INDUSTRIAL WASTE MANAGEMENT ASSOCIATION
17 TH AGM SEMINAR on 21.09.19

CII -GREEN CO RATING
CASE STUDY

MR.M.SARAVANAN
KG FABRIKS LTD

Introduction






KG Fabriks Ltd

- **Manufacturer of Denim and Industrial fabrics.**
- **Denim Process**
- **Pioneer in south india for Denim Manufacturing**


Certificates and Awards

Confederation of Indian Industry

Our Certifications

Green Dnm

Product Zero
ReGenerate
LASER FRIENDLY

CII-TRIVENI WATER INSTITUTE

Confederation of Indian Industry

National Award for
Excellence in Water Management 2019

This is to certify that

KG Fabriks Limited
Perundurai, Tamil Nadu

has been identified as a "Noteworthy Water Efficient Unit"
in "Within the Fence" Category.
This has been based on evaluation by the judges at the National Competition for Excellence in Water Management 2019.

Dhruv M Sawhney
Chairman CII-Triveni Water Institute
& Past President, CII

Anil Kakodkar
Chairman of the Jury
CII National Award for Excellence in Water Management

Winner of the National Water Awards

Sedex — Enabling responsible supply chains

CONFIDENCE IN TEXTILES — Tested for harmful substances according to Oeko-Tex® Standard 100 — 15.HTR.74772 HOHENSTEIN HTTI

BCI Better Cotton Initiative www.bettercotton.org

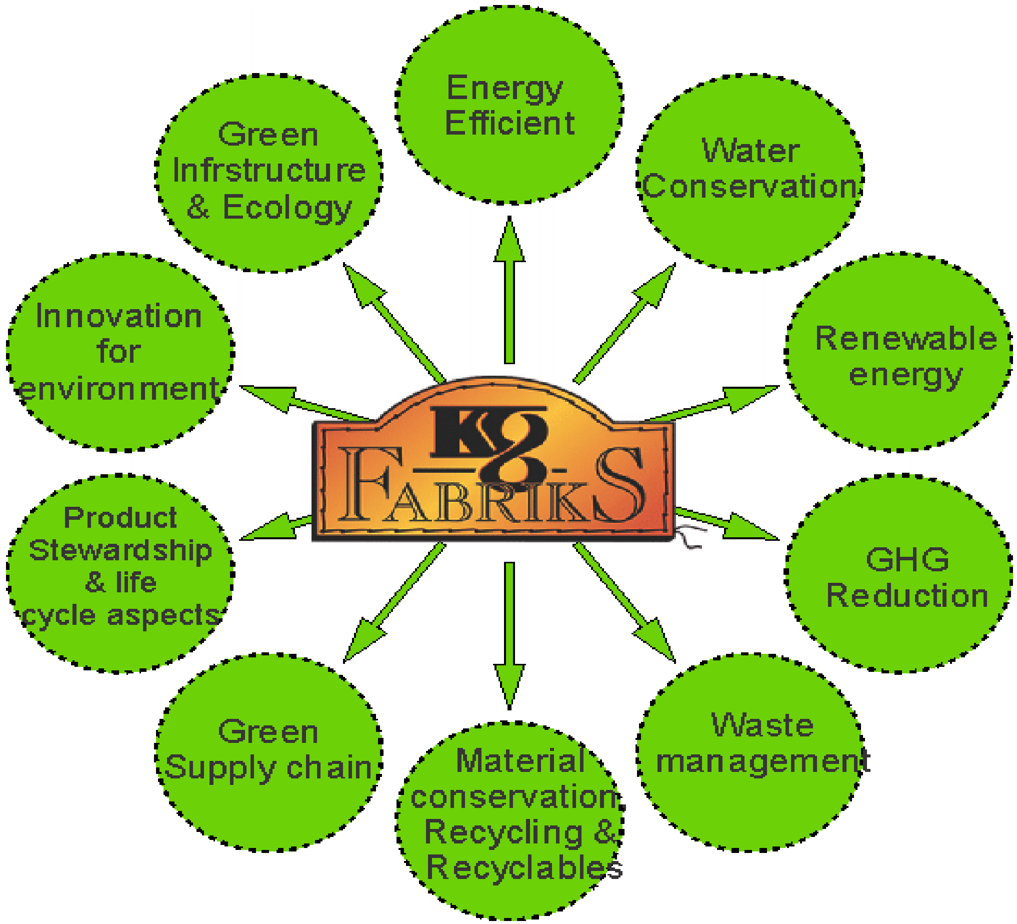
GLOBAL ORGANIC TEXTILE STANDARD — GOTS

ISO 9001:2015

RECYCLED 100 claim standard

CII GreenCo Rating Based on

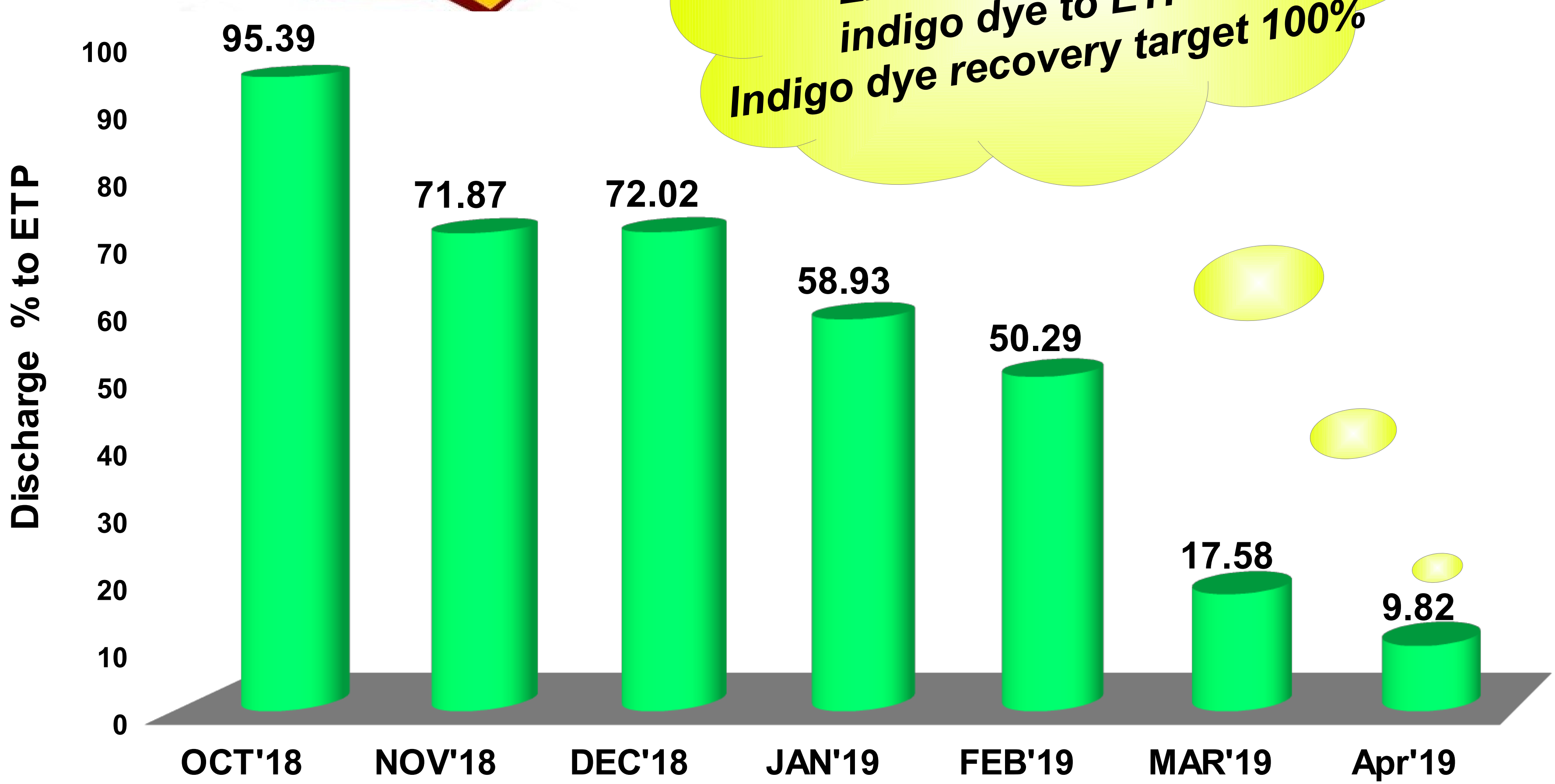
Confederation of Indian Industry



1.WATER CONSERVATION

10.Green Engineering

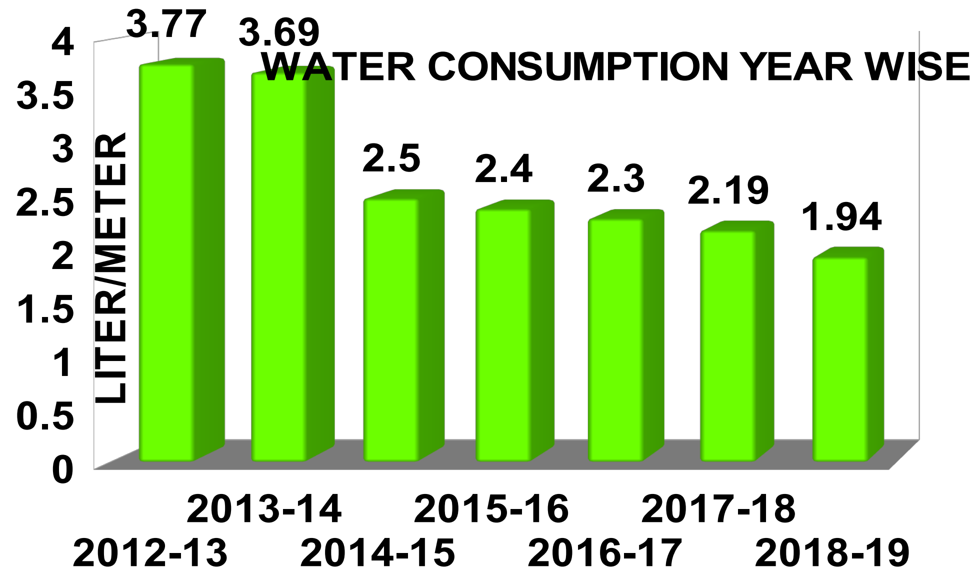
1st time in the world of dyeing industry. ZERO Discharge of indigo dye to ETP & Indigo dye recovery target 100%



WC 2.2 -BEST PRACTICESS -
INDIGO DYE AND WASTE WATER REDUCTION

Confederation of Indian Industry

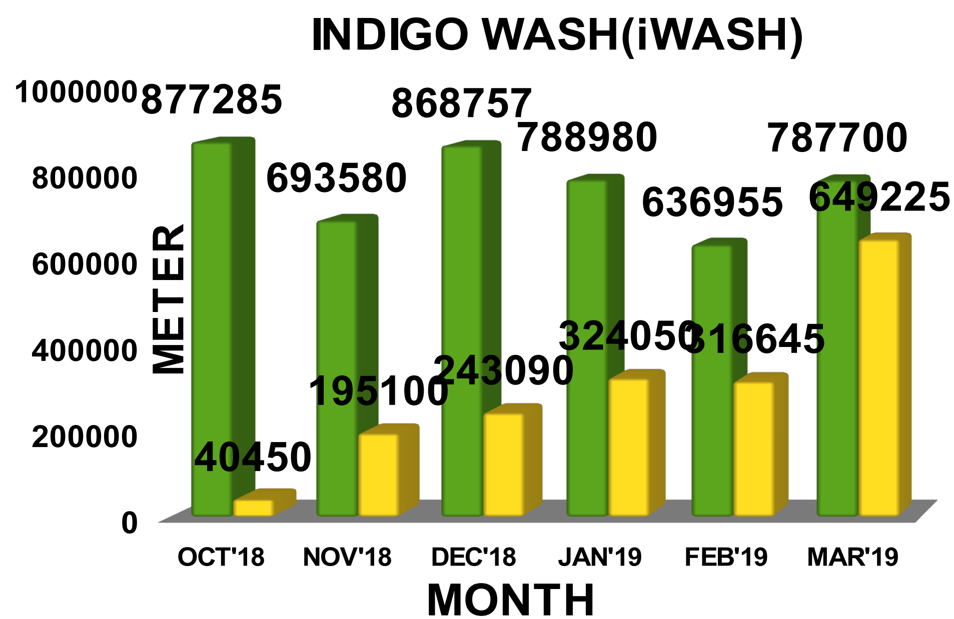
Indigo Dye Separation from Waste water- iWASH System



Low GPL Indigo Dye Separation from Waste water- iTOP System

Total Meter

iWASH Meter



WATER MANAGER AND ACCOUNTABILITY

Confederation of Indian Industry

Water Manager: Mr. K. Shanmugam

- **Project 4000**
  - Achieve fresh water usage of 4000 KL / month from existing 6000 KL / month.
- **Project 100**
  - Achieve 100% Condensate recovery (Include CRP Condensate)
  - Achieve 100° C feed water temperature
  - Achieve TDS 100 mg/lit in boiler feed water.
- **Project iWASH &iTOP**
  - Recycling Indigo wash water and zero discharge of indigo.
- **Project 60**
  - Achieve 60 lits/head in domestic usage against 196 lits/head.

WC 1.1 -TARGET SETTING AND ACTION PLAN

WATER CONSUMPTION - BENCH MARK*

Best in Denim industry worldwide

Description	KGFL 2016-2017	KGFL 2017-2018	KGFL 2018-2019	Our target KGFL 2019-2022
Water consumed in liter / meter of fabric	3.9	4.2	3.3	2.5
Water consumed in liter / Kg of fabric	9.31	9.29	7.48	5.50
Water consumed in liter / head	324	227	196	90**

** *Thanks to Indian Environmental Portal for 90 Liters Per Head Study Report.*

3. Comparative Evaluation

Typical Company	KG Fabriks Limited
No Proper ZLD and ZSD	100% ZLD and ZSD plant
80-85% yarn realisation	94% yarn realisation
4% indigo to give darker shade	Only 3.5% indigo given with deep dark shade
Softener used in Wet processing	No Softener in finishing used but still guaranteed shrinkage control of less than 3% in warp and weft
Minimum 60 lit of water/Kg consumption	Guaranted to use less than 15lit of water/Kg used
Usage of conventional energy	40% renewable energy used
92% fabric realisation from yarn	96 % fabric realisation from yarn
60% fresh Caustic used	80% recycled caustic used for mercer

5.Water is Life

Description	Liters
Water Savings in liters / kg of fabric	53
Water Savings / day (for 22500 kgs production / day)	1125000 Liters
Average drinking water consumption / person / day	3 Liters
Number of people benifited everyday	375000

Rank	City	Population (2011)[3]	Population (2001)	State or union territory
51	Tiruchirappalli[23]	916674	752066	Tamil Nadu
52	Bareilly	898167	718395	Uttar Pradesh
53	Mysore	887446	755379	Karnataka
54	Tiruppur	877778	644543	Tamilnadu
55	Gurgaon	876824	173542	Haryana
56	Aligarh	872575	669087	Uttar Pradesh
57	Jalandhar	862196	706043	Punjab
58	Bhubaneswar	837737	648032	Odisha
59	Salem	831038	696760	Tamil Nadu
60	Mira-Bhayandar	814655	520388	Maharashtra
61	Warangal[24]	811844	530636	Telangana

WC 2.1 -EMPLOYEE INVOLVEMENT & CAPACITY BUILDING

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Certificates and cash awards given to employees for best idea given for Water, Energy , Waste Reduction

Certificate & Cash award winners details given on 15.01.2019

Kaizen Cash awards for 2018

Department : Process
Kaizen no 1 : Burner Modification in singeing machine
Kaizen no 2 : Finishing Machine Sequize roller bearing modification

				Signature
1	M.Saravanan	Maint Head	2000	
2	F.Syed Ibrahim	Mechanical Maint	2000	
3	S.VenkateshKumar	Maint Supervisor	2000	
4	P.Sanmugam	Fitter	1000	
5	A.Sridhar	Fitter	1000	
6	C.Gowtham	Fitter	1000	
7	S.Ganagarathinam	Fitter	1000	
8	S.Karthi	Fitter	1000	
9	B.Kumaresan	Fitter	1000	

Department : Dying & Sizing
Kaizen 1 Water recycling Project
Kaizen 2 Fixed Syro Screen

1	K.Shanmugam	Etp Incharge	2000	
2	S.Yuvaraj	Maint Supervisor	2000	
3	M.Boopathi	Boiler Incharge	2000	
4	D.Navinkumar	Fitter	1000	
5	N.Raghavan	Fitter	1000	
6	T.Dhruba Mahaling	Fitter	1000	
7	P.Esakkipandi	Fitter	1000	
8	P.Ravi	Welder	1000	
9	D.Nayan Deep Gogoi	Welder	1000	

Department : Electronics Machine : Looms
Kaizen : DC to DC converter & Lenze Unrepairable got ready

1	M.Sarmathi	Electronics	1000	
2	V.Sujithra	Electronics	1000	

Department : 4000 CFM driyer
Kaizen : Due point reduced to 5 Dec in Dryer 1

1	B.Balumahendran	D&S Electrician	1000	

Department : Engineering
Kaizen : Imported Indigo Magnetic pump - local Development

1	S.Sadhasivam	Lath Operator	1000	
2	S.Senthilkumar	H plant Operator	1000	
		Total	29000	

Maint Head 17/01/19

22/1/19 MM

WC 3 -WATER METERING AND ACCOUNTING

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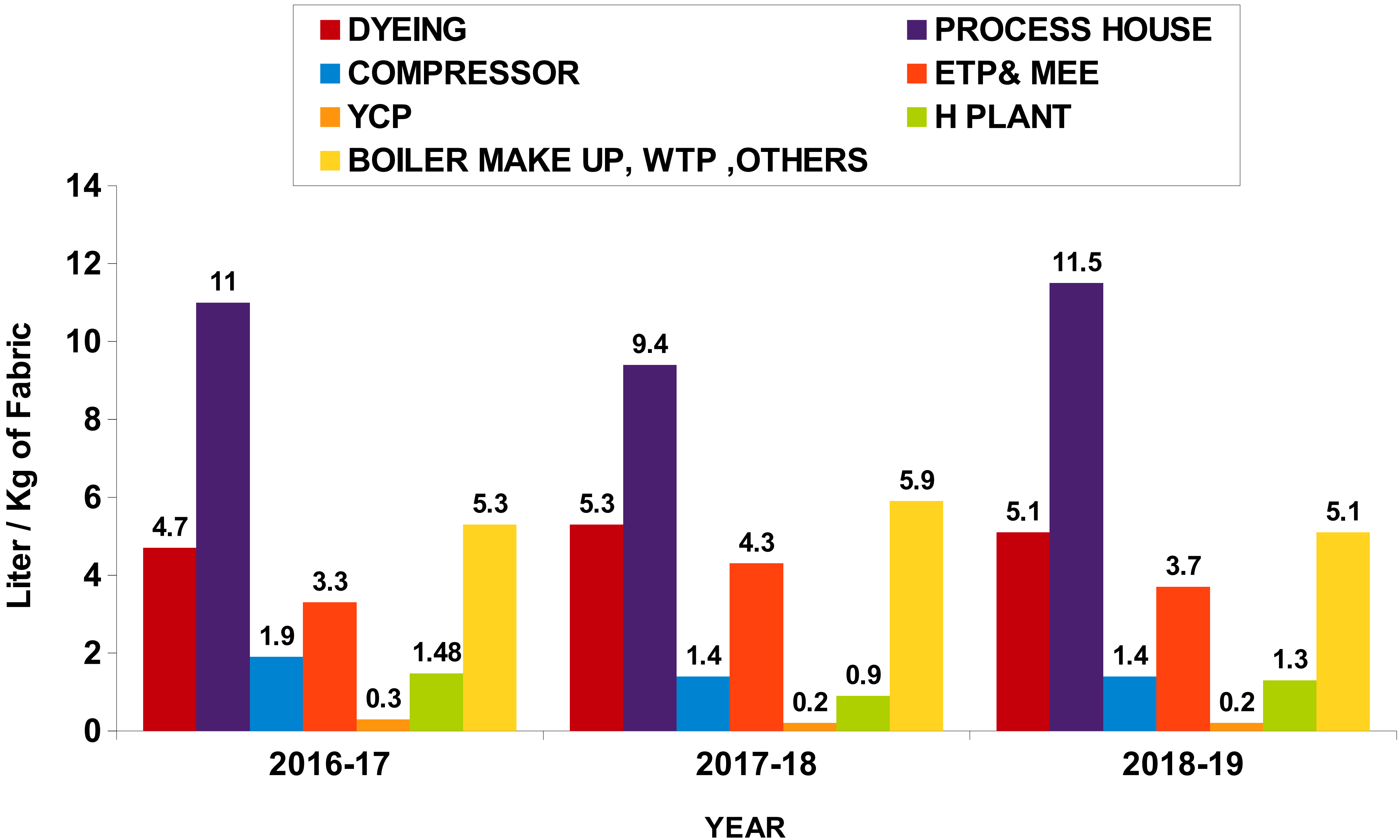
Machine wise water consumption in Liter/Kg of fabric



