

Khutale Engineering Pvt. Ltd.

# WELCOMES

You



**Location : Satara ( 115 Kms away from Pune )**

**Manpower-64 (26 Females + 38 Males)**

**Floor area 10700 sq ft. (+2800 Sq. Ft Expansion)**



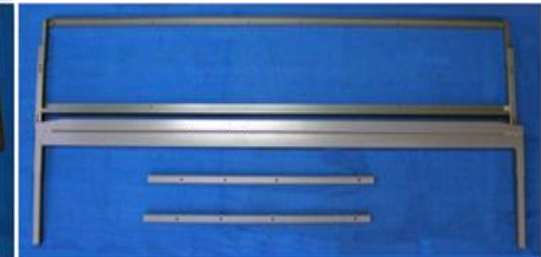
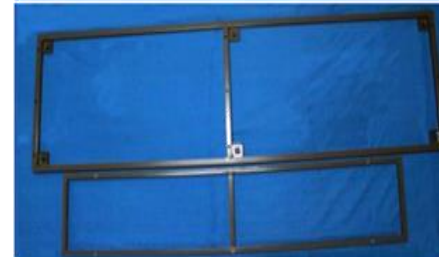
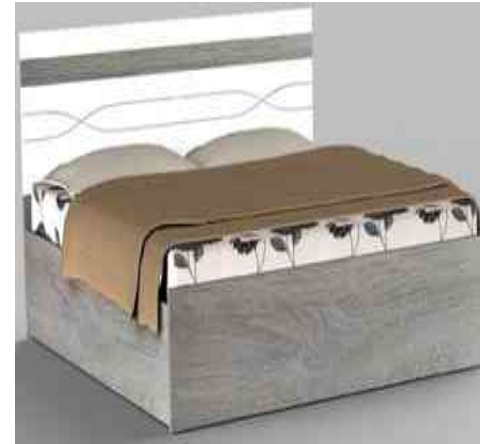
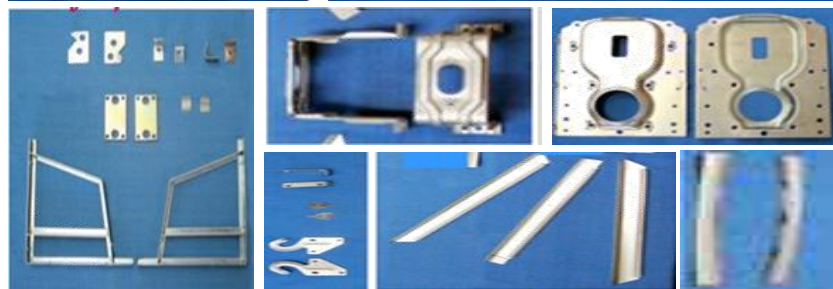
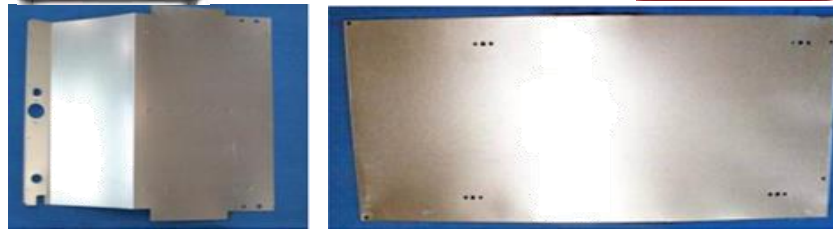
## Garden Green Outside & Hospital Clean Inside...!



- Manufacturer of Sheet Metal press components ,
- Tubular fabrication, Assemblies with ConveyORIZED Powder Coating, ROHS Zinc Plating, Inspection – Testing, ETP and allied facilities
- An ISO 9001:2015 QMS & ISO 14001:2015 EMS certified company.
- Business Excellence Manufacturing Organization
- CRISIL SE1B rating
- CII GreenCo Platinum Rated Company.

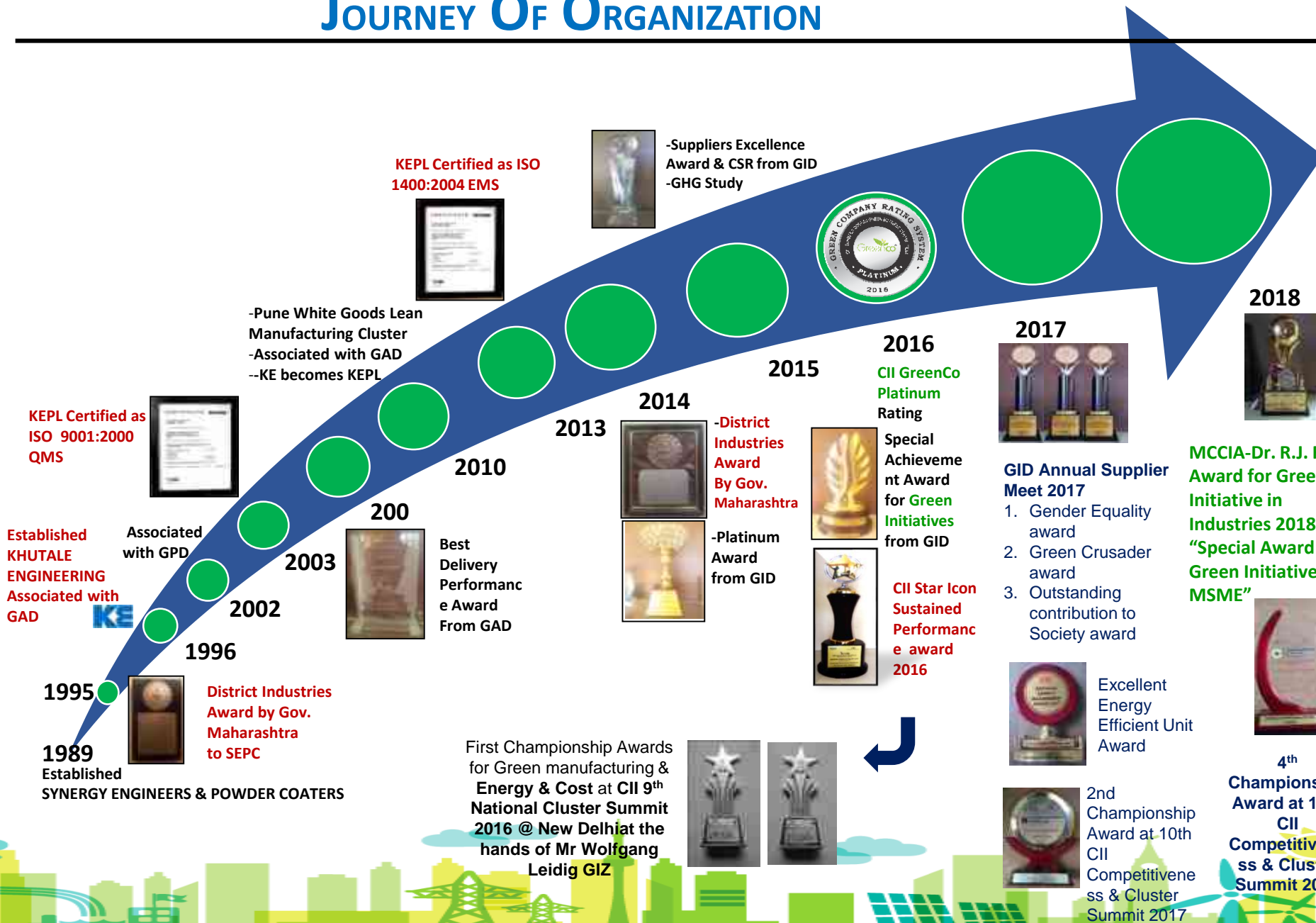








# JOURNEY OF ORGANIZATION



**1989**  
Established  
SYNERGY ENGINEERS & POWDER COATERS



**1995**  
District Industries  
Award by Gov.  
Maharashtra  
to SEPC

Established  
**KHUTALE**  
ENGINEERING  
Associated with  
GAD



Associated  
with GPD



KEPL Certified as  
ISO 9001:2000  
QMS

**1996**

**2002**

**2003**



Best  
Delivery  
Performance  
Award  
From GAD

**200**

**2010**

-Pune White Goods Lean  
Manufacturing Cluster  
-Associated with GAD  
--KE becomes KEPL

KEPL Certified as ISO  
1400:2004 EMS



**2013**



-District  
Industries  
Award  
By Gov.  
Maharashtra

**2014**



-Platinum  
Award  
from GID

**2015**



Special  
Achievement  
Award  
for Green  
Initiatives  
from GID

**2016**

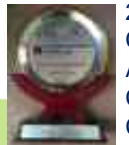
CII GreenCo  
Platinum  
Rating



CII Star Icon  
Sustained  
Performance  
award  
2016



Excellent  
Energy  
Efficient Unit  
Award



2nd  
Championship  
Award at 10th  
CII  
Competitiveness & Cluster  
Summit 2017



First Championship Awards  
for Green manufacturing &  
Energy & Cost at CII 9<sup>th</sup>  
National Cluster Summit  
2016 @ New Delhi at the  
hands of Mr Wolfgang  
Leidig GIZ

-Suppliers Excellence  
Award & CSR from GID  
-GHG Study



**2017**



GID Annual Supplier  
Meet 2017

1. Gender Equality award
2. Green Crusader award
3. Outstanding contribution to Society award

**2018**



MCCIA-Dr. R.J. Rathi  
Award for Green  
Initiative in  
Industries 2018  
"Special Award for  
Green Initiative by  
MSME"



4<sup>th</sup>  
Championship  
Award at 11th  
CII  
Competitiveness & Cluster  
Summit 2018



Approach prior to Lean & Green implementation lingered around

# Profit & Numbers

Although we wished to make our organization World Class with

Best Work Practices

Manufacturing Excellence

Competitiveness

Productive

Efficient

&

Green





# How to change the traditional bad practices ,Reduce Losses & make Transformation ?????



**Only Lean & Green can bring any business out of Red.**

**Lean & Green Journey started....**

**Lean can be Green & Green can be Lean....**





1

## Pune White Goods Lean Manufacturing Cluster

- Initiated by Godrej Appliances & MCCIA, Pune in 2010.

2

## CII Godrej Interio Vendor Basic Cluster-IV

- Initiated by Godrej Interio & CII in June-2012

3

## ISO 14001:2015 Initiated & Completed in 2013

•

4

## CII Godrej Interio Advance Manufacturing Excellence Cluster

- Initiated by Godrej Interio & CII in 2014

5

## Green Manufacturing-GreenCo Rating initiated & Completed in 2016

- Initiated by Godrej Appliance & CII GBC ..

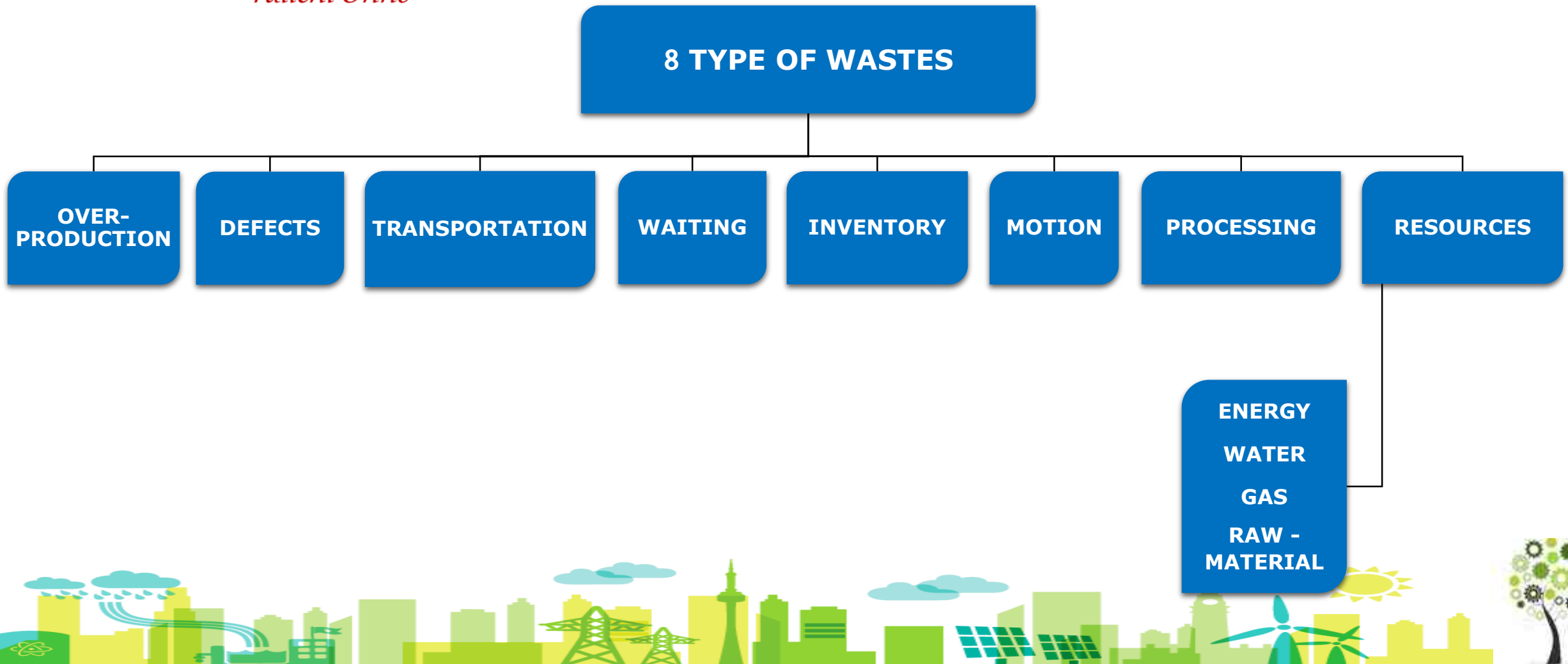
6

## CII Godrej Interio ZED-Zero Defect Quality Cluster initiated in 2019



*All we are doing is looking at the time line, from the moment the customer gives us an order to the point when we collect the cash. And we are reducing the time line by reducing the non-value adding wastes.*

*Taiichi Ohno*



# GreenCo journey started.....



## Why Green Initiatives ????

- Concerned about impending impact on the Environment & phenomenon of Climate change.
- Inspiration from Gandhiji's thoughts on Environment , Making awareness
- Motivation of Customer Godrej Appliance & Godrej Interio & Emulation of their Good & Green Practices.
- Compliance of ISO 14001:2015 EMS Certification & fulfillment of management programs-Optimal use of Natural Resources & Better Emission & discharge standards.
- Learning of CII Lean Clusters Journey





## *Best Practices Before GreenCo.....*

- ETP was in Place. Rain Water Harvesting. Drip irrigation. Sprinklers.
- Transparent roof Sheets. Roof Ventilators.
- Usage of CFLs/LEDs . Timers. APFC Panel. Usage of optimum HP of Elect Motors.
- Usage of Chrome free PT chemicals. RoHS Compliance. Member of Common Hazardous Waste Treatment, Storage & Disposal Facility (CHWTSDF)
- Recording of Electricity, Water , LPG & RM consumption & Scrap generation religiously since inception.
- Garden surrounding the factory. Efforts to create & maintain Biodiversity
- CSR activities...Swatchhata ,Shramadan, Awareness
- ROHS -GHG Study, ISO 14001-2004 EMS & Incentive by GID, Green Data Generation, Energy Audit , Hand holding Trainings



## After GreenCo Journey started....

- Formation of GreenCo implementation cell and defining roles and responsibilities. Green Vision, Green Policy, Green Purchase Policy made.
- Analyzing, Monitoring Data for Specific consumptions after variance study.
- Excellent synchronization of various processes
- Focused efforts towards Goal.

