End-of-Life Product Recycling

An Economic Measure

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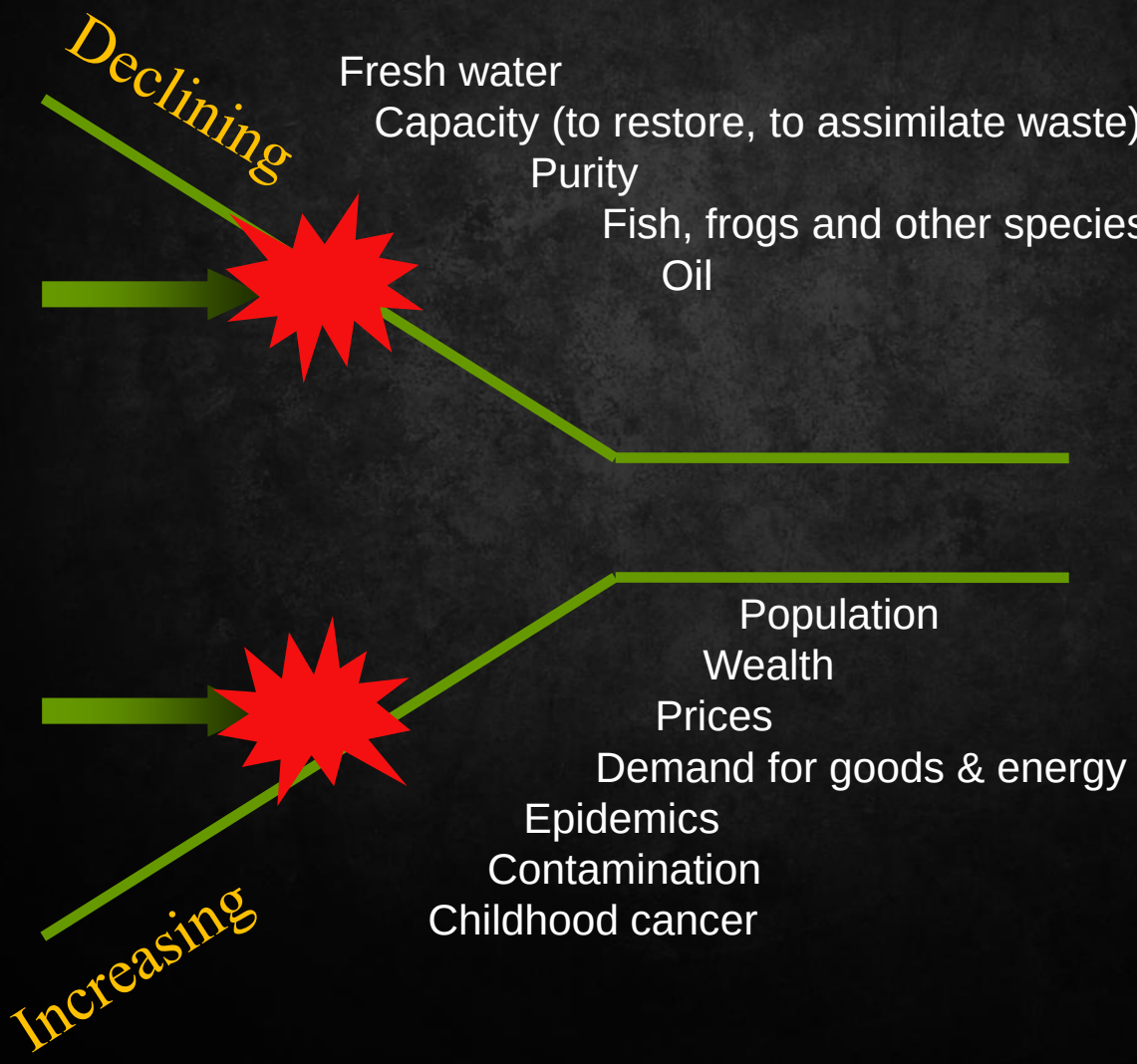
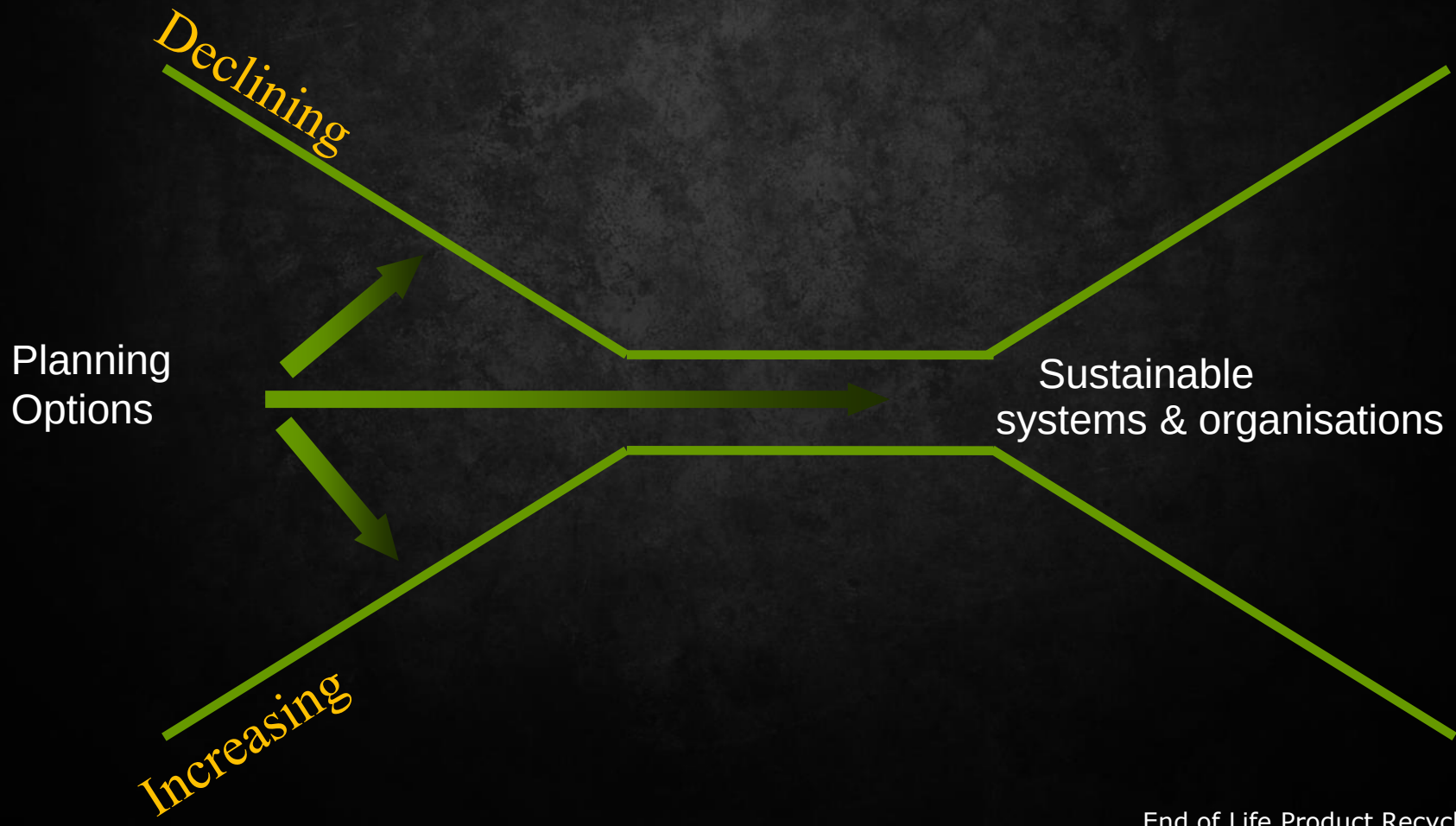
It’s quite clear we’re hitting the limits of what nature can provide us …



