing through homes and offices, with obvious consequences for kerbside recycling.

[16] Ibid. p. 21.

Whilst some of these changes will be technology driven to the extent that technology provides new capabilities and opportunities, the true drivers of change are competition and the need to reduce the costs associated with the current, more resource intensive, paper based medium.

Although change may be gradual, councils can look forward to a time when newsprint will become a much smaller component of kerbside collections. This will have obvious implications for the viability of recycling.

> ***The newspaper sector will continue the dematerialisation trend evident in the goods and services delivered to households.***

Plastic shopping bags

The current debate on plastic shopping bags is an exercise in misinformation. Since Ireland introduced its bag tax in 2002, pressure has been applied to retailers locally to reduce plastic bag use, culminating in proposals for a mandatory tax or ban. A consultation RIS has been issued promoting these options.

Several mentions are made in the RIS of the Irish approach to plastic shopping bags where, in March 2002, a tax was imposed on them. It is claimed that plastic bags use reduced by more than 90% and that plastic bag litter was reduced from an initial 5% to current levels (level not quoted). The source of this information was a submission to a Scottish parliamentary inquiry on a similar tax proposal, written by the Irish Department of Environment Heritage and Local Government (DEHLG). The author(s) of the RIS do not explain that the Scottish inquiry rejected the bag tax proposal.

The true level of plastic bag litter in 2002, according to DEHLG reports, was 0.75% and has stabilised at 0.25% after the introduction of the tax. Similarly the 90% bag reduction figure is flawed, because it is based on bag tax receipts. As enforcement is poor, there are many more bags issued than are being taxed, suggesting that the level of bag usage was significantly higher than claimed. Interestingly, the Irish government used an increase in bag tax receipts (as compliance improved), to claim that bag use had increased and justified an increase in the bag tax.

Plastic bag import data shows little change in the volume of bag material imported into Ireland, showing that substitution with other bag types has taken place. For example, the sales of kitchen tidy bags have increased by 400%.

Government documents here contain a range of claims relating to plastic shopping bags that are used to justify regulatory intervention. The claims made range from a misrepresentation or misinterpretation of data to pure invention as detailed below:

Claim	Fact
Plastic bags kill 100,000 marine animals a year	The study referenced refers to birds caught in fishing nets – The plastic bags referred to in studies are most commonly bait bags or bags associated with disposal of garbage at sea Rate of entanglement is typically 0.2% Of those entangled 0.5% are due to plastic bags (not shopping bags) Much of the material is of foreign origin.
Between 50 and 80 million plastic shopping bags are littered each year	Pure invention
0.8% of plastic shopping bags become litter	Pure invention
Plastic shopping bags make up more than 2% of litter	National Litter Survey data shows they are typically 0.7%, with proportions of other plastic / bag-like items much higher than this Plastic shopping bags do not make the 'Dirty Dozen' list
Plastic bags don't break down in landfill	That is good – it means they will not contribute to leachate or emissions
There is an ever-increasing number of bags in the environment ….	Where are they?
Further claim of link between plastic shopping bag use and	Study pinpoints the fishing industry as primary cause of the

marine animal harm in study quoted in RIS	problem

Having been told repeatedly by green NGOs and government that plastic bags are 'bad for the environment', it is not surprising that respondents to surveys indicate support for a tax or ban.

At current levels of plastic shopping bag use, around 30,000 tonnes of plastic are needed annually to manufacture shopping bags.

Is that 'wasteful consumption' or 'overconsumption'? It would be if you ignore the fact that plastic shopping bags perform a useful function – not the least of which is their food safety role - and do so very efficiently. They also have a large range of secondary uses for which consumers would need to purchase a replacement product were bags to be banned or taxed.

Not surprisingly the Productivity Commission found as follows:

> '***Based on the evidence available to the Commission, it appears that the Australian, State and territory Governments do not have a sound case for proceeding with their proposed phase out of plastic retail carry bags. Similarly, there does not appear to be a sound basis for the Victorian Government's proposed per-unit charge on plastic bags….'***[17]
>
> ***Given that the cost to the economy of a ban on plastic shopping bags is around $1.3 billion, proposals to phase them out cannot be justified.***

Food waste

Around 2.2 million tonnes of food is disposed of by Australians each year. This spoilt / excess food represents a significant unnecessary impact on the environment in the form of the resources used to produce, pack and distribute it and in terms of soil loss and water use. This resource wastage cannot be addressed by recovering the food waste and reprocessing it.

It takes around 5000 litres of water to grow 1 kilo of rice. The figure for potatoes is 3000 litres and for beef 50,000 litres.

The figures for soil erosion on a per product basis are equally horrific.

Food waste therefore translates into soil loss and water waste – two resources that are truly scarce.

[17] Op Cit. Page 216

Packaging of food improves distribution efficiency and reduces food loss and wastage. An increase in the use of packaging – such as the use of a variety of pack sizes to match usage situations – can further reduce food loss and the associated waste. So why is packaging the enemy?

In fact, on a world wide scale, under-packaging is more of a problem than is over-packaging, as a large proportion of the world's population is still under-nourished and – around 1 billion people get by on less than $1.00 a day[18] – and they live in countries where a large proportion of the food that is produced is lost or spoilt in distribution.

Computers

EPHC Ministers have again confirmed their desire to see a 'cost-effective computer recycling system (provided) to the Australian community as soon as possible'[19]

For a number of years EPHC and associated bureaucracies have been putting pressure on the computer sector to develop and fund a computer recycling program, under a proposed Extended Producer Responsibility (EPR) regime.