## Performance Parameters

*The Green Company Rating System advocates a performance based approach.*

- Energy Efficiency
- Water Conservation
- Renewable Energy
- Green House Gas Emission
- Waste Management
- Material Conservation -Recycling & Recyclability
- Green Supply Chain
- Other Areas ( Ventilation, Surroundings, Site location, Innovation & Product Stewardship )



# GREEN VISION

Environment  
Friendly  
Products,  
Processes &  
Operations

RoHS Compliant  
products &  
processes, GHG  
emission  
reduction,  
Green Supply  
Chain & CSR

Energy  
Conservation

5% reduction in  
Energy  
consumption  
YoY  
100% Green  
Power by 2020.

Water  
Conservation

5% reduction in  
Water  
consumption  
YoY

Material  
Conservation

0.5%  
improvement  
in RM yield  
YoY

Waste  
Reduction

Zero  
Waste to  
Land Fill



# Green Policy

**Green Policy**  
**KE KHUTALE** Engineering Pvt. Ltd.

is committed to Environment and conserve Natural Resources.  
 The guiding principle of our Green Policy is ,

## 5 R - Reduce, Reuse, Recycle, Renew and Respect .

We are committed to continually improve the Green performance in our Activities ,  
 Products and Services.

We will strive to :

- Conserve Natural resources such as Energy, Water, RM by optimization of their usage.
- Ensure the use of energy efficient Processes , Products & Technologies to benefit all our stakeholders.
- Adopt measures to prevent pollution by monitoring & controlling Process Water discharge, Air emission , Waste generation & Zero Landfill.
- Recognize and reward the efforts of our employees in conservation of natural resources. Share and enrich our experiences in resource conservation within the company.
- Promote use of Renewable Energy resources and 100% Green Power by 2020.
- Abide by the legal requirements.

We will continue to ensure that our operations comply with all local ,state and central statutory Rules Regulations and standards, relating to environment & conservation of natural resources.

This policy is made available to all employees & our stakeholders.

Place: Satara

Date : 5<sup>th</sup> June 2015 (World Environment Day)

Shirish P. Khutale

CMD

# Pledge For Energy Conservation

Beyond Sourcing...

**Godrej Interio**

Supplier's Energy Conservation Pledge 2015

On this day, I solemnly affirm that I will dedicate myself to the cause of Energy Conservation, both at factories and at offices. I will do my best to observe rules, procedures, regulations, and develop attitude & habits to implement the energy efficiency solutions in the course of carrying out my business.

I pledge to reduce my energy consumption through mindful usage of Machines, Fixtures, Appliances & systems requiring electricity, and by application of Energy Conservation & sustainability principles, as well as use the knowledge & skills that I have learned in the Godrej Interio Vendor Cluster programmes.

In order to meet my pledge; I voluntarily commit to the following energy management programme Initiatives & targets for my organisation

- 1) Effective metering to improve Energy performance by monitoring energy consumption & benchmarking against Industry SME standards.
- 2) Adopting all possible energy saving options, optimised systems wherever possible, to improve productivity, reduce downtime & minimise maintenance requirements - whilst simultaneously reducing energy consumption.
- 3) To achieve reduction in Energy Consumption by 5 to 10 % for my organisation by March 2016, through all such energy management Initiatives.

I also voluntarily commit to behavior change, training and employee engagement programmes for building awareness within my organization & with all my Employees, relatives, friends, and working partners, about Energy Conservation; which is need of the hour. I will do everything possible for Energy Conservation of our services, operations and products, in the interest of self, my family, my community, my nation, and the planet at large.

Anil Mathur (Chief Operating officer)	Zurvan Marolia (Sr VP & Head Product Supply)	Atul Sohani (AVP & Head Strategic Sourcing)
Signature:	Signature:	Signature:
Company Name: Corru Cartons	Jay Industries	Kashik Panel Works Khutale Engineering
Signature:	Signature:	Signature:
Company Name: Mechtech Industries	PME Auto, Palghar	Qualitec Mfg Co Radhe Industries
Signature:	Signature:	Signature:
Company Name: Warehouse Designs	Kawa Engg Works	Carefree Woodworks Woodage Industries
Signature:	Signature:	Signature:
Company Name: Parichal Automobiles	SilverTechno-Mech Pvt Ltd	Prarthana Mfg Co PME Auto, Palghar
Signature:	Signature:	Signature:
Company Name: Reactive Polymers		





## Green Initiatives Undertaken By The Company

1. ENERGY CONSERVATION
2. WATER CONSERVATION
3. MATERIAL CONSERVATION
4. GHG REDUCTION TRANSPORTATION
5. RENEWABLE ENERGY
6. WASTE MANAGEMENT
7. GREEN SUPPLY CHAIN
8. OTHER



# *ENERGY EFFICIENCY*

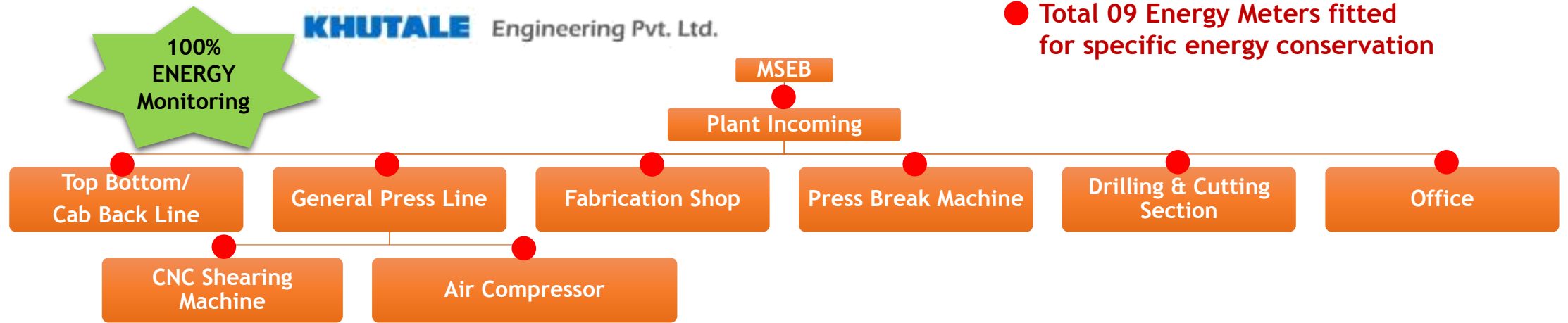


## *Best Practices at KEPL Unit*

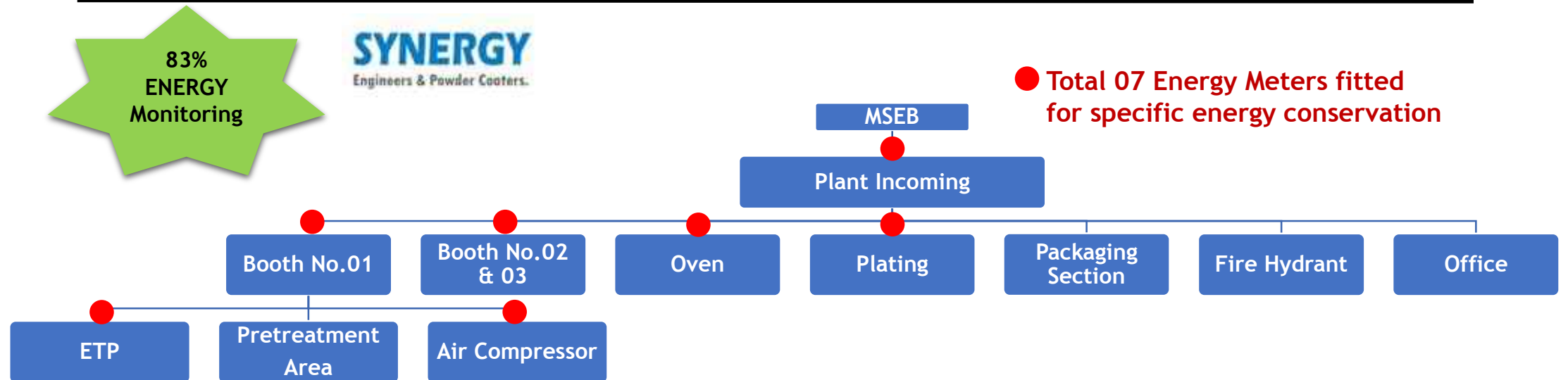
### **Energy Efficiency**

- Various initiatives on reduction in specific energy consumption
- Monitoring of energy consumption at various processes through energy meters and conducting variance analysis
- PQCDSME monitoring and display
- Substantial reduction in specific energy consumption
- Good awareness creation programs for involvement of operators and their families
- Energy efficiency operational practices
- 5S, My Machine, Preventive maintenance



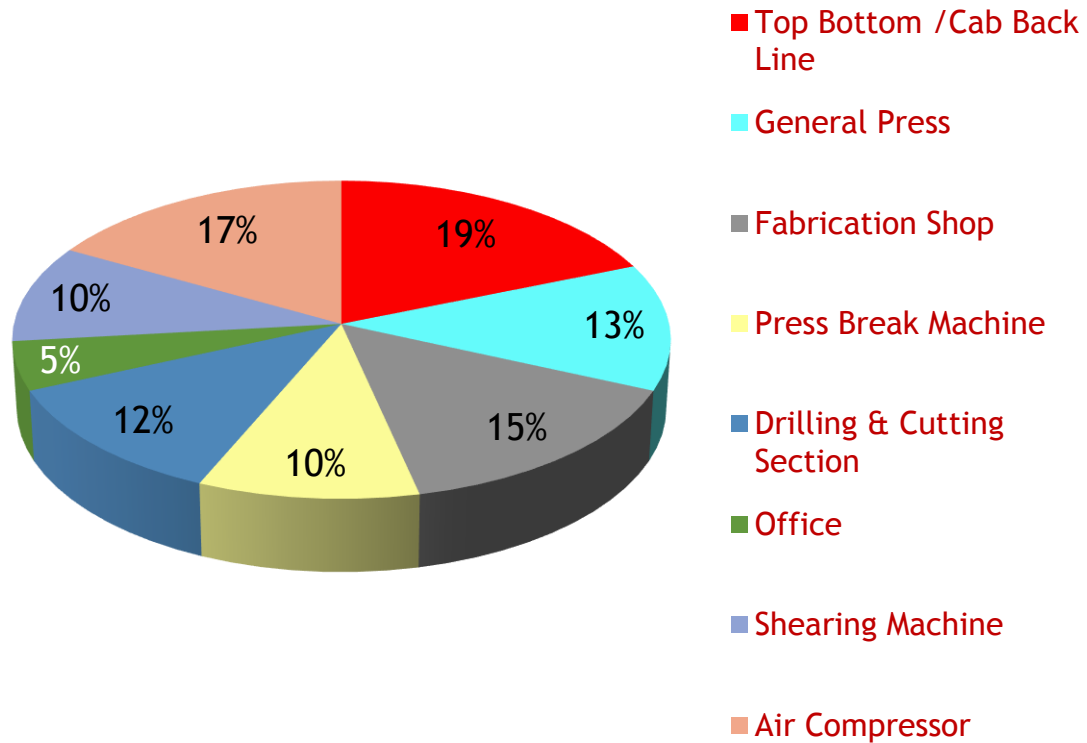


## Distribution of Electricity

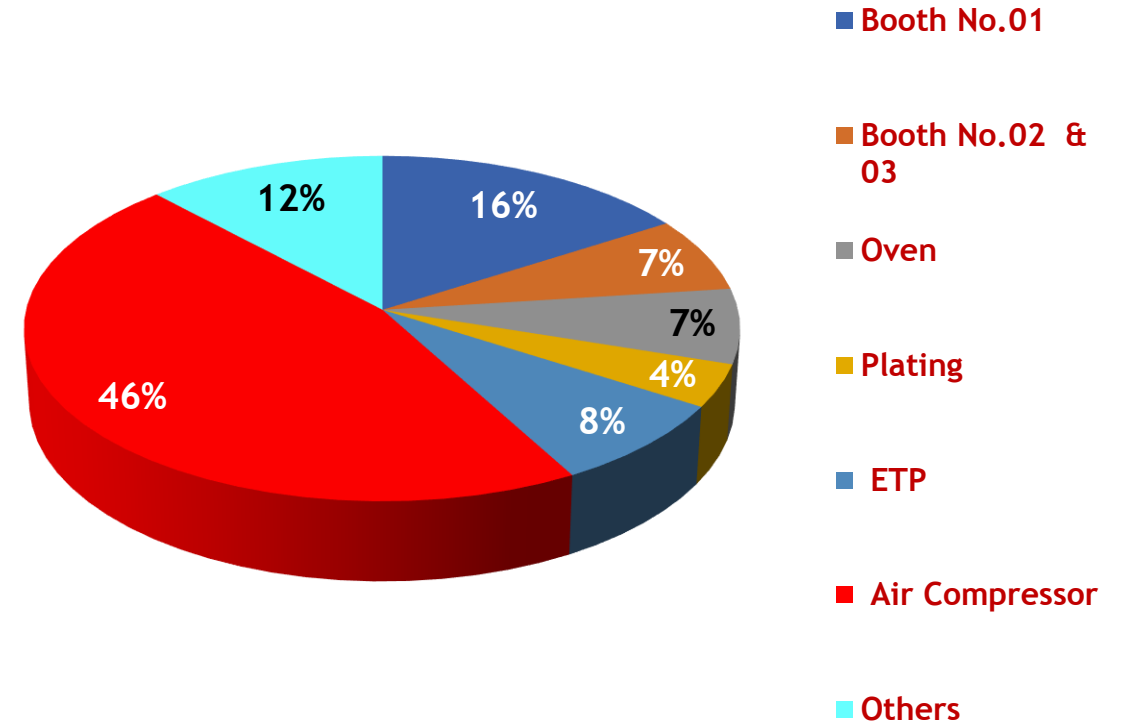




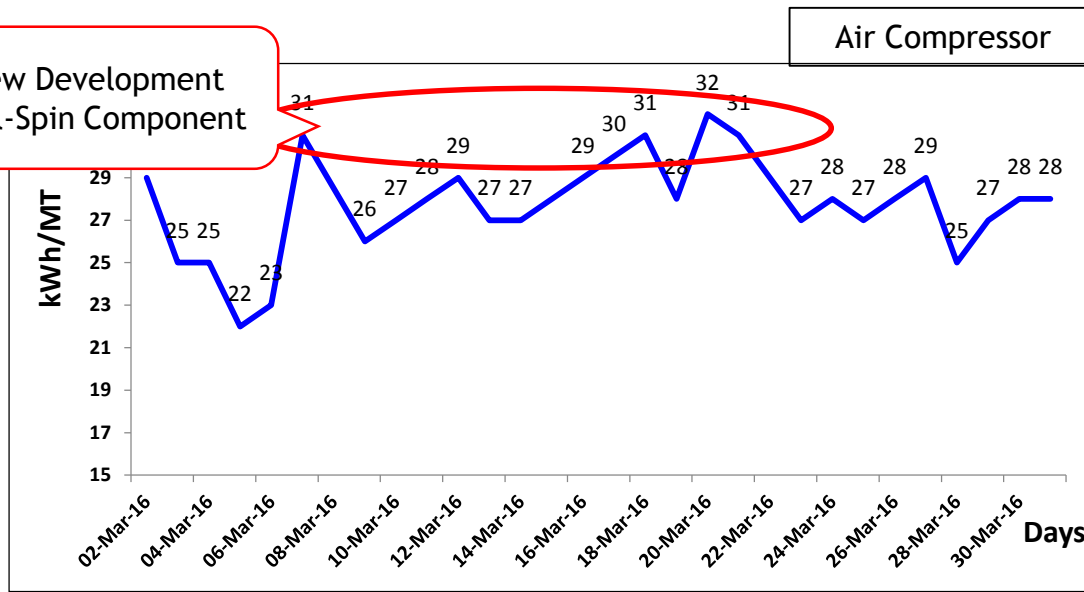
## Electricity Consumption - Contributors (KEPL)



