DIAGEO

## Western Australia Government

# Inquiry into Container Deposits

## Submission from Diageo Australia Ltd

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# Executive Summary

## The government of Western Australia wants to reduce the beverage containers in waste and litter. Research suggests that, of the range of interventions available, container deposit/refund systems are consistently the best option both in terms of recovery rates and cost of operation and Diageo supports their introduction.

We at Diageo are committed to leading the alcohol beverage industry in social responsibility and strive continuously to improve our sustainability performance. For us this means a combination of initiatives, from using recycled content in packaging and ensuring that our packaging is in turn recyclable, to responsible marketing and promoting responsible drinking behaviour. It also means being proactive on issues regarding litter and away-from-home recycling – hence this submission on container deposits.

Post-consumer waste is the top environmental issue for our consumers and communities and we address the problem in our National Packaging Covenant three-year action plan. Alcohol beverage containers are currently over-represented in the litter stream in Western Australia (WA) and elsewhere and we would like to see this incidence reduced. In particular, because beverage containers consumed away from home make up 52% of the WA litter stream by volume, we want to see increased recovery in this area.

While we are ready to explore the full range of options to achieve these goals, including public place recycling (as long as any trial takes account of extrapolation costs), the evidence leads us to favour container deposits and we support the WA government's initiative to evaluate such a scheme. Container deposits (CDs) exist in many jurisdictions where Diageo operates around the world and CDs have a proven track record of increasing the recovery of beverage containers and decreasing their incidence in litter. Crucially, such a scheme can provide coverage across society and is not restricted by the provision of public place recycling systems. It provides an incentive – over and above 'doing the right thing' – for people to return containers for recycling, no matter how remote the camping trip or how long the road journey. Where people are too lazy or careless to clean up their own waste, CDs give others a reward for doing it for them, improving community amenity and driving resource recovery. Kerbside recycling does not offer all these benefits and, importantly, cannot deal with litter from away-from-home consumption.

Although data is used (and misused) on both sides of the CD debate, an emerging consensus is unmistakeable. The Productivity Commission in its recent draft report on waste management acknowledged container deposit performance. Diageo supports the introduction of a container deposit/refund scheme in Western Australia because we believe it will deliver desired results, such as improved recovery rates and reduced litter from beverage consumption away from home.

We have clear views about the design of any scheme. While a uniform national approach would be ideal, the introduction of a container deposit/refund scheme in WA should be a best practice system and Diageo would encourage the WA government to invest the time in designing such a scheme. It must be able to achieve its objectives while being efficient for business and consumers alike. It must be able to work alongside the container deposit scheme currently operating in South Australia (SA). And it should lend itself to adoption by other jurisdictions in Australia. At the same time the goal of uniformity should not excuse continuing inefficiencies of the SA model.

A best practice deposit/refund scheme should include the following:

- involve contributions from all parts of the supply chain - manufacturers, retailers, and consumers - and ensure that no one sector is unduly disadvantaged
- appropriate setting of deposit value and administration and handling fee, including use of unredeemed deposits to fund scheme administration through a centralised agency (to ensure a level playing field)
- convenient means for consumers to return containers

- uniform application of deposits on all beverage containers – no exemptions on the basis of beverage type
- least cost collection systems, including the use of automated systems
- data collection to support performance monitoring
- non-sorting by brand
- periodic reviews of scheme operation
- system improvements to ensure minimal disruption and cost.

Diageo sees environmental, social, and economic benefits – the sustainability trifecta – in finding an effective way to address the impact of post-consumer beverage containers, including those used away from home. A best-practice deposit/refund scheme will increase the recovery of containers and reduce litter for the good of the community and the environment.

# Background

## Diageo is the world's leading premium drinks business, with an outstanding collection of brands across spirits, wine, and beer categories. These brands include: Smirnoff, Johnnie Walker, Guinness, Baileys, J&B, Captain Morgan, Cuervo, Tanqueray, Crown Royal, and Beaulieu Vineyard and Sterling Vineyards wines.

Diageo ('dia' – from the Latin for day, 'geo' – from the Greek for world – reflecting our vision of celebrating life, every day, everywhere, responsibly) was formed in December 1997, following the merger of Guinness and GrandMet, and is headquartered in London. A truly global company, trading in over 180 markets around the world, the company is listed on both the London Stock Exchange (DGE) and the New York Stock Exchange (DEO). We employ over 20,000 people worldwide with offices in around 80 countries, and have manufacturing facilities across the globe.

In Australia, Diageo is the leading spirits and ready-to-drink (RTD) company. Our priority brands in Australia include the iconic Bundaberg Rum, the original (and Australian-born) pre-mixed spirit UDL, Johnnie Walker, Smirnoff, Baileys, and Guinness.

We operate from eight sites around the nation, employing around 590 people. Our head office is located in the Sydney suburb of Bondi Junction, with production and distribution sites at Huntingwood (NSW) and Bundaberg (Qld).

