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Supplementary Report: Structuring a Deposit Return System for Success in South Africa

Researching a Deposit Return System for South Africa

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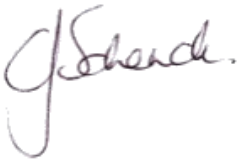

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Table of Contents

1.0 Introduction

This Supplementary Report on Structuring a Deposit Return System for Success in South Africa supports and should be read alongside the main report "Researching a Deposit Return System for South Africa: Costs and Benefits of Implementing a Mandatory Deposit Return System for Beverage Packaging". However, it can also be read as a standalone report, providing readers with recommendations on how to design a Deposit Return System (DRS) for success in a South African context. Existing DRSs around the world take various approaches to DRS design, including the roles of the System Operator and other stakeholders in the system. This report provides recommendations for DRS design based on best-practice globally.

An overview of the governance and structure of a DRS is first provided, followed by sections on the System Operator, producers, and return channels. Finally, approaches for addressing challenges around fraud management and prevention are discussed.

2.0 System Governance and Structure

The DRS explored in this study is 'mandatory' because it would require all beverage producers of in-scope beverage containers to be part of the system, cover the system costs, and collectively meet the obligations set for the system (e.g., collection rate targets). Creating an effective mandatory system would require government to set out legislation for a DRS. Government would need to produce some further legislation in addition to the existing EPR legislation to mandate a DRS for beverage containers. A mandatory DRS is a type of Extended Producer Responsibility (EPR) and has many similar features to existing EPR systems. Specifically, a DRS would make obligated beverage producers responsible for paying the costs of the system to achieve targets set in legislation.

2.1 Profit/Non-Profit

The System Operator can operate as for-profit or non-profit entity. However, it is recommended that the System Operator is non-profit. The primary purpose of a DRS is to increase the volume and quality of recyclables to achieve environmental benefits. In line with the EPR principle, the costs of the system would be borne by beverage producers, who would typically prefer not to incur additional costs that contribute to another organisation generating profit.

Consumer support would be critical to the success of a DRS, and it would be important for consumers to understand that the goal of a DRS is to improve recycling rates rather than create profits for an organisation or tax revenue for the government. Finally, a DRS relies on cooperation between different stakeholders, which could be undermined by a profit-seeking objective. A non-profit DRS offers greater transparency and accountability, as well as the ability to reinvest any surplus funds into further improving the system and other environmental initiatives.

2.2 Governance and Ownership of the System

Globally, the most effective systems are those run by the beverage industry (i.e. the obligated producers). By allowing industry to run and govern the system, obligated producers can run the system to minimise producer fees, whilst delivering on the requirements that are set on the System Operator by law.

In the case of South Africa, it may be appropriate to consider how other key stakeholders could be included in the governance and potential ownership of the System Operator.

2.3 Number of System Operators

The majority of DRSs have a single System Operator per political jurisdiction. A notable exception is Germany's DRS, which has multiple discrete System Operators. Some countries also have DRS laws and System Operators at the provincial or state level, such as Canada, Australia, and the USA.

It is likely that having a single System Operator in South Africa could reduce complexity and may well be more efficient than dividing resources across several System Operators.

Handling fee negotiations between return points and a single System Operator are a sensitive and complex issue. If there were multiple System Operators, there may be competition between them to reduce their producer fees in order to attract producers to join/become a member of their system. However, reducing producer fees would require cost savings in the DRS, which could involve reducing handling fees to return points and also service fees to waste reclaimers – among other possible cost saving measures. This could have negative impacts on stakeholders in the system and limit system performance.

There would also be complications relating to data management, reporting, and enforcement associated with having multiple System Operators. It would be more difficult for regulatory authorities and System Operators to check that all producers are part of a DRS. Multiple System Operators would also create separate annual reports, effectively duplicating effort, and would entail more work for the regulator receiving and reviewing these reports.

2.4 Role of the Government

It would be the government's role to set legislation requiring a mandatory DRS to be implemented. Government would need to produce some further legislation in addition to the existing EPR legislation to mandate a DRS for beverage containers. It would be important to avoid any conflicts and confusions between existing EPR and a DRS, ensuring that existing EPR and a DRS could coexist. Ultimately, it would be for the government to decide how to manage the transition of in-scope DRS containers from existing EPR to a DRS, the potential role of EPR PROs, and to ensure conflicts and confusions between EPR and a DRS are avoided.