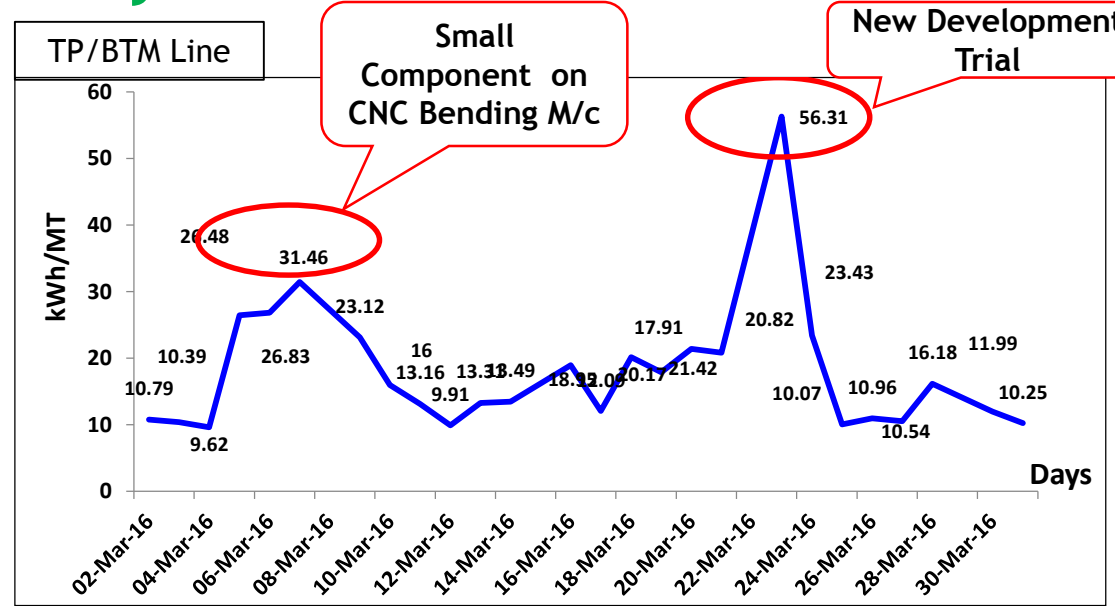
## Electricity Consumption - Contributors (SEPC)



New Development Trial-Spin Component



Small Component on CNC Bending M/c

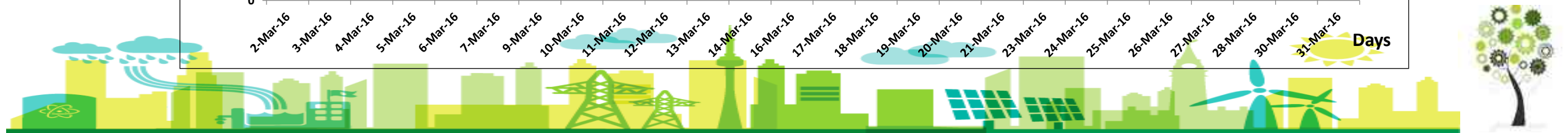
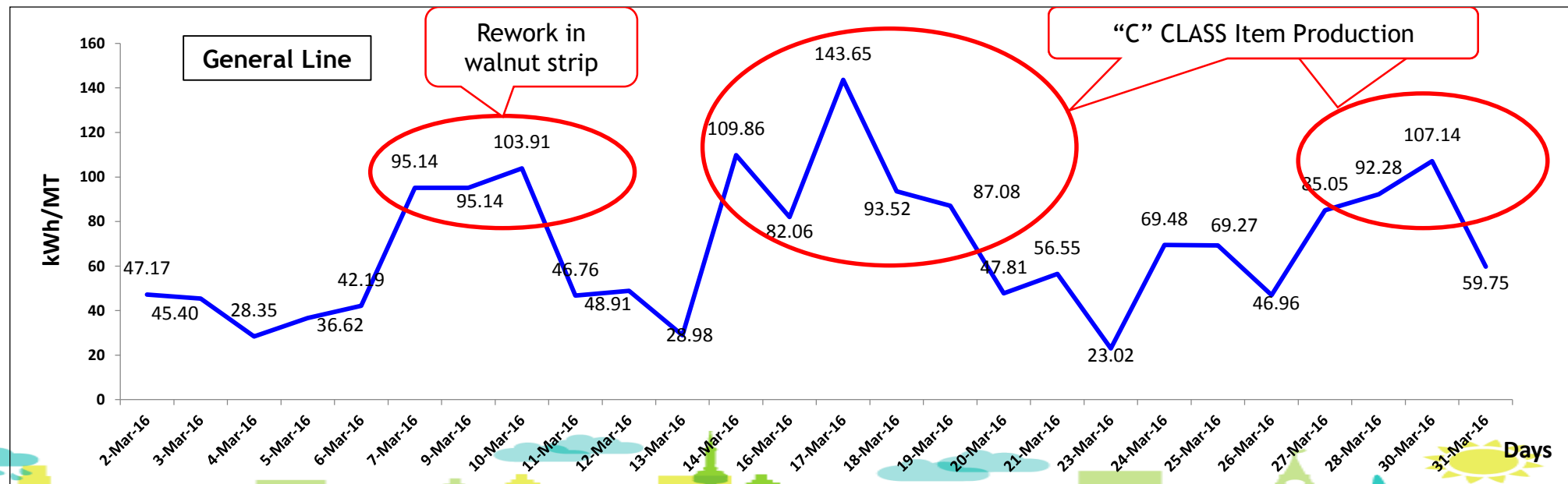


New Development Trial

General Line

Rework in walnut strip

"C" CLASS Item Production



### Before



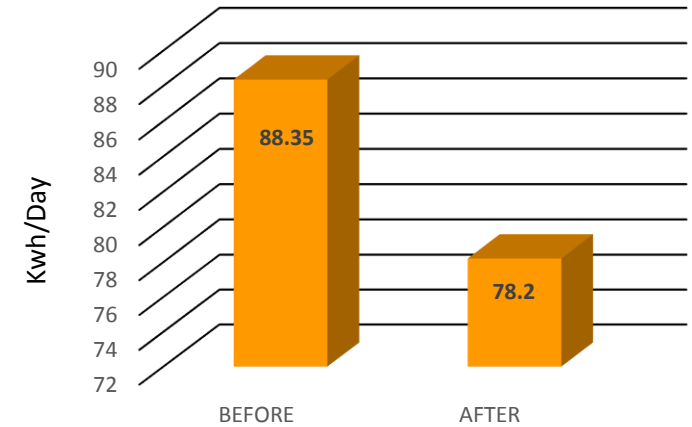
**Reciprocating Air Compressor**

### After



**Energy efficient Screw Compressor**

### Results



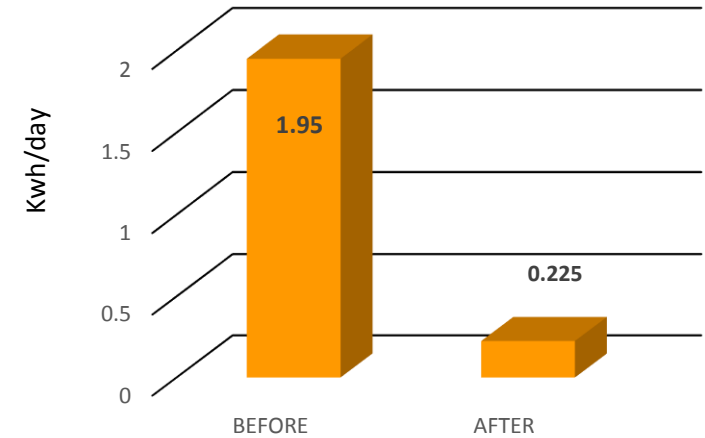
**Benefits : saving 10.15 Kwh/Day Horizontal Deployment : Use screw compressor in both KEPL & SEPC Unit.**



**Angle cutting on cut-off Machine.**



**Die designed to cut in single stroke)**



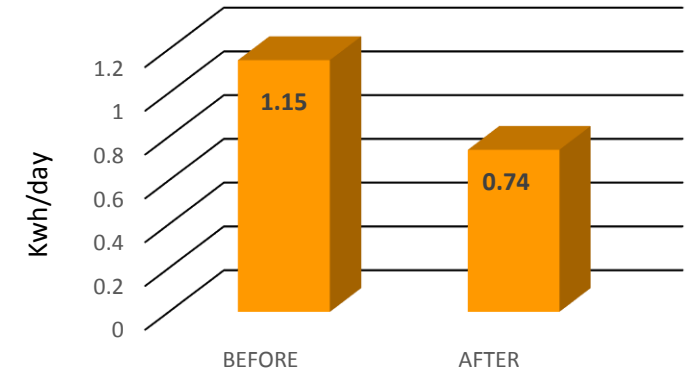
**Benefits : Saved 1.72 Kwh/Day Horizontal Deployment : Square & Rectangular pipe and Rod cutting**



**Before**

**After**

**Results**

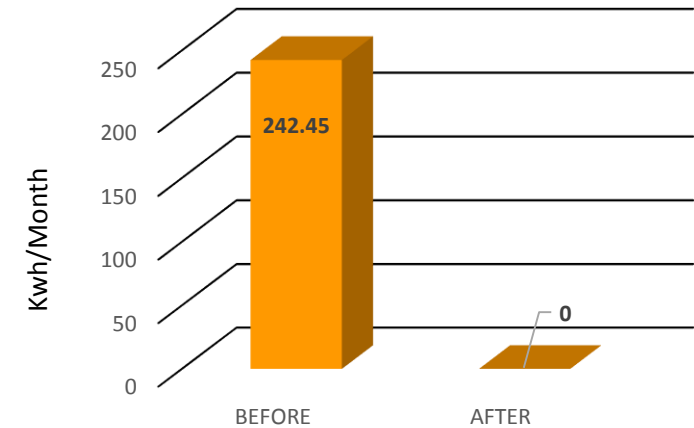


Machine run with out VFD

**Benefits : saving 0.41 Kwh/Day per machine**

Instillation of VFD's

**Horizontal Deployment : Installed on 4 presses & Planned for 5 more Presses**



Std. sheets needing shearing

**Benefits : saving 242.45 Kwh/Month ( for 150 Sets/D Production )**

Cut to size RM

**Horizontal Deployment : Thk. 0.45 -Coil 4 comps, 0.25 CTS 14 comps, 0.8 CTS 4 comps, 1.0 & 2.0 CTS 7 comps. 0.8 CTL 6 comp.**





### Before



Use of CFL (1718 Watts)

Benefits : Saved 848 watts per Day

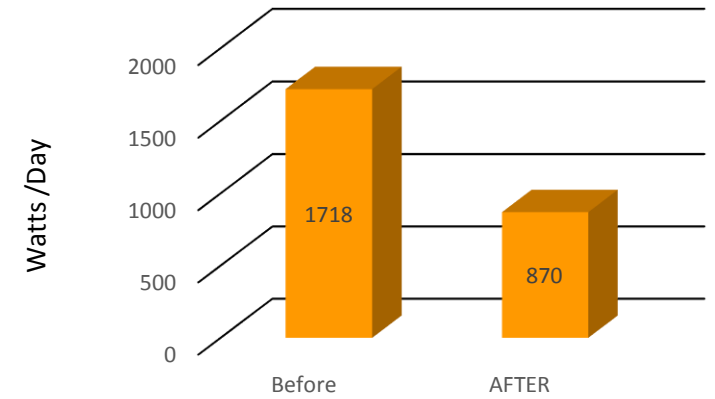
### After



Replace CFL by LED(870Watts)

Horizontal Deployment : All CFL changed to LED

### Results



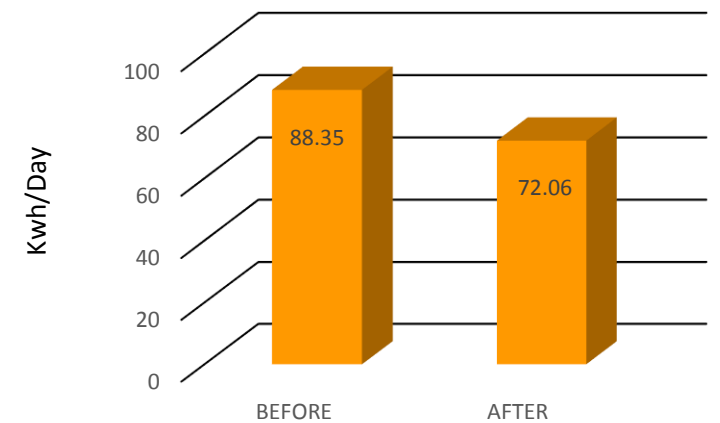
Conventional Air gun

Benefits : Saved 16.29 Kwh/Day



Trans vector Nozzle gun

Horizontal Deployment : Replace all 3 air guns by Trans vector AirGuns



### Before



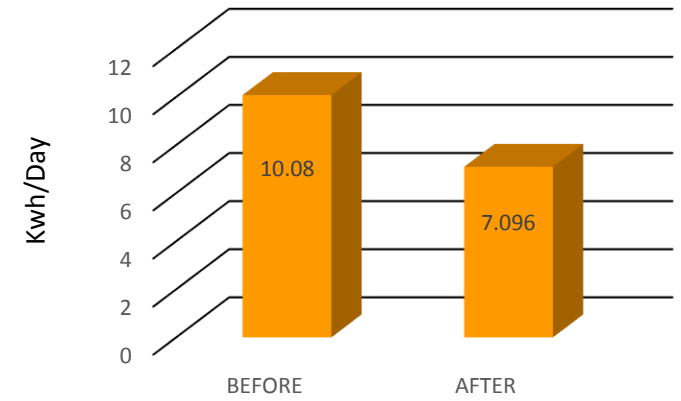
High LPG & Electricity consuming 'MS' trolleys

### After



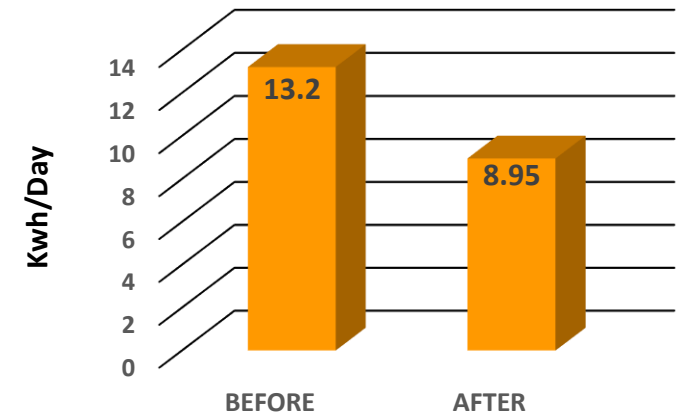
Reduce LPG & Electricity consuming 'Al' trolleys

### Results



Benefits : Saved 2.98 Kwh/ Day Horizontal Deployment : To make additional 4 trollies

### Results



Powder Recovery Blower Motor (3 HP )



Powder Recovery Blower Motor (2 HP )

Benefits : saving 4.25 Kwh/Day per Motor Horizontal Deployment : Other booths three motors replaced





**Before**

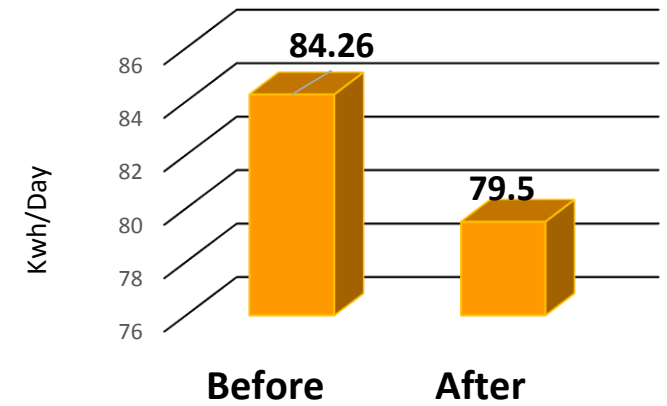
**After**



GI C Class MS Pipes were used for Air lines.



