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Real Change, At Scale.

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ALLIANCE TO END PLASTIC WASTE

Unlocking flexible plastics recycling in Latin American cities

A CASE STUDY FROM BUENOS AIRES

NOVEMBER 2025

We are Delterra

We are a nonprofit that builds the capacity of governments, communities and companies to **bridge global ambitions with local action.**

Our goal is to keep materials out of the environment and landfill by changing the linear waste systems and behaviors in the Global South to be more circular.

OUR VISION

a world where human activities
protect and restore a healthy planet

Delterra's programs were launched in Indonesia and Argentina and have since expanded to Brazil and the United States

UNITED STATES

BRAZIL

INDONESIA

ARGENTINA

Introducing Delterra: we are a global NGO breaking the cycle of insufficient supply and weak demand for recycled materials, including organics

RETHINKING RECYCLING

Households & businesses

Collectors & Sorters

Working with municipalities and communities

RESHAPING MARKETS

Aggregators & transporters

Processors & End buyers

Working with companies and institutions

Latin American cities face barriers to recycling post-consumer flexible plastics

<3%	of flexible plastics from household waste are recycled in Latin America
+300%	expected generation of plastic waste by 2040, and with it mis-managed waste if unaddressed
Risk	of leaking into the environment due to greater prevalence in MSW, lightweight and small size
Difficult	to collect, heterogenous and contaminated require additional separation and washing
Lost opportunity	Large proportion is flexible PE and PP (mono-material) that can be mechanically recycled

Greater Buenos Aires (GBA) provides a unique case study because of its large population and significant, though underutilized, waste management infrastructure

16 millions citizens (#14 largest metropolis globally) home to 35% of the Argentine population

Generates **750,000+** tons of plastic waste per year (with <3% being recycled)

Extensive, underutilized, waste management infrastructure with collection coverage for all citizens (6 days per week of segregated collection), 25+ sorting centers ($55+ mln original capex) that employ 8,000 waste workers

Largest landfill in LatAm in volume receiving +5,200 kilotons per year (kta) of municipal solid waste

Mechanical Biological Treatment (MBT) facility processes 1,500+ tons/day of MSW (of which ~4% flexible plastics); diverts 200,000 tons/year of organic materials from landfill, but no recyclables

Among **highest spending** on waste management of municipalities globally (between 7-20% of municipal budget) with extensive collection covering almost all citizens (6 days/week door-to-door and containerized collection)

In Greater Buenos Aires, flexible plastics represent the majority of plastics in MSW, less than 3% is recycled despite another 13% reaching sorting facilities

Recycling rates for post-consumer materials in Municipal Solid Waste in Greater Buenos Aires, in kilotons per year and %

Rigid, high-value plastics (HDPE, PET)