WC 4.1 -REDUCTION IN SPECIFIC WATER CONSUMPTION IN LAST 3 YEARS

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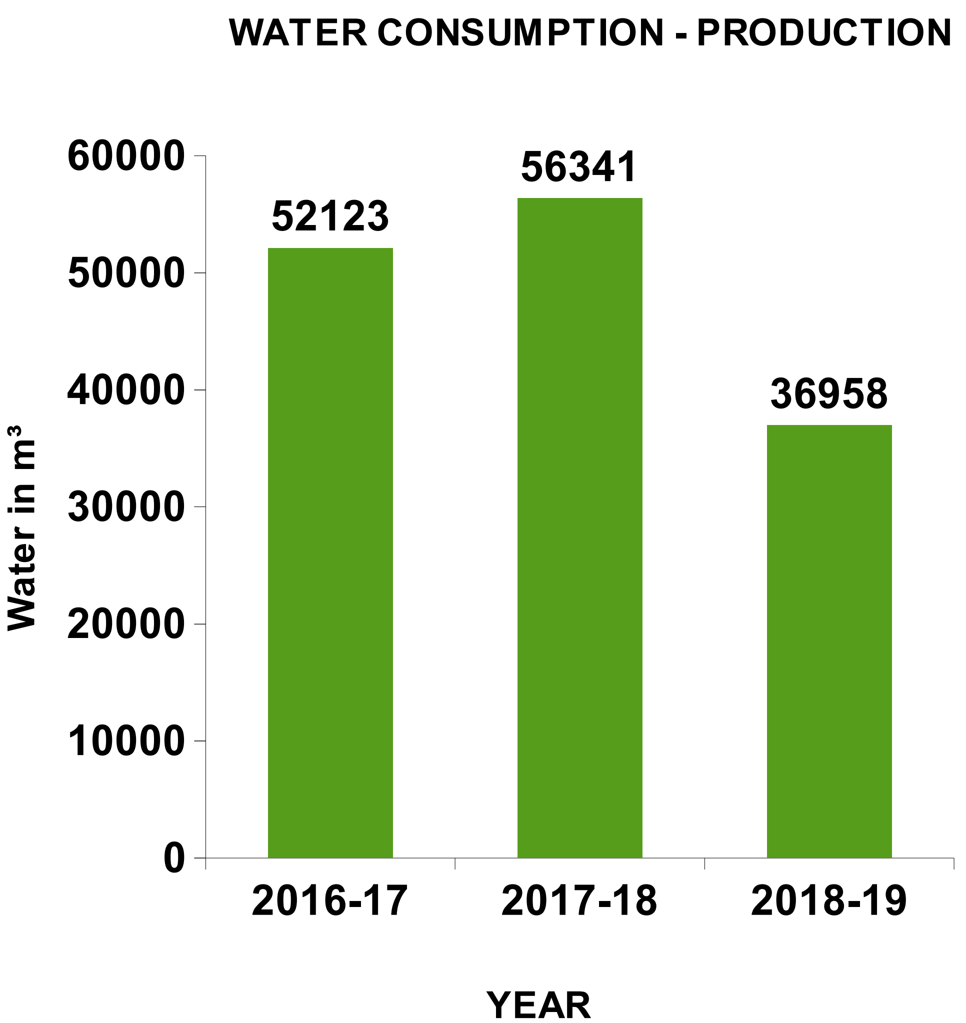
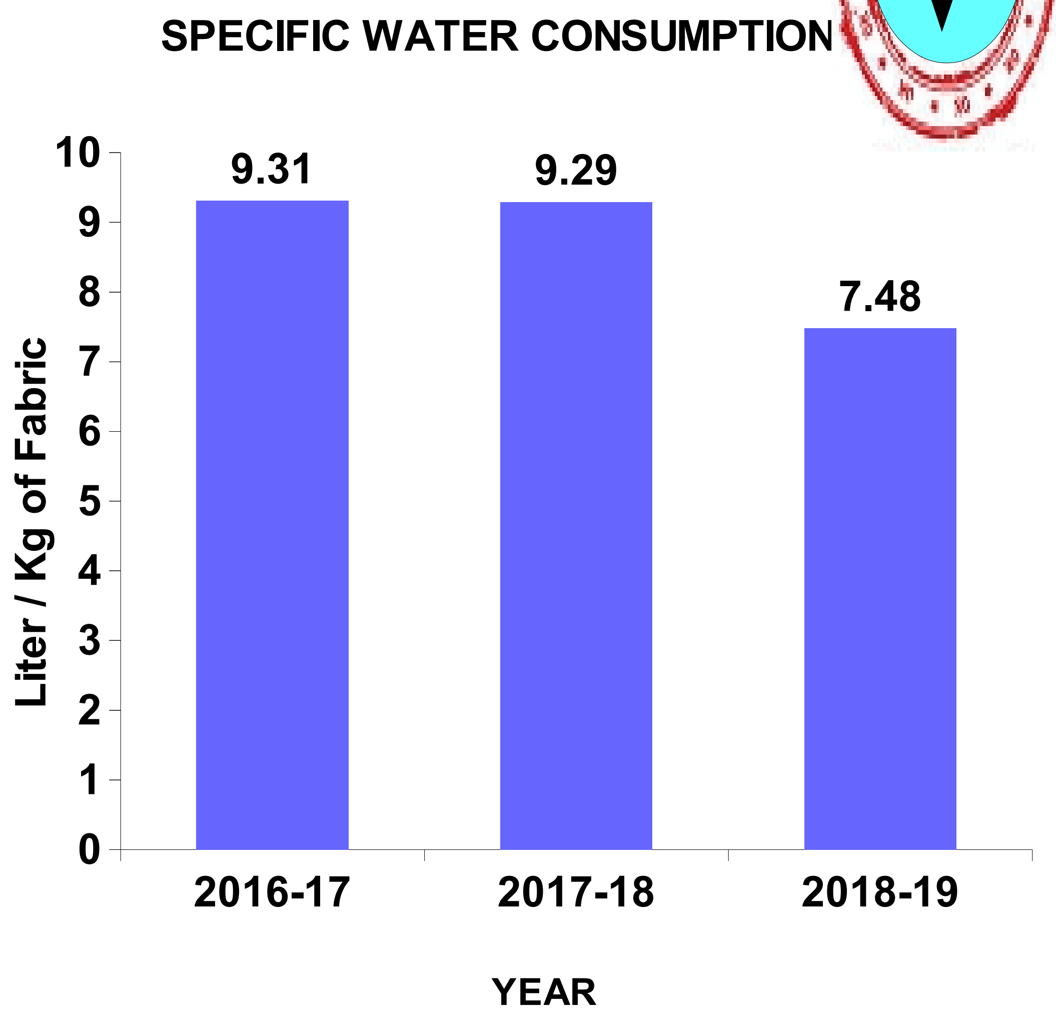
SPECIFIC WATER REDUCTION

29 %





WC 4.2 -BEST PRACTICES IN WATER CONSERVATION

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WATER CONSERVATION -BEST PRACTICES

- Project 4000
- Project 100
- Project iWash & iTop
- Project 60

Hawa Less water taps

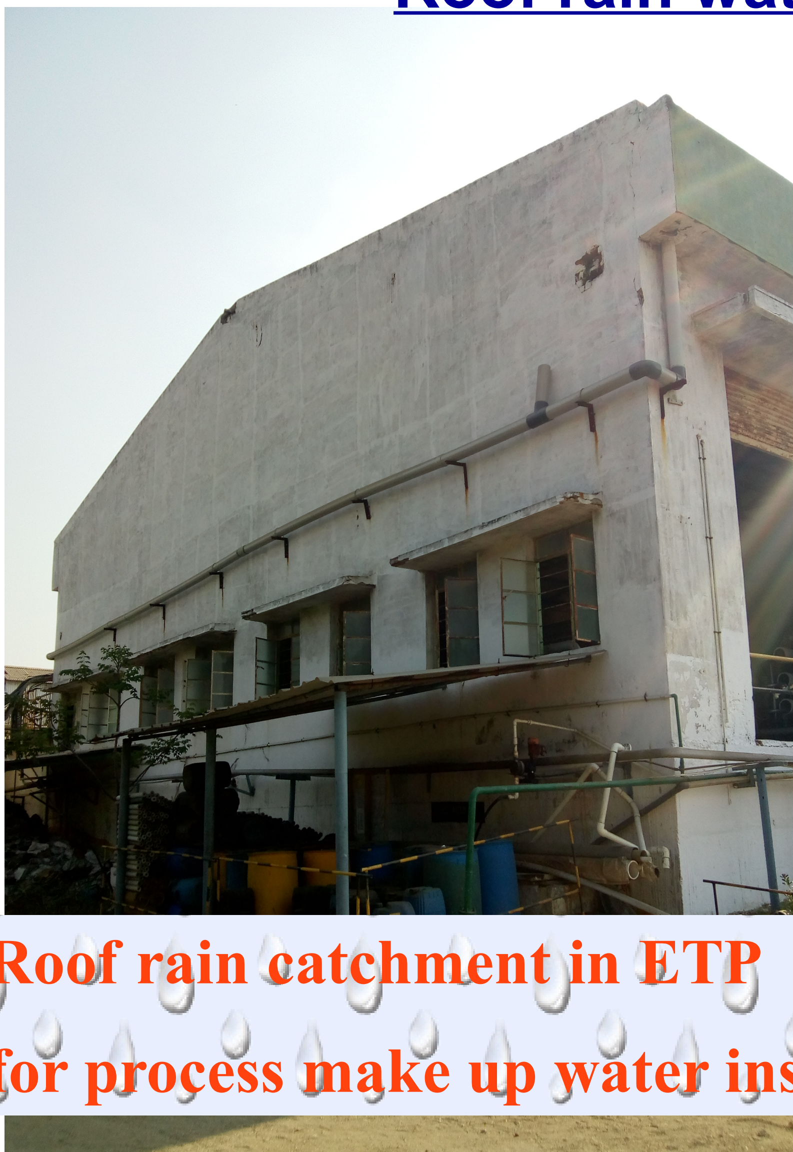
Less water taps 10nos fixed in Our unit , further 105nos ordered.

Sensor based water tabs in canteen

Drip irrigation to trees

WC 5.2-SUBSTITUTION OF PROCESS FRESH WATER WITH HARVESTED RAIN WATER

Roof rain water catchment to ETP



668.37m3 / Year rain water reused to Processing

Roof rain catchment in ETP and stored in RO permeate tank and reused for process make up water instead of fresh water.

WC 5.1 RAIN WATER HARVESTING IN ROOF AND NON-ROOF AREAS

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RAIN WATER HARVESTING AND REUSE SYSTEMS

43% Roof Catchment & 100% Non-Roof Catchment

Rain water Collection Systems :

1.Total area for our mill inside Premises : 13.29 Hectares

2.Total coverage of roofed buildings : 2.35 Hectares

3.Total un-roofed vacant and green area : 10.94 Hectares.

In Perundurai SIPCOT average rainfall is 150mm / year.

Our rain water harvesting and reused capacity details:

S.No	Type of catchment	Area (m2) (AP)	Runoff co-efficient (C)	Annual Rainfall (m/year) (R)	Harvesting Potential (m3/year) (HP) = AP*C*R	Actual Area for which rainwater harvesting system is designed	Actual rainwater harvested in M3 /Year (HA)	Actual rainwater harvested in M3 /Year	Application
1	Open Catchment area	109400	0.3	0.15	4923	109400	**4923**	**4923**	Harvesting
2	Roof Catchment area	23500	0.8	0.15	2820	1212	**668.37**	**668.37**	Reused instead of process fresh water

WC 4.2 -BEST PRACTICES IN WATER CONSERVATION

WATER CONSERVATION AWARD

KGFL Won First Prize
National Water Award 2018

2.ENERGY EFFICIENCY

ELECTRICAL ENERGY MIX – DAILY ACTUAL AVERAGE ENERGY CONSUMPTION

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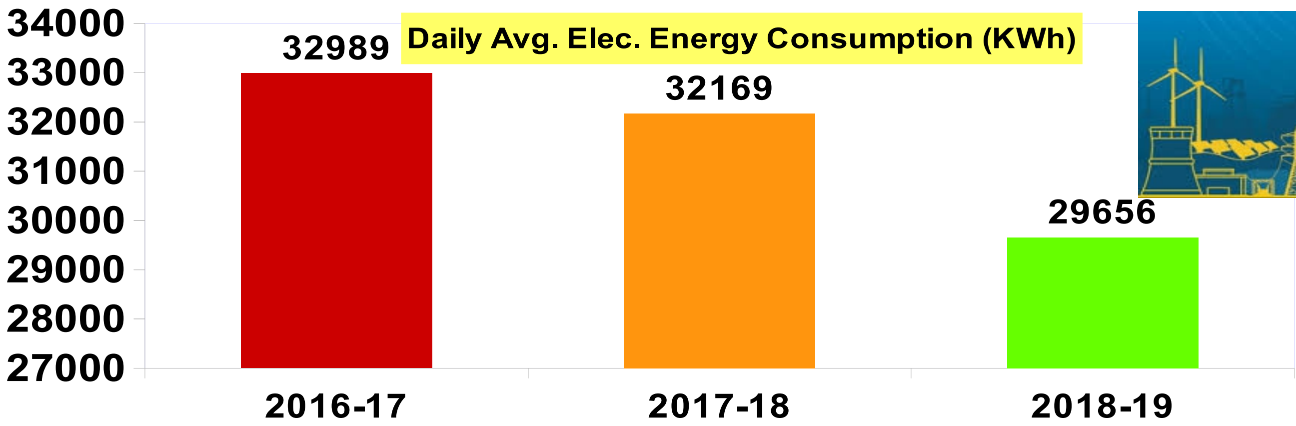
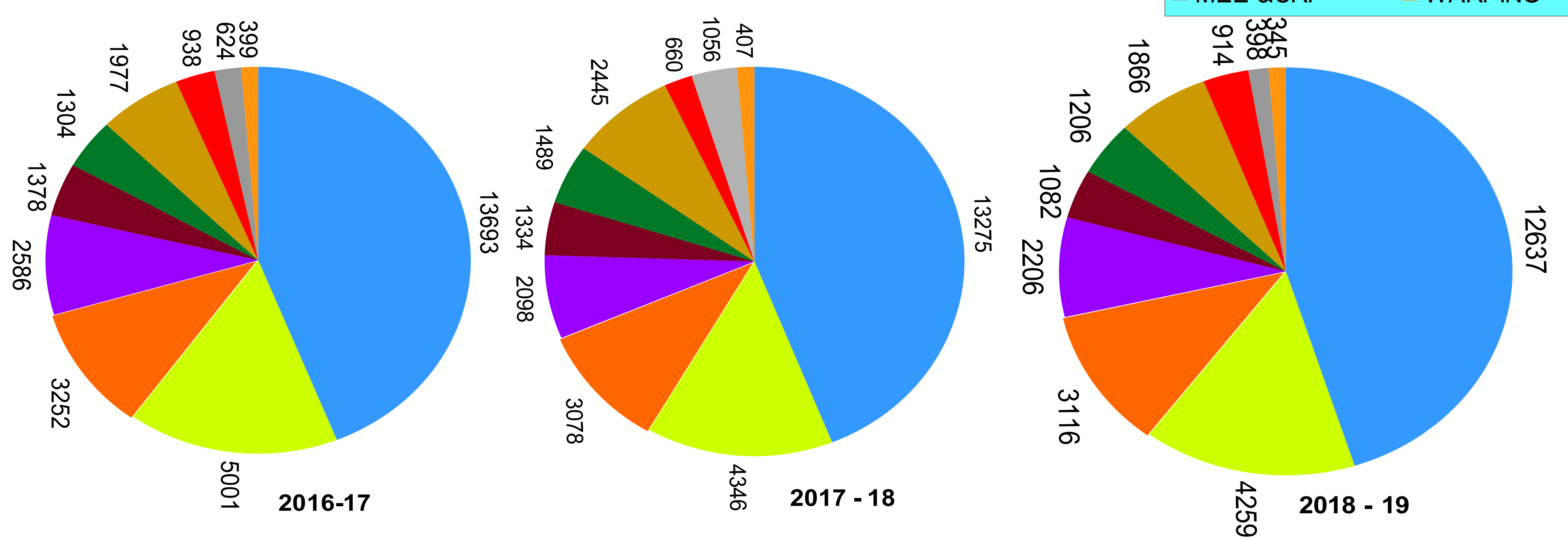
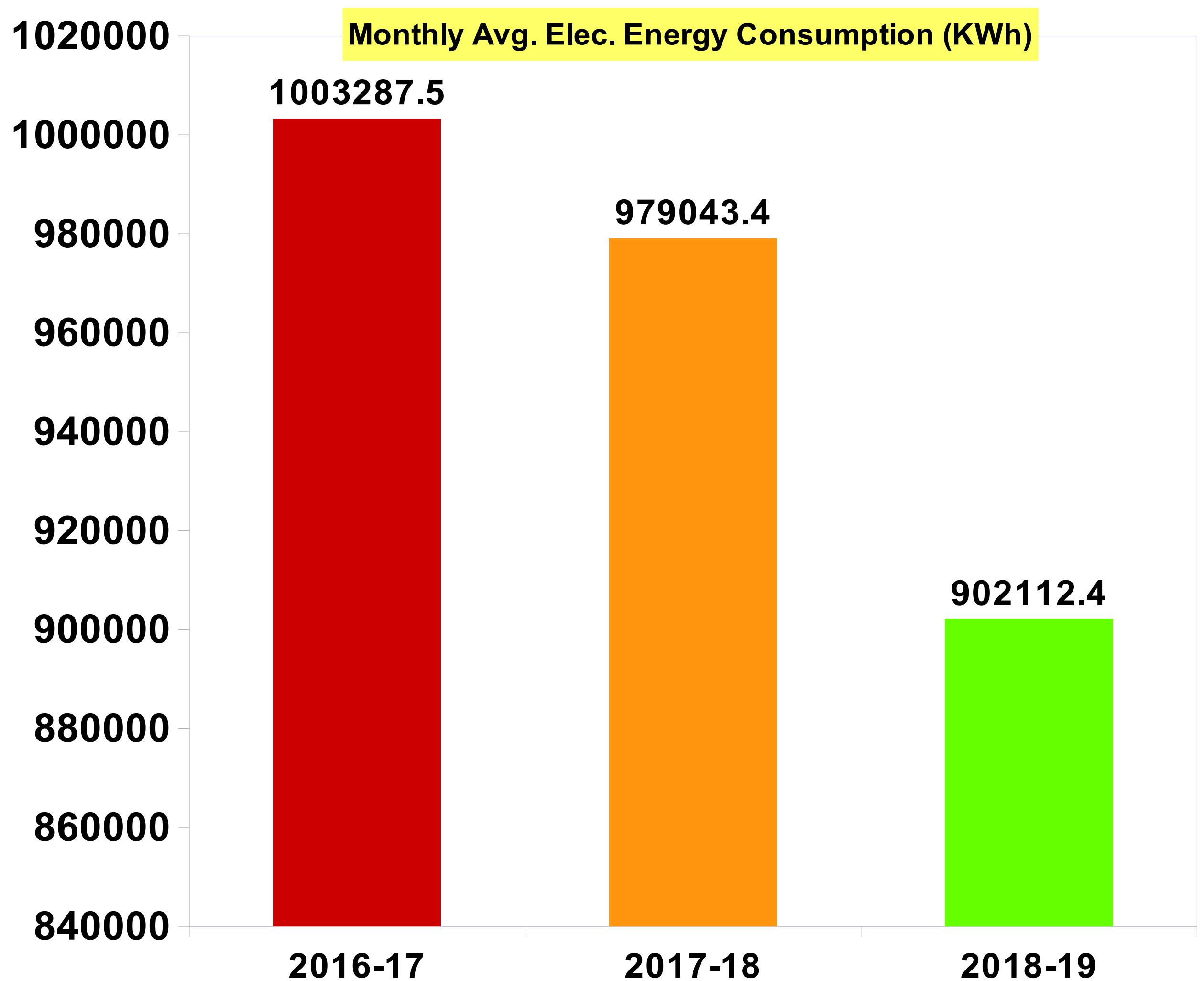
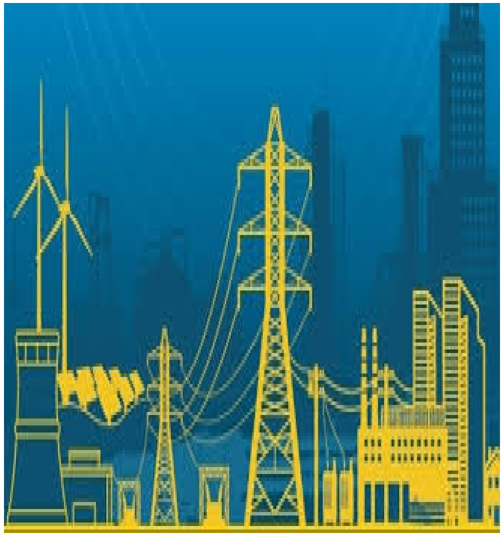




ELECTRICAL ENERGY
MONTHLY ACTUAL AVERAGE ENERGY CONSUMPTION





THERMAL ENERGY MIX - MONTHLY ACTUAL AVERAGE ENERGY CONSUMPTION

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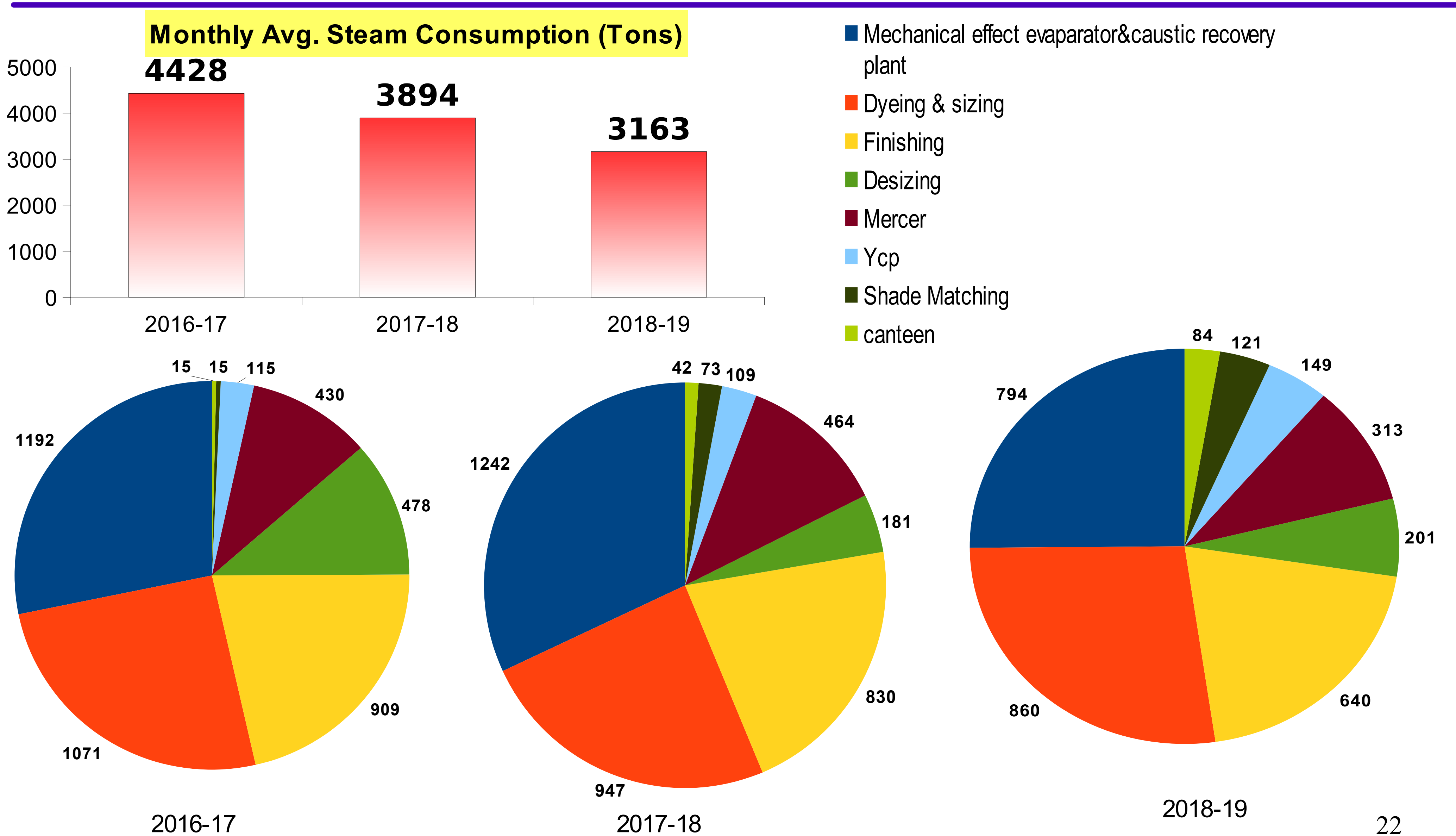
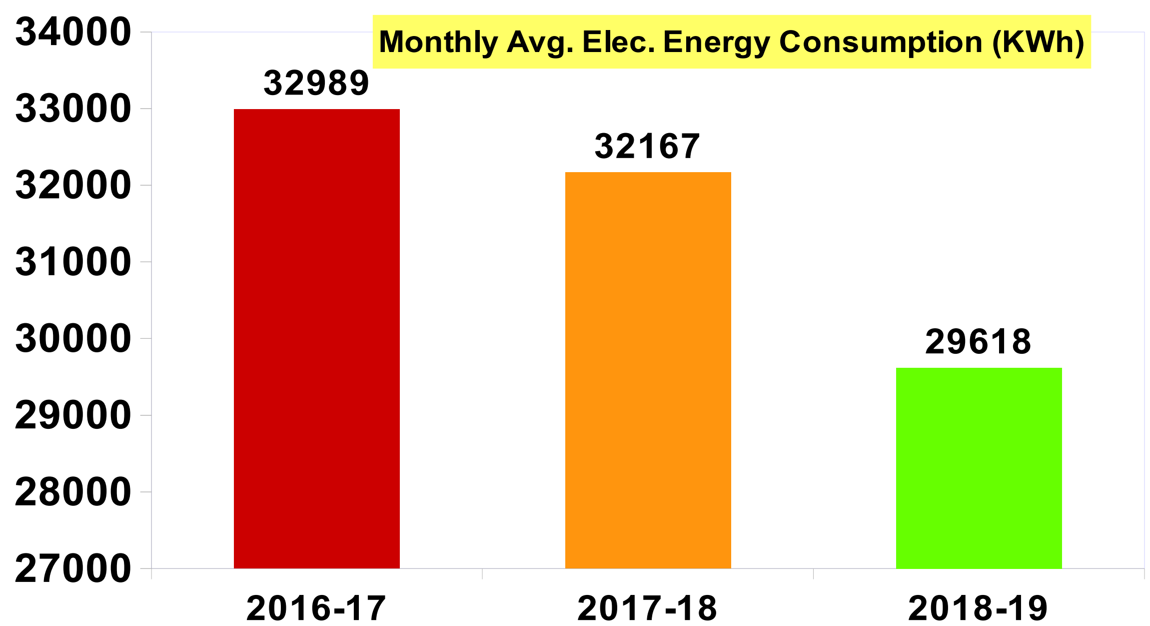


