SDG-Challenge South Africa

Grand Finale 2025 Report

1. Introduction

In collaboration with Hulamin, MetPac-SA participated in the 2025 Soapbox Grand Finale Sustainable Development Goals (SDG) Challenge 2025 at the Valterra Platinum, Johannesberg on 30 October 2025. The aim of the initiative was to advance and promote sustainable practices within South Africa's business sector, as the 2030 deadline for the UN SDGs. The objective of the challenge was to attract participation from private sector organisations paired with students from universities to develop innovative solutions to SDG challenges. Table 1, illustrates the partnership entrants at the SA 2025 SDG Challenge:

Table 1: SDG Partnerships

	Organisation	**University**
1	Mama Money	University of Pretoria
2	Ivanplats	University of Free State
3	Rio Tinto RBM	University of Zululand
4	Valterra Platinum	University of Johannesburg
5	Standard Bank Group	University of the Witwatersrand
6	MetPac-SA and Hulamin	University of KwaZulu-Natal
7	TUHF21	University of Johannesburg
8	PPS Investments	University of the Witwatersrand

The SDG 2025 Grand Finale challenge was extremely competitive with Ivanplats and University of Free State (UFS) partnership being awarded the Grand Finale 2025 prize for showcasing how responsible mining and social purpose can drive real impact. Ivanplats challenged UFS young innovators to tackle community-level food security. By combining sustainable mineral extraction with local empowerment, Ivanplats contribution was on sustainable farming, highlighting that true sustainability starts with communities taking charge of their own growth and resilience.

2. MetPac-SA and Hulamin contribution

2.1. Overview

The initiative, which took place over a period of three months, was facilitated by Dr. Ravi Nadar, Ms. Khosi Mbata, and Mr. Rishant Harichunder (MetPac-SA), together with Mr. Hendrik De Villiers and Mr. Thabiso Zondi (Hulamin), in collaboration with five UKZN students. The primary aim of this partnership was to support student development and carry out meaningful research addressing key challenges. Dr. Ravi Nadar provided research training to prepare the students for the challenge, and weekly check-in meetings were held to guide and monitor their progress.

2.2. Challenges

1. Conduct research to identify and develop effective methods for improving the cleanliness and quality of Used Beverage Cans (UBC), with the goal of enhancing their suitability for recycling and supporting a more sustainable circular economy.
2. Conduct research on improving UBC collection data that is submitted to the Department of Forestry, Fisheries and the Environment.

2.2. Problem statements

2.2.1. Problem statement Challenge 1: Improving UBC Hygiene

Hulamin, a leading producer and recycler of aluminum products, is facing a significant challenge in the recycling of UBCs due to contamination by sand and other impurities. The presence of sand, primarily composed of silica (SiO_2), negatively impacts the remelting and refining processes by forming non-metallic inclusions, reducing metal yield, and increasing furnace maintenance

costs. This contamination ultimately lowers the efficiency, quality, and economic viability of aluminum recycling operations.

To address this issue, there was a need to research, identify, and develop effective cleaning and quality improvement methods for UBCs prior to remelting. These methods should aim to reduce or eliminate sand contamination while maintaining process feasibility, cost-effectiveness, and environmental sustainability. By improving the cleanliness and quality of UBC feedstock, Hulamin can enhance recycling efficiency, support a more sustainable circular economy, and strengthen its position as an environmentally responsible aluminum producer.

2.2.2. Problem statement Challenge 2: improving UBC collection data

MetPac-SA, the Producer Responsibility Organisation responsible for enhancing and reporting on UBC recycling in South Africa, reported an 85% UBC collection rate to the Department of Forestry, Fisheries and the Environment (DFFE) for the first half of 2025. While this exceeds the DFFE target of 68%, it remains below the global best practice exemplified by Brazil, which achieves a 98% collection rate.

There was a need to research and develop improved methods for collecting, verifying, and reporting UBC collection data to support continual improvement and align South Africa's performance with leading international benchmarks. Strengthening data collection systems will enhance the credibility of national recycling statistics, support effective environmental management, and promote a more sustainable circular economy.

2.3. Research Methodology

To address the challenges outlined above, the research employed a mixed-methods approach combining qualitative and quantitative techniques to gain a comprehensive understanding of UBC collection and recycling practices.

2.3.1. Interviews

Five UKZN students was onboarded and conducted a literature review and semi-structured interviews with the MetPac – SA team, staff at buy-back centres and informal waste pickers. These interviews focused on:

i. Current practices in collecting, sorting, and cleaning UBCs.
ii. Challenges encountered in maintaining the quality of recovered cans.
iii. Observations on data collection processes for UBC collection and reporting.

2.3.2. Field Observations:

Direct observations were made at buy-back centres and collection points to assess the handling, storage, and cleaning procedures of UBCs. This helped validate interview findings and identify operational bottlenecks affecting quality.

2.3.3. Interview Questions: Challenge 1: Improving UBC Hygiene

i. From your experience, what are the most common sources or causes of contamination in the used beverage cans that your centre receives?
ii. At which stage, collection, storage, or transportation, do you notice the highest levels of contamination in the cans?
iii. How does contamination affect your operations, such as sorting, cleaning, or pricing of the used beverage cans?
iv. What steps, if any, does your centre currently take to reduce or manage contamination before selling cans to re-smelters?
v. What additional strategies or support (e.g., training, equipment, consumer education) do you think could help improve the cleanliness quality of used beverage cans received by your centre?

