



Supplementary Report: Market Overview

Researching a Deposit Return System for South Africa

Prepared October 2024



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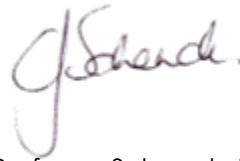
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1.0 Introduction

This Supplementary Report on Market Overview 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 be read as a standalone report, providing readers with an overview of estimated beverage container sales routes and end destinations in South Africa. Specifically, this report provides an overview of single-use beverage container sales routes and waste treatment pathways in South Africa. It supports the main report by providing context for a potential mandatory Deposit Return System (DRS) in South Africa. Many of the findings and assumptions in this report have been used to inform the design and modelling of the DRS scenarios presented in the main report. The team conducted desk-based market research and field surveys.

A brief overview of South Africa's population is first provided to give context. The methodology for gathering market information is then summarised. Following this, findings from the market analysis are presented, showing the current diversity of beverage container sales routes and waste management pathways in South Africa. Finally, findings from surveys with a sample of outlets are presented.

2.0 An Overview of South Africa

South Africa is a large country, with a land area of 1.2 million km². South Africa's 2022 Census estimated its human population to be just over 62 million, having increased over 10 million since 2011. In terms of population distribution, the provinces of Gauteng (24%), KwaZulu-Natal (20%), and Western Cape (12%) are most populated, with Free State (5%) and Northern Cape (2%) being least populated.¹ About 68% of South Africa's population live in urban areas and 32% in rural areas, with the urban population increasing 1.6% per year.² There is a diverse population in South Africa, with a range of wealth. This ranges from residents living in wealthy and middle-class suburbs, to residents living in high-density lower-income areas such as townships and informal settlements, to residents living in rural and remote settlements. South Africa has 12 official languages, including sign language, with isiZulu being the most commonly spoken language by households. 39% of people aged 15 to 64 in South Africa are in paid employment, which is below the Organisation for Economic Co-operation and Development (OECD) average of 66%.³

3.0 Methodology

Market analysis into beverage container sales routes and waste management pathways was conducted through desk-based research and surveys. This collected quantitative information on beverage containers sold in South Africa according to their material type, drink type, and container size. Estimates were made regarding quantities placed on the market (PoM) through specific formal and informal sales routes, such as supermarkets and HORECA (hotels, restaurants, and cafés).

Estimating volumes of beverage containers PoM in South Africa involved triangulating inputs from several data sources, including global databases, packaging manufacturers, beverage converters, Producer Responsibility Organisations (PROs), and insights from liquor market expert. Site visits and surveys of formal and informal outlets were also used to validate the findings. The surveys were conducted with a sample of 60 spazas, 57 taverns, and 33 independent wholesalers, spread across all nine provinces. Survey findings were compared against sales data. This analysis confirmed the major brands, stakeholders, and distribution routes of beverage container types and sizes. As for the waste management pathways, data was gathered from PROs, technical and academic reports, stakeholder interviews, official statistics, Government resources, and informed estimates.

¹ Stats SA (2022). Census 2022: Statistical Release. Available at: [link](#)

² The World Bank (2024). South Africa: Overview. Available at: [link](#)

³ OECD (N.D.). South Africa. Available at: [link](#)

