

HAPPY RETURNS

A proposed model for a Container Deposit Scheme (CDS) for New Zealand

Prepared by Warren Snow

for the New Zealand Product Stewardship Council

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Why Beverage Containers?

New Zealand produces a mountain of beverage waste and litter every day, with more than 2.23 billion beverage containers purchased each year.

This equates to 6.1 million containers each day or 1.36 containers per person per day, not including beverages consumed by tourists.

As a result, over 830,000 cubic metres of beverage containers are discarded into the litter stream, and landfills annually. Equivalent to 700 Boeing 747 airplanes filled with containers!

Under a mandatory CDS, at least 85% of these containers would be recovered from the litter and waste streams and recycled, with the potential to create hundreds of new businesses, up to 2,400 new jobs and large cost savings for ratepayers and local authorities.

Additionally a CDS would create significant CO2 reductions and marked reductions in plastics entering our waterways and oceans.

No other single waste stream could be managed so easily by such a proven method as a mandatory CDS where recycling rates overseas of 85 – 95% are common.

Local authorities have been calling for relief from the costs of managing beverage litter and waste since the first voluntary Packaging Accord in 1994.

Under a well-designed CDS, the costs of managing beverage waste and litter would fall on the producers who put the product into the market and the consumers who purchased them - not the wider community.

To achieve these positive outcomes for communities, the economy and the environment requires a mandatory CDS product stewardship scheme, a model of which is outlined in this document.

Note: The above figures are based on New Zealand's 2015 population which has since grown

ABOUT THIS DOCUMENT

This document outlines a model for a New Zealand Container Deposit Scheme (CDS) alongside a legislative, procedural roadmap for implementing this.

It covers all aspects of an effective CDS, and how a 'Managing Agency' would operate the scheme.

For balance, a Coca Cola preferred CDS model (as operated in Australia) is also briefly outlined.

This document recommends that:

- 1. All stakeholders should be involved in developing a New Zealand CDS.*
- 2. There is no need for Government to wait for complete agreement on the best model. This could take years as experienced in Germany. Instead it should declare that a CDS will be introduced within 18 months, and appoint an expert group to develop the final model.*

INTRODUCTION

Until recently, the concept of mandatory CDS was poorly understood by many New Zealanders and faced strong industry opposition. Now, CDS enjoys widespread support with Councils, Local Government New Zealand, the Waste Management Institute of New Zealand, recyclers and many local and national non-profit groups.

On 23rd February 2019, the National Party previously strongly opposed to CDS, joined the Greens and New Zealand First parties in advocating for a CDS¹.

Based on this support, and international evidence of the effectiveness of product stewardship systems, adoption of a mandatory CDS is a priority, for New Zealand. Such a reform would mark a shift away from nearly thirty years of unsuccessful voluntary schemes, towards more effective mandatory measures envisaged in New Zealand's Waste Minimisation Act 2008 (WMA).

A model that works for everyone

After more than 25 years of active opposition, at least one industry player, Coca Cola Amatil is now taking interest in CDS. Senior Coca Cola executives have recently researched Australian CDS models and Coca Cola Australia now has a 'Group Head of

CDS Implementation'. Other industry players may also be 'reading the tea leaves' and considering supporting CDS.

Industry interest in a NZ CDS is refreshing, but we must ensure that New Zealand's CDS is not developed by beverage interests alone and designed primarily to meet their needs..

This doesn't mean industry shouldn't play an important role of developing a CDS for New Zealand. They should, but in collaboration with other key stakeholders, such as grocery retailers, local authorities, recyclers, environmental and community groups and Government. The goal must be to develop a cost effective and popular CDS which works for all New Zealanders.

CDS and product stewardship

Beverage packaging waste and litter is a consequence of the beverage industry business model. But the industry has not been held responsible for the full costs and impacts of this waste and litter since single-use packaging was introduced in the early 1980s.

Under effective product stewardship schemes, producers take responsibility for the whole life cycle of the products (including packaging) they produce. The cost burden is transferred from the wider community to the producer and the consumer they sold it to.

A key feature of successful Product Stewardship schemes is that they are mandatory across a sector or product type. This ensures everyone participates and there are no freeloaders.