Companies that intend to be successful for a long time need to avoid the funnel and instead find sustainability



Work as nature does …

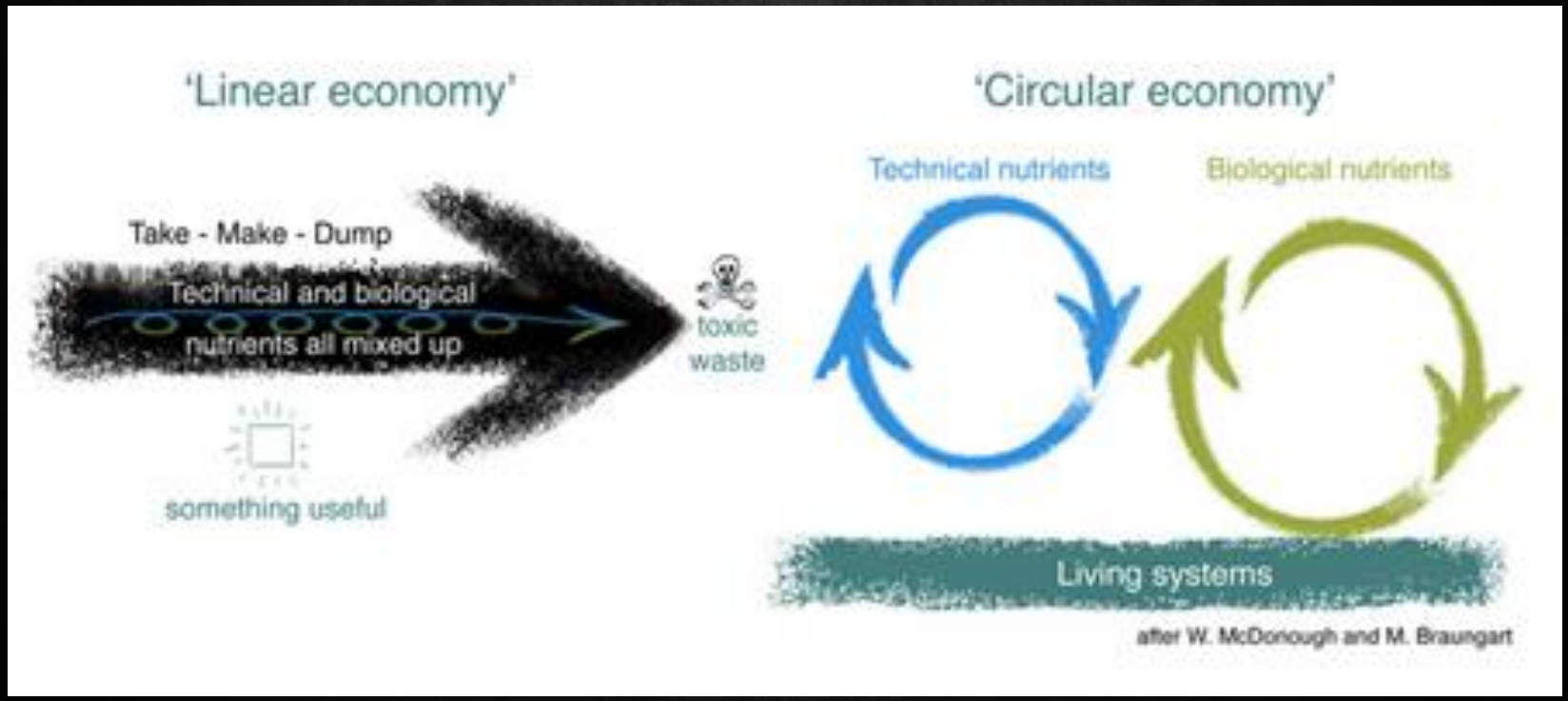
To grow:

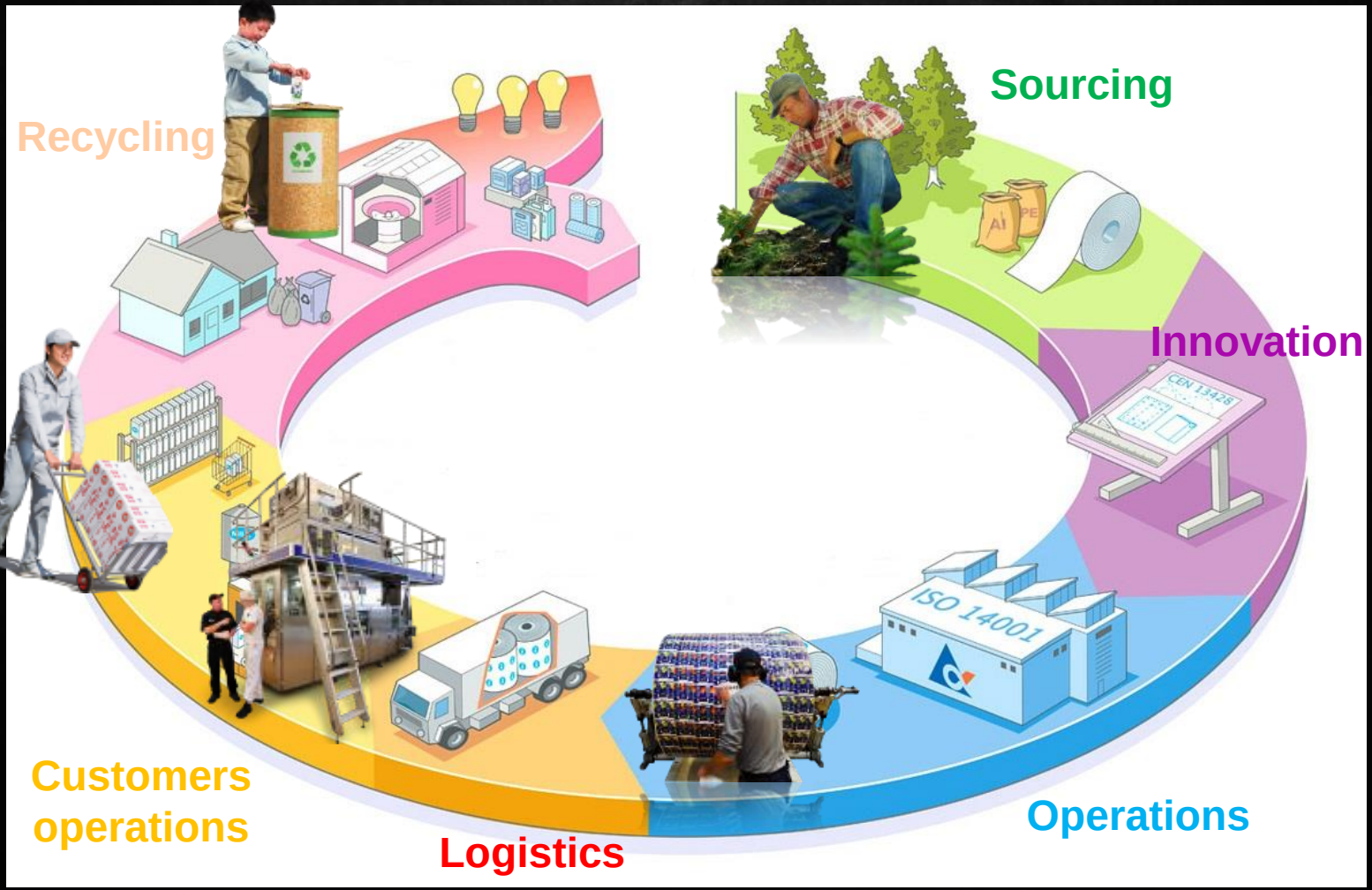
To be efficient:

More with less.
Recycle.

The key challenge is to aggressively promote economic and sustainable recycling through the life cycle of a product

‘Circular economy’ → from ‘using things up’ to ‘using things’




Recycling
Sourcing
Innovation
Operations
Logistics
Customers operations
ISO 14001
CEN 13428

Objectives	Goals
 Develop sustainable products	**Aim for (no year defined):** 100% FSC-certified paper, 100% renewable package

ENVIRONMENT

Drive environmental excellence

Objectives	Goals
 Reduce environmental footprint across the value chain	**2020 climate goal:** Cap climate impact across value chain at 2010 levels

Objectives	Goals
 Increase recycling	**2020 Recycling goal:** Achieve 40% recycling rate globally and 90% for the polyAl content.

Key actions

- Improve recyclability
- Significantly increase recycling rates (incl. polyAl)

Six steps to higher recycling rates

1. Design for Environment for recyclability
2. Participate in industry-based recycling organisations
3. Engage consumers
4. Support recycling technologies
5. Influence public policy
6. Build public / private partnerships

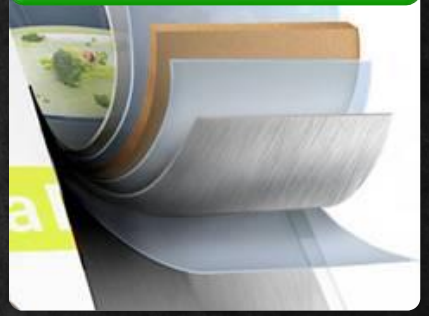
Step 1: Design for Environment

- ✓ **Design the product to minimise its impact on the planet, though not just through recyclability**

Non-foil barrier

Polymers from renewable sources

Less material



Eco-efficient equipment

Step 2: Participate in industry-based recycling organisations

- ✓ Join producer-responsibility schemes
- ✓ Increase the community's awareness of recycling and other solid waste issues through publications, technical research, seminars and databases

Green Dot

cempre

Brazilian Business Commitment for Recycling

Metals Recycling Association of India

TIPMSE Thailand Institute of Packaging Management for Sustainable Environment

Example from industry

→**Consumer Awareness:** bring together all stakeholders to a common platform to sensitize consumers on waste / recycling / segregation

→**Thought leadership:** development and dissemination of best practices related to recycling

→**Advocacy:** act as a common voice for the industry; pro-actively interact with government and other stakeholders

Step 3: Engage consumers

- ✓ Through awareness-raising campaigns
- ✓ In partnership with customers, retailers and environmental groups
- ✓ The BIG challenge: how do we drive consumer discipline!