4.0 Market Overview

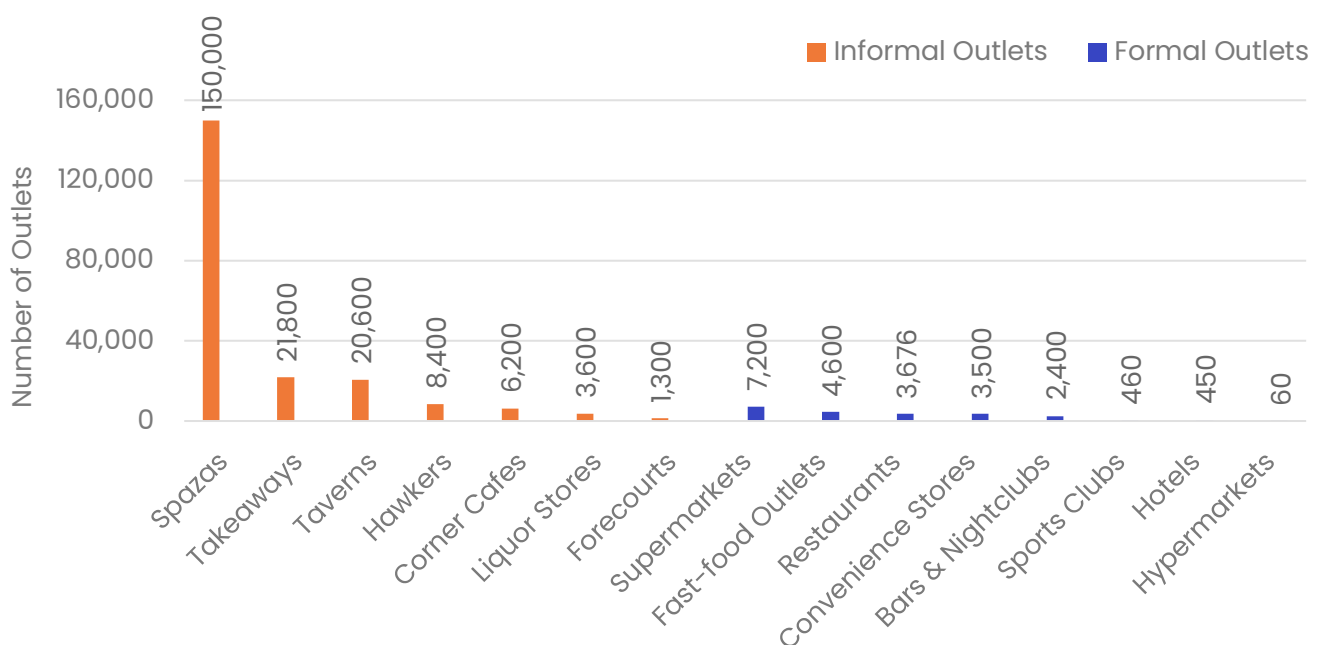
4.1 Beverage Container Sales Routes

South Africa is an economically diverse country that varies between high-income suburban areas, lower-income townships and informal settlements, and rural environments. Living environments vary widely due to factors such as socio-economic status, urbanisation, historical context, and geographic location. Sales of food and beverages in South Africa are similarly diverse, largely due to the “dual economy” of formal and informal sales routes. Both formal and informal markets co-exist, making the sales of beverage containers challenging to assess.

Informal sales routes represent the majority (about 70%) of beverage container sales to end consumers in South Africa. These include spazas (retail stores), taverns (bars in townships), shebeens (bars that trade without a liquor license), and fast-food takeaways. These outlets are typically found in middle- to lower-income areas, such as townships and informal settlements. Informal outlets tend to be small in size and are often run by just one or two people. They tend to use simple tills or cashboxes for transactions. Based on high-level estimates, there are around 200,000 informal outlets in South Africa, of which about 70% are believed to be spazas (**Figure 1**). These are very high-level estimates, with shebeens excluded from the estimates.

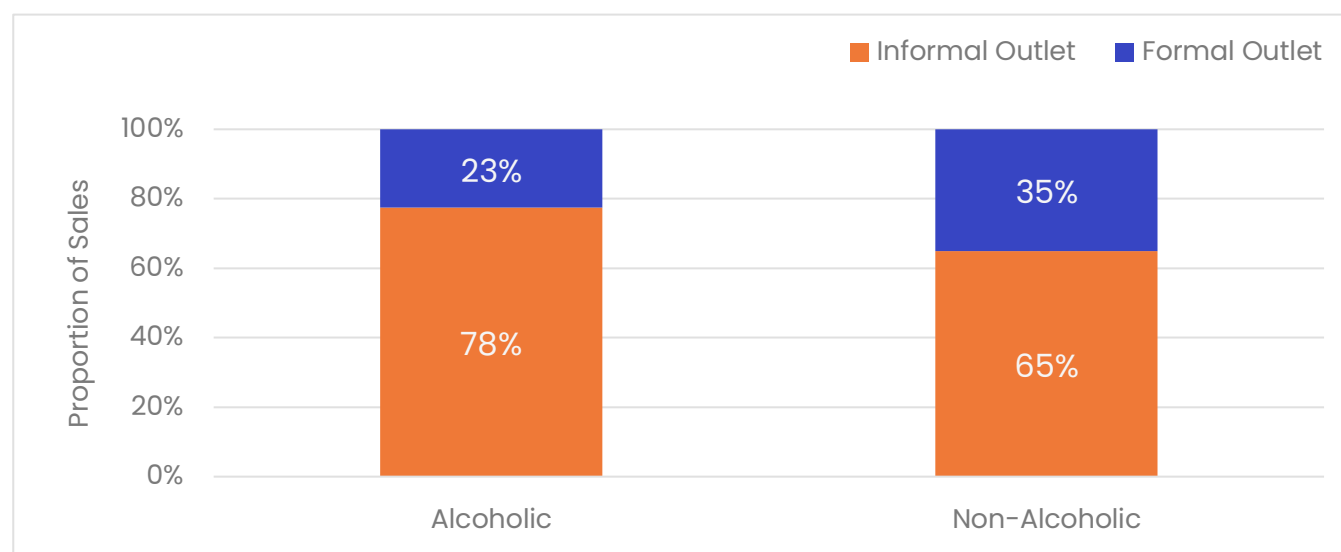
As for formal outlets, these are typically branded outlets, including convenience stores, supermarkets, and HORECA. Formal outlets are commonly found in middle- to upper-income areas, but are expanding into middle- to lower-income areas, such as townships. They tend to use sophisticated tills for transactions. Very large formal outlets are being built in outlying areas, catering to a range of consumers. Based on high level estimates, there are about 25,000 formal outlets in South Africa (**Figure 1**).