Aluminium high finished pipes used for Air line



**Benefits : Saved 4.76 Kwh/ Day Horizontal Deployment : throughout the factory**



### Before



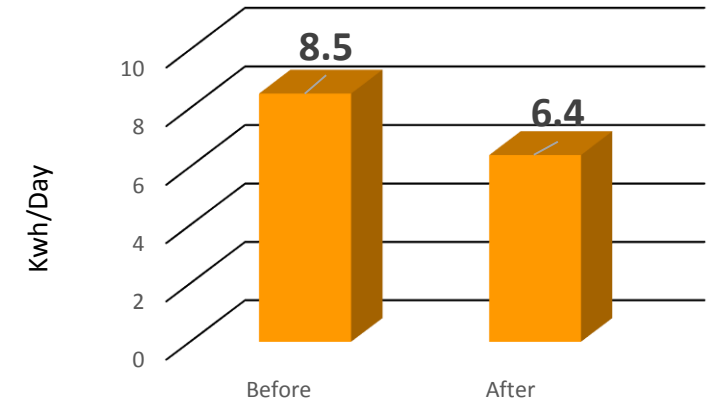
Electric Motor with IE1 class

### After



Electric Motor with IE3 class

### Results



Benefits : Saved 2.1 Kwh/ Day

Horizontal Deployment : Backing Oven & Booth no1 ( Total 4 motors replaced till date )



Class Type	Class Number	Efficiency
Standard efficiency	IE1	77.2%
High efficiency	IE2	82.8%
Premium efficiency	IE3	85.9%
Super premium efficiency	IE4	90.1%



### Before



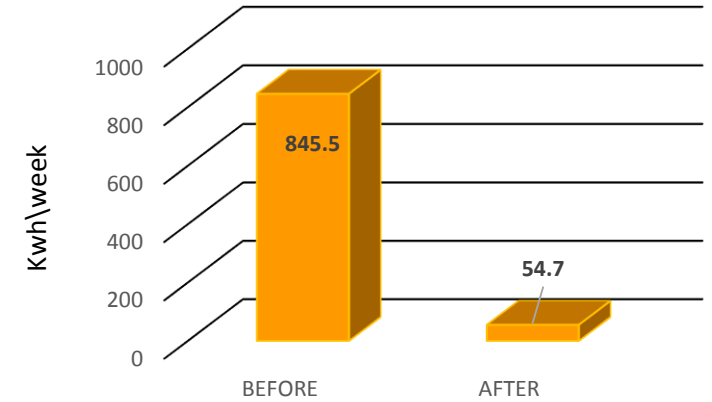
NC Shearing M/C For strip Parting

### After



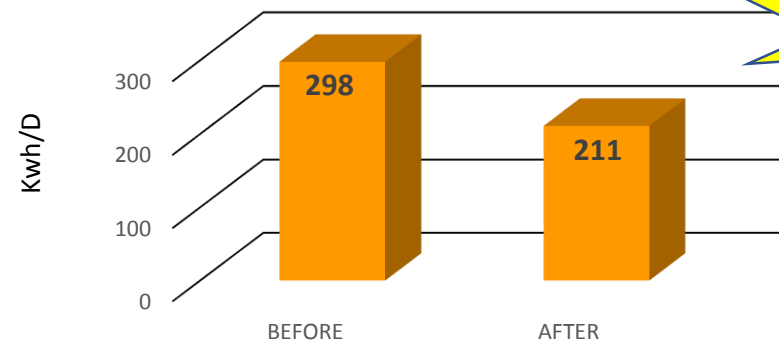
Press tool for strip(W-300) parting

### Results



**Benefits : saving 208 Kwh/Week Horizontal Deployment : CNC Bending Machine (small component bending on power press)**

### Trend chart Analysis



**29% Energy Saved**

**Benefits : Saved 87 Kwh / Day (29 % Energy saved)**







Instead of Procuring Catalogue Machine we ask mfg to customise the machine which suits to our process as well as product  
Catalogue machine had 7hp motor and our product needs 5hp motor so that we procured Shearing machine with 5 hp motor.

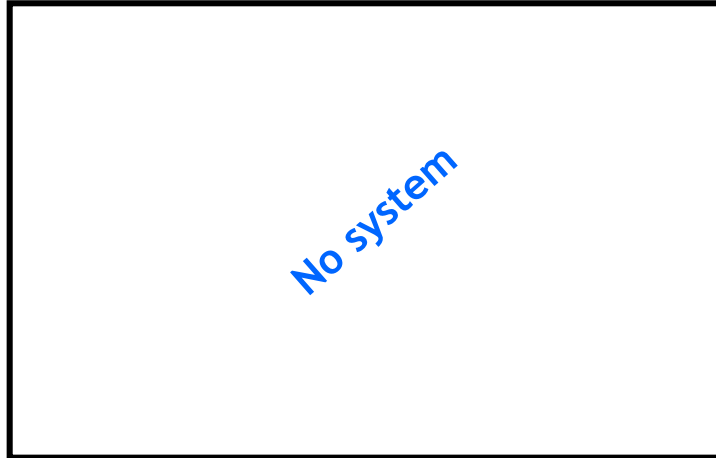


# 2. WATER CONSERVATION

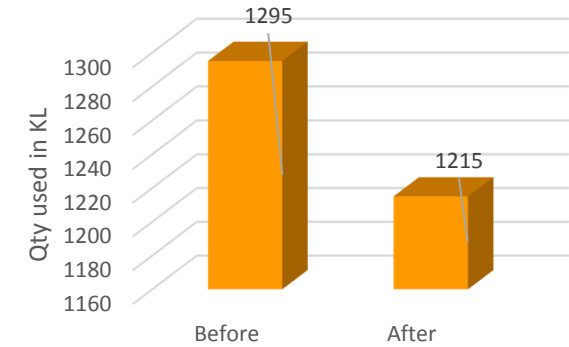
**Before**

**After**

**Results**



Use Qty in Ltr



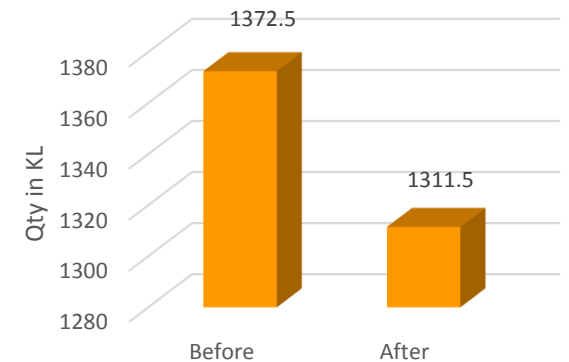
MMIDC water use 100% for P.T  
Benefit - 80KL saved / annum.

Rain water use for PT. for 3 to 4 months & not use MIDC water.

Horizontal Deployment :- for flushing tank & over head storage tank



Use Qty in Ltr



Convectional water taps.  
Benefit :- 6KL save / day.

Push type water tap.  
Horizontally deployment : - done at 10 places.



**Before**



**Regular taps**

**Benefit - It reduces water wastage up to 80%**

**Water Saving Aerators**

Aerator or Adaptor is an innovative water saving solutions for washbasin & sink taps or faucets. These aerators are designed to dispense water at defined flow rate (Say 2 to 8 Liters Per Minute) at any given water bar pressure at home/office with no sacrifice of rinsing ability & aesthetics. It reduces water wastage up to 80% and pays for itself in no time.

**After**



**Water Saving Aerators**





## Before



Manual watering in Gardening.

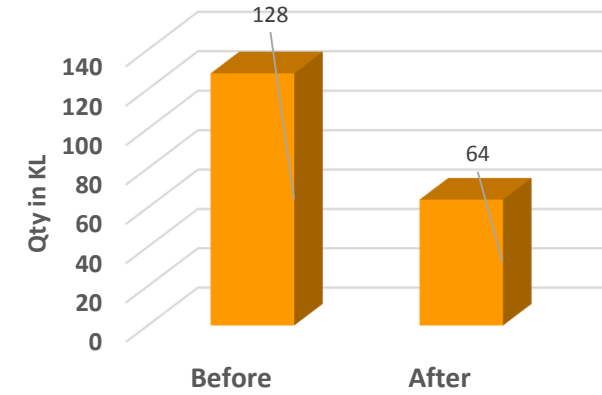
## After



Drip Irrigation & Sprinkler system used in gardening

## Result

Water Used for gardening/annum



Benefit 64 KL saved / Annum.

Horizontal deployment:-For Overall Gardening





**Drip Irrigation system in garden**  
**Water saved 11640 lit/Annum**



**Sprinklers for garden lawn**  
**Water saved - 4080 lit/annum**



**ETP Water used for Water Rinse**  
**14.8 KL/annum**

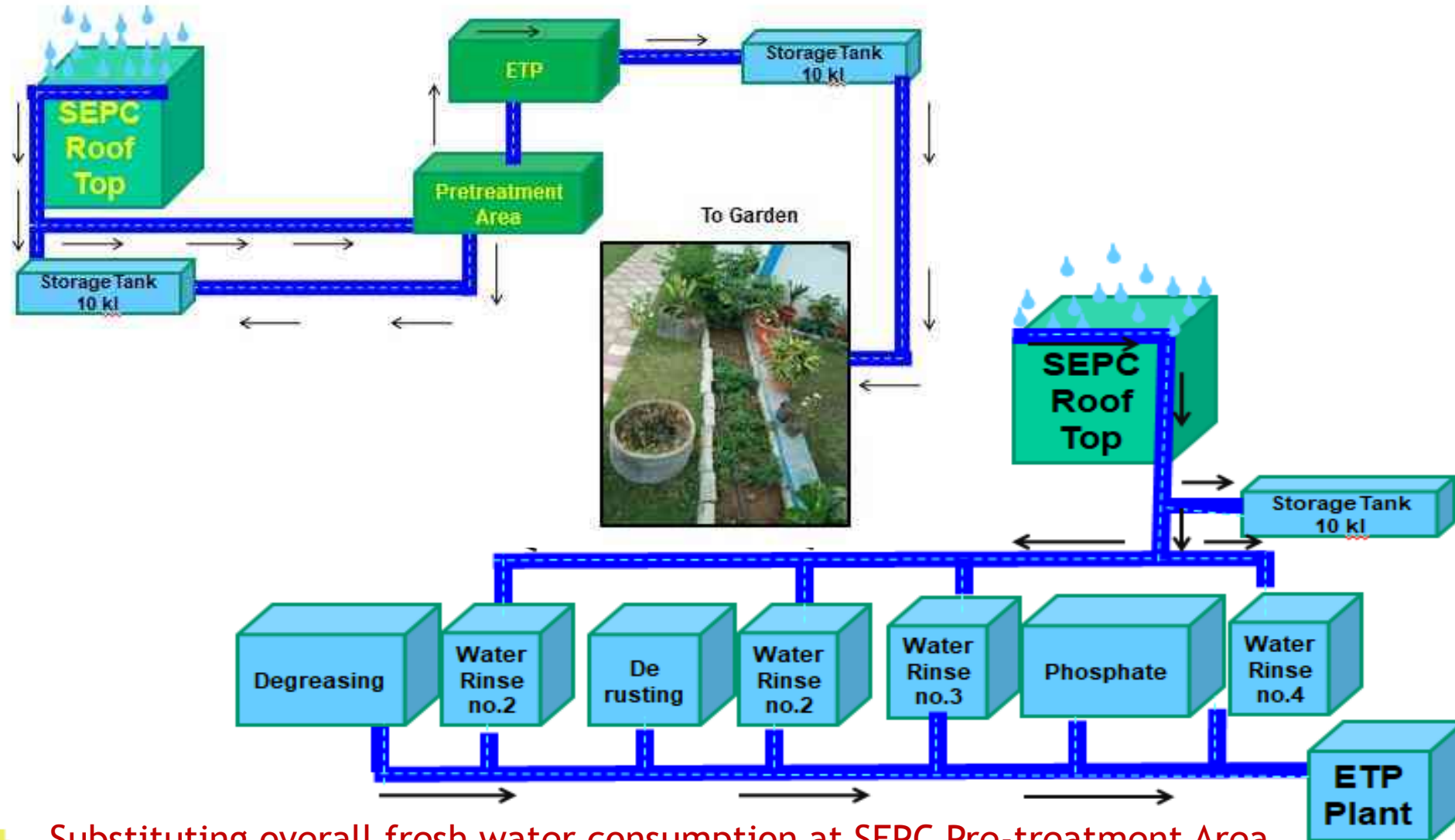


**Rain Water Harvesting Tank (capacity 10 kl)**  
**Near Compressor Room**



# Rain Water Harvesting System

Substituting overall fresh water consumption



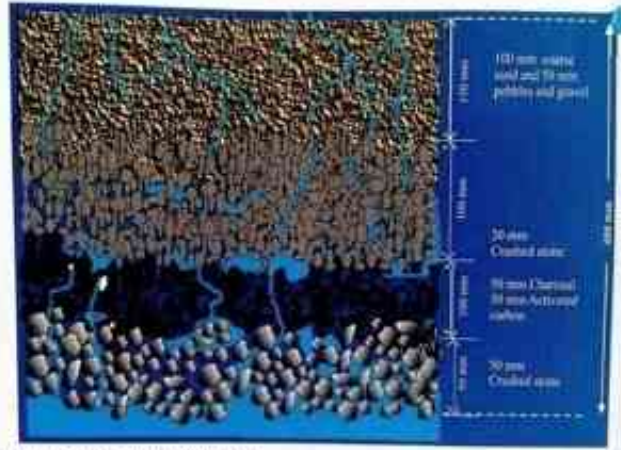
Substituting overall fresh water consumption at SEPC Pre-treatment Area





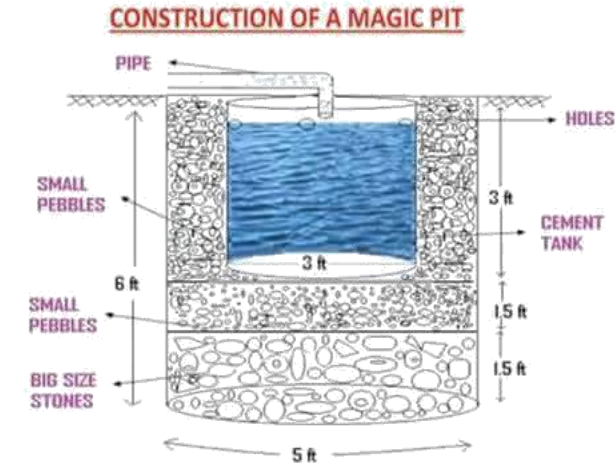
# Rain Water Harvesting System

## Magic Pit - Recharging the ground water table



DIFFERENT LAYERS OF FILTRATION MEDIA

**Activated Carbon:** (D-carbon G5 800 Granule activated carbon (GAC) Removes dissolved organic contaminants and controls taste and odor problems.) **Charcoal** used is 25 mm to 32 mm. Burnt in Countries. To observe Color in the water and better filtration of rain water.



