Peer review history for:

Kalina M, Schenck C. Whose responsibility is it? A call for a regional approach to South Africa's deposit return system debate. S Afr J Sci. 2026;122(1/2), Art. #23361. https://doi.org/10.17159/sajs.2026/23361

HOW TO CITE:
Whose responsibility is it? A call for a regional approach to South Africa's deposit return system debate [peer review history]. S Afr J Sci. 2026;122(1/2), Art. #23361.
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The original manuscript for review is appended below.

Reviewer 1: Round 1
Date completed: 29 September 2025
Conflicts of interest: None

Recommendation: Accept / Revisions required / Resubmit for review / Resubmit elsewhere / Decline / See comments
REVIEWER: Resubmit for review
Does the manuscript fall within the scope of SAJS? Yes/No
REVIEWER: Yes
Is the manuscript written in a style suitable for a non-specialist and is it of wider interest than to specialists alone? Yes/No
REVIEWER: Yes
Does the manuscript contain sufficient novel and significant information to justify publication? Yes/No
REVIEWER: No
Do the Title and Abstract clearly and accurately reflect the content of the manuscript? Yes/No
REVIEWER: No
Is the research problem significant and concisely stated? Yes/No
REVIEWER: No
Are the methods described comprehensively? Yes/No
REVIEWER: No
Is the statistical treatment appropriate? Yes/No/Not applicable/Not qualified to judge
REVIEWER: Not applicable
Are the interpretations and conclusions justified by the research results? Yes/Partly/No
REVIEWER: No
Please rate the manuscript on overall contribution to the field Excellent/Good/Average/Below average/Poor

REVIEWER: Average

Should this manuscript be expanded and considered rather as a Research Article?
Yes/No

REVIEWER: Yes

Please rate the manuscript on language, grammar and tone
Excellent/Good/Average/Below average/Poor

REVIEWER: Good

Is the manuscript succinct and free of repetition and redundancies?
Yes/No

REVIEWER: Yes

The number of tables in the manuscript is
Too few/Adequate/Too many/Not applicable

REVIEWER: Not applicable

The number of figures in the manuscript is
Too few/Adequate/Too many/Not applicable

REVIEWER: Not applicable

Are the results and discussion confined to relevance to the objective(s)?
Yes/No

REVIEWER: No

Is the supplementary material relevant and separated appropriately from the main document?
Yes/No/Not applicable

REVIEWER: Not applicable

Please rate the manuscript on overall quality
Excellent/Good/Average/Below average/Poor

REVIEWER: Average

Is appropriate and adequate reference made to other work in the field?
Yes/No

REVIEWER: No

Is it stated that ethical approval was granted by an institutional ethics committee for studies involving human subjects and non-human vertebrates?
Yes/No/Not applicable

REVIEWER: No

If accepted, would you recommend that the article receives priority publication?
Yes/No

REVIEWER: No

Are you willing to review a revision of this manuscript?
Yes/No

REVIEWER: Yes

With regard to our policy on 'Publishing peer review reports', do you give us permission to publish your anonymised peer review report alongside the authors' response, as a supplementary file to the published article? Publication is voluntary and only with permission from both yourself and the author.
Yes/No

REVIEWER: Yes

Comments to the Author:

Abstract: The abstract is not very strong. It is the first thing an audience will read. The logical flow and detail in the abstract can be revised and strengthened to reflect: What is the issue? (Problem under investigation, aim?); What did you do? (Methodology); What did you find? (Findings); So what? Whats new? (contribution and justification).

The logical flow of the literature presented needs to be strengthened. The paper should start with an introduction. The introduction must be organized in a way that also includes global and regional perspectives.

The methodology is absent, and this is not good for a journal article.

The results, discussion, and conclusion must be incorporated.

Author response to Reviewer 1: Round 1

AUTHOR: We thank Reviewer 1 for their detailed assessment. Several of the suggestions relate to elements (full methodology, results section, expanded literature review, etc.) that are characteristic of a Research Article, rather than a Research Letter, which is the category of this submission and is intentionally concise and analytic in focus.

As per the editor's guidance, we have implemented those changes that strengthen the quality of the Research Letter, and we explain below where structural changes were not made because they fall outside the scope of this format.

The abstract should present problem, methodology, findings, contribution.

AUTHOR: We have revised the abstract to improve clarity and to more explicitly state:

- the key issue under consideration,
- the perspective and evidence informing the letter, and
- the contribution to ongoing DRS debates.