EPHC has proposed a recycling 'solution' to e-waste without having conducted a rigorous cost-benefit analysis to determine whether there is a net community benefit associated with this approach.

A study conducted by Planet Ark Consulting for the computer industry[20] outlined how such a program would work, but also pointed out that, although computer recycling would come at substantial community cost, there is little environmental benefit as the available evidence suggested that these materials can be safely disposed of in landfill.

This is confirmed by the recent decision of the US EPA allowing computer related waste coming from households and SMEs to be disposed of in landfill and exempting it from hazardous waste transport requirements.

The sector has shown a high degree of 'dematerialisation' as it moves from CRTs to flat panels, from desk-tops to lap-tops and smaller devices. This suggests that volumes of e-waste will, in the future, decline.

Links between consumption and waste

[18] World bank, World Development Indicators
[19] EPHC Communique 24 November 2006
[20] AIIA – E Waste Program Development Phase, June 2005, Planet Ark Consulting

It is obvious that consumption and waste generation are linked. This is most evident in the linkage evident between GDP and waste arisings.

The question is to what extent current quantities of household waste going to landfill represent 'wasteful consumption' or 'over-consumption' – or expressed differently – consumption we can truly do without; consumption, which if it did not occur, would not result in a lower quality of life. I would suggest that, apart from avoidable food waste, the answer is – not much.

The fact that household waste represents 0.3% of the overall waste stream or 0.2% of the community resource flow suggests that the overall system of providing goods and food to households is quite efficient and that household waste reduction or recovery is not a good starting point for any policy that seeks to optimise resource efficiency.

Conclusions:

- ***Household waste makes up a small proportion of the overall waste stream which suggests that reducing it does little to reduce overall waste or to improve overall resource use efficiency.***
- ***Whilst the quantity of waste disposed of by households is linked to household consumption, the fact that, in relative terms, it is so small suggests that 'wasteful consumption' or 'over-consumption' of resources within the home is not a significant issue.***
- ***The only portion of the household waste stream that could be seen as indicative of 'wasteful consumption' is the food disposed of by households. The rate of food disposal could be reduced by greater use of packaging and / or improved packaging technology.***
- ***Much of current waste management policy is based on concepts of landfill reduction and / or 'resource conservation'. It does not, however, appear to be backed by a sound assessment of resource use or need, nor on any analysis of the costs and benefits associated with the various waste diversion strategies.***
- ***The waste policy sector appears to have developed its own language, in which the terms used imply that there is merit in taking a certain approach. For example the term 'resource recovery' for recycling implies that the materials collected are in fact valuable 'resources' that, in a real world context, are worth recovering – when in fact most recycling activity needs to be heavily subsidised and, in the true sense of the word, is unsustainable.***
- ***The use of such emotive language appears to substitute for rigorous policy analysis.***
- ***The lack of substance underpinning waste policy is evident in the current debate on plastic shopping bags.***

- ***Dematerialisation of consumption (and hence the waste stream) is evident in packaging, newsprint, electronics and many other products. This suggests that quantities of materials recoverable from household will decline, with implications for recycling and recycling costs.***
- ***This dematerialisation process is market driven and is generally not assisted by regulatory intervention, the latter often resulting in perverse outcomes.***
- ***The small proportion of the resource stream available for recovery at the household level does not, from a resource efficiency or environmental impact perspective, warrant the subsidies inherent in the waste regulatory framework, the proportion of council rates devoted to recycling, landfill taxes, deposit schemes and other mechanisms used to promote and enhance material recovery.***

ATTACHMENT B

Extended Producer Responsibility – An Analysis of Policy and Practice

Gerard van Rijswijk BSc MEL
Senior Policy Advisor
National Association of Retail Grocers of Australia

Abstract:

This paper reviews the local and international background to the development of current EPR policy and practice. It examines the theoretical basis of EPR, how theory translates into practice and its influence on environmental outcomes.

A number of case studies are used to demonstrate key points, one being the local computer industry.

Key words: Extended Producer Responsibility, EPR, recycling, container deposits, packaging, computers, electronics, resources.

Introduction

Extended Producer Responsibility is defined by the OECD as "an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle. There are two related features of EPR policy:

(1) the shifting of responsibility (physically and/or economically; fully or partially) upstream toward the producer and away from municipalities, and
(2) to provide incentives to producers to incorporate environmental considerations in the design of their products[21]

OECD goes on to explain that EPR `seeks to integrate signals related to the environmental characteristics of products and production processes throughout the product chain'[22]

The initial concept was developed in a series of discussions, workshops and papers coordinated through the International Institute for Industrial Environmental Economics at Sweden's Lund University. Thomas Lindqvist

[21] OECD Guidance Manual – Extended Producer Responsibility, P9, 2000
[22] Ibid

at the university developed the concept in a series of reports for the Swedish Ministry of the Environment in the early 1990s. The concept was further developed through workshops organised in cooperation with the UNEP IE Cleaner production Program.

Early definitions of EPR involved a range of concepts including:

- **Liability** – responsibility for specific environmental impact at a given stage in the product life-cycle, as determined by legislation.
- **Economic responsibility** – contribution to all or part of the cost of collection, recycling and / or disposal
- **Physical responsibility** – physical management of products or of their effects.
- **Informative responsibility** – the provision of information (e.g. via labelling) on the means of minimising impact.

So far EPR based programs that have been instituted around the world have used the EPR cost transfer mechanism to transfer product or packaging recycling costs from local government to the manufacturer or marketer, who then passes this cost on to the consumer through the product price (together with the costs of administration of associated schemes).