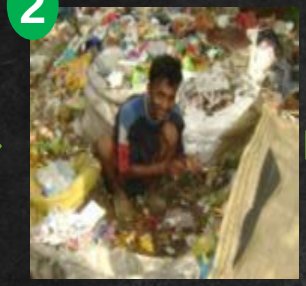
Street play as a means to educate waste pickers

Joint initiative with retail chain

Project SEARCH in partnership with TERI

Our strategy: continue connecting the dots; focus on waste pickers, collectors and recyclers

Households



Road side segregation of recyclables

Wet waste and non recyclables

Landfill

Waste Dealers

Collectors (NGOs)

Recyclers

Continue engaging with waste pickers

1. Identify '*godaams*' (hubs / geographies) of waste dealers

2. Improve collection partners' outreach
   - Workshops
   - Street Plays
   - Pamphlets
   - Audio Campaigns

3. Build relationships with waste pickers
   - Health Camps
   - Paryavaran Mitra clubs (Friends of Environment club)

Cricket Match with waste pickers

Step 4: Support recycling technologies

- ✓ **Evaluate, help finance and share expertise on technologies that make recycling more efficient and profitable**

Developing a small-scale pulper

Mechanical Recycling

Technologies: Agglomeration, Panel Board

Chemical Recycling

Technologies: Delamination, Solvent separation

Full Carton Recycling

Technologies: Composite Extrusion

Thermo-Mechanical Recycling

Technologies: Pyrolysis, Gasification, Volatilization

Step 5: Influence public policy

- ✓ **Collaborate with national and local decision makers within government in support of effective regulatory frameworks**

Advocacy focus

Influence and contribute to
- Public policy & legislation
- Stakeholder self-regulation
- Standards & definitions

Monitor emerging issues and concerns

Municipal Solid Waste Rules 2000
- Municipalities responsible for waste management
- Poor enforcement of rules prevails

Plastic Waste Rules 2011
- Advocates recycling, recovery or disposal of plastic wastes
- Introduces EPR (manufacturers to support municipalities in setting collection centers for plastic wastes)

Step 6: Build public / private partnerships

- ✓ In line with local legislation, public authorities install collection facilities
- ✓ As members of industry organisations, we support collection and sorting processes


