Inquiry into the management of Australia's waste streams and the Drink Container Recycling bill 2008

Clean Up Australia

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INTRODUCTION

Clean Up Australia strongly supports the introduction of a National Container Deposit Legislation (CDL). A national container deposit scheme would not only be beneficial to the environment but it also makes sense financially.

A refund scheme in South Australia has proven its worth and if developed in complement with the kerbside recycling councils offer there would be a big change to what turns up year after year in our waterways, parks and roadsides.

A deposit system is also a great way to make money. A 10-cent refund is supported by a majority of the community and is the most effective way to address beverage waste created away from the home and in public places where recycling systems are lacking.

Clean Up Australia's Rubbish Report [1](2007) highlights that South Australia is the only state where beverage containers are **not** among the five most commonly collected types of rubbish on Clean Up Australia Day. In comparison, beverage containers appear in the top five of rubbish types collected in every other state. A Newspoll survey taken in 2007 revealed an overwhelming 82% of Australians surveyed are in favour of CDL[2].

Question:

1. **A ten cent deposit and refund scheme would encourage more people to recycle bottles and cans.**

2. **Drink manufacturers should be involved in setting up a deposit and refund scheme.**

Results (agree):

Area	Q1	Q2
National	82%	88%
NSW	83%	89%
VIC	77%	85%
QLD	87%	89%
SA	-*	-*
WA	-*	-*
TAS	91%	96%

* Questions 1 and 2 regarding container deposits (CDL) were not asked in SA as a CDL already operates there. Research was being conducted at the time of this Newspoll into the introduction of CDL in WA.

[1] *Clean Up Australia Rubbish Report 2007*

[2] *Clean Up Australia Newspoll 2007*

a. trends in waste production in Australia across household, consumer, commercial and industrial waste streams;

Packaging waste is a persistent problem in Australia. Australia produces 4.3 million tones of packaging each year[3]. There is currently little infrastructure to recover the approximate 50% of major food and grocery items consumed away from home.

Current methods of kerbside recycling are effective in collecting and processing household waste but it has its limitations. Changes in consumer's behavior mean there has been a significant increase in consumers purchasing and disposing of food and drink packaging out of the home. This is having large environmental and economic ramifications. The Clean Up Australia 2007 Rubbish Report shows that beverage containers account for around half of all top ten items collected by Clean Up Australia Day volunteers, with plastic and glass bottles, bottle tops and cans combining to 42.7% of the top ten. Six out of the top ten items found are recyclable. Plastic was once again the most common source of rubbish found in 2007, accounting for 33.1% of rubbish[4].

The Clean Up Australia Rubbish Report (2007) demonstrates the types of rubbish items found. The 'Major Sources of Rubbish' (Figure.1) shows the types of rubbish surveyed and the proportion they represent of the total rubbish surveyed. Plastics were the most common rubbish items removed for the thirteenth consecutive year. Amongst the most frequently found plastic items were chips and confectionery bags, bottle caps & lids, PET bottles, straws and supermarket / retail plastic bags.

Plastic bags are similarly a problem in Australian waste streams. The environmental damage caused by plastic bags is enormous. Plastic makes up 80% of the volume of litter on roads, parks, and beaches and makes up 90% of floating litter in the ocean (BEC). In every square mile of ocean there are over 46,000 pieces of plastic[5]. This puts an enormous strain on the environment. The little pieces of plastic act as a sort of sponge for chemicals. They soak up a million fold greater concentration of such deadly compounds as PCBs and DDE (a breakdown product of the notorious insecticide DDT), than the surrounding seawater[6] Marine life then eats these pieces and dies. It is estimated that over a 100,000 different birds, seals and whales die every year[7]. After the animal dies its carcass decomposes and the plastic is free to roam the ocean and kill again.

Clean Up Australia is committed to getting rid of plastic bags and has been campaigning to do so since 2001. Our program encourages shoppers and retailers to say NO to plastic bags, to switch to reusable bags and to increase plastic bag recycling, Clean Up Australia does not encourage a levy on plastic bags but a complete ban – nation wide.

