



Green Co Summit

17th June 2016, Hyderabad

Shree Ashtavinayak Glass Pvt.Ltd

(A Toughened Glass Unit)

Works :-Gat No.216,Dhawadwadi Road, Khandala, Dist:- Satara-412802.

Maharashtra, India.

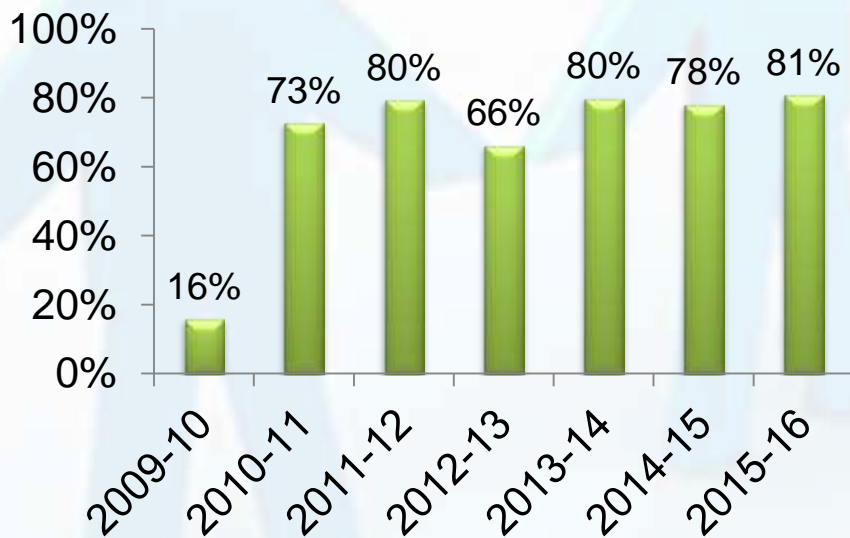
Tel: +91 2169 252906

Website: www.saglass.in

Turnover (Rs. Cr)



Capacity Utilization



- Established in 2009
- Evolution from Glass Trading to Glass Processing.
- Unique combination catering architecture, white goods and automobile segment
- State of art plant located in rural Maharashtra giving employment to rural people for avoiding urbanization
- An ISO 9001:2015,14001,18001 company
- Proximity to Western, Central and Southern India. Just 200 Km from India's biggest Sea port for Exports
- Experienced, enthusiastic and innovative team

Products & Customers

Tempered Glass

Double Glazed Glass

Laminated Glass

Ceramic Frit Glass

Mirror





VISION,

MISSION,

VALUES

Vision - Build the best product, surpass stakeholder expectations, inspire business to protect environment.

Mission - To attract and attain customers with high quality products and services.

Values -

- Customer orientation
- Be the Change you seek
- Simplify
- Co Exist

Preferred Vendor



**Successful completion of
GAD Supplier Cluster - 2014**



**Best Supplier (Green Supply
Chain) - 2015**



**Best Support : Localization
2016**



**Best Support : Green Journey
2016**



**Green Initiative
Regional Champion (West)
Saint-Gobain 350 years
celebration at Bali - 2015**

Active Participants



Go Green : Sustainable Supply Chain- 2015



**Championship Award
Green Manufacturing - MSME
CII 8th National Cluster Summit
- 2015**



CII Energy Management - 2014



**CII 8th National Cluster Summit
- 2015**



CII Green Conclave - 2015



The Starting Point

ROADMAP FOR GODREJ SUPPLIER CLUSTER																	DELIVERABLES			
SMED Cellular manufacturing Multi-tasking										PRODUCTIVITY IMPROVEMENT							Reduction in c/o time Reduction in throughput time Improvement in labour productivity			
CTQ mapping Concept of 100% inspection Quality Alert boards 7 QC tools + QC story CP/ CPk studies Poka Yoke Calibration SOP creation						QUALITY					Reduction in rework (inprocess) Zero defects at customer end Measure cost of Poor Quality									
Mapping and monitoring efficiency of - Energy Water Waste Toxicity				GREEN				Reduction in Energy consumption Reduction in Water consumption Reduction in all type of Waste RoHS compliant products and processes												
Step 0 to 2					MY MACHINE					Breakdown reduction trend										
1S / 2S Red Tag campaign Fixed point photography Jogging track Safety			5 S			1S score worksheet Zero red tag items Before / after photos Boundary walls clear Department Safety Score (DSS), Frequency / Severity rate, No. of accident free days														
Time in Months :			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			

Place for everything & everything at it's place



Shadow board for tool



Well organised Quality lab



Designated area for trolley parking

Hospital clean inside, Garden Green outside



Journey towards Waste Management & Control





Transparent sheets for roofing at regular intervals



Wind Turbine



Induction Lamps



Sprinklers for watering lawns in garden



Drip irrigation for garden



Bio-Gas Plant

पानी बचाओ पेंटिंग प्रतियोगिता






Rewarding & Recognising employees

- Best Kaizen – Energy Conservation
- Best Dept. – Energy Conservation
- Best Employee – Spreading awareness on energy conservation in nearby villages
- Drawing Competition - Water Conservation
- Essay Competition – Energy Conservation



