



Safripol Sustainability Conference 2024

Inkwazi Isu- Collaborative Integrated Waste Management
Programme Review

eThekwini (Durban), South Africa

Dr. Emmanuel Sakado

Director of Projects- SA Healthcare Foundation





Inkwazi Isu: a partnership addressing the plastic waste management challenge

- Holistic and inclusive improvement of **recyclables collection services, sorting infrastructure, education, and cleanup**
- Partners in **Inkwazi Isu** from **industry, local government and civil society**
- Together, addressing serious challenges stemming from poor waste management practices, including impact of plastic waste on the environment
- Serving inland communities, townships, and coastal areas of eThekweni (Durban) between the **Ezimbokodweni and Little Amanzimtoti Rivers**

Partners involved in the project



The Alliance to End Plastic Waste (AEPW)

Translating commitment into action



The Alliance to End Plastic Waste is a community of companies committed to getting ahead of the challenge of plastic waste

We deliver our mission by funding projects:

- Waste collection – designing economically self-sustaining systems and infrastructure where none currently exist
- Sorting technologies – to upgrade the quality of waste feedstock streams
- Recycling systems, mechanical and chemical, eg: demonstrating new approaches to recycle flexible films and multilayer packaging
- Re-use models
- New approaches to consumer engagement products and materials

Since 2019, AEPW have convened a global network of over 74 industry leaders and partners across the plastics value chain and have built a portfolio of more than 60 projects in 30 countries.

Key principles:



1. Act now...

or risk permanent damage for future generations



2. Collective action...

no organisation can tackle this alone



3. A cross-value chain approach...

no single business sector can drive true system change



4. A do-tank, not a think-tank...

discussion, policy, and public pledges are good, but we need real action and real investment

Convening a global network to translate commitment into action





Phase I in Review : Inkwazi Isu Milestones

- 10 Alliance funded Material Recovery Facility (MRF) sites fully completed and an additional 2 sites at 70% completion on a budget disbursement of **USD 1.3 M**
- Diversion of a total of **17.9 KTA** of Plastic waste diverted in **Phase I** (2 years) of operation and an expected sustainable 20 KTA in phase II at commercial level
- Successful establishment of a full collection value chain that integrates all pillars. This includes 2 main education and awareness programmes in 80 schools and 8 major community

Inkwazi Isu has been designed on 4 pillars:



INFRASTRUCTURE DEVELOPMENT

eThekweni municipality provides... **12** Material Recovery Facilities for upgrade or optimisation
Collection support via municipal vehicles



EDUCATION AND AWARENESS

80 schools to become Collection Centres
+
8 major communities
+
Involvement of **510** waste reclaimers



CLEAN-UP CAMPAIGNS

Clean-up of **3** prominent beaches and **4** main rivers
8 major illegal dumpsites to be removed
4 litter booms setup



INNOVATION AND TECHNOLOGY

Digital waste traceability via the **KUDOTI App**
Ingot machine for EPS processing
Potential collaboration with **CRDC** to off-take **hard-to-recycle** plastics

Pillar 1: Implementing fit-for-purpose infrastructure

Infrastructure being funded by the project:

- Collection centres
- Material Recovery Facilities (MRF)
- Recycling operations
- Downstream recycled plastic processing