Notes

- 1. This document is about system design. The case for a CDS, is more extensively outlined and fully referenced in "[The Incentive to Recycle](#)" document.*
- 2. From an environmental perspective, refilling bottles is better than single-use. For this reason, an appendix on refillables has been included as well as one on prices for recycled materials coming from Container Deposit Schemes.*

¹ <https://www.national.org.nz/OurEnvironment>

New Zealand is ready for a CDS

In contrast to international trends, New Zealand has continued to rely on voluntary measures to address packaging and beverage waste. Numerous factors now support the introduction of a mandatory national CDS across New Zealand:

- Enabling legislation (WMA²) is already in place to enable a CDS to be implemented
- Increased political awareness around climate change. International evidence shows that CDS schemes significantly reduce the CO₂ impacts of beverage containers
- Increased public and political support for measures to reduce beverage containers entering and impacting the marine environment
- An existing network of recycling centres that could operate as return locations, plus RVM (reverse vending machine) operators ready to help develop the collection network
- Public demand for political parties to develop and implement effective environmental policy
- The potential for social service groups to generate funds for their work by collecting bottles and/or by operating return locations
- An older generation who fondly remember New Zealand's popular bottle deposit systems in place until the 1970s³
- Increased roll out of CDS in Australia with the Northern Territory, New South Wales, and Queensland joining South Australia's scheme (which has operated for over 40 years). These schemes have already lifted container return rates significantly

Principles for developing NZ's CDS

The following principles have been developed through consultation as criteria for a CDS model for New Zealand.

- **Self-governing:** The scheme should be self-governing and self-funding, requiring minimum government (or other) support or intervention to keep it working
- **Democracy:** Control of the scheme should be

vested to a body which represents the widest public interest

- **Diversity:** The scheme should involve and benefit as many sectors of society as possible and aim to maximise the 'public good'
- **Proximity:** Distribution of the network of return points should aim to maximise accessibility and to optimise drop-off (and servicing) travel
- **Convenience:** Returning empty containers should be as easy and user friendly as buying them
- **Efficiency:** The scheme should run efficiently to minimise (scheme) costs
- **Transparency:** All aspects of the scheme should be open and accountable to public scrutiny
- **Simplicity:** The scheme should be easy to operate and understand
- **Costs:** The scheme's costs should be borne by producers and consumers who purchase the products, not the wider community, or local government.

SECTION ONE IMPLEMENTING CDS UNDER THE WMA: A ROADMAP

With reference to the relevant provisions of the WMA, the following section outlines a legislative and procedural roadmap for implementing a NZ CDS. The particular design details of the CDS model will be discussed in Section Two: Designing NZ's CDS.

1. **The Minister for the Environment declares beverage containers a priority product under s 9 of the WMA.** Before making a declaration, the WMA requires that the Minister:
 - a) Obtain and consider the advice of the Waste Advisory Board.
 - b) Consider any public concerns about environmental harm associated with beverage containers
 - c) Provide the public with an opportunity to comment on the proposal. This can be conducted through a consultation process (similar to the proposal to ban single use plastic bags), but need not be a drawn out process on the nature of the system, so much as whether the public supports beverage

² <http://www.legislation.govt.nz/act/public/2008/0089/latest/whole.html>

³ 83 per cent of respondents supported a container deposit scheme being established in New Zealand (WasteMINZ survey 2016)

containers being declared a priority product and subject to a product stewardship scheme.

- d) Consider the effectiveness of any relevant voluntary product stewardship schemes for beverage containers in light of the criteria in s 9(2) of the WMA. The main relevant scheme is the Packaging Forum's public place recycling scheme. The Minister may wish to consider that this scheme has not achieved acceptable reductions in beverage container littering, nor acceptable increases in return, recycling or refill/reuse rates.

Following declaration of beverage containers as a priority product, a product stewardship scheme for the product must be developed and the scheme accredited (as per s 10 of the WMA).

2. The Minister appoints an 'expert group' drawn from key stakeholders (including beverage producers/importers, councils, recyclers, and environmental groups) to develop the product stewardship scheme and outline the requirements for accreditation under s 14 of the WMA.