Given the strict length constraints for Research Letters, these changes remain concise.

The literature does not flow well; introduction should include regional and global perspectives.

AUTHOR: We agree that a clearer framing improves readability. We added a sentence situating South Africa's DRS debate within global and regional waste governance trends, and we strengthened transitions between paragraphs to improve logical flow. This enhances clarity while maintaining appropriate brevity.

The methodology is absent

AUTHOR: Because this is a Research Letter, a full methodology section is not required or expected. However, in line with the editor's request to make the evidence base visible, we have added a short clarifying sentence indicating that the letter draws on the authors' field research, regional case studies, and policy engagement experience. This is consistent with the genre and purpose of the letter, without expanding into a full methods section.

Results, discussion, and conclusion must be incorporated.

AUTHOR: For Research Letters, conventional structuring into "results/discussion/conclusion" is not required. We are not presenting tradition results, but a largely opinion driven editorial, guided by the authors engagement from within the DRS policy debate. To address the reviewer's concern, we have improved transitions so the progression from empirical observations to implications and recommendations is clearer.

title/abstract do not reflect content.

AUTHOR: We have strengthened the clarity of the abstract.

Reviewer 2: Round 1
Date completed: 17 November 2025
Conflicts of interest: None

Recommendation:
Accept / Revisions required / Resubmit for review / Resubmit elsewhere / Decline / See comments

REVIEWER: Accept

Does the manuscript fall within the scope of SAJS?
Yes/No

REVIEWER: Yes

Is the manuscript written in a style suitable for a non-specialist and is it of wider interest than to specialists alone? Yes/No
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REVIEWER: Not applicable
Are the interpretations and conclusions justified by the research results? Yes/Partly/No
REVIEWER: Yes
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REVIEWER: Not applicable
The number of figures in the manuscript is Too few/Adequate/Too many/Not applicable
REVIEWER: Adequate
Are the results and discussion confined to relevance to the objective(s)? Yes/No
REVIEWER: Yes
Is the supplementary material relevant and separated appropriately from the main document? Yes/No/Not applicable
REVIEWER: Not applicable
Please rate the manuscript on overall quality Excellent/Good/Average/Below average/Poor
REVIEWER: Excellent
Is appropriate and adequate reference made to other work in the field? Yes/No
REVIEWER: Yes

Is it stated that ethical approval was granted by an institutional ethics committee for studies involving human subjects and non-human vertebrates?
Yes/No/Not applicable

REVIEWER: Not applicable

If accepted, would you recommend that the article receives priority publication?
Yes/No

REVIEWER: Yes

Are you willing to review a revision of this manuscript?
Yes/No

REVIEWER: Yes

With regard to our policy on 'Publishing peer review reports', do you give us permission to publish your anonymised peer review report alongside the authors' response, as a supplementary file to the published article? Publication is voluntary and only with permission from both yourself and the author.
Yes/No

REVIEWER: Yes

Comments to the Author:
The article is short and to the point.

The topic explored, as well as the proposal for a regional DRS approach, is both interesting and novel.

Usually, when it comes to DRS, countries focus on the feasibility of the system, consumer behaviour, and company participation.

Here, the author proposes to extend the responsibility of the country to the consequences on its export partners, demonstrating a deep understanding of the key factors behind successful circular economy implementation.

Contrary to the many countries that still focus only on efforts within their own boundaries, this extended approach paves the way for a more responsible management of resources and waste.

Author response to Reviewer 2: Round 1

We thank Reviewer 2 for their very positive and generous review. We appreciate the recognition that the manuscript offers a novel and timely contribution by foregrounding the regional implications of South Africa's export flows within DRS design debates. No changes were requested, but we have implemented minor clarifications as described above.

Whose Responsibility is it? A Call for a Regional Approach to South Africa's Deposit Return System (DRS) Debate

Abstract: Glass packaging waste is an escalating environmental and economic challenge in South Africa. Despite strong recycling rates in other streams—largely due to the informal sector—glass remains an outlier. It burdens municipalities, threatens public health in underserved areas, and reflects a missed circular economy opportunity. While a national, mandatory Deposit Return System (DRS) shows promise, one issue remains overlooked: the environmental fallout of South African glass exports across Southern Africa, where imported bottles bypass local DRS frameworks and strain weak waste systems. Drawing on the authors' experience from within the DRS debate, we argue that exported containers must be included in South Africa's DRS. A phased, regionally coordinated system could yield broad environmental, social, and economic benefits. We identify key knowledge gaps—export volumes, SADC policy alignment, infrastructure, and informal sector roles—and argue these must be addressed to build an inclusive, regionally harmonised DRS for Southern Africa.