DRS legislation should set out collection rate targets and a requirement to monitor the system's performance on at least an annual basis. Collection rate targets should be specified for each material type (to avoid a low collection rate for one material type) and by a set date (three years is typical). This would allow the System Operator to develop the system to meet the ultimate targets, with interim targets for the initial years of operation. The collection targets should be supported by financial penalties and potentially incentives for the System Operator to meet/exceed the specified targets. A minimum collection rate target of 90% is recommended, which should be achieved once the DRS has been operating for several years. Well-designed DRSs in Europe (most of which have similar governance arrangements to the proposed South Africa DRS) achieve over 90%. While legislation should focus on the collection rate targets, additional targets could be considered as part of the licensing process. Along with collection targets, DRS legislation also typically includes the following obligations for producers (usually discharged through a System Operator):

- A minimum deposit value.
- The minimum scope of beverage containers in-scope for the system.
- A minimum coverage of return points.
- An obligation for return points to take back all used beverage containers and pay back the associated deposits to consumers.
- Any mandatory requirements for retailers to provide a take-back service.

- Administration of the system, along with reporting requirements.
- A requirement that the System Operator operates as a non-profit.
- Sanctions (including financial penalties) for failures and non-compliance for the System Operator, and ultimately producers.
- Minimum communications spending by the System Operator.

Legislation could also include a variety of provisions to ensure integration and fair terms for waste reclaimers. These could include:

- Minimum service fees applicable across the country.
- Fair terms and conditions for accessing D-BBCs, redeeming deposits, and receiving service fees.
- Obligations on the System Operator to communicate, provide guidelines, and otherwise support waste reclaimers.

To give the beverage industry an added incentive to make sure the system is working effectively and capturing high-quality material, legislation could set recycled content targets for plastic, metal, and glass beverage containers that are in-scope for the DRS. This is a proven method of increasing demand for recyclate by recyclers. Notably, South Africa's EPR for packaging legislation sets recycled content targets for PET beverage bottles (10% for year 1 up to 20% for year 5), aluminium beverage cans (24% for year 1 up to 40% for year 5), and all glass packaging (20% for year 1 up to 40% for year 5).[1] There are no recycled content targets for HDPE beverage containers, though. Consideration could be given to setting ambitious yet realistic recycled content targets for all beverage container materials in-scope for the DRS. Recycled content targets would encourage the DRS to capture high-quality recyclable materials that could be recycled back into new containers (closed-loop recycling).

The more practical details of the system could then be left to beverage industry itself to manage. This could include monitoring and evaluation of performance, which would involve various stakeholders (including unions and associations) to identify and address areas of improvement. The government may also consider adopting a low-threshold complaints function for highlighting and addressing irregularities and concerns by waste reclaimers and D-BBCs, and other stakeholders, in a DRS.

There are various methods of forming a System Operator. The government could appoint a System Operator through a tender process, or it could be left to industry to form a System Operator and apply for approval / licensing from government. One possibility could be to allow existing EPR PROs to tender for the role of DRS System Operator, though this would need to be decided by government.

Finally, municipalities would likely have minor roles and responsibilities in a DRS. These may include granting permissions for certain activities and infrastructure, matters surrounding compliance, and involvement in discussions surrounding the infrastructural and political changes required for a DRS.

2.5 System Operator Targets

A key objective of a DRS relates to the quantity and quality of material collected for recycling. Hence, an essential parameter to include in the legislation would be collection rate targets. As mentioned previously, collection rate targets should be specified for each material type and by a set date. The collection rate targets should increase over time, with an ultimate collection target of 90% being recommended. A 90% collection rate should be achievable once the DRS has been fully operational for several years.

[1] *Government Notice 239 of 19 March 2021*. Available at: link

The System Operator would also have financial obligations such as management of deposits, payment of handling fees and service fees, and timely provision of data to regulatory bodies. Targets could be applied for these obligations, such as timeframes for paying handling fees to return points. However, key performance indicators would also likely be set by the System Operator management board and/or included in contracts with return points.

3.0 Structure and Obligations of System Operator

A System Operator would have a pivotal role in a DRS, including:

- Managing system data, which includes commercially sensitive information;
- Managing deposits, paying handling fees to third-party return points, and paying service fees to registered waste reclaimers;
- Receiving producer fees from producers;
- Organising the collection, transport, processing, and sale of the collected material from return points;
- Ensuring that return points comply with specified requirements; and
- Marketing the system.

3.1 Procurement and Set-Up of Collection Infrastructure

The System Operator would sign contracts with return points (i.e., retailers and D-BBCs), committing them to provide a specified level of service for receiving used beverage containers and refunding deposits (and service fees for registered waste reclaimers). The System Operator would be responsible for ensuring that return points comply with specified requirements (accreditation and monitoring would be funded through the DRS, as part of the System Operator's responsibilities to monitor and manage the DRS).

The System Operator would be responsible for arranging the provision of various parts of the collection infrastructure. In some cases, this might be through procuring the services of third parties, and in some cases, it might be through direct service provision from the System Operator. Where it would require direct service provision, the System Operator would need to source buildings, equipment, and provide the operational resources.

The following arrangements might be appropriate for a DRS in South Africa:

- D-BBCs– Services could be procured by the System Operator.
- Depots for consumer returns (if required) – This could be a mixture of direct service provision and procured services by the System Operator.
- Counting centres – Likely to be direct service provision by the System Operator.

