Pet Bottle Recycling
FUTURA
PLASTIC PRACTIC
P3 M3 ExNoRa
ExNoRa STREET STARS (Trained & Upgraded Rag Pickers) collect PET / Plastic Bottles
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Curbside collection of PET / Plastic Bottles

ExNoRa STREET STARS (Trained & Upgraded Rag Pickers)
Pet Bottles collected by Street Stars on behalf of their employer, RWA ExNoRa pooled & packed in Jumbo bags arrive at the Recyclers Sorting Centre.
Pet Bottles collected by Street Stars on behalf of their employer, RWA ExNoRa Bottles packed in Jumbo bags get unloaded at the Recyclers’ Sorting Centre
Presorting to segregate PET from other Plastics
Recyclers’ Sorting Centre
Presorting PET is a Labour intensive Operation
Presorting PET generates Employment
Segregated PET from other plastics

PVC Bottles

PE/ PP Bottles
PET Bottles before Baling – Baling is done to save Transportation costs!
Bottle Bales-Compressed
Bottle Bales - Briquetted
PET Bottle Crushing & Washing
Typical Process Flow Diagram

Bottle Opener
Bottle Feeding

Trommel
Washing

Vibratory
Examination
Conveyor

Cross/Feed
Conveyor to
Crusher

Reactor

Spin Washer

Separation
Tank

Crusher

Turbo
Washer

Paddle
Washer

Spin Dryer

Snake Dryer
(Blower)

Bagging
Process Flow Chart - PET Flakes Manufacturing
BALE OPENING
Manual Segregation of Bottles moving on a Conveyor
PET Recycling Facility
RPET – White Clear Flakes
RPET – Mixed Colour Flakes
RPET Granules from White Flakes
RPET Granules from Mixed color flakes
Use of Recycled PET depends essentially on the ‘Cleanliness’ of the flakes. Flakes are processed as such or after pelletisation for the following Generic Applications:

- Packaging
- Sheet & Film
- Strapping
- Engineering Plastics
- Fiber (Carpets, Fabrics, Fiberfill etc.)
RPET Uses

**Fibre Applications**

- Automobile
- Non-woven
- Geotextiles
- Fibrefills (Hollow)
- Flock cut for reinforcing paper/cement concrete etc.
RPET Uses & End Products

Other Applications

• Trays/Containers
• Bottles/ Jars/ Cans
• Garden Pathways
• Strapping
• Engineering Plastics
• Composites for various applications
Futura Polyesters Ltd
Received the Prestigious award from Global Plastics & Environmental Conference 2005 organised by the Society of Plastics Engineering – USA “For Pioneering the Production of PET and Reclamation and Chemical Recycling of Post Consumer PET for Food Grade Applications”
Futura pioneered the PET Recycling in India since 1976!

- Futura Polyesters Limited (formerly Indian Organic Chemicals Ltd) is in the business of Polymers (100% EOU), Preforms and Fibres apart from Recycling. Aggregate capacity is about 120000 MT/PA.
- 33 years standing in Polyester Manufacturing and R&D; R&D in Recycling polyester wastes since 1974; PET bottle waste since 1990.
- Spearheaded the post-consumer PET bottle collection drive in India since 1998. Current volume of Recycling is 20,000 MT/annum.
- Commercialized the Kabaddiwala network and put money in their hands: Additional motivation through ‘prizes’ for maximising volume: Radios, TV, DVD, Fridge, Sarees, Garments and the like as Prizes!
- Helped India achieve 60% Collection Vs 15% - 20% in rest of world.
- Pioneered the chemical recycling technology for US FDA approved PCR-PET through Glycolysis route for the US market only.
- Futura’s PET recycling facility conforms to ISO-14001:1996 EMS standards as well as to ISO-9001:2000 QMS Standards.
- Futura is already a Global brand in Virgin Polymer Specialties, working with Pepsi, Coke, GE, Shell, BP, Kodak and many more.
- Futura………. the name says it all!
The service rendered by ExNoRa produced the following results

- Network of thousands of Civic ExNoRas / RWA ExNoRas a nationwide symbol for decentralised waste management. Network of low income Self Help Groups earning an income from Zero Waste Management. Pedal energy against Petrol energy.
- Network of low income Self Help Groups earning an income from Zero Waste Management.
- Policy change at the National level in the form of enactment of Municipal Solid Waste Management Rules 2000, through intervention of Supreme Court of India. This came about through “Demonstrative Lobbying” as against adversarial campaigns.
The emergence of the new legal framework

The demonstrative action by NGOs and community groups like ExNoRa and the intervention of the Supreme Court saw the framing of the Municipal Solid Wastes (Management and Handling) Rules.
### Schedule I of MSWM Rules 2000 [see rules 4(2) and (3)] Implementation Schedule

<table>
<thead>
<tr>
<th>Serial No.</th>
<th>Compliance Criteria</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>1.</td>
<td>Setting up of waste processing and disposal facilities</td>
<td>By 31.12.2003 or earlier</td>
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<td>2.</td>
<td>Monitoring the performance of waste processing and disposal facilities</td>
<td>Once in six months</td>
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<td>3.</td>
<td>Improvement of existing landfill sites as per provisions of these rules</td>
<td>By 31.12.2001 or earlier</td>
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<tr>
<td>4.</td>
<td>Identification of landfill sites for future use and making site(s) ready for operation</td>
<td>By 31.12.2002 or earlier</td>
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ROLE of ExNoRa STREET STARS  
(rehabilitated rag pickers)

- Collection and segregation of garbage into recyclable and non-recyclable

- Total value addition by rag-pickers (ExNoRa STREET STARS) in Chennai in one year:
  - 10,000 rag-pickers (ExNoRa STREET STARS) x Rs. 500 per month (notional cost) x 12 months = Rs. 6 cr.

- Cost incurred by state and public through an ExNoRa STREET STARS: Rs. 0