Figure 1: Estimated number of informal and formal outlets in South Africa.



Overall, it is estimated that about 70% of beverage containers sold to end consumers are through informal outlets, with alcoholic beverages being particularly common through informal outlets (**Figure 2**). A visualised flowchart of beverage containers PoM in South Africa according to the number of formal and informal outlets can be found in the Appendix (**A.1.0**).

Figure 2: Estimated proportion of alcoholic and non-alcoholic beverage container sales at informal and formal outlets in South Africa. [Percentages rounded]



4.2 Beverage Container Types and Quantities

Quantities and types of beverage containers PoM in South Africa were estimated, using available industry data.⁴ Some key findings are provided at **Table 1** and **Figure 3**. Fresh milk was not included in the assessment. Note that the midpoint PoM tonnages in **Table 1** are the “Low” baseline estimates in the main report. The “High” baseline estimates featured in the main report are not mentioned in this Supplementary report, since they are used for sensitivity analysis in the modelling.

Table 1: Estimated quantities of single-use beverage containers PoM in South Africa per annum. The midpoint tonnages are the “Low” baseline estimates in the main report.

Container type	Containers per annum	Tonnes per annum	Tonnes per annum (midpoint)
PET * bottles	3.1 – 3.7 billion	121 – 143,000 tonnes	132,000 tonnes
HDPE ** bottles	0.20 – 0.24 billion	6 – 7,000 tonnes	6,500 tonnes
Aluminium cans	2.2 – 2.7 billion	40 – 49,000 tonnes	45,000 tonnes
Glass bottles	1.4 – 1.7 billion	389 – 457,000 tonnes	423,000 tonnes

* Polyethylene Terephthalate

** High Density Polyethylene

⁴ This involved reviewing various data sources as mentioned in the methodology. Site visits and surveys with formal and informal outlets across all nine provinces were also conducted.

Figure 3: Common single-use beverage containers in South Africa.

PET bottles:	HDPE bottles:	Aluminium cans:	Glass bottles:
<ul style="list-style-type: none"> • 40-45% are 2-3L. • 20% are 500ml-1L. • 70% are soft-drinks. 	<ul style="list-style-type: none"> • 40% are 2-3L. • 20% are 300-499ml. • 95% are dairy drinks. 	<ul style="list-style-type: none"> • 70% are 500-800ml. • 35% are sport/energy drinks. • 30% are beer. 	<ul style="list-style-type: none"> • 55% are 300-400ml. • 60% are beer. • 40% are flavoured alcohol.

Despite a considerable amount of research undertaken, there is uncertainty on these estimates. There are opinions, reports, and reasonable reasons to believe that the figures stated here (referred to as the “Low” baseline estimates) could be substantially underestimated. For instance, the International Union for Conservation of Nature (IUCN) stated that approximately 230,000 tonnes of PET bottles are PoM each year in South Africa.⁵ This is roughly double that reported by the industry. Due to these potential underestimates, sensitivity analysis has been carried out in the main report. This uses “Low” baseline estimates (**Table 1**), and “High” baseline estimates based on high-level assumptions from discussions with key stakeholders.

4.3 Waste Management Pathways

Most formal recyclers of used beverage containers are based in three of South Africa's nine provinces – Gauteng, KwaZulu-Natal, and the Western Cape. However, there are some small HDPE recyclers in other provinces. The largest PET recycler in South Africa currently operates with a capacity of roughly 45,000 tonnes, with an additional capacity of 30,000 tonnes being implemented in the next few years. Most PET recyclers in South Africa produce resin for fibre manufacturing, with only one recycler currently producing food grade rPET (recycled PET). Demand for rPET for food and drink packaging is increasing due to recycled content ambitions from producers and from South Africa's Extended Producer Responsibility (EPR) for packaging recycled content targets. For PET beverage bottles, recycled content targets are set: 10% for 2022 (year 1) up to 20% for 2026 (year 5).⁶ Additionally, the South Africa Plastics Pact has set its members a target of 30% recycled content for all plastic packaging.⁷ One recycling company is developing a new PET recycling facility with roughly 30,000 tonnes capacity. It will have a specific focus on food-grade rPET. There is one aluminium recycling facility, based in KwaZulu-Natal, that recycles used aluminium cans back into cans (i.e., closed-loop recycling). However, there are other recyclers who convert aluminium cans into billets and ingots for other applications and for export. There are over 110 HDPE recyclers in South Africa, of which 11 process about 40% of HDPE. As for glass, there are two major glass recyclers in South Africa – both have operations in Gauteng, and one has operations in Cape Town.