The EPR concept and the OECD Guidance Manual were widely debated over a four year period (1997 – 2001) through a series of OECD organised workshops and, although the concept was strongly supported by some European countries (who make up the majority of OECD membership), it was not supported by economies such as the USA who saw a stronger role for a more market based approach.

Throughout this process comments from industry groups and others were fed back to the OECD secretariat drafting the document, but these concerns were addressed. For example, the basic requirement to spell out the environmental problem being addressed by a proposed EPR program is not part of the OECD recommended approach. OECD has also failed to demonstrate, either through theoretical argument or by reference to existing programs, that the EPR approach is superior to other policy options.

Literature here and elsewhere has also started to refer to these programs as "Product Stewardship" programs. This term is seen as a 'softer' way of referring to a new way of taxing business (and indirectly the consumer) in order to achieve product or packaging recovery targets.

British Columbia in Canada is one jurisdiction that has adopted this nomenclature for its EPR based schemes. Here in Australia, EPHC also prefers to use this term in the development of an NEPM to cover EPR schemes.

In Europe directives are now in place covering the collection for recycling of a wide range of materials, including consumer packaging, batteries, consumer electronics / appliances and motor vehicles.

Whether called EPR or Product Stewardship, this taxing or levying mechanism has a number of advantages for the regulator:

- It allows the targeting for recovery of those materials that are not profitable to recover – i.e. where the recovery costs exceed the value of materials recovered

- As the funding for these programs comes from industry, funds do not have to be sought from local or state governments,

- As the cost of the program is contained within the price of the product purchased by the consumer, it is not seen as a government tax (or an increase in local council rates)

The benefits of the EPR approach have been widely promoted. More often than not, the claimed benefit results, not from the EPR taxing mechanism, but from the underlying activity, which could have been funded by other means – as outlined in the table below.

EPR 'Benefit'	Comment
EPR internalises a product's environmental cost	The cost internalised is the cost of collection and recycling. This has no direct relationship to the product's environmental performance or impact – it is not an environmental cost
EPR provides an incentive for the producer to improve the environmental performance of a product	The levy charged is passed on to the consumer – even if there is a significant differential in levy costs between one manufacturer's product and that of a competitor (usually not the case), competing design factors reduce the likelihood of product change. If there is change, there is no guarantee that this change is of overall benefit to the environment
EPR sends a signal to	Most EPR scheme levies are based on the recovery

the producer to improve the recyclability of the product or package	of recycling costs related to the material or product. The European packaging experience has shown that design shifts do occur in an attempt to decrease these costs. However there is no guarantee that any net environment benefit results from any change, as environmental merit does not rely on recyclability alone – often the change in material needed to achieve recyclability results in an increase in weight
EPR helps optimise the use of natural resources	Only if, in the program being funded by EPR, fewer resources are used in the recovery and recycling of materials than are recovered through the program. Those benefits then do not result from EPR; they are the result of the program, regardless of how it is funded.
EPR improves the efficiency of resources used in products	Companies do not need EPR to be conscious of resources used, because all resource use comes at a cost. Reduction of this cost is the driver of product change. EPR may distort this process.
EPR improves resource recovery	Only if fewer resources are used in the recovery process through the EPR funded program. Benefit is not unique to EPR as a funding method.
EPR minimises the generation of waste	The generation of waste within the manufacturing sector is related to resource use efficiency and unlikely to be influenced by EPR. Post consumer waste may be reduced, but at a cost – financial and environmental – and this can be achieved by other funding mechanisms
EPR incorporates product manage-ment costs into consumer price signals	That is not unique to an EPR based scheme. Consumers could be charged a direct waste disposal fee and be exposed to a waste related price signal, rather than one hidden within the product price.
EPR sends a signal to the consumer about the relative recyclability of a product	Most non-packaging programs charge a common fee related to product type. The relative recyclability of the product then has no impact on product price. Nor is recyclability an indication of overall environmental merit.
EPR reduces risk to human health from poor management of products	Not unique to EPR. Only true in relation to product disposal if and when a risk to human health can be identified. This is not the case for most products and packaging targeted for EPR schemes – these do not impose such a risk as they are inert in landfill.

EPR increases the level of re-use and recycling of products	Not unique to EPR. Assumes that re-use or recycling is always desirable and / or beneficial. This is not so.
EPR leads to more environmentally compatible designs	If the cost of a levy is high enough, EPR may change product design to improve recyclability, but only if charges on the product directly reflect these costs and there are no more strongly competing design criteria. However there is no guarantee that a more recyclable product has a better overall environmental performance – as many other factors impact on this. Insisting on recyclability may inhibit the development / use of new and better technology.
EPR helps close material loops to promote sustainable development	Not unique to EPR. Not true if the impacts of closing the loop exceed the benefits of doing so, or if financial costs are excessive. Costly schemes are not sustainable

Supporters of an EPR approach to the management of products and packaging also need to look more closely at the suitability of EPR to the type of product being considered. Whilst EPR can be used to fund a recovery and recycling program (as can a variety of taxing regimes), an EPR based or levy based approach is not suited to many product recovery situations.

The 'not suitable' category includes the following:

- Those products where markets / market forces will lead to recovery programs based on the value of recovered materials (e.g. newsprint) – intervention is not needed to bring about product recovery and it cannot be claimed that the recovery program is EPR based.