Employees receiving awards from Mr. Aditya Agarwal & Mr. Ritesh Agarwal

Encouraging Green

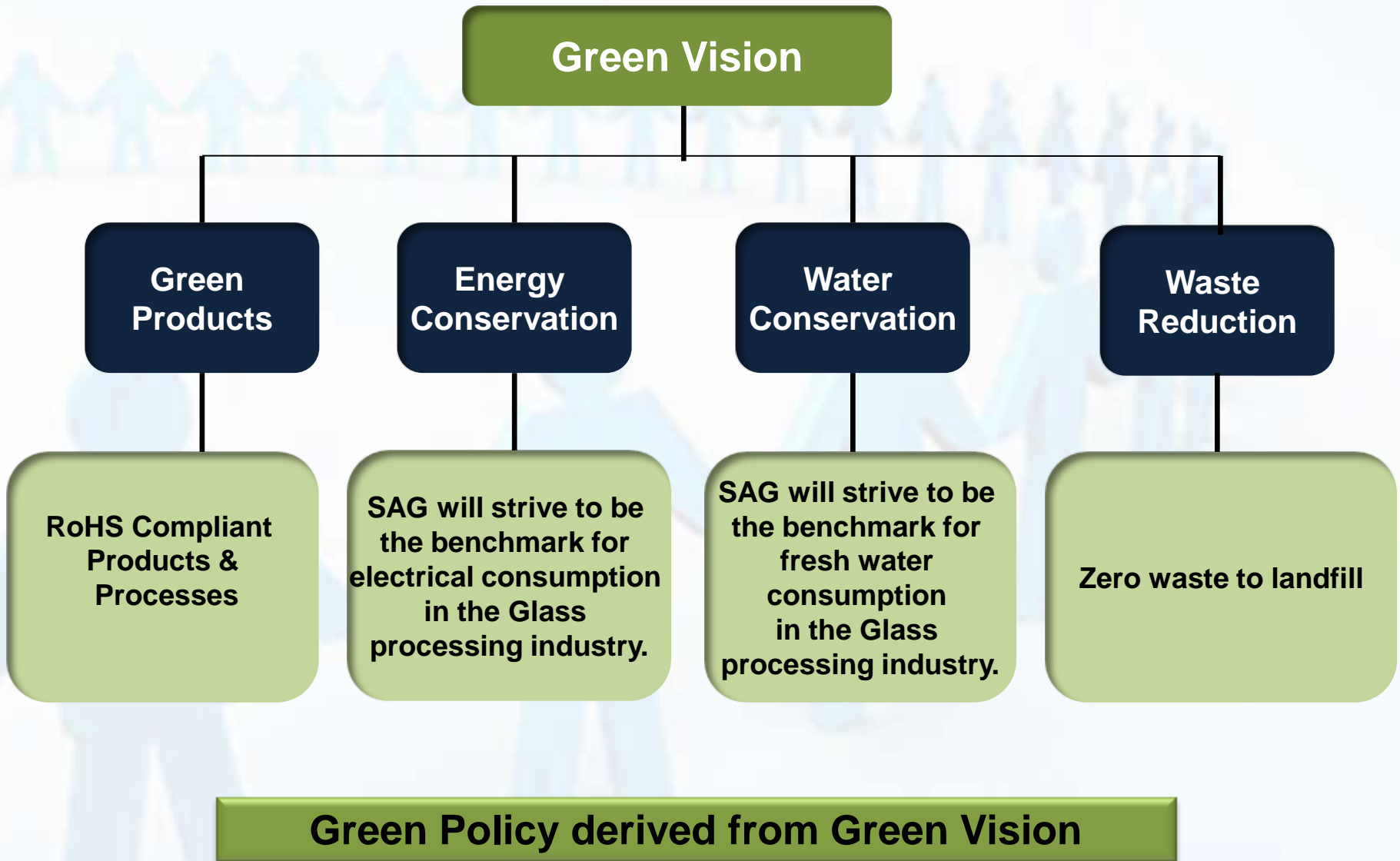
		KAIZEN IDEA - SHEET		Result Area P Q C D S M E	
Kaizen theme: - Reduce electricity consumption by lamp on toughened glass inspection table.			Idea – Installation of sensor for inspection table lamp.		
Problem /Present Status :- Existing inspection setup have lighting (250 w) at reflection side of glass that continually glow irrespective of glass is conveyor or not.		Action Taken :- Sensor for lamps is installed on conveyor so that lamp will glow only when glass is on conveyor for inspection.		Team members: 1 Dnanyeshwar Salunkhe 2 Ganesh Ubale	
Analysis: Why 1 : Wastage of electrical power by lamp on inspection conveyor. Why 2 : Continuous glowing of lamp irrespective of glass is on conveyor or not. Why 3 : No mechanism for auto switch off of lamp when glass is not on conveyor.		Results: <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Before</p>  </div> <div style="text-align: center;"> <p>After</p>  </div> </div>		Benefits : Reduction in power consumption by lamp on inspection table at furnace output – 840	
Start Date : 10.05.2015			End date : 18.05.2015		

Best Green kaizen Award at the CII 8th National Cluster Summit - 2015



Green makes Business Sense

- Green means
 - Maximize resource utilization
 - Pushes to evolve continuously
 - Builds competitiveness
 - **Adds new customer**





Energy Conservation



Energy Conservation



Changing location of lamps reduced wattage from 160 to 30



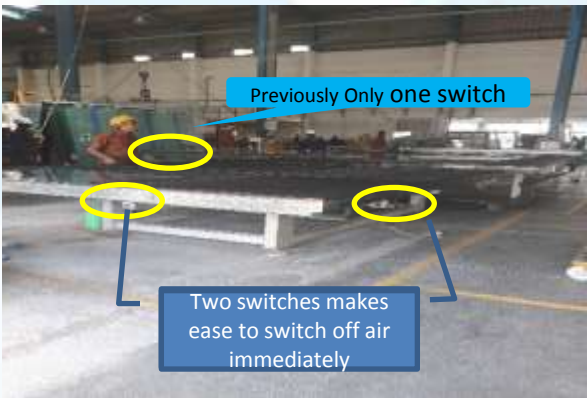
Reduction in Induction Lamps height on shop floor



Use of renewable source of energy (Solar Power)



Screw Compressor instead of Reciprocating Compressor



Additional 2 switches to stop compressor air flow.