EE 4 ELECTRICAL SPECIFIC ENERGY CONSUMPTION

YEAR	TOTAL UNITS	YEARLY AVG UNITS PER DAY	PRODUCTION PACKING IN KGS	UNIT/KG OF FABRIC
2016 TO 2017	12006079	32989	5594393	2.15
2017 TO 2018	11748931	32167	6063402	1.94
2018 TO 2019	10861293	29618	4936120	2.2

Reduced the absolute consumption, but specific qty increased due to low Oz fabric (market trend)

REDUCTION OF SPECIFIC ELECTRICAL ENERGY	
YEAR	TARGET ELECTRICAL UNIT/KGS
2019 TO 2020	1.90
2020 TO 2021	1.85
2021 TO 2022	1.80



THERMAL - SPECIFIC ENERGY CONSUMPTION-STEAM

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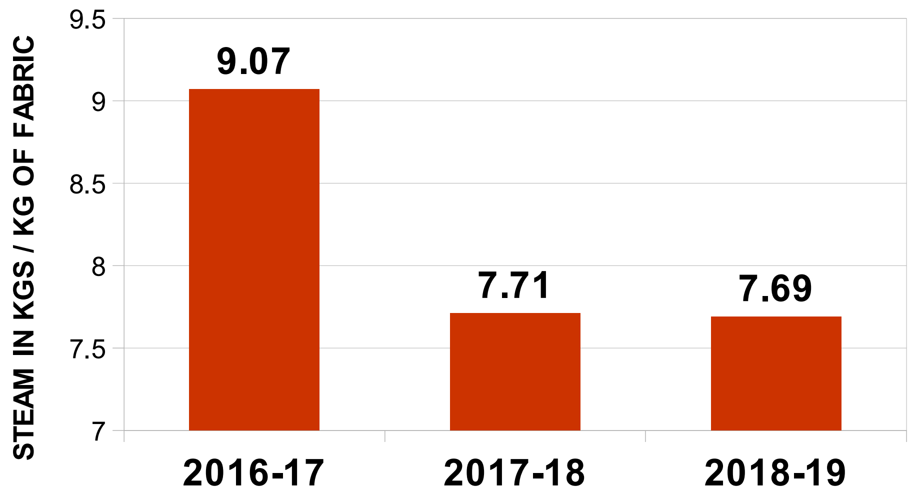
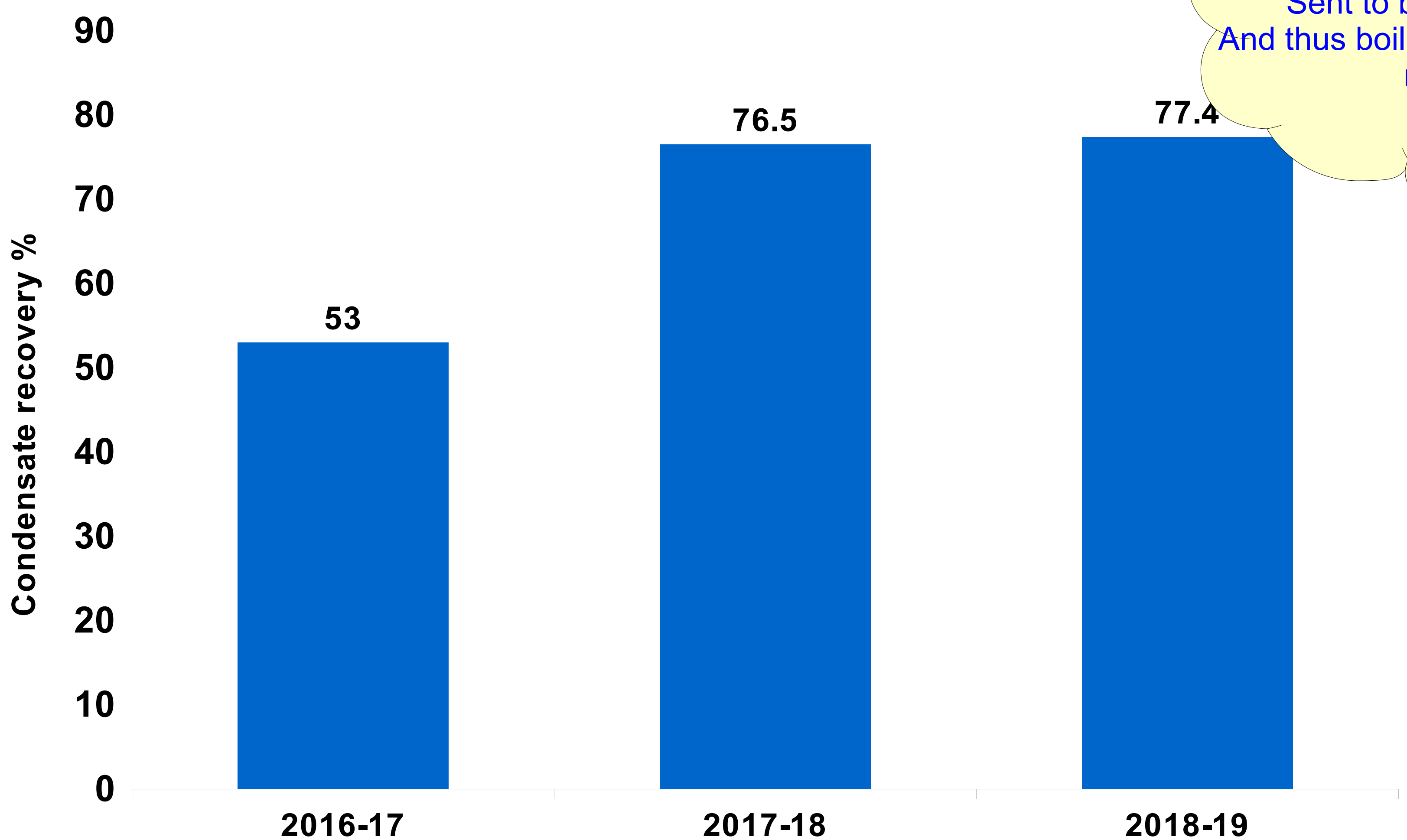
YEAR	STEAM CONSUMPTION IN KGS	PACKING PRODUCTION KGS	STEAM IN KGS / KG OF FABRIC
2016-17	50741000	5594393	9.07
2017-18	46729000	6063402	7.71
2018-19	37958000	4936120	7.69

THERMAL SPECIFIC ENERGY CONSUMPTION-STEAM



THERMAL – BOILER CONDENSATE RECOVERY PERCENTAGE

Condensate water recovered
From D&S, Desizing, Mercer,
Finishing and MEE was
Sent to boiler feed water
And thus boiler coal consumption
reduced



3.RENEWABLE ENERGY

SPECIFIC RENEWABLE ENERGY AND ON SITE ,OFF SITE

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		RENEWABLE ENERGY							
YEAR	OVER ALL UNITS	SOLAR UNITS	WIND UNITS	RENEWABLE UNITS	SOLAR %	WIND %	RENEWABLE ENERGY %	PRODUCTION IN KGS	RENEWABLE ENERGY UNIT/ KG OF FABRIC
2016 -17	12006079	1412100	4102882	5514982	11.76	34.17	45.93	5594393	0.99
2017 -18	11748931	1391180	693439	2084619	11.84	5.9	17.74	6063402	0.34
2018 -19	10861293	1267480	3084085	4351565	11.67	28.4	40.06	4936120	0.88

KG FABRIKS ROOF TOP SOLAR 1.1MW CAPACITY

WATSUN UDUMALAPET VISHNUVIMAL YARN INDIA PVT LTD & i-ENERGY WIND FARMS (THENI)

RE 2 SOLAR RENEWABLE ENERGY ON SITE CONSUMPTION

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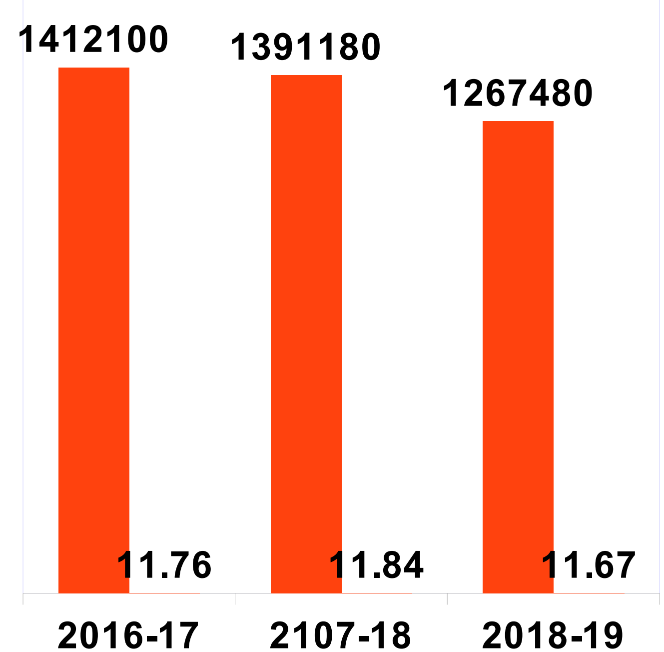
ROOF TOP SOLAR 1.1MW CAPACITY

YEAR	OVER ALL UNITS	SOLAR ENERGY		SPECIFIC SOLAR ENERGY (UNIT / KG OF FABRIC)	ONSITE RENEWABLE ENERGY (%)
		SOLAR UNITS	PRODUCTION IN KGS		
2016 -17	12006079	1412100	5594393	0.25	11.76
2017-18	11748931	1391180	6063402	0.23	11.84
2018-19	10861293	1267480	4936120	0.26	11.67

SOLAR ENERGY UNITS & PERCENTAGE



4.WASTE MANAGEMENT

WM-INVENTORIZATION FOR HAZARDOUS AND NON-HAZARDOUS WASTE

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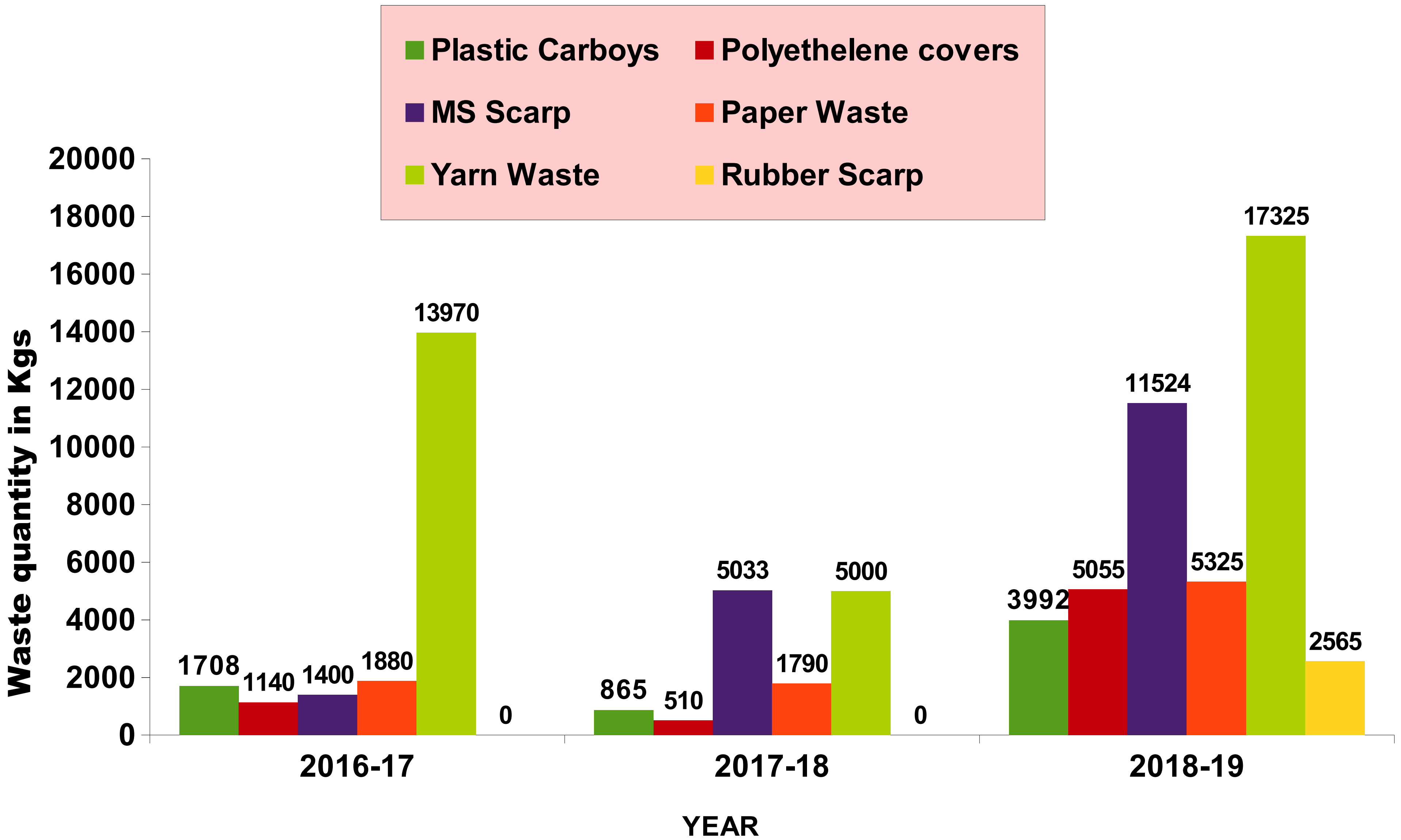

WM 2.2 BEST PRACTICES-
RAW MATERIAL WASTE REDUCTION

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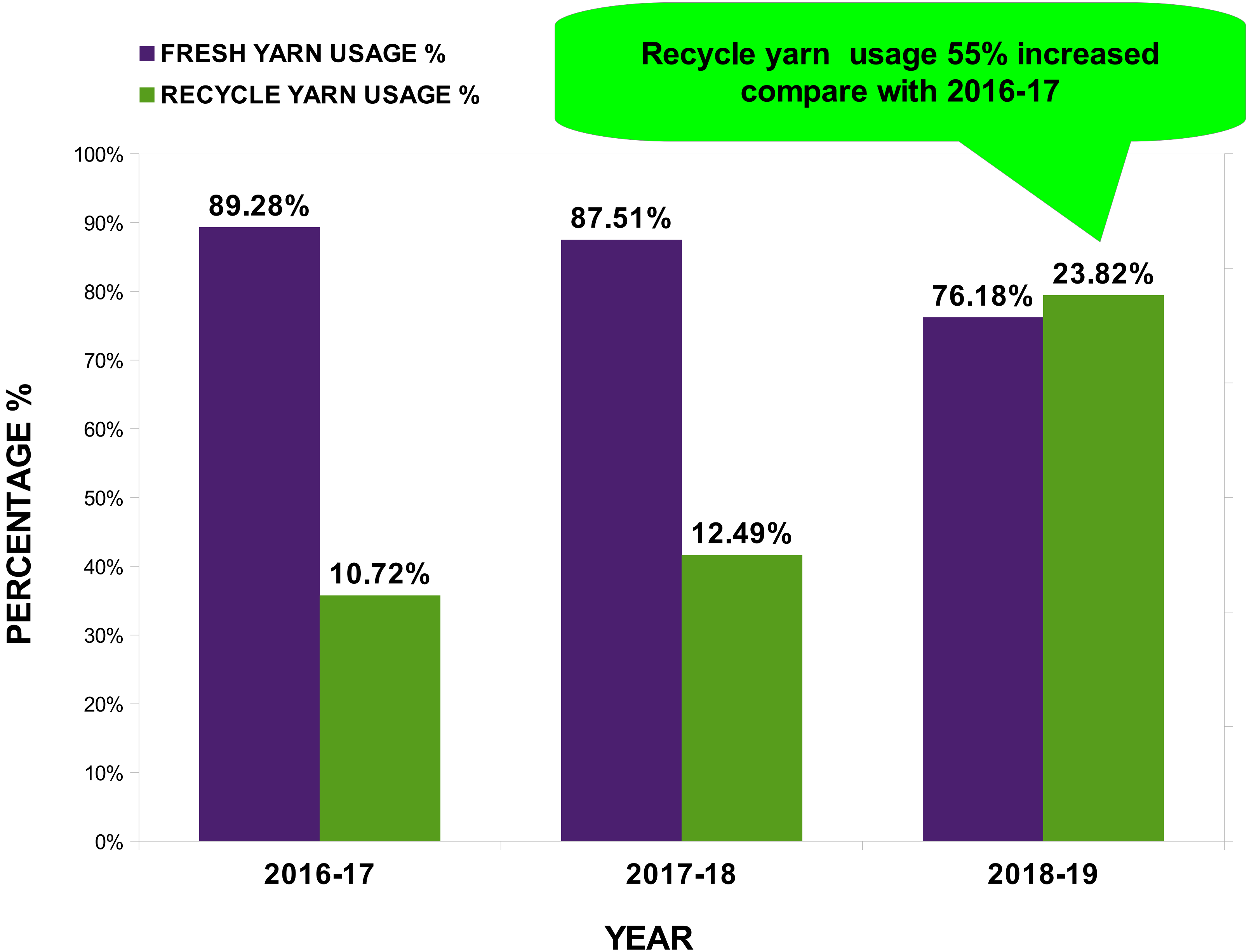

WM 3.1 WASTE COLLECTION ,SEGREGATION, INTERNAL TRANSPORT & HANDLING, STORAGE AND DISPOSAL MECHANISM

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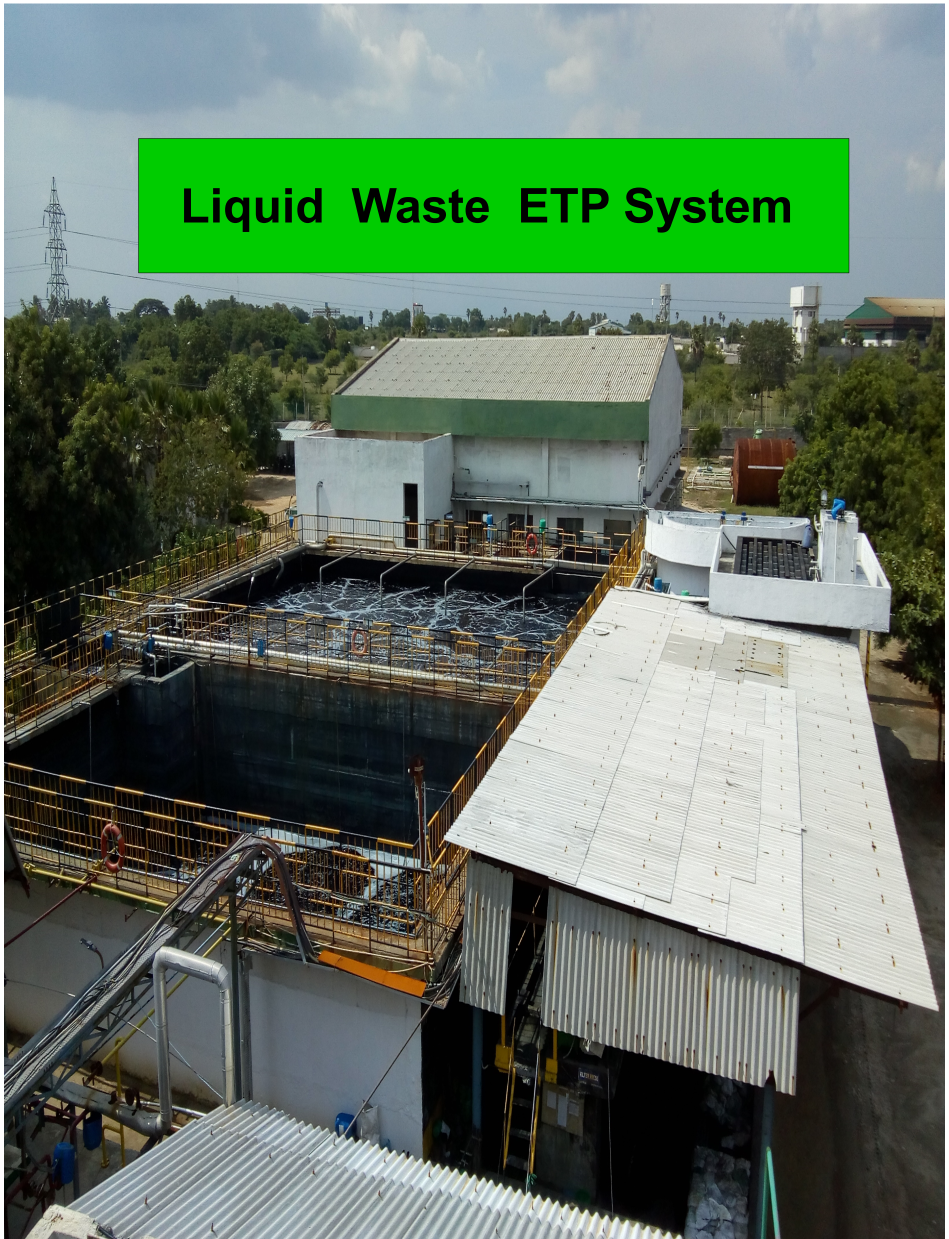