Waste Pickers


Waste Dealers

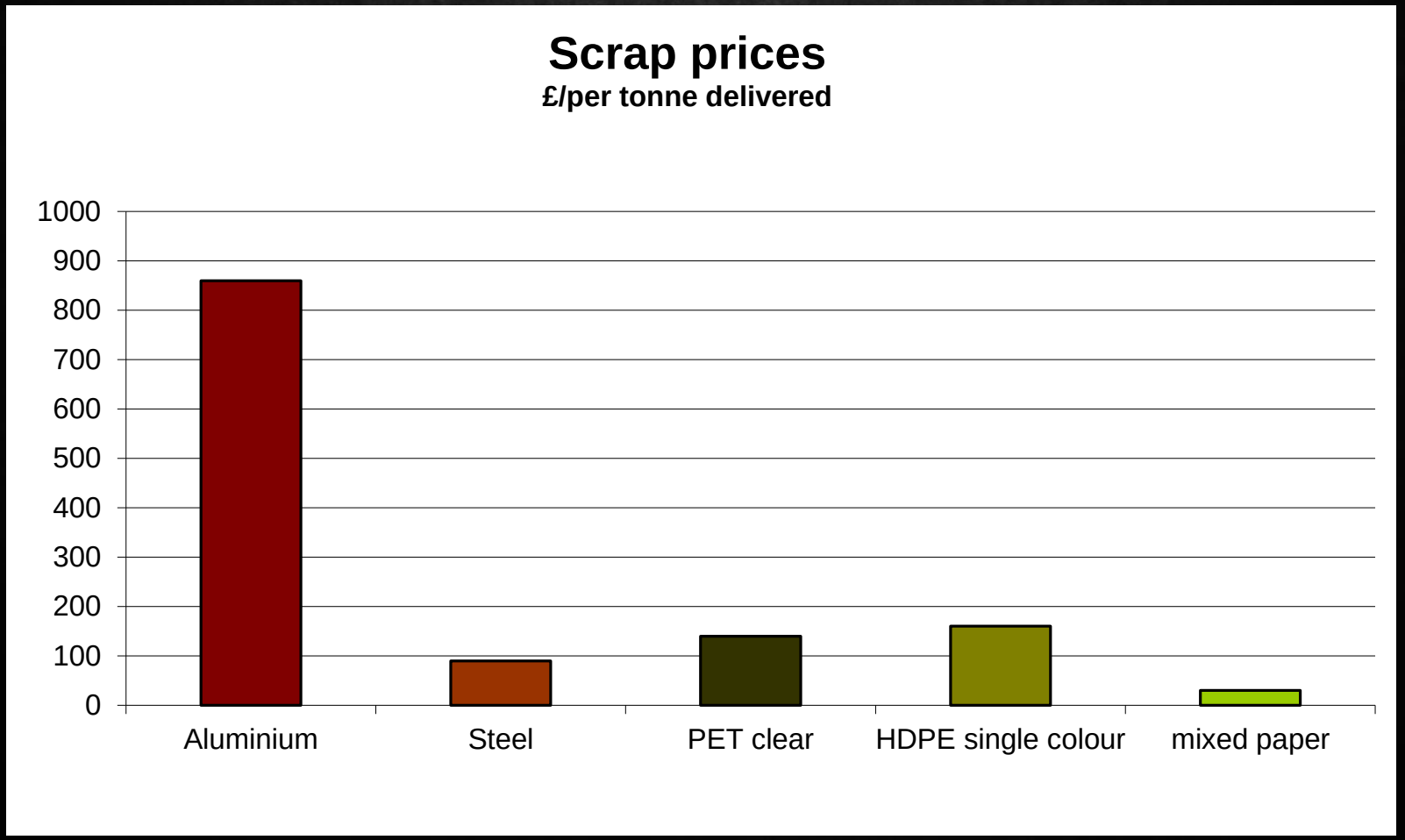

Collectors (NGOs)


Recyclers

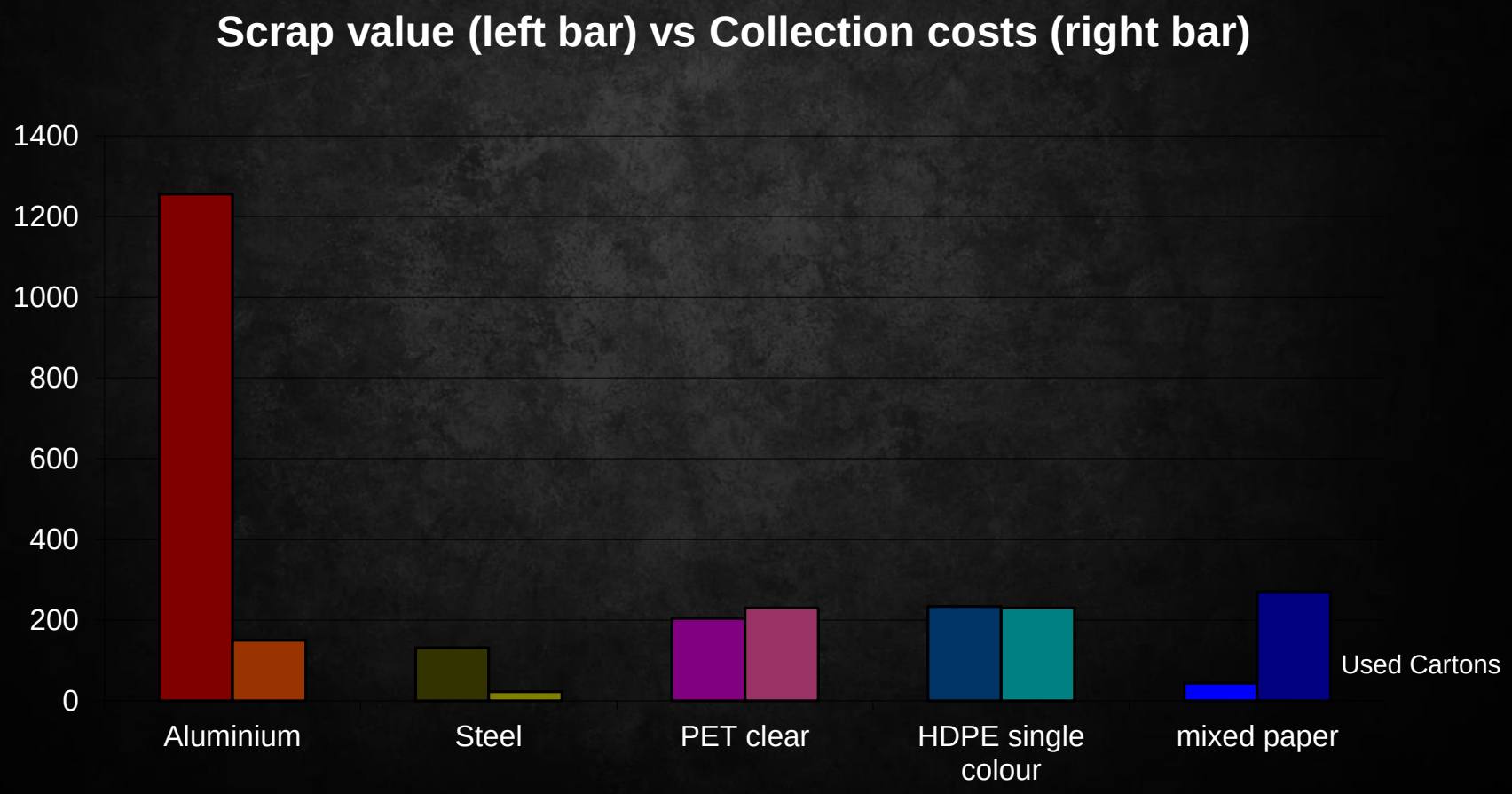
For a successful recycling program, some prerequisites must be in place

- ✓ Critical mass of collected material
- ✓ Sorted (segregated) material
- ✓ Sufficient market demand for possible recycled end-products

The economics of recycling favour resource-intensive products that are easy to sort



The cost of collecting certain low-volume materials is simply uneconomical



Recovered fibre from paper-based packaging board can be recycled into various useful end-products

Cardboard

Trays

Dry food boxes

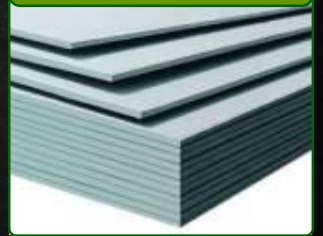
Household tissue

Egg cartons

Envelopes

Paper cores

Plasterboard liner



Frozen food boxes

Industrial tissue

Office paper

Paper bags

Similarly, high-value applications for the non-fibre (polyAl) fraction of carton packaging