Alcohol beverages bring pleasure to millions of adults every day, all over the world, as they have done for thousands of years. Many of the brands that people enjoy are Diageo brands. We are proud of the unique part that alcohol plays in the social lives and celebrations of many cultures. Yet we also recognise that alcohol beverages may be consumed irresponsibly, creating problems for the individual and for society as a whole.

Leadership brings with it responsibility, and Diageo aspires to lead the industry in alcohol and responsibility. We are committed to driving positive change in attitudes and drinking behaviour, and to improving the sustainability of our business. For us there are direct parallels between promoting a healthier drinking culture for Australians, increasing recovery of used packaging and undertaking the preferential purchase of recycled content packaging.

As a major beverage company in Australia, Diageo applauds the Western Australian government's intention to significantly reduce and recover post-consumer waste and we welcome this opportunity to make a contribution to the Government Inquiry into Container Deposits (CDs).
We look forward to being active participants in, and supporters of, a deposit/refund scheme in Western Australia that seeks to improve resource recovery and reduce litter of beverage containers – especially for away-from-home consumption.

# Nature as Model – Closing the Loop on Beverage Containers

## Diageo Australia produces hundreds of millions of alcoholic beverages per annum. Intervention to drive resource recovery is needed to keep containers out of waste and litter. Only by taking action can we work to replicate natural systems and close the loop on beverage container waste.

Diageo is committed to improving our sustainability performance. This is evidenced in our attitude towards packaging. For example, all our aluminium cans, glass bottles, and cardboard cartons are recyclable. We try to purchase (wherever available) packaging made from 100% recycled materials, including cans made from 100% recycled aluminium and cartons made from 100% recycled board.

In addition to using packaging that is recyclable, Diageo is concerned with maximising recovery rates to reduce the overall impact of materials use. A greater percentage of 'closed loop recycling' reduces demand on primary resources for beverage packaging and diverts waste away from landfill disposal.

Minimising the littering of beverage packaging is also a priority for Diageo. The over-representation of alcoholic beverages in litter data, as supplied by organisations like Clean Up Australia and Keep Australia Beautiful, concerns us. For example, Clean Up Australia's 'Rubbish Reports' identifies that alcoholic beverages made up an average of 45 per cent of national beverage container litter on a count basis.[1] Keep Australia Beautiful volumetric data for Western Australia shows that beverage containers make up 52 per cent of all litter. Of this litter, alcoholic beverage containers comprise 78 per cent of glass and 60 per cent of metal beverage packaging.[2]

Litter is a multi-sided problem. Additional to environmental and aesthetic damage, litter signals where individuals opt out of a collective social contract. This negative form of social ecology is contrary to Diageo's philosophy of a healthy drinking culture. Responsible drinking is often defined as 'don't get drunk'. However, we think healthier drinking goes beyond the avoidance of high risk drinking to an increased awareness of related drinking issues. Some of these issues include being aware of consumption, the immediate drinking environment, and what to do with used containers. Littering has no place in a healthy drinking culture.

Further to the broader impacts of litter is the potential for brand erosion caused by identifiable brands in litter. Some beverage containers in litter can also reinforce stereotypes regarding the personal character (or lack thereof) of a particular consumer group, which are then transferred to the brand by association.

We collectively need to reduce litter and maximise recovery from away-from-home consumption of alcoholic beverages. Diageo is prepared to consider and support any mechanism that improves recycling rates and reduces litter. One potential mechanism that delivers this double dividend is Container Deposits (CDs).

[1] Clean up Australia (2001-2005), 'Rubbish Report', Clean Up Australia, Sydney, found online at http://www.cleanup.org.au/au/NewsandMedia/rubbish-report.html, accessed June 2006 – note that this excludes any factoring for glass pieces from alcoholic beverage containers.
[2] McGregor Tan Research (2006), 'National Litter Index Western Australia', Keep Australia Beautiful, Canberra, found online at http://www.kab.org.au/nat_li/pdf/KAB_Litter_Count_WA.pdf, accessed June 2006.

# Container Deposit/Refund Systems – A Logical and Rational Intervention

## Container deposits immediately raise emotional argument from both sides of the debate – often completely missing the logical and rational support for such a mechanism.

When considering arguments within the CD debate, the primary motivation for the debate should be considered. It appears that both sides support a reduction in beverage container litter and improvement in resource recovery of containers consumed away-from-home. After all, who would argue that we should have more litter or less recycling? This context is important when debating different options for delivering desired outcomes, including increased kerbside recycling, public place recycling, regulation, and incentive schemes.

Kerbside recycling makes a valuable contribution to resource recovery and Diageo applauds the efforts made by Australian jurisdictions in improving the performance of kerbside recycling. However kerbside is not a perfect system in-and-of itself. For example it does not address beverage container litter. Litter is an away-from-home activity by definition as very little litter occurs in people's literal backyards.

