



FACT SHEET

# Consumer participation in deposit return systems: drivers, barriers, and implications

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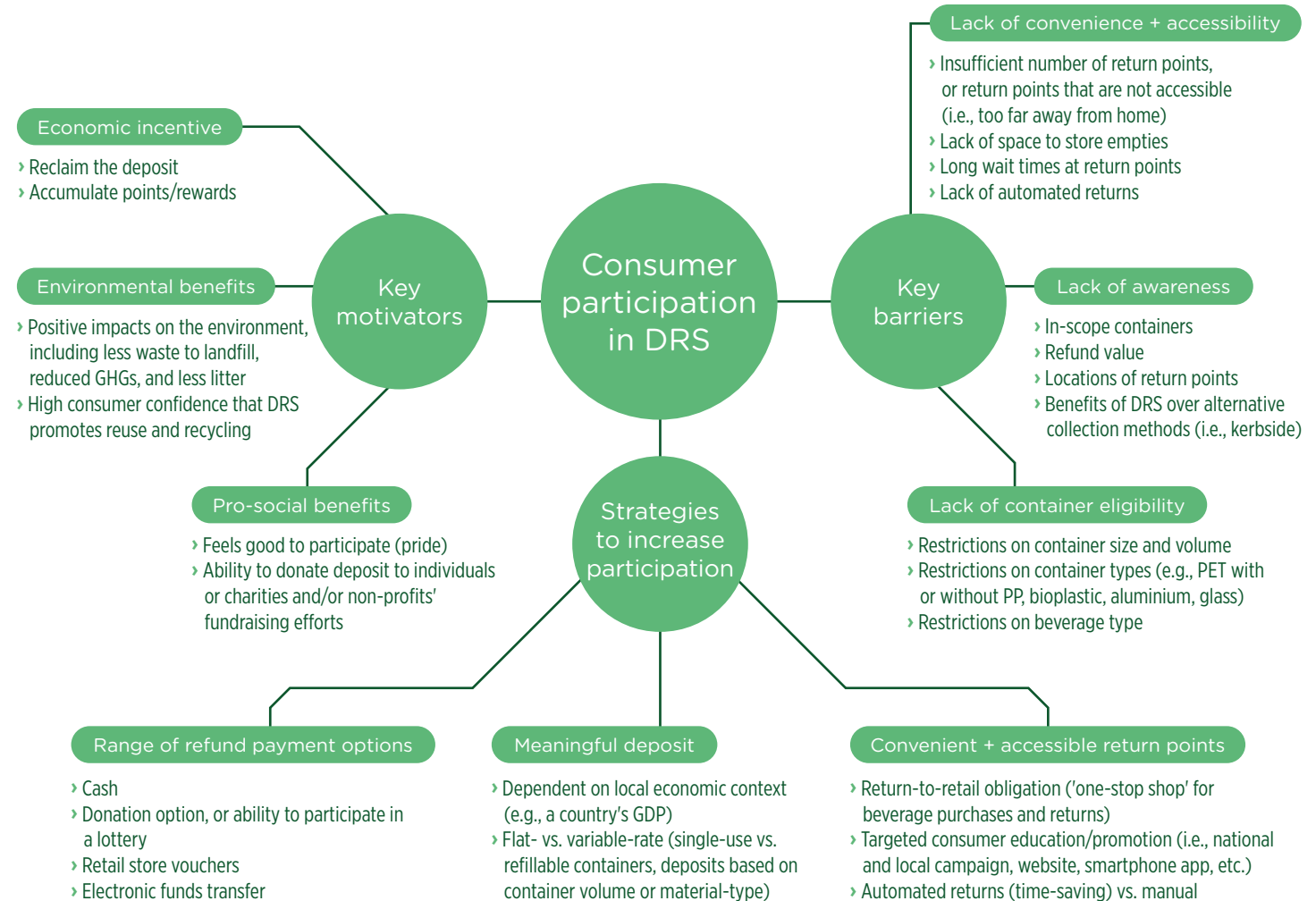
# Consumer participation in deposit return systems: drivers, barriers, and implications

Research shows that consumers make choices about participating in deposit return systems based on a variety of factors. To maximise engagement, it's crucial to identify these factors and any barriers that might prevent people from returning their containers. By doing so, we can design systems that are more effective and that keep empty drinks containers circulating in the economy for as long as possible.

# Key Findings

- › Consumers participate in deposit return systems (DRS) for various reasons. Unsurprisingly, the primary motivation for engagement is the desire to reclaim the deposit paid on drink containers. However, environmental concerns are also a strong motivator, as well as people’s desire to donate to charity or contribute to fundraising efforts.
- › Numerous barriers may deter consumers from engaging with a DRS. The majority of these barriers are linked to user convenience (or the lack thereof) in terms of return point locations (i.e., how accessible they are) and consumer experience while returning containers (e.g., waiting times). Other barriers include lack of awareness or knowledge about the scheme and container ineligibility.
- › Policymakers can enhance consumer engagement in DRS by understanding the primary motivators and barriers to participation and designing systems accordingly. Research has identified several strategies to boost engagement, including offering multiple payment methods for deposit refunds, ensuring that return points are convenient, accessible, and user-friendly, and setting deposit levels high enough to offset any perceived inconvenience.