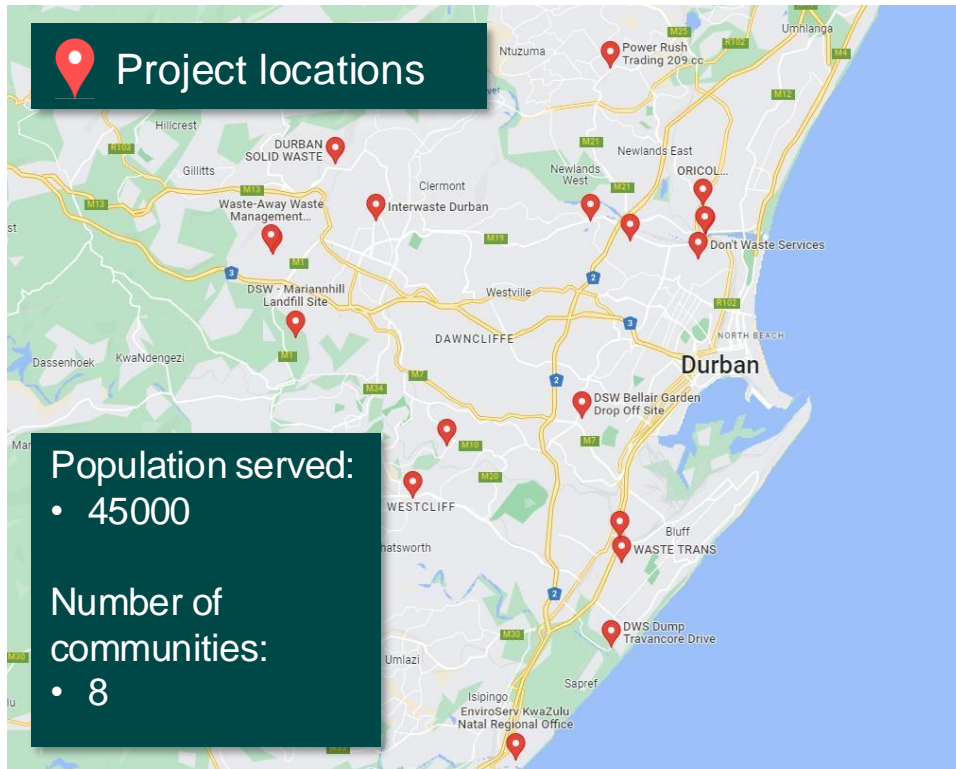
12 aggregation & processing sites:

10 sites completed

- Nyati Road garden site
- Seadoone garden site
- Power rush centre - Kwamashu
- Big Start Recycling
- Glenville site
- Treven Corp Garden Site
- Umvuzo Care, Folweni
- Molweni Waste Recyclers
- Umlazi Garden Group
- Silver Jupiter Recycling

2 sites in progress

- Pat recycling – Pinetown
- Amakhu Recyclers



1. Nyathi Road MRF Site

- Managed by Inkwazi Isu
- Operated by Manaza Recycling
- 150 tons of plastic diverted to date
- P&L Model available for the site
- 30 direct jobs created
- 20 waste pickers onboarded
- Serves 3000 households with waste collection and education



Before



After

2. Doonside MRF:

- Managed by Inkwazi Isu
- Operated by KNB Recycling
- 130 tons of plastic diverted to date
- P&L Model available for the site
- 25 direct jobs created
- 15 waste pickers onboarded
- Serves 2000 households with waste collection and education