Additionally, kerbside recycling does not address resource recovery of containers consumed away from home. Public place recycling infrastructure with accompanying education is often presented as the solution. Putting aside considerable capital and operational costs of public-place recycling, no incentive is provided (other than civic duty) for people to correctly use the recycling bins provided. Accompanying regulation and enforcement is required to ensure that people use the recycling facilities correctly and do not litter.

However, instead of educating and regulating to change attitudes and behaviour in using public place recycling, a more ecological approach would be systemic behavioural change through an immediate motivator, in this case the refund of a monetary deposit. Changing consumer behaviour this way also provides the action learning that will result in changed attitudes.

Diageo prefers this style of incentive based approach. Deposits provide consumers an incentive to return their beverage containers for recycling as opposed to externalising end-of-life management costs of litter and waste onto broader society. The 'waste' beverage container now has a direct value. Container deposits thus increase recovery of wasted beverage containers and reduce litter.

The fact that deposit/refund systems achieve this 'double dividend' is not in dispute. Even the Productivity Commission recognises that CDs achieve 'improved recovery of beverage containers' and 'reduced beverage container litter'.[3] However Diageo would disagree with the Commission's negative conclusion on container deposit effectiveness. We would highlight that:

- kerbside recycling does not cover resource recovery from public place consumption
- schemes that seek to minimise the litter of beverage containers should not be assessed as a mechanism to cover all litter
- volumetric based assessments of litter data (as opposed to single item counts) reveal that beverage containers comprise over half of the litter stream, except in South Australia (a CDL state), where beverage container litter is less than 20 per cent[4]
- implementing an alternative system to CDs has significant cost, such as public-place recycling infrastructure, education and regulation with its associated requirements for increased litter inspectors, deficiencies of 'hit and miss' enforcement, and follow up prosecutions (penalty deterrence is not enough to change behaviour).

[3] Productivity Commission (2006), 'Waste Management Productivity Commission Draft Report', Productivity Commission, Melbourne, found online at www.pc.gov.au, accessed June 2006.
[4] McGregor Tan Research (2006), 'National Litter Index Western Australia', Keep Australia Beautiful, Canberra, found online at http://www.kab.org.au/nat%5Fli/pdf/KAB_Litter_Count_SA.pdf, accessed June 2006.

From Diageo's perspective it is clear that container deposit/refund systems have a proven track record in reducing beverage container litter and increasing the recovery of containers consumed away from home. Issues regarding the cost effectiveness of CD systems are of importance as design considerations for Western Australia when deciding between different models of operation. Further comment on the performance of container deposits and best practice elements for deposit/refund system implementation is provided in the following sections.

# Observations from Around the World – Container Deposits in Action

## Diageo operates in many jurisdictions around the world that operate some form of container deposit. It is the only proven mechanism that consistently returns high recovery rates and low litter of beverage containers.

Container deposits have proved effective in encouraging recycling around the world. Available data shows significant recovery levels for containers which carry a deposit, with actual recovery rates varying from location to location.[5]

In Denmark, recovery rates of glass containers covered by CDL are over 90 per cent. For other glassware collected through other means, the return rate is estimated to be under 65 per cent. This compares to significantly lower return rates for states in the US with only kerbside recycling. One study put the overall recovery rate at 18.5 per cent for those US states without CDL.[6]

A study conducted by Felder and Morawski (2003)[7], suggests a strong correlation between the deposit refund value and container recovery rate. For example, an analysis of international recovery rates indicates that an increase of refund value from five cents to ten cents would result in an increase in recovery rates of between 6.7 to 15.1 per cent. Felder and Morawski do, however, acknowledge the impact of non-economic considerations including:

- method of return - return to retail and/or return to depot
- whether or not the material is a 'traditional beverage material' – for example glass, aluminium or PET
- duration of program – whether the program had been in place for more than a decade with a high level of education/public awareness
- where beverages are consumed – whether at home or away from home.

A summary of the deposit amounts assigned to beverage containers in container deposit schemes around the world is presented in Appendix 1. There are three main types of approaches to assigning deposit values:

- all containers are given the same value
- containers for different beverage types and/or volumes are given different values
- manufacturers can assign their own value to containers, above a certain minimum.

Charges are typically relatively low, in most places five to ten cents. The highest charges are in Sweden where a refillable plastic bottle has a deposit of 4,00 kr. (A$0.75), and one litre recyclable bottles carry deposits of A$0.40.

[5] This data is presented as Appendix 1 to this report. One exception to the higher performance trend of CDL states is Delaware, which has lower recovery rates.
[6] Beck, R.W. (2002), 'Understanding Beverage Container Recycling: A Value Chain Assessment', Businesses and Environmentalists Allied for Recycling (BEAR), found online at http://www.globalgreen.org/bear/Projects/FinalReport.pdf, accessed June 2006.
[7] M. Felder and C. Morawski (2003), 'Evaluating the Relationship Between Refund Values and Beverage Container Recovery', Report Prepared for the Beverage Container Management Board, found online at http://www.bottlebill.org/assets/pdfs/legislation/deposit%20levels.pdf, accessed June 2003.