It would be the System Operator's responsibility to set and pay handling fees to retailers and D-BBCs for each used beverage container they take back. Handling fees would compensate return points for the costs associated with the take-back of used beverage containers (e.g., electricity, labour costs etc.). The System Operator would also be responsible for payments of service fees to registered waste reclaimers,

also on a per-container basis. Rather than pay handling fees to HORECA (hotels, restaurants, cafes/catering) establishments, the System Operator should provide bags/bins for storing the used beverage containers ready for collection.

The System Operator would need to decide, in consultation with return points, how deposits would be refunded to consumers by RVMs (e.g., via online accounts, in cash etc.). Cash refunds might be more practical at retailers, where the consumer would take the RVM receipt to a check-out, rather than at alternative return points without a staffed cashier. However, legislation may specify that a consumer has a right to a cash refund at all return points. This would need to be decided by government.

3.2 Communications and Education

Behaviour change would be required for consumers to participate in a DRS. Consumers would need to know where and how they could return their used beverage containers to redeem their deposits, and to be motivated to do so by understanding how the DRS works and why it was introduced. An engaging awareness and communications programme with clear messages on the benefits of the DRS and how it works in practice would be essential. Awareness campaigns would be needed prior to the launch of a DRS and in the first months of operation, and on a continuing basis after launch. Other system features like DRS labelling/markings, and the visibility of RVMs in retailers, would also be important behavioural prompts.

The responsibility for public communications usually lies with both the government and the System Operator. Communication responsibilities would also include informing all stakeholders of their responsibilities within a DRS.

It is recommended that the System Operator appoints a professional public relations company to lead its communication strategy, both prior to launch and going forward. A criterion for accreditation of the System Operator should be allocating a pre-launch budget for communications. DRS legislation could additionally include an obligation for the System Operator to allocate a percentage of its turnover on communications. A larger budget would be required in the first two years of a DRS, which may be reduced as the DRS becomes more established. The Estonian and Lithuanian legislation, for instance, specifies a minimum public education budget of 1% of annual turnover.[2] This ensures that the System Operator continues to invest in environmental awareness – which has benefits beyond the DRS – even if it is achieving a high collection rate.

3.3 Enforcement Actions for Non-Compliance

Enforcement would be the joint responsibility of the System Operator (ensuring the system is not losing money through fraudulent returns and/or free-riding) and the government (ensuring that collection rates and recycling rates are not over-reported, that competing producers and retailers are treated equitably, and that consumers are treated fairly).

All essential requirements for the DRS should be supported by the possibility of legal sanctions from the relevant regulatory authorities. There should be an option to apply such sanctions to:

- Individual producers (e.g., those selling products without a deposit and/or deposit markings);
- Individual retailers (e.g., those selling products without a deposit, obligated retailers not taking back used beverage containers or refunding consumers their full deposit); and
- The System Operator (e.g., inaccurate reporting).

[2] Republic of Lithuania (2014) *The Law on Amendment to the Law on Packaging and Packaging Waste Management*, No. XII-864, 8 May 2014.

In most DRSs, there is a legal option to revoke the System Operator's licence, which should only be applied if there are severe and sustained breaches of the regulations/licensing conditions over a longer period.

The System Operator would seek to ensure that all obligated producers comply with legislation, particularly where any breaches or incidents of free-riding may increase the System Operator's costs. However, there would also be a critical role for the government in supporting producer compliance. The role of the government – usually an environmental inspectorate – in enforcement would be particularly important during the initial years of a DRS. During the initial years of a DRS, producers and retailers may not be fully aware of their obligations, so would need to understand that obligations would be strictly enforced and that non-compliance would not be tolerated. Government authorities should have the legal right to audit individual companies, so that producers understand that the System Operator may resort to this in the most severe instances of non-compliance (this may be in addition to the System Operator's contract with producers, which typically stipulates that the System Operator has the right to request third party audits).

There would also be a role for a consumer protection board. For instance, consumers may report retailers that fail to show the deposit separately, that do not provide a take-back service, or if producers apply a deposit marking to a product that is not part of the system (although this would be a legal matter for the System Operator responsible for deposit markings).

3.4 Other Safeguards to Ensure Performance of System Operator and Data Confidentiality

DRS legislation should address what would happen if a System Operator ceased to operate. Without a System Operator to organise collections, reimburse refunded deposits, pay handling fees and service fees, and manage the data, it would be unclear how producers would fulfil their legally binding targets. Additionally, retailers, D-BBCs, and waste reclaimers would be concerned about payment of their service/handling fees and deposits. Therefore, it should be made clear to producers, retailers, and D-BBCs that it would be in their interests to ensure the System Operator remains a viable and successful entity, because they would ultimately have legal responsibilities in the absence of a System Operator.