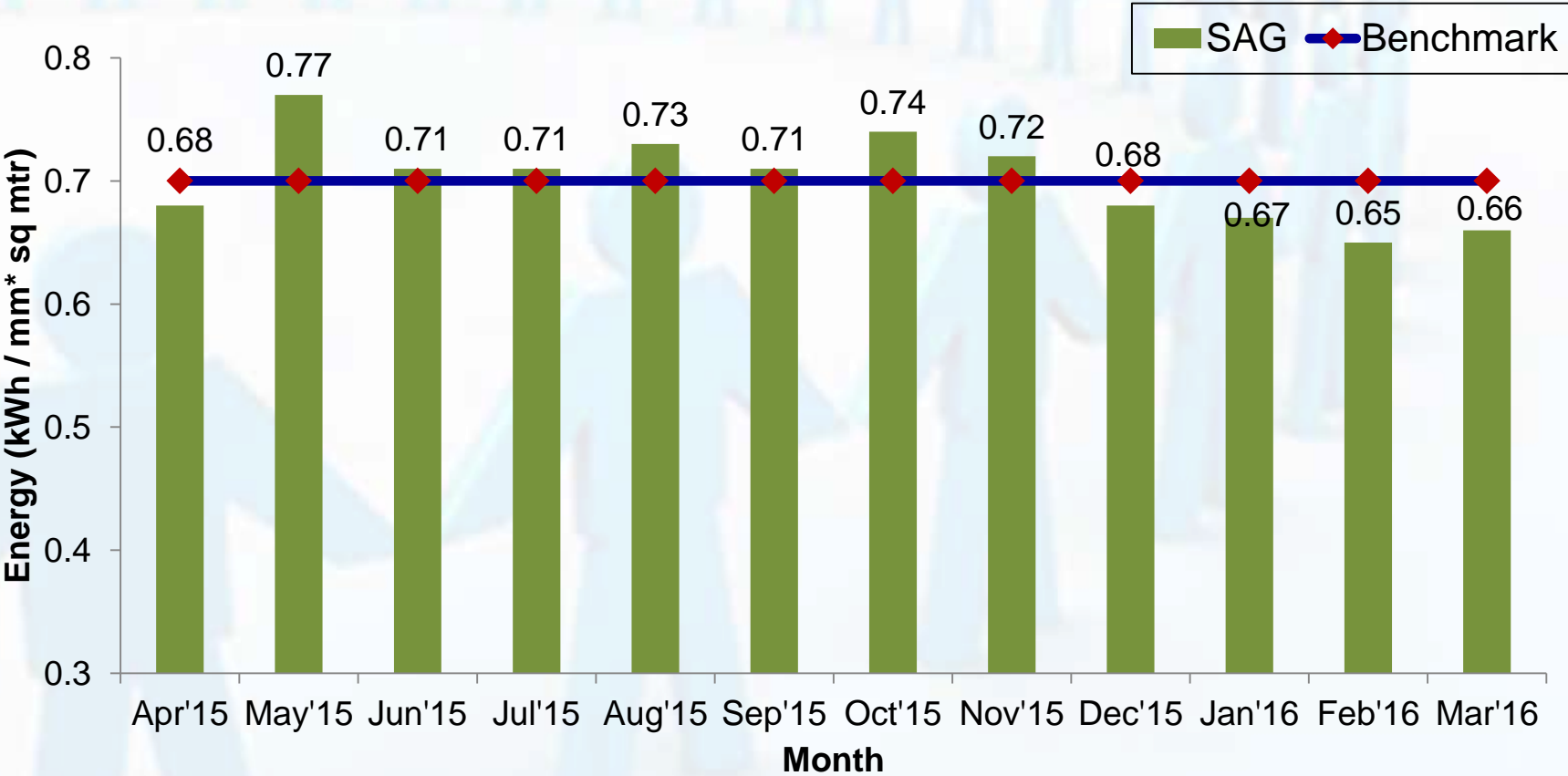


VFD for Furnace blower

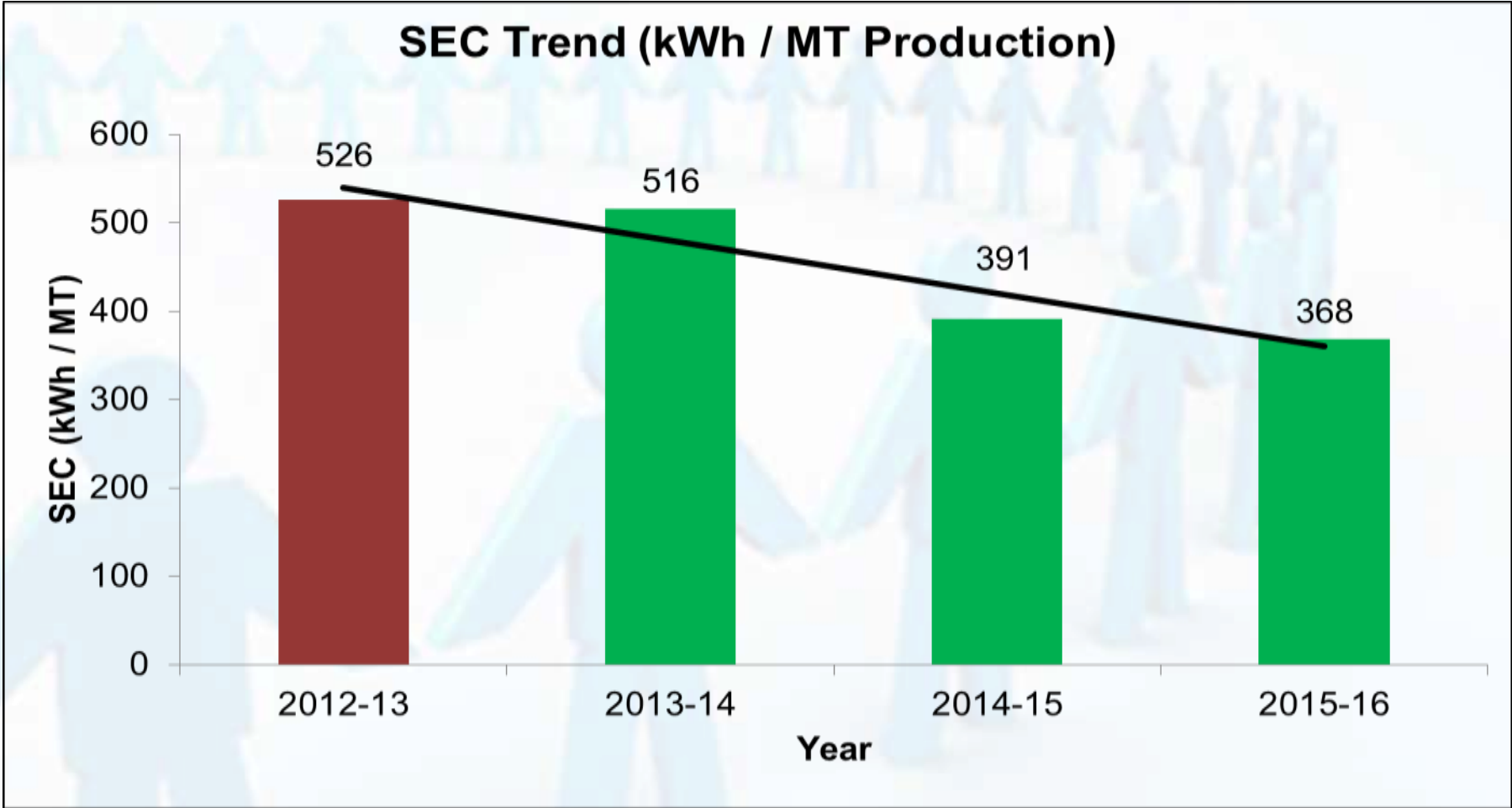
Energy Conservation

S N	Initiative	Benefit	Year	Investment (Rs.)	ROI (Yrs)
1	VFD's for furnace blower	Energy Savings – 80000 kWh / Year	2014	Rs.25 Lacs	1.5
2	Screw Compressor instead of Reciprocating Compressor	Energy Savings – 30000 kWh / Year	2015	Rs.12 Lacs	4.5
3	Use of renewable source of energy – Installation of 225 kW solar panel on roof top	Energy generation - Avg. 1000 kWh / day	2016	Rs.160 Lacs	9
4	Height reduction of induction lamps from 35 feet to 20 feet with reduction in wattage from 200 W to 100W	Energy savings – 6864 kWh / Year	2016	Rs.2.20 Lacs	4.0
5	Location change of lamps for reducing consumption wattage and improving LUX.	Energy Savings – 517 kWh / Year	2016	Rs.1000	0.3
6	Installation of additional switches for stopping compressor immediately after finishing work. There are 250 cycles in 24 hours, saving of 1 min per cycle	Energy Savings – 2859 kWh / Year	2016	Rs.220	4 Days

Benchmark for Energy Consumption by Tempering Furnace (kWh / mm * sq m)