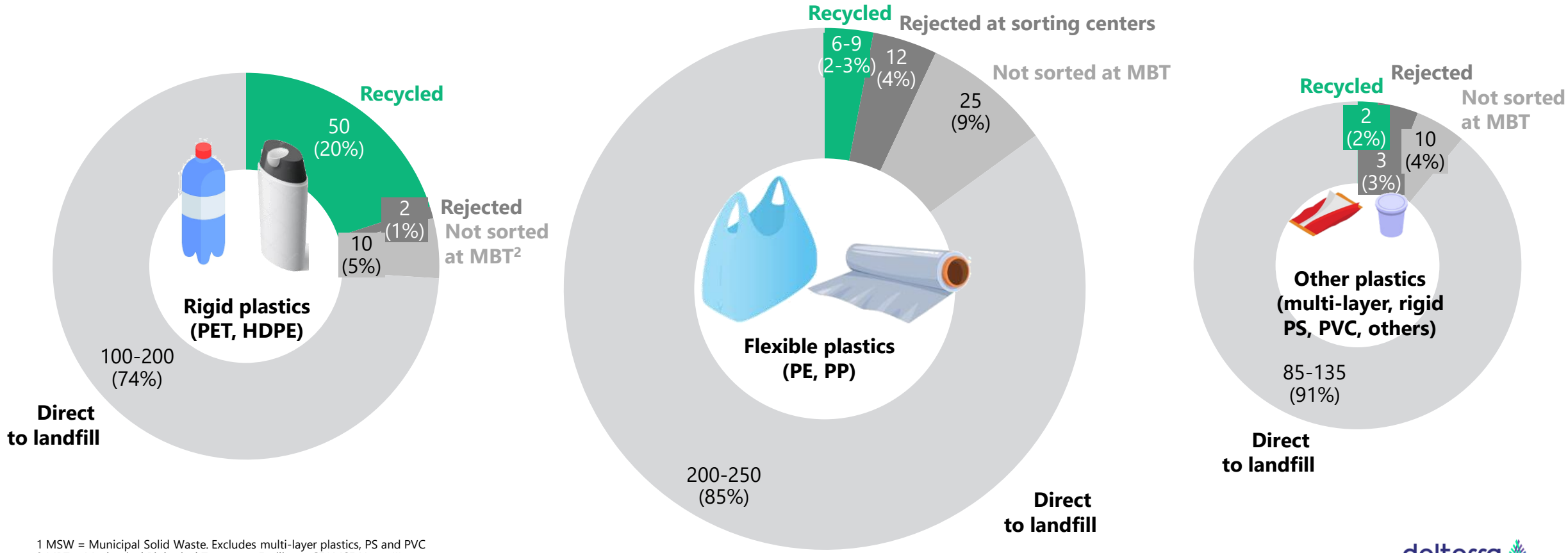
25% of plastics in MSW[1], and 20% is recycled – while another 6% arrive at sortable locations

Flexible plastics (PE,PP)

Majority of plastics in MSW[1], but only 3% are recycled – while another 13% arrive at sortable locations

Other plastics

15% of plastics in MSW[1], and 2% is recycled – while another 9% arrive at sortable locations

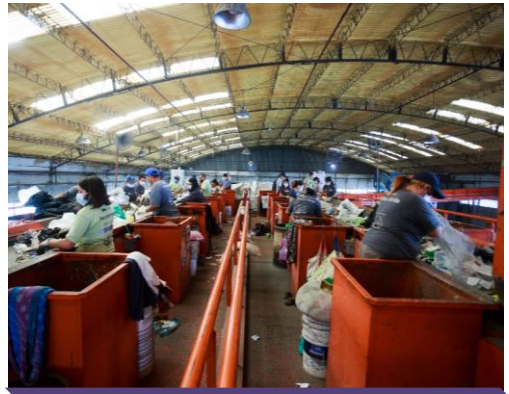


1 MSW = Municipal Solid Waste. Excludes multi-layer plastics, PS and PVC
2 MBT = Mechanical Biological Treatment Facility at CEAMSE Norte III
Source: Waste management characteristics and sorting center data from cities across GBA, Dow & CAIRPLAS (2023), CABA (2022)

Recycling flexible plastics in Buenos Aires faces obstacles including low source separation, complex sorting, insufficient processing capacity, and weak demand at current market prices