One of the System Operator's essential tasks would be related to data management. One of the requirements would be that all obligated producers report their sales data, typically by material type and product. This would involve confidential information and so should not be made accessible to any other market participants. The same would apply to take-back data, involving commercially sensitive information. As it would not be practical to regulate all these issues in legislation, they should – in accordance with the EPR model – be left to producers, retailers, and D-BBCs to solve.

Data confidentiality is a cornerstone of trust in a System Operator. It should be governed by the System Operator's company statute, which should provide clarity and a framework regarding data confidentiality.

4.0 Obligations of Producers

Producers (including importers) would be ultimately responsible for the collection and further management of their beverage containers for recycling. Mot producers would likely nominate a System Operator to fulfil their obligations on their behalf. If government were to combine collection rate targets with financial penalties for non-compliance, producers would have an added financial incentive to ensure the DRS would be capable of meeting the targets.

Producers would initiate a deposit for each in-scope beverage container placed on the market. Producers would be responsible for charging the deposit (in addition to the price of the beverage) to their customers. Producers would also be responsible for paying producer fees to the System Operator, which, along with unredeemed deposits and material revenues, would cover the costs of a DRS. Producer fees for the DRS

would replace existing EPR fees for the in-scope DRS beverage containers under the current EPR for packaging system.

Producers would also be required to ensure that their beverage containers were appropriately labelled/marked with relevant DRS information and artwork. Beverage containers should also have barcode verification to ensure effective reporting on audited sales and units collected. The basic principle is that no beverage container (specified in DRS legislation) can be placed on the South Africa market without a deposit. Deposits should also be applied to beverages sold via online or distance sellers. This would include beverage containers formally imported into South Africa from other countries.

Certain aspects of a DRS, such as logistics, are typically part of producers' core business practices, so involving producers in a DRS would utilise their existing skills, experience and, potentially, logistical operations to improve the efficiency of the system. Producers would aim that they (and their customers) would not pay more than necessary for an efficient system. Producers would not want the deposit to perceived as a price increase, as it would be a fully refundable deposit.

The main roles and responsibilities of producers (including importers) in a DRS would be to:

- Establish/join a System Operator;
- Set the System Operator's objectives and hold them to account;
- Appoint representatives to sit on the System Operator board;
- Finance the DRS infrastructure and fund its net operating costs through producer fees;
- Initiate the deposit and charge it to their customers (wholesalers, retailers etc.);
- Ensure container designs comply with the System Operator specifications and are registered with the System Operator;
- Mark their containers with the required deposit markings and any agreed codes;
- Report to the System Operator monthly on placed on the market information;
- Report to the government annually on placed on the market information.

For beverage containers not in-scope for a DRS – such as liquid paperboard cartons and composite pouches – the government should consider modifying existing EPR for packaging, so that hard to recycle beverage containers are subjected to a minimum malus/penalty charge using an eco-modulation of EPR fees mechanism. This minimum malus/penalty charge should be at least at a level of the DRS producer fees for in-scope beverage container materials to ensure that these beverage container types do not derive an unfair advantage. This should discourage producers from switching to container types to avoid DRS obligations. Government should ensure that producers of beverage containers no in-scope of the DRS also contribute to the end-of-life management of their beverage containers.

All producers should be treated equally in a DRS, and information on producer fees should be publicly available. Producer fees should be differentiated by material type and potentially by other container characteristics such as colour, volume, and/or recyclability. Producer fees should be applied according to the number of units placed on the market.

5.0 Return Channel Roles and Obligations

5.1 Retailers

There should be a legal obligation on retailers to ensure they pay the deposit when purchasing in-scope beverage containers from their suppliers, and that they charge the deposit to their customers at the point of sale. The deposit should be listed separately to the price of the beverage, and be a separate line on customers' receipts to highlight that a deposit has been paid.

Many retailers are also producers/importers of beverage containers, and so should be involved in taking back not only beverage containers that they produce, but also beverage containers from other producers. Legislation should mandate certain retailers (e.g., those over a certain size/floor area) to accept returns of used beverage containers from consumers. DRSs in other jurisdictions often place legal obligations on retailers over a certain floor size threshold, commonly in the region of 200m^2, above which retailers are mandated to be return points (take-back used containers from consumers). Below the threshold, retailers can choose to opt-in on a voluntary basis. Used beverage returned by consumers to retailer return points should not need to have been purchased from that retailer, as this would otherwise increase inconvenience and complexity for consumers. Retailer return points should be compensated for their time and resources for every used beverage container returned to them, in the form of handling fees. Handling fees should also encourage retailer support of the system.

Informal retailers should not be mandated to take back used beverage containers from consumers in a DRS in South Africa. They should, however, have the option to voluntarily opt-in to be return points, provided they meet certain criteria. This would only likely possible for larger informal retailers with more sophisticated processes and systems, and those who have sufficient storage capacity for used beverage containers.

There should be a legal requirement for all retailers that sell beverage containers in-scope for a DRS to display signs advising customers on how they can claim a refund and where their nearest return point is, if the retailer was not a return point (e.g., too small, informal etc.).