The Concept



Magic Pit at KEPL



Magic Pit lay out at KEPL



**Before**



RM procured in standard size sheets.

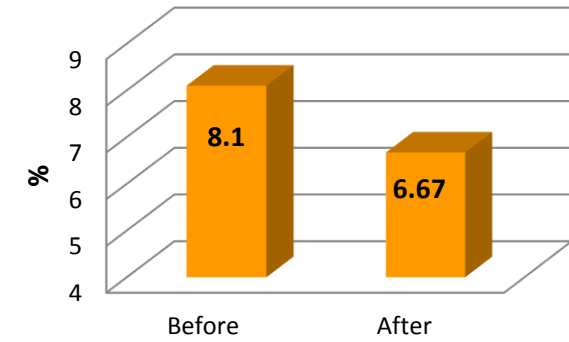
**After**



RM procured in Cut to Size.

**Result**

Scrap %



**Benefit : 1.43 % saved / annum Horizontal Deployment : In CTS category 7 Horizontal deployments done.**



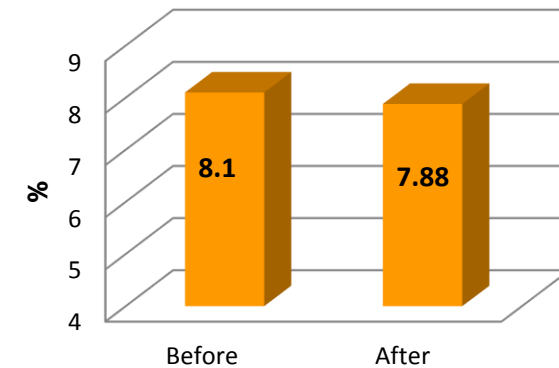
RM procured in standard size sheets.

**Benefit :- 0.22 % saved / Annum.**



RM procured in Coils form.

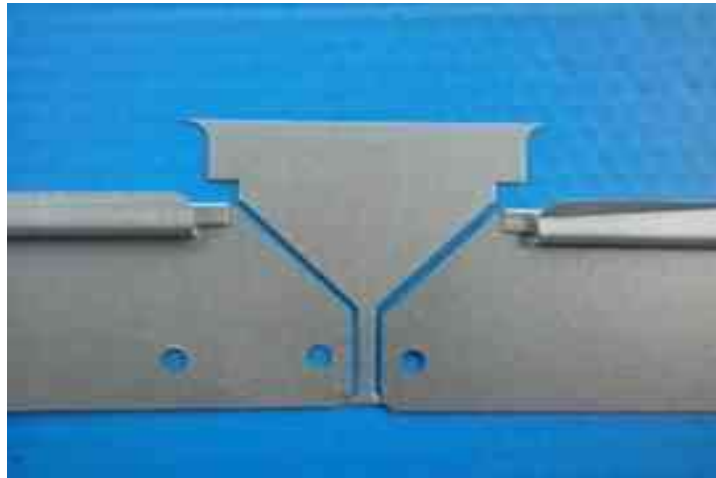
Scrap %



**Horizontal Deployment : In CTS category 4 Horizontal deployments done.**







TP/BTM strip with 12% Scrap

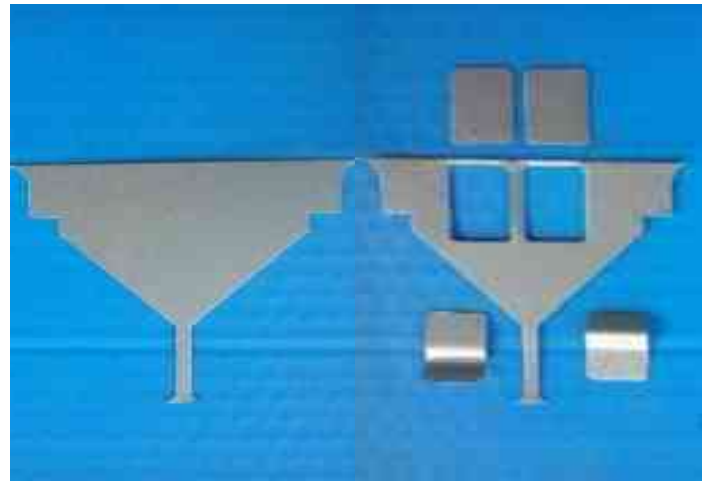
Benefits :-2.79% saved / annum



Standard Punching Layout

Benefits : Reduction in utilization of material by 17.34 %

Horizontal Deployment : CTS category 4 Horizontal deployments done.



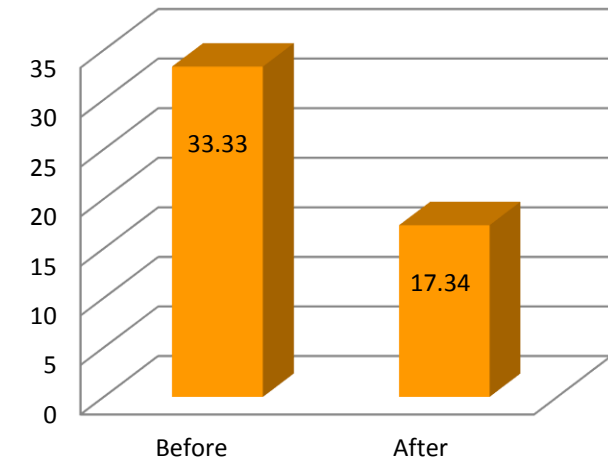
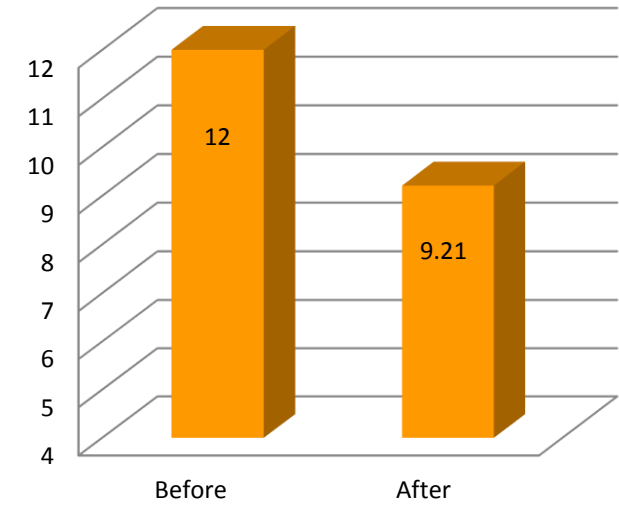
CTH clips are made out of this scrap

Horizontal Deployment :- CTS category 4 Horizontal deployments done.



Strip Punching Layout Modified.

Result





# Cost Saving in LPG

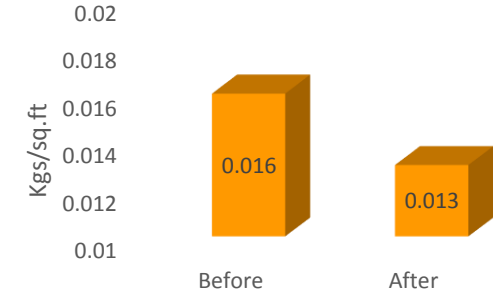
**Before**

**After**

**Result**



LPG Gas consumption kgs/sq.ft

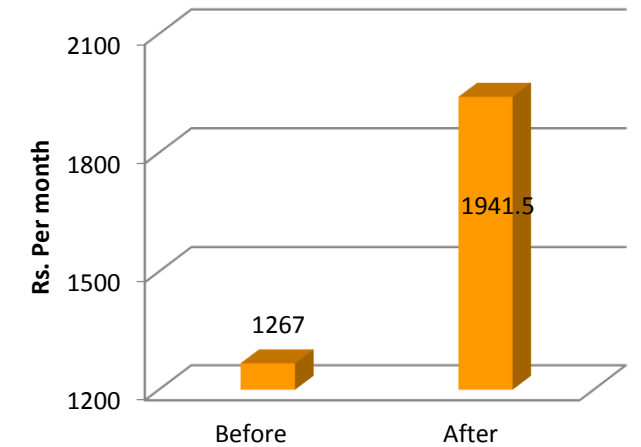


M. S. Trolley weighing 114 Kgs  
consuming high LPG

Aluminium Trolley weighing 40 Kgs  
Consuming low LPG

**Benefit : 19% LPG saving / annum.**

**Horizontal Deployment : for 4 more trollies.**



Under loading of baking trollies.

Optimum space utilization after  
trolley modification.

**Benefit : Rs.8094/ Annum saved.**

**Horizontal Deployment : In all backing trollies.**



**Before**



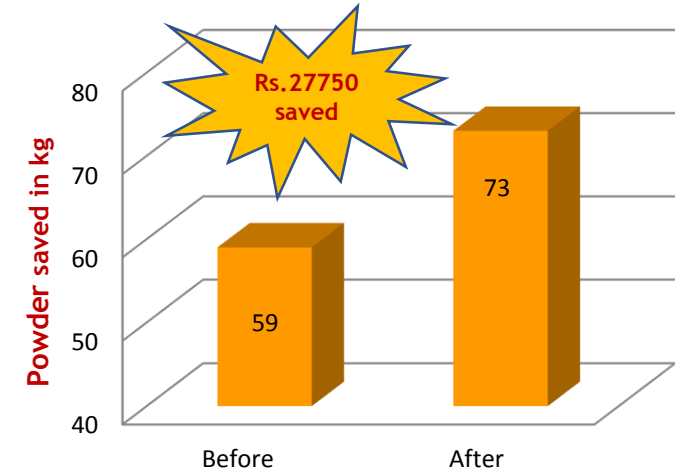
Over Spraying of powder outside the Booth.

**After**



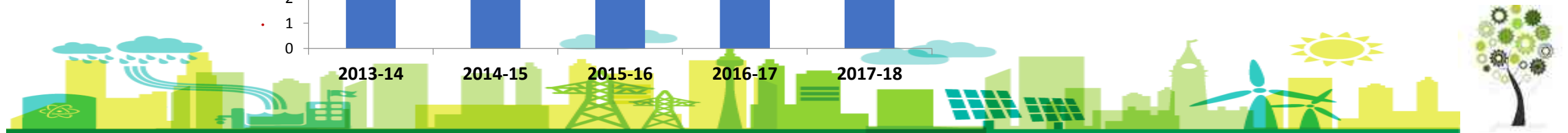
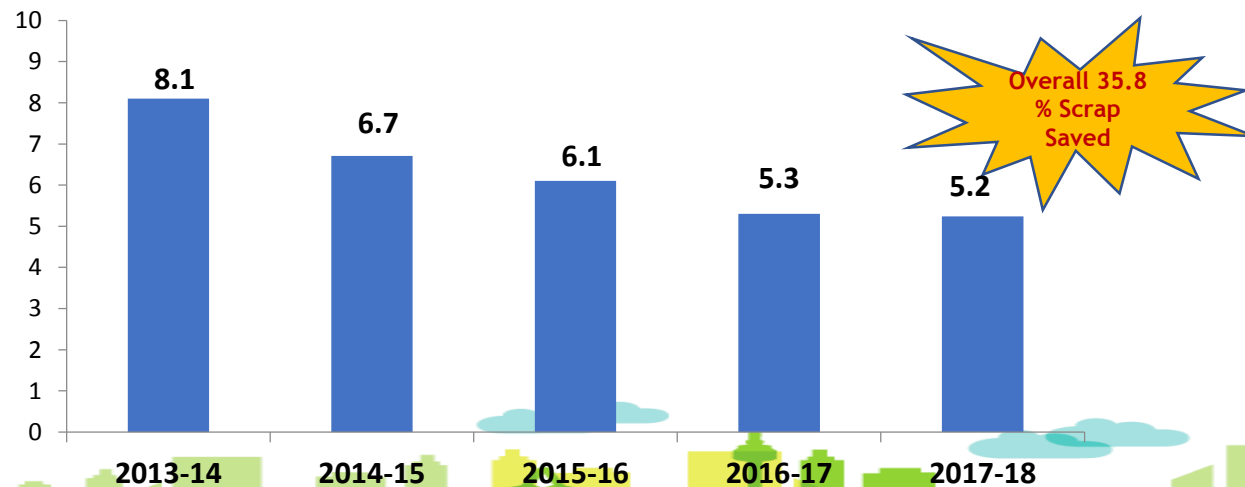
Booth size extended with trays.

**Result**



Benefit : 200 Grams powder saved per day. Rs - 27750 / annum  
Horizontal Deployment done for 2 Booths

## OVERALL RM METAL SCRAP REDUCTION RESULTS



### *Methodology for Inventorisation of GHG Emission*

#### **Scope 1 :**

- Diesel /Petrol Used in Company Owned Vehicles
- CO<sub>2</sub> Used In Welding
- LPG Used in oven
- Top up in AC
- Co<sub>2</sub> top up in fire extinguisher
- Kerosene (burning hangers)