Basket

Frisbee

Paper retainer

Connectors

Container

Pressing

Composites

Core plugs

Container

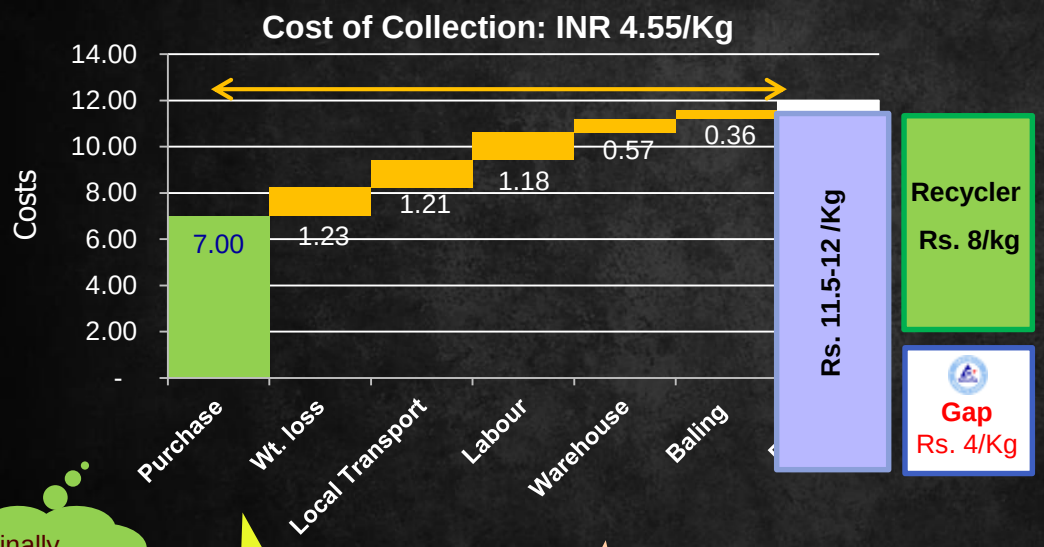
Flower pot

Hanger

Distribution boxes

The argument that a product is only recyclable if it can be turned into a new version of itself is a false one

Challenge: high collection costs squeezing margins for collection partners



Rate marginally attractive for small waste dealers.

Moisture & contamination related losses significant

Labour costs, warehouse rent gone up

UBC price must be at premium over price of mixed paper (RS)

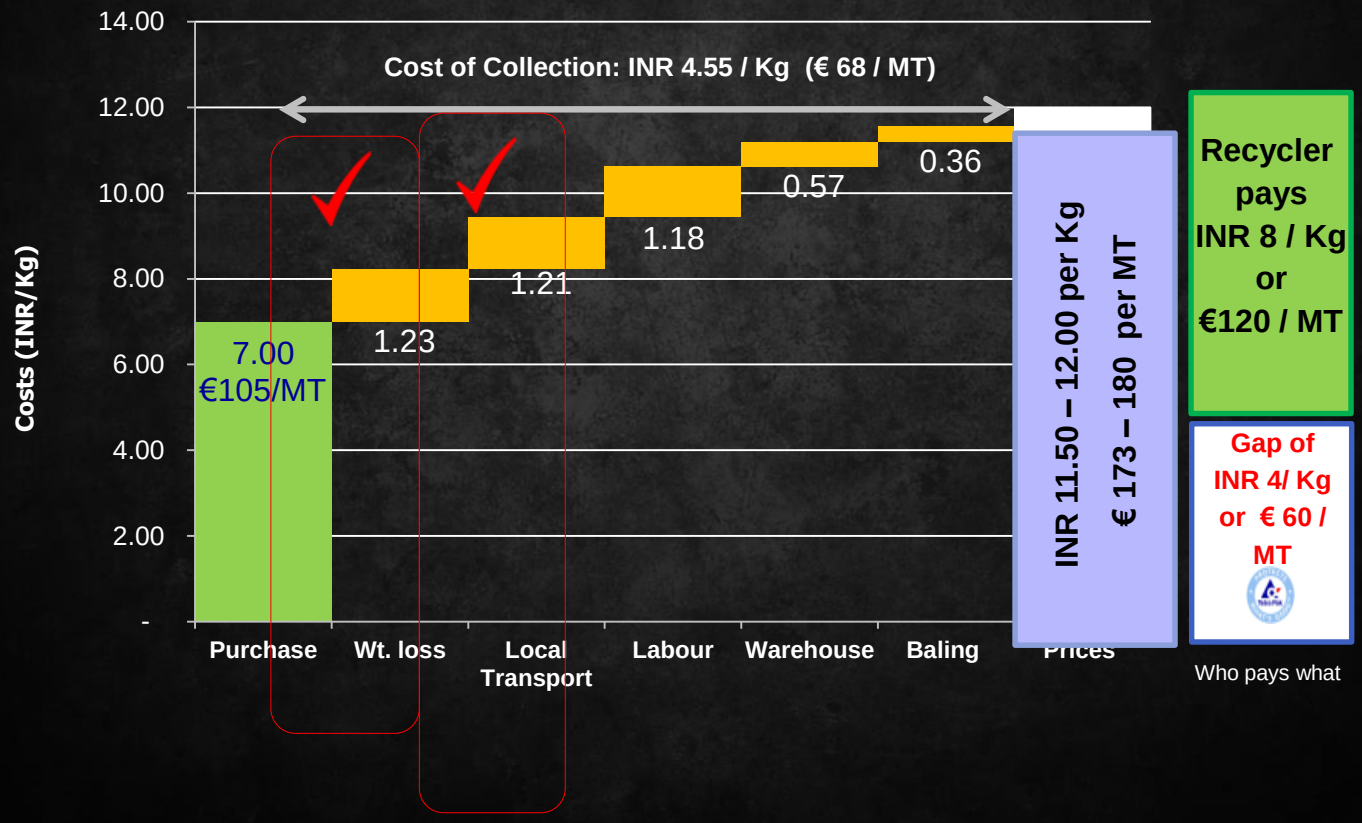
Inefficiencies in collections exist: scope for improvements

High costs due to single material collection?