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[3] *West ,D. (2007) "Container Deposits: The Common Sense Approach V2.1" Boomerang Alliance*

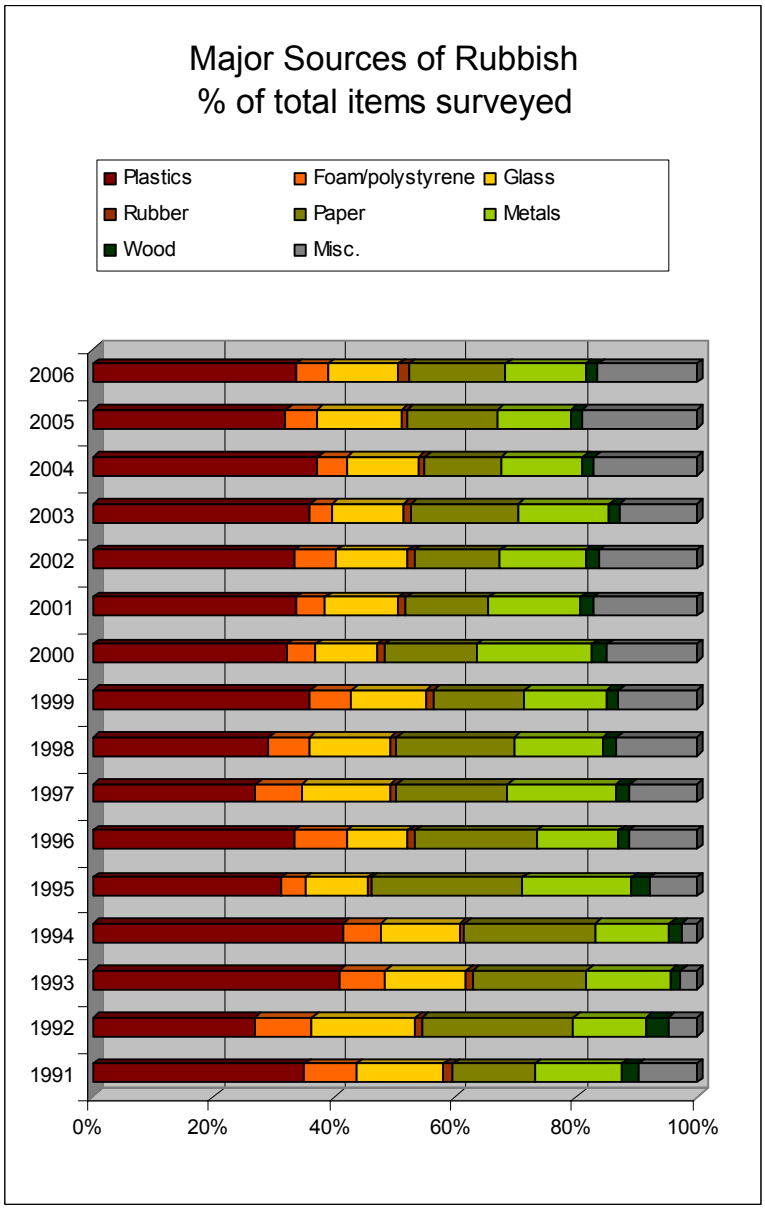
[4] *Clean Up Australia 2007 Rubbish Report: http://www.cleanup.org.au/PDF/au/rubbishreport_final.pdf*

[5] *United Nations Environement Program: http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=480&ArticleID=5300&l=en*

[6] *(Reusablebags.com).*

[7] *Laist, D. 1997 Impacts of Marine Debris: entanglement of marine life in marine debris. In Coe, J. and Rogers, D.B. (Eds.)*

Figure 1. Major Sources of Rubbish Found – Clean Up Australia Report 2007



CUA supports the findings of the Boomerang Alliance[8] suggests that the introduction of a national CDL would more than double recycling rates from their current levels. Container recovery would increase from nearly 41% to 82% a with 6% reduction in municipal waste to landfill and a 12-15% overall reduction in the volume of litter on a national level. This is precisely the type of action Australia needs to respond to the waste trends that are occurring. Economically, socially and above all, environmentally as a nation we will benefit.