Figure 1  
**Summary of key motivations and barriers to DRS participation and strategies to increase engagement, based on Reloop’s review of consumer surveys**



# Introduction

**As of the end of 2022, more than 50 countries, states, and provinces have established a deposit return system (DRS) to increase the recovery of single-use beverage containers, and this number is expected to grow to more than 70 by the end of 2026. This growth can be attributed in part to their high recycling rates, which has been demonstrated in many jurisdictions worldwide. In Europe, for example, most countries with DRS have achieved recycling rates above 90%, resulting in the diversion of significant amounts of drinks containers from disposal and ensuring their re-circulation in the economy.**

Despite their proven ability to achieve high recycling rates, the success of a DRS relies heavily on consumer participation. If consumers do not return their empty containers, then recycling rates will remain low, and the benefits of the system will not be fully realised. As such, understanding the factors that influence consumer engagement is essential to a DRS's success. By designing systems that are convenient, accessible, and financially rewarding, more consumers are likely to participate, leading to higher recycling rates and a more circular economy.

From Europe to North America to Oceania, several studies have been carried out to understand the factors that influence consumer participation in DRSs. Research has shown that the financial incentive offered by the deposit and concern for the environment are two key drivers for participation. In addition to these factors, research has highlighted the importance of accessible and convenient return points (in terms of location, distance from home, and wait times) that provide consumers with a choice when it comes to refund type. The role of socio-demographic factors such as household income, education, and age in DRS participation

has also been studied; however, the research is inconclusive. In other words, some studies have found a correlation between socio-demographic factors and DRS participation, while others have found no association. For example, a study carried out in Western Australia<sup>i</sup> discovered that participation was unaffected by a respondent's income. Conversely, a recent survey conducted in California<sup>ii</sup> found that redemption centres were most heavily used by people who earn less than USD\$50,000 per year. The survey found that 69% of those who return their containers for a refund come from the lower half of the income distribution, while the 30% of households that earn over \$100,000 per year account for only 11% of those who redeem the refund. This discrepancy highlights the significance of context and underscores that research findings cannot be universally applied across different jurisdictions.

This fact sheet is based on a thorough review of available data from consumer surveys related to existing DRS, as well as some pre-DRS implementation surveys. The review process involved an analysis of consumer attitudes and behaviours toward DRS, with a particular focus on factors that influence consumer participation and engagement. Based on the findings from the reviewed studies, the fact sheet provides an overview of current reported participation levels in existing DRS around the world, including data on reported recycling frequencies and volumes returned per visit, as well as how consumers utilise the deposit refund. It also presents a high-level summary of the reasons why consumers return their containers (i.e., motivations), as well as the key barriers to their participation. The fact sheet concludes by presenting strategies to increase engagement with DRSs based on the findings of the research.