This should include, but is not limited to:

- a) Referencing international best practice in scheme design to ensure public interest outcomes are optimised
- b) Identifying the scheme manager (the Managing Agency, see step 4)
- c) Describing the scheme's scope, including the beverage container types captured
- d) Setting measurable return, recycling and reuse targets with appropriate timeframes for achievement (with reference to the Ministerial guidelines under step 3)
- e) Standards for acceptable material types for beverage containers placed on NZ market, level of convenience etc.
- f) Listing the entities who have agreed to or are required to participate in the scheme and assigning responsibility for meeting the scheme's objectives
- g) Specifying arrangements for decision-making under the scheme and the control and overall operation of the scheme. This would include consideration of who owns unredeemed deposits, prescribed levels of convenience for the public, and who can operate depots
- h) Reporting requirements
- i) Penalties for non-compliance
- j) How the scheme will be funded
- k) Prescribing requirements for larger grocery

retailers to take back or provide facilities (on-site or nearby) for taking back containers

- l) Requirements for educational campaigns to ensure public awareness and participation

In devising the scheme, the expert group must refer to the Ministerial guidelines published under s 12 of the WMA (see step 3).

3. The Minister publishes guidelines for the CDS under s 12 of the WMA (at the same time as appointing the expert group).

These guidelines should outline:

- a) Expected participants in the scheme (including beverage producers, importers and grocery retailers)
- b) Performance metrics and targets for beverage container return, recycling and reuse rates (i.e. percentages) and timeframes for achievement
- c) Priority outcomes for returned containers (e.g. refill/reuse to be prioritised over recycling where possible and practical)
- d) Information and reporting requirements; and the time within which an application for accreditation of the scheme should be made (see step 5)

- 4. The private sector and other key stakeholders establishes a non-profit Managing Agency to operate the system.** For the purpose of the Act, the Managing Agency is the scheme manager. The Managing Agency may include members of the expert group, as well as industry stakeholders, councils, recyclers, grocery retailers and non-profits.
- 5. The Managing Agency applies for accreditation of the CDS product stewardship scheme under s 13 of the WMA,** using the parameters developed by the expert group under step 2. If the Minister is satisfied with the proposed scheme according to criteria set out in s 15, then he/she must accredit the scheme.
- 6. When applying for accreditation under s 13 of the WMA, the Managing Agency should identify that certain regulations under sections 22 and 23 are required to implement the scheme.** We would recommend the Government implement these supporting regulations in order to improve

enforceability and allow for penalties for non-compliance. The Government should be prepared to make the following regulations:

- a) s 22(1)(a): prohibiting the sale of bottled beverages falling within the scope of the product stewardship scheme except in accordance with the scheme (i.e. the beverage containers must carry redeemable deposits and be recyclable or refillable).
- b) s 23(1)(e): requiring the application of refundable deposits on beverage containers.
- c) s 23(1)(e): prescribing requirements for what happens with unredeemed deposits.
- d) ss 23(1)(c) and (j): setting the required return, recycling and reuse targets for beverage containers (particularly beverage containers taken back for reuse, i.e. refill).
- e) s 23(1)(d): setting the process by which the handling and recycling fees are calculated and establishing who is responsible for paying the fees, when, and the purposes to which they will be applied.
- f) s 23(1)(f): prescribing requirements for the labelling of beverage containers carrying refundable deposits.

SECTION TWO

DESIGNING NEW ZEALAND'S CDS: RECOMMENDED MODEL

Beverage Containers and Deposits

1. Scope of the CDS

(range of containers the deposit applies to)

The CDS scope must consider the beverage types covered (e.g. mineral water, soft drinks, incl. sport drinks, juices, beer & cider, wine & liquors), packaging material types (e.g. PET, aluminium cans, steel cans, glass, liquid paper board), and the beverage container volume range (e.g. 0,1 l to 3 l). All 'ready-to-drink' beverage containers (including milk) should carry a deposit, including containers not currently recycled (such as Tetra-Pak), and refillable bottles (such as those currently part of the "Swappa Crate" system). Containers such as pouches and tubed beverages should be restricted if unable to be recycled.