Before

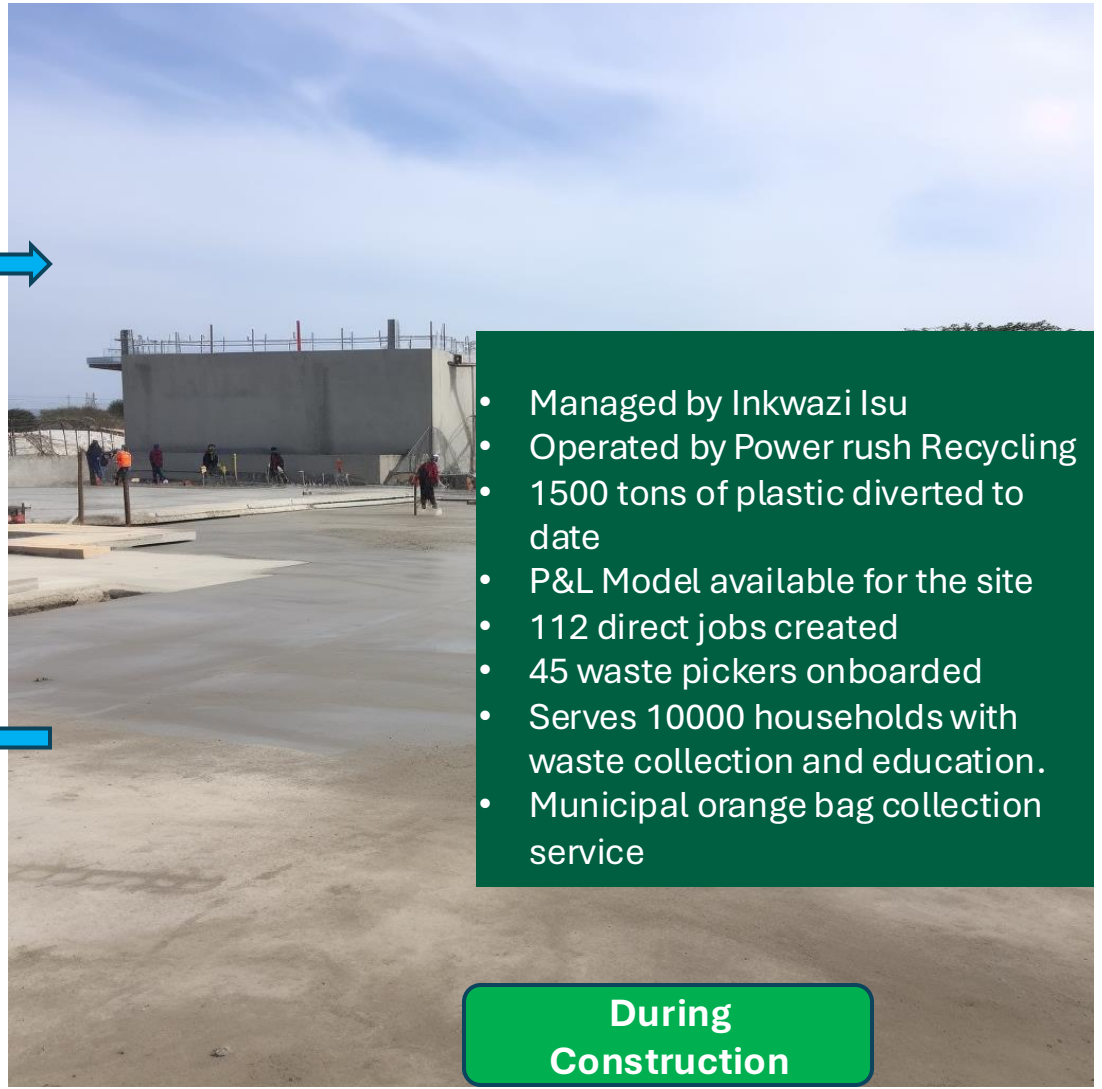


After

3. Power Rush MRF Site

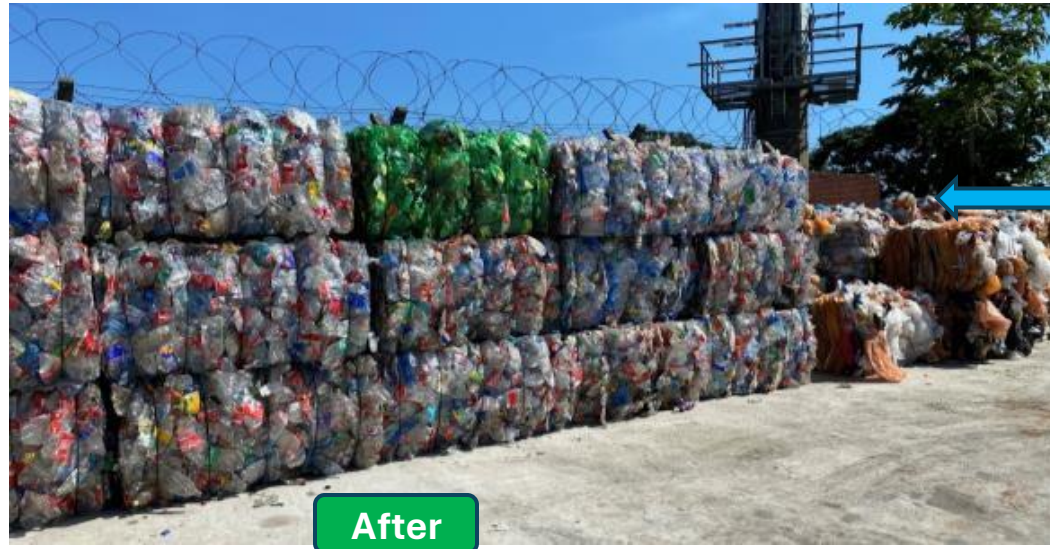


Before



- Managed by Inkwazi Isu
- Operated by Power rush Recycling
- 1500 tons of plastic diverted to date
- P&L Model available for the site
- 112 direct jobs created
- 45 waste pickers onboarded
- Serves 10000 households with waste collection and education.
- Municipal orange bag collection service