Most deposit/refund schemes, such as those for Hawaii, New York, Connecticut and Saskatchewan impose a handling fee (either a set fee or a variable fee dependent on its being offset by both material sales and / or unredeemed deposits returned to the system) in addition to the deposit amount. The deposit amount is returned to the purchaser, whilst the handling fee is used to pay recyclers, processing centre operations, or other aspects of running the scheme. In Norway, an additional product charge is levied, with the charges being inversely proportional to the return rate (the lower the return rate, the higher the tax).

In other states revenue generated by unredeemed deposits is used (in part or full) to fund the schemes. In Michigan, for example, 25% of unredeemed deposits are returned to retailers and the remaining 75% is deposited into the Cleanup and Redevelopment Trust Fund. In New Brunswick, Canada, half goes to the beverage industry to subsidise its container management system and the other half goes to the Environmental Trust Fund to promote waste reduction through environmental education and administration of the Beverage Containers Program.

Little information is available on the detailed operating costs of individual deposit/refund schemes, however the BEAR report 'Understanding Beverage Container Recycling'[8] compares various generic approaches and costs for beverage container recovery. Specific details on the Californian model were also included, where estimates of gross collection and intermediate processing costs were about 1.62 cents per container, or 0.55 cents per container if revenue from material sales is included.[9]

Refund procedures also vary widely from place to place. Typically one or both of two methods of return are used. The first is through the beverage retailer collecting containers and returning deposits to customers. Containers are then collected from the retailer by either beverage suppliers, or collection centres that sort and may also reprocess containers. Typically the retailer will get to keep some or all of the handling fee. The second method of return is direct to a sorting/processing depot. In European countries vending machines are often used to provide refunds. These machines are able to read bar codes or scan for size or weight of the containers to determine whether they are eligible for a certain refund.

South Australia is the only Australian jurisdiction that has container deposit legislation (CDL). In addition to the low level of beverage container litter cited in the previous section, SA recovers:[10]

- at least one third more aluminium cans than other States in Australia
- 85% of non refillable glass soft drink bottles, compared with 36% nationally
- 84% of cans marketed in the State compared with 63% nationally
- 74% of PET containers compared to 36% nationally.

When presented with the choice of returning beverage containers to obtain deposits versus placing them in kerbside recycling, respondents to a study on the effectiveness of CDL in South Australia indicated that most (60%) returned beverage containers to collection/recycling depots, while nearly one third (32%) recycled the containers in kerbside recycling bins/crates instead of collecting the refund.[11] Only four per cent of respondents claimed to forego deposits by throwing empty beverage containers into garbage bins.

The international and national experience suggests that recovery rates are higher in those jurisdictions with container deposits and that an increased deposit amount will achieve a higher rate of recovery. Operational costs are more difficult to compare, however anecdotal evidence suggests that the mechanism for refunding deposits (manual or automatic) and the fate of unredeemed deposits are important factors. A review of the SA CDL model may ensure that improvements are made to any container deposit system implemented in WA.

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[8] Beck, R.W. (2002), 'Understanding Beverage Container Recycling: A Value Chain Assessment', Businesses and Environmentalists Allied for Recycling (BEAR), found online at http://www.globalgreen.org/bear/Projects/FinalReport.pdf, accessed June 2006.

[9] These are system operating costs based on a weighted-average for all material types, including the operations of redemption centres and administrative costs. It should also be noted that unredeemed deposits were not factored into these costs. With unredeemed deposits the BEAR report identifies that the Californian model is cost negative.

[10] Recyclers of South Australia (undated), 'Container Deposit Legislation is Effective', found online at http://www.recyclesa.com.au/CDLeffective.htm, accessed June 2006.

[11] McGregor Tan Research (2003), 'Community awareness and acceptance of Container Deposit Legislation', Environment Protection Authority South Australia, found online at http://www.epa.sa.gov.au/pdfs/cdl_survey.pdf, accessed June 2006.

# Note of Caution – Need for Improvement on the SA Model

## South Australia showed great foresight in implementing a container deposit scheme some 30 years ago. Now, however, there are improved models of operation that can overcome some of the specific SA shortcomings.

The South Australian CDL scheme has been in operation for nearly 30 years. The fact that this scheme works and does so alongside kerbside recycling is proof positive that container deposits will work in WA. This provides certainty that WA consumers will participate in the scheme, beverage container litter will go down and the recovery of beverage containers will go up. However, rather than directly replicating SA's model in WA, Diageo recommends that the WA government take the opportunity to improve on some aspects of the SA container deposit scheme.

Some of the positive features of the SA scheme include:

- proven track record of increasing beverage container recovery and decreasing litter
- functions alongside kerbside recycling
- reduction of glass collected in kerbside recycling reduces glass fine contaminations and increases compactability of collected materials. This leads to better quality recyclate and increased operation efficiency (more houses serviced per recycling truck)
- opportunities to support charities, such as Scouts
- changes community psychology of viewing packaging as waste.