2. Value of the deposit

The deposit should be high enough to motivate consumers to return their empty containers after consumption. Until recently, most CDS supporters have proposed a 10-cent deposit, but this may be insufficient to achieve a recommended 85-90% return rate. For this reason, a 20-cent deposit is proposed. The deposit amount should apply to all container sizes. However, the Minister may increase the deposit in order to achieve the CDS return rate targets.

3. Payment of the deposit

When a beverage is placed on the market, the full value of the deposit is paid upfront by the beverage industry/importer directly to the Managing Agency. Accordingly, the beverage industry pays 100 per cent of the deposits into the CDS, regardless of whether the consumer returns the beverage container. This is necessary to reduce the incentive for the beverage industry to use its influence to keep recycling rates low to reduce costs at the expense of scheme effectiveness. The beverage industry redeems this cost by adding the deposit when it sells the beverage to the retailer.

4. The deposit should be charged separately and be fully refundable.

The deposit is given as security for an item (the beverage container) acquired for temporary use. Therefore, the deposit should be displayed and charged as a separate amount on top of the ordinary product sales price. Integration of the deposit in the product price would cause undesirable consumer confusion.

The deposit must be fully refunded when the empty container is returned to a return location. The return location should not be allowed to charge the consumer for its services by only paying out a part of the deposit.

5. Identification of containers in the CDS. All beverage containers must carry a visual logo (and barcode) with the deposit amount clearly shown, to enable consumers to identify containers with a redeemable deposit. The visual marking will also help manual return locations to determine which containers they

are required to pay refunds on.

6. Recyclability requirements

Producers would be required to demonstrate that their containers are fully recyclable or refillable before they can introduce them into the market. This would ensure that no non-recyclable containers are going to landfill or the litter stream. If producers can't get approval for their existing container type, they will need to change to one that is recyclable.

Buy-back Centres/Return locations

7. Buy-back centre types and locations

A combined return-to-retail (via Reverse Vending Machines) and return-to-depot collection system would achieve optimum consumer convenience and participation. Ideally, consumers should be able to return their empty containers to the original place of purchase on their regular shopping trips. Large grocery retailers and other sales points would be required to set up in-store or car park redemption points (possibly contracted out to a suitable operator).

Smaller stores below 200 m² could be exempted from the system on an 'opt-in opt-out' basis⁴. Retailers returning deposit containers should receive payment for their participation via the handling fee (see Point 11 below), as for any other return locations.

Existing recycling and transfer station operators will also be able to apply to operate return locations. All return locations must meet the operational standards specified for the scheme's accreditation (i.e. under s 14(f)).

8. Minimum convenience levels

The Government should determine the number of return locations to create the level of convenience required to achieve the CDS target return rates.

As with British Columbia and South Australia, a minimum convenience standard could be developed to ensure that the bulk of the population is within a reasonable distance

from a return location.

9. Sorting systems

The decision on which method to use for sorting containers should be left to the Managing Agency, as long as bottle return targets are met. However, sorting by container type is more efficient than by brand. The latest automated sorting technology enables capture of brand information (via barcode identification) for producers as well as for the Managing Agency. The Managing Agency would work with local authorities to maximise existing infrastructure such as MRFs and kerbside recycling schemes to reap the higher recycling values typical of deposit schemes.

Managing Scheme Costs and Finance

10. CDS Income Streams and ownership of unredeemed deposits

The CDS generates income streams that should be put towards financing the system.

A key income stream is unredeemed deposits. The Managing Agency should retain deposits not reclaimed by consumers. The total income from these unredeemed deposits should be used to finance the CDS.

Additional income streams include the sale of collected materials (e.g. for recycling) and interest generated on the funds in the Managing Agency's bank at any one time (which should be considerable as industry pays the deposits to the Managing Agency upfront when the beverages are placed on the market).

11. Payment of handling fees to operators of buy-back centres

All service providers to the scheme should receive adequate compensation. Transparent handling fees should be determined by the Managing Agency to cover these costs. The fee should be in proportion to the services provided and be attached to each beverage container the return location pays a deposit out for. The fee would be paid by the Managing Agency using the CDS income

⁴ Smaller stores could opt out due to lack of space for storing bottles

streams outlined in Point 10 above. The handling fee should be approved by the Government using its regulatory power under s 23(1)(d) of the WMA.