#### **Scope 2 :**

- Total electricity consumed in plant by Grid.
- Green power

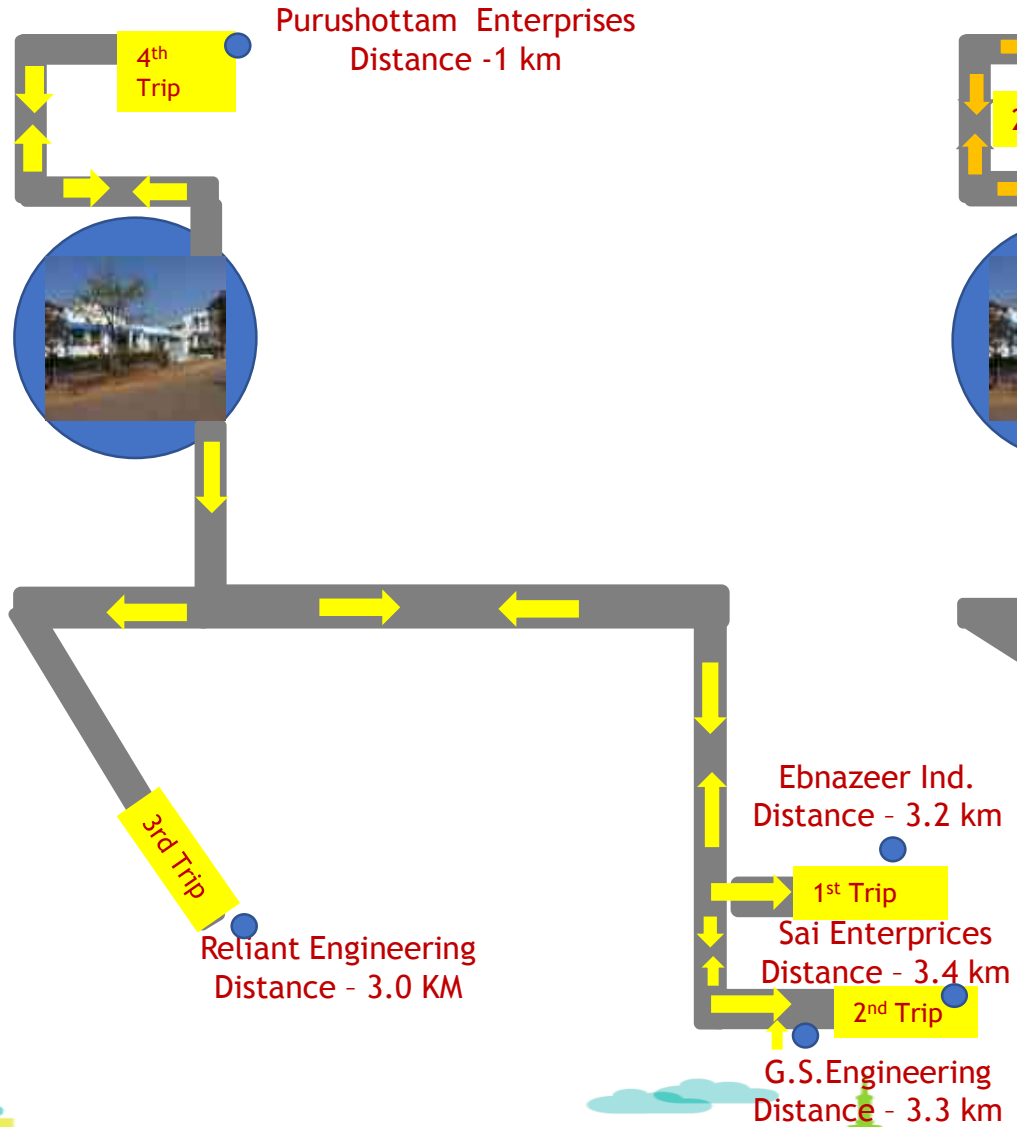
#### **Scope 3 :**

- Business Travel
- Material Transport
- Employee Transport



# Milk Run Model

## Before

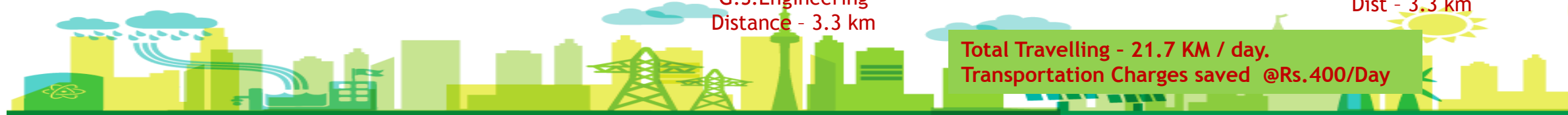


## After



**Saved Travelling Distance**  
(Reduce Carbon Emission : 20 km/day.  
Transportation cost saved @ Rs.370/Day)

**Total Travelling - 21.7 KM / day.**  
**Transportation Charges saved @Rs.400/Day**







**Employee Commute- Started Using 1 bike for 2 Employee & Bicycle usage**



**Milk Van Concept For Local Supplier**



**Optimum Utilization Of transport Vehicle**



Before



After



Optimum utilization of transport vehicle

Details of loading Method :

- ❑ Initially vehicle floor was thin & waviness generated due to pallet point Load. Hence we weld 3MM sheet @ bottom for easy sliding of pallets.
- ❑ Un-even unloading Platforms, We provided foldable plate to match level.
- ❑ To avoid use of Forklift @ Customer end. We provide Pallet truck (MHE) to reduce GHG Carbon emission @ customer end.
- ❑ We convert Plastic Bins to M.S. Pallets & Gunny bags to Poly Bags to cover no. of Varsity.





# GHG Emission reduction Projects

Before



Employee Commute - Usage of 1 bike for Single person

After



Employee Commute - Usage of 1 bike for 2 & Bicycle usage



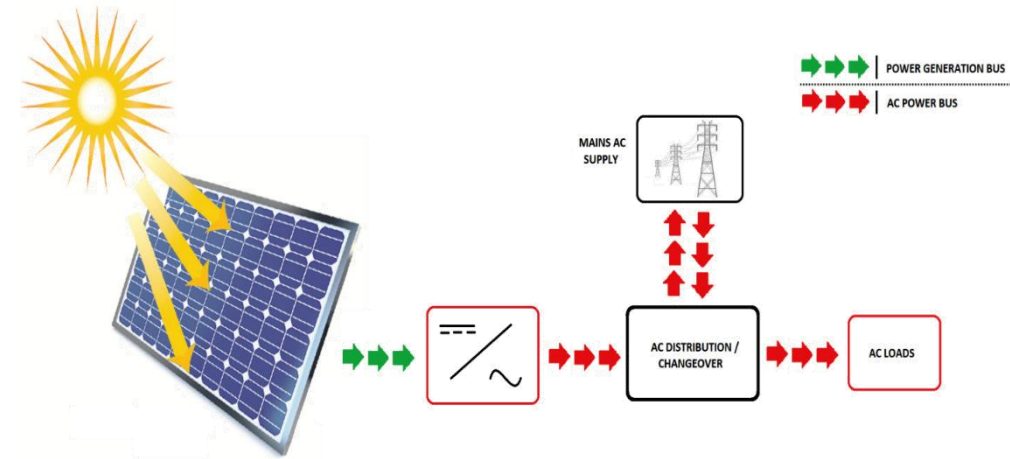
CO2 welding machine



Inverter based Argon welding machine



## Roof Top Solar System



Usage of 67% Renewable Energy from 30 Kw Grid Interactive PV Roof Top Solar System .

Sr. No.	Project	Energy Saving	Imple. Year	Benefit (Rs./ annum)	Investment	ROI Years
1	30KW Roof Top Solar System	36,000 kWh/Annum	2016-17	3,24,000	19,50,000	5.0
2	Bio gas System (Proposed)	250 kg LPG/Annum	2018-19	9,000	40,000	4.5





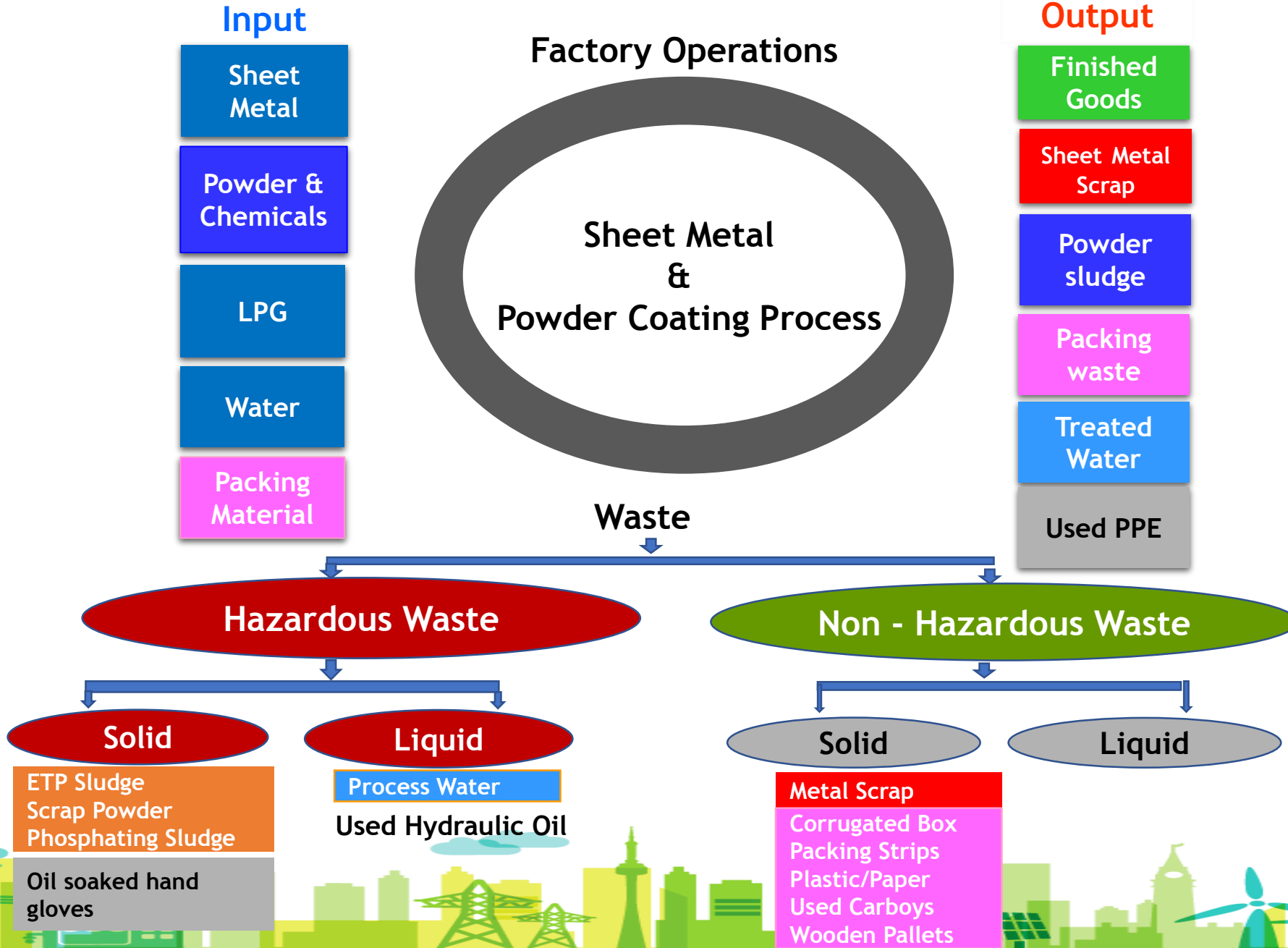
*“You must be the change you want to see in the world.”*

*“Everyone must be their own scavenger”*

- Mahatma Gandhi

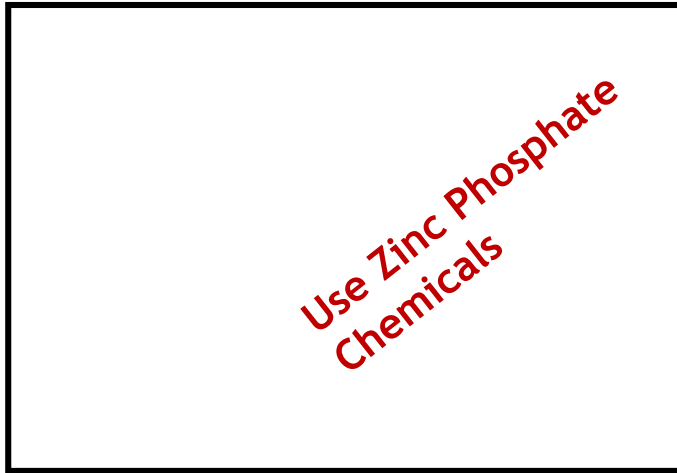


# Inventorisation of waste

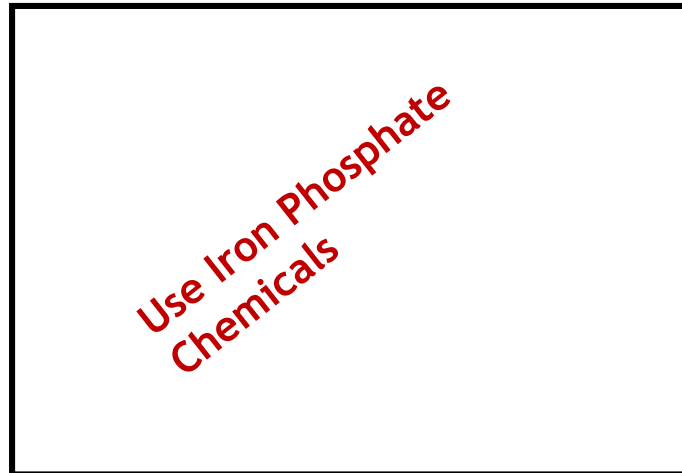




**Before**



**After**



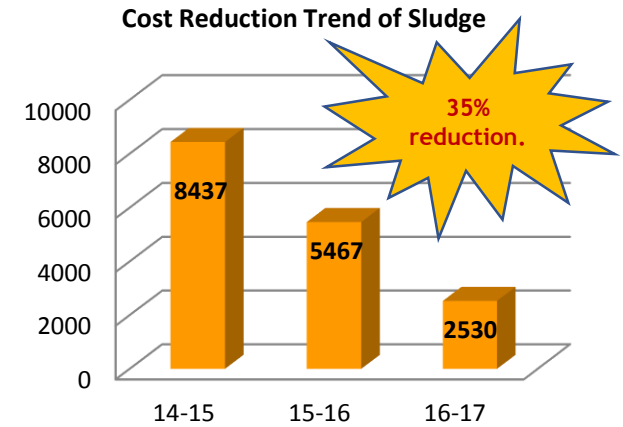
Use of Zinc based chemicals

Benefit : Rs. 2937/ annum saved.

FUTURE PLAN : Using Bacteria based chemicals hence % of sludge will 0,.

Use of Iron based chemicals

**Result**



Standard Corrugated roll.

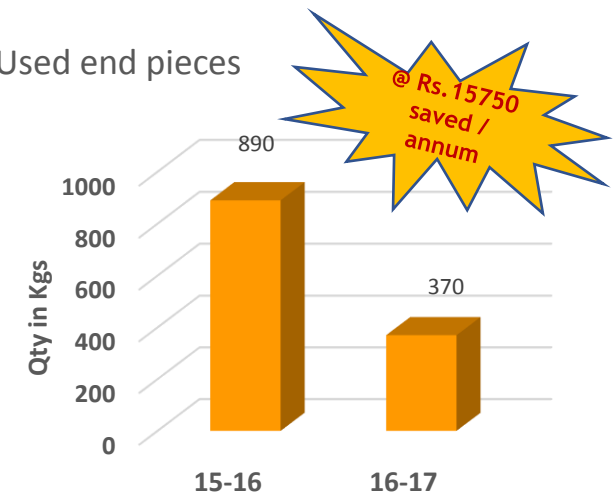
Benefit : @ Rs.15750 / annum saved.

Horizontal Deployment : done at 6 products.



Corrugated Scrap end pieces of Required size.

Used end pieces



Before



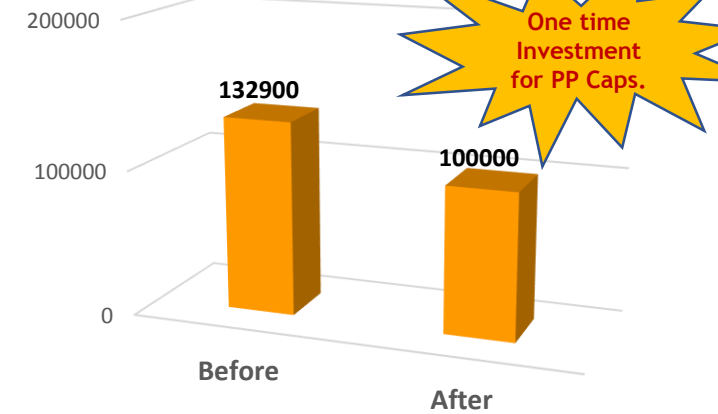
Corrugated Packing

After



Usage of recyclable PP Caps

Result



- Benefit :**
1. Corrugated Packing is totally eliminated with Usage of Recyclable PP Caps Annual ( Consumption Rs-10,500/Annum)
  2. 2 Manpower Saved Rs-120000/Annum, Rejection due to Dent & Damage is totally eliminated,
  3. Usage of Gum Tape is eliminated ( Consumption Rs-2,400/ Annum)

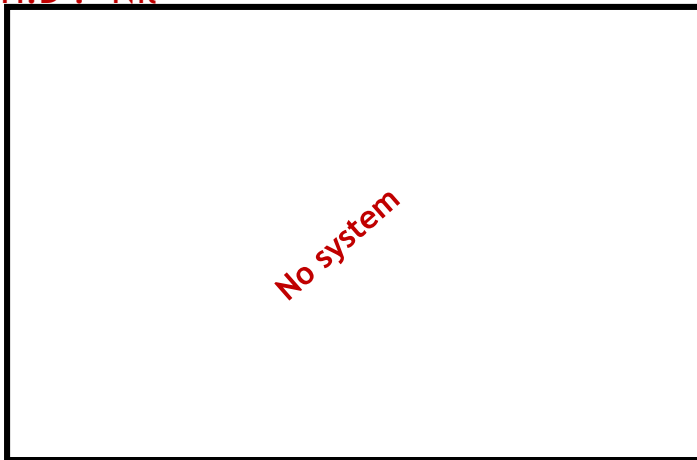


**Before**



Used Hydraulic oil.