Regardless of collection obligations set in legislation, retailers should be able to decide how they take-back used beverage containers – either through manual or automated (RVM) methods. The decision would be dependent on factors such as return volumes, geographical location of the retailer, and the commercial advantage to the retailer.

Depending on the retail structure of a country, the number of manual and automated return points may vary significantly and are a result of individual decisions rather than targets. As seen in well-established DRSs such as in Scandinavian countries and Baltic states, the proportion of used beverage containers collected manually is around 5–10%, with automated returns around 90–95%. As most formal retailers in South Africa are large in size (smaller retailers generally belonging to the informal market), it is envisaged that most formal retailers might choose to install RVMs.

If a System Operator was to outsource the retail take back logistics operation (as is often the case in a DRS), some supermarket chains may participate in the tender process, since their bids can be competitive as they can combine used beverage container haulage with deliveries of new stock. However, these would be decisions for the supermarkets and System Operator to make, and would not be compulsory for supermarkets to provide a logistics service. If a supermarket chain was to provide logistics for a DRS, they should be paid by the System Operator for their services.

Smaller retailers (including informal retailers) with no legal obligation to take-back used beverage containers may voluntarily become a return point for their customers to avoid losing customers to other retailers. These retailers could either reach a voluntary agreement with the System Operator, so that they are paid handling fees and their used beverage containers are collected, or they may take the used

beverage containers to another return point to avoid having to request a collection, and/or so that they are reimbursed for the deposit payments more quickly.

Retailers are commonly represented on a System Operator board to make sure their interests are considered, which may be appropriate for a DRS in South Africa. Retailers would likely want the deposit to be an appropriate value that takes account of their cashflow and that does not deter customers. Retailers – and their trade associations – might also want to influence decisions on handling fee calculations and negotiate payment terms with the System Operator. Larger retailers, especially chains, may want to influence the types of RVMs that the System Operator would approve. Typically, the System Operator would set minimum criteria for RVMs, with retailers then procuring RVMs based on these criteria. Only RVM models approved by the System Operator can be installed. This would be subject to RVMs meeting specifications, with the accreditation process complying with competition law.

The main roles and responsibilities of retailers in a DRS would be to:

- Paying the deposit to their suppliers and charging the deposit to their customers (for in-scope beverage containers);
- Appointing representatives to sit on the System Operator board, where applicable;
- Retailers over a certain threshold providing collection infrastructure to take back used beverage containers from consumers;
- Refunding deposits in full to consumers for each returned used beverage container (through manual or automated (RVM) returns);
- Maintaining collection infrastructure to the standards set by the System Operator, including cleaning RVMs;
- Storing used beverage containers for collection by the System Operator;
- Advising customers where their nearest return point is if they are not return points;
- Reporting to the System Operator on their take-back activities, as required.

5.2 Hotels, Restaurants, and Catering (HORECA)

Like retailers, all HORECA establishments would be obliged to pay the deposit to their suppliers for each in-scope beverage container they purchase. Whether HORECA establishments pass on the deposit to their customers varies in DRSs in different jurisdictions – in some DRSs, the deposit is included in their receipt and so the customer may ask for the deposit to be removed if they are leaving their used beverage containers on the premises; while in other DRSs, it is left to the discretion of HORECA establishments to manage deposit reimbursements for their customers.

HORECA establishments with large volumes of beverage containers would likely have a formal arrangement with the System Operator for their used beverage containers to be collected. However, HORECA establishments would not be paid handling fees because they would only be handling the containers sold and consumed on their premises. Commonly, System Operators in other DRSs provide HORECA establishments with bags or bins for storing the used beverage containers for collection, which could be considered in South Africa. Smaller HORECA establishments (both formal and informal) would need to return their used beverage containers to a return point to redeem the deposits.

5.3 Buy Back Centres (BBCs)

Existing BBCs are recommended to be the main return points for waste reclaimer returns in a DRS in South Africa (BBCs receiving deposit bearing used beverage containers are referred to as D-BBCs in this study). Similar to retailers, D-BBCs would be paid a handling fee per used beverage container that they receive. The handling fee would reimburse the D-BBC for their time and resources associated with receiving and managing used beverage containers from waste reclaimers.

It is proposed that, while BBCs should be allowed to become a D-BBC on a voluntary basis (i.e., not mandated), handling fees for D-BBCs should be set at a rate whereby margins are favourable, and are at least equal or greater than current profit margins for buying and selling used beverage containers currently. For most D-BBCs, used beverage container returns would operate alongside the existing trade in other non-beverage container materials. The used beverage container revenue model for BBCs for would therefore change from one which is based on material sales to a handling fee revenue model.

BBCs would need to register with the DRS in order to become a D-BBC, and would need to meet minimum criteria in terms of quality control, processes, and auditability. Other BBCs that do not register with the DRS, or which are unable to do so, may still act as accumulation points for used beverage containers, operating as part of the informal recycling economy.