- Those products that have low value relative to collection costs (collection is not self sustaining) but low impact (e.g. most packaging) – the imposition of a levy and the administrative cost of running the levy collection and funding program, is disproportionate to any benefit (if such benefit exists). The collection for recycling of glass is an example.

- Genuinely voluntary programs driven by CSR or other commercial considerations (e.g. the recovery of obsolete pharmaceuticals, farm chemicals and chemical containers, printer cartridges)

- Products that have low residual value relative to collection costs (collection not self sustaining) but medium environmental impact if disposed of in landfill – a decision needs to be made as to whether intervention is warranted – and then re the type of intervention. Schemes other than those based on EPR may be more appropriate. (e.g. household chemical collections)

- Products that have low value relative to collection costs (collection not self sustaining) high environmental impact if disposed of in landfill, but a complex market in terms of brand owners, importers and companies that have gone out of business (leaving orphan products) and / or stored legacy / historic products. In this case an EPR scheme that imposes levies on new products may be difficult / costly to administer and / or inequitable. Other funding approaches should be considered.

This suggests that an EPR based approach may only be suited to relatively few situations, ones that meet the following criteria:

- The program addresses a genuine environmental hazard (i.e. disposal of the product in landfill as part of general waste will result in genuine risk of harm)

- Product recovery for recycling is the best way of addressing these hazards

- The program would not be self funding

Before we discuss examples of specific EPR based programs, we need to look at the question of sustainability – as it is improved sustainability that is often used as the rationale for the introduction of EPR based schemes.

It is assumed that **any** recovery of material or **any** diversion of material from landfill improves society's overall sustainability. This approach appears to be based on the idea that 'we are running out of resources' and has led to recycling be renamed 'resource recovery'.

Unfortunately reality is more complex. There is no reason to believe that the materials we are targeting for recovery will run out any time soon –

there is not a genuine resource scarcity so as to warrant a program to recover consumer waste materials. A quick visit to Geoscience Australia's website would confirm this fact.

This would suggest that recovery of materials for recycling can only be justified if doing so was in fact truly sustainable. Sustainability implies a tick against economic and social objectives, as well as environmental objectives. Given the fact that the materials in question are not scarce and, with very few exceptions, do not pose a risk when disposed of in landfill, are we entitled to ask the community to spend funds and other resources (personal time) to 'save' them from landfill?

One consideration needs to be the financial / economic viability of any recycling program. A program that has to be subsidised (e.g. via an EPR based tax or levy) must be a net user of resources – i.e. the net resources used are greater than the net resources recovered, as signalled by the cost. When the market says 'don't recycle', the market is right.

Most jurisdictions have not let reality interfere with a good environmental story – and have adopted EPR based approaches as a means of recovering materials from the waste stream. It appears that recycling rather than sustainability has become the objective.

Early examples of EPR are from Europe. It needs to be pointed out that the European Commission is fond of issuing binding directives on member states, but does not conduct any cost-benefit analysis until the directive has been in force for ten years. They appear to be based on a concept of 'it appears to be a good idea' – an important point to consider when assessing the need for WEEE or RoHS type legislation here.

- **Germany's DSD and the subsequent packaging and packaging waste directive.**

  The German government introduced the packaging ordinance in 1990. This allowed consumers to return any packaging to shops and supermarkets and resulted in the establishment of the industry funded 'Green Dot' or DSD system of packaging recovery. DSD costs soon ramped up to an equivalent of AUD 4 billion per annum, with an additional equivalent amount spent by industry on transport and reprocessing.

  The DSD organisation employed 400 people in order to manage the system. (In recent years DSD has competition from a number of

parallel schemes and its efficiency is further hampered by Germany's new beverage container deposit system).

Following the introduction of the EU Packaging and Packaging Waste Directive in 1994 nearly all EU member countries have adopted a 'Green Dot' based system, even though the directive itself did not specify a specific approach to funding. Levies (taxes) vary considerably from scheme to scheme – confirming a lack of environmental basis for these charges.

The result is that Europe now spends many billions of Euros on recycling.

- The battery recycling directive

The battery recycling directive has been in place for more than ten years, so a cost-benefit analysis has been conducted on it. The directive covers a wide range of batteries and has as its objective the minimisation of harm that could result from landfill disposal. Whilst the recovery of lead-acid batteries has been relatively successful, batteries from households, including NiCd batteries, have only achieved an average 20% recovery rate.

The rationale for recovering NiCd batteries was the toxicity of cadmium. However, the cost-benefit study showed that NiCd batteries were responsible for less than 1% of the cadmium exposure risk – with the major part of that risk coming from fertilisers applied directly to food crops. This means that even a 100% NiCd battery recycling rate would not help reduce the risk of cadmium exposure.

- The WEEE directive

This requires the recovery for recycling of electrical and electronic products. No cost-benefit analysis has been undertaken. Costs are transferred to consumers via product based levies (taxes). Each country is developing its own approach – resulting in a multitude of Producer Responsibility Organisations (PRO) – which adds cost without adding benefit.

Meanwhile the US EPA has classified electronic products a 'universal waste' which means that household quantities can safely be disposed of in landfill.

- RoHS directive

This seeks to restrict the use of 'hazardous' substances such as heavy metals and flame retardants in electronic products. Again, no cost-benefit analysis has been undertaken. Importantly, little assessment appears to have been undertaken of the relative hazard of replacement materials or of any increased fire risk.

Further, it appears that the relative impact on landfill attributable to the products covered is also low.