Benefit :- @ Rs. 3000 received in resale.  
H.D :- Nil



Issues of PPEs as and when required.

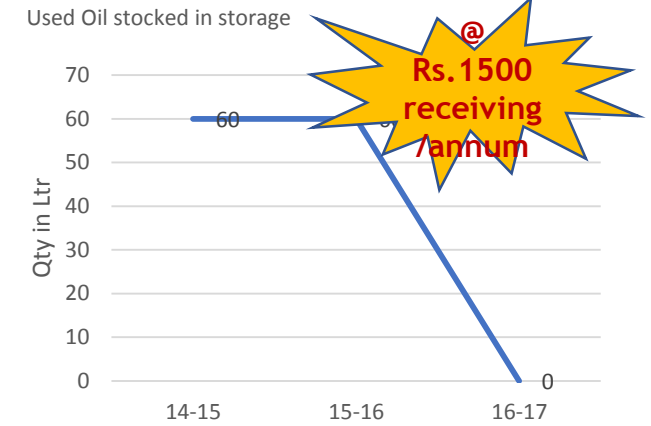
Benefit :- Rs. 11725 / annum saved.  
Horizontally Deployment : Issue of other items with replacement.

**After**

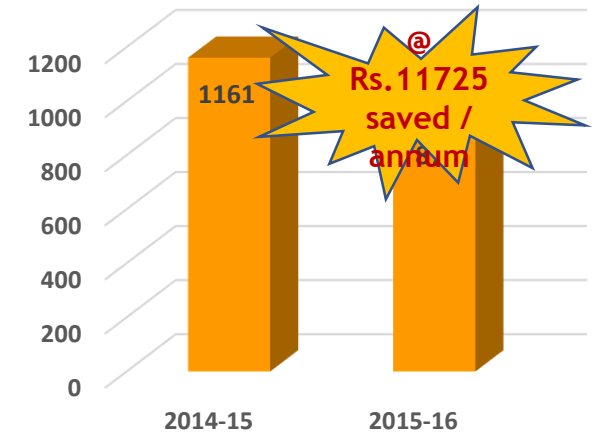


Hydraulic oil Reclaimed & sold.

**Result**

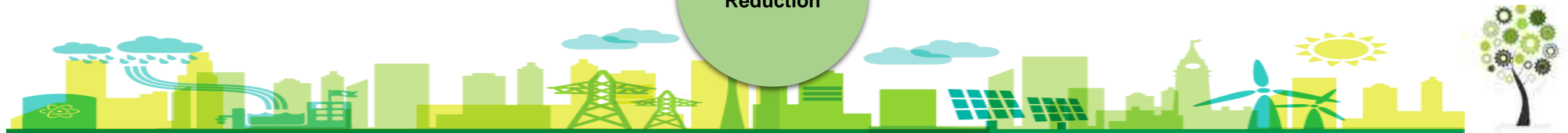
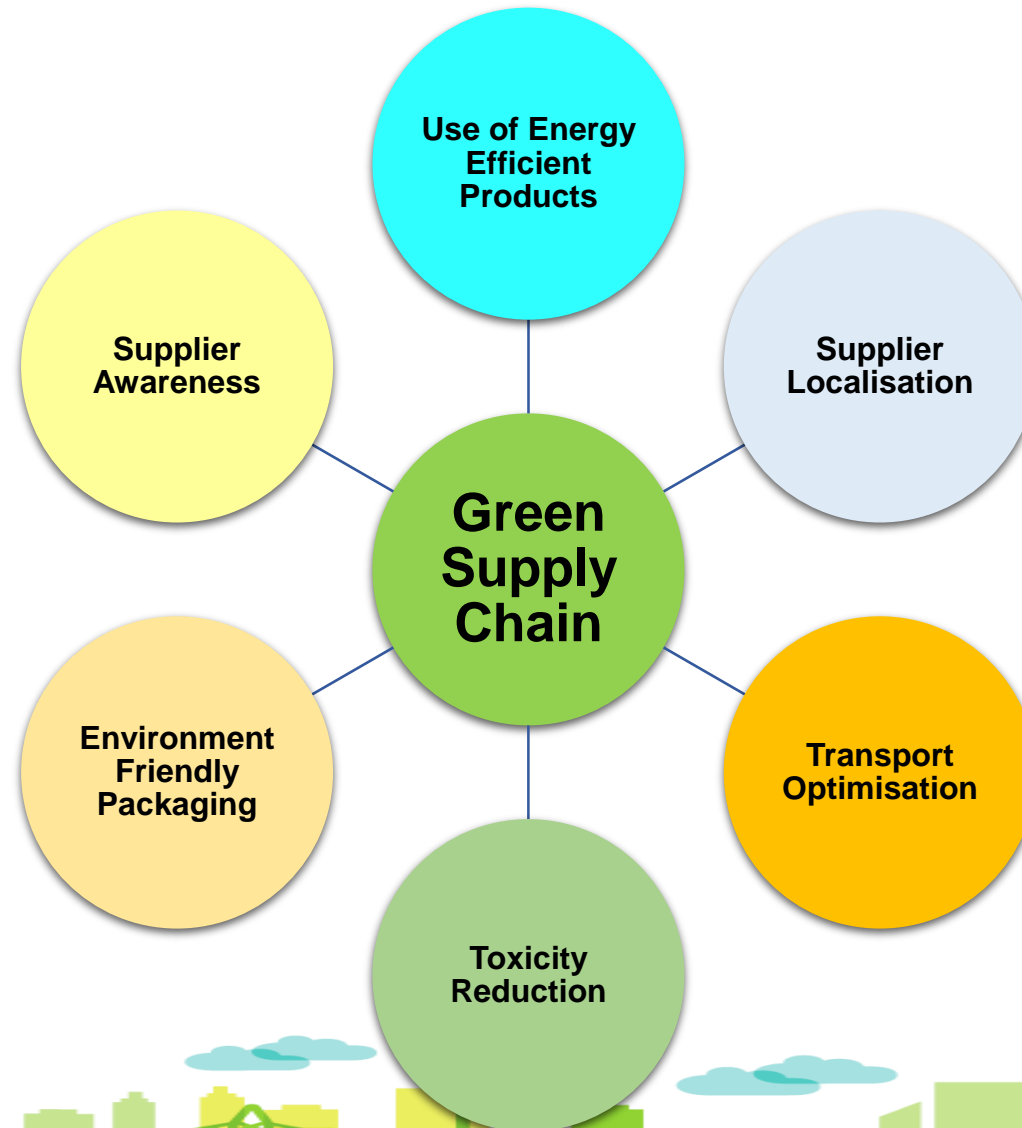


Issue of new PPEs with replacement of old one.



## 7. GREEN SUPPLY CHAIN

### *Purchase Guidelines*





# Implementation of Green Purchase Guidelines

## Use of Energy Efficient Products

### Oil - injected Rotary Screw Compressors

**Make** - Atlas CopCo

**Model** - GA 15VSD +7 bar pack delivering 15 - 88.6 CFM



- Variable Speed Drive Air Compressor
- Energy Efficient Electrical Motor.
- Directly Drive.
- No transmission loss.
- Noise level 60 db to 63 db
- Cooler fan operated
- Air drier & Receiver

### Hydraulic Press 75 TON

**Model** - SH - 75



- Energy efficient electric motor (Siemens make)
- AC VFD (Drive for power consumption)
- Hydraulic system with counter balance valve system.
- Hand safety guard mounted on front side of machine.



# Implementation of Green Purchase Guidelines

## Use of Energy Efficient Products

### MIG / MAG / FCAW Welding Inverter

3 Phase 415V, Duty Cycle : 60%



- 30 to 40 % electricity saving.
- Compare to transformer base welding m/c
- Fine parameter control & adjustment.
- Spatter & scale free.

### Press Brake

EHP SH/25



- Accurate Positioning
- Productive Bends
- Low Power Consumption
- Lower Noise Levels
- Lesser Maintenance
- Lower oil capacity

### Transvector Nozzle Gun



- 70% natural air usage.
- Energy efficient
- Low noise



# Implementation of Green Purchase Guidelines

## Energy saving Initiatives



5% Energy saving by using CFL  
Before



30% Energy saving by using LED Light  
After



Procurement of standard size RM sheet



Procurement of Cut to length RM sheets  
35% Energy Saving





# Implementation of Green Purchase Guidelines

## Energy saving Initiatives



30% Energy Saved by instillation of VFD's



APFC panel for better power factor



3% Energy Saved by Air ventilators installation



81% Energy Saved by transparent roofing





# Implementation of Green Purchase Guidelines

## Use of Energy Efficient RM



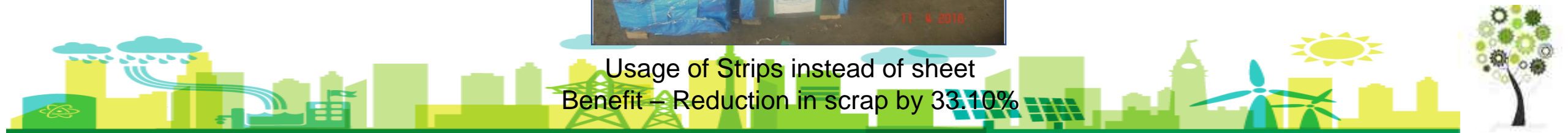
Usage of CTL instead of sheet  
Benefit – Reduction in scrap by 21.66%



Usage of CT coil instead of sheet  
Benefit – Reduction in scrap by 10.47%



Usage of Strips instead of sheet  
Benefit – Reduction in scrap by 33.10%



# ERP Implementation



1. Elimination of stationary
2. Accuracy and speed of work
3. Daily performance analysis
4. Daily stock maintain
5. Inventory control significantly
6. Excise & VAT report generated automatically hence eliminate written tasks.
7. Aid for preparing balance sheet and P&L statement
8. Outsourcing material 4/5 A register online & eliminate written tasks
9. Easy for sales order tracking & schedule workout

This screenshot shows a ledger view in Tally ERP 9. The table displays a list of sales orders with columns for Date, Amount, and various status indicators. The data is as follows:

Sl. No.	Date	Amount	Status
	01/01/2011	10,00,00.00	
	02/01/2011	20,00,00.00	
	03/01/2011	30,00,00.00	
	04/01/2011	40,00,00.00	
	05/01/2011	50,00,00.00	
	06/01/2011	60,00,00.00	
	07/01/2011	70,00,00.00	
	08/01/2011	80,00,00.00	
	09/01/2011	90,00,00.00	
	10/01/2011	1,00,00,00.00	

This screenshot shows a more detailed ledger view in Tally ERP 9. The table displays a list of sales orders with columns for Date, Amount, and various status indicators. The data is as follows:

Sl. No.	Date	Amount	Status
	01/01/2011	10,00,00.00	
	02/01/2011	20,00,00.00	
	03/01/2011	30,00,00.00	
	04/01/2011	40,00,00.00	
	05/01/2011	50,00,00.00	
	06/01/2011	60,00,00.00	
	07/01/2011	70,00,00.00	
	08/01/2011	80,00,00.00	
	09/01/2011	90,00,00.00	
	10/01/2011	1,00,00,00.00	



## Supply Chain Intensity Reduction

Sr · N o.	Category	No. Of Projects	Implementatio n Year	Benefit
1	Milk run model	2	2015	22 % reduction in transportation. GHG reduction.
2	Localization of suppliers	6	2014	1L km reduction in transportation. GHG reduction.
3	Reduction in packaging material in upstream	4	2014	27 % reduction in packaging material .
4	Transport optimization	1	2015	3900 km reduced in transportation. GHG reduction.
5	Toxicity Reduction	...	2014	Environment friendly products
6	Awareness creation in supply chain	...	2016	Trained supplier. Inventory cost reduced. DSA increased. Cost benefit.











## Localisation of suppliers

Item	Supplier - Before	Present Supplier	Reduction in Transportation (Km/Year)
RM Steel Sheet	Sahibabad (UP) (1500 Km)	Khopoli (170 Km)	42560
RM Steel Coils	Sahibabad (UP) (1500 Km)	Pune (130 Km)	32880
Zink Plating	Satara (4 Km)	In house (0 km)	1160
Corrugated Box	Shahapur (210 Km)	Satara (3 Km)	13662
Corner fitment	Mumbai (265 km)	Satara (3 Km)	2096
Pin for side disc	Mumbai (265 km)	Satara (3 Km)	262
Steel Tubes	Bhiwandi (290 Km)	Pune (130 Km)	5280





## Reduction in packaging material in upstream

Sr. No.	Project	Before	After	Benefit
1	Use of corrugated scrap for wall nut packing			Elimination of use of 2 ply corrugated sheet
2	3C packaging			Eliminated use of stretch film
3	components from single side instead of wrapping entire component			Reduction in bubble sheet
4	Reusable PP corrugated boxes & plastic bins			Elimination of corrugated boxes.



# Transport Optimisation



Kms saved / year – 1690 Kms  
No of trips saved / year – 13 Nos

**Posco Maharashtra Steel Ltd, Talegoan.**  
Vehicle loading capacity increased from 9 MT to 16 MT.



**Khutale Engineering  
Pvt Ltd, Satara**



Kms saved / year – 2210 Kms  
No of trips saved / year – 13 Nos

**Uttam Galva Steels Ltd , Khopoli.**  
Vehicle loading capacity increased -  
For Sheets - from 14 MT to 20 MT &  
For ERW tubes - from 6 MT to 8 MT



# Toxicity Reduction

## RoHS Certificate

**TEST REPORT**

Report No. : PN/HL/7490000457 DATE : 13/01/2016

**SYNERGY ENGINEERS & POWDER COATERS**  
 C-2/6, C2/6 PART 1, OLD MIDC AREA, NEAR MAHARASHTR. SCOOTER,  
 SATARA-415004  
 INDIA  
 CONTACT PERSON : MR. SHRISH KHUTALE

THE FOLLOWING SAMPLE(S) WAS/WERE SUBMITTED AND IDENTIFIED BY/ON BEHALF OF THE CUSTOMER AS :

**SAMPLE DESCRIPTION** MOUNTING PLATE FR FATL  
 Part / Ref. No: WMS97745051  
 Raw Material : CRCS  
 Grade : D EDD

**COLOUR** TRIVALENT YELLOW  
**BUYER** GODREJ APPLIANCES  
**SAMPLE RECD ON** 12/01/2016 **TESTING PERIOD** : 12/01/2016 to 13/01/2016  
**TEST(S) REQUESTED** RoHS 4E test  
**TEST METHOD** IEC 62321 : 2013 / 2015

**CONCLUSION** : Based on the performed tests on selected part of submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Test result:

**RoHS Directive 2011/65/EU Annex II**

Test Item(s)	Unit	Test Method	Results	MDL	Limit
Cadmium(Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cd by ICP-OES)	n.d.	5	100
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Pb by ICP-OES)	n.d.	5	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013 (Determination of Hg by ICP-OES)	n.d.	5	1000
Hexavalent Chromium (CrVI) #	µg/cm <sup>2</sup>	With reference to IEC 62321-7-1:2015 (Determination of CrVI by XRF)	n.d.	0.10	—

**Notes**

- (a) mg/kg = ppm ; 0.1wt% = 1000ppm
- (b) n.d. = not detected
- (c) MDL = Method Detection Limit
- (d) - = not regulated
- (e) IEC 62321 series is equivalent to EN 62321 series
- (f) # = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.10 µg/cm<sup>2</sup>. The sample coating is considered to contain CrVI.  
 b. The sample is negative for CrVI if CrVI is n.d. (concentration less than 0.10 µg/cm<sup>2</sup>). The coating is considered a non-CrVI based coating.

