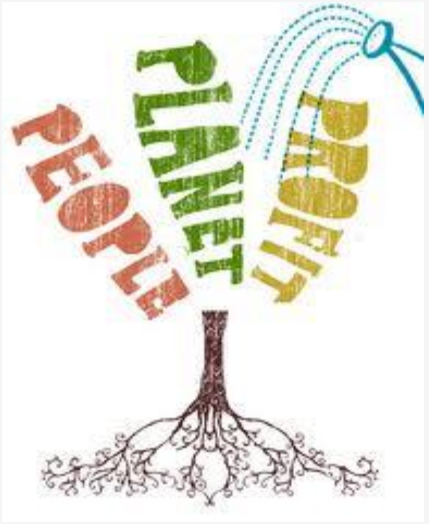




# *SUSTAINABLE WASTE MANAGEMENT*

*Hindustan Coca-Cola Beverages Private Limited, Kemam*

**An ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007 and FSSC 22000:2011 Certified Unit**

# PLANT PROFILE


- Started with one 600 BPM CSD RGB Line in March 1997.
- Added one more 600 BPM CSD RGB Line and 225 BPM Maaza Line in 2000
- Installed 600 BPM PET CSD line in the year 2011

Total Area available – 49 Acres
Plant & Built up Area – 16 Acres
Green belt Area- 33 Acres

# SUSTAINABILITY VISION- 2020

**TCCC Vision 2020** — Growing our business by making positive difference in the communities we serve

## ME

### PERSONAL WELL-BEING

- Active Healthy Living
- Inspire Hydration Choices
- Responsible Marketing
- Champion Balanced Diets – *work in progress*

## WE

### SOCIAL WELL-BEING

- Women's Empowerment
- Human & Workplace Rights
- Strengthen Community Foundations – *Support My School, Parivartan, Vitingo, CDCs, LBR quiz*