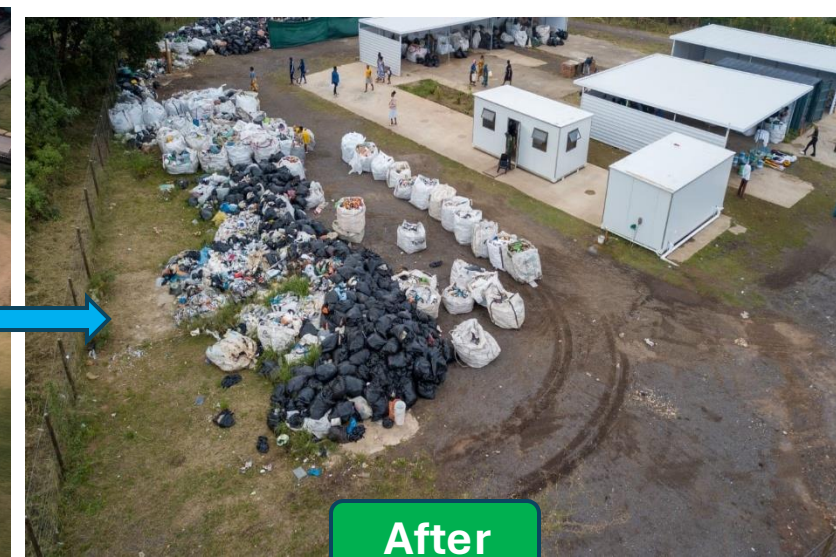
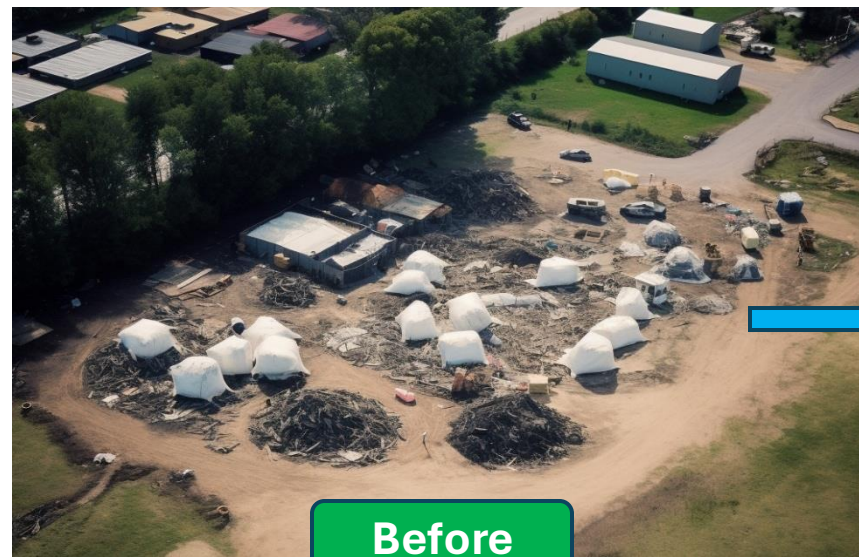
During Construction



After

4. Big Start MRF Site

- Managed by Inkwazi Isu
- Operated by Big Start Recycling
- 300 tons of plastic diverted to date
- P&L Model available for the site
- 35 direct jobs created
- 20 waste pickers onboarded
- Serves 4000 households with waste collection and education.



5. Glenville MRF Site

- Managed by Inkwazi Isu
- Operated by DSW Recycling
- 150 tons of plastic diverted to date
- NO P&L Model available for the site
- 22 direct jobs created
- 40 waste pickers onboarded
- Serves 2800 households with waste collection and education.



Pillar 1: Enhanced collection and MRF operations

Complementary collection systems put in place via:

- Municipal **Orange Bag** curb side recycling programme
- Informal sector recovering recyclables from landfills
- Inkwazi Isu ambassadors monitoring open dumpsites
- Inkwazi Isu ambassador's door-to-door collection in the townships
- **“You see trash, I see treasure”** – aggregation and MRF sites purchase recyclables
- eThekweni municipality provide logistics for transport of recyclable waste

Inkwazi Isu impact since inception:

Collection (kt)	Year 1	Year 2	Total
Plastic	9.7	8.2	17.9
Cardboard	1.6	2.9	4.5
Metal	1.2	4.1	5.3
Glass	3.2	6.5	9.7