An assessment of the EU approach to RoHS applied to the Australian situation resulted in a conclusion that '…it appears unlikely that EEP[23] are a major source (i.e. greater1%) of emissions in Australia'.[24] (The conclusion suggests that there is little basis for the recovery of these products, given the high cost of doing so.)

- The National Packaging Covenant

The new Covenant has introduced recycling targets – on a global and on a per material basis. Increased levels of recycling are to be achieved by recycling more of the materials already in the system and adding further materials to the system. The availability of recycling is to be extended to 'away from home' situation.

Costs to business (and hence the community) have also increased because of the requirement to generate an extensive data set.

Absent is a rigorous cost-benefit assessment.

Costs and potential for impact are being ignored as evidenced by the solutions proposed for the processing of collected broken glass in Sydney and Brisbane.

- South Australia's Container Deposits

Under legislation in SA a 5c deposit applies to a wide range of beverage containers. The recovery system is supported by an additional service fee of approximately 5c per container and the

[23] Electrical and Electronic Products
[24] Preliminary Environmental and Economic Assessment of Australian RoHS Policy, August 2007, Hyder Consulting for DEWR

scheme runs in parallel with a kerbside collection program run by local councils.

It is proposed that the deposit be increased to 20c per container – at which point it would no longer be possible for national marketers to absorb the cost of the SA scheme. The result will be substantial price increases.

Absent again is a rigorous cost-benefit assessment.

Western Australia is examining the introduction of a similar scheme, based on higher deposits, even though there is no local outlet for collected glass. Alternative uses being considered include grinding glass back into 'sand' or using it as (very expensive) road base material.

There is no cost-benefit analysis supporting this new deposit based approach.

- NSW WARR Act

This legislation has targeted a range of materials for EPR schemes, again in the absence of any cost-benefit assessment.

- EPHC approach to 'Product Stewardship'

The discussion paper produced by EPHC proposes an NEPM that would provide a framework for EPR / Stewardship schemes.
A number of products are being targeted and discussions are underway with a number of industry sectors including computers, televisions and batteries, each of whom have been asked to come up with their own scheme. No cost-benefit assessment has been undertaken on the schemes, or on the proposed EPR / Stewardship mechanism and possible alternatives to it.

Computer / TV recycling has significant OH&S implications which, along with the economic factors discussed earlier, would suggest these materials should be allowed to flow through to landfill.

A thorough cost-benefit analysis needs to be undertaken on the recovery and recycling of each of the products targeted by EPHC before pressure is put on the sector to develop a product return mechanism.

Plastic shopping bags

The current debate on plastic shopping bags is an exercise in misinformation. Since Ireland introduced its bag tax in 2002, pressure has been applied to retailers locally to reduce plastic bag use, culminating in proposals for a mandatory tax or ban. A consultation RIS has been issued promoting these options.

Several mentions are made in the RIS of the Irish approach to plastic shopping bags where, in March 2002, a tax was imposed on them. It is claimed that plastic bags use reduced by more than 90% and that plastic bag litter was reduced from an initial 5% to current levels (level not quoted). The source of this information was a submission to a Scottish parliamentary inquiry on a similar tax proposal, written by the Irish Department of Environment Heritage and Local Government (DEHLG). The author(s) of the RIS do not explain that the Scottish inquiry rejected the bag tax proposal.

The true level of plastic bag litter in 2002, according to DEHLG reports, was 0.75% and has stabilised at 0.53% in 2006. Plastic bag import data shows little change in the volume of bag material imported into Ireland, showing that substitution with other bag types has taken place. For example, the sales of kitchen tidy bags have increased by 400%.

Australian state and federal government documents contain a range of claims relating to plastic shopping bags used to justify regulatory intervention. These claims range from a misrepresentation or misinterpretation of data to pure invention as detailed below:

Claim	Fact
Plastic bags kill 100,000 marine animals a year	The study referenced refers to birds caught in fishing nets – The plastic bags referred to in studies are most commonly bait bags or bags associated with disposal of garbage at sea (not shopping bags). The rate of entanglement is typically 0.2%. Much of the material is of foreign origin.
Between 50 and 80 million plastic shopping bags are littered each year	Pure invention

0.8% of plastic shopping bags become litter	Pure invention
Plastic shopping bags make up more than 2% of litter	National Litter Survey data shows they are typically 0.7%, with proportions of other plastic / bag-like items much higher than this Plastic shopping bags do not make the 'Dirty Dozen' list
Plastic bags don't break down in landfill	That is good – it means they will not contribute to leachate or emissions
There are an ever-increasing number of bags in the environment ….	Where are they?
Further claims of link between plastic shopping bag use and marine animal harm in RIS	Study quoted pinpoints the fishing industry as primary cause of the problem

Having been told repeatedly by green NGOs and government that plastic bags are `bad for the environment', it is not surprising that respondents to surveys indicate support for a tax or ban.

Not surprisingly the Productivity Commission found as follows:

`Based on the evidence available to the Commission, it appears that the Australian, State and territory Governments do not have a sound case for proceeding with their proposed phase out of plastic retail carry bags. Similarly, there does not appear to be a sound basis for the Victorian Government's proposed per-unit charge on plastic bags….'[25]

Given that the cost to the economy of a ban on plastic shopping bags is around $1.3 billion, proposals to phase them out cannot be justified.

Conclusion

It appears that EPR is a taxing mechanism that is being employed to advance a recycling objective and, because costs can be shifted to consumers through making companies `responsible' there is less of an incentive for governments to properly assess the sustainability of the various product recovery schemes.