## WORLD

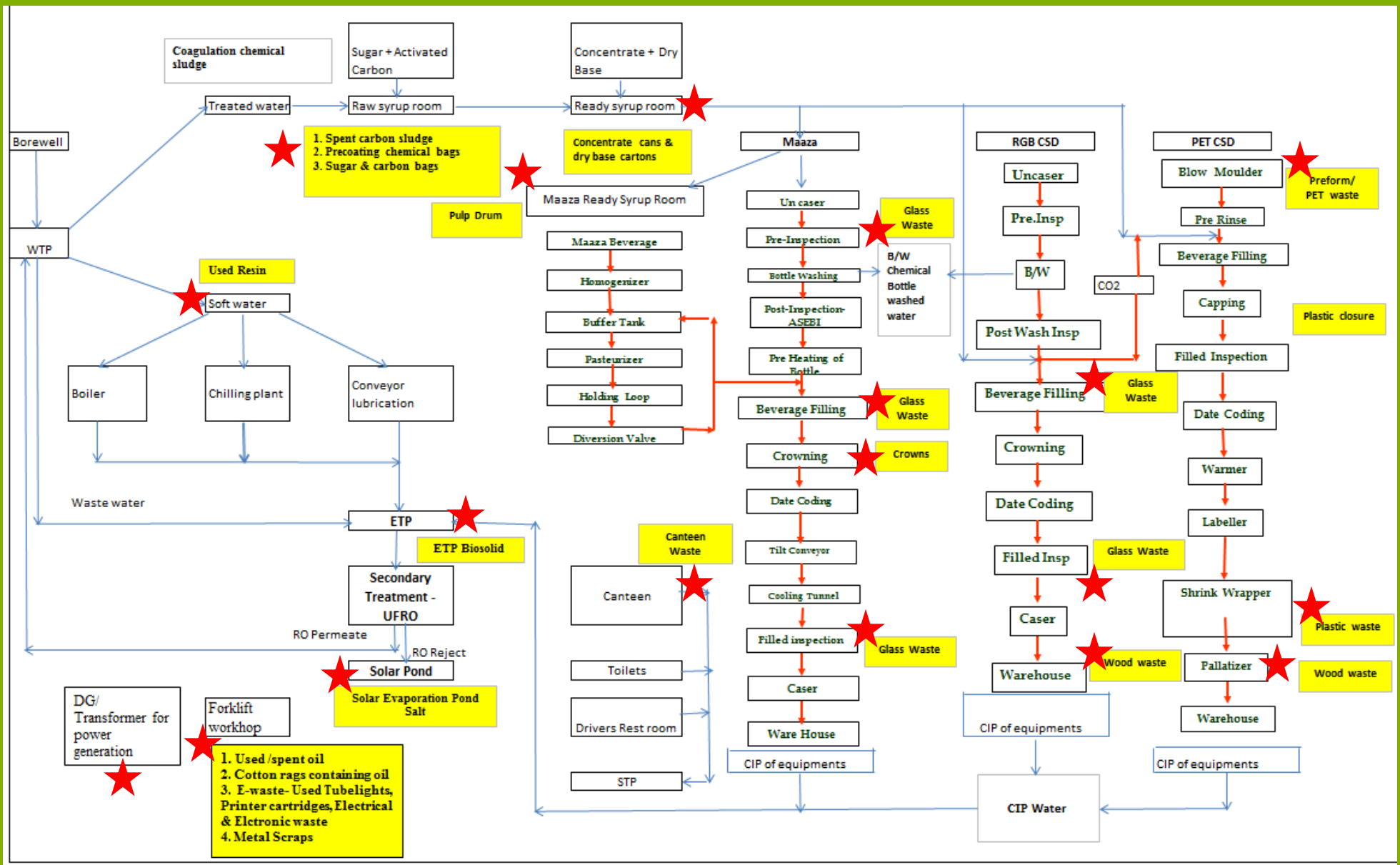
### ENVIRONMENTAL WELL-BEING

- Water – *water replenishment initiatives,*
- Packaging – *recycling (pilots underway)*
- Climate – *solar & Eutectic coolers, Top-20 energy reduction initiatives*
- Source Sustainably – *Unnati, Sugar*

In the plant waste is categorized into :

- **Solid Waste**
  - Hazardous waste
  - Non Hazardous waste
- **Liquid Waste**
  - Process Effluent Water
  - RO Reject Water
  - Sewage Water
- **Gaseous Waste**
  - SOX
  - NOX

# SOURCE OF GENERATION



# WASTE MANAGEMENT-TYPES


- Hazardous waste-ion exchange resin and Used oil are Stored in secured place and disposed to PCB authorized vendors .(Spent Carbon ,ETP & WTP Sludge are Non Hazardous waste as per characterization under Schedule II of Hazardous waste handling rules-2008)
- Non hazardous waste like glass, plastic, wooden, metals, carton scrap are segregated and stored separately and disposed through different vendors for recycling. These vendors facility and their processes are audited once in 3 years
- Effluent water is treated at in house through RO treatment plant which is used after treatment for gardening, crate washing, floor cleaning, cooling tower , Boiler feed etc., and some quantity is disposed after treatment and used for Green Belt development. (For tree plantation purpose) as per CFO norms
- RO Reject Water-is Solar evaporated in Elevated Solar evaporation spray Pond
- Sewage water is treated at in house sewage treatment plant and after treatment is used for gardening
- SPM, SOX & NOX emissions generated from the boilers of capacity 2Ton & 3Ton and DG sets of capacity 750 KVA (2 Nos.) and 1250 KVA (2 Nos.) are released safely to the environment through 30 mts height chimneys attached to the equipment as per CFO norms

