SESHASAYEE PAPER AND BOARDS LIMITED, ERODE

"Healthy Performance Based on
Conservation & Sustainability Principles"

EXCELLENCE IN ENERGY MANAGEMENT

25.08.21

TEAM: MR. D RADHAKRISHNAN, MR. B MANIKANDAN & MR. A KAVINKUMAR

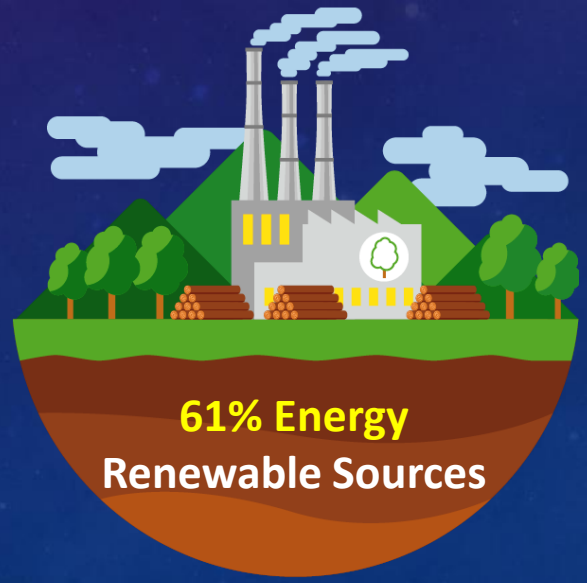
ABOUT US

- Flagship company of SPB ESVIN group
- Product Portfolio – Writing, Printing, Posters & Specially Boards
- Production Capacity:

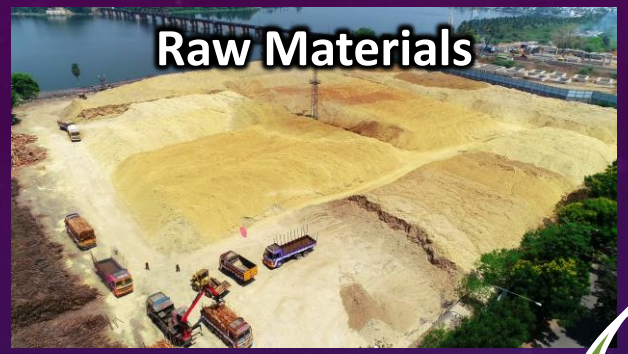
  1960 20,000 TPA

  2020 1,65,000 TPA

- Help marginal farmers to plant over 16.40 crores of seedlings every year in about 19,000 acres of land
- Carbon & wood positive
- All our products are 100% Recyclable & Biodegradable



PAPER MANUFACTURING PROCESS



White Liquor

Black Liquor

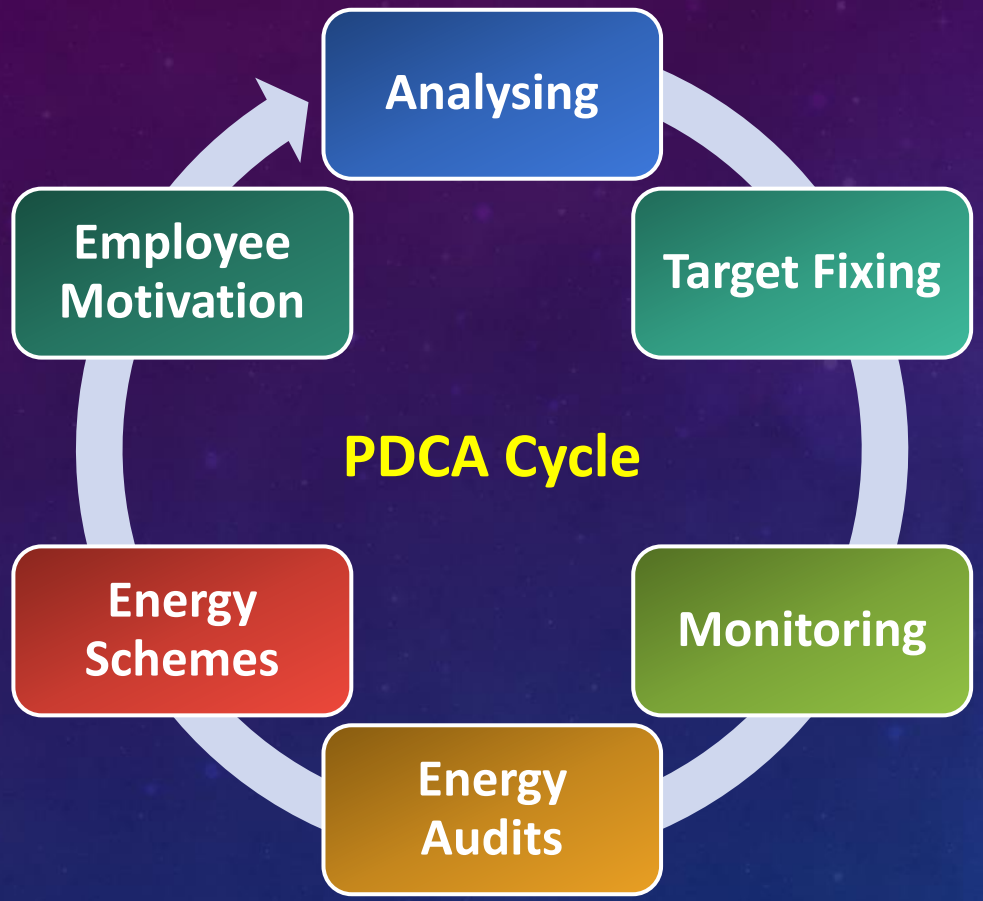
Burnt Lime

Lime Mud

Green Liquor

“To manufacture quality products at competitive cost through technology and team work”

OUR ENERGY POLICY



We, at SPB are committed to continually improve our Energy Efficiency by:

- Analysing the present status of energy generation and consumption in our mill
- Fixing energy consumption targets for each department
- Monitoring energy consumption on a daily basis
- Conducting periodic energy audits
- Fixing the yearly target for energy reduction and implementing the energy conservation schemes to achieve the target
- Involving and motivating all employees to reduce energy consumption

08.02.2016

K S Kasi Viswanathan
Managing Director

Impact of Covid 19

Positive Sides

- Change in Business Strategy – Entered in new segments / Markets
- New products developed – Like Cup Stock, Multilayer boards, Pharma Papers, Envelope Paper, Ivory boards, Kraft varieties etc
- Retrieval of board products – Which were our earlier brand products
- Created Business opportunities with minimum inventory

Darker Sides

- Resulted in severe impact on Financial Performance
- Supply Chain break up resulted in Raw Material shortage, despatch of finished goods
- Increase in raw material cost / scarcity
- Due to higher finished goods, revenue dropped drastically
- Drop in market demand in some of the Paper segments

Impact of Covid 19

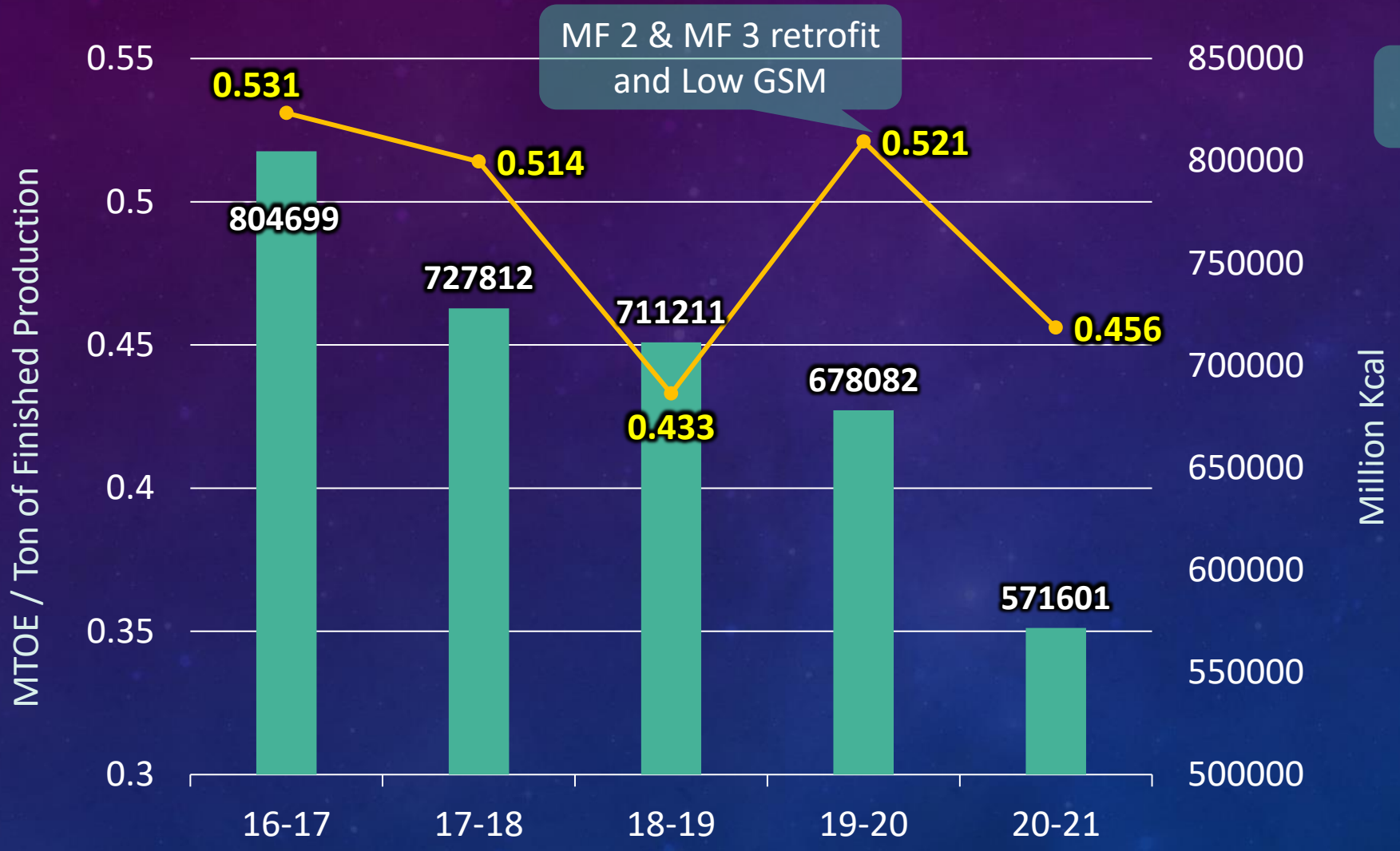
Positive Sides

- O & M with minimum / optimum manpower not only to reduce cost but also to protect employees health
- Turn down ratio at 50% - 60%
- Utilized Paper Machine time to produce Pulp board for our own use and to curtail imported Pulp cost
- Mill development plans taken up in Paper Machines, Evaporator & Digesters to improve quality & quantity
- Energy efficiency improvement measures undertaken

Darker Sides

- Production planning could not be executed as planned - Had to stop some of the operations
- Protection of employees health & care was a major challenge
- Projects delayed