**** Source – Saint Gobain India Pvt. Ltd**



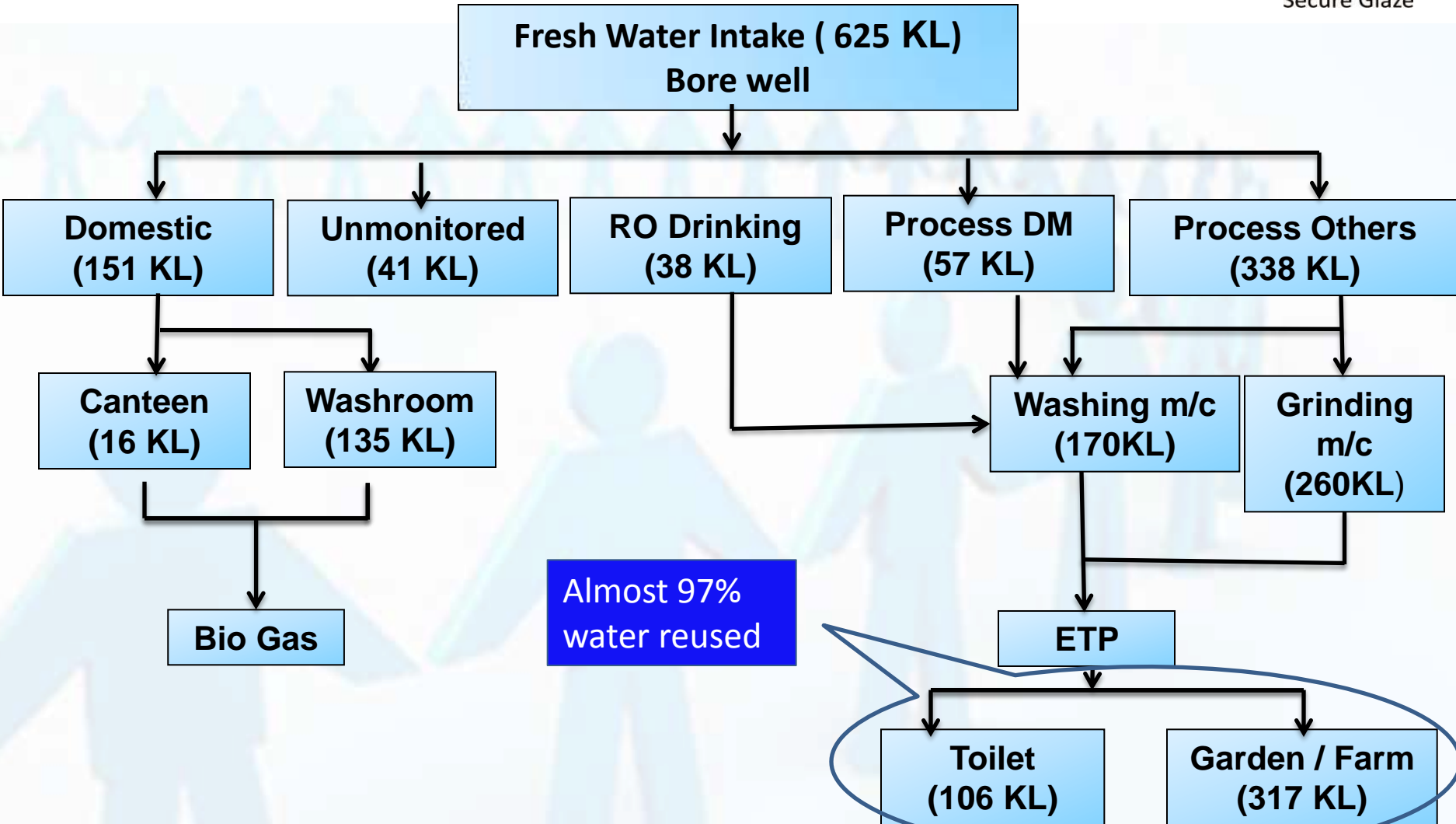
30 % Reduction in SEC from 2012-13 to 2015-16



Water Conservation



Water balance diagram



Almost 97%
water reused

94% water consumption monitored through 11 water meters

Water Conservation



ETP of 15 M3 / Day



Use of flucoolant for grinding



New age WM



Water channelizing through trays



Eco- Urinal blocks



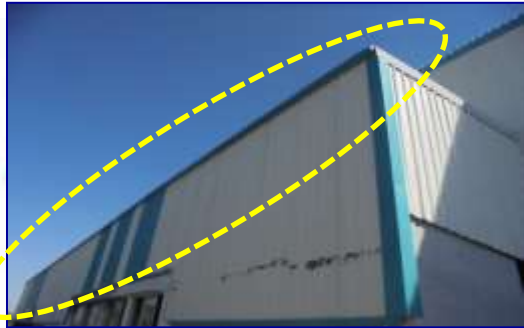
Push Type Taps

Water Conservation

SN	Project	Year	Water Consumption (kl)		Reduction achieved	Investment in (Rs. Lacs.)	ROI (Yrs.)
			Before	After			
1	Flocculent for reuse of water in Grinding machines	2014	5292	1764	66%	2.1	1.5
2	Installation of ETP	2014	8892	6250	30%	6.5	2.5
3	New age WM	2015	250	101	60%	-	-
4	Tray for water channelizing	2015	16	1.5	90%	-	-
5	Restructuring of water flow to improve water balance	2016	430	423	97%	1.5	0.6
6	Push Type Taps	2016	28	14	50%	0.1	1.5
7	Eco urinal blocks for urinals	2016	120	0	100%	0.05	1