[8] *West ,D. (2008) "Container Deposits: The Common Sense Approach V2.1" Boomerang Alliance*

b. effectiveness of existing strategies to reduce, recover or reuse waste from different waste streams;

Despite government attempts to implement waste management systems including kerbside recycling, waste to landfill in Australia is still prevalent. Recovery of litter also represents a significant cost with local government spending approx $200million p.a (Hyder Consulting Plastic Bags RIS[9]).

Container Deposit legislation offers a solution to the problem because of the environmental benefits and also of the monetary incentives. The current strategies are causing huge financial and environmental problems.

South Australia recycles more than 85 per cent of its drink containers[10]. "These measures will put a value on used drink containers, similar to what operates in South Australia," Senator Fielding said in his second reading speech tabled in parliament, March 2008.

As stated in 'we've had it up to here'[11] the introduction of CDL will reduce the cost to councils and ratepayers of operating kerbside services, freeing up much needed funds to deal with other waste materials.

Kerbside alone cannot control waste in the environment. However CDL acts as another means to deter waste going to landfill and provides consumers with a cash incentive. Clean Up Australia supports national CDL as an initiative that will complement kerbside recycling.

Current standards concerning packaging as outlined by the National Packaging Covenant[12] do not limit manufactures to certain materials and ultimately manufactures will choose the cheapest material or the material which best presents the product. CDL could in fact be used as a marketing incentive to encourage consumer uptake of a product where manufacturers chose to use CD recyclable material. Ultimately consumers will see added value through CDL which could potentially affect their purchasing choices.

c. potential new strategies to reduce, recover or reuse waste from different waste streams;

Reverse Vending Machines (RVM) are already widely used in Europe and the US and offer an option that should also be considered.

RVM's reduce handling costs and overall have been well received by the public. The benefit of RVM's is that they can be used for virtually all container types. The process of using a RVM is very simple. The consumer places the container into the machine (some have the capability to process one container per second) once all items have been deposited a receipt is printed. Any material which is not covered by a deposit or is a foreign object, (the RVM is able to detect). RVM's sort, crunch and/or shred the containers which maximizes storage space and minimizes transport costs. Detailed

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[9] *Sourced from West, D. (2008). "Financial Analysis of Cost & Benefits of a National Container Deposit System" Boomerang Alliance*

[10] *Senator Fielding, 2008*

[11] *Woods, P. (1998) "We've had it up to here!"*

[12] *http://www.packagingcovenant.org.au/documents/File/National_Packaging_Covenant.pdf*

data is also retrieved from the RVM's on redeemed containers and it is possible to upgrade with new containers which may come onto the market.

RVM's are typically used in retailers to save labour costs and floor space. Additionally, RVM's can be placed in car parks which has proven to be effective in California, U.S.A.

As indicated by the Boomerang Alliance paper[13], there are a number of advantages that result from the implementation of RVM's which should be considered:

1. Consumer Convenience
RVM's have a small footprint and have the ability to process high volumes of containers. Consumers are able to redeem containers around the clock.

2. Lower Costs
The absence of manual labour and transport costs is a major benefit.

3. Detailed Data
RVMs can provide accurate and detailed data in real-time which can be transmitted directly to a system administrator.

d. the economic, environmental and social benefits and costs of such strategies;

Economic benefits

As a member of the Boomerang Alliance, CUA supports the economic analysis as furnished by Boomerang Alliance that CDL will bring about an estimated saving of $5.49 per household in the cost of councils to provide waste and recycling services[14]. There is recognition that the consumer will have to pay an upfront cost for CDL, however the 'user pays' approach is largely supported. The can/bottle effectively holds monetary value and will further motivate the public to put rubbish in its place and out of the environment. Most simply, we can break down the financial impacts of CDL system as follows:

Consumers:
Consumers face a 10cent increase per container they purchase. This will have an impact the grocery prices. However 10 cents is refundable upon return of the container.