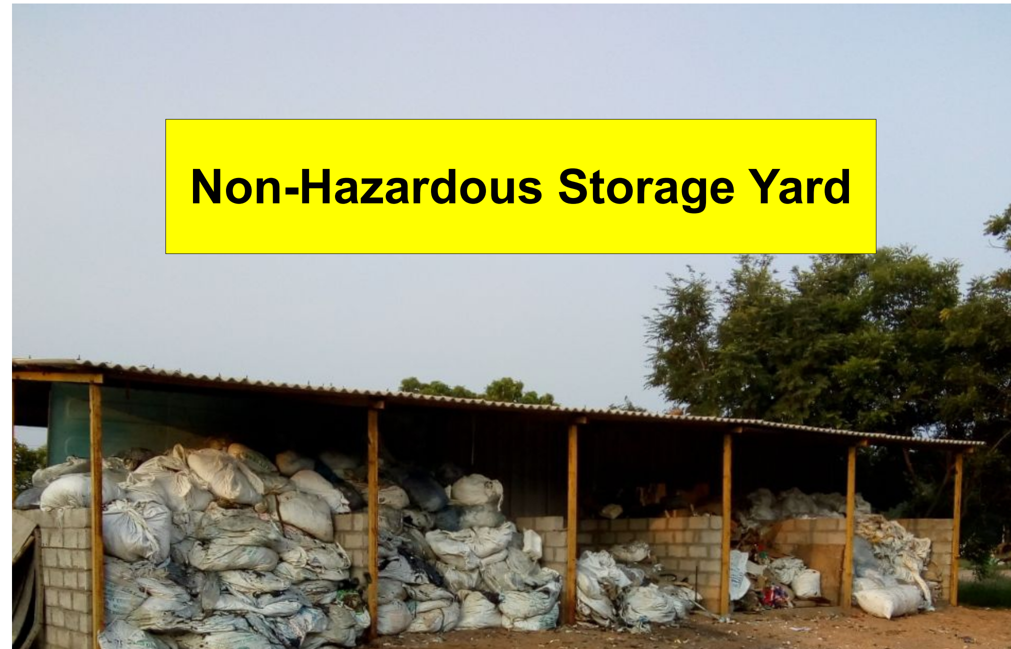

WM 2.2 BEST PRACTICESS-VALUE PRODUCTS BY WASTE FABRICS

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OUR FABRIC WASTES TRANSFORMED TO VALUE ADDED PRODUCTS

WM 4.1.HAZARDOUS WASTE MANAGEMENT

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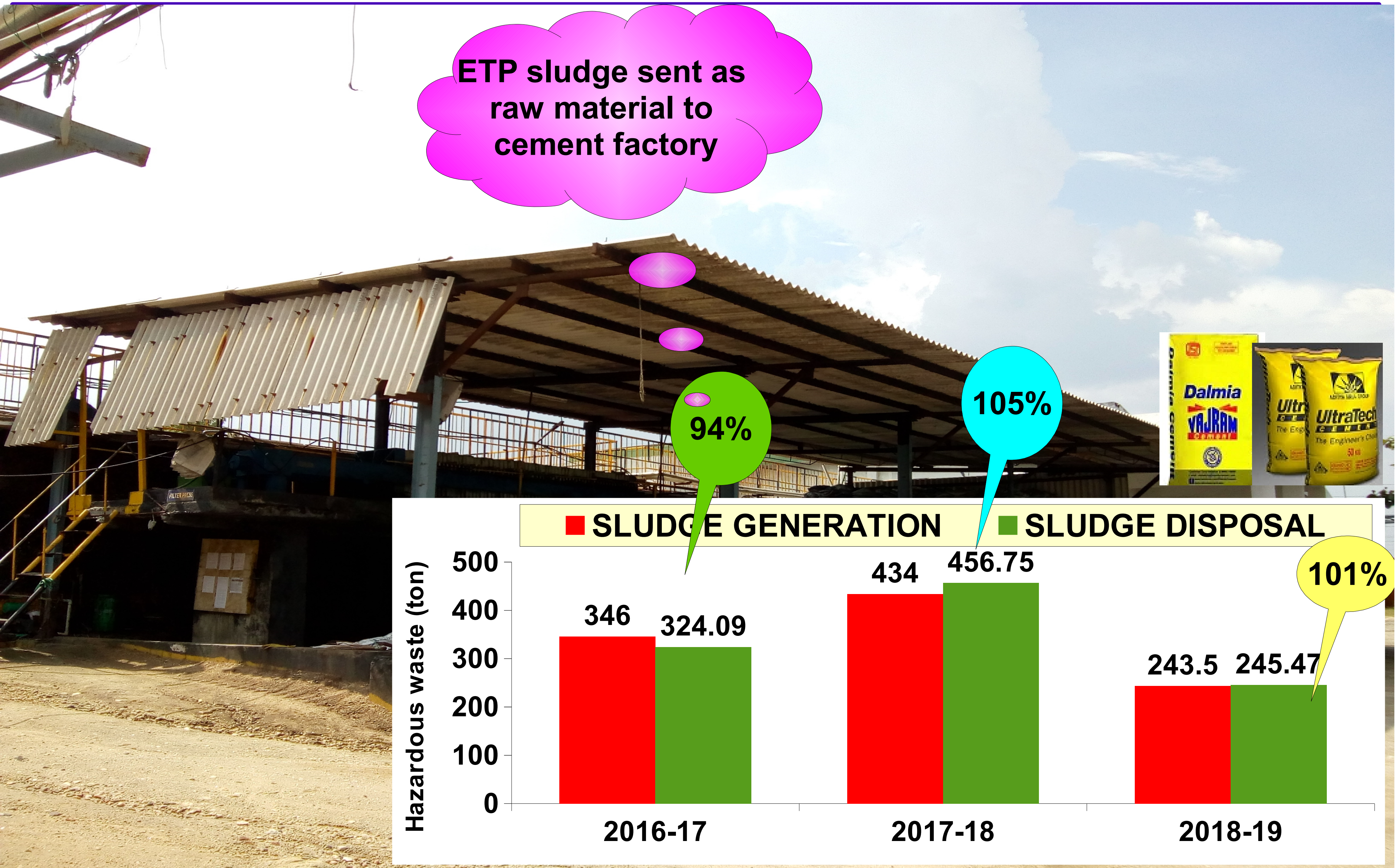

WM 4.1.HAZARDOUS WASTE MANAGEMENT

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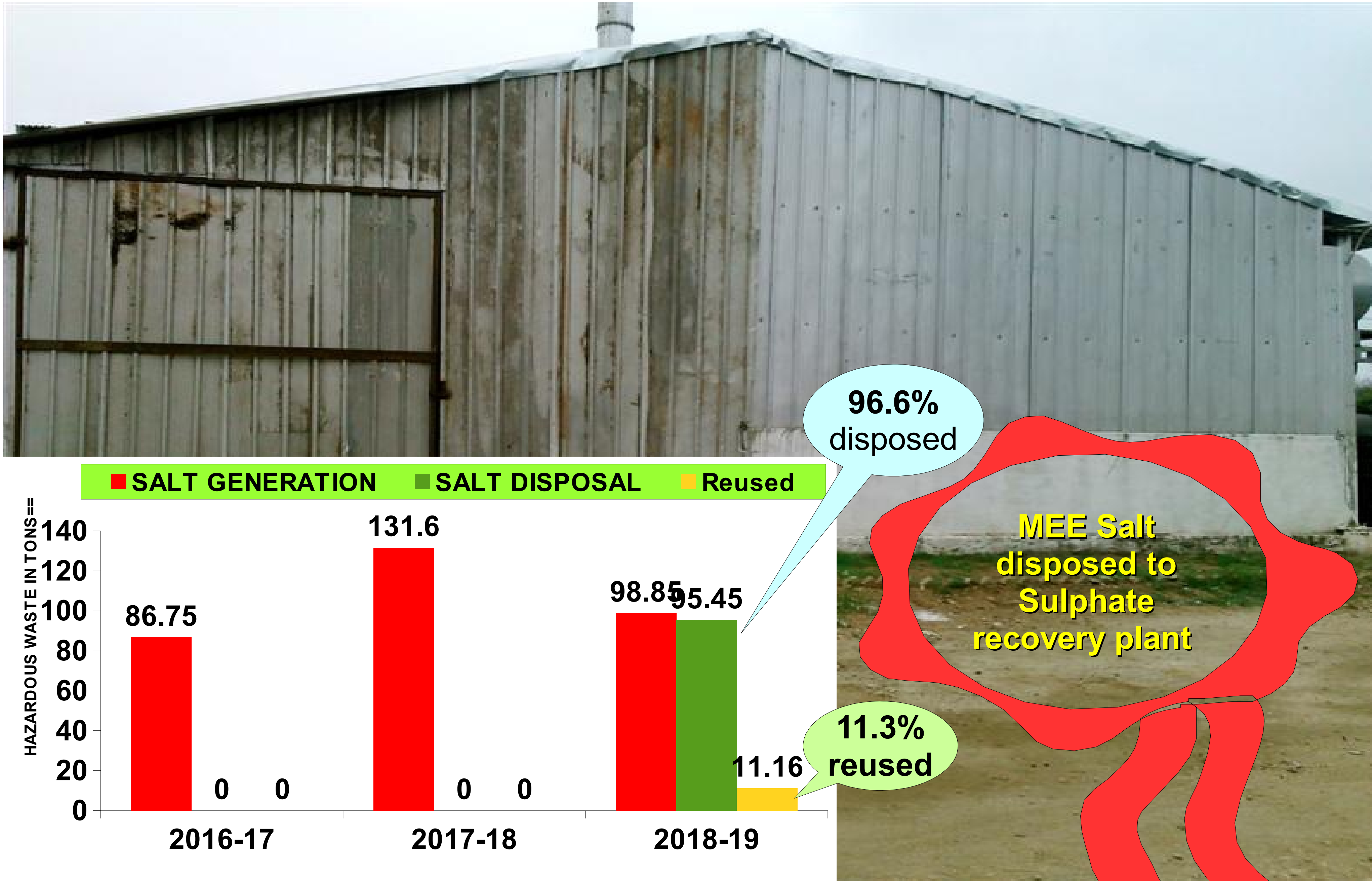

WM 4.2. RAW MATERIAL PACKING WASTE REUSE

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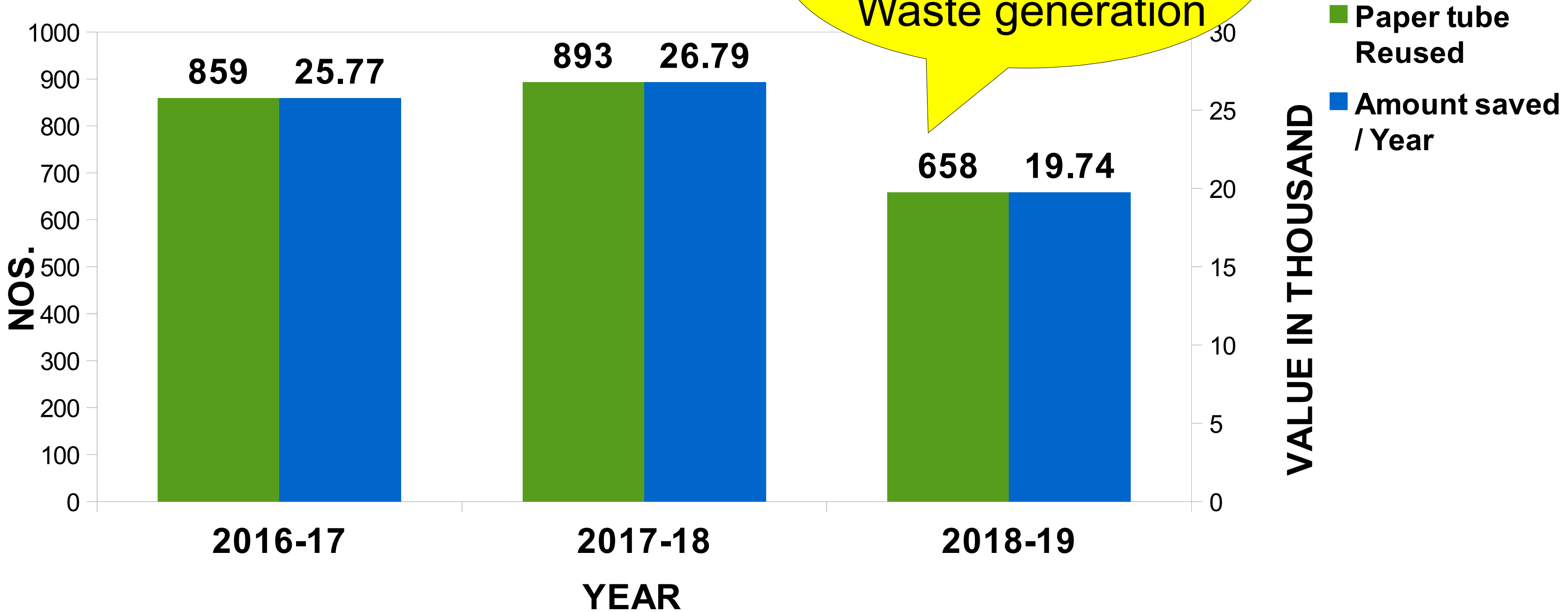
100% Reduction in Absolute paper cheese Waste generation



WM 4.3 ZERO WASTE TO LAND FILL

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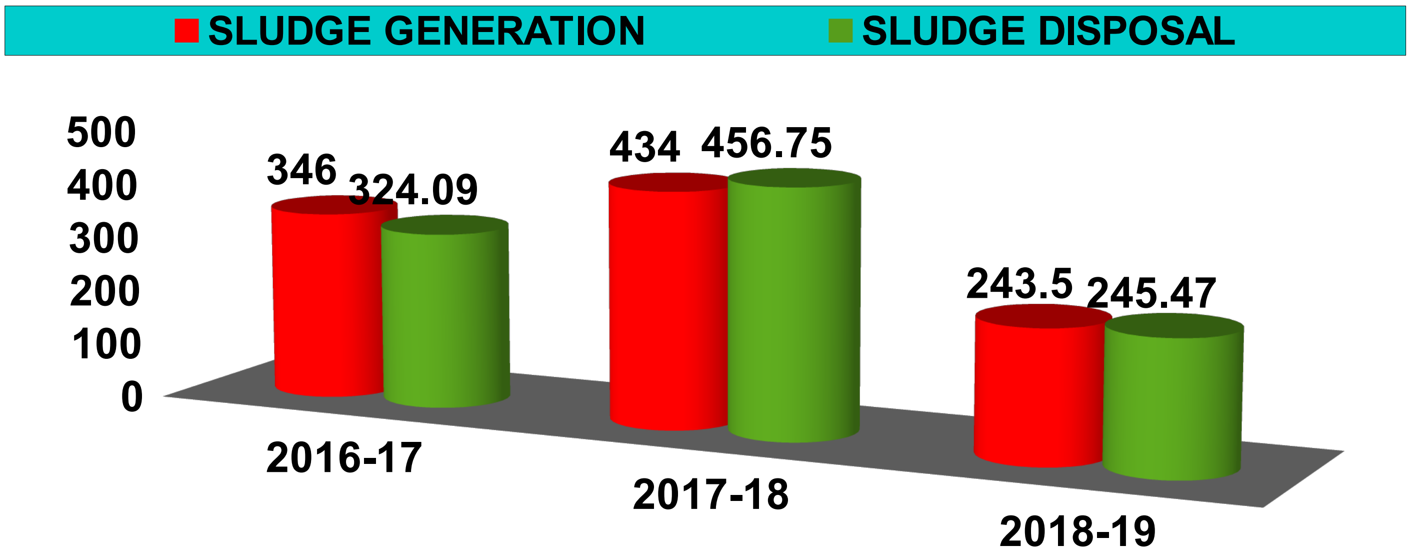

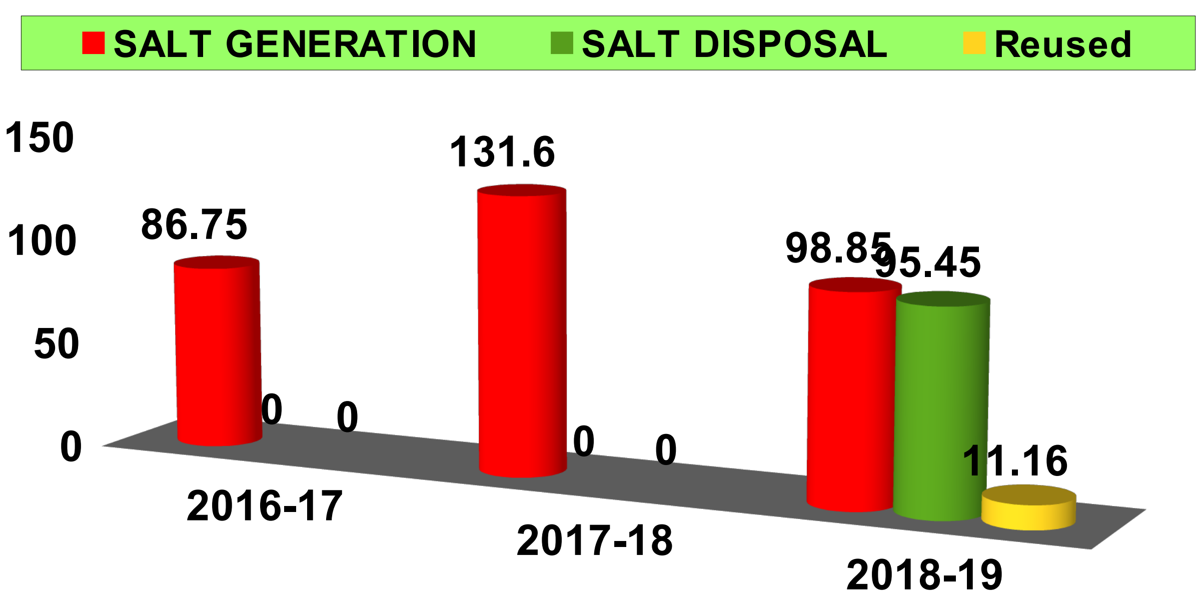

Zero
land fill
for
ETP Waste

WM 5.1 PERCENTAGE REDUCTION IN PROCESS EFFLUENT

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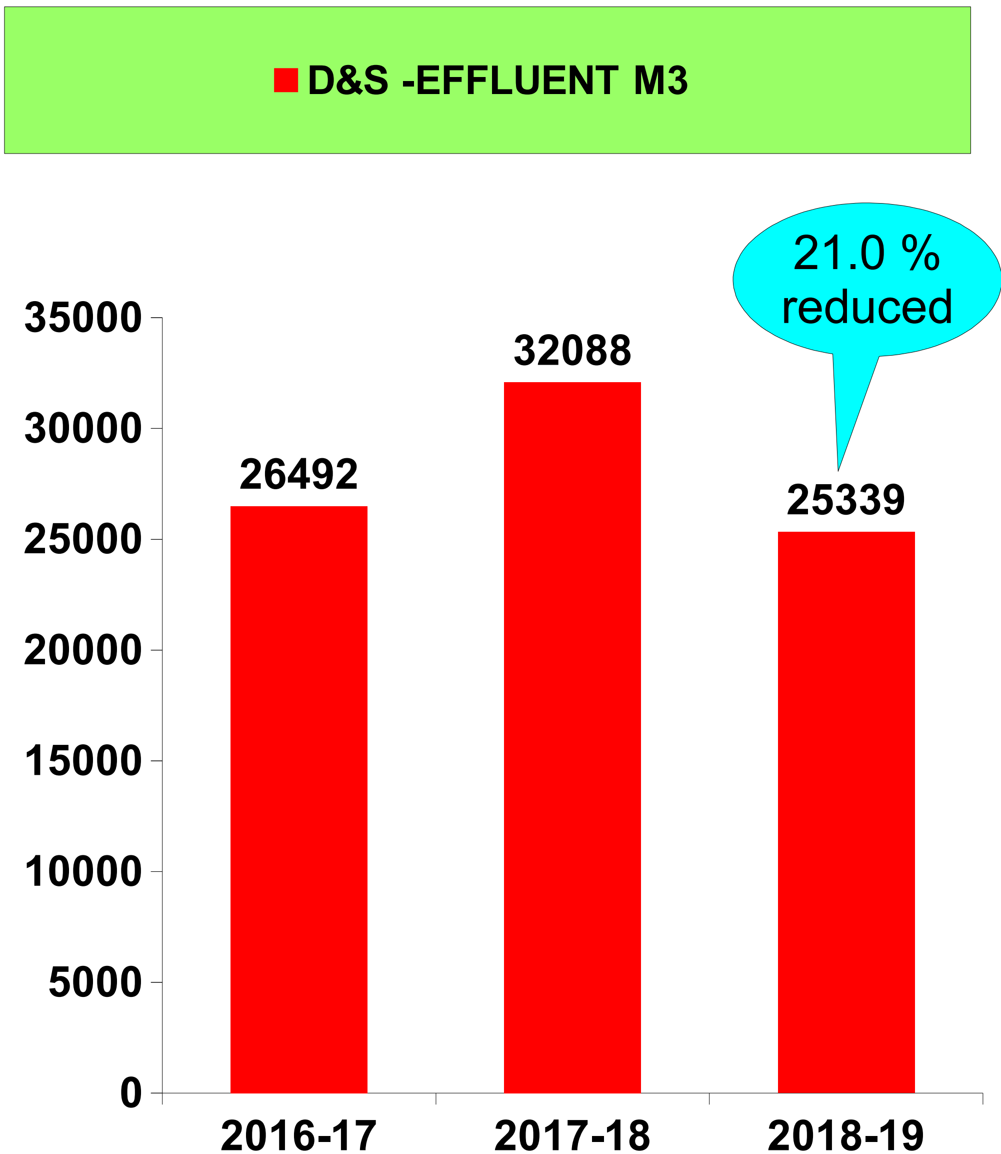
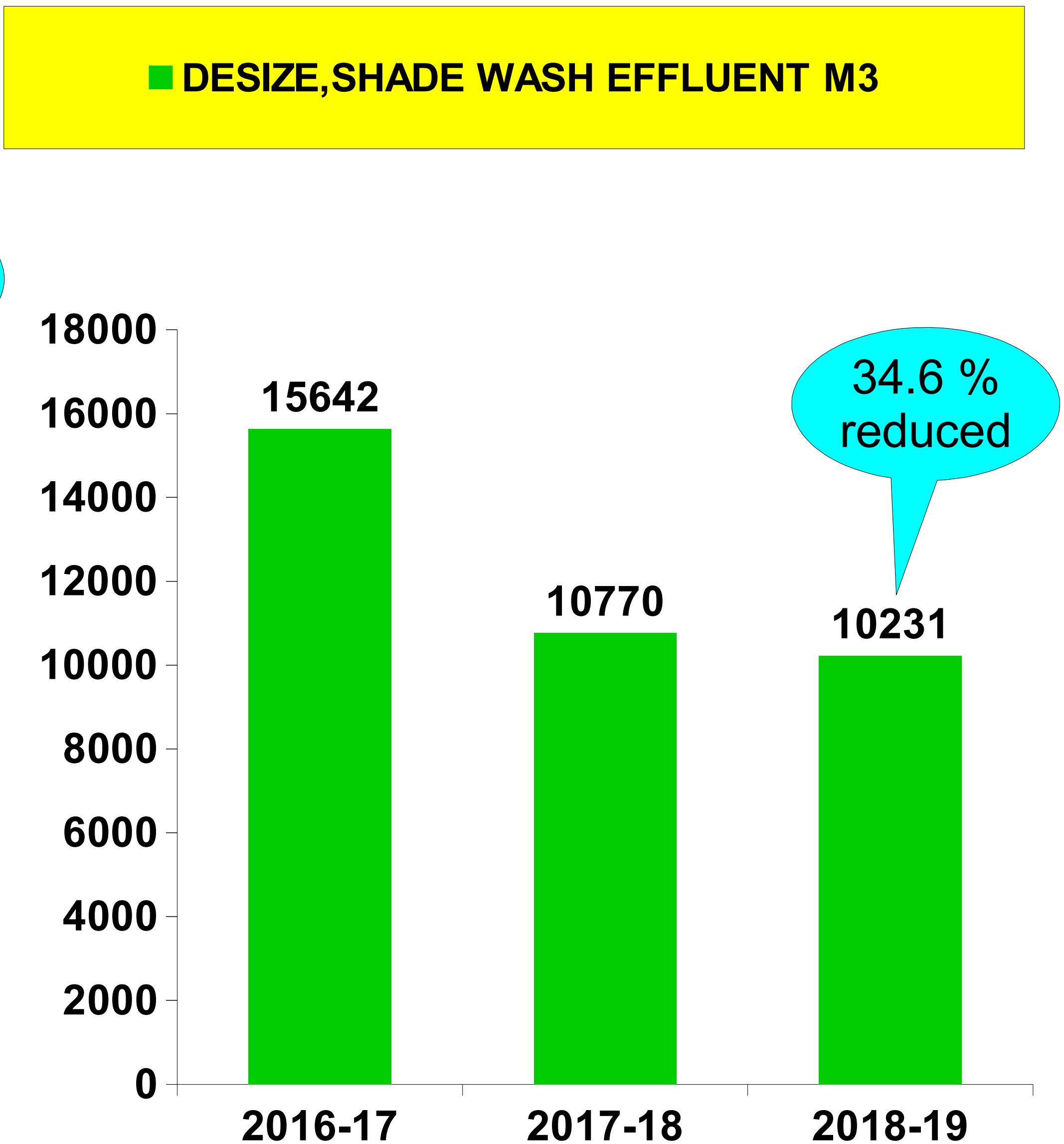
LIQUID WASTE-EFFLUENT REDUCTION