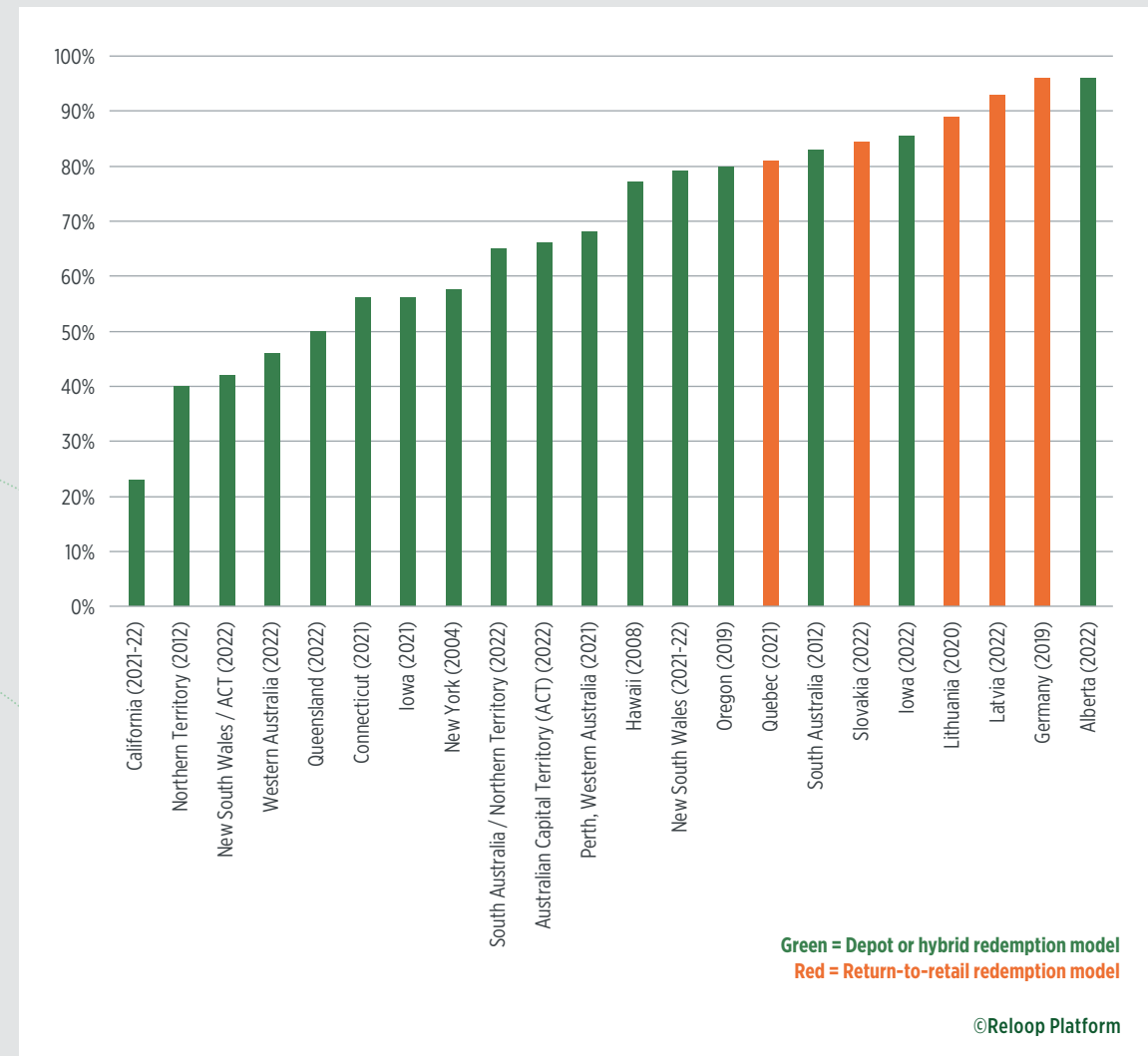
# Consumer engagement in existing DRS

## Reported participation rates

Figure 2 summarises reported participation rates in DRSs across the globe. This data was obtained from a combination of consumer research surveys and system operators' annual reports.

When examining reported participation rates in existing DRSs, it's important to note that each of the surveys measure participation differently due to variations in the questions asked of respondents. For example, some surveys asked if respondents currently participate, while others asked consumers if they had returned containers at any time in the last 12 months (or at any point in the past). It's also worth noting that in many cases, reported participation rates may not fully capture the actual level of participation in a DRS since they often only account for the participation of the original consumer. For instance, in New York, the reported participation rate of 57.5% only includes those respondents who said they redeem their containers for a refund. However, an additional 14.6% said they donate their bottles to charity, friends or family, or individuals perceived to be in need. If we combine these two figures, the overall participation rate would be 72.1%. On the other hand, South Australia's reported participation rate of 83% includes not only those who return their containers personally but also those who use third parties such as charities or neighbours to return their containers, thus giving a more comprehensive view of the actual participation rate.

Figure 2  
Reported consumer participation rates in deposit return systems worldwide (%)



# Return frequency and volume

Information regarding the frequency of container returns and the quantity of containers returned per trip can provide insights into consumer motivations, barriers, and preferences with regards to DRS. For example, if data shows that most people return containers less than once a month, it could mean that there is a preference for returning larger amounts of containers at once, or it could be due to practical reasons, such as lack of transportation. Redemption patterns can vary depending on several factors, such as travel distance to the closest return point, whether collection is automated (using RVMs) or manual, and whether the system is based on a return-to-retail or depot model. Redemption patterns can also vary between urban and rural residents, or between those living in single-family versus multi-family buildings, where people might have less room to store empty containers. Again, context is important.

Here are some findings from the research with regards to consumer redemption patterns:

- › An online study conducted across seven European countries (Sweden, Norway, Finland, Denmark, the Netherlands, Germany, and Slovakia)—all of which operate return-to-retail redemption models—found that the majority of respondents returned their containers to the grocery store 1-2 times per month, while 26% returned them once a week. The study also revealed that 66% of respondents returned 29 or fewer containers per occasion. Return frequency (i.e., how often people take back their containers) and volume were found to be inversely related: young people (<30 years) and high-volume returners (i.e., those returning at least 50 containers per trip) were found to return more containers per trip than average, but they visited return points less often.<sup>iii</sup>
- › According to a 2021 survey of British Columbians<sup>iv</sup>, only a small percentage of respondents reported visiting a Return-It Depot on a weekly basis (2%), with the majority reporting returning containers once a month or less frequently. Specifically, 21% reported returning containers once a month, 15% once every two months, and 16% once every three months. It's worth noting that British Columbia operates a hybrid redemption model, which includes retail collection points as well as depots.
- › A Quebec study<sup>v</sup> conducted in 2021 found that 51% of households return their deposit containers to retailers only a few times a year. About 30% of households return containers about once a month, and 19% more often. The study also showed that 49% of households returned between 25 and 100 containers per visit, while 29% returned fewer than 25 containers, and 22% returned more than 100 containers. Additionally, households in rural areas tend to return more containers at once compared to urban centres.
- › In a 2012 survey of people living in South Australia<sup>vi</sup>, where redemption is done via depots, it was found that the majority of respondents visit a return point monthly or less often. Over half of the respondents visited the depot every few months, and none of them visited once a week or more often. The most common volume of returns (18% of respondents) was 100 to 149 containers, followed by 500 or more containers (15% of respondents). The median volume was about 210 containers per visit.

# Use of deposit refund

Understanding what consumers do with their deposit refunds can provide additional insights into the reasons why they choose to participate in a DRS. For example, do most people spend the refund at the store they are in (i.e., use it towards groceries), use the money towards other expenses, or do they prefer to donate their deposit to charity? By analysing such data, it may be possible to identify patterns or trends that can inform the development of effective communication and marketing strategies. For instance, if the data reveals that consumers are primarily driven by environmental concerns, it would be prudent to tailor marketing campaigns and messaging to emphasise the environmental benefits of returning containers, such as reducing greenhouse gas emissions, increasing recycling rates, and mitigating litter.