Significance: This manuscript contributes to ongoing debate within South Africa's waste management and circularity landscape: the design and implementation of a nationwide, mandatory Deposit Return System (DRS). It highlights the overlooked transboundary impacts of South African beverage exports, particularly the burden of non-returnable glass waste in neighbouring Southern African countries. We argue that a comprehensive DRS should not only be mandatory but also include containers exported to regional neighbours. A phased, regionally coordinated system, we suggest, could generate environmental, social, and economic benefits.

Keywords: Glass, recycling, reuse, Southern Africa

1. A Case for a South African Deposit Return System (DRS)

Glass waste is an increasingly urgent environmental issue in South Africa. Although fully recyclable, large volumes still end up in landfills, dumpsites, and across the environment—contributing to degradation, inefficient resource use, and lost economic potential. Of the 423,000 tonnes of glass bottles sold annually, roughly two-thirds—about 282,000 tonnes—go unrecycled[1]. In a country where many lack reliable waste services, this gap poses serious health and environmental risks, especially in rural and low-income communities[2,3]. Even where waste is collected, municipalities spend millions each year transporting and landfilling glass that could be recycled[4]. This is especially concerning given South Africa's relatively high recycling rates for other materials—largely thanks to its informal recycling sector[5].

Globally, deposit return systems (DRS)—where consumers pay a refundable deposit on beverage containers—have proven effective at boosting recycling rates and reducing litter. Mandatory systems require participation by law; voluntary ones rely on industry and consumer choice. Germany's mandatory DRS achieves a 96–98% return rate for plastic, glass, and aluminium[6]. In Africa, Kenya has also achieved strong glass recycling outcomes under DRS[7]. South Africa operates a limited, voluntary DRS that does not cover all containers. Initiated by the beverage sector, it includes returns for refillable glass bottles sold by a few manufacturers. These have seen some success but face serious limitations[1]. Coca-Cola's scheme, for instance, covers only specific bottle sizes and brands. Retailers have reportedly failed to fully refund customers or refused returns, and space constraints limit participation by spaza shops, taverns, and informal vendors[1].

Despite these limitations, South Africa's initial DRS efforts represent modest progress. But with growing volumes of glass waste polluting the environment, momentum is building for a more structured and inclusive DRS. A recent feasibility study by Grant et al.[1] indicates that a well-implemented, mandatory DRS for all refillable glass bottles could promote circular economy goals, improve waste systems, and cut environmental harm. Still, while a national DRS may address domestic waste, what about South Africa's beverage exports? South Africa exports hundreds of millions of litres of soft drinks, beer, and other alcoholic drinks across Southern Africa annually[8,9]. Yet few of the bottles return. Instead, countries already struggling with waste management are left to absorb this additional burden. Many lack capacity to collect,

recycle, or safely dispose of domestic waste—let alone imported containers. As a result, South African glass is effectively dumped throughout the region, with severe environmental consequences. If a national DRS can improve domestic outcomes, what are its implications for exports—and what responsibility does South Africa bear regionally?

2. Bottles Beyond the Limpopo

South Africa has a substantial beverage export market, shipping drinks across Southern Africa, accounting for nearly half of South Africa's beverage exports[11]. Besides plastic-bottled soft drinks and water, exports mainly consist of beer, wine, ciders, and other alcoholic beverages—mostly packaged in glass. For example, South African Breweries (SAB), a subsidiary of AB InBev, exports millions of litres of beer across Southern Africa. South Africa also imports significant quantities of beer, particularly from Namibia and Mozambique—products not covered by the current voluntary DRS[9].

Most importing countries lack the infrastructure to manage this waste. In much of Southern Africa, municipal waste collection is limited in urban areas and largely absent in rural ones[10]. Consequently, imported glass is often dumped or, where collected, landfilled. Glass waste is recognised as a problematic fraction in countries like Eswatini[11], Botswana[12] and Zimbabwe[13]. This is particularly concerning these countries have voluntary DRS systems for some domestically produced beverages. Imported South African brands, however, are sold in large quantities without return schemes and are far more common in dumpsites than domestic brands.