[25] Op Cit. Page 216

The fact that EPR schemes have to be employed suggests that these recovery programs are not self-funding – i.e. not sustainable – as the excess cost signals the fact that the resources used in the recovery of these exceeds the resources 'saved'.

Given the fact that the materials targeted for recovery are not scarce and do not pose a risk if disposed to landfill, the implementation of levy (tax) based EPR programs for their recovery cannot be justified. The EPR policy approach to waste is not sustainable.

It appears that much of waste policy is myth rather than fact based – there is a dearth of rational analysis underpinning current waste policy and legislation.

Recycling either delivers a net benefit, is neutral in benefit terms or results in net disbenefit. This suggests that the decision to recycle should be based on its merits. Using an EPR tax to get recycling over the line financially cannot be justified.

ATTACHMENT C

BACKGROUND BRIEFING

CONTAINER DEPOSIT LEGISLATION (CDL)

SEPTEMBER 2006

Prepared by:
NATIONAL ASSOCIATION OF RETAIL GROCERS OF AUSTRALIA
Level 5, 34 MacMahon Street
HURSTVILLE NSW 2220

Tel: 02 9580 5599
Fax: 02 9586 4777
Contact: Gerard van Rijswijk BSc MEL – Senior Policy Advisor
Email: gerardvan@narga.com.au

CONTENTS

1. BRIEF HISTORY

South Australia (SA) is currently the only state that has Container Deposit Legislation (CDL). Like South Australia, other Australian states had deposit systems for refillable beverage packaging (beer and carbonated drinks) run on a commercial basis. Some states also had a depot network for the return of deposit items. These were a remnant of the 19th century material recovery network based on government authorised "Marine Store Dealers" who were allowed under licence to trade in recoverable items which, apart from bottles, included rope, timber, sailcloth, scrap metal, clothing etc.

In all states except SA this network had disappeared by the mid 1900's and newsprint and glass (particularly refillable beer bottles) were collected from homes by a network of privately run collectors who relied on the value of the collected bottles and paper for an income. This system has evolved into the kerbside recycling services now being managed by local government.

In the mid 1970's SA's beer and soft drink sector were still using refillables, supported by a deposit return system through the existing depots and through retailers (Coke). The breweries and the Coca Cola franchise were locally owned and coming under pressure from products imported from other states in one trip packaging – particularly the then newly launched aluminium cans. These companies lobbied the then coalition government to introduce CDL as a form of protection - the legislation was referred to in the lobbies as the 'SA Brewing Protection Bill'.

Implemented in 1977, the Beverage Container Act 1975 imposed a 4-6c deposit on refillable containers and a 15c deposit on one trip packaging - except that it allowed the Coca Cola return to store system based on a 10c deposit to continue. This was challenged in the High Court by interstate brewers and the government was forced to amend the legislation to equalise deposits for refillable and one trip packs.

The initial legislation gave an exemption to milk and juice packaging – with the exception of plastic bottles. This made SA a 'cartons only' dairy market until the mid 1990's when the dairy industry lobbied to have plastic bottles included in the exempt category. In return the dairy sector was asked to contribute to recycling and litter reduction programs.

In the late 1980's the SA Coca Cola franchise was absorbed into what is now Coca Cola-Amatil – that company now has all of Australia's Coke

franchise. This brought about changes to the SA bottling arrangements, including the demise of refillable bottles.

The SA dairy sector has been particularly successful at marketing flavoured milk, with flavoured milk sales exceeding 15L per capita. It was therefore seen as a competitor to soft drinks. As a result the soft drink sector lobbied government to extend the deposit system to include a wider range of beverages – using equity as the basic argument.

The extension of deposits to a wider range of products came into force on January 1, 2003. Containers for milk, flavoured milk and fruit juice (less than 1L in size) as well as water are now covered. Wine still remains exempt.

Although CDL for paperboard cartons (milk, flavoured milk and juice) came into effect over 3 ½ years ago, carton recovery rates are still less than 40%. This suggests that the introduction of deposits where deposits did not previously apply is not the 'quick fix' to container recovery that proponents claim it is[26].

Newly introduced deposit schemes in Europe have tried to overcome the problem of a low return rate by mandating a higher deposit. Whilst this increases the return rate, it also increases the cost and the impact on business.

2. THE SA SYSTEM

Legislation requires marketers of affected beverages to label their products to indicate that the 5c deposit can be redeemed at one of the 112 deposit depots around the state. Collection depots are paid around 50c per dozen packs for providing this service and forward collected containers to a 'supercollector' who charges the manufacturer/marketer a further 15c per dozen for their services. The cost to the manufacturer/marketer is thus $1.25 per dozen (plus GST) for all packs returned through the system (60c for the deposit, plus 65c in fees). The average per pack cost would, however, depend on the overall return rate for that pack type – typically around 90% (except for cartons)

Return rates can be boosted by packaging brought in from other (non-deposit) states. Return rates for aluminium cans peaked at 110% in 2002 because of this factor.

[26] Recovery rates for glass, metal and plastic packaging used for beer and soft-drinks are significantly higher as these products have continuously been subject to deposits since the 1800's

Legislation also requires beverage packaging to be recyclable and requires marketers of beverages to have a collection contract in place with one of the `supercollector' agencies. Failure to comply can result in a product ban.

There are currently three of such `supercollector' agencies in SA.

3. RATIONALE

When CDL was first introduced it was promoted as a litter control measure, although litter from the products covered by the legislation typically makes up only 6 – 8% of total litter.

South Australians have heard this message so often that they really believe that deposits `solve' the litter problem and their state is cleaner than other states. Statistics tell a different story.