Savings worth Rs.7 lacs

Rain Water harvesting



Roof top of main building

Roof top rain water to underground tank



Replaced chiller water to tank



Underground Tank

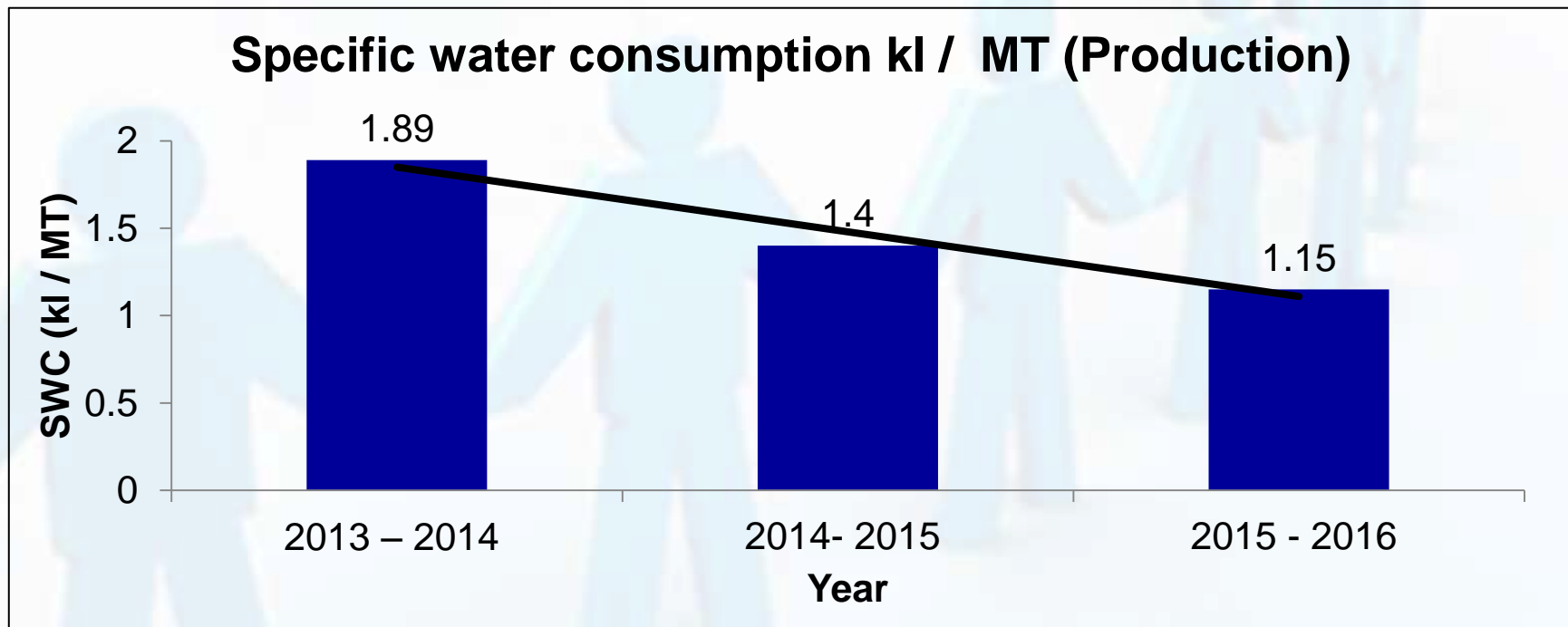


Tank overflow water to Rain water harvesting pit

Rain water collected in tank to Process & Domestic

Use of rain water for Process & Domestic

Year	Total water consumption (kl)	Production (MT)	SWC (kl / MT)
2013 – 2014	8892	4712	1.89
2014- 2015	8626	6140	1.40
2015 - 2016	7503	6477	1.15



39% reduction in SWC from 2012-13 to 2015-16

Beyond the fence



Construction of "Bund" at village - Salav for collecting rainwater (Capacity – 12 Lacs Litre)

लोकसहभागातून हरळीत दोन बंधारे पूर्ण

जलयुक्त शिवार योजनेंतर्गत उपक्रम; 'आपलं गाव, आपला विकास' साठी एकमुखी निर्णय

खंडाळा, ता. ८ : जलयुक्त शिवार योजनेंतर्गत हरळी (ता. खंडाळा) येथे लोकसहभागातून मांगढा ओढ्यावर दोन बंधारे पूर्ण केले. जलशिवार योजनेंतर्गत माती व दगड किटांचे बंधारे बांधले. आठवड्यापूर्वी याकामाची 'आपलं गाव, आपला विकास' कर्मचाऱ्यांचा एकमुखी निर्णय बैठकीत घेतला होता.

या कामासाठी बांधकाम व्यावसायिक नामदेव बरकडे, संतोष बरकडे वंनी ईश्वरचा खर्च व

अष्टविनायक म्हास कंपनी यांनी जेसीबी पुरवठा करून दिले. गावातील लक्ष्मींनी तीन ते चार दिवस श्रमदान केले. या वेळी शिवप्रतिष्ठान हिंदुस्थान, ग्रामस्थांच्या संस्थानी मदत केली. अष्टविनायक म्हासचे आदिप अश्रवाल, सरपंच अश्विका जावळे, तलाठी बाबा, ग्रामसेवक ध्यायगुडे, नामदेव बरकडे, सोमनाथ बरकडे, संजय बबन बरकडे, संतोष बरकडे, कृष्ण बरकडे, भानुदास बरकडे, संतोष देशमुख, राहुल निकम, गणेश विदे उपस्थित प्रारंभ झाला.



हरळी : श्रमदान करताना दुवक व कार्यकर्ते.

श्रमदानासाठी अक्षय निकम, अमोल बरकडे, सुनील बरकडे, प्रमोद भणुडे, जयेश बरकडे, संकेत बरकडे व ५० ते ६० तरुणांनी सहभाग घेतला होता.

हरळीत ग्रामस्थ एकवटले : जलसंधारणाचा पहिला प्रयोग यशस्वी; पहिल्याच पावसात पाणीसाठा

श्रमदानातून उभारले एका ओढ्यावर दोन बंधारे

खंडाळा : पावसाळ्यात शेतकरी जलसंधारण करून घ्यायला लागले आहे. यात यशस्वी ठरल्यामुळे हरळी तलाव वरती बांधले जाणारे दोन बंधारे यशस्वी ठरल्यामुळे जलसंधारणाचा पहिला प्रयोग यशस्वी झाला आहे. या बंधारांमुळे पाणीसाठा यशस्वी करायला शक्यता मिळाली आहे.

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हरळी येथे श्रमदानातून बांधण्यात आलेल्या ओढ्यात पहिल्या पावसात पाणीसाठा झाला.

बांधले वनी रुंदीत जलसाठा करून दिले. जलयुक्त शिवार अष्टविनायक कंपनीने आदिप अश्रवाल, सरपंच अश्विका जावळे, तलाठी बाबा, ग्रामसेवक ध्यायगुडे, नामदेव बरकडे, सोमनाथ बरकडे, संजय बबन बरकडे, संतोष बरकडे, कृष्ण बरकडे, भानुदास बरकडे, संतोष देशमुख, राहुल निकम, गणेश विदे उपस्थित प्रारंभ झाला.

ओढ्याच्या पावसातील पाच बंधारे बांधण्यातून दोन बंधारे बांधण्यातून या पहिल्यातील शेतकरींसाठी पाणीसाठात वाढ होण्यात आहे. जलयुक्त शिवार योजनेंतर्गत माती व दगड किटांचे बंधारे बांधले जाऊन याकामाची 'आपलं गाव, आपला विकास' कर्मचाऱ्यांचा एकमुखी निर्णय बैठकीत घेतला होता.