12. Costs to the beverage industry (the Administration/EPR⁵ Fee)

The main costs of a CDS are the handling fees paid by the Managing Agency to return points (estimated at up to 6 cents per container) and logistics and processing. These are largely offset by the sale of collected materials and unredeemed deposits noted in Point 10.

If, in any given year, these income streams are insufficient to wholly fund the handling fee then the remaining cost should be borne by the beverage industry through a separate, per container, Administration/EPR fee.

The Administration/EPR fee would be determined during the annual budget forecast process and calculated by dividing the total cost of the system by the total number of beverages sold. It would then be allocated to the beverage industry/importers on a pro rata basis based on market share (i.e. the number of beverages each business sold).

Each material stream should be evaluated separately to avoid cross-subsidisation of one material by another.

The Administration/EPR fee would be paid by producers to the Managing Agency at the same time as the deposit.

The Administration/EPR fee may increase or decrease each year depending on the CDS' financial performance. Accordingly, rather than setting a fixed fee, the Government should establish the process by which the fee will be determined under s 23(1)(d) of the WMA.

Overarching Scheme Design and Objectives

13. Scheme Targets

Based on overseas examples, some of which are achieving return rates as high as

99%, the return rate target should initially be set at a minimum of between 85 and 90%.

14. Timeframe for roll out of the CDS

A New Zealand CDS should be rolled out and operational within 18 months of the Minister declaring beverage containers a priority product requiring a Mandatory Product Stewardship Scheme. However, a longer period (e.g. up to three years) could be negotiated to reach the target return rate.

15. Reporting requirements and Independent system audits

The Managing Agency would be required to produce independently audited annual reports, which include financial records, the recycling rate, refill/reuse rates, operational aspects, and continuous improvement plans. CDS's around the world require full disclosure of industry data⁶; beverage companies cooperate fully within these jurisdictions.

16. Penalties for under-performance.

As noted in Section One of this document, the Minister will need to make regulations under sections 22 and 23 of the WMA to facilitate the CDS product stewardship scheme. Contravention of these regulations will be an offence under Part 5 of the Act, punishable with a fine of up to \$100,000. Additional penalties may be needed for failure to achieve return/recycling/reuse target rates, if such targets cannot be established using s 23(1)(c) of the WMA.

17. Promotion of the CDS

The Managing Agency would be required to run an ongoing public awareness campaign to showcase success stories (e.g. results of the scheme, jobs created, impact on littering, maintenance of scarce resources, etc.). Communication of these good results will also demonstrate environmental and other benefits to voters and consumers.

18. Fraud Mitigation

To avoid opportunities for fraudulent collusion,

⁵ EPR stands for 'Extended Producer Responsibility', also often described as (and interchangeable with) 'Product Stewardship'

⁶ The Managing Agency would not be permitted to use or disclose industry data externally. Only consolidated data could be made public.

the Managing Agency should be required to ensure that separate operators carry out buy-back, transportation and material consolidation functions. The use of barcode scanning technology should also be considered to provide accurate data for payments and reporting, and to minimise fraud.

Note: Existing waste facilities might consider acting as CDS return points to supplement their incomes and would be free to offer other recycling facilities for scrap steel, reusable products and other product stewardship items such as e-waste and tyres.

SECTION THREE STAKEHOLDERS AND THEIR ROLES

The table below shows how stakeholders would be involved in implementing the model outlined above. For more detail on each entity’s roles, see Appendix Three.

ENTITY	POTENTIAL ROLE/S
Government – Potentially represented by the Environmental Protection Agency or a separate regulatory unit within MfE (to separate MfE policy and regulatory activities)	Legislation / oversight / regulatory control
Packaging and Beverage Manufacturers	On the Managing Agency Board
Grocery Retailers	Operators of return-to-retail systems, On Managing Agency Board
Local Authorities	Operators of return locations, On Managing Agency Board
Private Recycling Operators (return points, processors etc.)	Operators of return locations and processing facilities, represented on Managing Agency Board
Community Recycling Groups (most of whom belong to the Zero Waste Network)	Operators of return locations, represented on Managing Agency Board
Voluntary and social service groups, schools etc.	Operators of return locations, represented on Managing Agency Board

SECTION FOUR NEW INTEREST IN CDS FROM THE BEVERAGE INDUSTRY

After actively opposing CDS for many years (directly or through industry bodies), Coca Cola Amatil in Australia has now embraced the concept and has a senior executive charged with managing their involvement in CDS titled ‘Group Head of CDS Implementation’.