Page - 1 of 4

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Customer Service Services Laboratory, 2nd Flr. 6243, Khat, Dahan, 1st Khat, 1st-Phase - 410 005, Maharashtra, India. T: (91-212) 913-3077; F: (91-212) 616-333  
 Fax: & Copy: (91) 212 913 3077; E: 31 022 9040 0000 F; + 21 022 9040 0000 [www.sgs.com](http://www.sgs.com)  
 Member of the SGS Group (SAS SA)

All our processes & products are well within RoHS limits





## Awareness creation in Supply Chain



GreenCo awareness Training Program for all vendors held at KEPL



GreenCo awareness Training Program held at vendors shop





# Awareness creation in Supply Chain

## Green Policy circulation among vendors



Ebenazeer Industries



Purushottam Enterprises



Gajanan Enterprises



Siddhi Enterprises



## Efforts to create & maintain Biodiversity

“Hospital Clean inside , Garden Green Outside”



Gardening Surrounding Factory





## *Efforts to create & maintain Biodiversity*

### Flora Surrounding Factory





## World Environment Day Celebration



Women's Day



Navratri Celebration



Employee of the year 2014-15



Sarv Jal Abhiyaan



GHG Training & Awareness



Safety Week - Oath







**Lean Cluster Movement**



**Engineers Day**



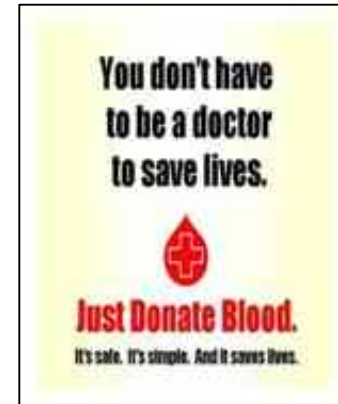
**Cultural Programme**



**World No Tobacco Day**



**AIDS Awareness**



**Blood Donation Camp & Health check-ups**



**Celebration of Birthdays**

- ✓ Help to Anandban School
- ✓ Donation to Anti-Superstition ANIS Committee
- ✓ Donation to Senior citizens (Vrudhashram)
- ✓ Donation to Mauli Blood Bank
- ✓ Anti-Superstition
- ✓ Celebration of Ganesh Festival
- ✓ 'Save Girl Child'.

- ✓ Annual Get-Together
- ✓ Kaizen / Suggestion Recognition
- ✓ Recycling initiative







Training on Waste Management System



Actual Work On Field With Instruction & Supervision



Celebration of World Environment Day on 5<sup>th</sup> Jun 2016 with cleaning



Third Party Waste Management Training Program



Brain Storming on Waste Management



## Recognitions at various Conferences/Forums



KEPL team at **Green Initiative Program** honoured by **Ministry of Environment, Forests and Climate Change Mr. Prakash Javadekar** at Green Conclave, CII Pune 19<sup>th</sup> Dec 2015



Award for **Green Manufacturing** at **CII 8<sup>th</sup> National Cluster Summit 2015**



KEPL team with **Shri JN Godrej**, President CII GBC, Hyderabad





KEPL received **Greenco Platinum Plaque** at the hands of **Shri Nitin Desai**, Member **Prime Minister's Council** on Climate Change @ **CII Greenco Summit 2016** Hyderabad



SMB Star Icon Recognition 2016 for Sustained Performance Excellence received at 24<sup>th</sup> CII National Quality Summit, Bengaluru



RECOGNITIONS



Sustained Performance 500+ Points

Significant Progress in Performance Excellence (400-499 Points)

Commitment towards Performance Excellence (300-399 Points)

Adoption of Performance Excellence (Below 300 Points)







## KEPL in News

जागतिक जल दिन विशेष...

# तीन वर्षात पाच लाख लिटर पाण्याची बचत

औद्योगिक वसाहतीमधील  
खुटाळे इंजिनिअरिंग व सिनर्जी  
इंजिनिअर्सचे यश

शैलेन्द्र पाटील/सकाळ वृत्तसेवा

सातारा, ता. २१ : 'अर्धा केले मग सांगितले' या उक्त्याप्रमाणे काम करत औद्योगिक वसाहतीमधील उद्योजक शिरीष खुटाळे यांनी गेल्या तीन वर्षात सुमारे पाच लाख लिटर पाण्याची बचत केली आहे. पर्यावरण व वायू, सांडपाण्याचा पुनर्वापर, पाणी बचत आणि भूगर्भातील पाणीपातळी सुधारण्यास मदत आदी उपायांच्या माध्यमातून खुटाळे इंजिनिअरिंग व सिनर्जी इंजिनिअर्स अँड प्राव्हर कोर्टस या सातार्याच्या उद्योग क्षेत्रात उदाहरण घालून दिले आहे.

मुमारे सव्वशी कुटुंबाचा चारित्र्य चालवण्याच्या सक्ताऱ्यातील छोट्या उद्योगाची मूळतऱि १९८९ मध्ये स्थापने गेली. श्री. खुटाळे यांनी कल्पनेने व मोठ्या जिद्दीने हा उद्योग चालवला. प्रोफेसरी प्लॉटम रेंटिंगसह विविध पुरवठ्यांनी हा उद्योग सन्मानित झाला आहे. या उद्योगाच्या गुणवत्तेबद्दल ब्राह्मण्यत



शिरीष खुटाळे

आलेल्या पर्यावरणीय धांदलाचा मोठा काटा आहे. या उद्योगाला रोब अर्डीच ते तीन हजार लिटर पाण्याची आवश्यकता भासते. औद्योगिक वसाहत हे पाणी पुरवते. दोन कमीप्रीची खुटाळे यांनी रवींद्र सरावळे

यांच्याकडून इमारतीस 'रेन वॉटर हार्वेस्टिंग' करून घेतले. छतावर पडणारे पायसाचे पाणी जमिनीतील टाकीत साठवून त्याचा पुनर्वापर सुरू केला. पावसाळ्याचे तीन-साडेतीन महिने पाच पाण्याचा प्रक्रियेसाठी वापर केला जातो. उद्योगात वापरून झालेल्या पाण्यावर प्रक्रिया करण्याचा प्रकल्प श्री. खुटाळे यांनी उभारला. प्रक्रियेनंतर हे पाणी वाया जाऊ न देता बागीच्याला दिले जाते.

छतावर पडणारे पायसाचे सर्व पाणी साठविण्याला जागेची मर्यादा आहे. पायसाचे जमिनीवर पडून वाहून जाणारे पाणी आपण इमारत बांधण्याने आडले आहे. त्याला जमिनीपर्यंत घाट करून दिली पाहिजे, या कल्पने पावसातून खुटाळे

उद्योगाच्या आकारात मॅजिकपेट बांधण्यात येत आहे. याद्वारे भूगर्भात हे पाणी सोडून दिले जाईल. त्याने जमिनीतील पाणीपातळी सुधारण्यास मदत होणार आहे. बागीच्याला पाणी देण्यासाठी दिवक सिंचनाचा वापर करण्यात येतो. कर्मचाऱ्यांमध्ये जलकलता वाढवून खर्चाच्या पाण्यामध्ये बचत केली जाते. पर्यावरणाशी मित्र राहण्याच्या या प्रयत्नात खुटाळे इंजिनिअरिंगने वॉज, पाणी, कच्चा माल या नैसर्गिक स्रोतांचे जतन करण्यासाठी विविध उपाय योजले आहेत. ताशी आदर्श कार्यापद्धती त्यांनी राबविली आहे.

उद्योगात पर्यावरणाशी मित्र राहण्याच्या कार्यपद्धती अंमलात आणण्याबद्दल 'खुटाळे' व 'सिनर्जी' उद्योगाला भारतीय उद्योग महसंघाकडून (सीआयओए) 'ग्रीनको स्टॅटस' हा सर्वोच्च दर्जा मिळाला आहे. गुणवत्तेबद्दल क्षेत्रातील आयएसओ ९००१ बरीबरच आयएसओ १४००१ हे पर्यावरणाचे उच्च मानक या उद्योगाला हापूर्वीच मिळाले आहे. सातार्यातील पहिलाच ३० किलोवॉट क्षमताचा सौर ऊर्जा प्रकल्प कार्यान्वित

गांधींच्या विचारांचा पगडा

'पृथ्वी आपल्या पूर्वजांकडून वारसा हक्काने मिळाली नसून, आपल्या भावी पिढ्यांकडून उधार मिळालेली आहे. ती मानवाची भूक भागवू शकेल, हाव नाही,' या महात्मा गांधींच्या विचारांचा शिरीष खुटाळे यांच्यावर पगडा आहे. सुधारणा ही अखंड प्रक्रिया आहे. ती सुरूच राहणार. या प्रत्येक सुधारणांमार्फत 'टीम' असते. त्यामुळे आमच्या उद्योगाने मिळवलेले यश हे टीमचे यश आहे,' असे शिरीष खुटाळे प्रामाणिकपणे सांगतात.

करणगत आला आहे. त्या माध्यमातून शास्त्रज्ञ ऊर्जा स्रोतांचा अधिक वापर करून येत्या दहा वर्षात ऊर्जाबचत स्वयंपूर्ण बनवण्याचा श्री. खुटाळे यांचा मनोरथ आहे.

## पाणी बचतीसाठी रेन वॉटर हार्वेस्टिंग

► शशिकांत कणसे / सातार

पाणी बचत हिच पाण्याची निर्मिती हे सूत्र अंगिकारत येथील औद्योगिक वसाहतीमध्ये असणाऱ्या खुटाळे इंजिनिअरिंग प्रा. लि. आणि सिनर्जी इंजिनिअर्स अँड प्राव्हर कोर्टस या कंपनीमध्ये रेन वॉटर हार्वेस्टिंगचा प्रयोगासह इन्फ्युयंट प्लॅन्ट कार्यान्वित करण्यात आला आहे. त्यामुळे दररोज पाच हजार लिटर पाण्याची बचत होण्यास मदत होत आहे.

माण, छटासह जिल्हाच्या काही भागात बुकझाने गंभीर समत्या निर्माण झाल्या असताना पाणी असणाऱ्या भागातील नागरिक, उद्योजकांनी पाण्याचे महत्त्व ओळखून आतापासूनच पाणी बचत करण्यावर भर दिला आहे. येथील औद्योगिक वसाहतीत असणाऱ्या खुटाळे इंजिनिअरिंग प्रा. लि. मध्ये नांदेज कंपनीच्या फ्रिज, वॉशिंग मशिनसाठी लागणारे पॉर्टस बनविण्यात येतात तर

सिनर्जी इंजिनिअर्स अँड प्राव्हर कोर्टस या कंपनीमध्ये बनविलेल्या पॉर्टसला पावडर कॉटिंग करण्यात येते. यासाठी या दोन्ही कंपन्यांना प्रतिदिन तीन

हजार लिटर पाणी लागते. हे पाणी एमआयडीसी कार्यालयाकडून पुरविले जाते. मरिचकाळत पाण्याचा गंभीर प्रश्न निर्माण होण्याची शक्यता लक्षात घेऊन

उद्योजकांची

पाणी बचत

'खुटाळे इंजिनिअरिंग'

या दोन्ही कंपन्यांचे प्रमुख शिरीष खुटाळे यांनी रेन वॉटर हार्वेस्टिंगचा प्रयोग केला आहे. पावसाळ्यामध्ये या प्रयोगाद्वारे तीन हजार लिटर पाणी प्रतिदिन साठविण्याची किमया साध्यता खुटाळेना यश आले आहे. औद्योगिक वसाहतीमध्ये इन्फ्युयंट प्लॅन्ट वापरणाऱ्यांची संख्या अगदी नगण्य आहे. कामगारामध्येही प्रबोधन दोन्ही कंपन्यांमध्ये साठ कर्मचारी काम करतात. त्यांना मिण्यासाठी, स्वच्छतेसाठी पाण्याची स्वतंत्र व्यवस्था केली आहे. दररोज सकाळी काम करण्यापूर्वी होणाऱ्या नैसर्गिक पाण्याच्या वापराने

करत असतानाच शिरीष खुटाळे यांनी बारा लाख रुपये खर्च करून इन्फ्युयंट प्लॅन्ट कार्यान्वित केला आहे. त्यामध्ये दररोज वापरत येणारे तीन हजार लिटर पाण्याचे शुद्धीकरण करण्यात येते त्यानंतर त्यावर प्रक्रिया करून हे पाणी पावडर कोटिंगच्या वस्तू स्वच्छ करण्यासाठी वापरण्यात येते. शुद्धीकरण केलेल्या पाण्यासाठी तीन हजार लिटर क्षमतेची टाकी बांधली आहे. विरेचक म्हणजे उद्योगासाठी वापरत येणार तीन हजार लिटर पाणी पुन्हा वापरत आणण्याची किमया साध्यता खुटाळेना यश आले आहे. औद्योगिक वसाहतीमध्ये इन्फ्युयंट प्लॅन्ट वापरणाऱ्यांची संख्या अगदी नगण्य आहे. कामगारामध्येही प्रबोधन दोन्ही कंपन्यांमध्ये साठ कर्मचारी काम करतात. त्यांना मिण्यासाठी, स्वच्छतेसाठी पाण्याची स्वतंत्र व्यवस्था केली आहे. दररोज सकाळी काम करण्यापूर्वी होणाऱ्या नैसर्गिक पाण्याच्या वापराने

सक्त सूचना करण्याबरोबर प्रबोधनाची करण्यात येते. आकस्मिक तेवढेच पाणी वापरण्यावर भर देण्यात येत असल्याचे व्यवस्थानाने सांगितले.

पाणी वाचविण्याबाबत व्यापक चर्चा: शिरीष खुटाळे

सातारा शहराला कास, कर्णूर डॅम्ब्या माध्यमातून मुसळक पाणी मिळत असले तरी मरिचकाळत पाण्याचा गंभीर प्रश्न निर्माण होऊ शकतो. त्यामुळे पाणी वाचविण्याबाबत मोठ्या प्रमाणावर जनजागृती करण्यास व्यापक चर्चा हाती घेणे गरजेचे आहे.





# Intangible Benefits

- More concerned ,more responsible towards mother nature , even while achieving higher growth with optimal use of resources and better Emission and Discharge Standards.
- Builds Competitiveness ,strengthen Bottom Line,
- Preferred Vendor Partner status,
- Green corporate image,
- Enhance Credibility and provide increased ability to raise capital.
- Equip to meet future Environmental Regulations & mitigate future Environmental Risks.
- Export Opportunities.





**We Do Not Inherit the Earth from Our Ancestors,  
We Borrow It from Our Children...**



**Thank You.....!!!!!!**

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