Here are some findings from the studies we reviewed:

- › In an online study conducted in November 2022 across seven European countries with DRS, it was found that the majority of respondents (87%) use their deposit refund towards grocery purchases at the store where they return containers. Variations in deposit refund usage were found between countries, with more consumers in Germany (93%) using it to pay for groceries, and in Norway, a large share of participants choose to join the recycling lottery (15%).<sup>vii</sup>
- › Approximately 79% of lowans either redeem the 5-cent deposit for themselves or donate it to community fundraising efforts, such as local fire departments and youth programs.<sup>viii</sup>
- › A 2022 US study found that of the respondents who have returned eligible beverage containers, 33% spend the refunded deposit money at the store they are in, 19% spend it elsewhere, 36% spend it in a mix of both, 8% only return containers to non-retail redemption centres.<sup>ix</sup>
- › Michigan residents were asked how often they spend their refund at the store where they return the containers. Fifty-four percent of respondents said “all of the time” and 19% said “most of the time.”<sup>x</sup>
- › In a 2020 study of Lithuanian residents<sup>xi</sup>, 74% of respondents said they use their refund towards a purchase at the store, while 18% cash out for other expenses or needs. In addition, 65% of respondents reported donating money through a RVM at least once, with residents of large cities being the most likely to donate.

# Factors that influence consumer participation: Insights from the research

As noted earlier, understanding the driving factors behind consumers' participation in a DRS is crucial for the effective design and implementation of such programmes.

Here's a brief overview of some of the main themes that arose from the surveys we examined:

## Key motivators

### Economic incentive

**For many consumers, the economic incentive of recouping the deposit is a strong motivating factor for returning containers rather than disposing of them in the garbage or kerbside recycling bin:**

- › A European study carried out in November 2022 found that the primary motivation for consumers (across seven European countries) to participate in DRS was to receive the deposit paid on their drinks containers, with 76% of respondents indicating this as a key factor.<sup>xii</sup>
- › A 2021 opinion poll<sup>xv</sup> conducted to assess residents' attitudes towards the implementation of a DRS in Portugal revealed that the monetary incentive of getting the deposit back was a strong motivator for Portuguese consumers, with 93.2% of respondents identifying this as the main factor.
- › In a recent study by Latvia's DRS operator<sup>xiii</sup>, it was revealed that 93% of Latvian residents use the DRS to recycle their drinks containers. The study highlighted that the primary reason for using the system was the monetary refund of 10-cents, with 59% of respondents citing it as their motivation.
- › In the Canadian province of Quebec, half of the respondents polled in a recent survey<sup>xvi</sup> strongly agreed that not returning refundable containers is a "waste of money," highlighting that the value of the deposit itself remains a strong motivating factor.
- › In another poll<sup>xiv</sup>, Bulgarians were asked what would motivate them to return plastic beverage bottles if their government introduced a DRS. More than half (56%) of respondents identified "getting their money back" as the main motivating factor, followed by the ability to donate the deposit refund to charitable causes (49%).



## Key motivators

### Environmental benefits

**While the recovered deposit fee is a significant motivator for many consumers, another key driving factor is consumer concern for the environment:**

- › In a November 2022 study that surveyed consumers across seven European countries, consideration for the environment was the second highest motivating factor for returning containers, with 59% of respondents stating that it was a driving force.<sup>xvii</sup> The study found that younger respondents were particularly motivated by environmental concerns, with 62% citing this as a reason to participate. Additionally, the study found that country differences existed, with care for the environment being the most important motivator in Sweden and Slovakia.
- › 81% of survey participants in a Northern Territory poll<sup>xviii</sup> indicated they participated in the DRS because they were environmentally conscious.
- › In a Latvia polling study<sup>xix</sup>, environmental concerns were mentioned by 37% of respondents, and 43% of participants cited “less waste in nature” as their reason for participating.
- › A survey of Portuguese residents’ attitudes towards the implementation of a DRS<sup>xx</sup> found that the second most significant motivating factor for returning containers (identified by 87% of respondents) was the benefits it offers to the environment. Additionally, 86.7% of respondents mentioned that DRS is an effective way to reduce waste in oceans and on land, while 86.5% mentioned the reduction of beach litter as a reason for their support.
- › In a 2019 survey carried out by Zero Waste Scotland<sup>xxi</sup>, 72% of respondents said that helping the environment would be a motivating factor for returning their empty containers, while 70% cited reducing litter in Scotland as another reason.
- › According to a poll conducted to evaluate the attitudes of Romanian residents towards a DRS, 44% of respondents cited protecting the environment as the primary reason why they would return packaging, while 32% mentioned “for a cleaner environment.” Additionally, 10% stated that they would return packaging because they already recycle or support recycling.<sup>xxii</sup>
- › In a 2004 poll of New York residents, of those surveyed, 36% stated that the most significant factor influencing their support for the DRS was the environmental benefits, while 24% mentioned their desire to control litter.
- › In Ontario, Canada, survey respondents<sup>xxiii</sup> who said they would support a DRS for plastic bottles identified “recycling/promotes recycling” and “reduce trash/waste/less to landfill” as the top two reasons for their support (26% and 25%, respectively).
- › In a 2022 survey of Albertans<sup>xxiv</sup>, the top two motivators for individuals to return their empty containers to depots are reducing litter (rated as ‘very important’ by 67% of respondents) and reducing landfill waste (67%). Other benefits such as reducing wildlife habitat loss (58%), reducing freshwater usage in the production of raw materials (57%), reducing greenhouse gas emissions (54%), and reducing energy consumption from the manufacturing of beverage container from virgin materials (51%) were also considered important reasons for participating.
- › According to 2021 survey of Vermont voters<sup>xxv</sup>, the primary reasons why they support the DRS are to reduce litter (30%) and increase recycling (25%), with protecting the environment being the third most important reason (18%).