WM 5.1 LIQUID WASTE MANAGEMENT

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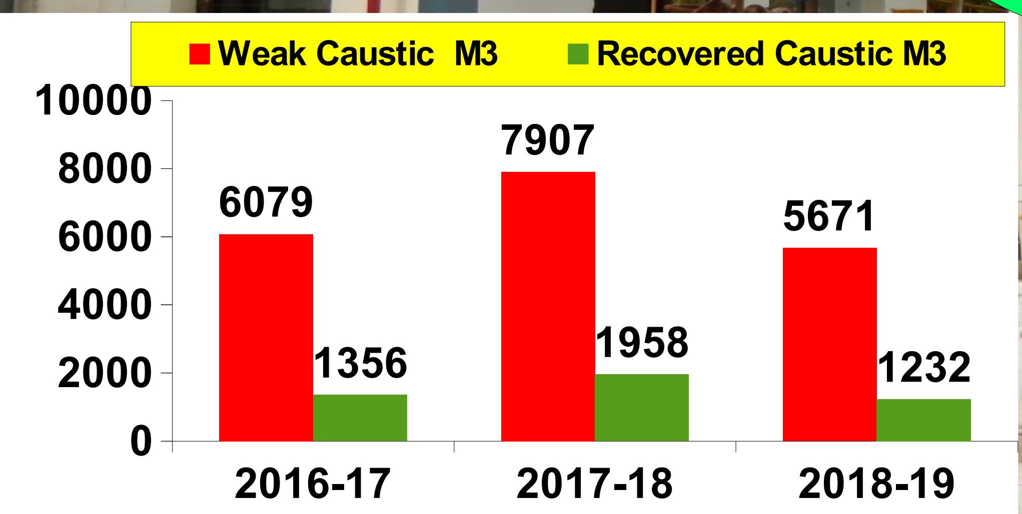
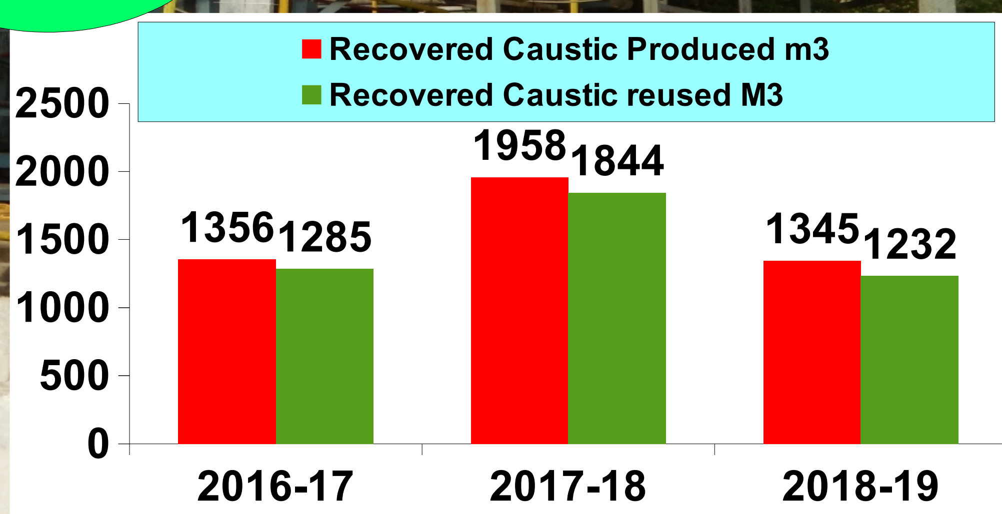
CAUSTIC EFFLUENT RECYCLE (CRP)





WM 5.1 LIQUID WASTE MANAGEMENT

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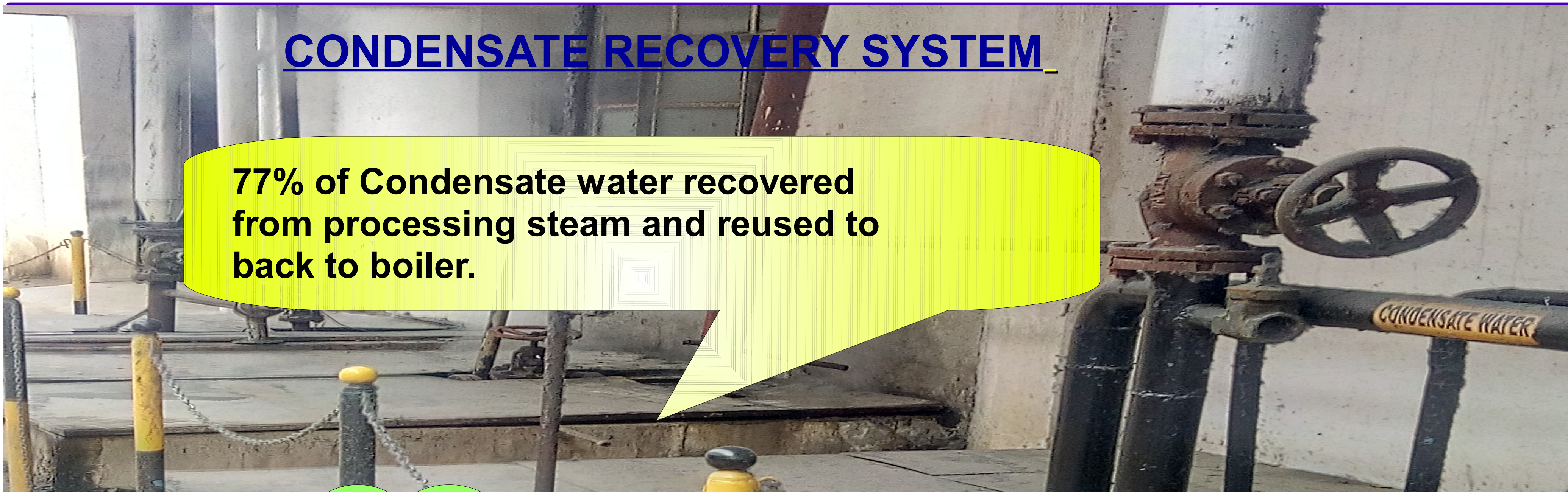
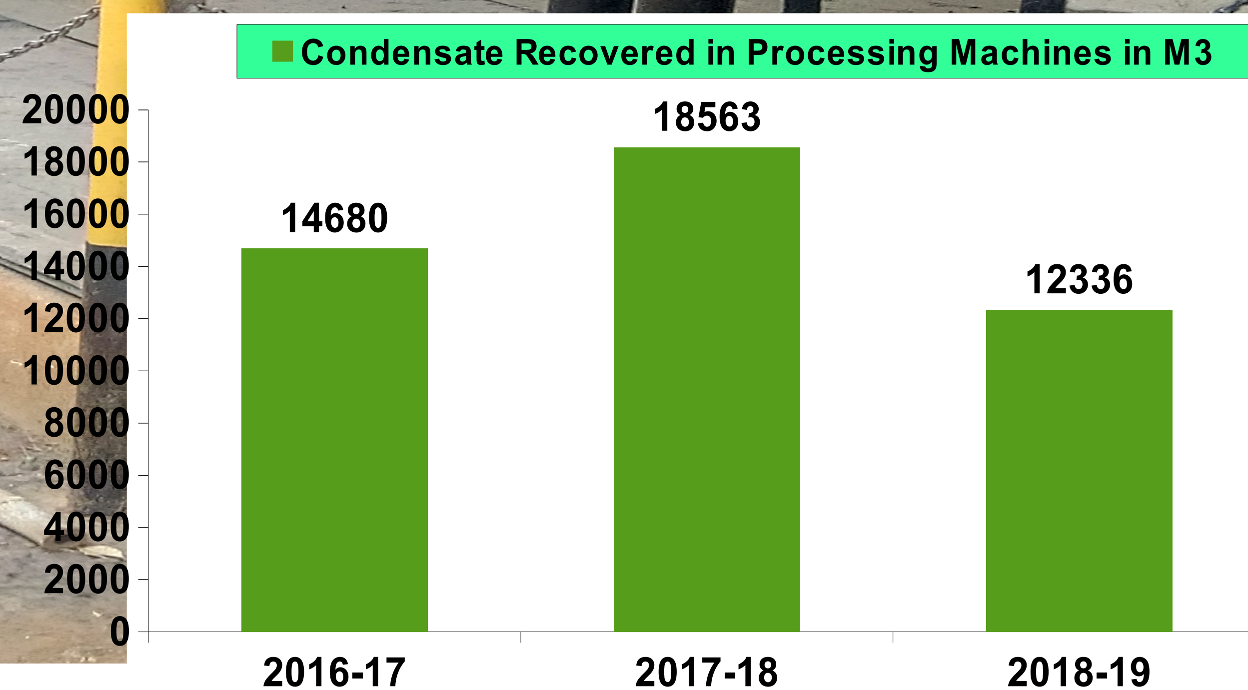
CONDENSATE RECOVERY SYSTEM

77% of Condensate water recovered from processing steam and reused to back to boiler.



Condensate recovery system for machine steam condensate



WM 5.2 DOMESTIC &SEWAGE LIQUID WASTE MANAGEMENT

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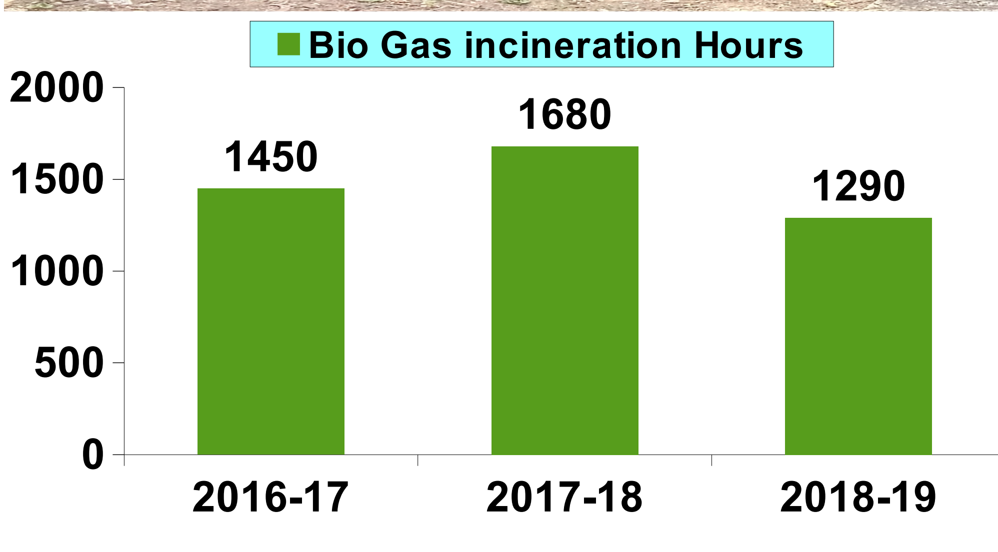
BIO GAS TREATMENT PLANT



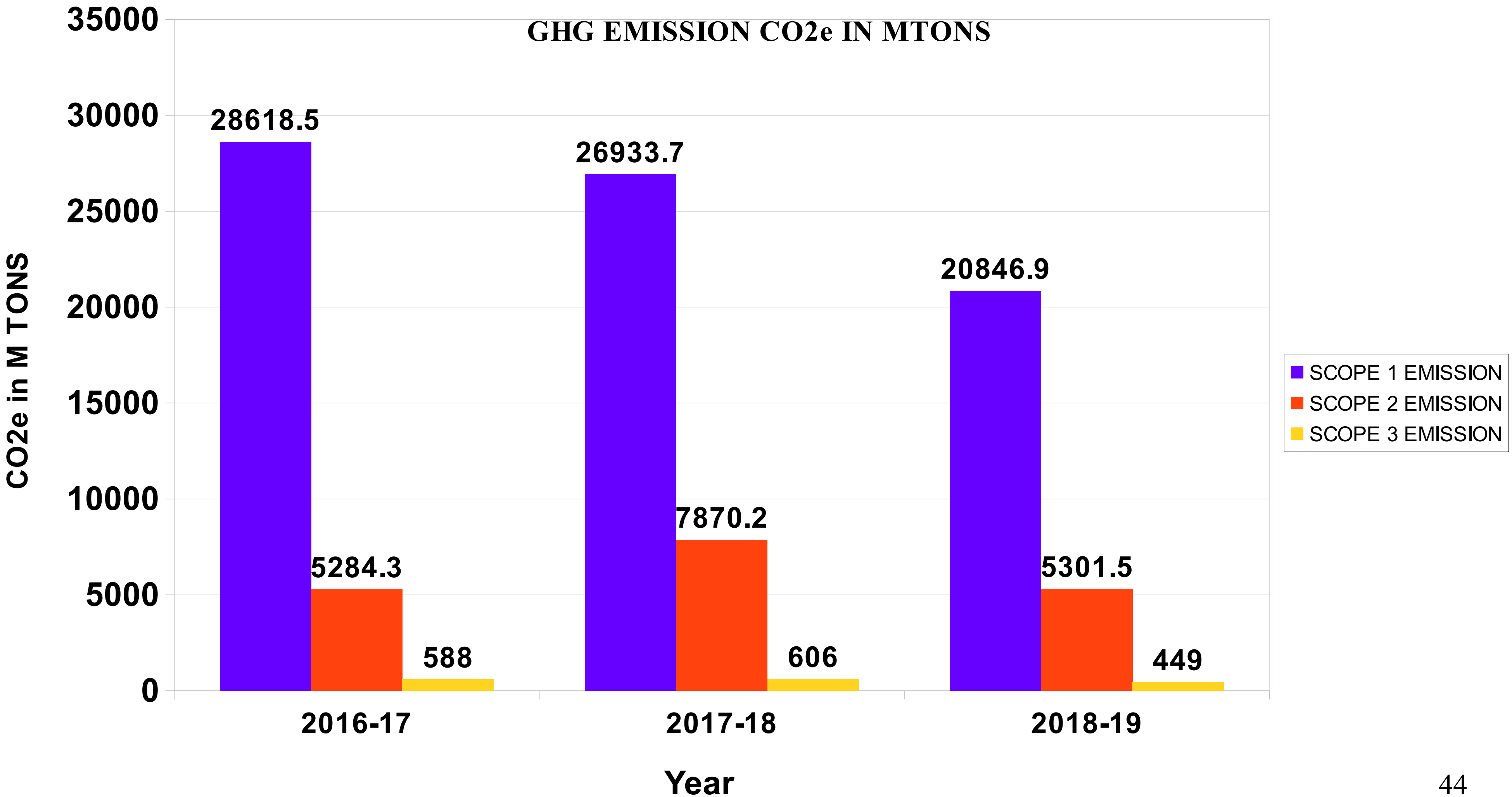
Bio gas from Domestic and Food Waste is used for Cooking

5.GREEN HOUSE GAS EMISSION (GHG)

GHG EMISSION INVENTORIZATION

DESCRIPTION	2016-17	2017-18	2018-19
SCOPE 1 (MTCO2e)	28618.5	26933.7	20846.9
SCOPE 2 (MTCO2e)	5284.3	7870.2	5301.5
SCOPE 3 (MTCO2e)	588	606	449
TOTAL (MTCO2e)	34490.8	35409.9	26597.4
PRODUCTION (MT)	5594.393	6063.402	4936.12
Kg of CO2e emitted / KG of fabric	6.16	5.83	5.39
Kg of CO2e emitted / Meter of fabric	2.58	2.63	2.40

GHG EMISSION SCOPE 1,2 &3 - CO2e



K8 FABRIKS

4 GHG EMISSION INTENCITY REDUTION FOR NON -GHG INTENSIVE INDUSTRIES SCOPE 1&2

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SCOPE 1 EMISSION	UNITS	2016-17	2017-18	2018-19
Emission from Coal consumption	MTCO2e	28408.57	26700.42	20216.51
Emission from diesel con's	MTCO2e	59.37	58.9	78.94
Emission from LPG consumption	MTCO2e	85.05	69.67	76.95
Emission from vehicles consumption	MTCO2e	36.9	38.2	31.1
Emission from Air conditioning	MTCO2e	28.6	66.51	32.45
Emission from lignite	MTCO2e	--	----	410.95
SCOPE 2 EMISSION	**UNITS**	**2016-17**	**2017-18**	**2018-19**
Purchased electricity (Grid)	MWH	6444308	9597761	6465199
Renewable energy	MWH	5514982	2084169	4351565
Emission from purchased electricity	MTCO2e	5284.33	7870.16	5301.5
Total emission	MTCO2e	33902.82	34803.86	26148.4
Annual production	TONNES	5594.393	6063.402	4936.12
CO2e emitted / KG of fabric (Scope 1 + Scope 2)	Kg	6.06	5.73	5.29

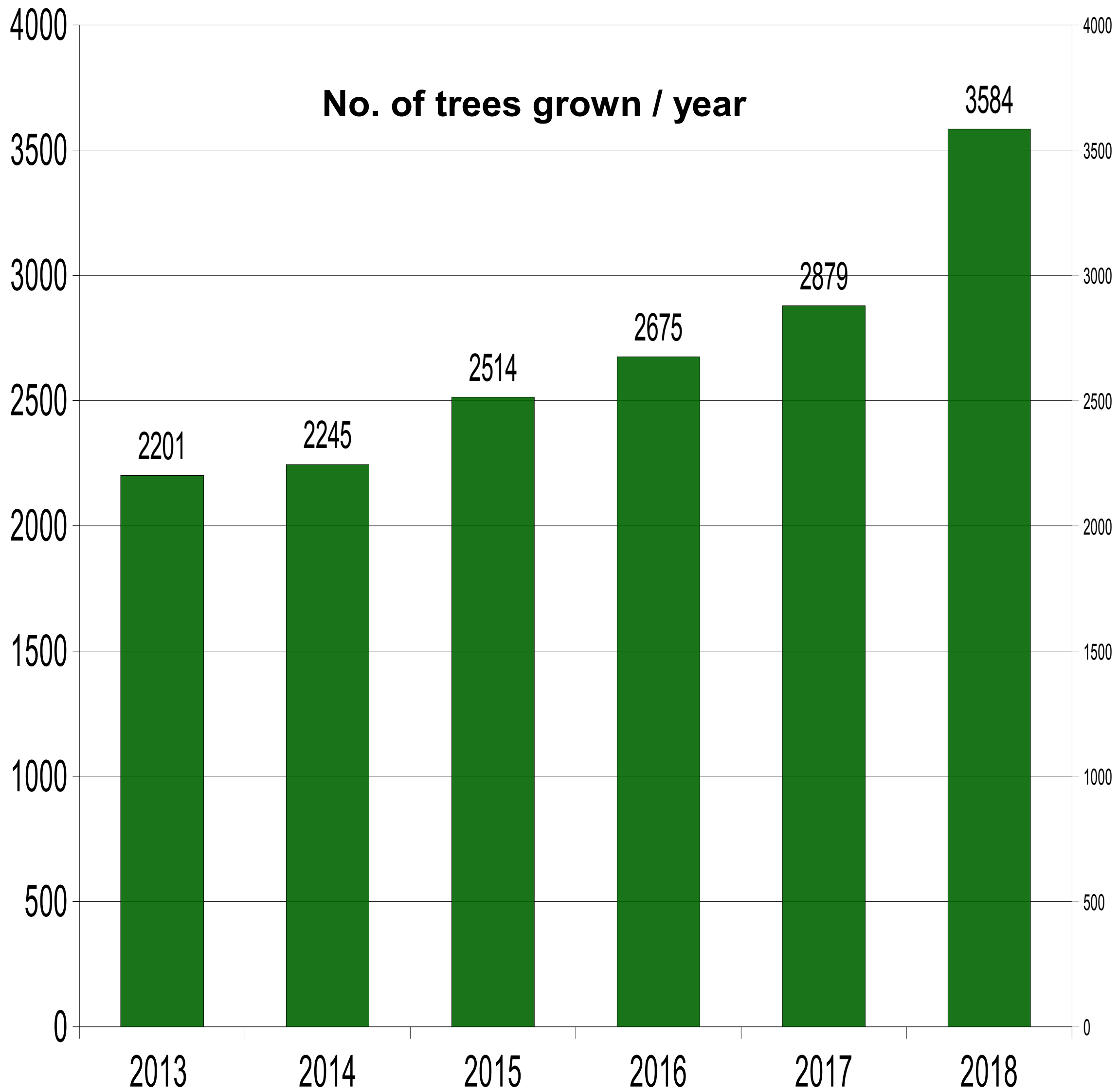
12.70% reduced

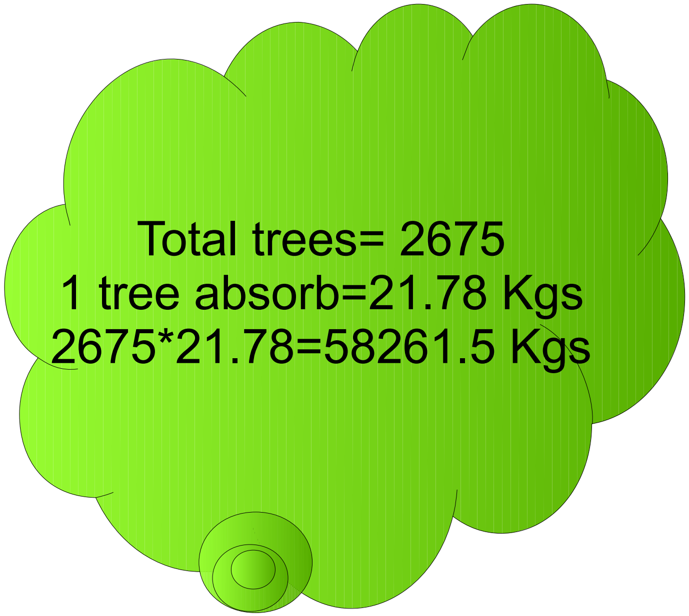
5-CARBON NEUTRAL APPROACH- BY USE RENEWABLE POWER