The key findings and assumptions used to estimate the used beverage container flows (based on the “Low” baseline estimates) are summarised in **Table 2**. A flowchart of relevant waste management infrastructure can be found in the Appendix (**A.2.0**).

Table 2: Used beverage containers collected and recycled in South Africa.

Activity	PET	HDPE	Aluminium	Glass
Collection rate (%)	51%	63%	66%	33% *
Recycling rate (%)	48%	60%	66%	33%

* Based on estimated recycling rate, due to a lack of data on collected single-use glass bottles.

⁵ International Union for Conservation of Nature (IUCN) (2020). National Guidance for Plastic Pollution Hotspotting and Shaping Action. Country Report: South Africa. Available at: [link](#)

⁶ Government Notice 1184 of 2020. Available at: [link](#)

⁷ The SA Plastics Pact (2021). Target 4: 2021. Available at: [link](#)

Most of the recycling in South Africa is achieved by waste reclaimers, which is widely recognised by academics and industry. Waste reclaimers are independent workers whose core business is trading, and who are dependent on commodity markets. However, there is a lack of reliable data on the quantities.⁸ For calculations used in this project, it was assumed that 80% (with a range of 70-90%) of PET bottles, HDPE bottles, and aluminium cans collected-for-recycling (by weight) are from waste reclaimers. This 80% value was based on estimates sourced from academic literature that provided estimates of collections, with the assumption that PET bottles, HDPE bottles, and aluminium cans have high collection rates due to their high value. For single-use glass bottles, it was estimated that 30% of collected-for-recycling (by weight) are from waste reclaimers. This assumed that, overall, only buy-back centres (BBCs) in Cape Town and Johannesburg would buy glass from waste reclaimers, hence the lower collected-for-recycling rates. **Table 3** shows the total estimated tonnages of used single-used beverage containers collected in South Africa per annum, and of which are believed to be collected by waste reclaimers.

Table 3: Estimated amount of used single-use beverage containers collected in South Africa (tonnes per annum)

Activity	PET	HDPE	Aluminium	Glass
Total collected	67,400	4,100	29,500	141,000
Of which by waste reclaimers	54,000	3,300	24,000	84,400

Table 4 shows the current estimated waste management of used beverage containers in South Africa, and the estimated fractions for different end destinations. The proportion of used beverage containers ending up in sanitary landfill, improperly disposed, and leaked into rivers and seas was estimated based on data from the IUCN report.⁹

Table 4: Estimated end destinations of used single-use beverage containers in South Africa

End destination	PET	HDPE	Aluminium	Glass
Recycled ¹	48%	60%	66%	33%
Sanitary Landfill ²	27%	21%	18%	35%
Unsanitary landfill/ Not collected/ Open dumping/ Burning ³	22%	18%	15%	29%
Litter to rivers and seas ⁴	2%	2%	1%	3%

Notes

1. Based on placed on market tonnages and recycling data from PROs.

2. Based on placed on market tonnages from PROs and proportion of waste properly disposed.¹⁰

3. Based on placed on market tonnages from PROs and proportion of waste not collected/improperly disposed.¹¹

4. Estimate based on placed on market tonnages from PROs and proportion of waste leakage to rivers and seas.¹²

⁸ Godfrey, L. (2021). Quantifying Economic Activity in the Informal Recycling Sector in South Africa. *South African Journal of Science*. 117(9/10). Available at: [link](#)

⁹ IUCN (2020). National Guidance for Plastic Pollution Hotspotting and Shaping Action. Country Report: South Africa. Available at: [link](#)

¹⁰ IUCN (2020). National Guidance for Plastic Pollution Hotspotting and Shaping Action. Country Report: South Africa. Available at: [link](#)

¹¹ IUCN (2020). National Guidance for Plastic Pollution Hotspotting and Shaping Action. Country Report: South Africa. Available at: [link](#)

¹² IUCN (2020). National Guidance for Plastic Pollution Hotspotting and Shaping Action. Country Report: South Africa. Available at: [link](#)