## Key motivators

### Benefits for charities and community groups

For some consumers, the ability to donate their refund to a charity or local community group is another key motivation for engaging with the system:

- › A 2019 survey<sup>xxvi</sup> of Oregon residents found that 43% of those who participate in the state's DRS are motivated by the ability to donate to a non-profit.
- › According to a 2020 poll<sup>xxvii</sup> of Bulgarian residents, nearly half of the respondents (49%) stated that they would be motivated to return their plastic bottles if the deposit refunds were directed towards charitable causes.
- › In a 2018 poll conducted in Northern Territory<sup>xxviii</sup>, 26% of survey participants indicated they participated in the DRS to help community organisations raise money.
- › According to a survey conducted in 2021 among Quebec residents, 40% of respondents indicated that the opportunity to donate the deposit amount to a social organisation or an individual is a key incentive for returning their containers.<sup>xxix</sup>



## Key barriers

### Lack of convenience

Of all the reasons identified for non-participation in the studies we reviewed, the inconvenience (perceived or actual) of having to bring containers back to return points consistently ranks as one of the most common barriers. Research shows that factors such as ease of use and time spent returning containers carry a heavy influence on usage of deposit schemes:

- › In South Australia<sup>xxx</sup>, a depot-based system, approximately one-fifth (21%) of the respondents in a survey found it challenging to return their containers for a refund. Many of the barriers were related to user convenience, particularly the lack of accessibility to depots and sites to cash in their containers (mentioned by 37%), and difficulties in traveling to these locations (26%). Time pressures were also a concern, with 20% preferring extended opening hours for the depots and 16% seeking a faster service.
- › An academic study on the uptake of the DRS in Western Australia<sup>xxxi</sup> found that there are inherent logistical challenges for those individuals who do not drive to return their containers. Non-users of the scheme were asked if a conveniently located drop-off point would encourage them to utilise the scheme and 80% of respondents said it would.
- › In Alberta, a depot-based system, the number one reason given for not returning containers to a depot more often was inconvenience (cited by 58% of households that only infrequently return containers [less than every couple of months]).<sup>xxxii</sup> When asked what would make them more likely to return their containers for a refund, 46% of Albertans said that a recycling pick-up service (where they got paid later and did not have to wait in line) would make them more likely to visit a given depot. And when asked about the most important factors they consider when selecting a depot to visit, 66% said the convenience of the location and 66% said the waiting time to be served at the depot. A separate survey of Albertans<sup>xxxiii</sup> asked depot customers what they'd like to see offered to help modernise returns to depots. The most popular change suggested by 44% of respondents was the addition of equipment that counts and sorts beverage containers. Another popular suggestion was the use of ATM machines to collect refunds (rather than receiving it directly from a staff member). The option to drop-off containers at the depot and receive the refund at a later time was mentioned by 17% of respondents.
- › According to a 2021 poll of Quebec residents, three important barriers to DRS participation related to how much space the containers take up at their home (26%), the trip to the retailer (25%), and the waiting time once at the retailer (24%). The study found that having to go to multiple drop-off locations (under the expanded DRS) is a significant barrier for three out of four households, and even more so in urban areas. Results revealed that households are more likely to participate if they can return containers at the same places where they do their shopping, such as grocery stores or gas stations (about nine out of 10 consumers prefer this option). The study suggests that for the expanded DRS to be successful, there must be an abundance of drop-off locations, a single place to return any returnable container, and effective promotion to the public. Additionally, the results suggest that consumers have limited time to devote to the DRS, so drop-off points must be numerous and located close enough to their home or usual shopping areas, with a short return time of 10 minutes or less.
- › In a 2020 poll carried out by Changing Markets Foundation<sup>xxxiv</sup>, California residents were asked “would you be more or less likely to use California’s bottle return scheme if you could return your empty containers in a convenient way (e.g., local grocery store, local collection points, etc.) or would this make no difference?” Sixty percent of respondents said they would be more likely; only 3% said they would be less likely and 15% said it would make no difference. The same study found that of those who only sometimes, rarely, or never use redemption centres, or who are unaware of the system, 70% would be more likely to use the system if it were more convenient.
- › A 2019 survey of active voters in Michigan<sup>xxxv</sup> asked participants whether requiring them to drive their empty bottles and cans to a stand-alone recycling centre would be more or less convenient for them than returning them to a local grocery store. Eighty-six percent said it would be “less convenient.”
- › A 2008 polling study<sup>xxxvi</sup> of Hawaiian residents found that of the 40% who said they did not redeem their containers at redemption centres, the chief reason for not doing so was that redeeming “is just too much of a hassle.” When asked for specific suggestions on how the redemption system could be improved, the most popular suggestion was to have more or closer redemption centres, followed by better customer service, kerbside pickup, longer hours of operation, a return-to-retail requirement, and more staff. Other suggestions included adding more RVMs, accepting more types of recyclables, and improving the counting process for containers.
- › In a 2018 survey of Lithuanians<sup>xxxvii</sup>, the most popular suggestion to improve the DRS, given by 11% of respondents, was to have more collection points and RVMs.