Bottlers and Fillers:
Bottlers and Fillers will incur no charges to cover administrative fees.

Rate Payers and local government:
Rate payers will greatly benefit from the adoption of CDL with local councils' ability to reduce kerbside recycling services.

Recyclers and Reprocesses:

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[13] *West, D. (2008). "Financial Analysis of Cost & Benefits of a National Container Deposit System" Boomerang Alliance*
[14] *West, D. (2008). "Financial Analysis of Cost & Benefits of a National Container Deposit System" Boomerang Alliance*

According to the Boomerang Alliance, overall waste management, recycling and reprocessing industries will grow by an estimated 555 million per annum. Increased material recovery will see industry income grow significantly[15].

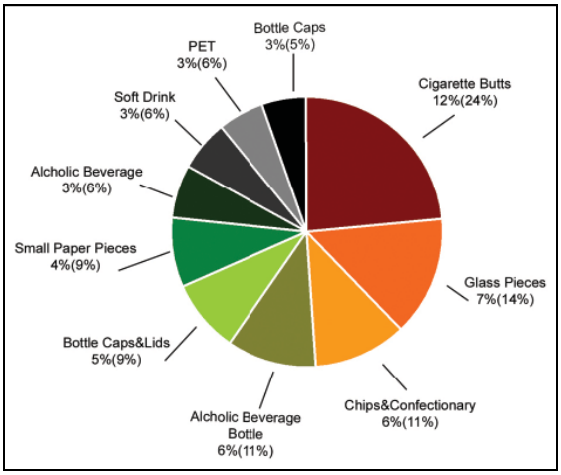
Environmental benefits

- An increase in the national recovery rates of plastic, glass, metals containers from a current average of 41% to nearly 83%
- A 6% reduction in municipal waste to landfill – 605,565 tonnes per annum
- A 25% reduction in the volume of rubbish in the environment
- A reduction in Greenhouse gases of 1.3 million tonnes of Co2-e.a p.a.
- Improvement in Air quality by 624 million Gc2h4-e p,a.
- Providing over 250,000 Australia homes with recycling services for the first time

Reducing Litter
An overall 26% reduction of litter will occur should CDL be introduced on a national level.[16] The following graphs below demonstrate the types of rubbish collected on Clean Up Australia Day 2007. Bottle caps/lids were the second most common item at 14%, up from 11.9% the previous year. PET bottles were ranked third (9%) followed by garbage bags (7%) straws holding steady on (7%).

Litter is the area where the benefits of CDL are best understood. The growing trend towards consumers purchasing 'take-away' items explains the increase in drink packaging items found from 2006. (7,043 sites cleaned up nationally, 17% or 1,203 sites were analysed for the 2007 Rubbish Report[17]. 490,490 items formed the sample of rubbish counted for analysis.) See below graph:

Figure 2: Top 10 Items littered – CUA 2007 rubbish report



[15] *West, D. (2008). "Financial Analysis of Cost & Benefits of a National Container Deposit System" Boomerang Alliance*
[16] *West, D. (2008). "Financial Analysis of Cost & Benefits of a National Container Deposit System" Boomerang Alliance*
[17] *Clean Up Australia 2007 Rubbish Report*
http://www.cleanup.com.au/PDF/au/rubbishreport_final.pdf

Figure 3: Plastic soft drink and water bottles found around Australia on Clean Up Australia Day 2007