4.4 Voluntary DRS for Refillable Bottles

The following information was identified by Eunomia during the literature review process. Whilst there is currently no mandatory nationwide DRS in South Africa, there are voluntary DRS set up by the drinks sector for refillable glass and plastic bottles. The Coca-Cola Peninsula Beverages Company, for instance, introduced a voluntary DRS for their 1.5L refillable PET bottles in the Western and Northern Cape in 1992. The 1.5L PET bottle incurs a ZAR 3 fully refundable deposit and the drink costs ZAR 15, with the total cost of the drink and deposit being ZAR 18.¹³ Additionally, the Coca-Cola Peninsula Beverages Company offers Coke, Fanta, Sprite, and other drinks in 300ml and 500ml refillable glass bottles, along with Coke in 200ml refillable glass bottles.¹⁴ Each refillable glass bottle incurs a ZAR 1.50 fully refundable deposit.¹⁵ Recently, Coca-Cola Beverages South Africa introduced a 2L refillable PET bottle for Coke, Sprite, Fanta, and other drinks across South Africa. A ZAR 9 fully refundable deposit is charged for the PET bottle and the drink costs ZAR 16, with the total cost of the drink and deposit being ZAR 25.¹⁶ The uptake of Coca-Cola's voluntary DRS in South Africa is relatively high, with Coca-Cola Peninsula Beverages Company claiming that their refillable drinks range contributes to 20% of their portfolio.¹⁷ However, despite deposits for Coca-Cola's glass and plastic bottles being governed by the Consumer Protection Act, there have been cases where retailers have not fully refunded customers their deposits.¹⁸

Similarly, there are voluntary DRS in South Africa for various beer, cider, and flavoured alcoholic beverages in refillable glass bottles. These are offered by several major beverage companies, including SAB and Heineken Distell South Africa. The refundable deposits tend to be around ZAR 1-3 per refillable glass bottle, with bottle crates incurring a deposit of about ZAR 8-11 per crate. Consumers can return their empty refillable glass bottles to participating taverns, retailers, and bars to redeem their deposits.¹⁹ Despite the economic incentive for consumers to return their empty refillable glass bottles, SAB consider the return rate to be low. As such, SAB launched a campaign reminding consumers that they can redeem up to ZAR 2 per refillable glass bottle if they are returned to participating outlets.²⁰

5.0 Surveys with Outlets

As mentioned previously, site visits and surveys were conducted at 60 spazas, 57 taverns, and 33 independent wholesalers. This provided further insight into the supply and sales routes of beverage containers in South Africa. This information also supports the main report, since the sales routes and potential challenges facing retailers with a DRS have been identified from the surveys.

5.1 Spazas

A variety of spazas (informal outlets) were surveyed, including "hole-in-wall" outlets, walk-in stores, and larger "spazarette" outlets. The following key findings were identified from the surveyed spazas:

- Wholesalers are the main supplier of beverages for spazas. Some spazas also receive deliveries of beverages direct from suppliers, which is more common for soft drinks. The flow of beverage containers is important to understand for the transactions of deposits throughout a DRS.

¹³ Segar, S. (2023). Uptake of Coke's 1.5 Returnable PET Bottles is Growing. Available at: [link](#)

¹⁴ Segar, S. (2023). Uptake of Coke's 1.5 Returnable PET Bottles is Growing. Available at: [link](#)

¹⁵ Coca-Cola Peninsula Beverage Company (2015). Empty Bottle Refunds: Don't Be Short-Changed. Available at: [link](#)

¹⁶ Food Business Africa (2023). Coca-Cola Beverages South Africa Unveils Cash Deposit Scheme for Customers Returning Refillable PET Bottles. Available at: [link](#)

¹⁷ Segar, S. (2023). Uptake of Coke's 1.5 Returnable PET Bottles is Growing. Available at: [link](#)

¹⁸ Coca-Cola Peninsula Beverage Company (2015). Empty Bottle Refunds: Don't Be Short-Changed. Available at: [link](#)

¹⁹ Kelleman, A. (2019). Life Cycle Study on Returnable Glass Bottles in the South African Beer and Cider Industry. Available at: [link](#)

²⁰ South African Brewery (N.D.). SAB's Compelling Consumer Campaign 'Don't Throw Away The Bottle' - Campaign Highlights the Positive Impact Individuals Can Have on the Environment by Participating in Bottle Return Initiatives. Available at: [link](#)