Challenges along the flexible PE recycling value chain Greater Buenos Aires

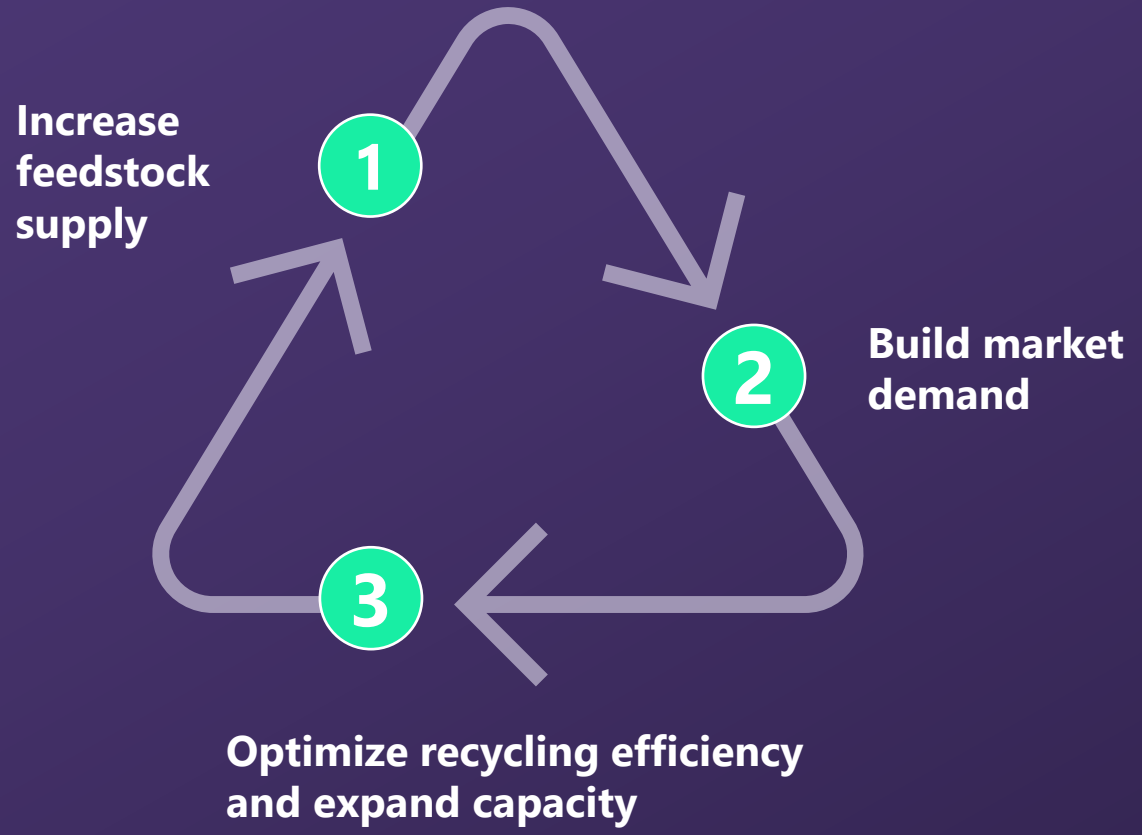
Legend: Bottleneck | Challenge | Well functioning



Source separation & collection	Sortation	Recycling	Converters and end-buyers
Segregated collection coverage available to almost all citizens (i.e., containers, door-to-door, voluntary drop-off points)	50+ **sorting centers** of various sizes that employ 8,000 waste workers	**Insufficient recycling capacity** (especially washing) and lack of synergies of scale lead to high production costs	Demand for recycled plastic resin is highly sensitive to volatile **virgin plastic prices**
Low separation at source of flexible plastics by households and businesses (93% in mixed waste or leaked into environ.)	**Operationally unattractive** to sort flexible plastics (e.g., small, light weight, contaminated)	Recyclers prefer higher quality materials (i.e., post-industrial scrap) and **reluctant to incorporate** post-consumer feedstock	Incorporating post-consumer PCR requires **extra effort** from converters and can lead to production losses (less stable, lower performance)
Large presence of **informal collection** but focus on higher value materials (i.e., cardboard, metals, PET, HDPE)	**Volatile market prices** and **lack of feedstock consistent demand** from recyclers	Larger flexible plastic recyclers have limited **access / experience** working with sorting centers and cooperatives	

We launched a program to prove that the barriers to recycling post-consumer flexible plastics can be overcome working on three reinforcing levers

DETAILS TO FOLLOW



Increasing feedstock recovered through a short-term subsidy to create favorable economics, training waste workers and tracing materials

Actions:

1 **Introduced short-term subsidy** in 25+ sorting centers / cooperatives. Started at 50% above the feedstock price for sorted flexible PE, was gradually reduced and then removed entirely

2 **Trained 500+ waste workers in collaboration** with local university (8 modules covering safety & health, productivity, teamwork)

3 **Traced and verified** the flow of all materials using blockchain and GS1 standards

IMPACT:

100% increase in volume of flexible plastics feedstock separated in sorting centers and sold to recyclers – +500 tons/month run-rate

+500 waste workers trained

All materials **traced** and transactions **verified** in Empower blockchain

Strengthening demand and creating more stable economics by expanding into new end markets that could absorb lower grade recycled plastics