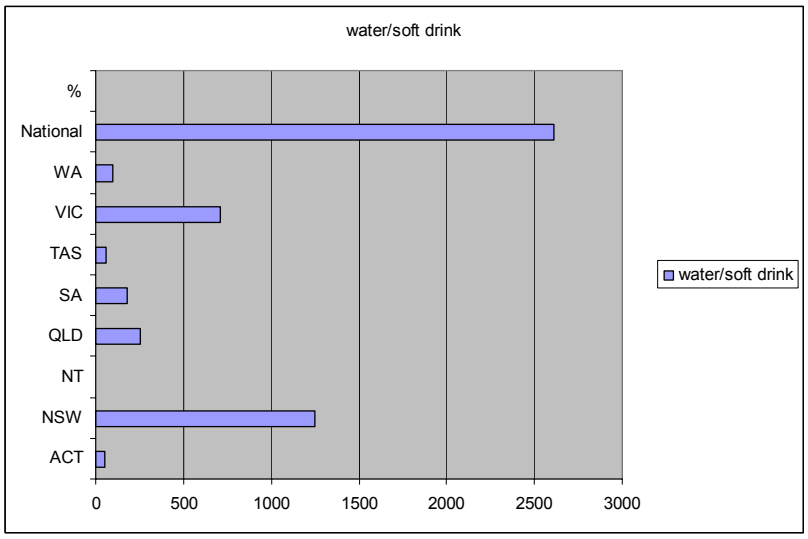


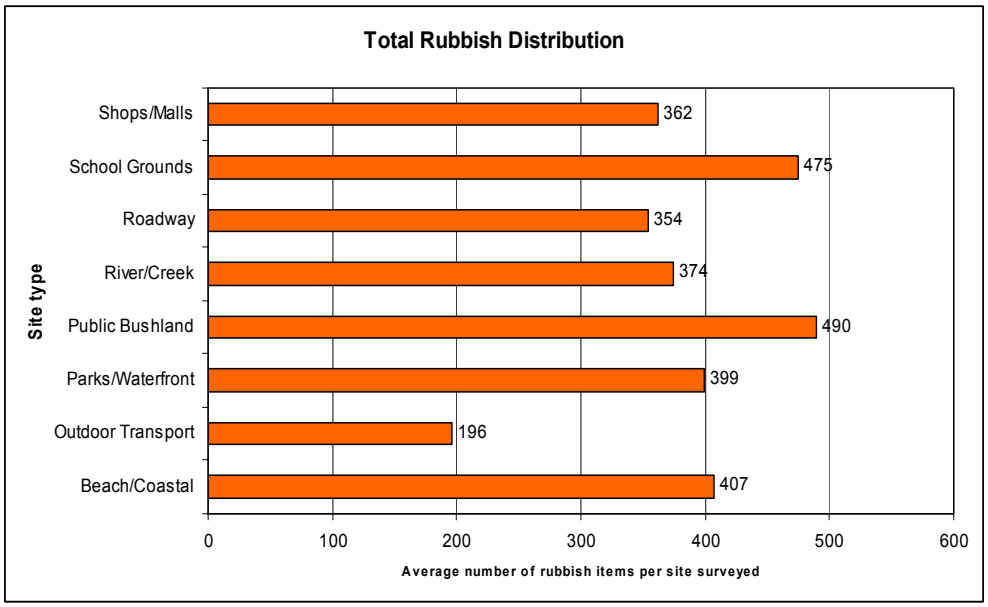
Figure 3. demonstrates the large amounts of plastic bottles that become rubbish. NSW clearly has the most rubbish items compared to the other states, again confirming the need for more effective public waste solution schemes.

In 2007, Public Bushland was the 'most polluted' site surveyed, based on number of rubbish items found on average. It should be noted increased by 174 items to an average of 490 per site. School Grounds came in second place, followed by Beach and Coastal, increasing by 63 and 76 respectively on the previous year. They were followed by Parks and Waterfront and Rivers and Creeks. The fact litter is found so commonly in public areas like bushland indicates that litter clean up services simply can not reach all areas. The current system to collect waste is not effective.

Shops and Malls fell to 6th most polluted from the number one spot the previous year, with an average of 362 items compared to 1255 in 2006. Outdoor Transport also fell from 441 to 196 average items. However both categories have very small sample sizes which magnify any changes in average items. Shops and Malls are spending more money to clean up their areas, it is not that consumers are littering less. CDL would present another option to shoppers to dispose of their rubbish.