- Over 80% of spazas are run by one to three people, with nearly 60% of “hole-in-wall” spazas being run by only one person. A DRS would require time and resources by staff to handle containers, refund deposits, store DRS containers, and arrange for collections.
- 85% of spazas use simple transaction systems, often using basic tills or cashboxes and calculators. 98% of spazas accept cash as payment and 69% accept card payment. Only 7% of spazas accept electronic payment methods, such as SnapScan and Zapper. A DRS could require deposits to be activated, refunded, and recorded on a centralised database.
- 71% of spazas participate in Coca-Cola’s voluntary DRS for glass bottles. Qualitative feedback indicated that the voluntary DRS tends to work well for spazas and their customers. Existing understanding of DRS principles and practices could ease implementation of a mandatory DRS.
- Over 90% of walk-in spazas without self-service have additional storage space inside or outside. However, only about 20% of walk-in spazas with self-service, about 40% of “hole-in-wall” spazas, and about 40% of spazarettes have additional storage space inside or outside. Storage space would be required for storing empty DRS containers before being collected for counting, sorting, and recycling.
- 69% of spazas dispose of their packaging waste either by selling or giving to the informal sector, or by burning or dumping it; 18% send packaging waste back to suppliers; 14% sell packaging waste to recyclers, such as BBCs. Empty DRS containers would need to be stored and collected for counting, sorting, and recycling, and not disposed of or sold to BBCs.
- Depending on type of spaza, between 26% and 45% are willing to participate in a DRS for single-use containers. Between 40% and 63% would “maybe” participate. Between 8% and 27% are not willing to participate. Participation from retailers is a major driver for success of a DRS.
- 83% of spazas would need additional space in order to participate in a DRS. As above, storage space would be required for storing the empty DRS containers.
- 90% of spazas suggest cash as the most appropriate form of deposit handling. The way in which the deposit is returned to a consumer could involve physical cash, electronic payments, and/or store credit.
- 55% expect to be paid to participate in a DRS. Handling Fees are often used in a DRS to compensate retailers and other DRS return locations for the time and resources used for receiving and handling empty DRS containers, refunding consumers, and storing the empty containers.

5.2 Taverns

A variety of taverns (informal outlets) were surveyed, including on-site consumption (i.e., consumers consuming their drink on-site) and off-site consumption (i.e., consumers consuming their drink elsewhere, such as at home) taverns, “hole-in-wall” taverns, and self-service and waited taverns. The following key findings were identified from the surveyed taverns:

- Wholesalers play a major role in supplying taverns for all beverage types. Deliveries direct from suppliers are also common, especially for beer. The flow of beverage containers is important to understand for the transactions of deposits throughout a DRS.
- Depending on type of tavern, between 10% and 35% of taverns are run by one person, with between 20% and 75% being run by four or more people. A DRS would require time and resources by staff to handle containers, refund deposits, store DRS containers, and arrange for collections.

- 100% of taverns accept cash as payment, with 83% accepting card payment. 19% of taverns accept electronic payment methods, such as SnapScan and Zapper. A DRS could require deposits to be activated and recorded on a centralised database.
- Depending on type of tavern, between 43% and 100% of taverns use computerised transaction systems. A DRS could require deposits to be activated, refunded, and recorded on a centralised database.
- 71% of taverns participate in voluntary DRS for Coca-Cola and various beer brands – such as SAB, Heineken Distell South Africa, and Diageo. Existing understanding of DRS principles and practices could ease implementation of a mandatory DRS.
- 96% of taverns would need additional space in order to participate in a DRS. Storage space would be required for storing empty DRS containers before being collected for counting, sorting, and recycling.
- 54% of taverns dispose of their packaging waste either by selling or giving to the informal sector, or by allowing their employees to take materials to BBCs. 24% of taverns send packaging waste back to suppliers. 22% sell packaging waste to recyclers, such as BBCs. Empty DRS containers would need to be stored and collected for counting, sorting, and recycling, and not disposed of or sold to BBCs.
- Depending on type of tavern, between 28% and 67% are willing to participate in a DRS for single-use containers. Between 2% and 7% are “maybe”. Between 33% and 70% are not willing to participate. Participation from return locations is a major driver for success of a DRS.
- 85% of taverns suggest cash as the most appropriate form of deposit handling. The way in which the deposit is returned to a consumer could involve physical cash, electronic payments, and/or store credit.
- 87% expect to be paid to participate in a DRS. Handling Fees are often used in a DRS to compensate DRS return locations for the time and resources used for receiving and handling empty DRS containers, refunding consumers, and storing the empty containers.

5.3 Independent Wholesalers

Although wholesalers would not likely act as a return location for consumers to return their empty DRS containers, they are involved in the DRS process. Specially, wholesalers often supply retailers and HORECA with DRS beverage containers and so exchange deposit values along the value chain. The following key findings were identified from the surveyed wholesalers:

- Although wholesalers tend to buy beverages directly from producers, they also purchase from larger wholesalers. This is particularly the case for soft-drinks, energy-drinks, and water. The flow of beverage containers is important to understand for the transactions of deposits throughout a DRS.
- 97% of wholesalers participate in voluntary DRS. Existing understanding of DRS principles and practices could ease implementation of a mandatory DRS.
- All wholesalers use computerised transaction systems. A DRS could require deposits to be activated, refunded, and recorded on a centralised database.