The primary challenge for the WA government will be overcoming some of the inefficiencies that have developed in SA. For example:

- sorting by brand so that 'Super Collectors' can act as agents for beverage manufacturers adds unnecessary cost (high handling fees) and complexity to the handling of returned containers
- manual operation of collection points (as opposed to automated facilities) further adds to handling costs (however it is noted that there is a community benefit where depots are operated voluntarily by organisations such as Scouts – sufficient flexibility to allow such benefits without hampering the overall efficiency of the scheme would be ideal)
- unredeemed deposits are not used collectively to offset the operation of the scheme
- exemptions and size restrictions (for example wine, plain milk, fruit juice, and flavoured milk in containers greater than one litre) can slightly distort the market to prefer a certain size of packaging and beverage type
- ease of access to collection depots could be improved (more depots with greater availability).

It will be important for WA to ensure that any deposit/refund scheme chosen for implementation addresses the listed shortcomings of the SA scheme. For example, Diageo would prefer a system that treated all container and beverage types equitably.

However, at the same time it is equally important to ensure that 'improvements' to the model do not create two divergent container deposit schemes in the Australian market. This could occur if there was no uniformity on deposit amounts and labelling requirements. Special effort should be made to ensure that both schemes are consistent and that flexibility is maintained to facilitate other states implementing a similar container deposit program.

# Recommendations for Implementation of Best-Practice Deposit/Refund Model

**The Government of Western Australia has the opportunity to create a double dividend of improved environmental outcomes and economic growth through the implementation of a container deposit/refund scheme. Diageo recommends a best-practice model to ensure that these objectives are met at least cost and disruption to beverage businesses.**

A best-practice model of container deposit/refund operation has the potential to not only increase the recovery of beverage containers and reduce litter, but also to contribute to economic growth in WA through an increase in collection and recovery infrastructure, as well as additional employment. Diageo recommends incorporating the following 'best practice' elements into the WA container deposit scheme:

- inclusion of all elements of the supply chain – principles of product stewardship suggest that all players in the supply chain, from manufacturer to retailer to consumer, have a role to play in improving sustainability outcomes. Any deposit/refund operation should reflect this principle and ensure that no one part of the supply chain is unduly disadvantaged
- consumer convenience for returning containers – this could be achieved through a combination of extended access for redemption services (or some other appropriate availability in regional areas); proximity of depots or reverse vending machines to population centres, and proximity to where people are active and already using transport (for example shopping centre or council facility car parks)
- appropriate setting of deposit amount – consideration should be given to setting a deposit amount that will provide an appropriate incentive for action in recovering beverage containers consumed away from home, and minimising litter of beverage containers, while at the same time minimising financial impacts along the supply chain
- use unredeemed deposits to help fund scheme administration – any deposits not redeemed should be used to fund the overall operation of the scheme, for example by paying handling fees and administration costs
- administration of scheme through a centralised agency – a centralised agency could manage deposit collection, minimise handling fees (such as removing the need for brand sorting and 'inversely' pegging fees to commodity price movements), prevent duplication of administration and use unredeemed deposits to offset handling fees. Such an arrangement should be business oriented and drive towards least operating cost
- least cost collection systems – the operation of collection facilities should be designed to maximise consumer convenience while minimising operational costs. The use of automated collection machines (reverse vending machines or RVMs) in combination with depots operated voluntarily by organisations such as the Scouts should be considered
- ability to interact with SA – the WA scheme should be able to integrate with the existing SA scheme. Factors to address include approval process for labels, minimising changes (current and future) to labels, and scheme deposit amounts
- uniform application of deposits
- data collection of return rates – one of the advantages of a centralised agency is the ability to collect good data on system performance. Good data is essential to underpin the efficient operation of a deposit/refund scheme
- ongoing review of scheme operation – as part of collecting good quality data it is recommended that scheme performance is made publicly available and that a formalised review process is created to ensure that the objectives of the CD scheme are being met
- other system improvements – a number of criticisms of CDL schemes advanced by critics are not without merit. However, rather than interpret these issues as reasons for not introducing container deposits, Diageo recommends that they be interpreted as list of needed improvements to the operation of a successful deposit/refund scheme.

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Diageo consulted with a wide group of key stakeholders in preparing this submission. Their feedback used in shaping this submission, and comments on an earlier draft, are very much appreciated.

# Appendix 1 – International Technical Data on Container Deposit Schemes

A wide-spread internet search was conducted with the aim of determining the international effectiveness of container deposit/refund schemes in encouraging recovery of beverage containers. Particular aims of the review were to try and obtain up-to-date information presented on both websites and in previous studies done on the effectiveness of CDs (much of the available data is more than four years old) and to find primary source data (for example, direct from the environmental authority responsible for administering the scheme).