All other site types were relatively consistent. There was a slight increase in the average number of rubbish items across all sites, indicating the very serious issue Australia has with rubbish in the environment. (See Figure 4)

Figure 4. Total Rubbish Distribution



Reducing waste to landfill
More than 630,000 tonnes per annum will be saved through the recycling bottle of containers, which is a 6% reduction in municipal waste to landfill. "Recycling rates in South Australia are proof that a container refund scheme works. South Australia has enjoyed a recycling rate of cans and bottles of up to 85 % while the rate in other states is less than half of this[18]. It is predicted that the introduction of a national CDL scheme will see an increase in recycling and recovery of beverage containers to over 81% compared to the current 41%.

Diverting waste from landfill back into the resource stream has significant environmental benefits. For example, one standard aluminium can recycled will save 767 grams of CO2E which is the equivalent of 1 ¾ wheelie bins[19].

If every household in Australia recycled just one more aluminium drink can each week over the year we would save more than 300 thousand tonnes of CO2Ee. Recycled aluminium requires 95% less energy to re-manufacture[20].

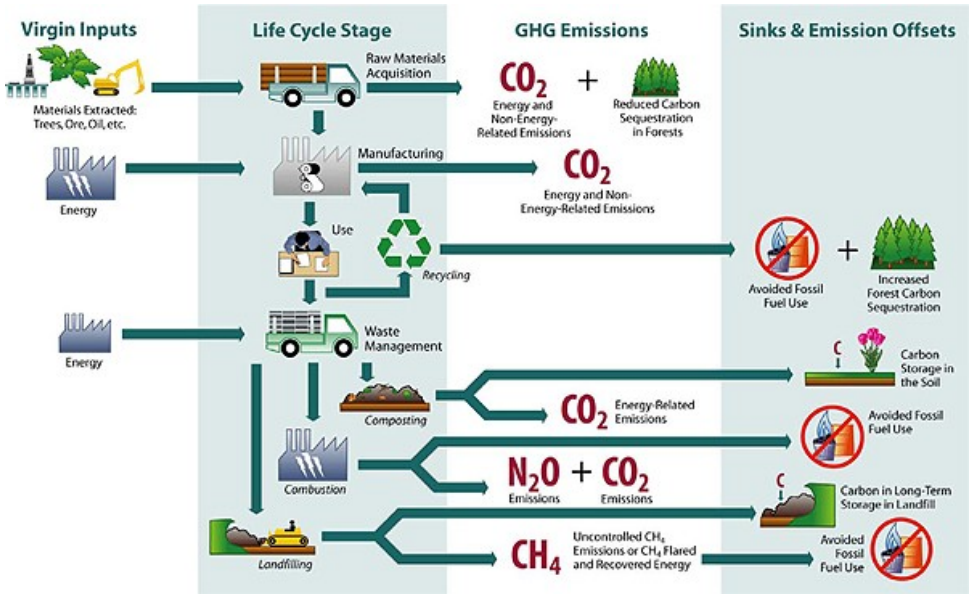
The graph below (**Figure 5.**[21]) illustrates the waste life cycle. If a product is not recycled at the end of its useful life, it goes through one of three waste management options: composting, combustion, and landfilling. All three use energy for transporting and managing the waste, but they produce additional Green House Gas Emissions (GHGs) to varying degrees.

[18] *West, D. (2008). "Financial Analysis of Cost & Benefits of a National Container Deposit System" Boomerang Alliance*

[19] *Clean Up Australia – www.cleanup.org.au*

[20] *Clean Up Australia – www.cleanup.org.au*

[21] *Environmental Protection Authority US – 2007*
http://www.epa.gov/climatechange/wycd/waste/lifecycle.html



The disposal of materials indicates that they are being replaced by new products; this production often requires the use of fossil fuels to obtain raw materials and manufacture the items. In particular, the food and beverage industry strives towards achieving more sales which, ultimately, is achieved through attractive packaging and design. Industry estimates that 10 billion bottles are sold annually into Australian markets[22]. Kerbside recycling alone is not sufficient in capturing these items and recycling. The amount of bottles sold annually is enough to warrant its own waste management system.