6.0 Conclusion

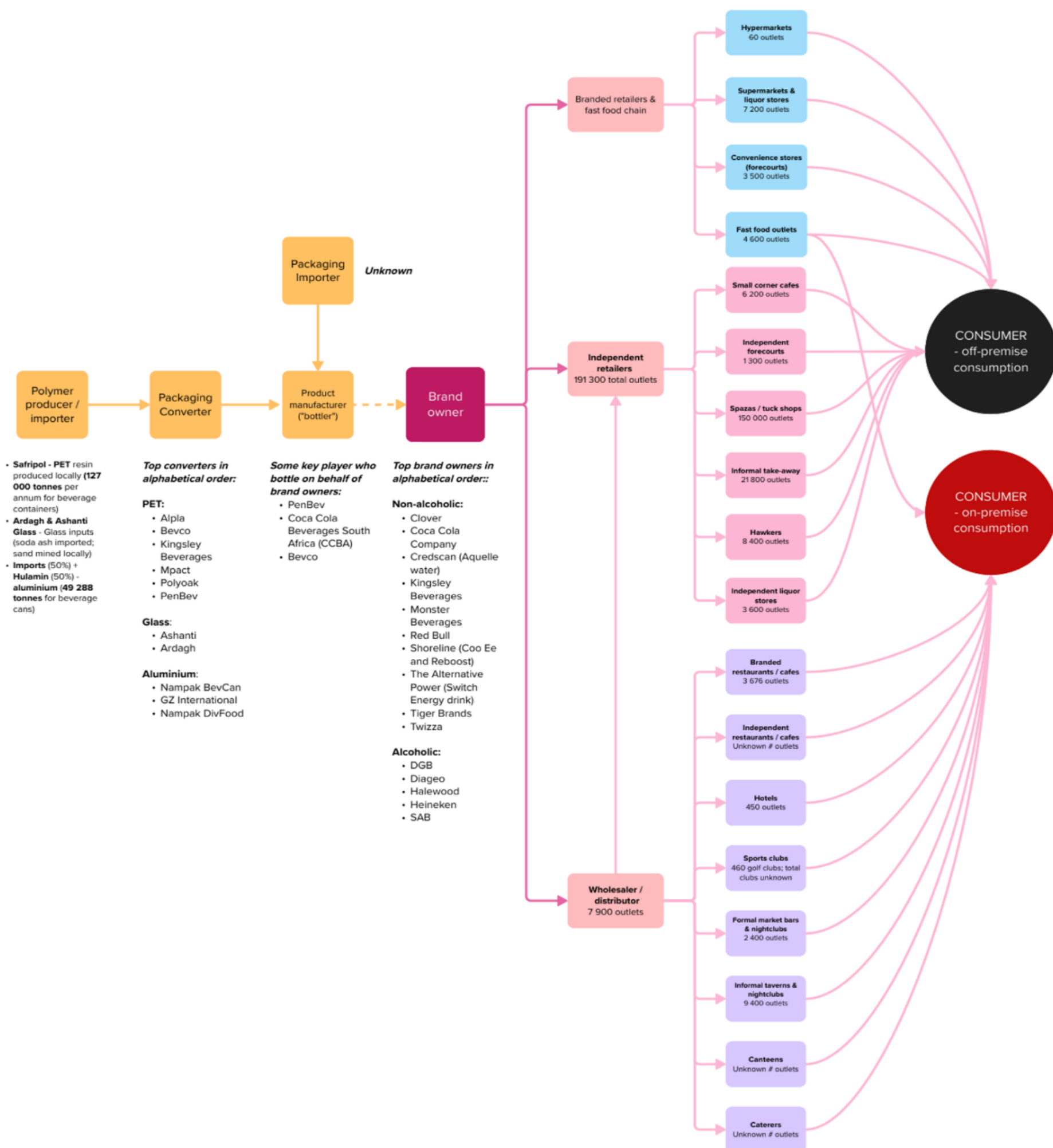
South Africa is a socio-economically diverse country with complex sales routes for food and drink, including beverage containers. About 70% of beverage containers are sold to end consumers through informal outlets, such as at spazas, taverns and shebeens, particularly for alcoholic beverages. These informal outlets tend to cater for middle- to lower-income consumers. The number of informal outlets is also much

larger than that of formal outlets, but there are growing numbers of formal outlets being built, catering for a range of consumers. From the surveys, spazas and taverns tend to be small in size and are typically run by a small number of staff, using simple tills or cashboxes for transactions. This could pose a challenge for a DRS. Their capacity to store empty DRS containers is also limited, depending on the type of outlet. However, over two-thirds already participate in the voluntary DRS for refillable bottles, so should have familiarity in DRS principals and processes.