Further consultation with BBCs is recommended to understand BBCs' responses to a potential DRS and to subsequently refine the level of economic (and other) incentives required for high levels of engagement and participation. Where coverage of D-BBCs would not be sufficient (e.g., in more rural areas), the System Operator may build and operate 'return depots' and/or provide mobile return capacity to improve return point coverage for waste reclaimers.

5.4 Waste Reclaimers

It is recommended that waste reclaimers would take used beverage containers to D-BBCs (and any other 'return depots' operated by the System Operator). The D-BBC would pay waste reclaimers the full deposit value for each used beverage container, and registered waste reclaimers would also be paid an additional service fee per container.

Registration of waste reclaimers would need to be carefully considered by the System Operator, along with further work to understand the most appropriate methods of registration. For example, the System Operator would need to consider whether registration under the DRS would be separate from, or integrated with, existing registration systems (e.g., registration system for payment of the EPR 'collection service fee' under current EPR legislation, registration system operated by ARO or South African Waste Pickers Association (SAWPA) etc.). The process of registering should be clear, transparent, fair, affordable, and uniform across South Africa. This may require legislation to ensure the registration process would not be abused, which would need to be decided by government. Furthermore, to encourage and support the uptake of registration from waste reclaimers, a social management plan may be required, in which DRS registration training, support, and awareness raising for waste reclaimers could be targeted.

Service fees would ideally be paid to registered waste reclaimers directly by the System Operator using an electronic payment transfer system, after the D-BBC has logged the transaction. It might be that physical cash would be paid by D-BBCs to waste reclaimers as a service fee, on behalf of the System Operator (with the D-BBC reimbursed by the System Operator). However, this could be prone to risk of fraud, as detailed in Section 6.1.

There would almost certainly be potential to use smartphone payment applications ("apps") and/or electronic payment transfer systems for service fee payments. Apps could also be used to facilitate payments through the supply chain of deposits, such as D-BBCs paying waste reclaimers deposits and waste reclaimers paying consumers their deposits when undertaking 'separate collections'. Some of these

apps are readily available in South Africa, and it would be for the System Operator to review and commission an appropriate payment system. Points raised by waste reclaimers at the workshops regarding physical and electronic payments are in the Appendix of the main report.

The System Operator should also consider how to manage potential cashflow issues faced by waste reclaimers under this proposed system. Waste reclaimers undertaking 'separate collections' would likely pay consumers the deposit value for each used beverage container, prior to being reimbursed the deposit at a D-BBC. This would require upfront funds. There are various ways the System Operator could deal with this, including providing an up-front 'float' to waste reclaimers, which the use of electronic payments and apps might facilitate. This would be prone to risk, so such funding solutions would need to be further trialled prior to implementation.

The roles and responsibilities of waste reclaimer associations (such as SAWPA and ARO) in a DRS would also need to be decided by government. Such aspects to consider may include registration requirements, service fee agreements with the System Operator, awareness and support to waste reclaimers, and payment systems, among others. Learnings from South Africa's EPR for packaging system could support these decisions, considering the roles and responsibilities of waste reclaimer associations and their interactions with PROs

6.0 Fraud Management and Prevention

6.1 Overview of Types of Fraud and Mitigation Measures

Generally, there are two types of fraud in a DRS: one on the supply-side, in which there is not enough money going into the system; and one on the returns-side, in which the system is paying out more money that it should. **Table 1** lists the broad types of fraud in a DRS and the range of measures available to reduce the risk.

Fraud can reduce revenue from unredeemed deposits, increase producer fees, distort the market (e.g., if producers do not incur the same compliance costs) and/or result in inaccurate collection rates being reported. Ultimately, fraud is a concern for producers, the beverage industry, and the government, and it is the System Operator's responsibility to minimise the risk of fraud. While unfeasible to eliminate fraud, it should be reduced as far as possible in a practical and cost-effective way.

Table 1: Types of Fraud in a DRS and Potential Mitigation Measures

Type of Fraud	Reasons	Mitigation
Supply-side		
Producers failing to register with the System Operator	Producers do not comply with system design rules, do not pay producer fees, or do not initiate the deposit. Producers might charge a deposit to their customers (wholesalers/retailers) to make money, or use the absence of a deposit to	Legal requirement, with penalties, for all producers to initiate a deposit for each in-scope beverage container placed on the market. Legal requirement, with penalties, for retailers and wholesalers to ensure a deposit is applied to each in-scope beverage container. RVMs and counting machines reject used beverage containers that do not have a registered barcode (with associated deposit).