A study of CDL by the federal Business Regulation Review Unit [27] concluded that:

- The data `do not suggest that the litter situation is significantly better in SA than in non CDL states' and
- `..according to count, litter is in fact worse in SA than in some non-CDL states
- On the basis of information available….we have concluded that the evidence does not point to CDL having reduced litter in SA

As the litter rationale has been challenged in recent years, the EPA and government now include recycling as a reason to have CDL, even though SA has kerbside collection for all of the containers covered by the legislation. CDL is supported by local government in SA and elsewhere as it is understood that a significant proportion of CDL containers are returned through the kerbside system – with local government picking up the deposit refunds. CDL then becomes an indirect (but costly) means of levying consumers to fund recycling. The cost of running recycling services in SA is therefore higher than it is in other states.

[27] Review of Business Regulations – Container deposit legislation and the control of litter and waste – Information paper No. 14, Business Regulation Review Unit, Commonwealth of Australia, June 1989

4. IMPACTS

CDL impacts on the cost of marketing products in SA and consequently affects shelf price. National marketers have the option of spreading this cost over national sales thus minimising local price impacts. Local producers or brands with a large proportion of their sales in SA do not have this option and hence must decide whether to forego margin or increase price and risk a drop in sales.

This means that nationally marketed brands of beer, soft drinks, and flavoured milk and juice products tend to cost no more in SA than they do in other states – the cost of the deposit system to the marketer is spread across national sales for the product, and paid for by all Australian consumers. However, local (SA based) marketers, need to pass the costs of the deposit system to their local customers.

The result is that local SA based companies are competitively disadvantaged – an outcome that is opposite to the rationale for the original deposit legislation.

Since CDL was extended to milk and juice products on January 1 2003, a SA based producer of juices has increased prices by around 8c per unit. Local dairies have increased flavoured milk prices by 5c a unit but have found that the route trade has passed on a 10c price rise to customers.

Government in SA tends to claim that the deposit system in SA does not lead to increased costs, as the prices for most products are no higher in SA than in other states. In reality the cost of running the SA deposit system is paid for by all Australians.

It is difficult to predict the longer term impact on sales for products that have to pass on the full costs, but the federal government study quoted earlier suggests that after the introduction of CDL in 1977 Coca Cola Bottlers - Adelaide suffered a 23% drop in can sales which took some 8 years to recover. Sales of refillable bottles (which were at that time subject to a lower deposit amount) increased.

Other impacts relate to the increased community cost of kerbside recycling, the transport related environmental impacts associated with a depot return system, higher product prices and reduced product choice.

One industry survey showed that some 700 products from over 100 companies were affected by the recent change in CDL legislation with many indicating they would no longer sell into SA. After January 2003, some 200 products of the original 700 affected, were no longer available in SA. These included a range of locally produced flavoured milk as well as many vegetable juice and herbal tea products.

The impact of the legislation was most dramatic on small businesses. These either could not absorb the costs involved in changing the product label to comply with the marking requirements of the legislation, or could not persuade the original supplier of the product to do so because of the relatively small volume of sales in SA.

5. THE COST OF CDL

The SA legislation and experience with it shows that deposit systems impose costs on business and the community as a whole, costs that need to be justified in terms of net environmental benefits.

Costs arise from the need to provide a return mechanism for the container, provide a refund mechanism for the consumer, the associated administration costs at the company level, and those associated with government regulation and monitoring. These costs are incurred regardless of the proposed return mechanism.

CDL operational costs are recovered in various ways:

- In SA there are handling fees charged per container – as described above. Consumers are refunded their 5c deposit but are not advised that this extra non-refundable charge has been incurred.
- In parts of Europe relative high per container deposits apply, and the funds derived from deposits foregone (i.e. containers that are not returned) help to support the system, the balance of costs are borne by the marketer and passed on to consumers in the product price.
- In some Canadian provinces a 'half-back' deposit operates, where half of the declared deposit amount is not refunded, but kept to cover the cost of running the deposit scheme.

Another community cost relates to the inconvenience associated with the return of containers to a depot, and has resulted in many foregoing the deposit refund by placing these containers in their council recycling collection bins. In this scenario, the deposit becomes a recycling tax. This tax results in reduced welfare to the beverage consumer.

Whilst local government gains additional revenue through redemption of the deposits on these containers, it incurs additional costs in sorting, counting and accounting for them.

Container deposits and the associated handling charges are not GST exempt. The combined impact of the deposit, handling fee and GST, substantially increases the price of the affected product and therefore has the tendency to affect sales and impact on inflation.

SA consumers do not feel the full impact on product prices of that state's CDL as for national brands the associated cost is spread across national sales, local products being the exception.

However, if the CDL approach is adopted nationally, the associated cost impact will not be able to be hidden in this way and will be passed on to SA consumers as well as to consumers nationally.

6. CDL AS A TAX

The tax that covers the costs associated with the provision of kerbside recycling programs is levied through the waste service charges levied by local councils as part of the rates imposed on households. This is very much a 'user pays' charge.

In the case of CDL the tax that recovers the costs associated with running the container return system is applied inequitably, as shown by the following examples from the SA system:

- A consumer who purchases a drink in a container covered by the CDL system pays (on average) an additional 10c[28], but recovers only 5c when that container is returned to the collection depot – so is notionally out of pocket by 5cents per container for doing the right thing (plus any personal costs associated with going to the depot)

- A consumer who purchases the same drink, but chooses to litter the container, is out of pocket by 10 cents per littered container.