Where primary information less than four years old was not available, other sources were consulted. A significant amount of information has been collated by interest groups, such as the Container Recycling Institute's Bottle Bill Resource Guide (http://www.bottlebill.org/ and http://www.container-recycling.org/) and the Grassroots Recycling Network (http://www.grn.org). Two significant limitations are identified with the use of these information sources. Firstly, it is acknowledged that they are set up with the primary aim of promoting the establishment of container deposit/refund schemes. Secondly, most of the data concerning the recovery rates is presented without a reference, so it is difficult to confirm the accuracy of the data or the year in which it was collated. However, given the general difficulty in obtaining information on the performance of recovery systems, it is suggested that these sources are better than no information.

Table 1 below shows the recovery rates of beverage containers in those jurisdictions which have some type of container deposit/refund scheme. In order to give an indication of data age and quality, the following colour key is used in the table:
Recent performance data (2003 to 2006),
Data from before 2003,
Year of applicability unknown and/or information obtained from interest group website.

From the table it is clear that little recent data is available. It is noted, however, that the trends indicated by the data are still valid. Deposit amounts have been left in their original currencies as conversion to Australian cents would be relatively meaningless given the low numbers being reported.

**Table 1 – Summary of Deposit Amounts and Return Rates from Container Deposit/Refund Schemes around the World**

| Scheme | Deposit Amount | Return Rates[12] | Reference (Deposits) | Reference (Return Rates) |
|---|---|---|---|---|
| South Australia | Category A container [13] – A$0.10<br>Category B container [14] – A$0.05 | Non-refillable glass soft drink bottles – 85%<br>Cans marketed in SA - 84%<br>PET - 74%<br>Liquid Paperboard - 40% | http://www.epa.sa.gov.au/pdfs/cdl_collection.pdf | http://www.recyclesa.com.au/CDLeffective.htm |
| Alberta (Canada) | <1 litre – C$0.05<br>>1 litre - C$0.20<br>All beer containers – C$0.10 | Non-beer aluminum- 80.59%<br>Beer aluminum - 91.00%<br>Plastics - 70.06%<br>Non-beer glass - 78.78%<br>Domestic beer glass - 96.27%<br>Import beer glass - 93.85<br>Polycoat - 56.89%<br>Bi-metal - 55.68%. | http://www.grrn.org/beverage/deposits/alberta.html | http://www.bcmb.ab.ca/2004_sales.html |
| British Columbia (Canada) | Non-alcoholic containers:<br><1 litre – C$ 0.05<br>>1 litre - C$ 0.20<br>Alcoholic containers:<br><1 litre - C$ 0.10,<br>>1 litre - C$ 0.20 | Non-alcohol glass – 58%<br>Liquor glass (excl beer) – 87%<br>Non-alcohol aluminum – 83%<br>Beer aluminum – 94%<br>Non-alcohol plastics - 72%<br>Liquor plastics – 76%<br>Refillable beer bottles – 92% | http://www.qp.gov.bc.ca/statreg/reg/E/EnvMgmt/449_2004.htm | Who Pays What - An Analysis of Beverage Container Recovery and Costs in Canada 2001-2002. [15] |

[12] Key to data sources for return rates:
Recent performance data (2003 to 2006),
Data from before 2003,
Year of applicability unknown and/or information obtained from lobbying group website
[13] Redeemed at the point of sale
[14] May not be sold unless a retailer's premises are situated within a collection area which includes an approved collection depot for the collection of the particular class of container.
[15] Morawski, C., (2003). Who Pays What - An Analysis of Beverage Container Recovery and Costs in Canada 2001-2002. Found online at http://www.bottlebill.org/assets/pdfs/legislation/WPW_FINAL_REPORT.pdf, accessed June 2006.

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|---|---|---|---|---|
| Saskatchewan (Canada) | Metal Cans & Plastic Bottles<br>< 1 litre C$ 0.10<br>1L & over C$ 0.20<br>Glass Bottles<br>up to 300 ml - C$ 0.10<br>301 - 999 ml – C$ 0.20<br>1L & over - C$ 0.40<br>Other<br>Juice Boxes & Cartons (all sizes) - C$ 0.05<br>Refillable Beer Bottles (all sizes) - C$ 0.04<br>In addition there is an Environmental Handling Charge[16]:<br>Metal Cans - C$ 0.05<br>Plastic Bottles - C$ 0.06<br>Glass Bottles - C$ 0.07<br>Juice Boxes – C$ 0.03 | Glass – 82%<br>PET – 80%<br>Aluminum – 90%<br>Refillable beer bottles – 95% | http://www.sarcsarcan.ca/depositrefunds.htm | Who Pays What - An Analysis of Beverage Container Recovery and Costs in Canada 2001-2002. |
| Quebec (Canada) | ≤ 450 ml minimum C$ 0.05<br>> 450 ml C$ 0.20<br>Handling fees C$ 0.02 per container.<br>For refillable beer bottles:<br>≤ 450 ml $1.20 per dozen<br>> 450 ml C$ 0.20 | Glass - 73%<br>PET – 74%<br>Aluminum – 76% | http://www.bottlebill.org/legislation/canada/que.htm | Who Pays What - An Analysis of Beverage Container Recovery and Costs in Canada 2001-2002. |
| New Brunswick (Canada) | Non-alcoholic beverages – C$0.10<br>Alcoholic beverages:<br><500 ml – C$ 0.10<br>>500 ml – C$ 0.20<br>Handling fee of C$ 0.03 | Non-alcoholic glass – 76%<br>Alcoholic glass – 77%<br>PET – 71%<br>Aluminum – 78% | http://www.geocities.com/RainForest/vines/6156/cdndepos.htm#NS | Who Pays What - An Analysis of Beverage Container Recovery and Costs in Canada 2001-2002. |