# WASTE CLASSIFICATION & MANAGEMENT

| Sl.No | Wastes generated | Classification | | | | | | | Handling Method | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | solid | liquid | semi solid | hazardous | Non-hazardous | Bio degradable | Non-bio degradable | Recycled | Reused | Re processed | Incineration | Land filling |
| 1 | Glass bottles | ✓ | | | | ✓ | | | ✓ | | | | |
| 2 | Pulp Barrells or drums | ✓ | | | | ✓ | ✓ | | | ✓ | | | |
| 3 | Polythene covers & other plastic waste | ✓ | | | | | | ✓ | ✓ | | | | |
| 4 | Crown | ✓ | | | | | ✓ | | ✓ | | | | |
| 5 | Wooden scrap | ✓ | | | | ✓ | ✓ | | ✓ | | | | |
| 6 | Plastic Cans | ✓ | | | | | | ✓ | | ✓ | | | |
| 7 | Carton box | ✓ | | | | | ✓ | | ✓ | | | | |
| 8 | Plastic Closure | ✓ | | | | ✓ | | ✓ | ✓ | | | | |
| 9 | Used oil | | ✓ | | ✓ | | | | | | ✓ | | |
| 10 | Canteen wastes/ General Garbage | | | ✓ | | ✓ | ✓ | | | | | | ✓ |
| 11 | Spent Carbon Sludge | ✓ | | | | ✓ | ✓ | | | | ✓ | | |
| 12 | WTP sludge | | | ✓ | | ✓ | | | | | ✓ | | |
| 13 | ETP Bio mass sludge | ✓ | | | | ✓ | | | | | ✓ | | |
| 16 | PET bottles | ✓ | | | | ✓ | | ✓ | ✓ | | | | |
| 17 | Plastic crates | ✓ | | | | | | ✓ | ✓ | | | | |
| 18 | Oil containing cotton wastes | ✓ | | | ✓ | | | ✓ | | | | ✓ | |
| 19 | Metal.scrap (MS,SS,Al etc.) | ✓ | | | | | ✓ | | ✓ | | | | |
| 20 | Used cartridge/RO filters | ✓ | | | | ✓ | | ✓ | | | | ✓ | |
| 21 | Boiler ash | ✓ | | | | | | | | | ✓ | | |
| 22 | Used Resin | | ✓ | | | ✓ | | | | | | | ✓ |
| 23 | Bio Medical Waste | ✓ | | | | ✓ | | ✓ | | | | ✓ | |
| 24 | E-waste | ✓ | | | | ✓ | | | ✓ | | | | |