Achieving higher value for end products at Recyclers' end critical

Absence of source segregation putting burden on value chain sustainability.

Pilot project: improving collection inefficiencies



Deduction of purchase price basis moisture

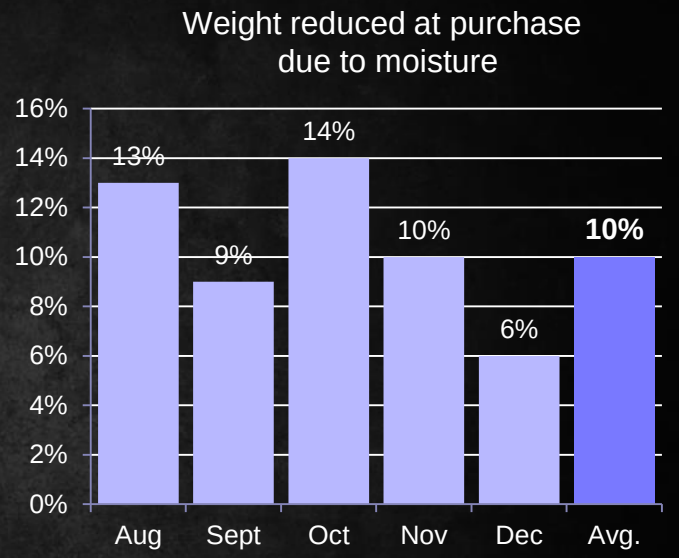
How did we do it?

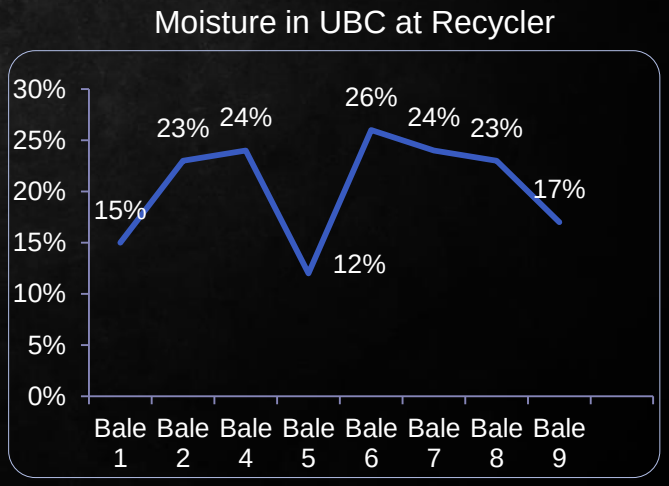
- Used analogy of waste paper prices
- Waste dealers are used to differential prices by season in other waste grades
- Demonstrating moisture losses during baling

How did waste dealers react?

- Pickups stopped 15 days; then resumed

What was the impact?
Savings of at least 10% of purchase costs





Minimising transport costs

→ Improve daily route mapping of truck
- Enforce at least 2 trips / day
- Start early to reach collection points

→ Prioritize pickups
- Focus on higher volumes points
- Maximise load- factor
- Pickups after validating by field staff

→ Minimize hired vehicle usage
- Long distance covered by own vehicle
- Hired vehicle use for short distances

	Before	After
No. of trips by truck / month	33	55
Average quantity picked up/ trip	245	288

High costs due to single material collection: what are we doing on this?

Started a joint project to leverage commonality of waste value chain for PET and cartons