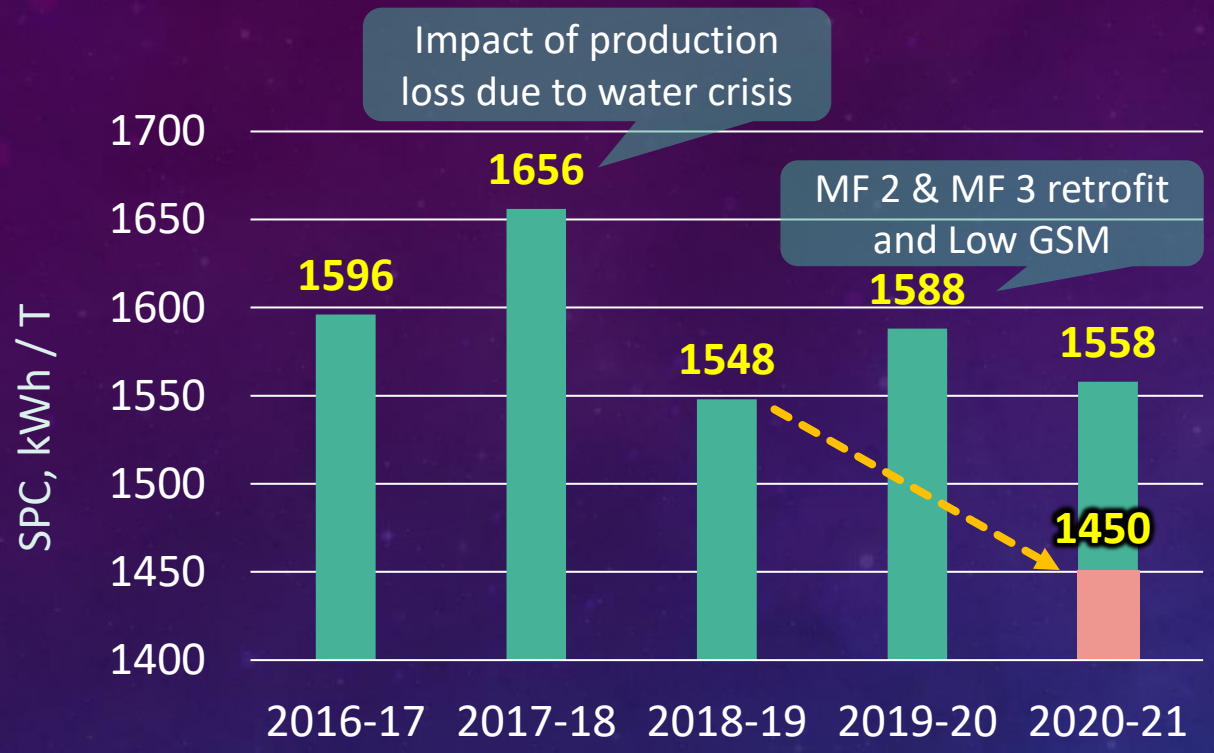
OVERALL ENERGY CONSUMPTION & SEC TREND

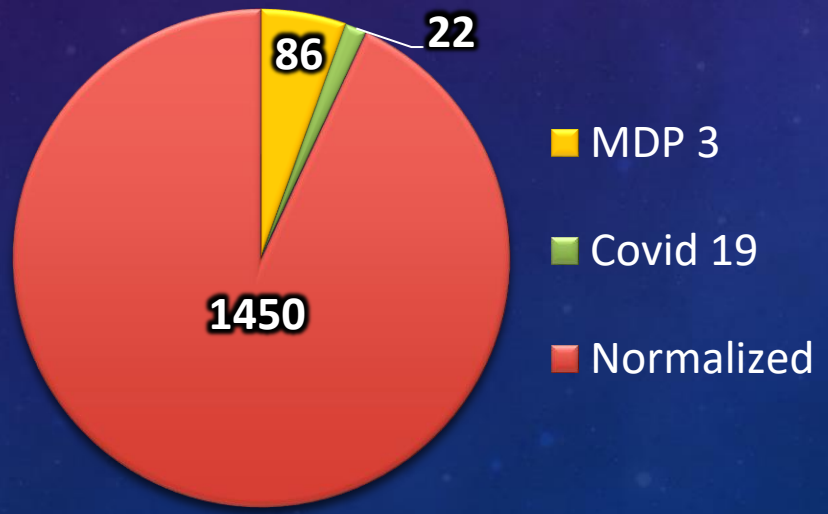


Drop in Paper Production	10 %
Drop in Energy Consumption	28 %

Production Data (Tons)	
2016-17	125662
2017-18	121594
2018-19	132379
2019-20	125313
2020-21	112489

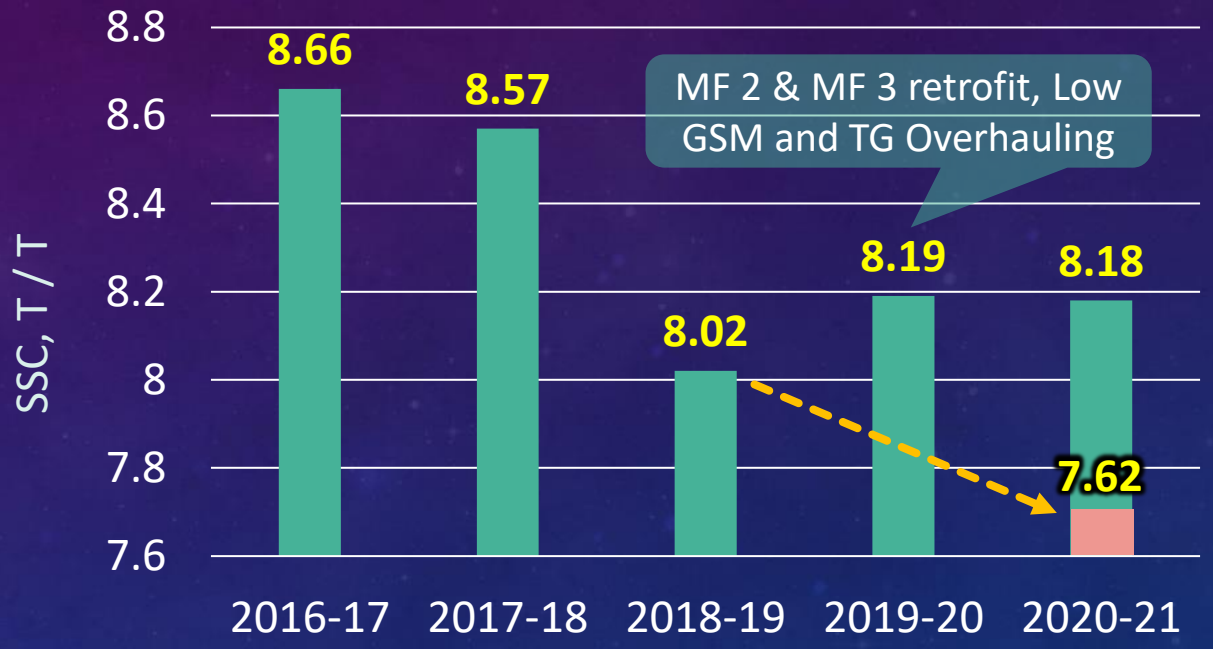
SPC TREND

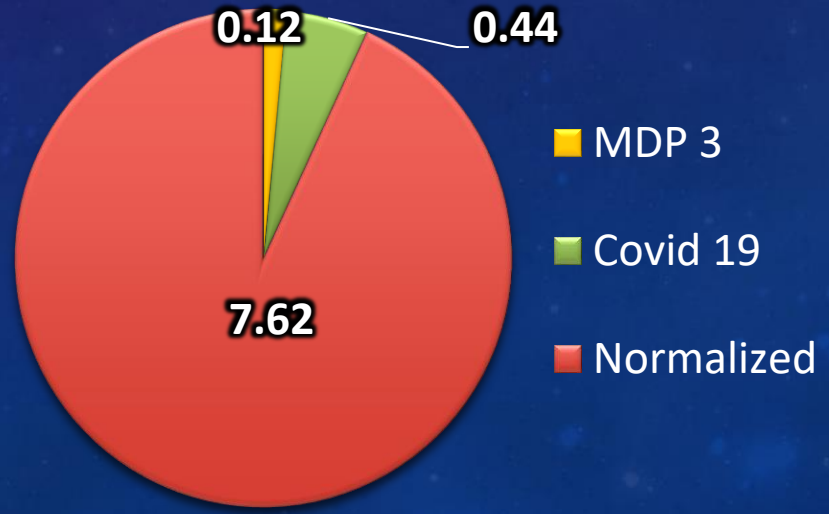




2020-21

SSC TREND

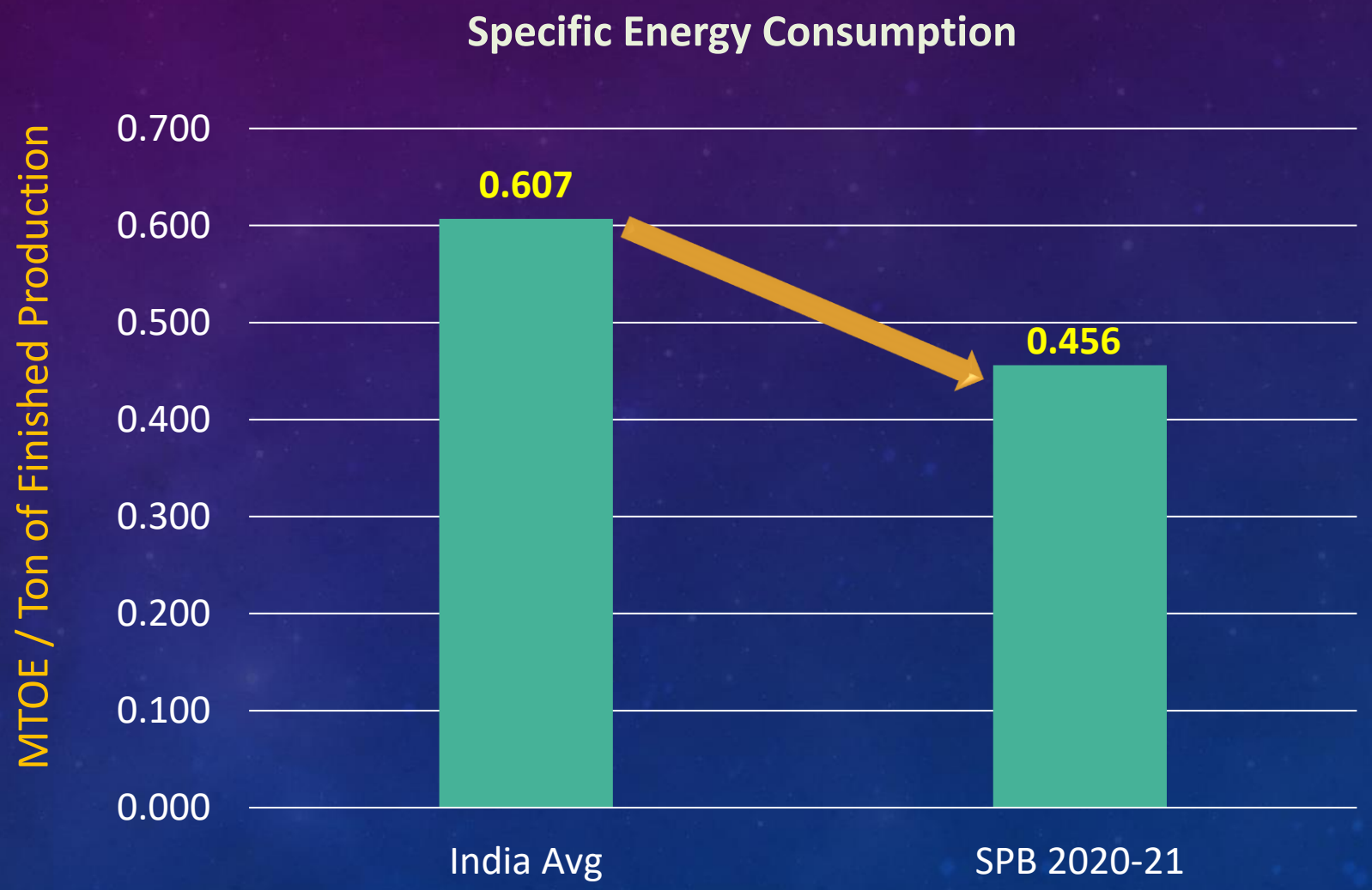




BENCHMARKING AND ROAD MAP

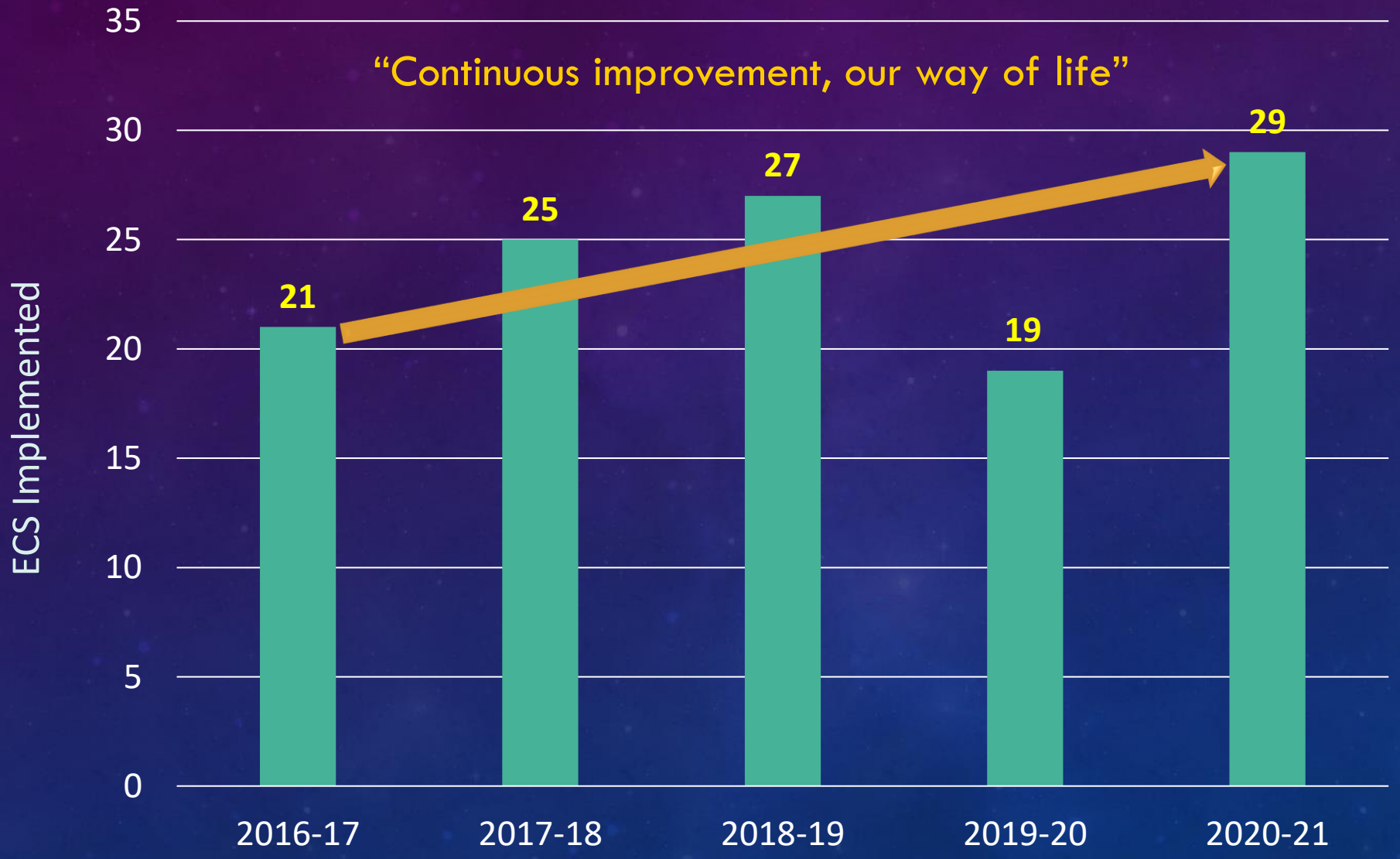
- Benchmarking
- Gap Analysis
- Action Plan
- National Best