Type of Fraud	Reasons	Mitigation
	gain a competitive advantage with customers.	Industry and System Operator market surveillance.
Producers under-reporting sales	Producers do not pay their fair share of producer fees or deposits.	Legal requirement, with penalties, for all producers to initiate a deposit for each in-scope beverage container placed on the market.
	Producers might charge a deposit to their customers (wholesalers/ retailers) to make money, or use the absence of a deposit to gain a competitive advantage with customers.	Legal requirement, with penalties, for retailers and wholesalers to ensure a deposit is applied to each in-scope beverage container. Border checks (e.g., for containers without deposit logos or invoices with no mention of deposits). Contractual agreement, with penalties, between the System Operator and producer, obligating them to accurately report sales. SKU sales and returns counted by unit – System Operator identifies unusually high (and/or above 100%) collection rates.
Retailers/ wholesalers buying/ importing un-registered beverage containers (for which the System Operator has not been paid producer fees or deposits)	Retailers might profit when they apply the deposit to the beverages that they sell and/or reduce the cost of their beverages to gain a competitive advantage.	Legal requirement, with penalties, for all producers to initiate a deposit for each in-scope beverage container placed on the market. Return-to-retail systems mean the System Operator has a contractual relationship with the majority of retailers – supports transparency and compliance. Border checks. Barcodes for beverage containers that are unique to South Africa and its DRS, so RVMs/counting machines reject imported used beverage containers that are not part of the DRS. SKU sales and returns counted by unit – System Operator identifies unusually high (and/or above 100%) collection rates.
Return-side		
Individuals importing beverage containers from another country (where there is no deposit)	Individuals might claim a refund on a deposit that was not initially paid.	Border checks. Barcodes for beverage containers that are unique to South Africa and its DRS, so RVMs/counting machines reject imported used beverage containers that are not part of the DRS. SKU sales and returns counted by unit – System Operator identifies unusually high (and/or above 100%) collection rates.

Type of Fraud	Reasons	Mitigation
Individuals return containers that are not in-scope of the DRS (such as a liquid paperboard beverage carton or a milk bottle)	Individuals might claim a refund on a deposit that was not initially paid.	RVMs/counting machines reject used beverage containers that do not have a registered barcode. Awareness raising with manual return points about what is in scope. Counting centres identify out-of-scope manual returns and the responsible return points.
Multiple redemption (i.e., redeeming deposits multiple times from a single container)	Individuals might use one used beverage container to redeem more than one deposit, which has already been refunded.	RVMs compact used beverage containers so they cannot be scanned again (containers have to be intact with a readable barcode for a refund to be issued). RVMs equipped with anti-fraud measures to disable payment before the used beverage container reaches the compactor. Redeemed used beverage containers to be stored securely, with access only to authorised personnel.
Return points over-reporting returns	Return points might want to claim additional deposit refunds and handling fees.	System Operator issues automated returns payments based on RVM data. Manual returns payments based on counting centre data. Contractual arrangements between System Operator and return points.
Counterfeit DRS markings (e.g., stickers) attached to unregistered used beverage containers	Individuals might claim a refund on a deposit that was not initially paid.	Precise container specifications (weight, shape, colour) registered with RVM / counting machine so can cross-reference with registered barcode. SKU sales and returns counted by unit – System Operator identifies unusually high (and/or above 100%) collection rates. Special security ink could be used for the deposit logos (as in Germany), but this is not recommended due to the higher costs.
Returned used beverage containers stolen	Individuals might steal returned used beverage containers be sell for the material value.	Used beverage containers to be stored securely in accordance with System Operator requirements. Secure chain of custody for sealed bags during transportation. Random spot-checks on bags from RVMs. Manually returned used beverage containers counted at counting centres.

Type of Fraud	Reasons	Mitigation
Payment of service fees where waste reclaimers are not registered	D-BBCs could potentially record containers as returned by registered waste reclaimers, and then profit from this service fee which is not passed on to a reclaimer	A waste reclaimer has to be registered and demonstrate their identity with a discrete account. D-BBCs authorise service fee payments to registered waste reclaimers, but the money is paid directly by the System Operator via electronic transfer to the registered waste reclaimer (not via the D-BBC).

6.2 Labelling

A DRS relies heavily on monitoring beverage container sales and returns using barcodes, along with other DRS markers/logos. One of the key decisions to be taken, in consultation with the beverage industry, would be the use of barcodes for beverage containers that are unique to South Africa and its DRS. Essentially, the combination of barcodes and other DRS markers would identify beverage containers that are in-scope for the DRS in South Africa and that are deposit bearing.

6.3 Return Point Requirements

In order to minimise fraud, the System Operator would need to set out detailed return point requirements, including RVW requirements, with all return points needing to be approved by the System Operator. In a DRS, typically the System Operator would set minimum criteria for RVMs, with retailers then procuring RVMs based on these criteria. Return point requirements would need to be established following DRS legislation approval by Parliament and once a System Operator had gained government approval.