## Key barriers

### Lack of awareness

Another common barrier identified in the studies we reviewed was a lack of awareness, whether that be regarding the locations of return points, what containers can be returned for a refund, or the benefits of a DRS over traditional kerbside recycling:

- › In a 2022 survey of Albertans, consumers who said they returned containers only ‘once in a while’ or ‘never’ were asked why their household doesn’t return these items for a refund more often. Lack of awareness regarding which containers are subject to the deposit (i.e., ‘didn’t know you could return them to a bottle depot for a refund’) was consistently mentioned as the number one reason across most items.<sup>xxxviii</sup> Lack of awareness with regards to the correct deposit value was also cited as a reason; among those unable to cite the deposit value for beverage containers 1L or greater in size, 51% of respondents said that knowing the correct deposit value would make them more likely to return these types of containers for a refund.
- › An independent study in Western Australia<sup>xxxix</sup> asked non-users of the DRS their reasons for not participating. Among the top two reasons given for not returning containers was a lack of understanding as to why DRS is better than traditional recycling. One non-user noted: *“Maybe more information about why the scheme is better than curbside recycling. If not motivated by money—why go to the additional effort. Where are the locations? What are the benefits—other than money?”*
- › A survey of residents in Australian Capital Territory found that not knowing about the scheme was the main reason for not participating (identified by 35% of non-users).<sup>xl</sup> The second most common reason, cited by 17% of non-users, was “inconvenience/no time.”
- › In a Northern Territory survey, 25% of respondents said that having poor knowledge/understanding of which containers could be redeemed was a barrier.<sup>xli</sup>

### Lack of container eligibility

Lack of container eligibility was another barrier to DRS uptake identified in the research. Below are some findings of the studies we reviewed:

- › Forty-six percent of respondents to the Northern Territory survey<sup>xlii</sup> said the largest barrier to their participation was that some containers are not being accepted as part of the scheme.
- › In an academic study that examined the uptake of DRS in Western Australia<sup>xliii</sup>, both previous DRS users and non-users identified a lack of eligible containers as a key reason for not participating. Overall, 87% of survey respondents said they would participate more if wine bottles, milk cartons, cordial/syrup containers and alcoholic spirits were eligible for a 10-cent refund. One participant who had never used the scheme noted: *“I would prefer, and 100% participate in the scheme if more containers were eligible. Sorting through the waste is hard enough—I have 5 bins already!”* Another survey participant said: *“The type of bottles eligible is too limited, which is why I don’t take part.”*
- › In January 2019, the South Australian government announced a review of its DRS and made the Improving South Australia’s Recycling Makes Cents scoping paper available for public consultation. The Environmental Protection Authority received 1,170 submissions, including 1,000 responses from the online survey. Among the issues proposed by the general public for review, one of the themes that stood out was the need for additional containers to be covered by the DRS (51% of responses ranked this in their top three most important issues). Among those who responded to the online survey, 84% believed that more types of containers should be covered by the DRS, and wine/spirit bottles, single-use plastics, glass bottles and containers, and other recyclable containers were the most suggested items for inclusion.<sup>xliiv</sup>
- › In 2018, a survey was conducted in Lithuania<sup>xliv</sup> where respondents were asked to provide suggestions to improve the DRS for better functionality and customer satisfaction. Expanding the scope of the system (i.e., accepting a wider variety of packages such as tetra packs) was the second most popular suggestion (given by 11% of respondents).

# What strategies can be implemented to boost participation in DRS?

In environmental psychology, there is a phenomenon called the value-action gap, which refers to the discrepancy between an individual's environmental attitudes and their corresponding actions. In the context of DRS, the value-action gap is evident when consumers express support for these systems and high intentions to participate, but do not actually engage. In addition to identifying key barriers to participation, an important way to help bridge this gap is to understand consumer preferences when it comes to key elements of DRS design, such as deposit amount, return locations, etc. By taking into account these consumer preferences, DRSs can be designed in a way that encourages greater participation and ultimately higher returns.

In this regard, a number of themes emerged from the studies we reviewed:

## Provide a range of payment methods for deposit refunds

The research suggests that providing consumers with multiple options for receiving their deposit refund, such as cash, store vouchers, electronic money transfer to a bank account, or the option to donate to charity, can enhance the attractiveness of a DRS and increase participation rates. Furthermore, consumer preference for specific refund types may influence their choice of return points.