Live Projects – FY: 2021-22	
In Pipe Line	20 Projects
Annual Savings	4827 MKcal
Reduction in SEC	11 %
Investment	Rs. 302 Lacs



(Source: Gazette Notification Dt: 31.03.2016)

ENCON PROJECTS



38.09%

ECS	
With Investment	88
With Minimum Investment	33
Total	**121**

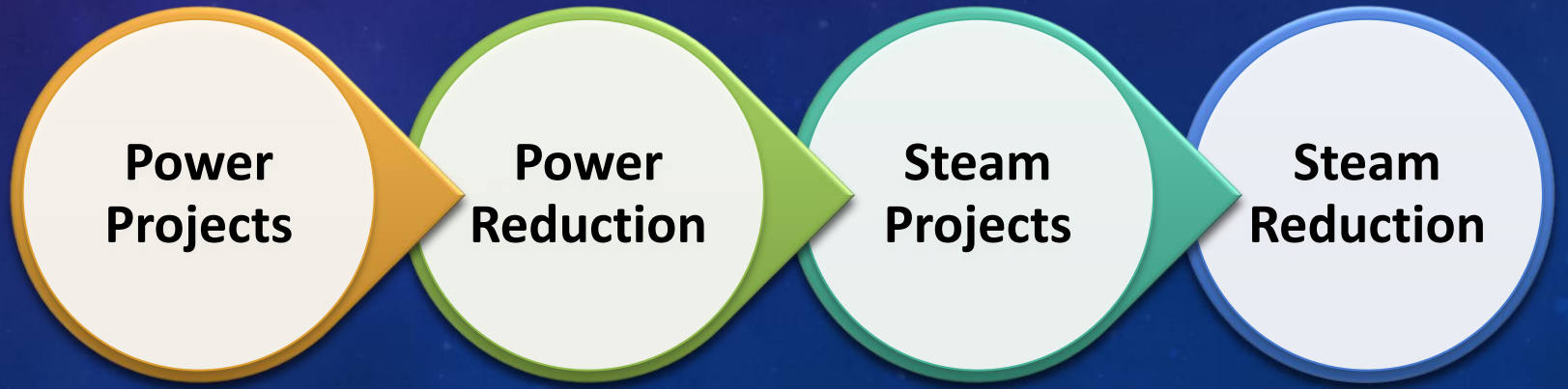
We adopt 80/20 rule for the proposals

PROJECT SUMMARY: 2018-19 TO 2020-21

Total Savings – Rs. 17.84 Million / Annum

Total GHG Reduction – 4941 tCO2e

ENCON PROJECTS: 2020-21



INNOVATIVE PROJECT

"An innovative approach to increase the Pulp Production"

Digester Modification

- Increased Pulp production from 380 to 430 tpd
- An unique approach where in design of digester was challenged
- An unique route with the help of in house team
- All the modifications were done in a period of 6 months time in phases with minimum investment
- Strengthening our sustainability practices

Trigger for the Project

- Need for enhancing Green Energy
- Substitution of imported pulp with own pulp
- Reduction in GHG

INNOVATIVE PROJECT (CONTD…)

A Brief Introduction

- We are sort of pulp to match paper production. Major modifications in paper machines recently has increased the pulp demand further.
- More over, necessity of generating more green power is the need of the hour.
- To address this issues, following modifications were though of.

1) To have top **air evacuation in one digester with dual logic** with the existing system (With middle and top valve openings)
2) **Enlarging the middle header from 12” diameter to 16” diameter** control valve in one digester with self-draining
3) **Enlargement of discharge line nozzle size from 300 mm diameter to 500 mm diameter** by replacing discharge valve

INNOVATIVE PROJECT (CONTD…)

The Scheme Details

S. No	Modifications	Achieved Benefits	Investment
1	To have top air evacuation in one digester with dual logic with the existing system (With middle and top valve openings)	• Chip fill quantity in digester increased by 1.5 Tons / digester • Chip fill time reduction achieved is by 7 minutes minimum (from 32 minutes to 25 minutes)	24.51Lakhs
2	Enlarging the middle header from 12” diameter to 16” diameter control valve in one digester with self draining.	• Circulation volume increased from 130 LPS to 180 LPS • TTT time cycle reduced by 15 mins / cycle. • Uniform Temperature profile achieved.	34.07 Lakhs
3	Enlargement of discharge line nozzle size from 300mm diameter to 500mm diameter by replacing discharge valve.	• Clean pump out in one stroke • Cycle time reduction from 310 minutes to 290 minutes / pump out • Displacement liquor entry under low velocity.	101.52Lakhs

INNOVATIVE PROJECT (CONTD…)

Why it is Innovative

- The digester investment is always a capex intensive and time consuming
- However, **“Our curiosity, interest and passion for finding a new way helped us to find a solution through this project”**
- This project is embedded with scientific approach, reengineering, small-small project changes, **unique practices with minimum investment**
- We are running the system successfully for the past 6 months and avoided additional digester investment
- Similar arrangements / approaches can be applied horizontally

INNOVATIVE PROJECT – 2 (CONTD…)

Outcome Achieved by the project

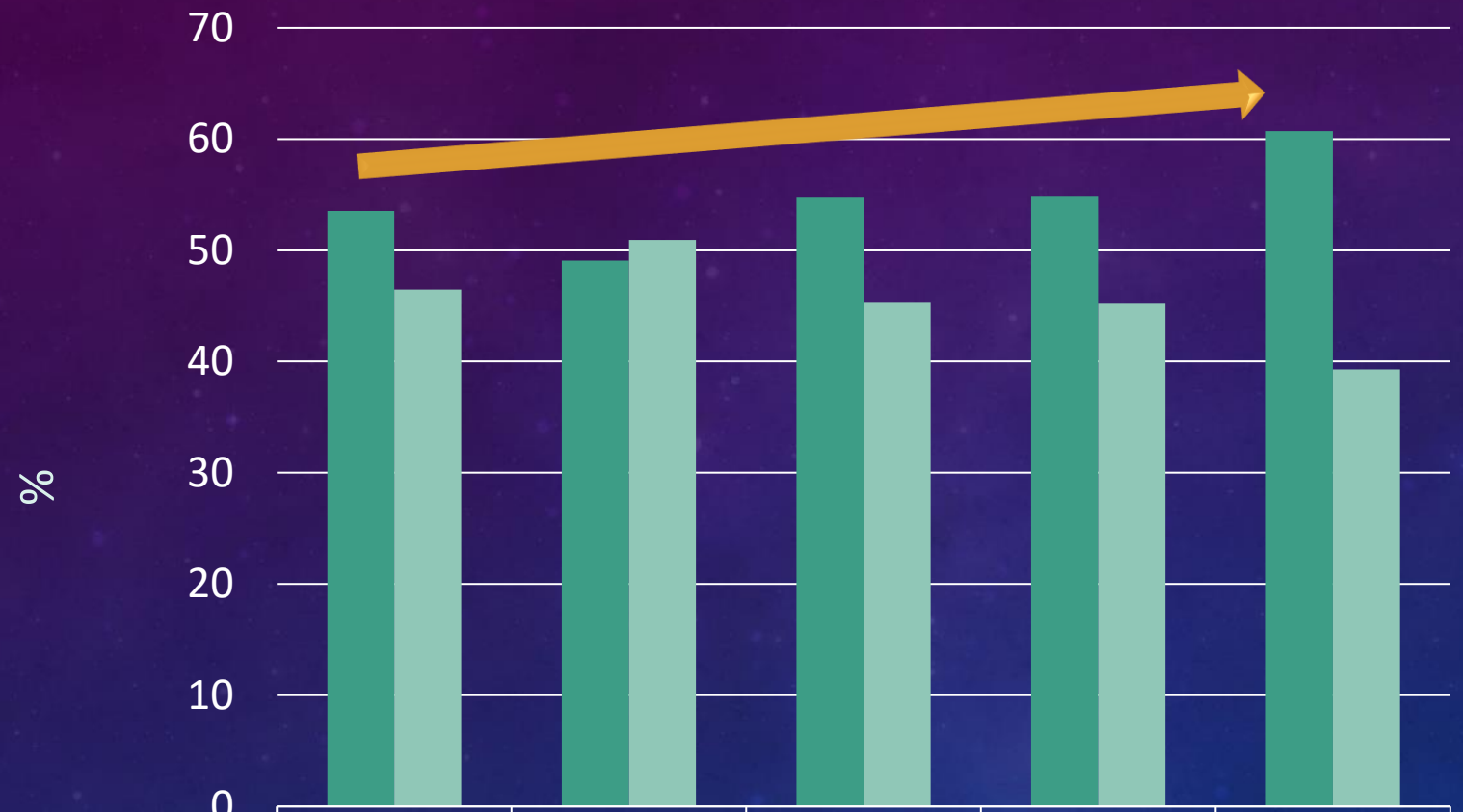
Description	UOM	Values
Increase in Pulp Production	TPD	380 to 430
Increase in Green Energy	%	6
Investment	Rs. Lacs	148
Savings	Rs. Crores	8.15

First time implementation on National Level

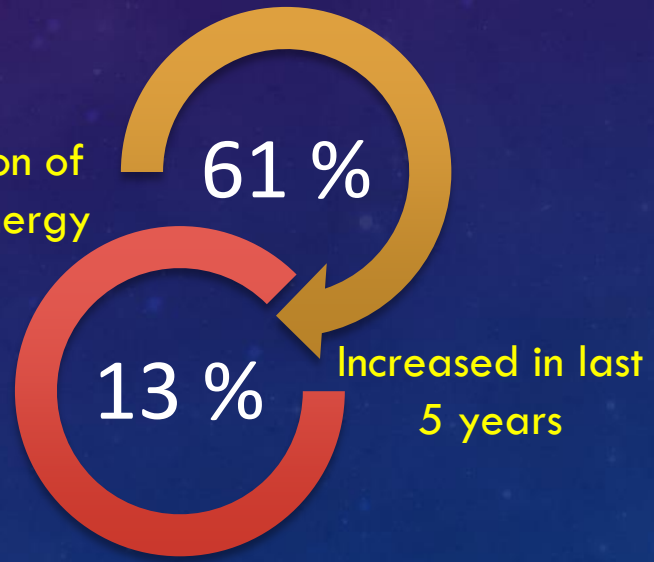
Feasible, Sustainable, Self driven and beyond OEM

Replication Potential – Yes can be horizontally applied

UTILIZATION OF RENEWABLE ENERGY SOURCES

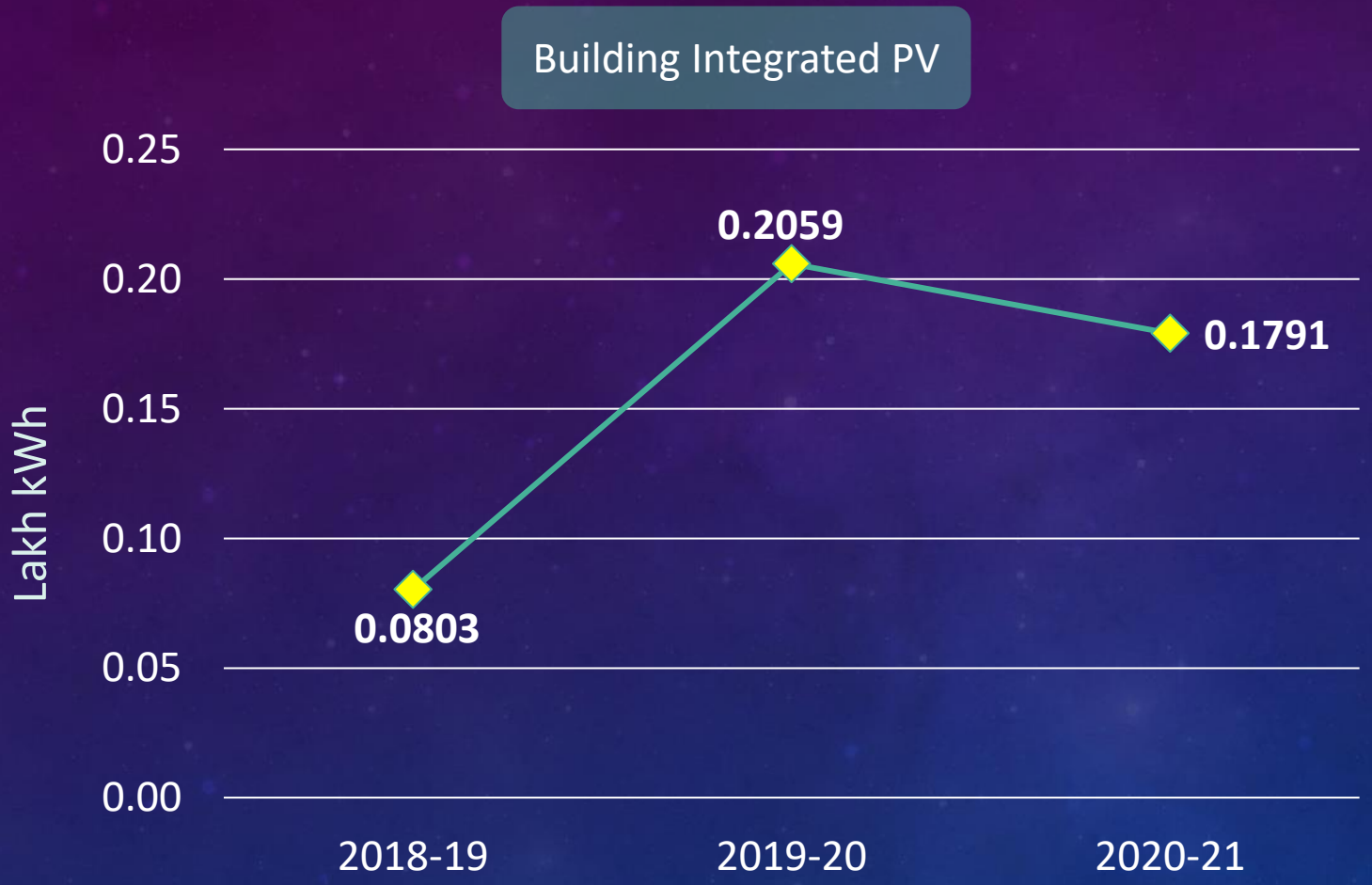


	2016-17	2017-18	2018-19	2019-20	2020-21
Renewable %	53.53	49.08	54.73	54.82	60.72
Non Renewable %	46.47	50.92	45.27	45.18	39.28