Greenhouse gas Abatement

According to Visy Recycling Australia, Australia generated about 32.3 billion tonnes of waste a year in 2002/03, 54%, of this is sent to landfill.[23]Considering the growth in population and GDP, today this figure is likely to be in excess of 40million tonnes p.a[24]. Greenhouse gas emissions from waste to landfill totaled 15 million tonnes of CO2E(e) in 2004. Solid Waste to landfill causes 2.7% of Australia's total emissions. In 2004 Australia's total emissions were 564.7 million tonnes of CO2E(e).

When oil, gas and coal are used in the production process they emit dangerous greenhouse gases. Landfills and plastic incineration also generate toxic emissions such as carbon dioxide and methane. These greenhouse gases contribute to worldwide climate change.

In Australia nearly half of the 565 million tonnes of CO2Ee of emitted in 2004 came from stationary energy sources. Figure 5 presents a breakdown by sources of Australian net emissions. The 'Waste' sector comprises 3.4 per cent of net national total greenhouse gas emissions, with solid waste emissions of 15 million tonnes CO2(e) and 4.1 million tonnes of CO2Ee from liquid waste source. Solid waste

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[22] *West, D. (2008). "Financial Analysis of Cost & Benefits of a National Container Deposit System" Boomerang Alliance*

[23] *Visy Recycling Australia www.visy.com.au" Waste and Recycling in Australia", Hyder Consulting / Department of Environment and Heritage , Canberra, November 2006 – Visy Recycling*

[24] *Calculations provided by Boomerang Alliance*

emissions are caused by the decomposition of biologically degradable waste in landfill into landfill gas, which is approximately 50% methane. Figure 6

Figure 6 – Australia's net greenhouse gas emissions[25]

Source	*Mt CO2Ee*
Stationary Energy	279.9
Transport	76.2
Fugitive Emissions	31
Industrial Processes	29.8
Agriculture	93.1
Land Use, Land Use Change and Forestry	35.5
Waste	19.1
Total	**564.7**

Container packaging materials (with the exception of liquid paperboard) do not decompose in landfills as they do not contain 'degradable organic carbon'. However, the land filling of containers represents a lost opportunity to reduce greenhouse gas emissions through a saving in embodied energy.

The State of Environment, Tasmania states that, '*human activities have led to an increase in the atmospheric concentration of greenhouse gases over the last century. Australia is committed to restricting the increase in its greenhouse gas emissions to 8% above 1990 levels between 2008 and 2012.*[26]' To realistically make these changes, we need to take appropriate action.

Drinking Water Savings
Through the implementation of CDL, Australia would save 5.6 gigalitres of drinking water per annum without the production of producing new bottles. This is enough to supply 16,784 homes. About 550 million litres of bottled water was consumed in 2004-05, according to the Australian Beverage Council[27], with most of these purchases being made in addition to soft drinks, rather than replacing them.

Plastic water bottles are becoming a major environmental hazard. They suck up valuable fuels to make, and also create mountains of rubbish when they are thrown away. In Australia, the energy cost of buying water instead of drawing it from a tap is comparable to driving a car. A litre of bottled water purchased at a supermarket costs well over a dollar but to fill a one litre bottle from the kitchen tap costs less than 0.1 cents. That is more than a one thousand-fold difference in price[28].

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[25] www.warnkenise.com.au *"Warnken Ise , 2007,Carbon Value Proposition of Container Deposit Recycling"*
[26] *State of the Environment Tasmania:* http://soer.justice.tas.gov.au/2003/indicator/152/index.php
[27] www.australianbeverages.org/ccms.htm
[28] *(Cooperative Research Centre for Water Quality and Treatment, 2006)*

Bottled water involves an energy cost similar to driving a car. Driving a car for one kilometre uses about four megajoules of energy while drinking a 600ml bottle of water uses 1.5 megajoules of energy when transport costs are included. Drinking tap water uses only 0.2 megajoules of energy[29].

Biodiversity
It is difficult to state in quantifiable terms the damage that litter has on wildlife; however we do know that different forms of litter have been found in the environment and are a threat to wildlife. Research by the Australian Platypus Conservancy has shown that on average 5% of all captured platypuses from1998-2007 had one or more pieces of litter looped around them such as the ring from a six-pack holder[30]. Reports from Clean Up the Kimberly (2007) (project of Clean Up Australia) noted that cans were a common trap for the Spiny Tailed Goanna[31].