[16] This covers the cost of running reprocessing centres, see http://www.sarcsarcan.ca/depositrefunds.htm for more detail

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| Nova Scotia (Canada) | Non-liquor, non-refillable C$ 0.05<br>Non-liquor, refillable C$ 0.10<br>Refill liquor <1L C$ 0.08<br>Refill liquor >1L C$ 0.20<br>Non-refill liquor < 500ml C$ 0.05<br>Non-refill liquor > 500ml C$ 0.10 | Glass - 84%<br>PET – 85%<br>Aluminum – 79% | http://www.bottlebill.org/legislation/canada/nova.htm | Who Pays What - An Analysis of Beverage Container Recovery and Costs in Canada 2001-2002. |
| California (US) | < 24 oz – US$0.04<br>> 24 oz – US$0.08 | Aluminium – 73%<br>Glass - 65%<br>PET – 46%<br>HDPE – 149%<br>PVC – 6%<br>PP – 1%<br>Bimetal – 8%<br>Overall – 62% | http://www.consrv.ca.gov/dor/index.htm | http://www.consrv.ca.gov/dor/Notices/Images/Biannual506.pdf |
| Connecticut (US) | US$ 0.05 for each container of beer or carbonated soft drink (including mineral waters and soda waters). Handling fee of .015 for each beer container and .02 for each carbonated soft drink | no data found | http://www.dep.state.ct.us/wst/recycle/bbfaq.htm | |
| Delaware (US) | US$ 0.05 and a US$ 0.01 handling fee | Soft drinks in glass and PET – 30%<br>Beer glass one way – 37%<br>Beer glass refill – 80% | http://www.dnrec.state.de.us/dnrec2000/divisions/awm/hw/sw/guides/bottlebill.htm | http://www.dnrec.delaware.gov/NR/rdonlyres/BB472D80-ECCC-4397-9EAF-B7BE6A544A9E/42/FranklinAssociates.PDF |
| Hawaii (US) | US$ 0.05 on all containers. There is also a US$0.01 handling fee paid on top of this which is non-refundable. | In the year 2004-05 (1/7/04 to 30/6/05) overall recycling rates were 41%<br>From 1/7/05 to 31/3/06 the indicative rate was 71% | http://www.hi5deposit.com/ | http://www.hi5deposit.com |
| Iowa (US) | US$ 0.05 on all containers, handling fee US$ 0.01 | Overall 92% | http://www.iowadnr.com/waste/recycling/bottle.html | http://www.iowadnr.com/waste/recycling/bottle.html |

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| Maine (US) | US$ 0.015 for wine and spirits containers of greater than 50 ml<br>At least US$ 0.05 for all other containers | No data found | http://janus.state.me.us/legis/statutes/32/title32sec1863-A.html | |
| Massachusetts (US) | At least US$ 0.05 cents per container. The value may be more on some containers. Handling fee of US$ 0.0225 | Overall 68.6% | http://www.mass.gov/dep/recycle/reduce/bbillcon.htm | http://www.bottlebill.org/legislation/usa_deposit.htm |
| Michigan (US) | US$ 0.10 | Overall 97.3% | http://www.deq.state.mi.us/documents/deq-wmd-swp-mibottledepositlawFAQ1.pdf | http://www.deq.state.mi.us/documents/deq-wmd-swp-mibottledepositlawFAQ1.pdf |
| New York (US) | Manufacturers determine the amount of the deposit. The deposit must be at least US$ 0.05. There is also a handling fee of US$0.02 per container. | Overall – 69.2%<br>Beer containers – 80%<br>Soft drink containers – 58%<br>Wine product containers – 59% | http://www.dec.state.ny.us/website/dshm/redrecy/rca.htm | http://www.dec.state.ny.us/website/dshm/redrecy/0304rpt.pdf |
| Oregon (US) | Most containers carry a US$ 0.05 refund value. | Overall 84% | http://www.deq.state.or.us/ | http://www.container-recycling.org/papers/OregonBB30.pdf |
| Vermont (US) | Liquor > 50 ml US$ 0.15<br>Other containers US$ 0.05 | Overall 90-95% | http://www.bottlebill.org/legislation/usa/vt.htm | http://www.bottlebill.org/legislation/usa_deposit.htm |
| Austria | Refillable PET: U.S. $0.40 | Cans 60%<br>One-way PET 30% | http://www.bottlebill.org/legislation/world/austria.htm | http://www.bottlebill.org/legislation/world/austria.htm |
| Belgium | Voluntary charges if refillable:<br>< 50 ml - US$ 0.12<br>> 50 ml - US$ 0.24<br>If not refillable then US$ 0.52 per liter | No data found | http://www.bottlebill.org/legislation/world/belgium.htm | |
| Denmark | < 50 ml - DKK 1.25<br>For large containers - 2.5 to 4 DKK/container. | Estimated 99% for containers of beers and carbonated soft drinks. Almost 90% for containers of wine and spirits that are covered by a voluntary deposit-refund system. | http://www.mst.dk/default.asp?Sub=http://www.mst.dk/udgiv/publications/2000/87-7909-568-2/html/kap08_eng.htm | http://www.mst.dk/default.asp?Sub=http://www.mst.dk/udgiv/publications/2000/87-7909-568-2/html/kap08_eng.htm |