Confederation of Indian Industry

DESCRIPTION	TONNES OF CO_2 eq.
A. Total Absolute Emissions (sum of scope 1 & 2 for 2018-19)	29718.3
Absolute emissions offset by purchase of wind energy / solar energy	**3568.3**
Absolute emissions offset by biomass firing in boilers & Biogas	**78.44**
Absolute emissions offset by 2675 trees (life above 3 yrs)	**58.26**
B. Total Absolute Emissions Offset	**3705.0**
C. Total Absolute Emissions – Scope-1 & Scope-2 without offsets (A+B)	26013.3
% offset ((B/C)*100)	**14.24%**

Carbon Neutral Approach -Option-2





6 GHG EMISSION INTENCITY REDUTION- FOR NON -GHG INTENSIVE INDUSTRIES SCOPE 3

Confederation of Indian Industry

SCOPE 3 EMISSION	Units	2016-17	2017-18	2018-19
Emission from freight transport (Inward items)	MTCO2e	362	338	263
Emission from freight transport (Outward items)	MTCO2e	226	268	186
Total emission (Scope 3)	MTCO2e	588	606	449
Annual production	TONNES	5594.393	6063.402	4936.120
CO2e emitted in Gms / Kg of fabric (Scope 3)	Gms	105	99	90

6.MATERIAL CONSERVATION AND RECYCLING

KG FABRIKS LIMITED
RAW MATERIAL SUPPLIER
FLOW CHART

Confederation of Indian Industry

100% Utilization of Raw Materials

93.5% into yarn

Industrial Fabrics

Yarn Sales

Denim Fabric

Balance 6.5% containing cotton dust, seed coats.

Agriculture

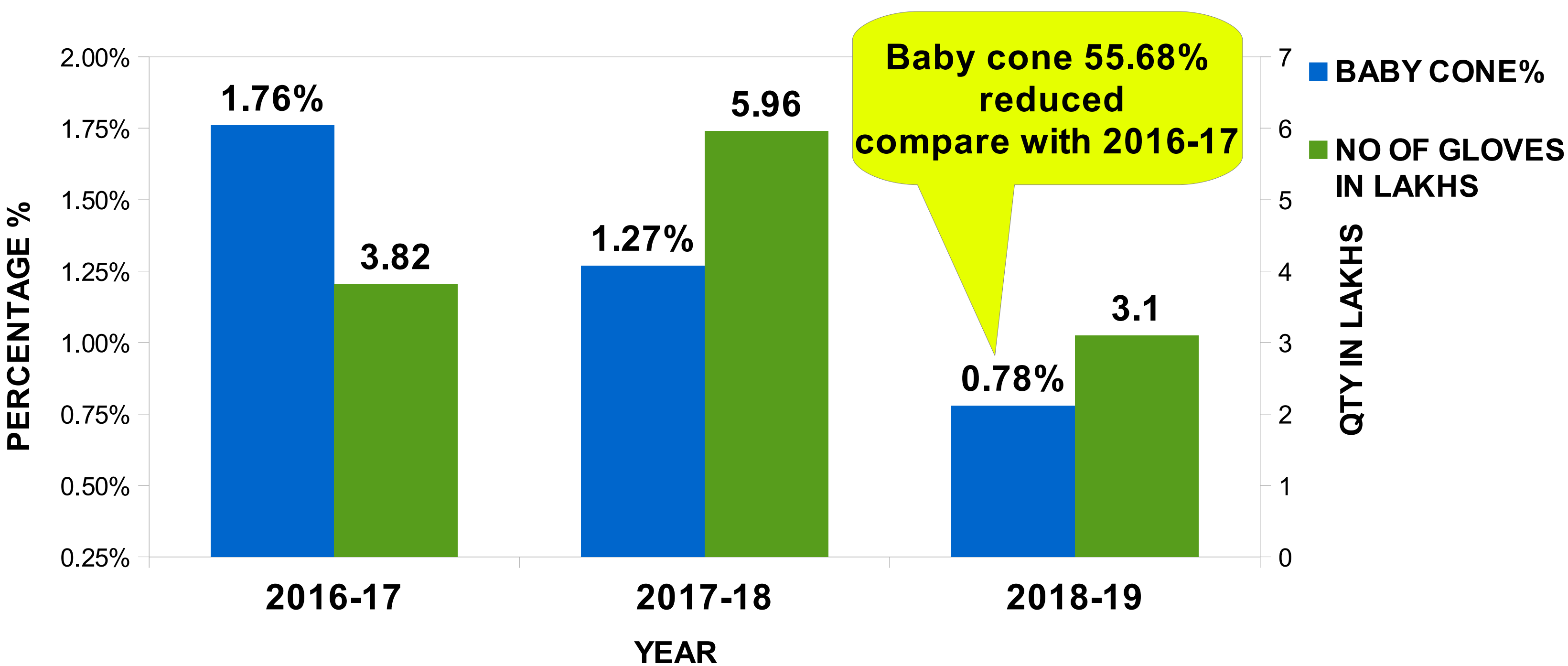
KG FABRIKS LIMITED
RAW MATERIAL FLOW CHART

Confederation of Indian Industry

100% Yarn Utilization

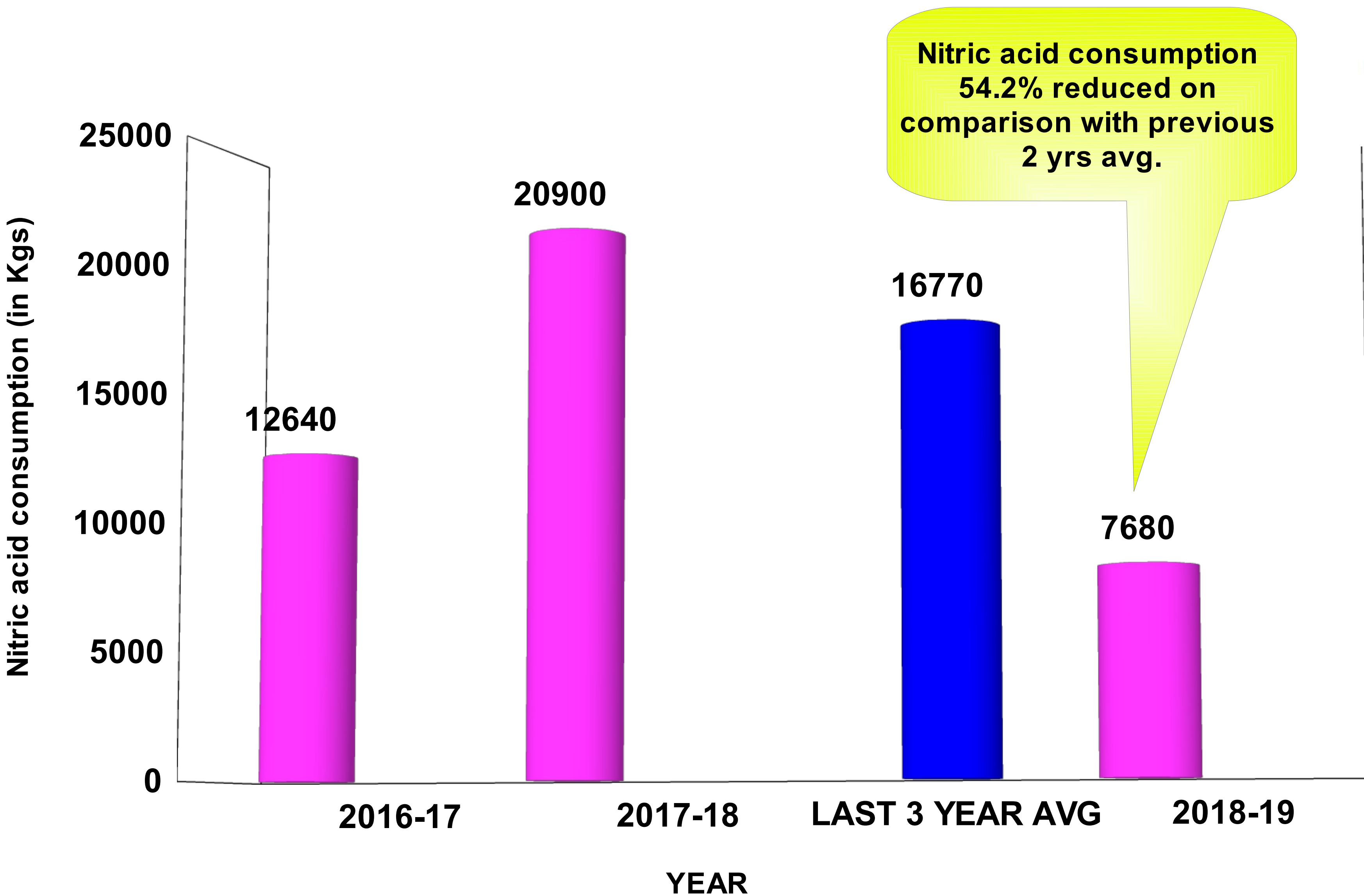
MCR CREDIT 4.1
BABY CONE% REDUCTION & REUSED TO GLOVES

Confederation of Indian Industry



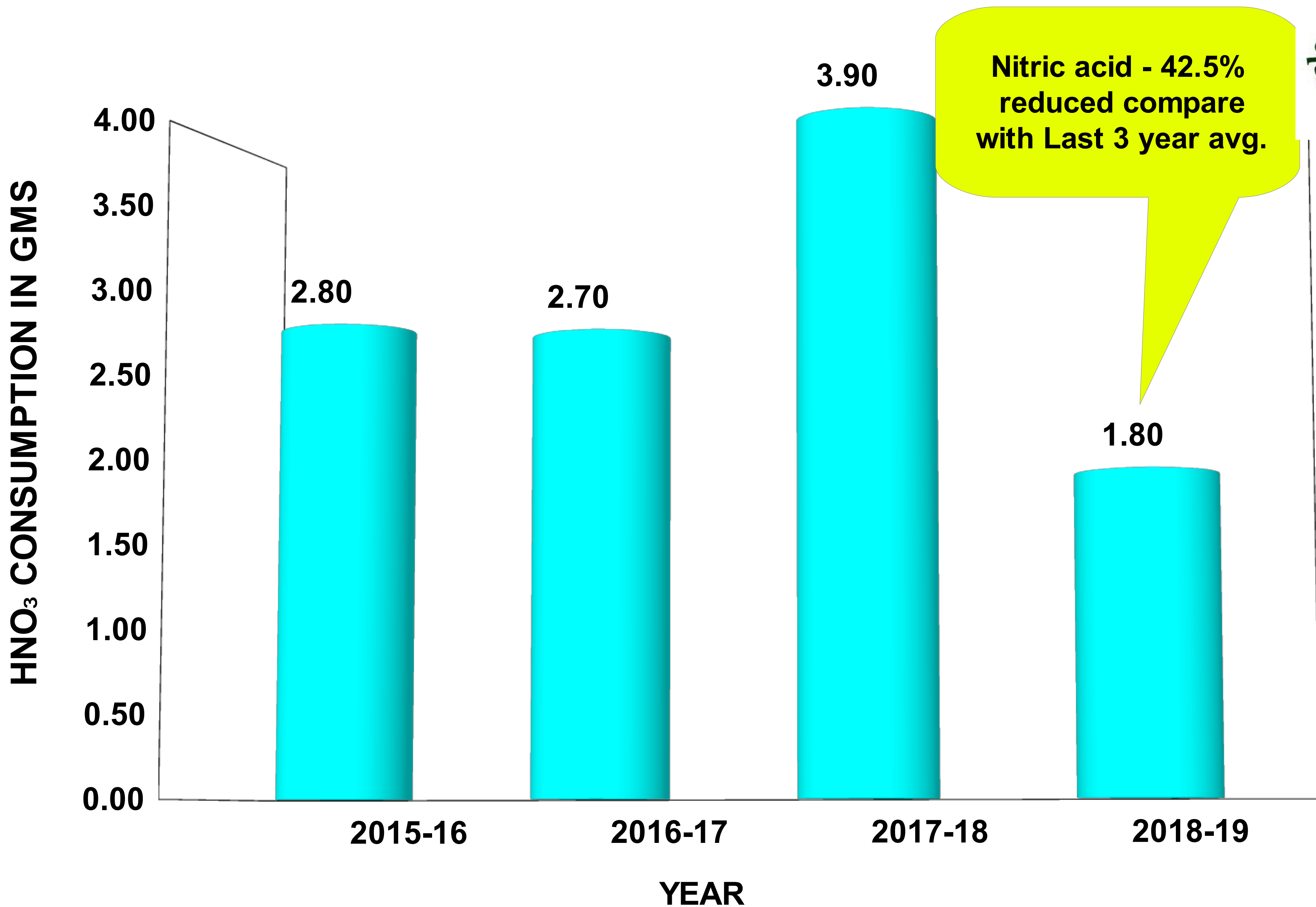
MCR CREDIT 5
NITRIC ACID CONSUMPTION REDUCED

Confederation of Indian Industry

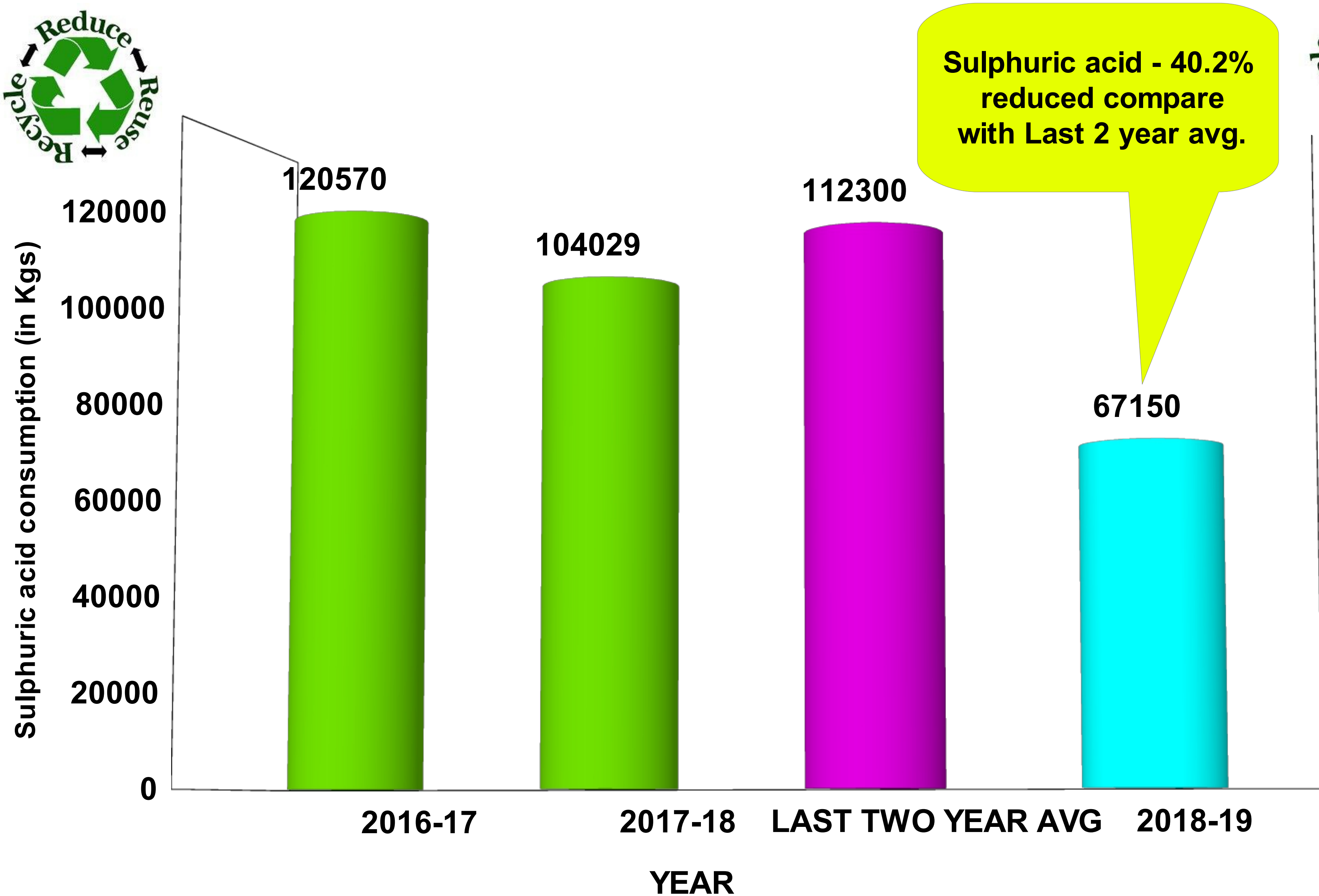


MCR CREDIT 5
NITRIC ACID CONSUMPTION/KG OF FABRIC

Confederation of Indian Industry



MCR CREDIT 5
SULPHURIC ACID CONSUMPTION



7.GREEN SUPPLY CHAIN

K2 FABRIKS

INFORMATION ON CRITICAL SUPPLIERS

CII Confederation of Indian Industry

Category	Total No. of Supplier (Category Wise)	Purchase Value (Rs)	Category	Total No. of Supplier (Category Wise)	Purchase Value (Rs)
Ancillary Chemicals	40	71850919.67	Diesel	1	1146210
Dyes	3	66733930.53	Building materials	11	592013.08
Coal	1	54689957.98	Paints	3	419055.29
Machinery spares	117	9062626.49	Filter Cartridges	1	386355
Electronic components	47	3997874.21	Insulation materials	2	369240.12
Printing and Stationary	13	3472662.06	Consumables	9	278467.94
Poly Packing Materials	9	2807730.02	Lab Chemicals	3	232119.44
Paper Tubes	3	2097143.25	Personal Product Equipment	1	227363.13
Hardware	19	2024307.07	Wax	1	175000
Bearings	3	1794638.17	Fire Extinguishers & Refills	5	141744.87
Rubber Products	13	1667240.38	Refrigerator Spares	1	63198.51
Lubricants	8	1368735.31	Bio Fuel	1	21700
LPG	2	1182527.86	Batteries	1	12000

6.1 REDUCTION IN INCOMING PACKAGING

Initiated out supplier to supply Indigo in Bulk Containers instead of IBC

Year	2016-17	2017-18	2018-19
No of IBC	178	184	40

4. SUPPLIER AND VENDOR MANAGEMENT

Confederation of Indian Industry

We had taken initiative with our supplier Ms. SREE BAALAJIPAPER TUBES*, Salem for Energy efficient progress and planned for guidance, monitoring and evaluating performance on periodical basis (half yearly) for effective utilization of electrical energy.

Month	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
EB Unit	5420	5480	5370	5520	5490	5540	5610	5570	5390	5410	5340	5290
Production (Kg)	4260	4310	4230	4430	4330	4450	4520	4480	4210	4240	4190	4130
Specific Unit / Kg	0.786	0.786	0.788	0.803	0.789	0.803	0.806	0.804	0.781	0.784	0.785	0.781

Supplier Name	Baseline (Unit/ Kg of paper tube)	2019-20 (Unit/Kg of paper tube)	2020-21 (Unit/Kg of paper tube)	2021-22 (unit/Kg of fabric tube)
SREE BAALAJI	0.791	0.785	0.781	0.779

Action plan for achievement

* Change Fluorescent tube 36W to 18W LED
* Change Mercury Vapour lamp(250W) to LED focus light (100W)
* Manual capacitor change to APFC (automatic unit)
* Inverter to install with 4 nos. of 3HPmotors.
* Timer control to be provided in all the 4 paper tube cutting motors
* Transparent acrylic sheet for roof to utilize day light

5.2 PROCUREMENT OF GREEN CERTIFIED PRODUCTS / MATERIALS

Confederation of Indian Industry

As per our Green Procurement policy, we procure 30% of dyes / ancillary chemicals from Eco-Friendly certified suppliers only

Dystar India Private Limited (Dyes supplier)

econfidence® from DyStar

Grupo CIC S.A (Sizing Chemical Supplier)

OEKO-TEX® CONFIDENCE IN TEXTILES STANDARD 100 00000000 Institute Tested for harmful substances. www.oeko-tex.com/standard100

ARCHROMA (Dyeing Ancillary Chemical Supplier)

ENVIRONMENTAL MANAGEMENT SYSTEM ISO 14001 · R2 2013 Responsible Recycling · OHSAS 18001

6.1 REDUCTION OF INCOMING PACKING

Mode of receipt of SULFURIC ACID changed from small plastic carboy to bulk tankers to prevent spillage (Safety), minimize transportation, and elimination of plastic usage.

Year	2016-17	2017-18	2018-19
No of Cans	1132	1435	ZERO

6.2 LOGISTICS – BULK TRANSPORTATION

Confederation of Indian Industry

We have planned to install 33 Kg LOT cylinder with vaporizer instead of 19 Kg VOT cylinder. 1080 Kgs of LPG gas will be saved per annum and 9000 Kms will be reduced through packaging and bulk transportation**.