Contractual agreements between the System Operator and retailers (and other return points) must also be in place for service provision and financial arrangements. The contracts should clearly set out both parties' obligations in terms of collection logistics, the provision of data, and financial interactions. The System Operator should also agree contracts with approved RVM providers. RVM requirements may include:

- Only RVM models accredited by the System Operator can be used (the System Operator must make clear which RVMs can be used by return points). This would be subject to RVMs meeting specifications and the accreditation process complying with competition law.
- RVM suppliers must apply to the System Operator to certify their products. This process could take up to six months and would involve the System Operator trialling the suitability of the RVM.
- Return points must be accredited by the System Operator as a return point. Criteria for accreditation would include customer convenience and security (such as back-rooms only being accessible by authorised personnel to reduce fraud and theft risk).
- The System Operator should have the right to withdraw the accreditation of a return point due to non-compliance with the terms and conditions of the contract.

6.4 Data Management

Data management and reporting would be a key role of the System Operator. A DRS is a national system with a large number of stakeholders. Transparent data would be required to give confidence to all stakeholders that the DRS was a fair, well-managed system that was achieving the desired goals.

There are two main DRS data types: beverage container sales and used beverage container returns. This data would be connected to fraud management. Fraud risk would be reduced by creating a proper control framework and data management system that would monitor and analyse potential anomalies. The System Operator's data management systems would not need to be specified in legislation but would be developed by the System Operator.

Fraud risk associated with sales data could be managed through the control of producers and beverage containers placed on the market. The following are examples of data system features that could minimise the risk of sales data fraud:

- **Timely reporting of sales data** – regular notifications/reminders to producers to submit sales data.

- **Regular sales and returns reporting** – a sales and returns report could be sent twice per year to each contracted producer. The report would cover all of the producer's reported SKUs. SKUs with a collection rate of more than 100% (indicating fraud or data error) would be highlighted.

- **Cross-referencing different data** – relevant data could include information on sales, returns, types of beverage containers, beverage categories and container sizes, geographic location etc. The structure of cross-reference analytics would depend on the specifics of the regional and consumer habits. For example, it might be possible to investigate a specific beverage (e.g., water) in a specific container (e.g., 1.5L PET bottle) and analyse in more detail those SKUs with a significantly different (higher) collection rate than average.

- **Cross-border control** – cross-border risk would mainly arise when consumers would be buy beverage containers from abroad. A major reason for this would be the difference in the tax on different beverages (e.g., alcohol excise duty, soft drink tax) in other countries. This situation might be analysed with analytics to indicate if the returns in border counties/areas for certain beverage container types exceeded the normal proportion. However, it would be much more difficult to detect cases of parallel imports of some products sold countrywide, and where the (full) quantities were not declared to the System Operator.

Fraud risk associated with returns data could be managed through controls related to used beverage container collection and return points. One of the primary tasks related to return points would be the RVM certification and accreditation process: to provide transparency and prevent fraud, each RVM model would need to be certified, and each return point would need go through a System Operator accreditation process. The RVMs would need to meet the requirements established by the System Operator to ensure that they were compatible with the System Operator's IT system and that the data from the RVMs would be reliable. The following are examples of data system features that could help to minimise the risk of returns data fraud.

- **Return points controlling** – the System Operator monitors the number of used beverage containers returned to each return point (either using RVM data or counting machines data).

- **Bag contents control** – even with used beverage containers returned to an RVM, there would be a risk that return point employees might take some of the used beverage containers to sell them for material, meaning that not all of the used beverage containers would be sent to the System Operator counting centre. This risk increases with increasing material prices (although there are usually some safeguards at return points, such as CCTV cameras). Depending on the RVM model, the compaction ratio of the used beverage containers may vary significantly, so it could be difficult to judge how many used beverage containers are in a bag collected from an RVM return point (used beverage containers counted and compacted by an RVM are not normally counted a second time at the counting centre). However, it may be possible to analyse the change in the average contents of the bags of used beverage containers arriving at the System Operator counting centre over a longer period. This would help to identify possible suspected fraud at return points.

Given the large volume of data managed by the System Operator, the commercially sensitive nature of the data, and the risk of fraud in a DRS, robust and comprehensive IT systems are required. The main tasks of the IT system include:

- To create a virtual environment for all DRS critical processes.
- To provide a data exchange platform for various DRS related technology (RVMs, industrial counting machines, industrial scales, etc.).
- To be a large and secure data warehouse for all DRS related data (sales data, returns data, etc.).
- To create convenient contact points and customer portals for relevant stakeholders (e.g., web-solutions for producers, retailers, and other return points).
- To accommodate sophisticated Business Intelligence analytics tools for various types of reporting (e.g., annual reporting to government) and above all for fraud mapping and prevention.

Finally, another challenge of data management within a DRS would be tracking quantities of containers returned by waste reclaimers. There are examples of digital solutions being developed in other markets, including Kabadiwalla Connect [3] in India and BVRIO [4] in Brazil. It would be necessary to consider how these or similar solutions could be applied and further refined in a South African context.

[3] Kabadiwalla (N.D.). Homepage. Available at: link
[4] BVRIO (N.D.). Homepage. Available at: link

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