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| Finland | U.S. $0.11<br><br>U.S. $0.45 for larger sizes | One-way containers 75% (overall) ; Liquor 72%; Wine 75%; Imported Beer 50%; Refillables 95-98% (overall) | http://www.bottlebill.org/legislation/world/finland.htm | http://www.bottlebill.org/legislation/world/finland.htm |
| Germany | € 0.25 | Overall beverage 63.5%<br>Glass 83%<br>Aluminium 71% | http://www.bmu.de/english/waste_management/general_information/doc/35155.php | http://www.bmu.de/english/waste_management/latest/doc/36891.php |
| Netherlands | PET and glass:<br>< 0.5 liters US$ 0.16<br>> 0.5 liters US$ 0.72 | Refillable glass 98%<br><br>Refillable PET 99% | http://www.bottlebill.org/legislation/world/netherlands.htm | http://bottlebill.org/legislation/world/netherlands.htm |
| Norway | < 500 ml - US$ 0.16<br>> 500 ml - US$ 0.40<br>All one-way beverage containers also carry a tax of NOK 0,70. Additionally, there is a product charge on all one-way and refillable beverage containers. The full product charge is applied to containers with return rates below 25%. Return rates between 25% and 95% are charged a tax that is inversely proportional to the return rate (the lower the return rate, the higher the tax). Containers reaching return rates above 95% are exempt from the tax.<br>The product charges are as follows:<br>Beer/Soft Drink US$ 0.48<br>Noncarbonated beverages US$ 0.04<br>Members of Norsk Glassgjenvinning A/S pay a voluntary recycling fee of NOK 0,06 to NOK 0,15 for each glass container they sell. The glass is collected in special bins and recycled at a central location. As a result, members receive a 75% reduction in the product charge. | Overall 93% | http://www.bottlebill.org/legislation/world/norway.htm | http://www.sft.no/nyheter/brev/drikkevareretur_resirk120504.htm |

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| Sweden [17,18] | Recyclable Plastic Bottles:<br>< 1litre - 1 kr.<br>>1 litre – 2kr.<br>Cans – 0.50 kr.<br>Glass:<br>33 ml refillable bottles – 0.60 kr, 22:40 kr. on crates<br>50 ml bottles – 0.90 kr., and 28 kr. on crates<br>Refillable Plastic Bottles - 4,00 kr. and trays 22,40 kr. - 44,80 kr depending on the type of tray | Recyclable Plastic Bottles - 80%<br>Cans - 86%.<br>Glass:<br>33 cl refillable system - 99%<br>50 cl refillable system - 90%<br>Refillable plastic bottles - 98%. | http://www.sverigesbryggerier.se/eng/emballage/plastflaskor.htm, http://www.sverigesbryggerier.se/eng/emballage/returburkar.htm, http://www.sverigesbryggerier.se/eng/emballage/glasflaskor.htm | http://www.sverigesbryggerier.se/eng/emballage/plastflaskor.htm, http://www.sverigesbryggerier.se/eng/emballage/returburkar.htm, http://www.sverigesbryggerier.se/eng/emballage/glasflaskor.htm |
| Switzerland | CHF 0.02, 0.04, or 0.06, depending on the size of the bottle | Glass one-way - 72%<br>Glass refillable - 95 – 98%<br>Aluminum - 68%<br>PET one-way - 53%<br>PET refillable- >70%<br>Steel cans - 35% | http://www.umwelt-schweiz.ch/buwal/eng/fachgebiete/fg_abfall/abfallwegweiser/glasverpackungen/index.html | http://www.bottlebill.org/legislation/world/switzerland.htm |

[17] All the indicated deposit amounts include VAT
[18] For refillable plastic and glass bottles a deposit is also charged on the crates used for delivery.

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