VOT Cylinder CHAMBER (19Kg Capacity)

May-18	
Price of LPG taken without tax	INR 52.09

Outlets	Departments	Jan	Feb	Mar	Apr	May	Jun	Avg.of 6Mths	Volume in Kgs	VOT Cyldr Cost (Jul 15)	LOT VOL.In Kgs	If LOT -Cylinders	LOT CYLR Cost (Jul 15)	CostSavings VOT Vs LOT
Rohit		130	140	130	120	120		128	2432	INR 126,683	2067	122	INR 107,494	INR 19,188
caterings	TOTAL	130	140	130	120	120		**128**	**2432**	INR 126,683	2067	122	INR 107,494	**INR 19,188**

LOT Type Cylinder (33 Kg Capacity)

Residual difference	TOTAL No of Cylinders	Residual Waste per cylinder In KG	Total Residue Waste for month in kgs	Total Residue Waste In COST Jul 15	TOTAL VOT COST
Residual Wastage in VOT	128	0.6	77	4001	INR 130,683
Residual Wastage in LOT	122	0.15	18	950	INR 108,445
Savings by GOING BY LOT					
Total Savings per month	INR 22,239				

6.2 LOGISTICS

We have replaced our poor performing existing purchase vehicle from our fleet to reduce high carbon emission.

YEAR	2016-17	2017-18	2018-19	2019-20
Distance traveled (Km)	31624	30410	26157	26000
Diesel consumed (in Liters)	3500	3800	3480	1857
Km / liter	9.03	8.0	7.51	14
GHG Reduction (MTCO2e)	9.24	10.03	9.19	4.90

Old Vehicle (7.51 Km / L)

New Vehicle (14 Km / L)

8.LIFE CYCLE ANALYSIS (LCA)
&
PRODUCT TOWARDSHIP

PS LCA 1.2 INTERNAL LIFE CYCLE ASSESSMENT (LCA) STUDY

Confederation of Indian Industry

BOUNDARY

CRADLE → GATE

OUT SOURCED YARN

+

COTTON GROWTH → SPINNING → YCP → DYEING & SIZING → WEAVING → PROCESSING → INSPECTION & PACKING

OTHERS
* MEE / CRP
* Domestic

+

COTTON GROWTH
* Power
* Water
* Seeds
* Pesticides
* Transport
* Packing materials
* Cotton fibres

SPINNING
* Power
* Water
* Blowroom
* Carding
* Comber
* Drawing
* Speed frame
* Rotor Spg. / Ring frame
* Wastes

YCP
* Power
* Water
* Steam

DYEING & SIZING
* Power
* Water
* Steam
* Dyes & chemicals
* Air
* Sizing chemicls

WEAVING
* Power
* Air
* Water
* Yarn wastes
* Fibre wastes

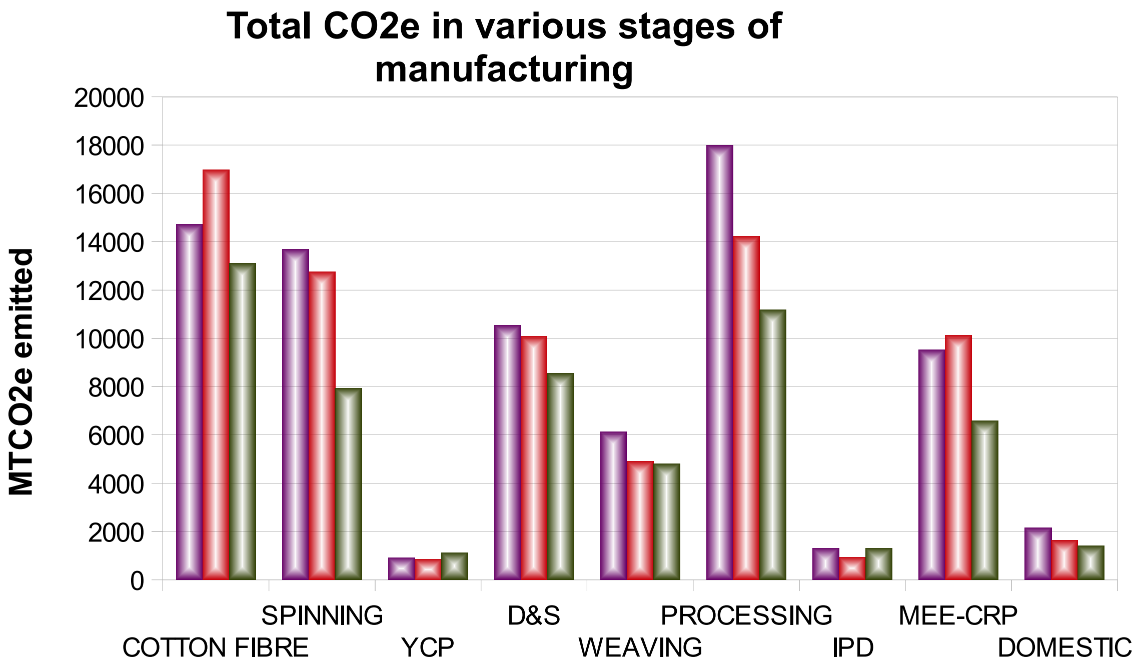
PROCESSING
* Power
* Steam
* Water
* Chemicals
* Wash water
* Wastes

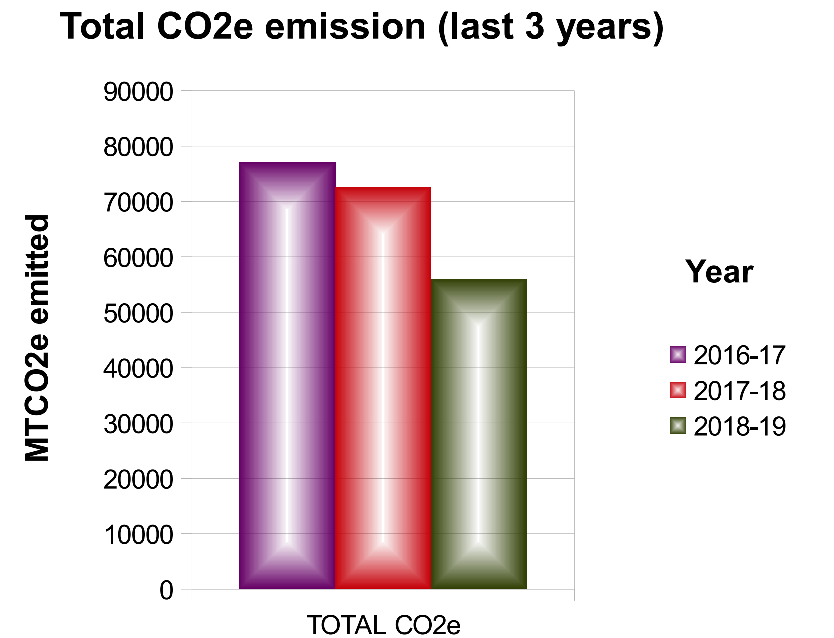
includes singeing, desizing, mercerization, stenter/curing, sanforizing and washing

INSPECTION & PACKING
* Power
* Packing materials
* Wastes

PS LCA 1.2 INTERNAL LCA IMPACT ASSESSMENT

Confederation of Indian Industry



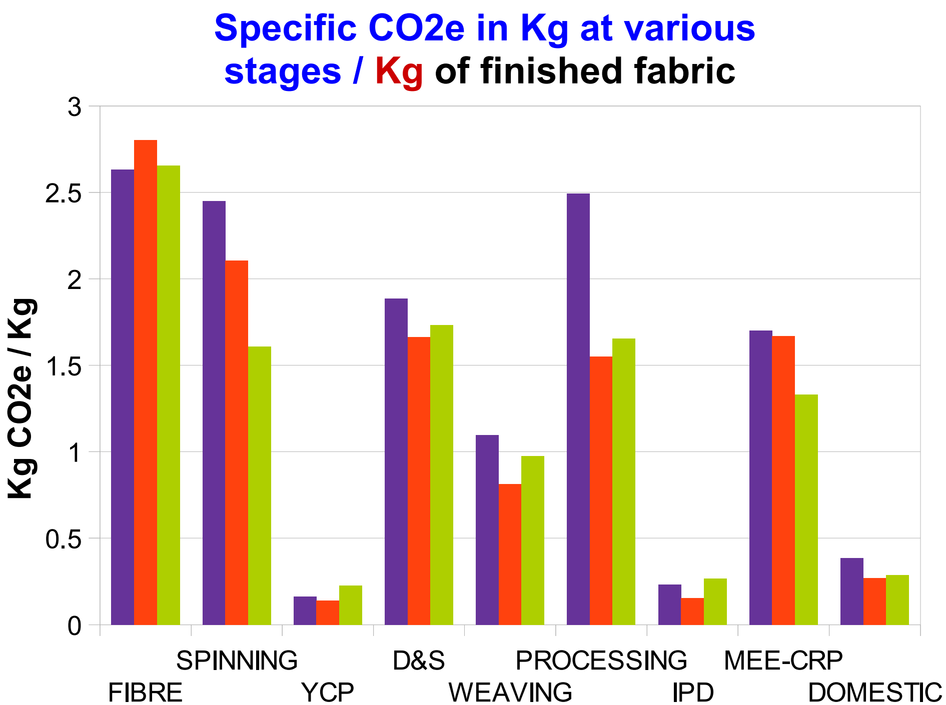


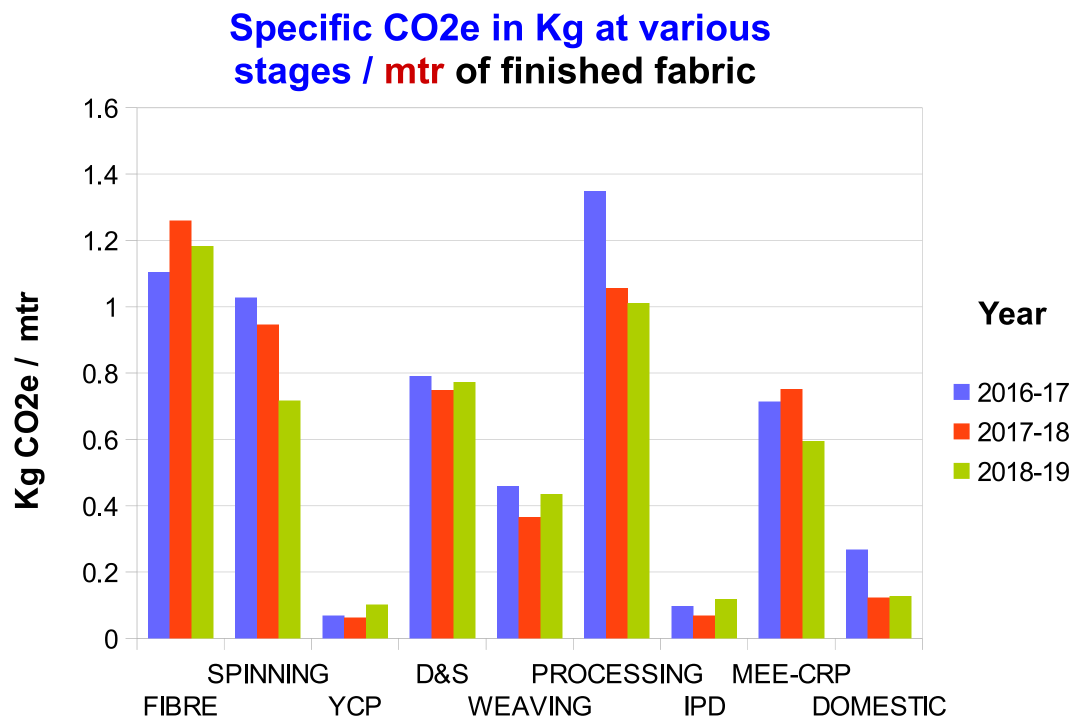
Description	Unit	2016-17	2017-18	2018-19
Cotton fibre	MTCO2e	14731.836	16990.583	13098.752
Spinning	MTCO2e	13696.911	12756.753	7938.294
YCP	MTCO2e	909.056	847.234	1120.212
D & S	MTCO2e	10548.658	10088.536	8556.406
Weaving	MTCO2e	6128.580	4915.063	4813.777
Processing	MTCO2e	17998.837	14237.585	11179.162
IPD	MTCO2e	1299.765	931.011	1310.000
Others(MEE-CRP)	MTCO2e	9516.550	10126.186	6575.333
Domestic	MTCO2e	2159.290	1642.688	1414.310

Description	2016-17	2017-18	2018-19
Total Emission MTCO2e	76989.482	72535.639	56006.247

PS LCA 1.2 INTERNAL LCA IMPACT ASSESSMENT

Confederation of Indian Industry





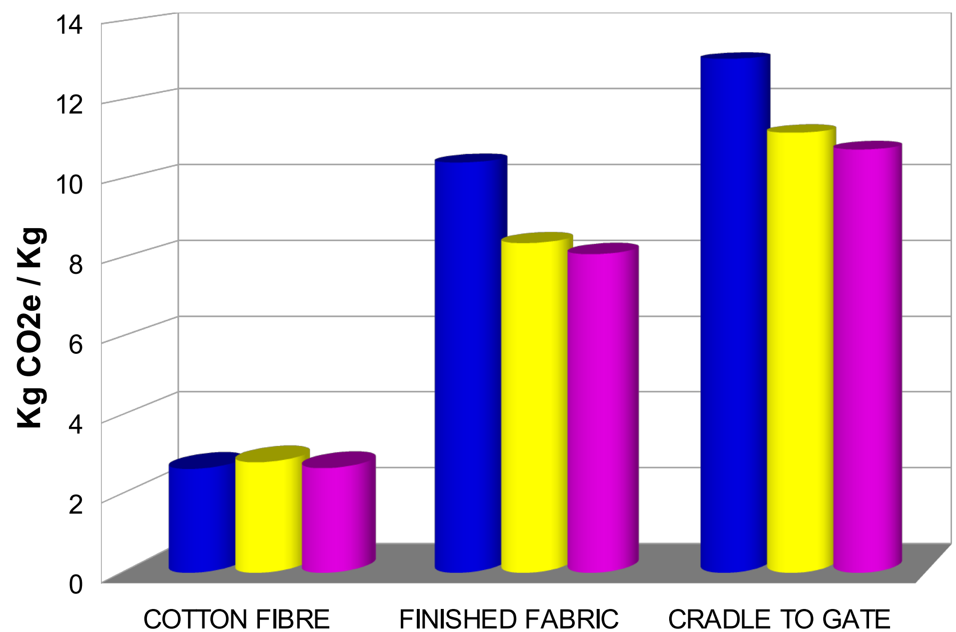
Description	2016-17	2017-18	2018-19
Cotton fibre	2.633	2.802	2.654
Spinning	2.448	2.104	1.608
YCP	0.162	0.140	0.227
D & S	1.886	1.664	1.733
Weaving	1.095	0.811	0.975
Processing	2.494	1.549	1.654
IPD	0.232	0.154	0.265
Others(MEE-CRP)	1.701	1.670	1.332
Domestic	0.386	0.271	0.287

Description	2016-17	2017-18	2018-19
Cotton fibre	1.104	1.260	1.183
Spinning	1.027	0.946	0.717
YCP	0.068	0.063	0.101
D & S	0.791	0.748	0.773
Weaving	0.459	0.365	0.435
Processing	1.349	1.056	1.010
IPD	0.097	0.069	0.118
Others(MEE-CRP)	0.713	0.751	0.594
Domestic	0.268	0.122	0.128

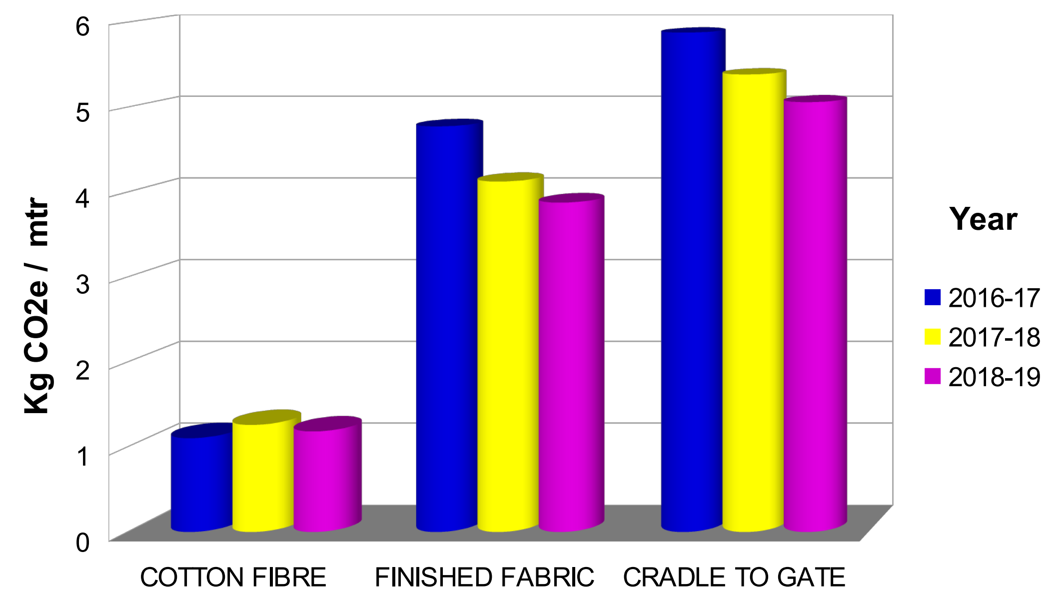
PS LCA 1.2 INTERNAL LCA IMPACT ASSESSMENT

Confederation of Indian Industry

Specific CO2e in Kg / Kg of denim fabric



Specific CO2e in Kg / mtr of denim fabric



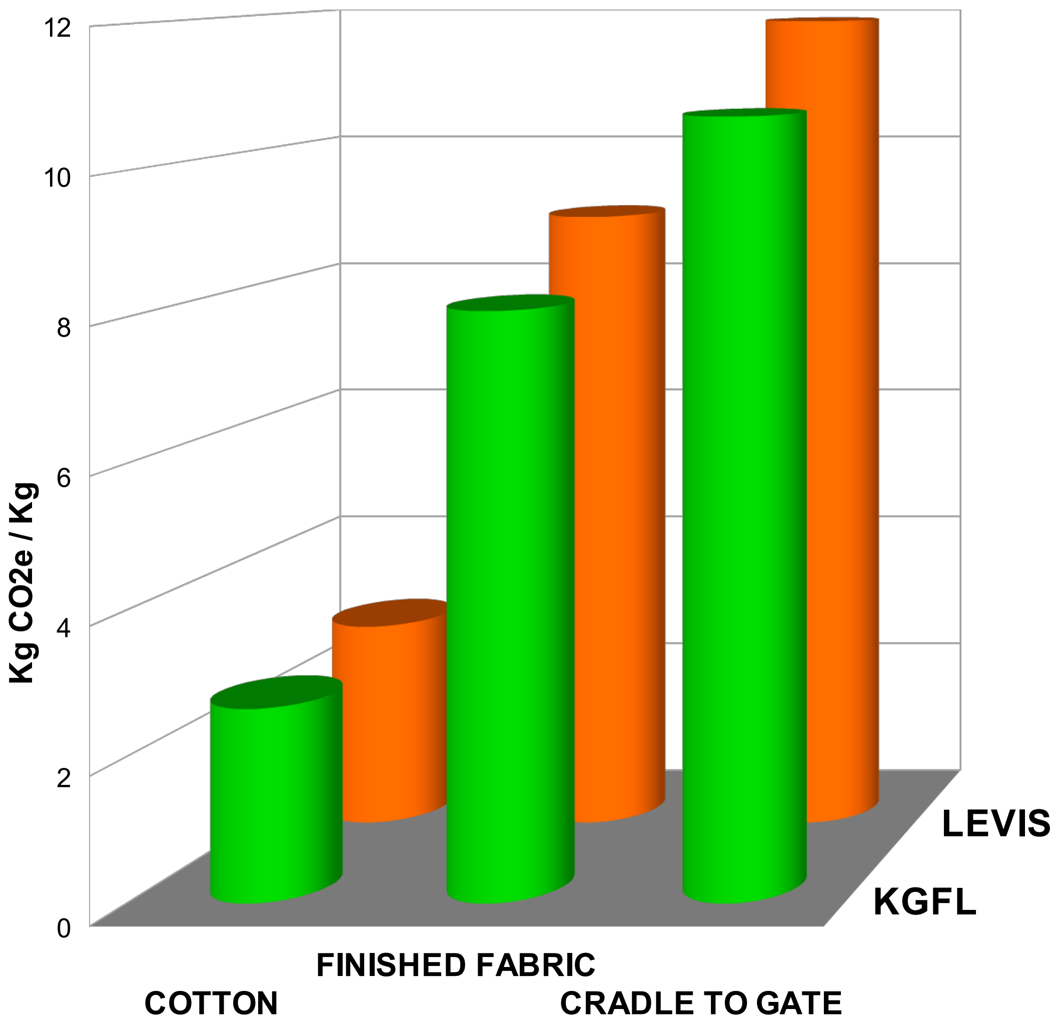
Description	2016-17	2017-18	2018-19
Cotton fibre	2.633	2.802	2.654
CO2e in Kg / Kg. of finished fabric	10.405	8.361	8.082
CO2e in Kg / Kg. of CRADLE TO GATE fabric	13.038	11.163	10.736

Description	2016-17	2017-18	2018-19
Cotton fibre	1.104	1.260	1.183
CO2e in Kg / Mtr. of finished fabric	4.773	4.124	3.876
CO2e in Kg / Mtr. of CRADLE TO GATE fabric	5.877	5.384	5.059