The harm is clear in our research. In Malawi, for example, we documented the risks of glass waste at Blantyre's Mzedi dumpsite, where heaps of imported bottles pose serious hazards to waste workers and informal pickers—causing frequent cuts and injuries[14,15] (see Figure 1). Glass at Mzedi is the most problematised waste fraction, deemed worthless and feared by workers and nearby farmers who are exposed while navigating or cultivating the site[16]. While further research is needed to quantify imported versus domestic glass in landfills, field observations suggest a stark imbalance: domestic bottles under Malawi's DRS are rarely seen, while South African imports dominate.

Figure 1: A pile of empty South African beer bottles at Blantyre's Mzedi dumpsite (authors)

This challenge is also evident in protected areas and tourist destinations. At Cape Maclear, on Lake Malawi's shores, poor waste services have led to the dumping of plastics and tins, but persistent glass shards—littering paths and collecting in low-lying areas—are the most visible and harmful[17]. Glass waste is rare in most rural communities as domestic brands are included in Malawi's DRS and imports are costly. However, in Cape Maclear, imported brands are more accessible for locals and tourists. As a result, environmentally sensitive areas have become dumping grounds for South African bottles[18]. Some solutions have been tested, including crushing glass and using it in sustainable building materials[19,20]. Likewise, at tourist hubs like Victoria Falls, local artisans repurpose unreturnable bottles into crafts and homeware for use or sale. Yet these efforts divert only a fraction of waste and largely address symptoms of a broader systemic issue.

3. Costs and Benefits of an Expanded DRS

As a nationwide DRS is debated, South Africa's exports must not be overlooked. A mandatory, comprehensive DRS that includes exported bottles could deliver major environmental and economic gains for the region. It would promote the return, cleaning, and reuse or recycling of bottles, reducing demand for virgin glass and cutting associated emissions and energy use. A well-structured DRS could also drive job creation in waste and recycling sectors, supporting employment across urban and rural areas. Informal waste pickers—vital to

the region's recycling systems—could benefit from a more stable and predictable, incentivised return system. A regional DRS could help address persistent recycling challenges. Many countries lack the infrastructure to manage large volumes of glass waste. Linking their efforts with South Africa's system could enable cross-border returns and processing via an organised mechanism, improving recycling rates and easing financial pressure on countries developing their own systems.

However, several barriers must be addressed. Coordinating returns across borders is logistically complex, requiring alignment between governments, producers, retailers, and waste managers on deposit values, return points, and tracking. Fraud is another concern—international DRS examples show issues like multiple refunds or entry of non-deposit bottles[21]. Verification tools like barcoding or digital tracking are needed. A regional framework covering exports could mitigate risks through processing in South Africa or future harmonised systems. Finally, consumer participation is essential. Public education and easy access to return points are key. In countries without domestic DRS, targeted campaigns and incentives will be crucial for adoption.

4. Towards a Regional DRS?

Implementing a nationwide mandatory DRS in South Africa is complex—and extending it regionally adds further challenges. As national discussions progress, we must also consider what a regional DRS could entail and which questions require urgent investigation:

- **What are the impacts of glass exports on trade partners?** While anecdotal evidence highlights harm in countries like Malawi, the scale remains unquantified. What types of harm occur, and to whom?
- **What can South Africa learn from global DRS models?** Which design features are best suited to its social, economic, and institutional context?
- **What legal and regulatory changes are needed** to mandate national DRS participation, and how can this align with provincial structures and EPR policy?
- **What infrastructure exists, what is lacking,** and how can the informal sector be integrated without displacement or exclusion?
- **What digital technologies are viable** for container tracking and fraud prevention in a South African and regional context?

- **How do Southern Africans view DRS,** and what incentives or messaging would drive participation?
- **How can South Africa collaborate with SADC partners** to align DRS policies and infrastructure? What is the role of regional bodies?
- **How can DRS reinforce existing recycling systems** and contribute to broader circular economy goals for other materials—both domestically and regionally?

Including exports in a national DRS will require a phased, collaborative approach involving government, industry, and regional partners. Despite difficulties, a regional DRS could improve waste management, create jobs, and reduce environmental harm. With the right strategy, South Africa can lead a regional shift toward circularity—where glass is recovered, reused, and recycled rather than dumped, and waste becomes a shared resource rather than a cross-border burden.

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