This shift in attitude has followed the rapid uptake of deposit schemes across Australia over the last decade. Where CDS is inevitable, it is in the beverage industry’s interest to move from actively

opposing CDS to being involved in developing them.

Clearly, Coca Cola Amatil, which operates in New Zealand and Australia, is serious about CDS. Local executives have recently toured CDS schemes in Australia. It is likely that Coca Cola, along with companies like Lion Nathan, will want to play a major part in designing New Zealand’s CDS.

Like South Australia, New Zealand is unique in having a significant number of small businesses and non-profits operating local recycling centres, usually on contract to their local councils. Any New Zealand CDS model must not override or bypass the interests of these well-established groups who are embedded within the social and cultural fabric

of their respective communities.

Key differences between the CDS proposed in this document (Deposit Model) and an industry preferred model (Redemption Model)⁷

The CDS proposed in this document is based on the beverage industry paying 20 cents directly into the Managing Agency for 100% of all beverages they sell to retailers. If the CDS achieves an 85% redemption rate, then 15% or approximately 230 million containers will not have been redeemed. This means that the Managing Agency will have retained around \$46 million in unredeemed deposits to help underwrite the costs of the scheme. Furthermore, between the time of the deposits' full payment and their redemption, the Managing Agency is also able to accrue interest on the deposit funds.

Both these income streams (as well as sale of recycled materials) will be used to help fund the CDS, which in turn reduces any final (net) cost that the beverage industry would need to pay through the administration/EPR fee. This is the fairest system for all stakeholders.

Industry preferred 'redemption' model

The beverage industry is most likely to favour what Coca Cola calls a 'redemption model' where both the deposit and the handling fee are charged up-front to the retailer. This model carries some key drawbacks.

First, the oversight role of the Managing Agency is diluted as it would not benefit from and manage 100% of the deposits from the outset. In this case, industry is only paying out on containers returned, which creates a 'perverse incentive' to keep their own costs low by finding ways to suppress recycling rates.

Furthermore, as total deposits are not pooled with the Managing Agency from the outset, the scheme misses the key funding stream of unredeemed deposits, which are effectively transformed into potential profit for the

beverage industry (that has charged retailers 100% of deposits yet needs only pay out on returned containers). Connected to this is that neither the beverage industry or the Managing Agency (if run or dominated by the beverage industry) are adequately incentivised to increase return rates, because less returns will mean less cost and greater windfall for the beverage industry.

Recent discussions with Coca Cola, suggest that industry would accept a high target container return rate set by government with stiff penalties if the target is not achieved. The success of this approach would depend on Government's willingness to ensure the beverage industry meets its targets and is prepared to impose sufficiently large penalties to ensure target rates are met. If not there is strong incentive for the beverage industry to manipulate return rates to ensure they don't need to contribute financially to its operation.



Figure 1 Material flows in Queensland's CDS. The same as most CDS's but money flows are different

SECTION FIVE RECOMMENDATIONS

We recommend that:

1. All stakeholders are represented in the development of a New Zealand Container Deposit Scheme.
2. The 'Deposit' model outlined in this document is the model adopted. That is, a model where 100% of all deposits are passed by producers to the Managing Agency at the point of sale, and unredeemed deposits are used to offset the cost of the scheme as well as ensure its effectiveness

consumer paying a deposit and being able to redeem it at a return location.

⁷ Note: Coca Cola call their preferred CDS a "Redemption" Model. For simplicity we call the model outlined in this report a 'Deposit' model. However, both models are based on the

in reaching its targeted goals. This should be established using the mandatory product stewardship scheme process outlined in the Waste Minimisation Act.