GLOBAL COMPARISON

Confederation of Indian Industry

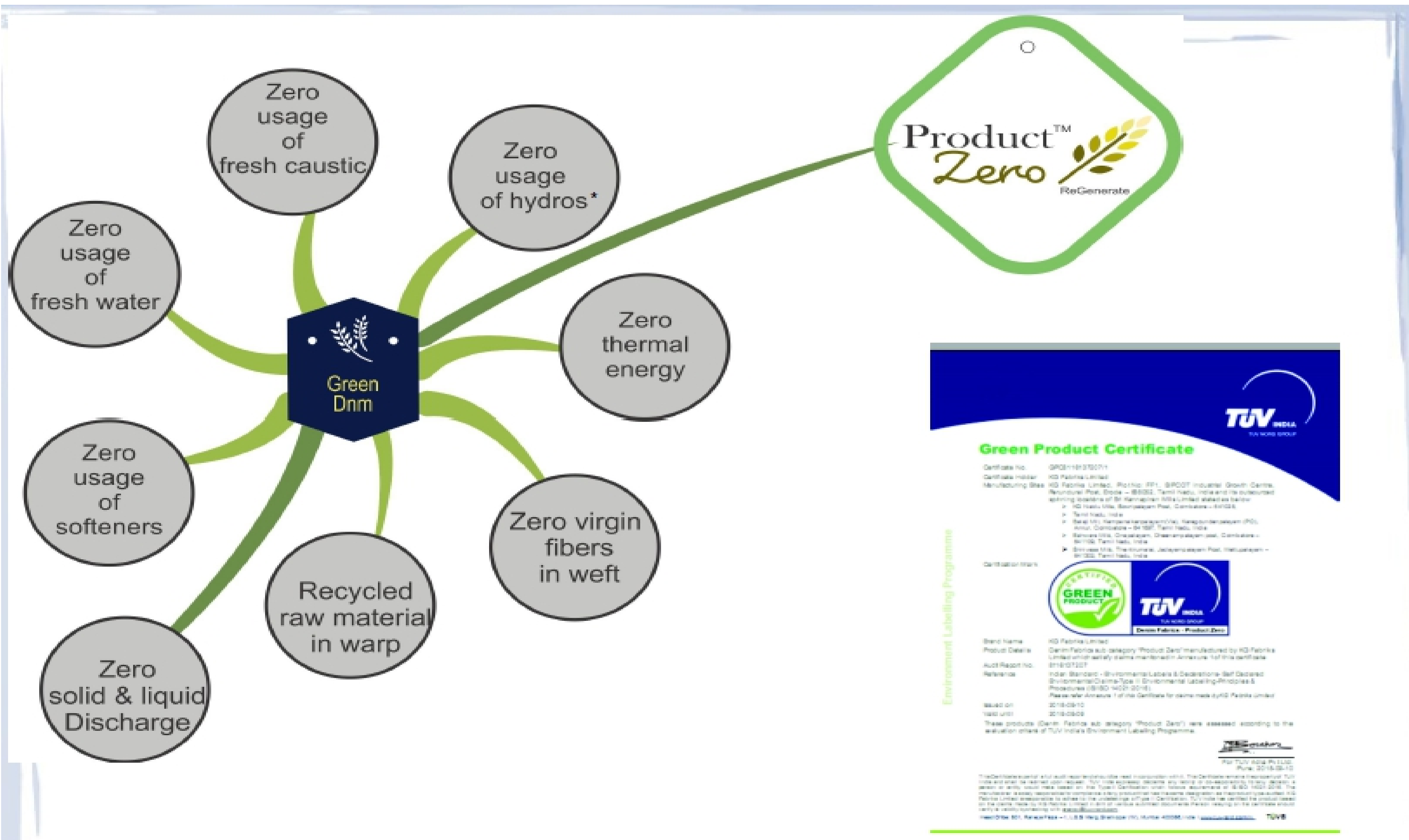
KGFL VS LEVI STRAUSS & CO *



Description	UNITS	KGFL	LEVIS
Cotton fibre	Kg of CO_2e / Kg	2.654	2.91 *
CO_2e in Kg / Kg. of finished fabric	Kg of CO_2e / Kg	8.082	9 *
CO_2e in Kg / Kg. of CRADLE TO GATE fabric	Kg of CO_2e / Kg	10.736 **	11.91

* Ref from Levi's "Thanks to sharing the data"

10.Adoptation of Modern Environmentally sound technologies – Cleaner Production



9.INNOVATION

KAIZEN - STRATEGIES

Our M.M honoured the kaizen activits with certificate and cash award during Republic day celibration -2019

Training conduted for staffs and technicians for energy savings by CEEP experts

KAIZEN

KG FABRIKS LIMITED
Plot No. FF – 1, SIPCOT Industrial Growth Centre
Perundurai – 638 052, Erode District, India

CERTIFICATE OF APPRECIATION

This is to certify that Mr. ....S. YUVARAJ..............
of .DYING..AND..SIZING.. Department has been awarded
for innovative work done in .FIXED..SYRO..SCREEN......
during ..DEC.2018.......

Maintenance Head
M.SARAVANAN

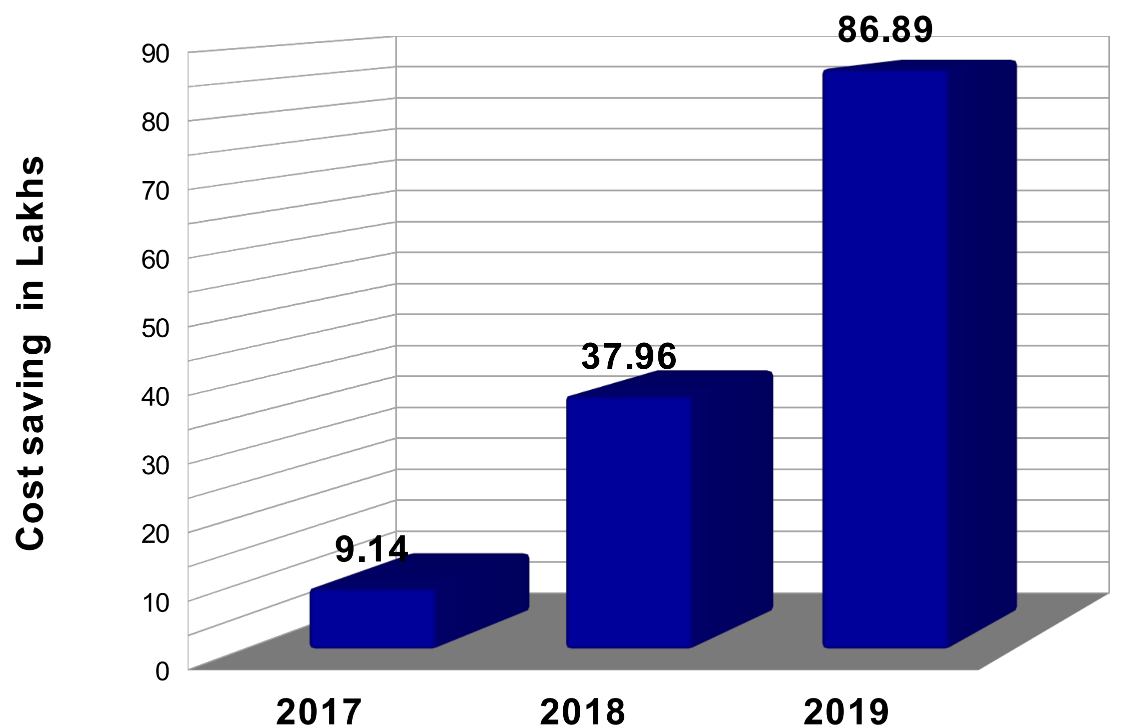
Plant Head
R.ARJUNAN

Managing Director

Certificate given for appriciation of kaizen work

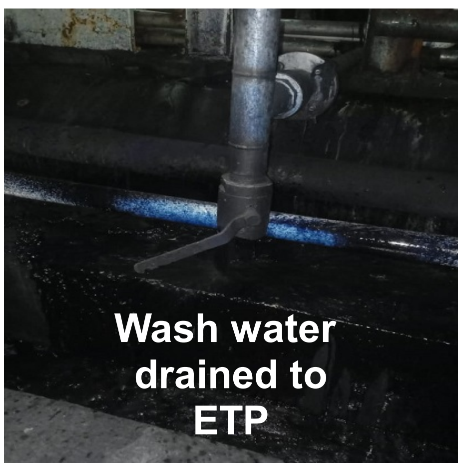
INNOVATION PROJECT – SAVINGS

YEAR	No of Kaizen implemented	Water saving KL/ annum	Energy saving Unit/annum	Cost saving (Rs)
2017	6	-	1,31,403	9,14,120
2018	9	6912	1,34,778	28,82,106
2019	9	-	54,036	48,93,090
TOTAL	**23**	**6912**	**3,20,217**	**86,89,316**



INNOVATION PROJECTS- iWASH

Confederation of Indian Industry

<table>
<tr><td>KAIZEN SHEET</td><td>TEAM:</td><td>TYPE</td><td>UNIT:</td><td>KG FABRIKS</td></tr>
<tr><td rowspan="2">REF NO: KG DS07-8/18</td><td rowspan="2">Yuvaraj
Sanmugam
Ragavan</td><td>PROCESS *</td><td>DEPT:</td><td>D&S</td></tr>
<tr><td>DESIGN</td><td>MACHINE</td><td>D&S A MC</td></tr>
<tr><td>KAIZEN PLAN:
To conserve water energy by avoiding usage of fresh water for post wash and reuse washed water</td><td colspan="2">KAIZEN IDEA:
Wash water filtered and processed and reused for further washes.</td><td colspan="2">BENCHMARK /TARGET:
To discharge zero wash water to ETP and reduce fresh water consumption</td></tr>
<tr><td>BEFORE
</td><td colspan="2">AFTER
</td><td colspan="2">START: Aug /2018

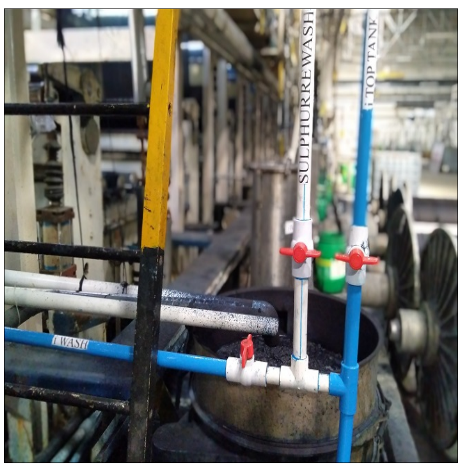
END: Aug/2018

COST INCURRED:

Rs 40,000/-</td></tr>
<tr><td colspan="3">RESULT /BENIFIT:
Fresh water usage reduced- 3600kl / Annual savings (Rs 1,44,000 / Annual savings)
Etp load reduced (Rs 9,00,000 / Annual savings)</td><td colspan="2"></td></tr>
<tr><td>SUSTAINABILITY:</td><td>REDUCE</td><td>REUSE</td><td>RECYCLE</td><td>HORIZONTAL DEPLOYMENT:
copied to D&S B mc</td></tr>
</table>

INNOVATION PROJECTS- iTOP

Confederation of Indian Industry

<table>
<tr><td>KAIZEN SHEET</td><td>TEAM:</td><td>TYPE</td><td>UNIT:</td><td>KG FABRIKS</td></tr>
<tr><td rowspan="2">REF NO: KG-DS08-9/18</td><td rowspan="2">Sanmugam
Yuvaraj</td><td>PROCESS *</td><td>DEPT:</td><td>D&S</td></tr>
<tr><td>DESIGN</td><td>MACHINE</td><td>D&S A MC</td></tr>
<tr><td>KAIZEN PLAN:
To avoid usage of fresh water for dye mixing and reuse wash water</td><td colspan="2">KAIZEN IDEA:
During set and colour change time, Drained Wash water filtered, collected and reused for Dyemixing</td><td colspan="2">BENCHMARK /TARGET:
To discharge zero drain water to etp and reduce fresh water usage</td></tr>
<tr><td colspan="3"> </td><td colspan="2">START: Sep/2018

END: Sep/2018</td></tr>
<tr><td colspan="3">RESULT /BENIFIT:
Fresh water usage reduced -1440KL / annual savings (Rs 57,600 / Annual savings)
Etp load reduced. (Rs 3,60,000 / Annual savings)</td><td colspan="2">COST INCURRED:
No cost incurred.
Scrap tank from Kannapiran Mills and channels used.</td></tr>
<tr><td>SUSTAINABILITY:</td><td>REDUCE</td><td>REUSE</td><td>RECYCLE</td><td>HORIZONTAL DEPLOYMENT:
copied to D&S B mc</td></tr>
</table>

INNOVATION PROJECTS-
Prewet water to boiler wet scrubber

Confederation of Indian Industry

KAIZEN SHEET	**TEAM:**	**TYPE**	**UNIT:**	KG FABRIKS
REF NO: KG DS08-12/18	Shanmugam Boopathi Yuvaraj	**PROCESS** *	**DEPT:**	D&S
		DESIGN	**MACHINE**	D&S A MC
KAIZEN PLAN: To avoid usage of fresh water at wet scrubber and reused the prewetting water	**KAIZEN IDEA:** Prewetting water collected and sent to boiler wet scrubber and used in place of fresh water		**BENCHMARK /TARGET:** To discharge zero wetting water to etp and reused as wet scrubber water in place of fresh water.	



START: Dec/2018

END: Dec/2018

COST INCURRED:
No cost incurred,
Old boiler tubes reused.

REDUCE • REUSE • RECYCLE

RESULT /BENIFIT:
Fresh water usage reduced 1800 kl / annual savings - (**Rs 72,000 / Annual savings**)
Etp load reduced (**Rs 4,50,000 / Annual savings**)

SUSTAINABILITY:	REDUCE	REUSE	RECYCLE	**HORIZONTAL DEPLOYMENT:** copied to D&S B mc

STEAM CYLINDER INSULATION

Confederation of Indian Industry

KAIZEN SHEET	TEAM:	TYPE	UNIT:	KG FABRIKS
REF NO: **KG-PR04-2/19**	Venkatesh kumar Shanmugam sridhar	PROCESS	DEPT:	PROCESS
		DESIGN *	MACHINE	DESIZING

KAIZEN PLAN:
To conserve steam energy

KAIZEN IDEA:
To insulate one drying cylinder in desizing machine at journal side with insulating materials

BENCHMARK /TARGET:
To avoid steam loss of 10% due to exposure

BEFORE

AFTER

START: Jan/2019

END: Feb/2019

COST INCURRED:
No cost incurred:
Old insulation material removed from weaving duct reused.

REDUCE • REUSE • RECYCLE

RESULT /BENIFIT:
Steam loss avoided. **(Rs 5250 / annual cost savings)**
If all 140 Cylinders in plant are to be insulated (**Rs 7.38Lakhs/ annual cost savings**)

SUSTAINABILITY:	REDUCE	REUSE	RECYCLE

HORIZONTAL DEPLOYMENT:
will be copied to D&S dept

COMPENSATOR POWERPACK COOLING SYTEM MODIFICATION

Confederation of Indian Industry

KAIZEN SHEET	**TEAM:**	**TYPE**	**UNIT:**	KG FABRIKS
REF NO: KG-DS06-3/19	Yuvaraj Ragavan Naveen kumar	**PROCESS**	**DEPT:**	D&S
		DESIGN *	**MACHINE**	D&S -B MC

KAIZEN PLAN:
To conserve water energy

KAIZEN IDEA:
D&S mc compensator hydraulic power pack water cooling to be replaced by radiator cooling

BENCHMARK /TARGET:
To conserve the water of 50lit /min while compensator running

BEFORE

AFTER

START: Feb/2019

END: Mar/2019

COST INCURRED:

Radiator & Hydraulic hose

Total : 28,000/

RESULT/ BENIFIT:
Water conerved upto **50lit/min** during compensator running time

SUSTAINABILITY	**REDUCE**	**RECYCLE**	**REUSE**

HORIZONTAL DEPLOYMENT:
will be copied to D&S A-mc

ETP RO Membrane(Removed) reused for Condensate piping insulation

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<table>
<tr><td>KAIZEN SHEET</td><td>TEAM:</td><td>TYPE</td><td>UNIT:</td><td>KG FABRIKS</td></tr>
<tr><td rowspan="2">REF NO: KG-UTI -BLR -06/19</td><td rowspan="2">Ravi
Sadhasivam</td><td>UTILITY</td><td>DEPT:</td><td>Boiler</td></tr>
<tr><td>DESIGN *</td><td>MACHINE</td><td>Condenate RS</td></tr>
<tr><td>KAIZEN PLAN:
ETP remove RO membrane Reuse</td><td colspan="2">KAIZEN IDEA:
ETP removed RO mebrane reused in Condensate recovery line for insulation purpose</td><td colspan="2">BENCHMARK /TARGET:
Feed water temperature increase upto 3 Decree Celsius</td></tr>
<tr><td rowspan="2">BEFORE
</td><td colspan="2" rowspan="2">AFTER
</td><td colspan="2">START: June / 2019

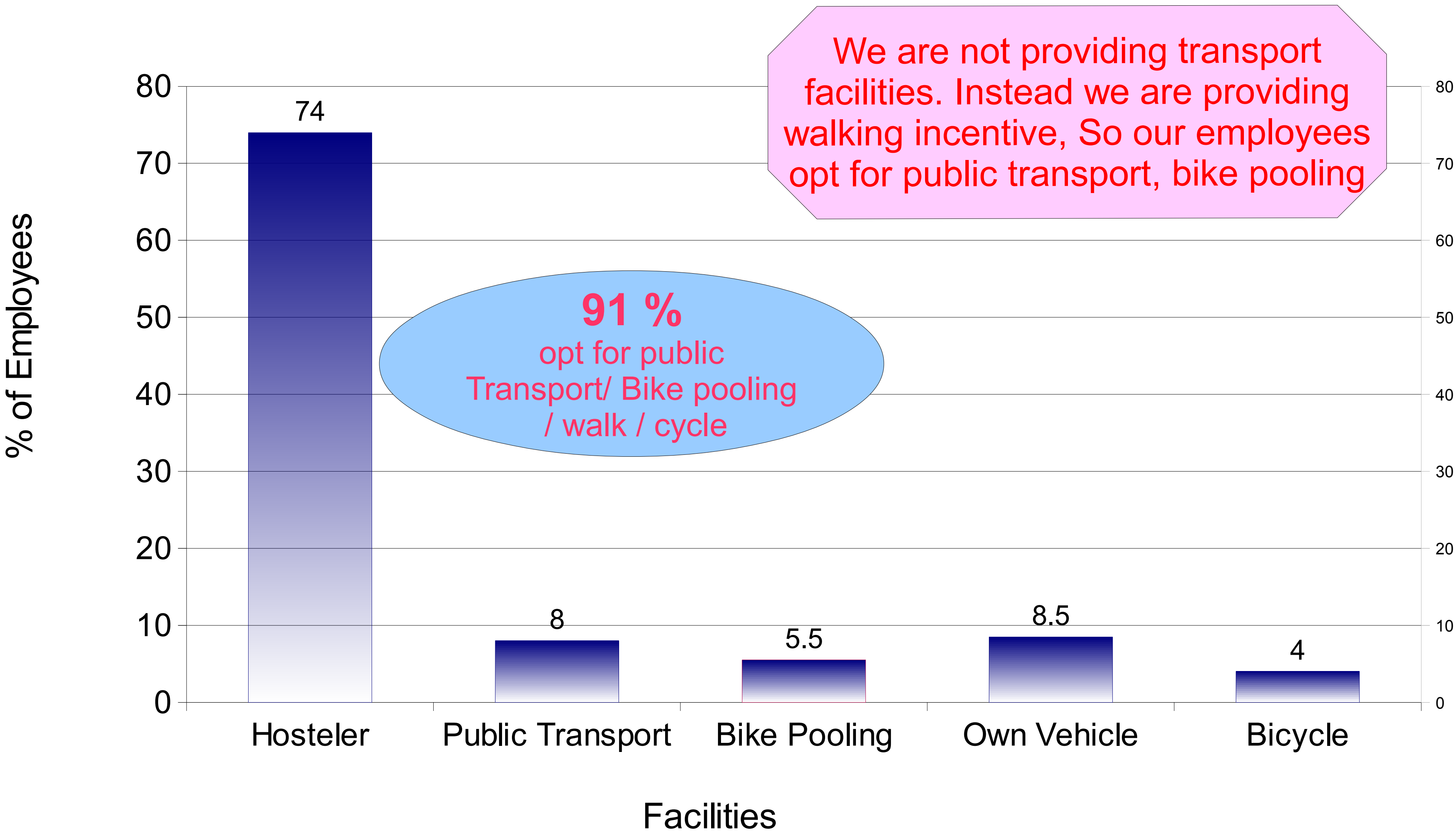
END: June / 2019</td></tr>
<tr><td colspan="2">COST INCURRED: Zero (Reuse Concept)</td></tr>
<tr><td colspan="3">RESULT/ BENIFIT:
1. Boiler feed water temperature will increase upto 3 degree celsius

2. Steam to fuel ration will improve.</td><td colspan="2">HORIZONTAL DEPLOYMENT:

N/A</td></tr>
</table>

10.GREEN INFRASTRUCTURE

1.3 Minimization of Environmental Impact,due to employee commute to workplace



1.4. Green Belt Area (Google Maps View)

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3584 trees were planted around the factory and looks more green in SIPCOT area.
Additional 520 nos. of trees Planned in april'19

1.4.1 GREEN BUILDING – LANDSCAPING

1. Total land area of our premises : 13.29 Hectares
2. Total build up area : 2.35 Hectares
3. Green Belt unused area : 8.524 Hectares
4. Total Green Belt in % : 77.9 %

1.4.1 Green Belt
Fruit bearing trees


Black Plum


Guava


Banana


Pomegranate


Goose Berry


Papaya


Fig


Lemon


Mango

1.4.2 Efforts to create Biodiversity by preserving native & adoptive species through Organic Farming

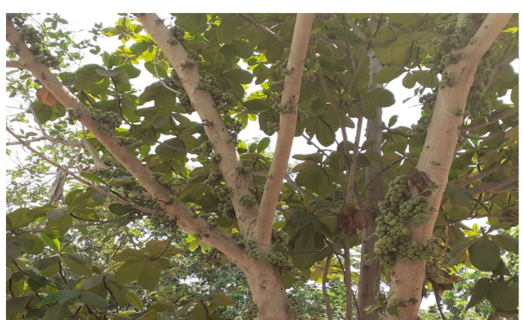
Organic Farm











Let's view the green shade of our company

1.2 Eco-Friendly materials

We can use Eco friendly floor cleaning Material

VOC Free Paint used for buildings

BEYOND THE FENCE

Donated the SIPCOT police outpost Sustainability shed (Fabrication done by factory old materials) – Jan 2019

Contributed for Khaja cyclone at Nagapatinam 21st Nov 2018

Plastic Awareness program conducted outside with TNPCB & SIPCOT Association on 16th Dec 2018

Contribution to Erode Dist. Collector Public Waste Treatment Plant.

We won because “Every Day is the Earth Day” @

- 100% Utilization of raw materials.
- 100% Yarn utilization.
- Micron dyeing process.
- Smart water process.
- Renewable energy from Solar,Wind and Biomass.
- Reusing 100% of spinning packing materials.

&

That is why we are in GreenCo

10. Significant contribution towards sustainable environment

Learnings..

We got through GreenCo initiatives....!

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- ✔ Framed **policies** for energy efficiency, water conservation, waste management, material conservation & recycling and green procurement
- ✔ Lead us to have clear **vision** on sustainability
- ✔ Establishment of **base line & targets** for all categories
- ✔ Learned **GHG** and **LCA**
- ✔ Learned our processes impact on **global warming**
- ✔ **Benchmarks** on specific consumption comparison with global data
- ✔ **Carbon neutral** motivation establishment triggered
- ✔ Define short term and long term targets for all parameters in 10 headings

Benefits and Achievements

We got through GreenCo initiative….!

- ✓ **28 innovations** initiated and which lead us to improved quality & efficiency and minimized wastage
- ✓ Additional **green belt** of 722 plants plantation are planned in April 2019 with drip irrigation
- ✓ **Awareness and importance** of environmental aspects greatly improved
- ✓ Lot of **new ideas and best practices** came into our factory through other company's GreenCo presentation circulated
- ✓ Our suppliers / service providers are also transforming to green through our initiatives

Thank you