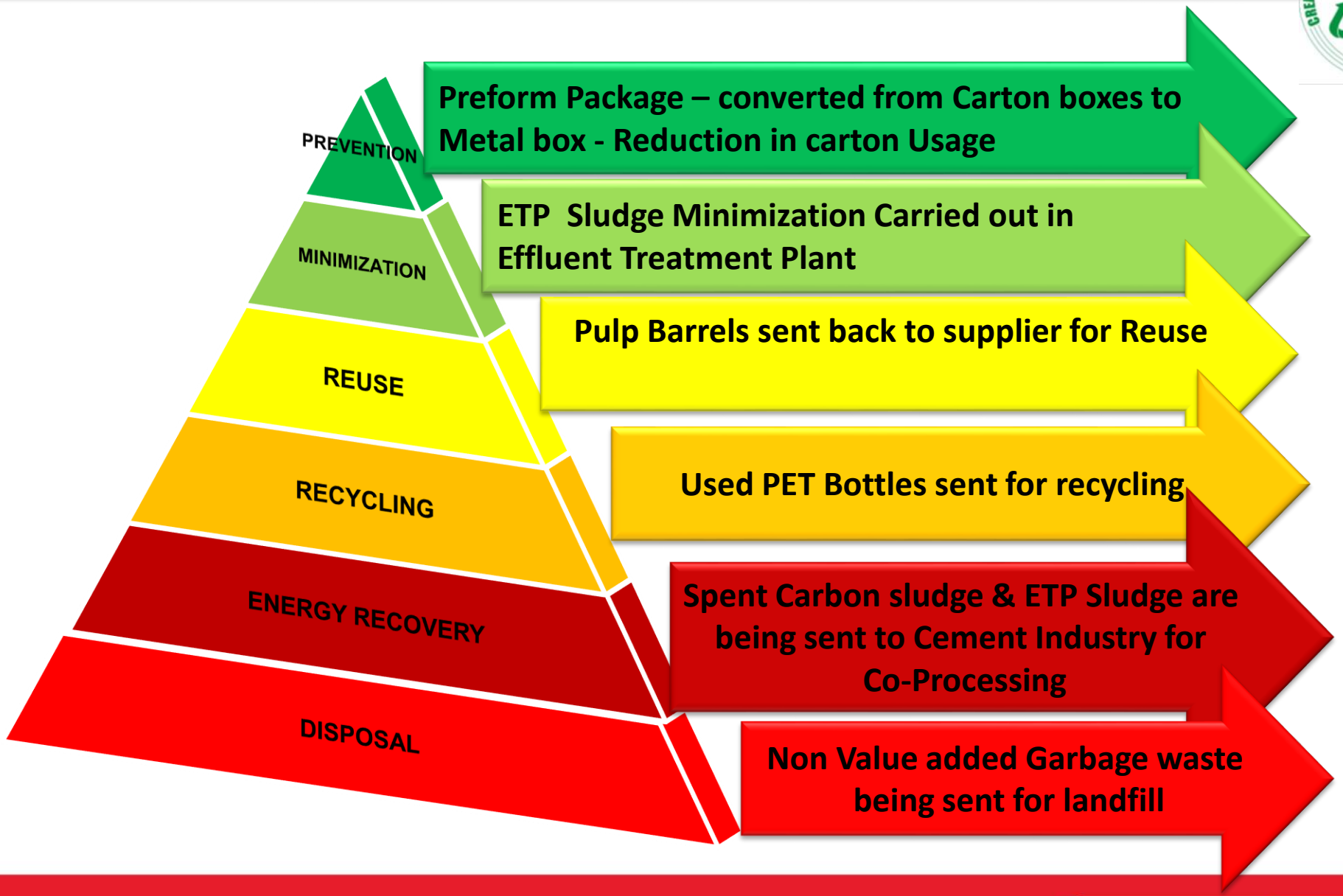
# WASTE MANAGEMENT- Road Map

## Waste Management Short Term & Long Term Targets

| Objectives | 2013 | ROAD MAP | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| **1.Solid Waste** | | | | | | | | |
| Hazardous Waste (gms./Ltr.of Bev.) | 2.81 | 0.20 | ZERO LAND FILL | | | | | |
| Non Hazardous Waste (gms./Ltr.of Bev.) | 12.28 | 10.00 | 9.50 | Zero Land Fill | | | | |
| **2.Liquid Waste** | | | | | | | | |
| Effluent Water (Ltrs./Ltr.of Bev.) | 0.72 | 0.45 | 0.40 | 0.35 | Zero Liquid discharge | | | |
| Sewage Water (Ltrs./Ltr.of Bev.) | 0.018 | 0.015 | 0.014 | 0.013 | Zero Liquid discharge | | | |
| RO Reject Water | Zero Liquid Discharge | | | | | | | |
| **3.Gaseous Waste** | | | | | | | | |
| SOX (Kgs / Day) | 107 | <80 | <55 | <50 | <48 | <45 | <42 | <40 |
| NOX (Kgs / Day) | 104 | <60 | <48 | <45 | <42 | <40 | <38 | <35 |

**Plan for Change over to Briqutte-Agri waste based**

# WASTE MANAGEMENT-Strategies



# Waste Management System: Hazardous Waste Storage areas with Access control

Hazardous & Non hazardous waste segregation at generation point


Used oil storage area

Used tube lights storage

# Waste Management System: Non Hazardous Waste Storage area


Garbage & Broken glass storage

Plastic & Wooden Scrap storage

Cartons & HDPE bags storage

MS Drums storage

# Solid Waste Management


**ETP sludge reduction**

- Optimized usage of BIOX
- Optimized MLSS maintenance in Aeration Tank
- Training to operators on ETP operations including sludge management