3. Other possible models such as Coca Cola's 'Redemption' model (whereby producers charge both the deposit and full system costs up front to retailers and only pay the deposit/refund and other fees on containers that are returned for redemption) should be viewed with skepticism since it exacerbates the perverse incentive in which beverage suppliers benefit from lower recycling rates. This approach clearly incentivises and rewards low recycling rates.
4. We reiterate therefore that this document favours the 'Deposit' model of a CDS.
5. Any debate over models must not delay the establishment of a CDS. Instead, Government should show leadership, draw on the extensive evidence available and declare beverage containers a priority product requiring a mandatory product stewardship scheme. The scheme details can be worked out by the expert group during the development of the accreditation process, following the timeline set down in the Ministerial guidelines under s 12(3)(f).

Contributors

Author: Warren Snow, Manager, The Entrust Foundation. Board Member, The New Zealand Product Stewardship Council (NZPSC)

Review: Holly Dove, Coordinator, The Kiwi Bottle Drive. Dr Trisia Farrelly, The Political Ecology Research Center, Massey University. Jonathon Hannon, Zero Waste Academy, Massey University. Gord Stuart, Consultant and author of 'The Long View' column

Original calculations for The Incentive to Recycle Report, Gary Kelk, GK Services

Legislative advice: Hannah Blumhardt, Coordinator, The New Zealand Product Stewardship Council

Many other people have contributed to the analysis of the potential of a CDS over a number of years, including supportive MP's from all political parties, mayors, councilors and officials from many local authorities, environmental groups, supportive businesses, the Zero Waste Network, many individuals around New Zealand and Local Government New Zealand. Although there are too many to mention here, their contributions are appreciated.

For more detailed information on the case for a CDS, including results of a survey of local authorities on the effectiveness of the public space recycling scheme operated by the Packaging Forum, refer to 'The

Incentive to Recycle, report, on Envision New Zealand's website. <https://www.envision.nz/blog/incentive-to-recycle>

Note: The CDS model outlined in this document updates the one in the 2015 Envision report, 'The Incentive to Recycle'. Notable recommended changes include raising the deposit from 10-cents to 20-cents per container and an increase in the handling fee from 3 cents to around 6 cents. It's anticipated that this would increase industry cost per container to around one cent per container.

APPENDICES

This report focuses on which model CDS will best suit New Zealand. However, the issues of refillables and markets for materials under a CDS are of concern to councils, recyclers, Government and the public, and are briefly covered below.

APPENDIX ONE: CDS AND REFILLABLES

Environmental groups such as Greenpeace see CDS as a solution for recovering beverage containers and keeping plastic out of the ocean. These groups want a system that can encourage refillable containers to achieve other environmental benefits such as CO₂ reduction.

CDS is a platform that can handle both refillables and single-use bottles. Refillable containers have a number of advantages over single-use bottles including lower energy use, fewer CO₂ emissions, and reduced costs for industry when scaled. This is particularly the case when refillable beverages are produced locally for local or regional markets; the advantage reduces with increased transport distances to refilling stations.

Refillable glass bottles achieve the highest return rates, reaching close to 100% in Germany. They can be refilled as many as 50 times, significantly reducing costs and environmental impacts compared to single use bottles.

In Germany, water in refillable glass bottles produces only half the carbon dioxide (CO₂) of water in disposable packaging. The reusable bottles will be refilled 50 times or more and are only transported over short distances (50 km on average). In contrast, one-way packaging is transported over longer distances (250 km on average).

In Europe, PET plastic bottles are also refilled up to 20 times. The bottles are made of a harder than usual PET plastic. They are inspected for wear and tear and if no longer suitable are rejected and can then be recycled back into new PET bottles again.

According to refillable container manufacturer, Pertainer, a company using one-way bottles can spend four to five times as much on packaging as a company that bottles the same quantity of beverage in 20 trip refillable bottles. The total material used per bottle use is 90% lower for the refillable container.

According to environmental education group Inform, a refillable glass bottle at 25 trips uses 95.7% fewer containers to deliver 1,000 gallons of beer than an aluminum can.

Refillable bottles can also promote regional economic development. German environmental group DUH states: "The comparison of refillable bottles to the one-way system is not only about the packaging itself, but also about the whole system: Reusable bottles are the livelihood for small, regional and medium sized businesses like breweries, juice and mineral water producers. These companies form the core of the unique diversity of the German drinks market".