1 **Increase pellet value** by optimizing blend of 70% post-consumer and 30% post-commercial feedstock and creating different pellets types: ‘caramel’, black

2 **Quality Control** by optimizing temperatures, filter mesh sizes, and other key configurations. Conducting lab samples and continuously improving quality

3 Attracting converter to adopt **PCR incorporation** and expanding sales by producing its own line of garbage bags and film rolls

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Ampacet

IMPACT:

800% volume increase of Post-Consumer Resin (PCR) produced by recycler (4,500 tons/year)

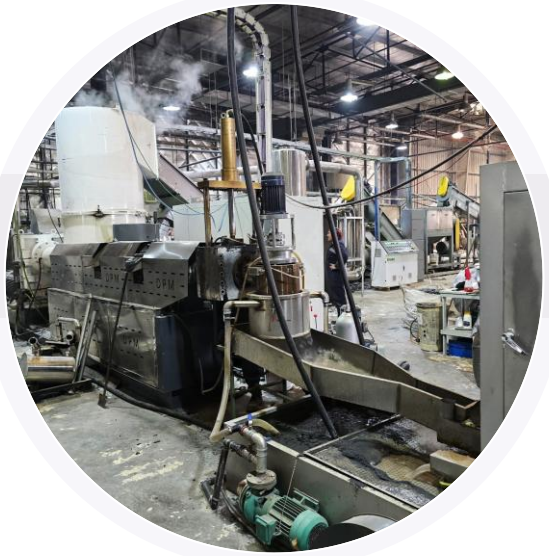
Increase in sales and margins translucent, caramel and colored pellets **sold** to distributers and converters

Competitive pellets of acceptable quality for mechanical recycling

- 1.4-1.9 MFI
- 0.019-0.039% moisture
- 108/121 °C DSC
- 0.2% ash
- 0.0% volatiles

Reducing the production cost of PCR by increasing production capacity and efficiency, which further increased market demand and the need for feedstock

1 **Attracted financing** for investment in machinery and capacity expansion



2 **Increased washing and extrusion capacity** of PE recycler to process flexible post-consumer plastics

3 **Reduced costs** through efficiencies (e.g., electricity) and synergies of scale (reducing relative share of fixed costs like rent)