"Generation of Green Energy by firing black liquor in Recovery Boiler"

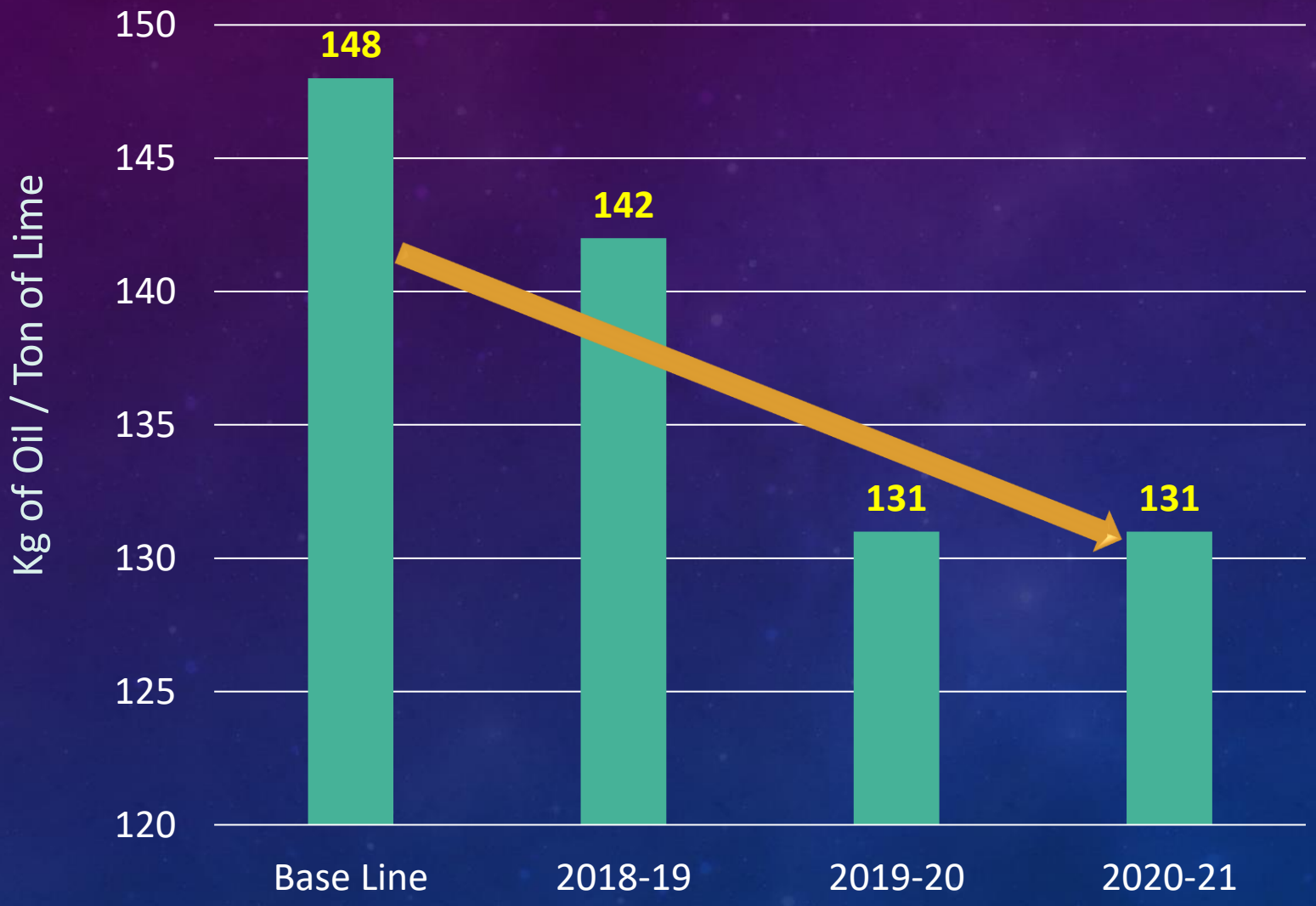
UTILIZATION OF RENEWABLE ENERGY SOURCES



"Solar Power – The Everlasting Energy Resource"

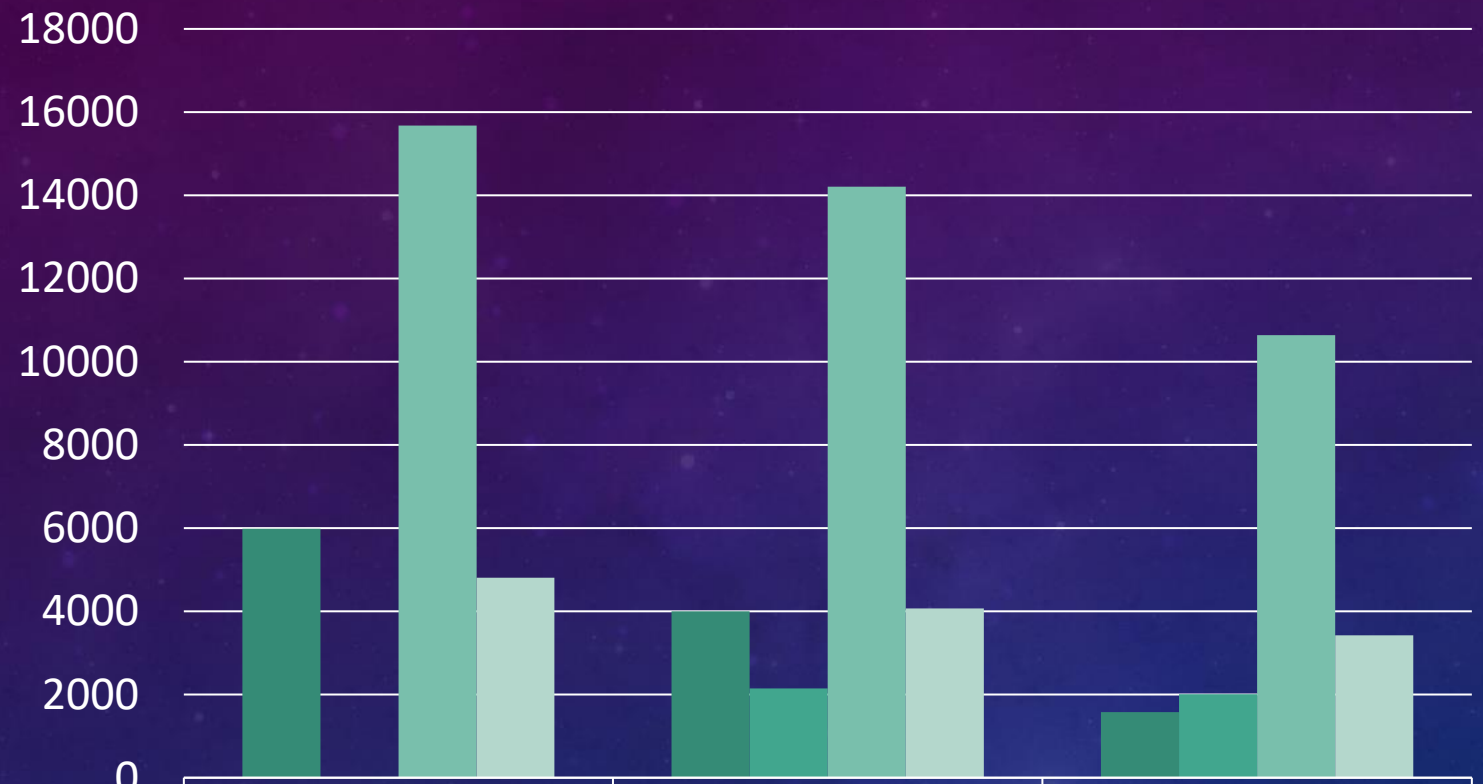
UTILIZATION OF WASTE AS FUEL

Offsetting fossil fuel consumption by usage of Bio Gas in Lime Kiln



Monetary Benefits	
Present Trend	122 – 124 Kg
Furnace Oil Saved	3.5 – 4 KL / Day
Savings	428 Lakhs / Annum

UTILIZATION OF WASTE AS FUEL



	2018-19	2019-20	2020-21
Bagasse Pith	5984	4004	1580
Wooden Bark	0	2144	2010
Chipper Dust	15680	14204	10637
Screen Rejects	4808	4067	3422

Fuel for Boiler – Beyond Gate	
1	Bagasse Pith
2	Chipper Dust

Sold Outside	
1	Wooden Bark
2	Screen Rejects

For “Renewable Energy” generation

UTILIZATION OF WASTE AS FUEL

Waste Component	Quantity in Tons	Industry
Filter Cake	28071	Board Manufacturing
Wet Pith	2455	
Lime Sludge	19319	Cement Manufacturing
Lime Grits	3987	
Fly Ash	8584	
Sodium Sulphate	1566	Soap Manufacturing

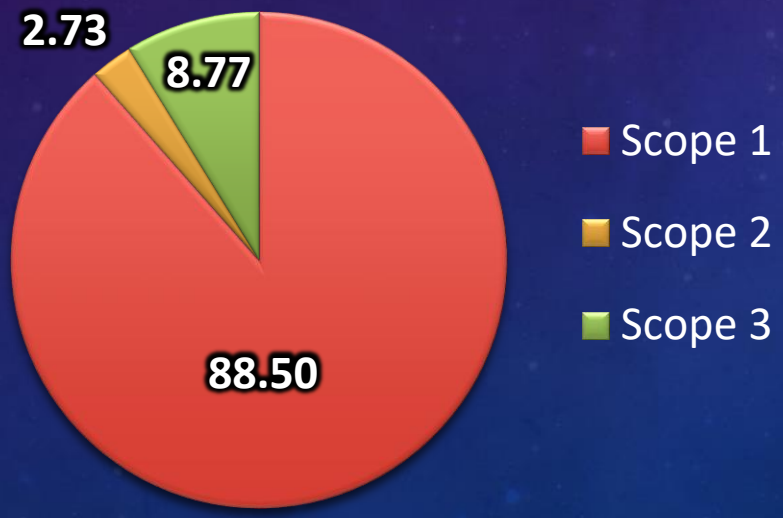
Key initiatives taken for enhancing waste utilization