Consumer

Waste Picker

Waste Dealers

Recyclers

PET traders/
Collection centers

Carton
Collection centers

Recyclers

Multi Material Collection Centers

Ganesh: the largest used PET recycler in India

→ Coca Cola bottlers can sell their PET factory waste to Ganesha

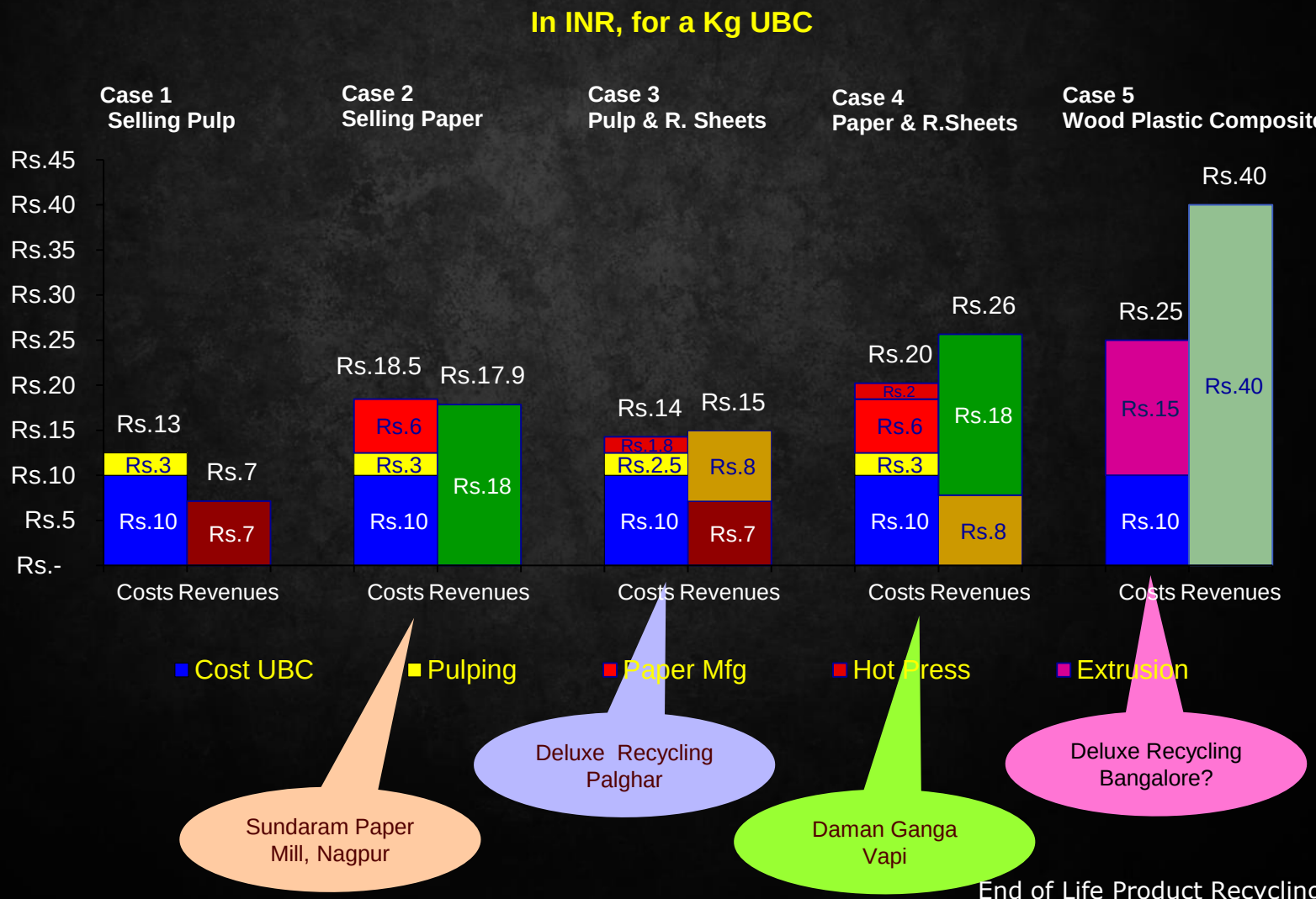
→In return, Ganesha will set PET collection centers at places of our choice

→ In order to increase viability of such centers, will additionally collect used cartons.

1st Center launched in Lucknow City

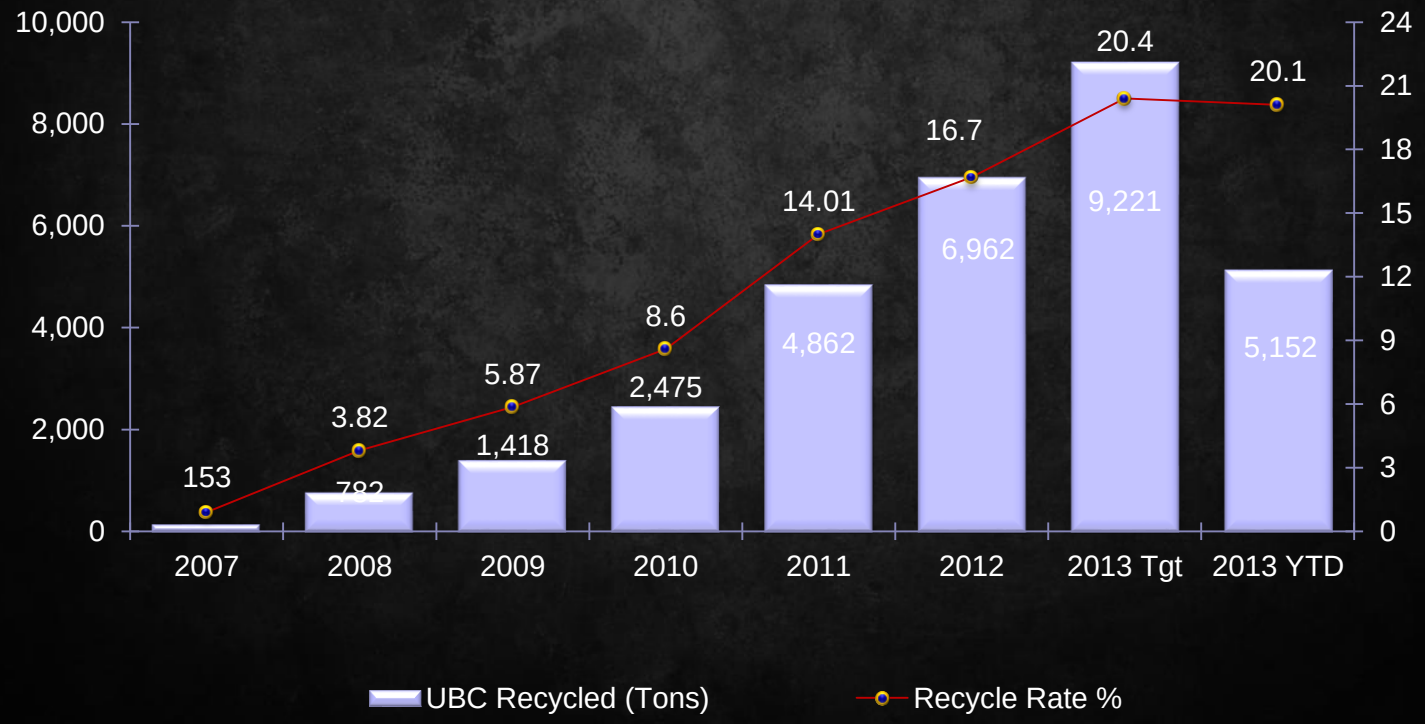
2nd being planned in Ludhiana

Challenge: Having strong recyclers with focus on profitable end-products



Today, 1 of 5 cartons recycled

South Asia Markets [India, Bangladesh, Sri Lanka, Nepal and Bhutan]



Questions | Discussion