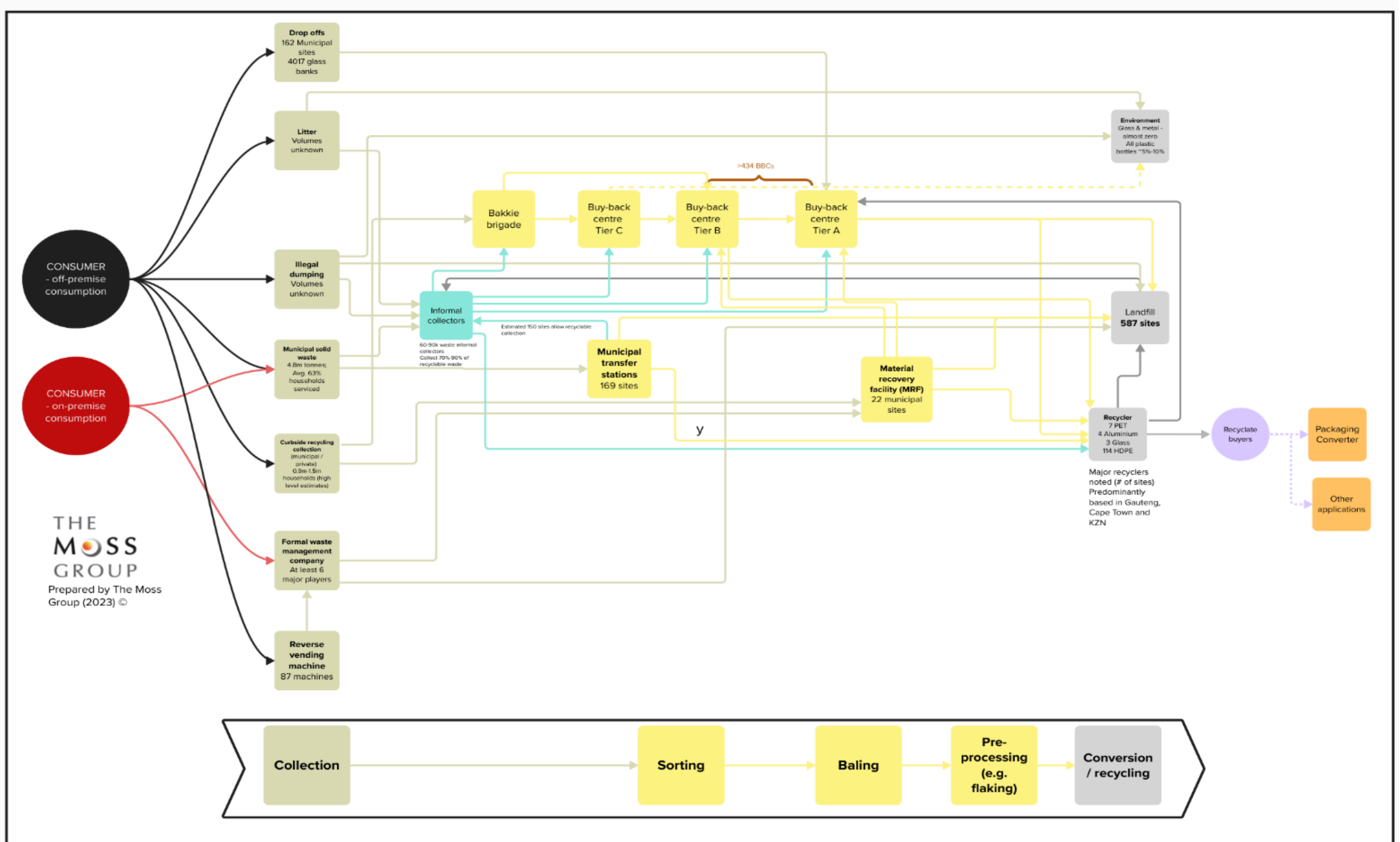
Single-use PET bottles and aluminium cans represent a large proportion of beverage containers PoM in South Africa, by number of containers, followed by single-use glass bottles, with much lower numbers of single-use HDPE bottles. However, by weight, single-use glass bottles represent the highest proportion PoM. The sizes and drink types of the containers typically vary according to their material type, with PET and HDPE bottles often being 2-3L and for non-alcoholic drinks; whereas aluminium cans and glass bottles are mostly under 1L and for glass are predominantly for alcoholic drinks. Once consumers have consumed their drinks (e.g., at home or at a bar), the used beverage container can go one of several pathways, ending up in landfill, being recycled, or in the environment.

Overall, the collection of used single-use beverage containers for recycling sits at around 50-65% for PET, aluminium, and HDPE containers. Around 80% of these containers collected for recycling are by waste reclaimers. However, single-use glass bottles are less commonly collected, at about 33%, of which about 30% are collected by waste reclaimers due to their heavy weight and low value. As for recycling, aluminium cans have the highest recycling rates (66%) and glass bottles having the lowest (33%). Formal recycling facilities in South Africa are generally limited to three of the nine provinces of South Africa, with only one can-to-can aluminium recycling facility. However, more recycling capacity is being constructed for the likes of rPET, and particularly food-grade rPET.

A.1.0 Beverage Container Flows in South Africa



A.2.0 Used Beverage Container Flows in South Africa





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