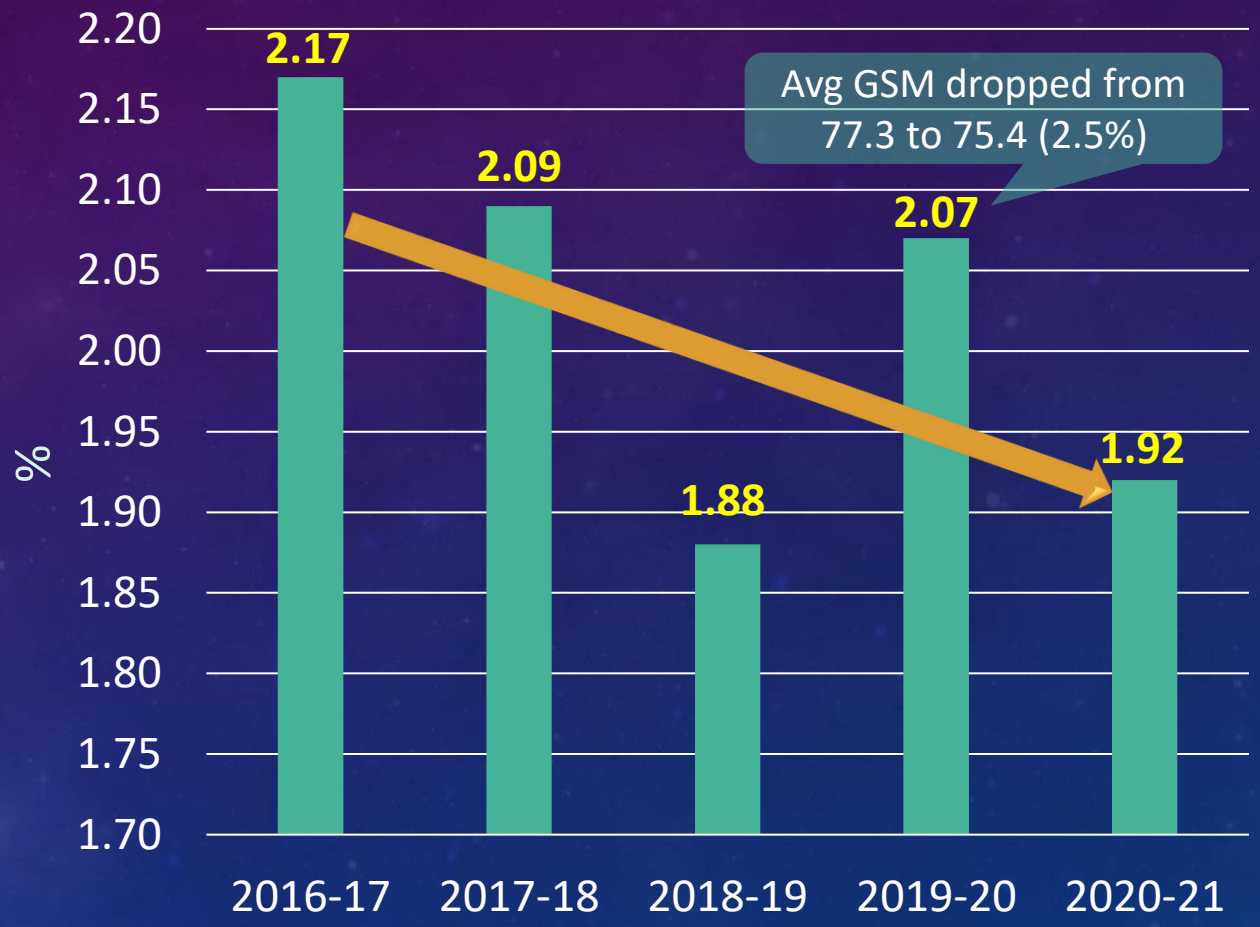
Source	Utilization	GreenCo Impact
MF 3 Starch	Rich in COD diverted to anaerobic lagoon	GHG Mitigation
Lime Mud	100% second stage mug recycled	GHG Mitigation
Odor issue from Pulp Mill	Alkaline Scrubber installed	Odor Mitigation
Food waste	Converted in to Bio Fuel and fired in our canteen	GHG Mitigation

GHG INVENTORIZATION

Emission Summary

Description	tCO2	% Emissions
Scope 1	190759	88.50
Scope 2	5880	2.73
Scope 3	18897	8.77
Total	215536	100





Emission Reduction – 11.52%

GHG INVENTORIZATION

Short Term Plan

- Project feasibility study in progress, for a long term contract with Farmer's self-help group (Community Development Scheme) to utilize the gas generated from the farm, vegetable and Poultry waste equivalent to 8 to 10% of the total demand of the lime kiln. (750 MT/year of oil replacement)
- Explore the possibilities of diverting and addition of organic waste from the system to anaerobic lagoon to increase the bio mass production (Starch)
- Purchase Policy – Buying products based on Energy labelling to increase loadability and to reduce the transportation distance
- We have separate Green Procurement Policy which focus on reduction in energy and procuring green products

GHG INVENTORIZATION

Short Term Plan

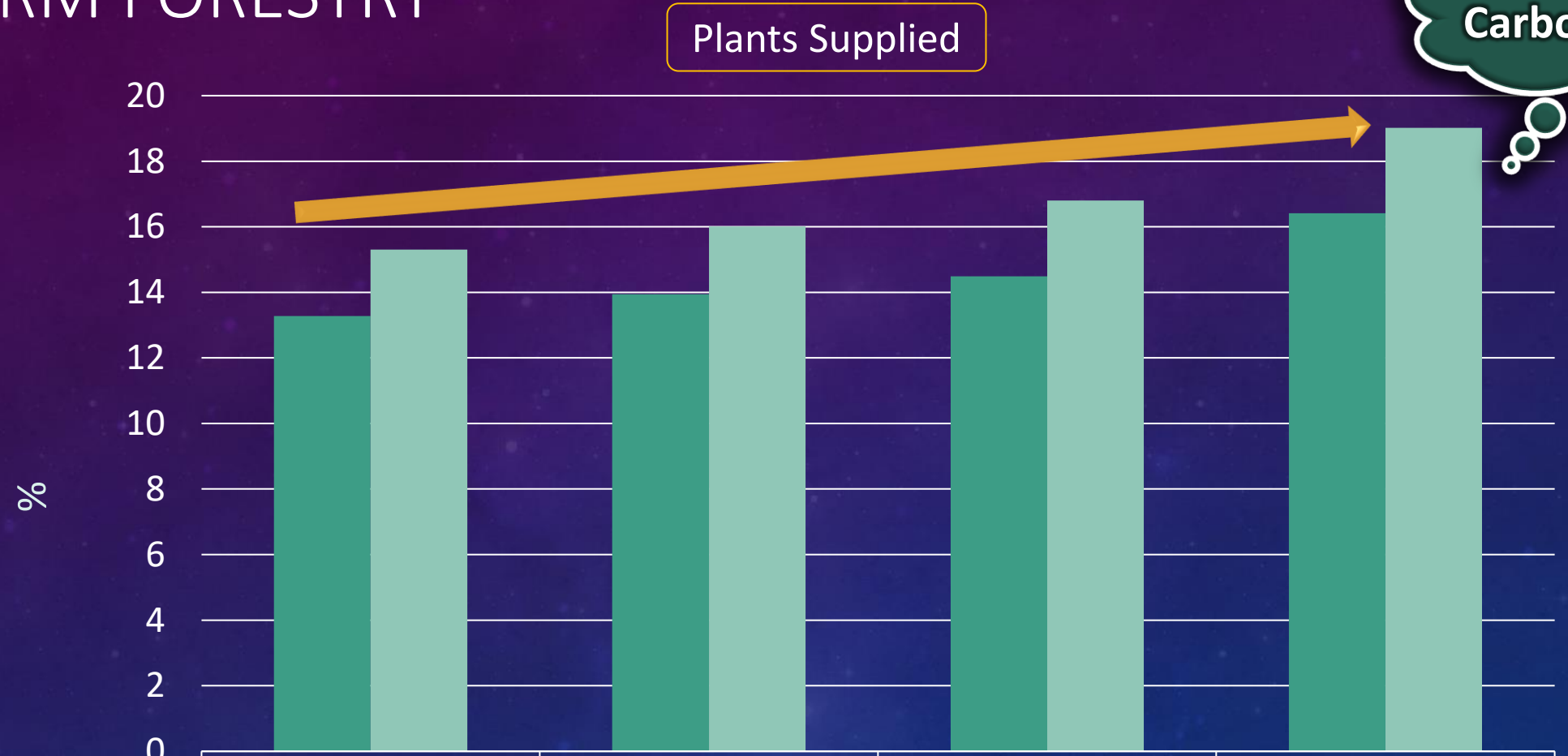
- Installation of PCC plant to sequester CO2 generated from Lime kiln
- Increase in contribution of Green Power by 2% by 2022

Long Term Plan

- Energy Balance and Conducting Periodic Energy Audit's Education and Training
- Demand Side Management – SCADA type system for M & V
- To work on quarterly basis, the GHG emission for effective monitoring and analysis for CO2 emissions as per GPC standard
- To work on carbon positive for a longer period
- Look for other Bio fuels to offset fossil fuel

FARM FORESTRY

We are Carbon Positive



	2017-18	2018-19	2019-20	2020-21
Plants in crores	13.28	13.94	14.49	16.41
Area in Hectares	15.30	16.01	16.80	19.02

(x 1000)

"Good progress made in Carbon Sequestration through tree farming"

GREEN SUPPLY CHAIN

- A Supply Chain is oriented for improved performance.
- It is a measure of sustainability, cost Reduction & emission reduction.
- Green Supply Chain is driven by a change in perception towards becoming socially responsible.
- It is an understanding of how socially & environmentally friendly practices can add value to business activities

GREEN SUPPLY CHAIN

- Out of 25 Critical suppliers, 17 suppliers are ISO certified
- One of the suppliers – M/s. Fimakem is GreenCo Gold Certified
- 80% of the suppliers and vendors are covered in the awareness creation programs and efficiency improvement programs with a specific focus on environmental parameters

"An investment in knowledge always pays the best interest"

Seshasayee Paper and Boards Limited

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Fax: 91-4288-240229 email: edoff@spbltd.com Web: www.spbltd.com
CIN : L21012TZ1960PLC000364

GREEN PROCUREMENT GUIDELINES

SPB is committed to improve environmental efficiency in the supply chain by reducing the resources such as Energy, Water, Material & GHG emission across major suppliers and in Supply Chain by:

- **Sourcing of Raw material from environmentally and socially responsible sources.**
- **Maximizing the usage of Eco friendly chemicals and energy efficient equipments.**
- **Maximizing the use of Recovered paper in the paper furnish.**
- **Following the 3R principle of Reduce, Reuse & Recycle**
- **Conducting awareness Programs on Environmental Impacts for Vendors and Suppliers & other Stake Holders.**
- **Creating awareness about GSC to critical vendors and to help them go for ISO14000 certification & to prioritize buying from ISO vendors**
- **Improving the efficiency of the suppliers by audit, training and improvement suggestions.**

08.02.2016

K S Kasi Viswanathan
Managing Director

ISO 9001/14001 and OHSAS 18001 CERTIFIED

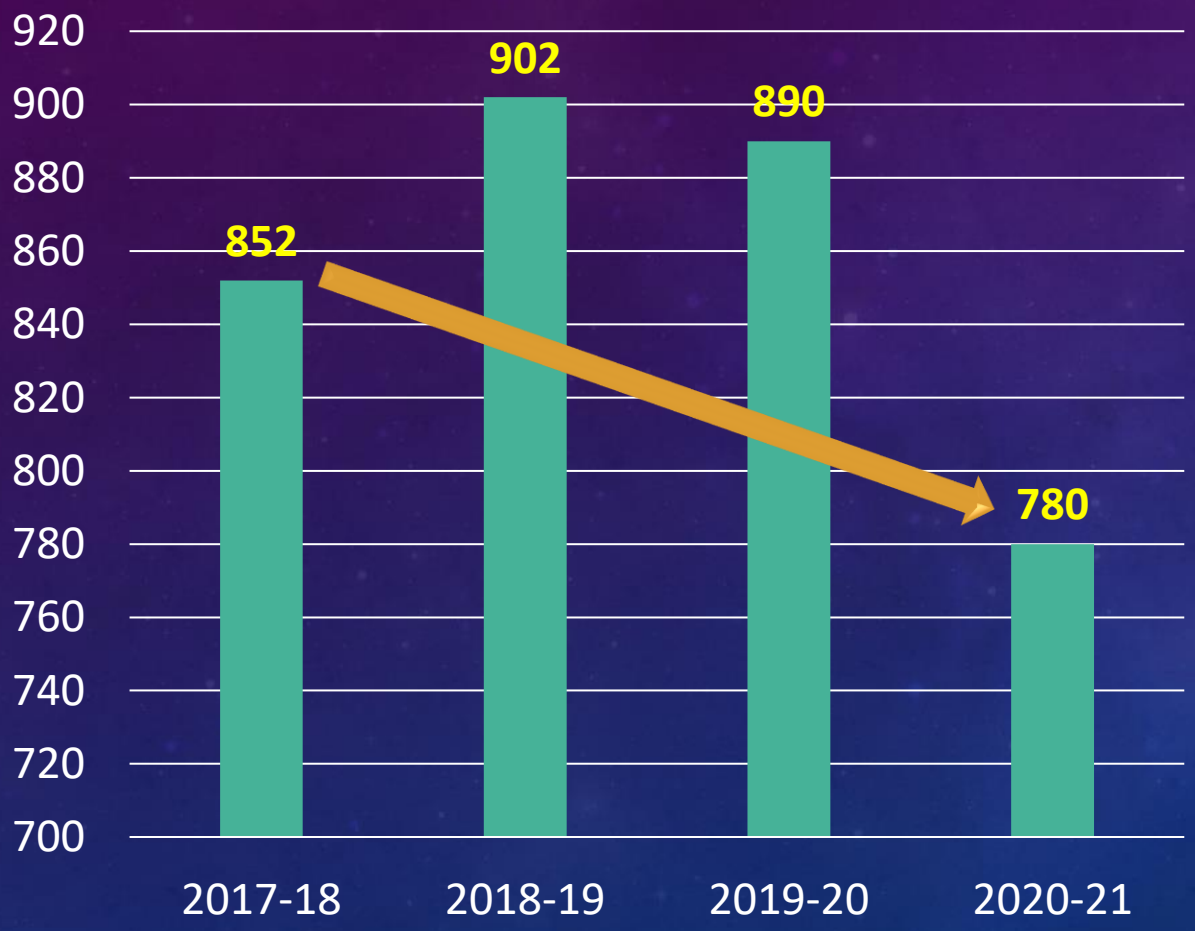
INFORMATION ON PROJECTS IMPLEMENTED

Action	Gains	Impact
Procurement of Low Sulphur Furnace Oil	Sulphur content reduced from 1.04% to 0.63%	GHG emissions reduction
Introduced new Organic Bio-culture product (Tex Micro Clean) for addition in Anaerobic Lagoon to improve Methanol Gas Generation, thereby reducing FO consumption	Increased Methane Gas generation from Anaerobic Lagoon	Reduction in consumption of Furnace Oil. Indirect Sulphur Reduction.
Procurement of Wet Slurry GCC for Coating plant in Tankers	Increased loadability from 12 MT per truck load to 25 MT per truck load	Reduction in GHG from Transportation
Procurement of Indigenous GCC in place of Imported GCC	Cost advantage by Rs 1700/ MT	Reduction in Cost and GHG Emissions
Maximizing Usage of Imported Furnace Oil in place of Indigenous Furnace Oil	Reduction in consumption from 125 Kg/MT to 122 Kg/MT	Reduction in consumption of Furnace Oil per ton of product