- › According to a study conducted across seven European countries with DRS in late 2022<sup>xlvi</sup>, 36% of respondents expressed interest in having their deposit refunded to their store loyalty card or app, while 31% preferred receiving a digital refund voucher instead of a paper one. The desire for electronic payout was highest in Sweden and Finland, with 46% and 41% of respondents, respectively.
- › Analysis of responses to a 2019 public consultation on improving South Australia's DRS reveal that 47% of respondents would prefer to keep receiving their refunds in cash, while 31% would prefer receiving their refund in the form of an electronic funds transfer (EFT) credit (and 15% would be happy either way).<sup>xlvii</sup>
- › According to a 2021 study<sup>xlviii</sup> that explored the uptake of DRS in Western Australia, 42% of participants favored receiving direct EFTPOS (electronic funds transfer at point of sale) transfers as their preferred refund method. For respondents that selected 'other', many suggested that supermarket vouchers were a viable alternative to other credit refund options. The study also revealed that there is some demand for donations to continue to be included in the scheme, with 15% of respondents noting that donations were their preferred credit form.
- › The majority of respondents to a 2020 New Zealand survey<sup>xlix</sup> expressed a preference for receiving their deposit refund in cash (40%) or through direct payment to their bank account (21%). Only a small percentage of respondents preferred a voucher refund (16%) or donating their refund to charity (6%). Eight percent of people said "all of the above" and 8% had "no preference" with regards to payment method.
- › Consumer research carried out in Wales in 2019 revealed that cash was the most preferred method of receiving deposit refunds, with 65% of respondents selecting this option, followed by refund onto a debit card (32%), smartphone app (18%), coupon/voucher (16%), and donation to charity (9%). The study also found that certain segments of the population showed varying preferences for different refund options. For instance, older participants preferred cash, while younger participants preferred electronic methods.
- › Based on an analysis of responses to a public consultation on Singapore's upcoming DRS, it was found that younger participants aged 18-39 prefer electronic payment methods, cash, or direct bank transfers, whereas older participants (above 40) tend to prefer cash or direct bank transfers specifically for EZ-Link cards (Singapore transport cards).<sup>l</sup>

## Ensure return points are convenient, accessible, and easy to use

The research shows that convenience is crucial for the success of a DRS. A convenient redemption system is one that minimises the effort and resources required by consumers to return their containers. This means minimising wait times and ensuring that consumers can return containers at the same places where they shop, at a location that is easily accessible and close to their homes. The research also highlights the importance of making RVMs available, since they can make the process of returning containers faster and more efficient. RVMs can also provide instant rewards or refunds, which can incentivise people to recycle more.

- › A 2018 opinion survey of Lithuanian residents<sup>li</sup> asked for suggestions on how to improve the functioning and customer satisfaction of the DRS. Among the suggestions given by respondents, the most frequent were to increase the number of collection points and RVMs, to accept a wider variety of packages, and to improve the functioning of the machines (8%).
- › In a survey of British Columbians, users of the deposit scheme's drop-and-go 'Express' option were asked which features of Express were the most important to them. Not having to wait in line at the depot was rated as "extremely important" by 62% of respondents, closely followed by no sorting which was rated as "extremely important" by 59% of respondents.<sup>liv</sup>
- › In Quebec, respondents to a survey on the modernisation of the province's DRS<sup>liii</sup> were asked how retailers and grocery stores could improve the customer experience. The majority (58%) suggested that replacing the current RVMs with faster, newer, and more efficient ones would be an improvement. Additionally, almost half (50%) suggested increasing the number of return points in stores.
- › Consumer research conducted in Wales in 2019<sup>liii</sup> found that the location of return points was the most important factor in determining the likelihood of people participating in a DRS, more important than the other two attributes (deposit amount and time added to one's week) combined. Participants in the survey were given four return point options and the results showed that large supermarkets were the clear first choice, followed by mini supermarkets, parks or high streets, and transport stations. The study suggests that while positioning return points in other locations is important, large supermarkets are a key location for the success of a DRS. The same study found that individuals who were opposed to the introduction of a DRS in Wales were significantly less likely to consider it easy to transport empty containers to a return point compared to those who supported the scheme (13% vs. 79%). This suggests that in order to ensure that a DRS is well-received by all, accommodations should be made for those who lack access to a vehicle and may find it difficult to transport multiple containers to a return point.
- › In 2019, the South Australian government announced a review of its DRS (which is depot-based) and launched a public consultation.<sup>liiii</sup> Among the issues proposed by the general public for review, one of the top themes that stood out was the need for more convenient ways to reclaim the deposit (42% of responses ranked this in their top three most important issues). One third of respondents suggested an increase in the number of collection points to reduce the distance people have to travel to drop off their containers. Suggestions were made for the implementation of alternative collection points such as RVMs, plastic recycling points at retailers, charity drop-off bins, and kerbside collections.
- › A 2022 survey in Slovenia found the majority of respondents (90%) would prefer to return containers at RVMs in larger food stores, with 90% expressing support for this option. Sixty-eight percent also supported return points in smaller food shops, while 65% preferred return points located near settlements, similar to current kerbside waste collection.
- › A 2019 survey carried out in France found that 77% of respondents would prefer returning containers at grocery stores or other places where they typically shop; only 6% would prefer returning containers at cafes or restaurants; and 17% would prefer returning containers at a place where they pass by daily, such as a train station.<sup>liiv</sup>

## Ensure deposit levels are high enough

Setting an optimal deposit level is crucial for maximising participation in a DRS; the deposit level must be set high enough to motivate consumers to return their empty containers, but low enough so as to not encourage fraudulent behaviour (for more on this topic, see our fact sheet [Deposit return systems: how they perform](#)). Below is a summary of what consumers perceive as an appropriate deposit amount based on the studies we reviewed.