Social Change
Achieving change in people's attitude away from littering to more environmentally responsible behaviour is the ultimate goal of CDL.

The concern from the beverage industry that consumers will pay an increased cost as a result of the implementation of national Container Deposit system can be immediately dispelled by understanding that, 'the actual cost that a consumer bears is not only based on their consumption, but are also dependent on how well (or badly) an individual disposes of their packaging'[32].

What needs to be considered is the enormous environmental benefits which will come as a result of implementing the Container Deposit system. A national system will give consumers an incentive to return their bottle/cans and other containers rather than let them become waste.

Beverage containers make up a large proportion of the rubbish volunteers find dumped in the natural environment on Clean Up Australia Day each year.

Consumer behaviour needs to improve but government and industry has to share responsibility for tackling the waste created away from the home (where kerbside recycling already operates effectively).

CDL also brings about satisfaction and personal reward for each consumer who chooses to place the bottle/material into a deposit. General public opinion supports the movement. Newspolls indicate that Australians are mindful and interested in moving towards decisions which benefit the environment and this needs to be acknowledged not only by government but by Industry.

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[29] *(RMIT, T.Grant) http://www.rmit.edu.au/*

[30] *Person.Comm. Australian Platypus Conservancy, 2008.*

[31] *Clean Up the Kimberly (2007) project of Clean Up Australia*

[32] *West, D. (2008). "Financial Analysis of Cost & Benefits of a National Container Deposit System" Boomerang Alliance*

A Clean Up Australia 2006 Newspoll clearly outlines Australian's stance on environmental issues.

Question:

Thinking now about the environment. Please tell me if you personally are in favour or against each of the following:

1. **A ban on plastic bags to help reduce landfill, damage to marine life and greenhouse pollution.**
2. **A significant increase in the rebate on rainwater tanks to reduce pressure on drinking water.**
3. **A legal obligation on makers of computers, mobile phones, MP3 players and iPods to recycle used models.**

Results in favour:

Area	Q1	Q2	Q3
National	84%	92%	86%
NSW	78%	91%	85%
VIC	86%	89%	89%
QLD	90%	95%	86%
SA	91%	94%	85%
WA	85%	89%	89%
TAS	85%	98%	85%

Another waste issue which increasingly demands attention is electronic waste (e-waste). E-waste, particularly old computers, mobile phones and audio equipment can contain toxic materials such as lead, mercury and cadmium. Disposing them in landfill can lead to a build up of these dangerous materials in soil and groundwater.

More than 2 million computers were sold in Australia last year but only 5 per cent of old computers they replace will be recycled, while more than 10 per cent will go to landfill. Approximately 200,000 computers are going to landfill every year in Australia. E-waste going to landfill is growing at rate three times the rate of general, municipal waste. An effective waste recovery system needs to be implemented to tackle this problem which will only expand over time. Similarly, shopping bags pose enormous environmental problems. The average Australian household uses 502 plastic shopping bags every year.3.92 billion new plastic bags are handed out every year in Australia If 3.92 billion plastic bags were tied together, they would circle the globe 24 times. It takes 21,540 tonnes of plastic to produce 3.92 billion plastics bags[33].

[33] *Clean Up Australia – www.cleanup.org.au*

CONCLUSION

As a nation we need to think more broadly about waste issues. It is vital that we implement systems that are going to serve benefits on a long-term basis and not a 'quick-fix' initiative.

CDL in South Australia has been proven to work, implementing the system on a national level would be addressing the very real waste problem that Australia has. Current waste recovery systems are not enough to effectively manage the volume of waste we as a nation are producing. The importance of diverting waste to landfill has been established. Kerbside recycling manages to capture *some* of the waste produced however complementing kerbside with CDL would tackle the problem of consumers creating waste away from the home.

Clean Up Australia strongly believes CDL is an effective system which should be implemented nationally.