INFORMATION ON SUPPLIER EVALUATION DONE

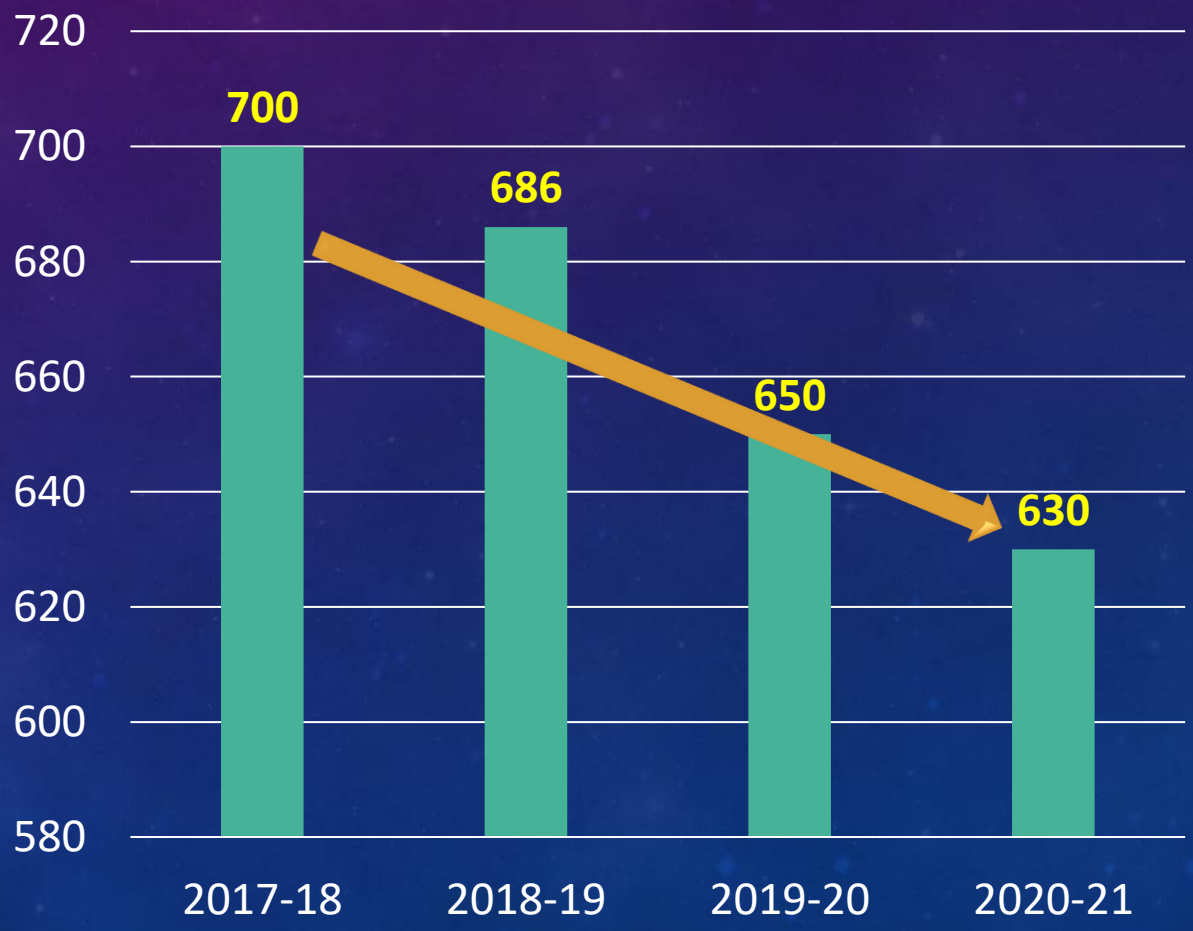
Power Consumption, kWh / MT

M/s. Kamakshi Lamipacks



Reduction – 8.45%

M/s. Parason Machinery

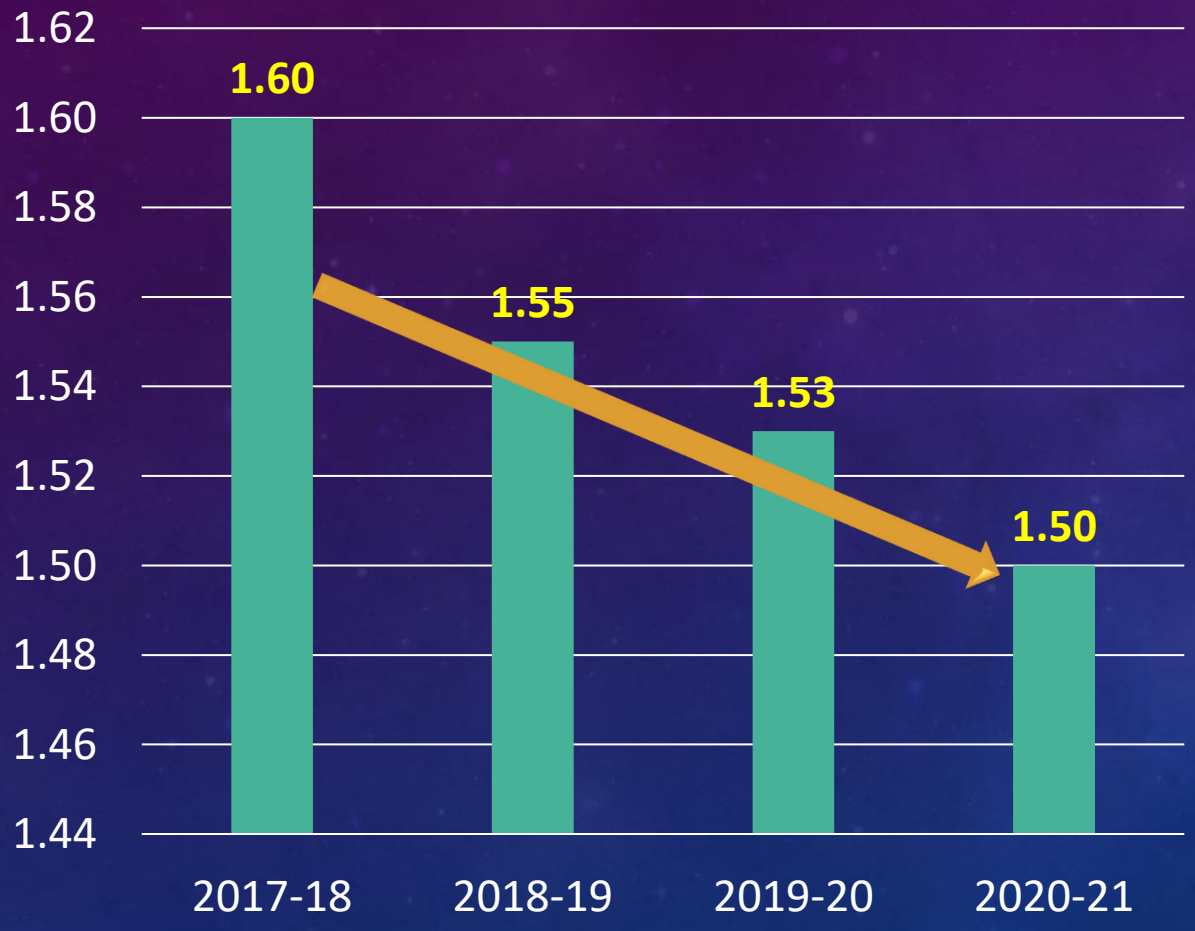


Reduction – 10%

INFORMATION ON SUPPLIER EVALUATION DONE

Steam Consumption, MT / MT

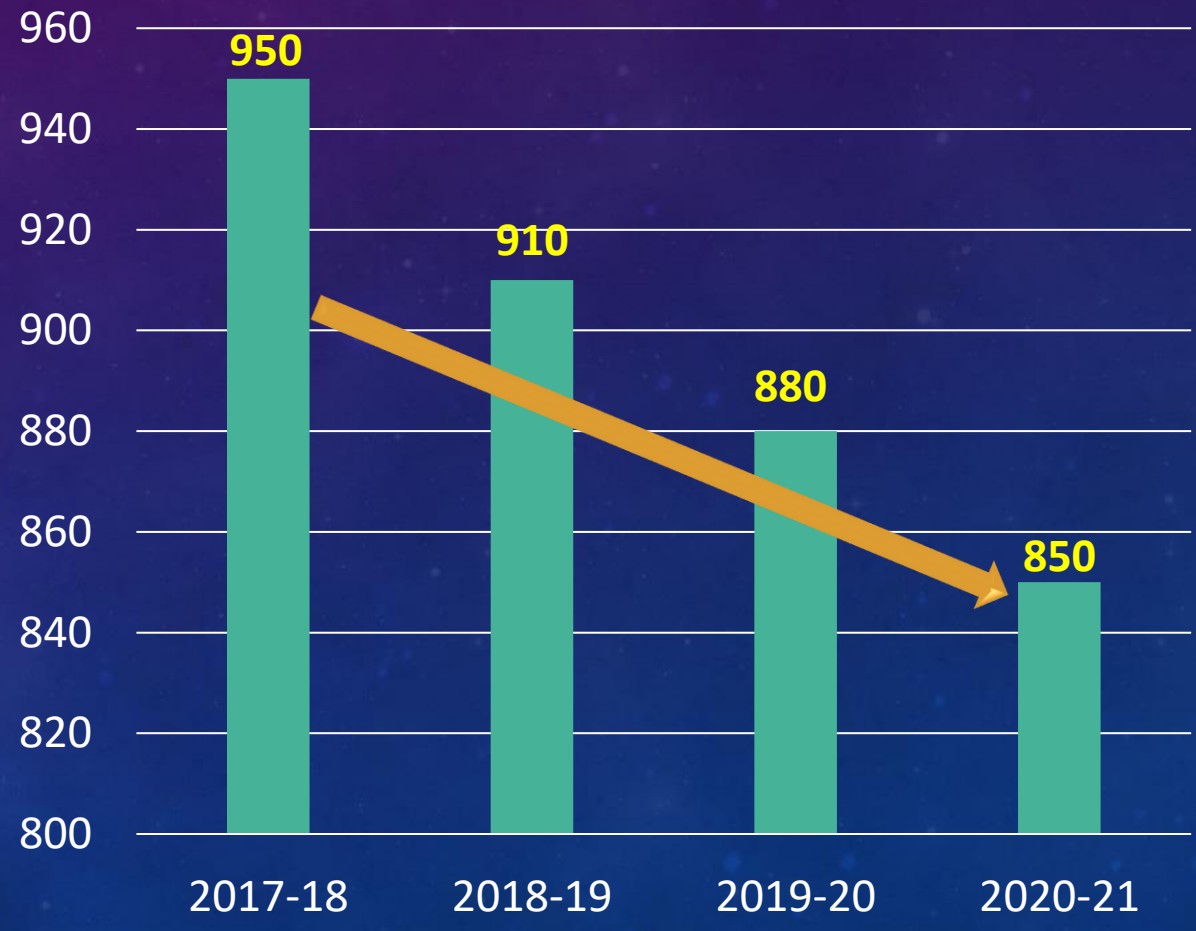
M/s. Khayati Chemicals



Reduction – 6.25%

Waste Disposal, Kg / MT

M/s. Khayati Chemicals



Reduction – 10.53%

REDUCTION IN INCOMING PACKAGING MATERIALS

Materials	Supplier	Improvements	% improvement
Ground Calcium carbonate	M/s. WPS Ltd	50 Kg Bags replaced by 1000kg Jumbo bag	95
GCC slurry FMT 95	M/s. Fimachem India Ltd	52 carboys replaced by one tanker (Loadability increased from 12 tons to 18 tons per truck load)	50
Indigenous M/c Clothing supplies	M/s. Wires & Fabrics	Replaced to Cardboard box packing from wooden box packing (one out of 4 suppliers)	25
Imported Furnace oil	RJ Petrochem Ltd	Packaging in imported flexi bags from regular packaging in Tankers (% procurement share of imported source)	40

REDUCTION IN GHG EMISSIONS FROM TRANSPORTATION

Initiatives taken to minimize GHG impacts in Supply Chain

Bulk Transportation of Goods

- Our stores department increased the no of higher capacity trucks used for local areas (Erode & Coimbatore) collection of materials.