Renewable Energy



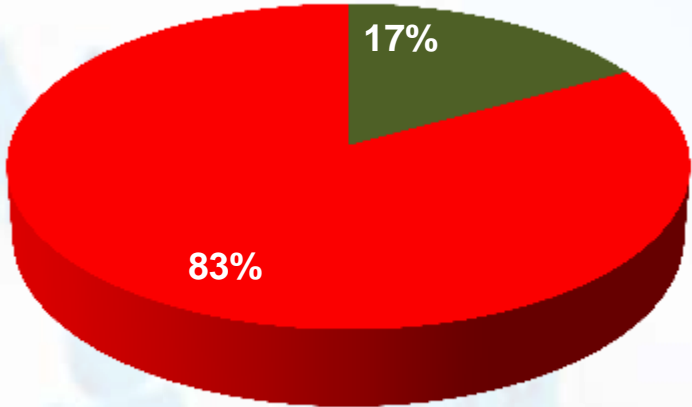
Renewable Energy



Solar Power Generating electricity
3,28,500 kWh / Year



Bio Gas Generating cooking gas
912 kg gas / Year



■ Renewable Energy ■ Non-renewable Energy

- PPA contract for 5 MW Green Power signed with Lean Way Energy on 20.05.2016
- Use of 100% Green Power from Aug'2016.

Beyond the fence



- Installation of 20 Nos. of Bio Gas Plant in Village – Salav
- Methane gas generated from Bio Gas plant is utilised by 50 families
- Generation of gas – 10950 kg / Year



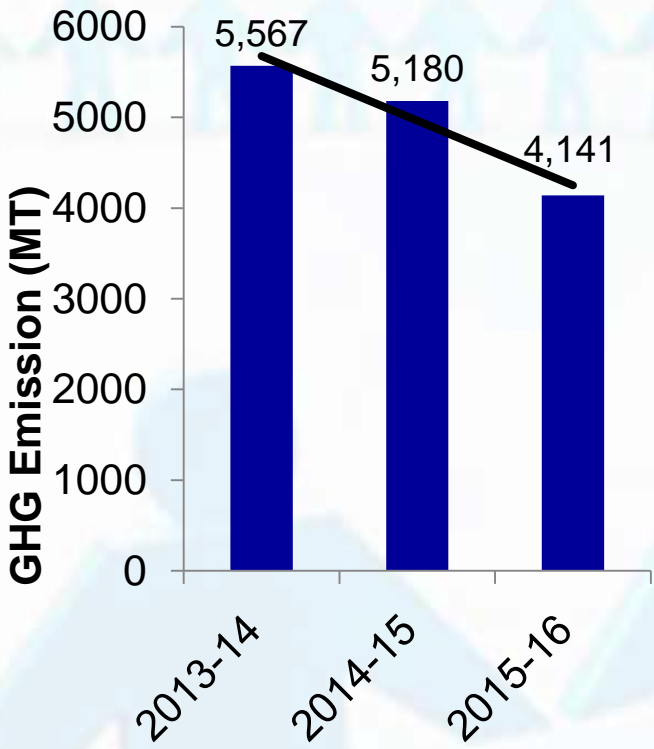
Equivalent Energy Generation through Bio- Gas Plant - 18615 kWh / Year

	Projects	Budget Allocation (Rs. Lacs)
Short Term Plan (Up to Year 16-17)	<ol style="list-style-type: none">1. Use of alternate fuel for generators.2. Installation of 10 more Bio Gas plants in nearby villages.	170
Mid Term Plan (Up to Year 18-20)	<ol style="list-style-type: none">1. Roof top solar power generation system for new manufacturing facility (2000 kWh / day).2. 2nd Bio Gas plant in factory.3. Installation of additional 20 Bio Gas plant in nearby villages.	325
Long Term Plan (Up to Year 22-23)	<ol style="list-style-type: none">1. Power Purchase Agreement (PPA)2. Installation of 50 biogas plants in nearby villages.	48



Green House Gases





26% Reduction in GHG emission intensity

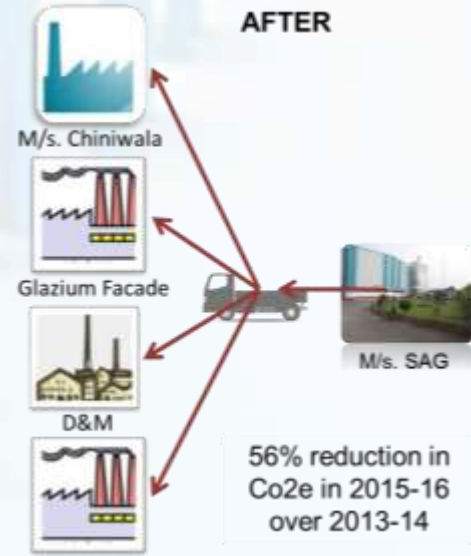


Development of trolley for optimization of GAD glass loading



Transport optimization of schindler mirror glasses

Localisation	Distance Reduction
Glass from Saint Gobain	Chennai to Jagadiya – 529 km
Glass from Asahi	Roorkee to Talojia – 1498 km
Molecular Sieve for DGU	Silvasa to Talojia – 179 km