- › A 2022 survey of Americans<sup>lvii</sup> found that respondents had varying opinions on what deposit level would incentivise them to hold on to beverage containers and return them later to a store or redemption centre. Thirteen percent of respondents said that 10-cents or less would be worth it to them, while 20% said 11- to 49- cents, 17% said 50-cents, 21% said 51- to 99-cents, and 19% said a dollar.
- › According to a 2021 survey conducted in Iowa, almost a third of the respondents stated that a 5-cent deposit refund was not sufficient to motivate them to redeem their containers.
- › According to the findings of a 2020 California study<sup>lviii</sup>, increasing the deposit level (currently at 5-cents for most containers) can incentivise people to return their containers for a refund. The study found that a 2-cent deposit increase to 7-cents would lead 11% of those who currently discard their containers in the trash to return them to a redemption centre instead, while an increase to 10-cents would cause 35% of current discarders to their containers instead. However, it took an increase to 15-cents before more than half of the respondents in both groups said they would start taking containers to a redemption centre.
- › According to a study conducted in Quebec<sup>lix</sup>, if the deposit amount for beverage containers was raised from 5- to 10-cents, the majority of respondents (63%) would always return their containers, compared to the current 54%. Additionally, 22% said they would return their containers more frequently, while 14% stated that they would not change their behaviour in response to the increase in deposit amount.
- › In a study in Western Australia, participants were asked whether they considered the current 10-cent refund to be a sufficient incentive to participate in the DRS. The majority of respondents, accounting for 74%, responded positively to the question, stating that the amount was enough of an incentive. On the other hand, 10% of respondents believed that the incentive was insufficient, while the remaining participants had varying opinions.<sup>lx</sup>
- › The results of a 2020 New Zealand survey<sup>lxi</sup> reveal that up to 20-cents per bottle is a good enough incentive for the majority of respondents to return their containers. Only 31% of respondents said that a refund amount of 5-10 cents would be enough to motivate them, while 11% said that they would require a refund amount of 50-cents or more.
- › In a 2019 survey of France's population<sup>lxii</sup>, respondents were asked what deposit amount would encourage them to bring back their plastic beverage container for recycling. The majority of respondents said that a deposit of at least 5-cents would be needed for them to participate, with 53% choosing this option. As the deposit amount increased, so did the amount of people saying they'd be incentivised to take back their containers (at 10-cents per container, 75% said they'd participate; this increased to 81% at 15-cents and 88% at 20-cents). Almost all respondents, 91%, said they would return their containers if the deposit was 25-cents or more. Only 31% said they would return their containers for less than 5-cents or would have recycled them anyway.
- › In Singapore, 84% of respondents to a public consultation on the proposed DRS indicated that a deposit of 10-cents or higher would be suitable, while 56% indicated that a higher deposit of 20-cents or more would be suitable.<sup>lxiii</sup>

When analysing these findings, it's crucial to keep in mind the impact of context. For instance, in developing countries or countries with lower socio-economic outcomes, consumers may view a small deposit as a substantial incentive to recycle, while the same deposit level could be deemed inadequate by consumers in a wealthier country. Thus, the level of deposit that consumers consider appropriate can vary significantly depending on the social, economic, and cultural context in which the DRS is implemented.

In the same way, what one perceives as an appropriate deposit amount will likely vary depending on how convenient the system is. When they know the refund value is high, consumers may be more willing to tolerate a certain level of inconvenience and deal with the hassle of returning their containers. This is because the perceived benefits of doing so, in terms of monetary value, outweigh the costs (e.g., storing containers at home, time associated with returning containers). For instance, consumers may be willing to travel farther, wait longer, or even sort their containers more thoroughly in exchange for a higher refund value.

Conversely, a relatively low deposit value (i.e., USD\$0.05) may be sufficient to motivate consumers if the returns process is highly convenient and not requiring significant effort or time on their part. For instance, a system that provides multiple locations for returns (including at the places consumers shop) and that allows consumers to drop off containers without having to wait in line or travel very far, may see high participation rates even if deposit values are low. This is because the perceived benefit of convenience outweighs the perceived cost of a lower refund value.

If we look at the latest available data on return rates in existing DRS, we see there is a strong correlation between the size of the deposit and the overall return rate (Table 1). Our research reveals that the median return rate in jurisdictions with a minimum deposit of less than USD\$0.07 (€0.07) is just 70%. This increases to 76% for jurisdictions where the minimum deposit is between USD\$0.07 and USD\$0.09 (€0.07-€0.08), and to 88% in places where the minimum deposit is between USD\$0.10 and USD\$0.14 (€0.09-€0.12). Jurisdictions that apply a minimum deposit of USD\$0.15 (€0.13) or more achieve the highest median return rates (92%), and it's worth noting that all of these programmes are in Europe.

Table 1  
Median return rate vs. minimum deposit level in DRSs across the globe

| Minimum deposit level (USD\$) | Median return rate |
|-------------------------------|--------------------|
| Less than 7-cents             | 70%                |
| 7- to 9-cents                 | 76%                |
| 10- to 14-cents               | 88%                |
| 15-cents or more              | 92%                |





## Conclusion

This fact sheet provides an overview of reported participation levels in existing DRS around the world, as well as key factors that can influence consumer engagement, based on a comprehensive review of available data from surveys assessing consumer attitudes and behaviours towards DRS. Given that each survey posed unique questions to the participants, it is imperative to acknowledge that a direct comparison of findings in a standardised manner is not possible. Nonetheless, discernible themes emerged from the amalgamation of results across the various studies. While key motivations and barriers may vary by region and context, it's clear that increasing consumer participation in DRS requires a multifaceted approach that takes into account the diverse needs and preferences of consumers. By utilising the insights and recommendations presented in this fact sheet, policymakers can work towards maximising participation in these programmes and improving their overall success.

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