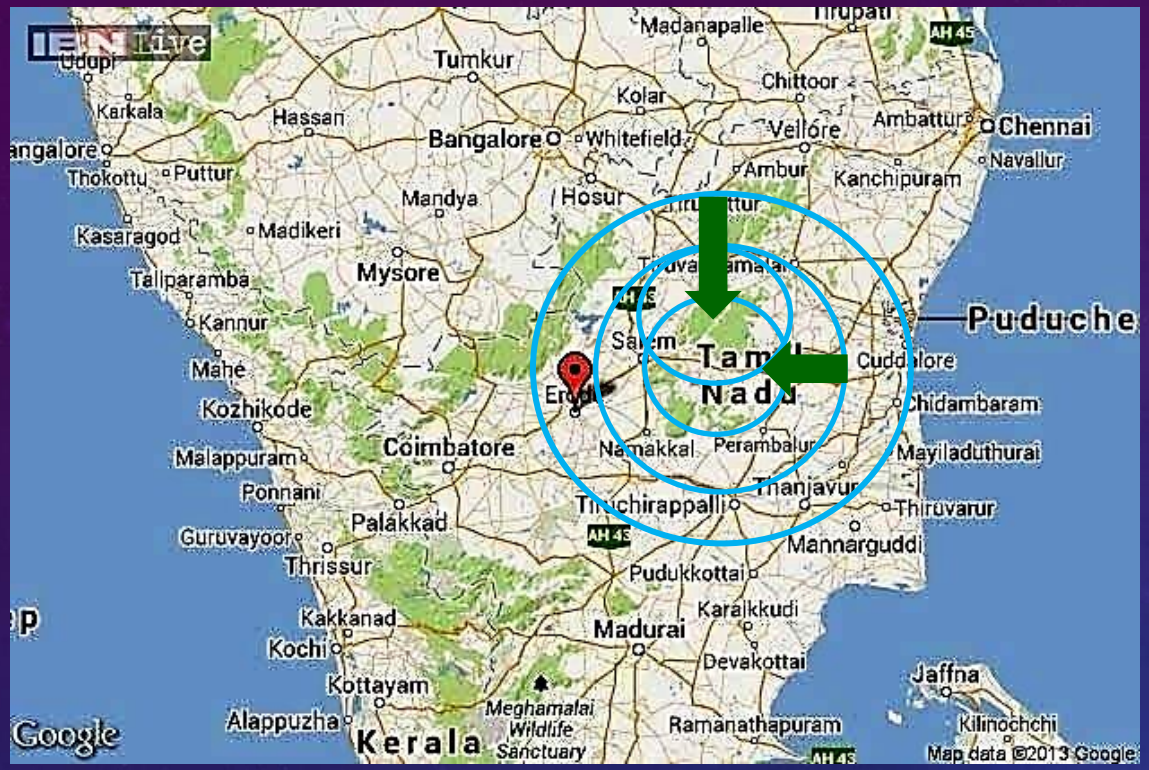
Year	No. of Trucks	% Increase
2018-19	335	11.53
2019-20	329	13.46
2020-21	443	24.87

Higher Capacity Utilization of Trucks in Wood Procurement

- Capacity improvement of vehicle trucks in wood procurement 16 MT & more.

Year	Higher Capacity Trucks	No. of Trucks	% Increase
2018-19	20087	31654	-
2019-20	21074	29181	8.76
2020-21	20065	25196	9.80

LOGISTICS COST REDUCTION IN WOOD PROCUREMENT



Distance	2018-19	2019-20	2020-21
1-100 KMS	11925	17312	14047
	2.19 %	3.27 %	2.93%
100-200 KMS	144579	141395	145232
	26.51%	26.73%	30.21%
201-350 KMS	388856	370295	321445
	71.30%	70.00%	66.86%
Total	545360	529002	480724

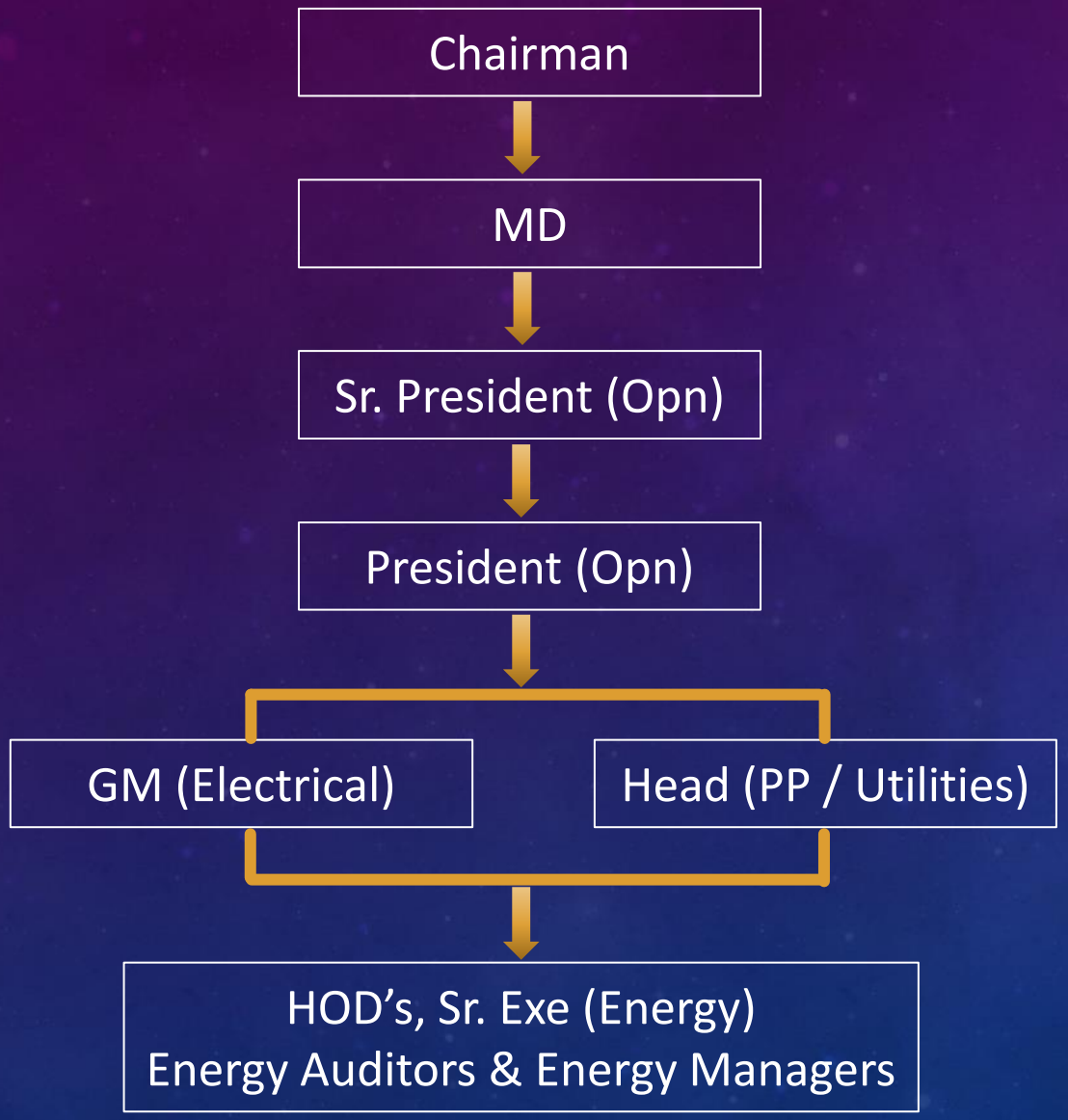
2020-21

- Procurement of wood increased by 4% within the radius of 100 KM

ACTION PLAN TO EXPAND GREEN SUPPLY CHAIN

- Usage of Green Material or organic material wherever possible
- Use of catalyst in coal fired boiler to reduce sulphur emissions and coal reduction – Trials already initiated.
- Use of Petroleum Based additive to reduce Furnace oil consumption. Trial will be organized shortly.
- Introduced new Organic Bio-culture product (Tex Micro Clean) for addition in Anaerobic Lagoon to improve Methanol Gas Generation, thereby reducing FO consumption
- Use of more Indigenous raw material like felts and clothings in Paper Machines, fillers like GCC, sodium chloride etc.
- Further utilize of Indigenous GCC in place of Imported GCC
- Planning to maximize Indigenous Sodium Chlorate in place of Imported Sodium Chlorate

ENERGY MANAGEMENT STRUCTURE



Functioning Focus Area

- Awareness & Knowledge Management
- Restoring Basic Condition of Equipments
- Process / Energy Optimization
- Innovation & Technological Upgradation
- Audits – Internal & External

Energy Performance Review Mechanism		
Reviews	When	Headed by
Shift Meeting	Shift wise	SIC & HOD
Production Meeting	Daily	Sr. President (Opn) & President (Opn)
Energy Review Meeting	Fortnightly	Chairman & MD

APPROACH FOR ENERGY CONSERVATION INITIATIVES

ENERGY MONITORING METHODOLOGY

Daily Monitoring & Review Formats

SESHASAYEE PAPER AND BOARDS LTD,ERODE-638007
SPECIFIC STEAM CONSUMPTION FROM 17/06/20 TO 19/06/20

STEAM SPECIFICATION	UM	2020/06/17	2020/06/18	2020/06/19	TOTAL
EQU FINISHED PAPER	T	368.89	392.45	365.27	1126.60
MARKET WETLAP PULP	BD T	101.00	104.00	114.00	319.00
IMP/IND/WPP PULP	BD T	13.00	6.00	0.00	19.00
TOTAL STEAM CONSUMPTION	T	4451.00	4537.00	4600.00	13588.00
CONDENSATION	T	1076.00	1075.00	1125.00	3226.00
DEA STEAM FOR CONDENSATION	T	174.42	182.75	191.25	548.42
STEAM FOR PROCESS	T	3250.58	3279.25	3283.75	9813.58
STEAM / T OF BLD PULP	T	4.03	3.86	4.09	4.000
STEAM FOR MARKET PULP	T	354.98	378.40	466.77	1200.15
STEAM FOR PAPER PRDN	T	2895.60	2900.85	2816.98	8613.43
SP.STEAM CONSN./T OF EFP	T	7.85	7.39	7.71	7.65

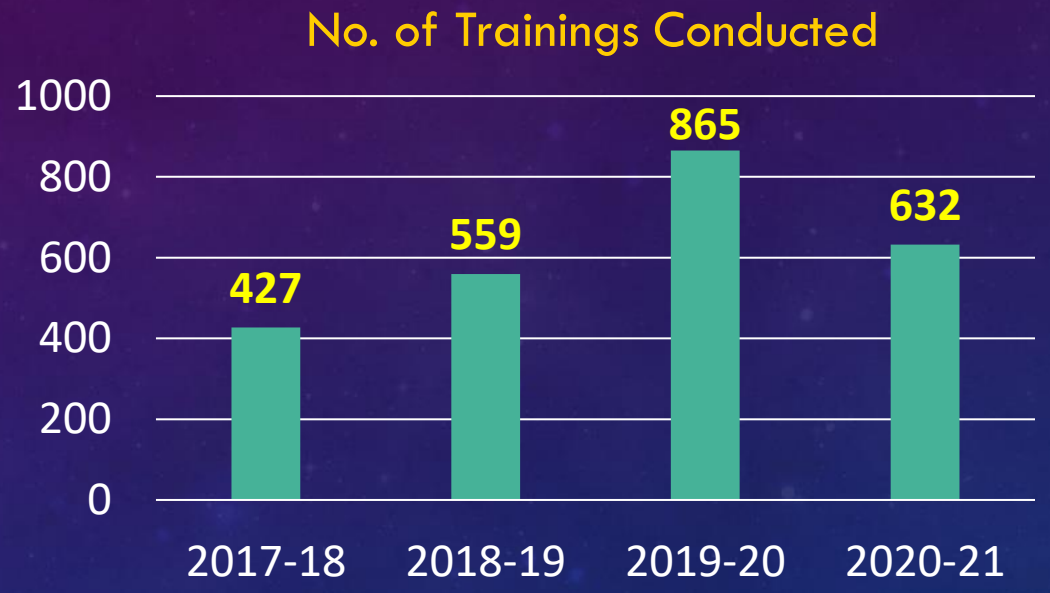
Specific Steam Consumption

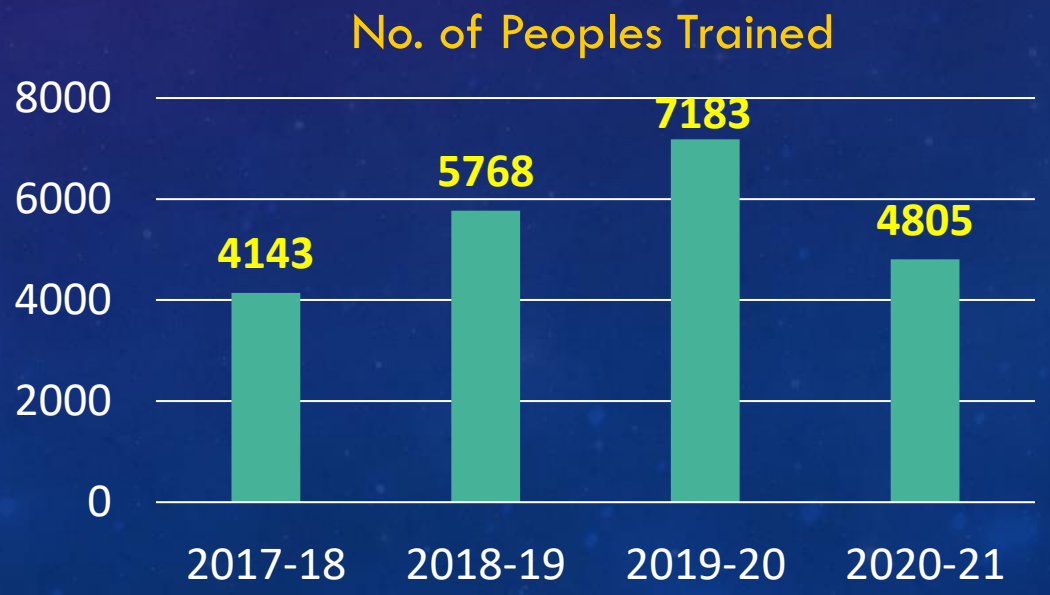
SESHASAYEE PAPER AND BOARDS LTD,ERODE-638007
SPECIFIC POWER CONSUMPTION FROM 17/06/20 TO 19/06/20