Milk Run for Customer Delivery



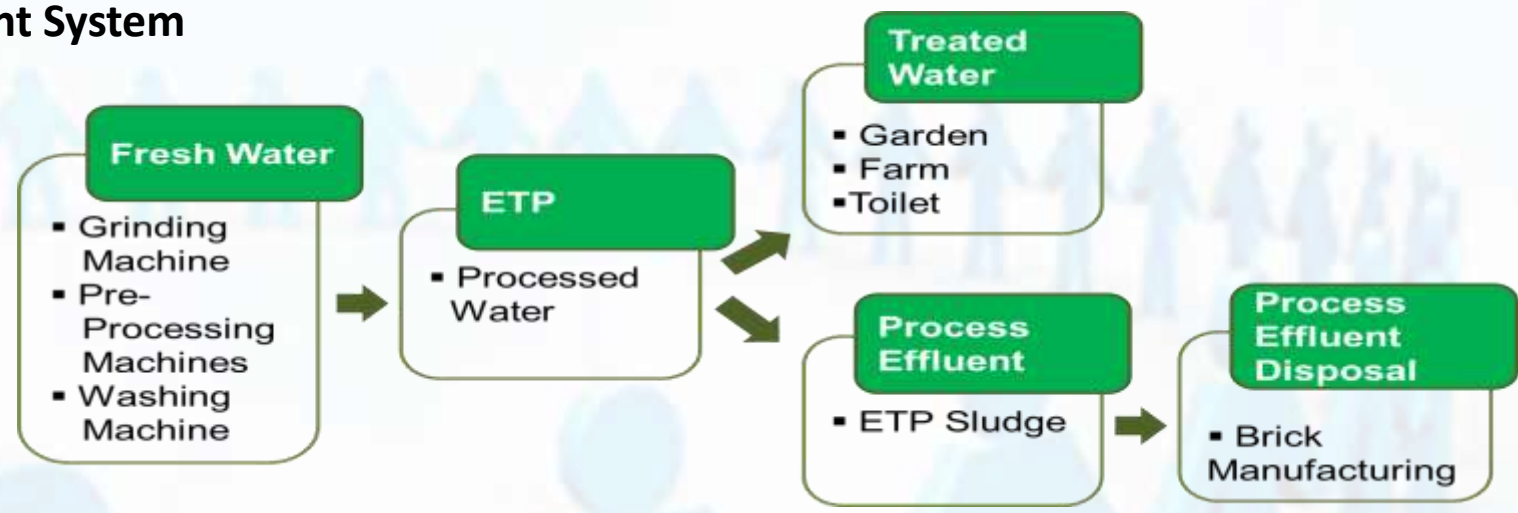
Waste Management



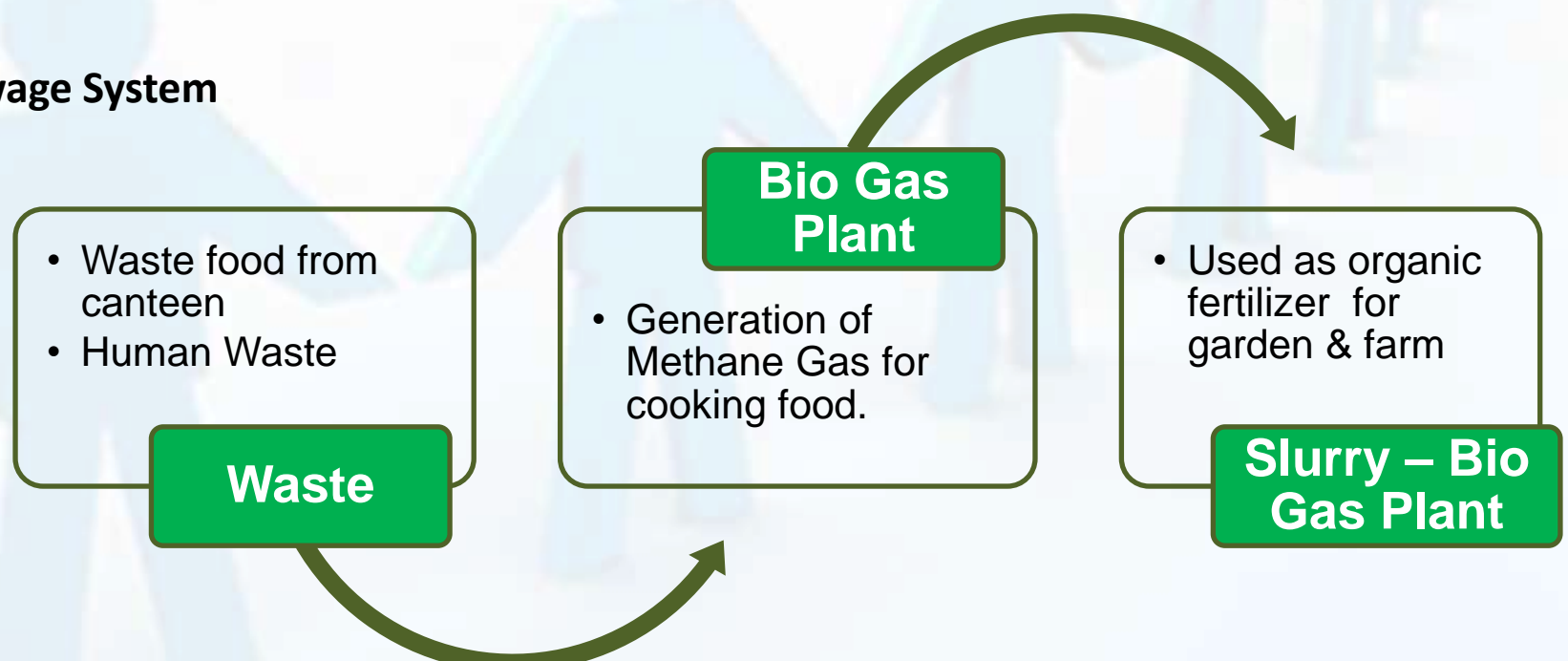
*Create decorative/
innovative products
from waste*

Zero Water Discharge

Effluent System



Sewage System



Non – hazardous waste



100% Reuse of ETP sludge for making bricks



Recycling wooden scrap for making Exports consignment



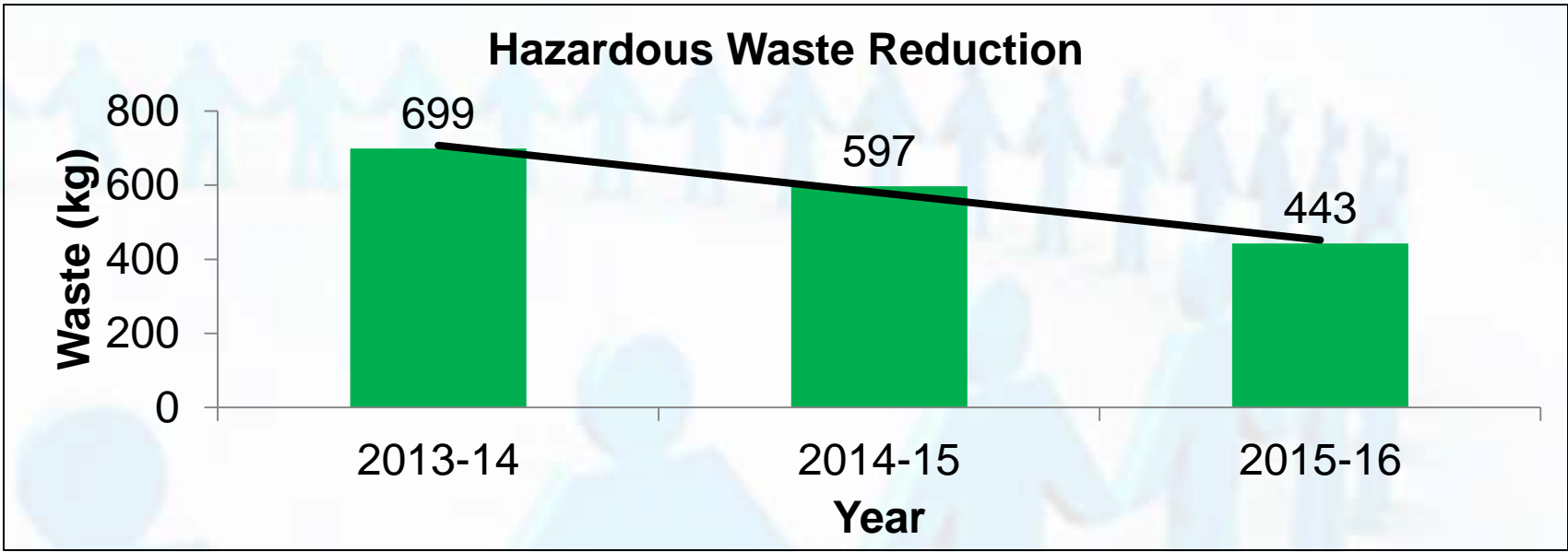
Green House from recyclable & waste material