**WTP sludge reduction-**

- By maximum utilization of de-alkalized system

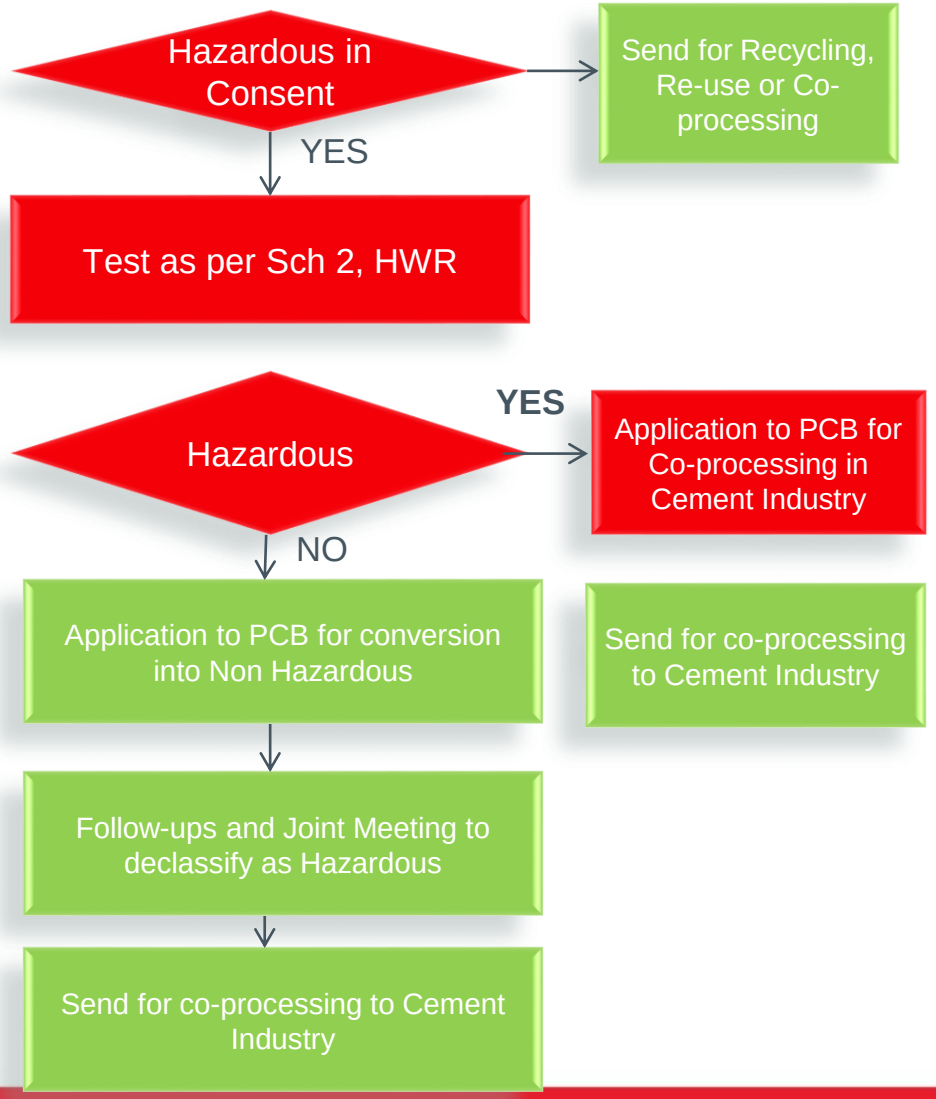
**Used Oil reduction-**

- By optimization of oil usage in the plant

**Other Non Hazardous Waste Management**

- By Reduced filled rejections of PET, glass in production
- By Introduced paper pulp pallets to reduce the wooden waste generation
- By Used metal containers to reduce the carton scrap generation
- By optimizing Steam Pressure & decreased burning of Furnace oil and Flue emissions –Change over to Briqutte –Agri waste based fuel