POWER SPECIFICATION	UM	20/06/17	20/06/18	20/06/19	TOTAL
EQU FINISHED PAPER	T	369	392	365	1127
MARKET WETLAP PULP	BD T	101	104	114	319
IMP/IND/WPP PULP	BD T	13	6	0	19
TOTAL POWER AVAILABILITY	kWh	654	662640	680448	1997535
POWER EXPORT-PONNI	kwh	5023	4104	4830	13957
POWER WHEELING-TVL	kwh	46800	47800	47600	142200
OVERALL POWER CONSN.	kwh	602624	610736	628018	1841378
POWER / T OF BLD PULP	kwh	497	478	505	494
POWER FOR MARKET PULP	kwh	43734	46819	57520	148073
POWER FOR PAPER PRODN	kwh	558890	563917	570498	1693305
SP.POWER CONSN./T OF EFP	kWh	1515	1437	1562	1503

Specific Power Consumption

AWARENESS & TRAINING PROGRAMME





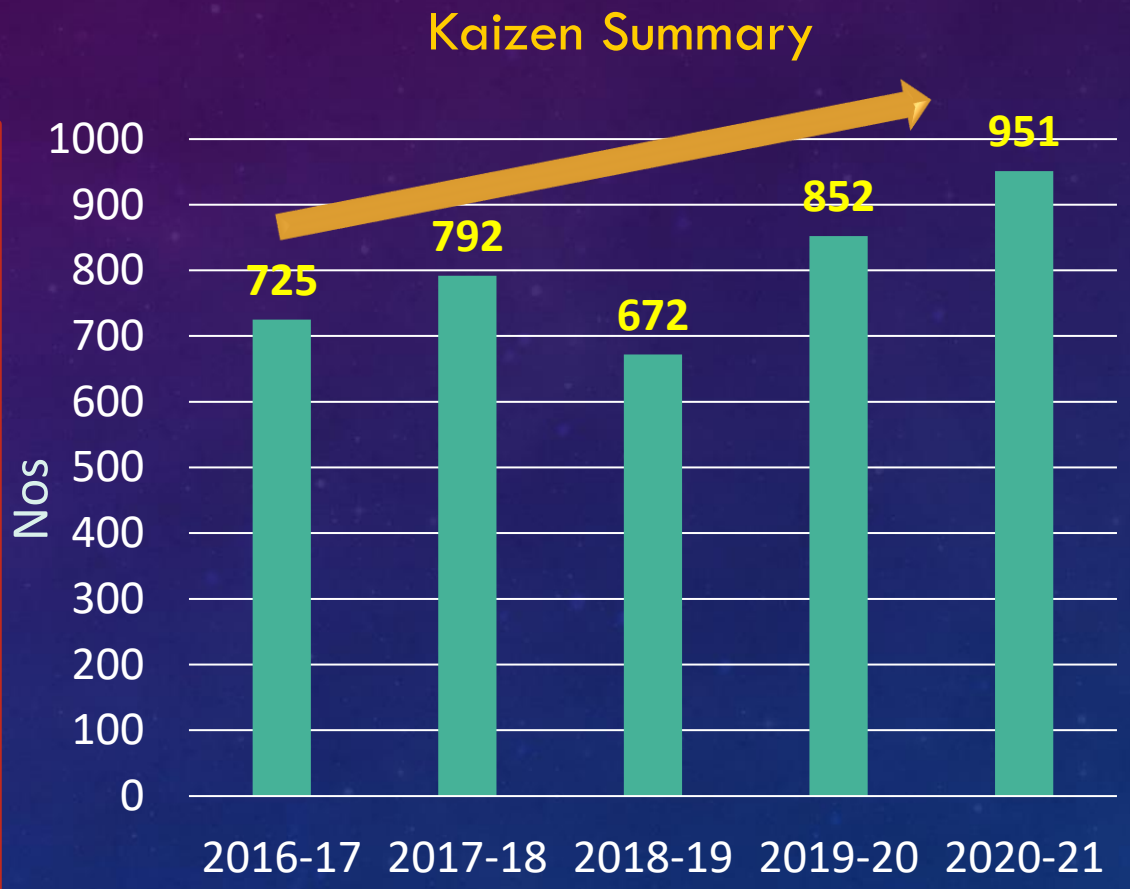
ASSOCIATE INVOLVEMENT

Kaizen Sheet	Activity	KK	JH	QM	PM	SHE	OTPM	DM	ET
	Loss No./ Step								
	Result Area	P	Q	C	D	S	M		

SPB LTD, ERODE

1. Dept. : MF#3 process	2. Machine/Area : Metso Blower		
3. KAIZEN Theme: Improvement Idea	7. Idea : Reducing the blower capacity for web stabilizer		
4. Problem / Present status : Instead of high capacity blower for web stabilzer boxes,Reducing the motor capacity with out affecting the production	8. Countermeasure :	10. Bench mark	
		Target	5 Days
	Before / After	Kaizen start	16.09.2020
		Kaizen finish	21.09.2020
	30 kW power capacity blower was run / New blower installed with 15 kW motor	11. Team members : 1.R Boopathi (15935) 2.S.TamilMurugan (16445)	
		12. Expense: ₹ 1,31850/-	
5. Analysis : High capacity blower for web stabilizers (30 kW)	9. Results : 1.360 kW power saved per day 2. Volume of air for stabilizer is controlled	13. Benefits : 1.360 kW power saved per day 2. Volume of air for stabilizer is controlled	
6. Root Cause: Excess volume of air		14 Scope & plan for Horizontal Deployment	

S.No	M/c No	Target Dt	Responsibility	Status



GREENCO CERTIFICATION

"The cultural change and the impact that it has made, has earned us our "Gold rating"

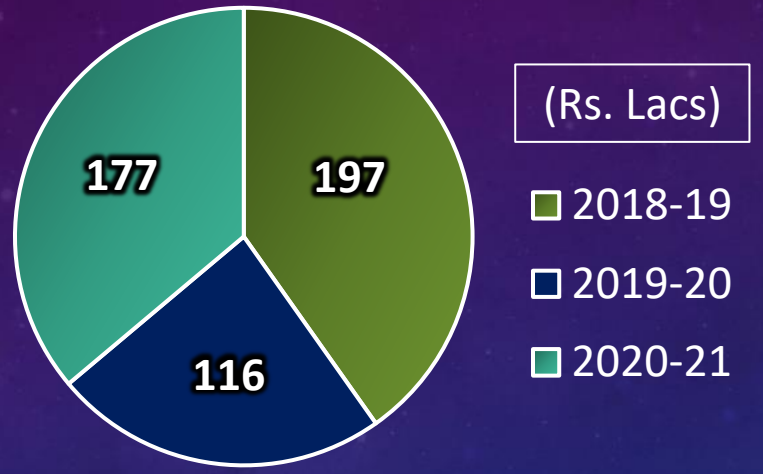
"It has helped us to motivate all our Employees to work towards "Lean Management"


Sri N Gopalaratnam, Chairman


Sri K S Kasi Viswanathan, MD

FINANCE RESOURCE ALLOCATION

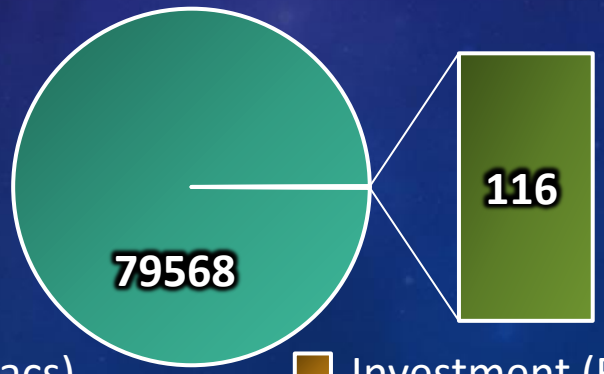
Amount approved for Energy Efficiency Improvement Projects by the Management



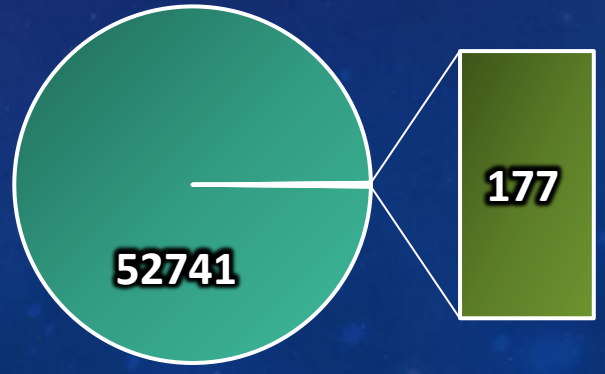
% Investment on Turn Over

2018-19 – 0.22%

2019-20 – 0.15%



2020-21 – 0.34%



Turn Over (Rs. Lacs)

Investment (Rs. Lacs)

CII Energy Awards

- To benchmark ourselves with National / Global standards
- Knowledge sharing Platform – Across sectors
    - Sharing of Best practices
    - Best Available Technologies
- Exposure to Innovative methods / practices and deploy horizontal practices
- Work on circular economy
- Work towards sustainable / Green practices
- **Monetary Savings – Rs. 17.43 Crores**

AWARDS & ACCOLADES

CII National Energy Leader – 2019-20

AEE – International Award 2020-21

aee Membership & Chapters Certification

Asia Subcontinent Region:

Energy Engineer of the Year – *Dr. Muhammad Imran Khan*

Corporate Energy Management – *Seshasayee Paper & Boards Limited*

Energy Professional Development– *Dr. Mohammad A. Irfan*

Energy Manager of the Year – *Dr. Prem Prakash Mittal*

Energy Innovator of the Year – *Mr. Shubhashis Dey*

Young Energy Professional of the Year – *Mr. Sarkar Dipayan*

Young Energy Professional of the Year – *Mr. Subhrangsu Pal*

Young Energy Professional of the Year – *Mr. Pratim Raha*

"An Unique Award"

First Time in Indian Pulp & Paper Industry

AWARDS & ACCOLADES

CII Trending Performer – 2019-20

Confederation of Indian Industry
125 Years - Since 1895

CII - GreenCo
Star Performer Awards 2020

Certificate of Recognition

AWARDED TO

Seshasayee Paper and Boards Limited

In recognition of excellence in GreenCo Performance and achieving GreenCo Trending Performer Award 2020

October 2020

K S Venkatagiri
Executive Director
CII - Godrej GBC

Pradeep Bhargava
Chairman
GreenCo Council
CII - Godrej GBC

L S Ganapati
Chairman
GreenCo Assessors Panel
CII - Godrej GBC

CII EHS Award – 2019-20

Confederation of Indian Industry

Certificate of Appreciation

This is to certify that

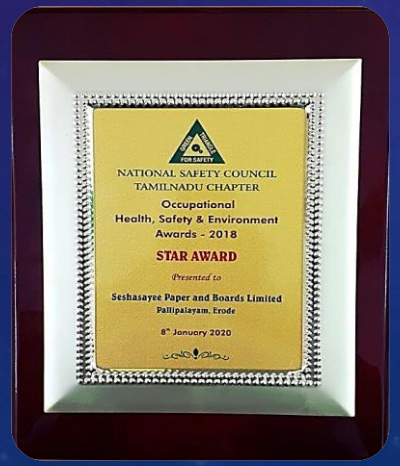
Seshasayee Paper and Boards Ltd
Erode, Tamil Nadu
has secured a
"3 Star Rating"
in Appreciation to EHS Practices
in the CII-SR EHS Excellence Awards for the year 2020

Raju Ketkale
Chairman, CII SR EHS Excellence Awards 2020 & Dy Managing Director, Toyota Kirloskar Motor Pvt Ltd

R Rajagopalan
Co-Chairman, CII-SR EHS Excellence Award 2020 & Chief Manufacturing Officer, Titan Company Ltd

MAJOR ACHIEVEMENTS

Year	Award Won	Awarded by
Last 3 Consecutive Years	Excellence in Energy Management	CII
2018-19	Innovative Project	CII
2017-18	Most Useful Presentation	CII
2017-18	Safety Performance – Star Award	National Safety Council
2016-17	Environment Award	TNPCB
2016-17	Environment Award	IPMA



Our efforts & journey continuous in the pursuit of "Excellence in Energy Performance"

Proud to be a Responsible Paper Maker

Thank You