2.3.4. Challenge 2: improving UBC collection data

i. How would you describe the effectiveness of your current beverage can collection and recycling systems or technologies in improving collection rates?
ii. What are the main challenges or limitations you face in collecting and recycling post-consumer beverage cans?
iii. What strategies or technologies have proven most successful in increasing beverage can collection at your operation?
iv. In your opinion, how do collection strategies such as curbside collection and reverse vending machines compare in terms of efficiency, cost, and convenience?
v. What recommendations or improvements would you suggest to enhance the overall beverage can collection and recycling system in South Africa?

2.3.5. Data analysis

Interview transcripts and field notes were coded thematically to identify recurring challenges, best practices, and potential areas for intervention. This process allowed the researchers to systematically categorise insights from different stakeholders and uncover patterns in UBC handling and collection practices. The findings also informed the development of targeted recommendations aimed at improving both operational efficiency and data accuracy within the recycling system

2.3.6. Data synthesis and actionable recommendations: Challenge 1: Improving UBC Hygiene

Table 2 depicts the sources of contamination and the actionable recommendations.

Table 2: Description and actionable recommendations to improve can hygiene

Description	Explanation	Actionable Recommendations
Improper disposal and mixing with other waste	Cans thrown carelessly or mixed with general waste, leading to dirt and cross-contamination.	Launch public awareness campaigns; introduce separation at source
UBC residues	Residual inside UBC	Launch public awareness campaigns. Set up simple rinsing stations at collection points; educate the public and waste pickers on rinsing cans
Sand and foreign material added by waste pickers	Waste pickers add sand or other materials to increase weight/profit	Buy back centres to monitors cleanliness of cans. Implement incoming inspection and rejection for dirty cans.
Rain and environmental contamination	Outdoor exposure damages cans and introduces dirt	Ensure covered storage at collection points; schedule timely collection to reduce exposure
Cigarette stumps, ash, and other small debris	Cigarette-related contamination	Awareness campaigns for proper handling; inspection at buy-back centers; discourage inclusion of foreign materials

2.2.7. Data synthesis and actionable recommendations: Challenge 2: improving UBC collection data

Table 3: Description and actionable recommendations to enhance collection rate

Description	Explanation	Actionable Recommendations
Raise awareness and engage community	Many people, especially students, are unaware of UBC collection and its benefits.	Conduct school programs, workshops, and community campaigns; use educational materials and social media.
Separation at source	Proper collection at events and at-source separation prevents landfill disposal and improves recycling quality	Set up collection points at events; provide labelled bins and promote correct sorting at homes and businesses
Further incentivise UBC collection	Financial and competitive incentives will drive higher participation and collection rates.	Offer higher prices for collected UBC; organise competitions and reward programs.
Advocate comprehensive EPR policy	Current legislation only obliges convertors and brand owners, excluding collection stakeholders and leading to underreporting on UBC collection.	Recommend DFFE amendments to include all stakeholders in reporting, ensuring accurate collection data

Word Cloud

Figure 1 presents a word cloud generated from the synthesised data.

Figure 1: Word cloud of data synthesis

2.3. MetPac-SA Strategy

- Embark on awareness campaigns to creates awareness on the importance of post-consumer metal packaging cleanliness
- Engage with buy back centres to monitors cleanliness of cans and implement incoming inspection and rejection for dirty cans.
- Determine feasibility of offering higher prices for UBC cans, organising competitions and reward programs.
- Recommendation sent to DFFE to amend EPR legislation to include all UBC collection stakeholders.

3. Conclusion

Although the project did not secure the grand final prize, it was regarded as a success by MetPac-SA and Hulamin. Students gained valuable hands-on experience, applying theoretical knowledge to real-world challenges. The initiative promoted teamwork, innovation, and problem-solving while providing insight into industry practices. It also strengthened collaboration between the companies and the academic institution, highlighting the potential of student-led projects to make a meaningful impact.

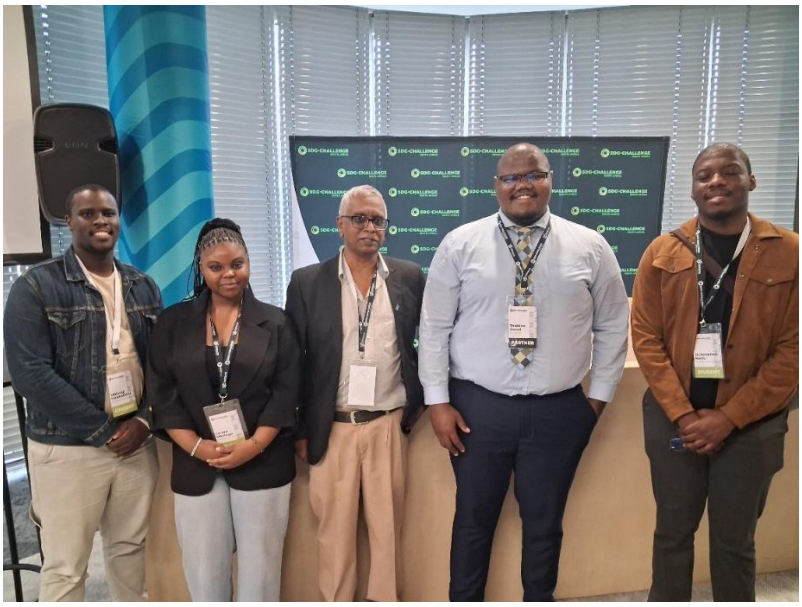

Table 4: MetPac-SA, Hulamin and UKZN team

Left to right: Mr Mhlengi Makhathini (UKZN), Ms Lerato Masinga (UKZN), Dr Ravi Nadar (MetPac-SA), Thabiso Zondi (Hulamin) and Sishosonke Nsele (UKZN)

Report compiled by: Dr Ravi Nadar 03/11/2025