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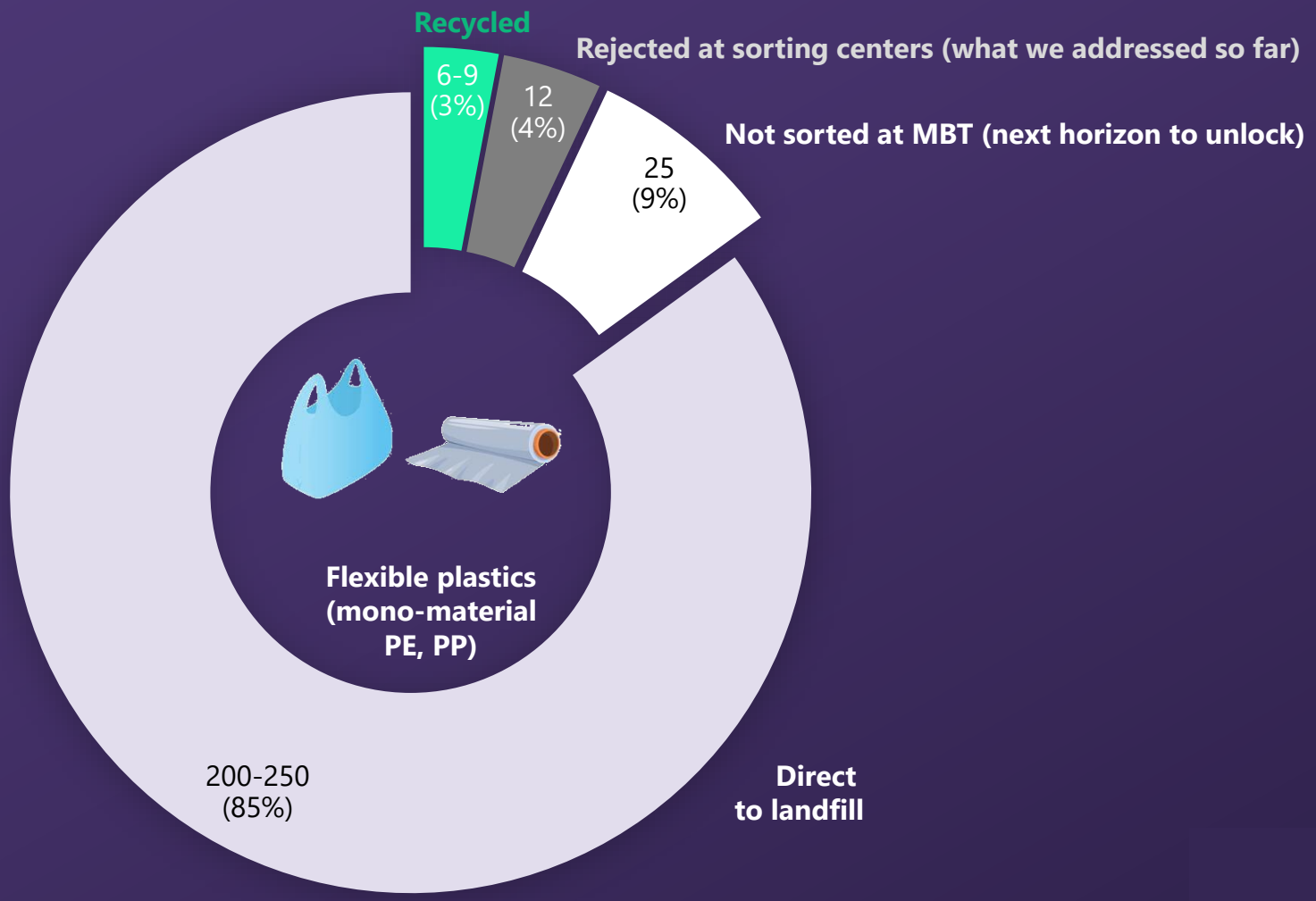
IMPACT:

800% increase in washing and extrusion capacity (from 50 to 400 tons/month)

25% reduction in production prices through synergies of scale

The next horizon is to increase access to affordable and more stable feedstock at scale, in order to reduce PCR prices and expand the demand for it

Recycling rates in Municipal Solid Waste in Greater Buenos Aires, in kilotons per year and %, starting point



The next horizon is unlocking feedstock from mixed waste, which we are piloting at the Mechanical Biological Treatment facility at CEAMSE Norte III

The Mechanical Biological Treatment (MBT) facility at CEAMSE Norte III is one of the largest municipal solid waste recovery facilities in LatAm.

- Constructed and operated by Tecsan / Benito Roggio Ambiental, in partnership with City of Buenos Aires (pays waste recovery fee)
- Processes **450 kilotons** / year (kta) of MSW from the City of Buenos Aires (1,400 tons / day), covering 35% of all MSW produced
- Main objective is to reduce **220+ kta of organic material** sent to landfill through a series of tumblers and a biodigestion treatment (treated material is used as landfill cover)
- Has **3 sorting lines** with chambers to separate recyclables manually but these are not operationalized
- Receives **26 kta of flexible plastics** (PE and PP)