New Zealand's existing CDS

'Swappa Crate' is an existing CDS for refillable beer bottles operated in New Zealand by ABC (The Associated Bottlers Co Ltd.). Formed in 1920, ABC is currently owned jointly by Lion Nathan and Dominion Breweries. Customers pay a \$6.00 (plus GST) deposit when they purchase a 'Swappa Crate' containing 12 bottles of beer. Once drunk, they can return the crate and bottles to the store of purchase and either swap the crate for a new crate of beer, get a discount on another item, or at some liquor stores they can receive a refund. The bottles are washed, refilled with beer and put back on the market under the respective brands.

A similar CDS is operated by Deep Origin, a New Zealand company that provides still and sparkling waters to the restaurant trade and homes. For a 10-cent credit, their unique bottles can also be returned for washing and refilling.

Smaller beverage companies such as Foxtan Fizz and GreenMan Brewery, until a few years ago operated bottle deposit refund systems. Some very small vendors that can be found at local markets still do. However, the logistical and management costs are too great for smaller operators unless part of a national CDS.

APPENDIX TWO: MARKETS FOR RECYCLED MATERIALS

Materials retrieved through CDS have lower contamination rates and so attract significantly higher prices on recycling markets. Recyclers in South Australia report an increased income of at least 10% and as high as 20% from the sale of CDS sourced materials compared to states without CDS.

A key player in the New South Wales CDS, recently described to the author that not only were they selling all the recycled materials coming out of their CDS, but they were receiving 'phenomenal' prices for those materials.

The Managing Agency would encourage the use of recycled materials within New Zealand and require

beverage producers to use minimum recycled content in their bottles (plastic, glass, aluminum) to increase the circular economy in line with the recent EU directive⁸ on single-use plastics which mandates that all new plastic bottles must have a minimum of 30% recycled content by 2030. New Zealand could require a shorter timeframe.

Recovered bottles that aren't being reused could be recycled in New Zealand at places like Flight Plastics, rather than PET going overseas to recyclers that we can't control in terms of their health, safety and environmental impacts (to be turned into products that might in themselves be problematic in the environment).

APPENDIX THREE: MORE DETAIL ON ROLES

GOVERNMENT:

- Declares beverage containers a priority product requiring a mandatory Product Stewardship scheme, sets guidelines for the scheme, and accredits the scheme.
- Monitors the scheme.

BEVERAGE WHOLESALER:

- Adds deposit (suggest 20-cents to the cost of the beverage)
- Pays 20-cent deposit, plus an Admin/EPR fee representing the net cost of the system (estimated at less than one cent per container) to the Managing Agency.

RETAILER:

- Passes the 20-cent deposit on to the consumer as part of the cost of the beverage.

CONSUMER:

- Pays 20-cents extra for the beverage
- Returns empty container for 20-cent refund to either a collection depot or a participating retailer, or gives it to a local charity to redeem.

RETURN LOCATION (DEPOT AND PARTICIPATING RETAILER):

- Pays 20-cent refund back to consumer
- Sorts containers ready for collection and sending to materials processor.
- Invoices Managing Agency for 20-cent deposit plus a handling fee for each container.

TRUCKING COMPANY:

- Provides transportation services under contract to the Managing Agency. Cannot operate a Return location or Consolidation Facility to avoid conflict of interest. Could be existing kerbside collection operator or logistics company

KERBSIDE RECYCLING CONTRACTOR:

- Picks up and sorts deposit-bearing containers from kerbside
- Delivers containers to accredited return point
- Invoices return point for 20-cent deposit

MATERIAL CONSOLIDATION FACILITY (UNDER CONTRACT TO MANAGING AGENCY):

- Receives containers from return points
- Processes materials (glass, plastics, aluminium, steel etc.) for sale to re-processors or other end user under contract to Managing Agency

MANAGING AGENCY:

- Applies to Minister to accredit the scheme.
- Administers or contracts out administration of the scheme.
- Levies and collects Admin/EPR fee (estimated at less than one cent per container) from beverage producers
- Pays out handling fees to return locations
- Manages the flow and marketing of materials
- Promotes and advertises the system
- Applies fraud control across the system
- Gathers schemes performance data and is responsible for fulfilling reporting and information requirements.

⁸ http://europa.eu/rapid/press-release_IP-18-3927_en.htm