- A consumer who purchases the same drink, but chooses to return the container through the council kerbside recycling system is also

[28] This is the total cost, whether or not it impacts specifically on the price paid in SA or is spread across all Australian sales of that product

out of pocket by 10cents per container (just as the litterer is), but is 'doing the right thing', by using a more efficient return system than private transport.

CDL, as a return mechanism for drink containers taxes or penalises both positive behaviour (return of the container) and negative behaviour (littering), and, in the case of the consumer using council recycling services, taxes him or her as much as the litterer.

An alternative approach to litter control is litter enforcement through the imposition of litter fines and penalties. South Australia has a very poor record in this area.

7. A RETAIL PERSPECTIVE

Retailers are concerned about the possibility of an expanded CDL regime because of the potential for impact on our sector. As described above, implementation of CDL at the national level will immediately result in price increases, feeding inflation and reducing sales.

Retailers are the interface between producers and the general public, and wear the consequences of any price increase.

A further concern relates to the supply of a container return system associated with a deposit scheme. Whilst SA has been able to, for historical reasons, retain a depot based return infrastructure, the cost of supplying such a depot system from scratch in other states is prohibitive.

Discussions surrounding the implementation of a return mechanism in other states has included the possibility of using retailers, either across the counter or via a 'reverse vending' machine system.

Retailers are acutely aware of the cost of retail space, and the space that needs to be allocated to either system is substantial. Added to those costs are staff costs and concerns associated with bringing contaminated materials into a food retailing environment.

8. ENVIRONMENTAL CONSIDERATIONS

Deposit systems tend to be introduced for three reasons:

- As a support for refillable container systems

- As an anti-litter mechanism

- As a container recovery (for recycling) mechanism

Refillable bottle systems cannot operate without a return mechanism. The refillable glass milk bottle relied on home delivery for its return system and for its survival. Once women went to work in greater numbers and home delivery declined, glass milk bottles were no longer viable.

The WA government tried, in the early 1990's to bring refillable milk bottles back onto the market, using deposits as a support mechanism. However, their market share peaked at less than 2% after re-introduction, and the experiment failed.

Germany has recently re-introduced container deposits in support of its refillable container rules. Refillable bottles have dominated the beer market in Germany because the market is dominated by large numbers of local breweries. As these operate over relatively small delivery distances, refillables make some environmental sense. However, Germany has been accused of using refillables, and the associated deposits on non-refillables, as a non-tariff trade barrier.

Whether or not a refillable bottle system is better than a one-trip package depends on a wide range of factors. Large distribution distances and relatively low population densities in Australia tend to militate against refillables. Even in Europe, where a number of refillable systems still exist, relative differences are low. Their existence is more a reflection of local politics than environmental or economic merit.

Container deposits do help remove the affected items from the litter stream. However they are not an effective tool for the management of the whole litter stream as applying deposits to all littered items would be unaffordable.

The containers commonly targeted for CDL based control are those for beverages – usually beer and soft-drink. These typically make up less than 10% of the total litter stream – typically 6-8%.

However, even with a deposit in place, container types covered by the deposit system in SA still make up between 2.0 and 5.4% of litter, depending on the survey period. The latest survey reported by KESAB,

February 2005[29], reported that 2.5% of litter items counted in that survey were CDL items.

The third argument used to support the need for a container deposit system is 'resource recovery' – the need to increase the return rate of containers for recycling.

There are two issues that need to be addressed in that context, the first is whether a CDL approach leads to an overall increase in recycling (of all materials, rather than just the affected packaging), the second being whether, as a result the environment or community obtain a net benefit.

Both questions are hotly debated and can only be resolved *in each jurisdiction,* by a rigorous cost-benefit analysis that considers environmental, economic and social costs and benefits.

There is extensive literature available on this issue.

The Industry Commission (now Productivity Commission) in its report on recycling stated in relation to deposits:

> *"Deposit schemes work best when the costs of improper disposal are high and cheaper alternatives are ineffective. The Commission has not found a convincing case for compulsory deposit schemes in the Australian context for any products reviewed in this report."*[30]

In the draft report of the current inquiry into waste management[31] the Productivity Commission has examined container deposits in some detail and concluded:

> *"Deposit-refund schemes are typically costly and would only be justified for products that have a very high social cost of illegal disposal. Container deposit legislation is unlikely to be the most cost-effective mechanism for achieving its stated objectives. Kerbside recycling is a cheaper option for recovering resources, while general anti-litter programs are likely to be a more cost-effective way of pursuing litter reduction."*

9. SUMMARY AND CONCLUSIONS

[29] McGregor Tan Research, Litter Survey, Wave 28, February 2005 – on behalf of Keep SA Beautiful (KESAB)
[30] Recycling in Australia, Vol 1, Industry Commission, February 1991, P11
[31] Waste Management, Draft Report, May 2006, Productivity Commission, Canberra

Container deposits are a mechanism of recovering containers (usually beverage containers) that was used during the time when beverages came in refillable bottles, where the value of the bottle itself covered the cost of running the return system.

With the lightweighting of packaging reducing inherent material value, deposit systems are no longer self supporting and their use, for whatever purpose, represents an additional cost or tax on the consumer (in the form of the handling fees needed to cover the operational costs).

This tax needs to be justified in terms of improved community benefit outcomes whenever a deposit scheme is proposed.

Whilst container deposits do result in a marginal reduction in overall litter and an increase in the rate of return of affected containers, this comes at a substantial increase in community cost.