Pillar 2: Education and awareness, changing behaviour across the region

- Since January 2022, education and collection programme delivered in **80 schools ~60,000 learners**. Students now bringing to school **~100 Tons of plastic waste/month**
- Community hall education and awareness in 8 communities in the south coast **~2,900 beneficiaries** to date
- Waste reclaimer integration awareness programme for about **510 waste reclaimers** in the eThekweni region.
- 19 weekend training sessions for Inkwazi Isu waste ambassadors on sorting at source, safety, and brand representation **~192 beneficiaries**
- 8 training briefings for community volunteers during beach/river clean-ups **~1,200 beneficiaries**

Total estimated number of beneficiaries: 64,802



Pillar 3: Clean-up Campaigns to tackle waste in the environment

- Ongoing since January 2022, with almost daily clean-ups on 3 main beaches and 4 main rivers
- Partners: Cleansurf Project, Underwater Conservancy, Adopt a River
- Land-based solutions having an impact on leakage to the ocean and resultant waste accumulation on beaches
- Major contributor to the success of other pillars such as education and awareness

River clean-ups:

- Ezimbokodweni river
- Umgeni river
- Umlazi River
- Amanzimtoti river

720 tons
of plastic waste
has been diverted to date

Beach clean-ups:

- Isipingo beach
- Umbogintwini beach
- Amanzimtoti beach

414 tons
of plastic waste
has been diverted to date



Pillar 4: Leveraging Innovation and Technology



Fit for purpose equipment being installed in all MRF locations: cost effective buildings, sorting conveyors, bailers, etc.

Three technologies have been selected and implemented in the first few months of the programme:

- **Kudoti** waste tracking app for independent recording of waste volumes from all sites
- **EPS ingot machine** for volume reduction of polystyrene
- **Paver system** with Green Corridors, using glass and hard-to-recycle plastic as aggregate in paving blocks

Evaluation of a Resin8 plant with CRDC for hard-to-recycle plastic waste, building on current operations supported by the Alliance in Cape Town

Evaluation of further downstream technologies to create value from plastic waste will continue as project scales up



Next steps: Inkwasi Isu as a solution model for South Africa

Community enabled collection & processing for recycling

- **Inkwasi Isu... demonstrating a solution model**
- Building an integrated waste management system where the inherent value of plastic waste is recognised by the communities served
- Founded on a spirit of social engagement to capture waste, create value, clean the environment, and empower women

• **Scaling the model across the region...**



- eThekweni Municipality interested to roll out the programme from initial 12 to more than 40 sites

Case Study: Power Rush MRF site

- Sourcing waste from several locations via up to 80 reclaimers/collectors
- Bisasa Landfill, 8 informal dumpsites, and 10,000 households in Kwamashu district



~160 t/m of recyclables,
~50% plastic waste



MRF with 35 sorters x 2 shifts

~1000 tonnes/annum of plastic waste per annum achieving greater than breakeven operations during ramp up

- Recyclables **revenue** per month: **~US\$34K**
- Household fee **revenue** per month: **~US\$12K**
- Collection & Operation **cost** per month: **~US\$43K**

Successes and lessons learned from Inkwazi Isu

Broad-based commitment to direct involvement and action on-the-ground is key

Public – Private Collaboration

- Project Steering Committee composed of **Industry, NGOs, Service Providers, Local / National Government representatives**
- Project developed **hand-in-hand with municipality** from day one, resulting in strong government relationship
- **SA Healthcare Foundation** brings comprehensive understanding of the local eco-environment
- **A new pathway to plastic waste collection in low-income communities**

Industry Involvement

- **AEPW Member Company Sasol fully engaged** in the programme, fully funding initial 2 MRFs
- **Fit-for-purpose** and **low cost** infrastructure leveraging local commercial partners
- **EPR system in place, with direct involvement of PROs** (PETCO & PolyCo) ensuring connectivity to markets
- **Local recycling industry ready** to absorb new recyclables volume

Tangible impact on communities and plastic waste leakage

- Immediate and **visible social impact:** job creation, waste picker integration, community involvement, pride
- Immediate and **visible environmental impact:** Durban is now a clean city
- **Virtuous circle** as land-based interventions through collection in townships and river clean ups progressively reduce waste accumulation on beaches



Thank you