Organic fertilizer from Bio Gas Plant



Vermicomposting / De-composting

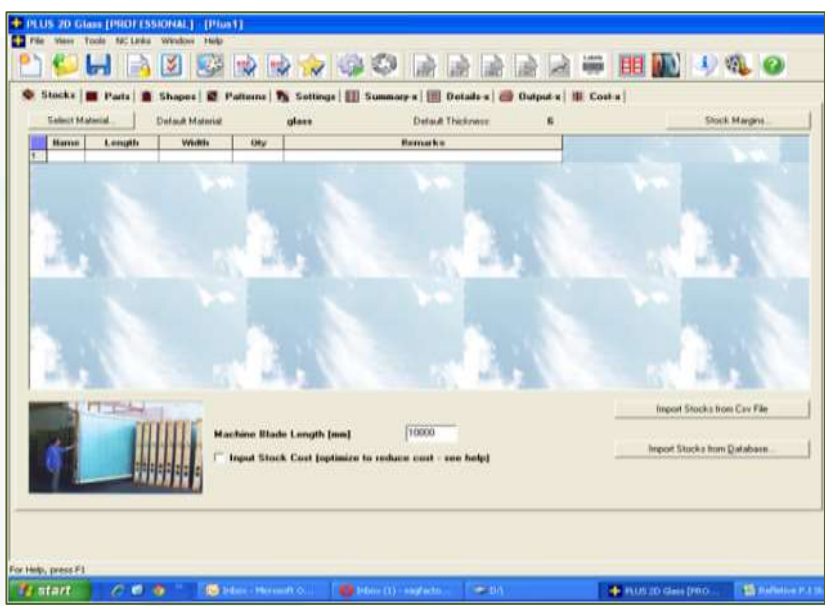




Material Conservation

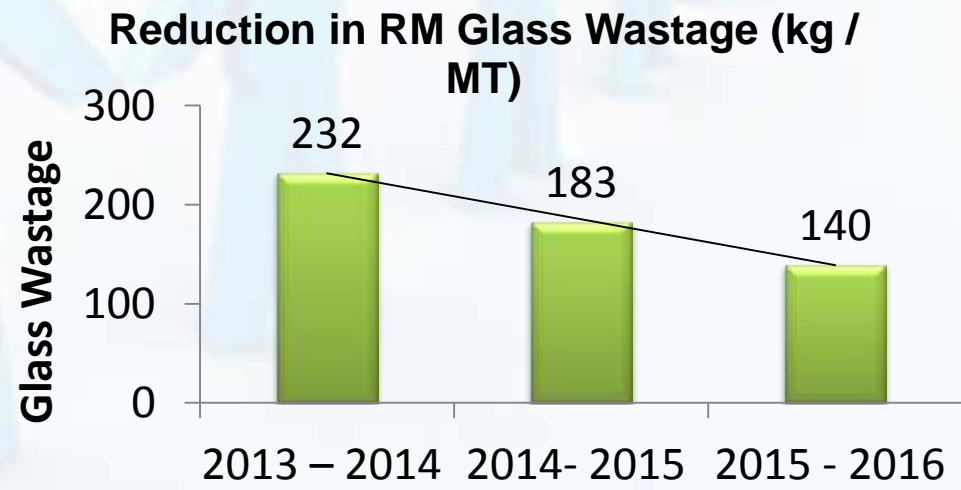
Recycling & Recyclability

Material Conservation



Other Projects	Benefit
Use of Plus 2D Software for optimisation of glass in cutting.	Reduction in RM Glass waste by 5% (336 MT)
Proper storing and reutilizing of off cuts.	Reduction in RM Glass waste by 2% (133 MT)
Reuse of damaged WIP to make other small FG	Reduction in RM Glass waste by 1% (63 MT)

	Before	After
No. Of SKU's	364	461
Waste	7% - 10%	3% - 6%
Reduction in RM Waste (Pre cutting)	Avg. 4% (269 MT)	



40% Reduction in RM Glass Waste

Consumable & Packaging



40% unused polishing wheel



Used polishing wheels



Bonding of two used polishing wheels together



Trolleys with rubber pads in place of paper.



Recycling wooden scrap for making Exports consignment



Recycling brown paper for packing reflective glasses



Green Supply Chain

Capital Goods



Machine - Edge Grinding
Make - SK Glass, Delhi



Machine - Edge Grinding
Make - Golive, China

Benefits -

- Production - 400% ↑
- Electricity - 25% ↓
- Water - 50% ↓



Machine - Washing
Make - BSJ, China



Machine - Washing
Make - Bentler, Germany

- Production - 50% ↑
- Electricity - 21% ↓
- Water - 50% ↓



- Production - 40% ↑
- Electricity - 12% ↓
- Water - 0%

Procurement of Environment Friendly Consumable Products



Low VOC Silicon for DGU



Environment friendly housekeeping material



Environment friendly molecular sieve for DGU



Metal Bonded Wheels with extended life



Environment friendly Aerosol Spray AC 90



Non lead based ink for glass printing

Awareness in Supply Chain



Training for local customers on
“Natural Resource Conservation &
GHG Emission”



Training for all transporters on “GHG
Emission”



Awareness creation on “Natural Resource Conservation & GHG
Emission” for Consumable & Spares suppliers



Others



List of Key Initiatives for Maintain Bio-diversity

- ✓ Tree Plantation – plantation of 305 nos. of trees inside the factory & @ 28,000 Nos. in nearby area outside factory
- ✓ Farming on 1.5 acres open land inside the factory
- ✓ Development of poly house from waste
- ✓ Monitoring & controlling environment parameters inside and outside the plant like air quality, noise and stack emission.
- ✓ Awareness program for near by villages



Achievement...



Green Co Certification



Score Card

GREENCO SME RATING SYSTEM : SHREE ASHTAVINAYAK GLASS PVT LTD															
SCORE BAND															
	00-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120	121-130	131-140	141-150
EE												X			
WC									X						
RE								X							
GHG							X								
WM							X								
MCR							X								
GSC				X											
Others									X						

Benchmark Score across all categories

SAG Score
X Best achieved figure by other GreenCo rated SME

GreenCo Rating Level					
Levels	Points Awarded				
	>225-300	300 - 375	375 - 450	450 - 525	>525
Certified					
Bronze					
Silver					
Gold					
Platinum					X

	225 - 250	250 - 275	275 - 300	300 - 325	325 - 350	350 - 375	375 - 400	400 - 425	425 - 450	450 - 475	475 - 500	500 - 525	525 - 550	550 - 600	600 - 650	650 - 700
Level	Certified			Bronze			Silver			Gold			Platinum			

Awarded **“Platinum Rating”** with a score of around 600 points

Thank you