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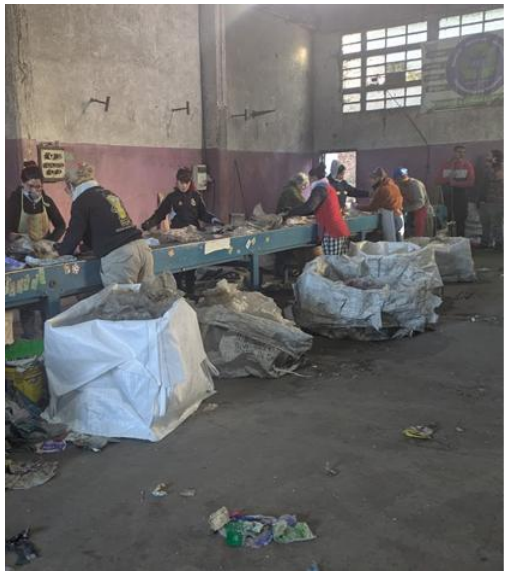
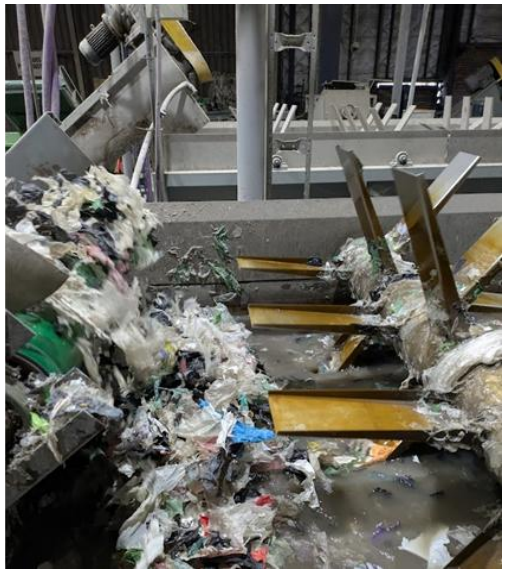
Our proof of concept demonstrated that MBT materials can be recovered at scale, sorted, and are of sufficient quality for mechanical recycling

Actions taken:

1. **Implement operational improvements** in the MBT to separate L1 post-blowing and demonstrate operational sustainability
2. **Separate flexible PE** from the rest of the lightweight materials at a cooperative
3. **Wash and extrude sorted** PE into (combining with LLDPE from big generator materials)
4. Test and **improve pellet quality** and prove that there is **stable demand** from buyers





Acceptable quality for mechanical recycling

- 1.1 MFI
- <0.08% moisture
- 123 °C DSC
- 2.2% ash

The potential for automated sortation of mixed waste could be attractive for mega-cities across LatAm that have large concentrations of waste in landfills

Potential opportunities to scale automated sortation of mixed waste in LatAm

DF, México
- 3 landfills in Ixtapaluca, Cuautitlán Izcalli and DF, with a total capacity 23 ktpd

Bogota, Colombia
- Large landfill receiving more than 6k tpd of mixed waste

São Paulo, Brazil:
- In the Metropolitan Area, more than 21 ktpd of mixed waste are generated daily and disposed of in 3 landfills: Caieras, Pedreira and Central Leste

Buenos Aires, Argentina:
- CEAMSE landfills receive 20+ ktpd : Norte III, Gonzalez Catán and Ensenada
- CEAMSE Norte III is the largest (15 ktpd) and within it the largest Mechanical Biological Treatment (MBT) facility LATAM (1.5 ktpd), recovers mainly organics but with great potential to recover plastics (11 kilotons/year of flexible plastics)
- In Argentina, there are possibilities to replicate the experience in the MBT facility of Ensenada landfill (with a capacity of 800 tons per day) or to incorporate a mega-MRF in Norte III landfill

As a concrete next step, we are scaling this approach to Sao Paulo working with materials from automated sorting centers currently being sent to RDF

Intervention

Mechanized Sorting Plants (CMTs) Ponte Pequena & Carolina Maria de Jesus, Sao Paulo

- Receives >50% of segregated materials by households in Sao Paulo. Separates high-value materials, but majority of flexible plastics remain unsorted and sold as mixed materials (combined with paper)

Send mixed materials for sortation

Flacipel sorting plant, Guarulhos

- Receives big generator segregated waste but only sorts cleanest LDPE (sending 10-20 tpd to RDF)

Add additional sorters in the line to separate LDPE

COOPERCAPS

Secondary sortation, Sao Paulo

Conduct secondary sortation of LDPE by color and polymer. Introduce short-term subsidy that is phased out with scale

Grupo Interação
Integrando Soluções Ambientais

Recycler, Grupo Interacao, Araras

Introduce short-term subsidy phased out with scale (to 150 tons/month). Provide financing support to expand washing and extrusion capacity (to 340 tons/month)

Questions?

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