# TARGET – ZERO LANDFILL



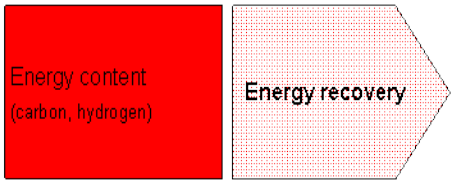
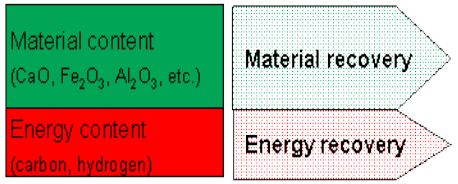
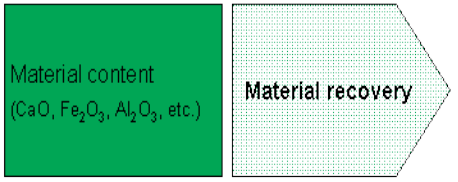

- **Key Waste Categories**:
  - ETP Sludge
  - WTP Sludge
  - Boiler Ash
  - Spent Carbon
- **ETP Bio solids, WTP Sludge ,Spent Carbon –For co-processing in Cement Industry- On priority. –Awaiting PCB approval**
- Other wastes Under trials at ACC for Feasibility study of co processing

Co-processing : Energy recovery at high temperature and ash used in cement manufacturing.

# CO PROCESSING OF WASTE & ITS BENEFITS @ ACC Madukarai

- Use of waste
  - As raw material
  - As a source of energy
  - Or both to replace natural mineral resources (material recycling) and fossil fuels
- Waste materials used for Co-processing- referred as alternative fuels and raw materials (AFR).

- ❖ Conserve natural (non-renewable) resources
  - ❖ For Energy and Materials
- ❖ Reduce emissions of greenhouse gases
  - ❖ Reduce global warming
- ❖ Positive impact on integrated environmental indicators-ecological footprint
- ❖ Save landfill space and reduce the pollution caused by the disposal of waste
- ❖ Dispose waste completely -eliminating potential future liabilities.

| Waste | Substitution | Examples |
|---|---|---|
|  | Substitution of fossil energy | Solvents<br>Waste oil<br>Waste plastics |
|  | Substitution of raw material<br>Substitution of fossil energy | Used tires<br>Used paints<br>Industrial sludge |
|  | Substitution of raw material | Molding sand<br>Blast furnace slag<br>Fly ash & bottom ash<br>By-product gypsum |

# SUSTAINABILITY PROJECT – PET RECYCLING

# ENVIRONMENTAL BENEFITS – PET RECYCLING

- Oil Conservation – One ton of PET recycling saves 3.8 barrels of crude oil


- Landfill Space saving – One ton of PET recycling saves 6.5 cubic meters of landfill space.

- Green House emissions reduction – Recycling 1 ton of PET saves 1.5 tons of Carbon Dioxide vs. land filling or incineration


- Energy Conservation– Recycling each plastic bottle can conserve enough energy to light a 60W light bulb for upto 6 hours

**Give PET a second life ! Some benefits of PET Recycling**

# Awareness and Drawing competition on PET Recycling

- PET Awareness Presentation given to school children- Papparambakkam Government School

# Rally on PET Recycling with school Children



# THANK YOU


Don't trash our future.
Recycle


Please do not Litter.
Dispose of all trash in the Dumpster.
Think Before
R- RECYCLE
R- RESPOND
R- REUSE
R- RESPECT
R- REDUCE
1
2
3
4
5