ITC PSPD Unit - Bhadrachalam

Agenda

- Introduction to ITC – PSPD, Unit – Bhadrachalam
- Business sustenance
- Green Co Modules & methodology
- The benefits accrued during the “Green Co journey”
- Other experiences and Learnings.

Enduring Value

ITC PSPD

Manufacturing Facilities
ITC PSPD

Bhadrachalam

Integrated Pulp and Paper Mill. Primarily produces Virgin Paperboard along with Paper & recycled Paperboard

7 Machines
Capacity of 389,900 TPA of Paperboard and 136,700 TPA of Paper

Kovai

Produces Recycled Paperboard

1 Machine
Capacity of 100,000 TPA of Recycled boards

Tribeni

Produces Speciality Papers

3 Machines
Capacity of 30,000 TPA of Specialty Paper

Bollaram

Produces Poly-coated Paperboard

2 Machines
Capacity of 65,000 TPA of Poly Extrusion Coated Boards

Product : End use application

Brief of Production / Service activities carried out

Cyber Cypak

Cigarette Hinge-Lid Packs (HLPs) &
outers and inner frames

FINAL PRODUCT - APPLICATIONS

Cyber XL Pac

- –Food , Pharma & beverages
- –Personal & Health care
- –Cosmetics & Toiletries
- –Electronic & Entertainment
- –Blister packs

Pearl Graphik

- –Advertising material
- –Tags & Inserts
- –Cosmetics & Toiletries
- –Food & Confectioneries
- –Greeting Cards
- –Promotional Folders

Art Maestro

- Greeting cards, Post Cards, Invitations,
- Menu Cards Publication & Book covers, Directories
- Brochures
- Flyers & Mailers

Carte Persona

- Visiting cards
- Greeting cards
- Desk calendars
- Menu cards

Indobev

- Hot beverage cups
- Cold beverage cups
- Part line disposables Chocolate / Confectionary containers

System Accreditations

ISO 9001 – All Units

ISO 14001 – All Units

ISO 50001 – Bhadrachalam unit

OHSAS 18001 – All Units

BRC-IoP (Issue 3) - PM 4 & PM5

FSC – COC – All Units

FSC – FM

CII Greenco Platinum – BCM

CII Greenco Platinum – Kovai

WWF GFTN membership by Invitation

SEDEX

BUSINESS SUSTENENCE

ITC Vision and strategy of triple bottom line

- Creating sustainable livelihoods
- Environmental stewardship
- Being future ready with responsible competitiveness

Go Green: Green makes business sense

Green Co – systematic approach for sustainable business

Green-Co Rating :

- Excellent tool to measure environmental performance holistically and achieve further excellence
- The system has a framework to define and assess the performance on the green front. Monitor and sustain “Green” initiatives” and guide phased growth.
- The Greenco Rating System is first of its kind in the world, which assesses companies on their environmental performance across 10 different parameters to help them develop a roadmap to improve further.

ITC PSPD: The GreenCo Journey

Under the CII GreenCo Green Company Rating System, Units Bhadrachalam and Kovai have received the highest rating

2012
- GOLD for Unit Bhadrachalam

2015
- Platinum for Unit Kovai

2016
- Platinum for Unit Bhadrachalam

GREEN CO JOURNEY

- Energy efficiency
- Water Management
- Renewable energy
- Waste Management
- Green supply chain
- Life cycle assessment of product
- Green House Gas (GHG) emissions
- Material conservation, Recycling & Recyclability
- Product Stewardship
- Other

METHODOLOGY FOR GREEN CO MODULES

- Define Policy & objective
- Monitoring the performance parameter
- Bench mark the performance parameter
  - Within the plant
  - National bench mark
  - International bench mark
- Improving the performance parameter by
  - Internal audits
  - Elimination of losses, reduce, reuse & recycle
  - Adopting latest technologies
- Involve all stake holders
  - Employee involvement - DMT & JH structure

POLICY & OBJECTIVES

September 1st, 2015

GREEN POLICY

We at Unit Bhadrachalam of the Paperboards and Specialty Papers Division of ITC engaged in Development and Manufacture of Pulp, Paper, Paperboard & Specialty Papers, are committed to monitor, continuously innovate and improve our score against set targets on the various parameters listed below while building capabilities in our employees and vendors in order to achieve international benchmarks in an environmentally sustainable manner.

Energy Efficiency

Water Conservation

Renewable Energy

GHG Emission Reduction

Material Conservation, Recycling & Recyclables

Waste Management

Green Supply Chain

Product Stewardship

Life Cycle Assessment

Occupational Health & Safety

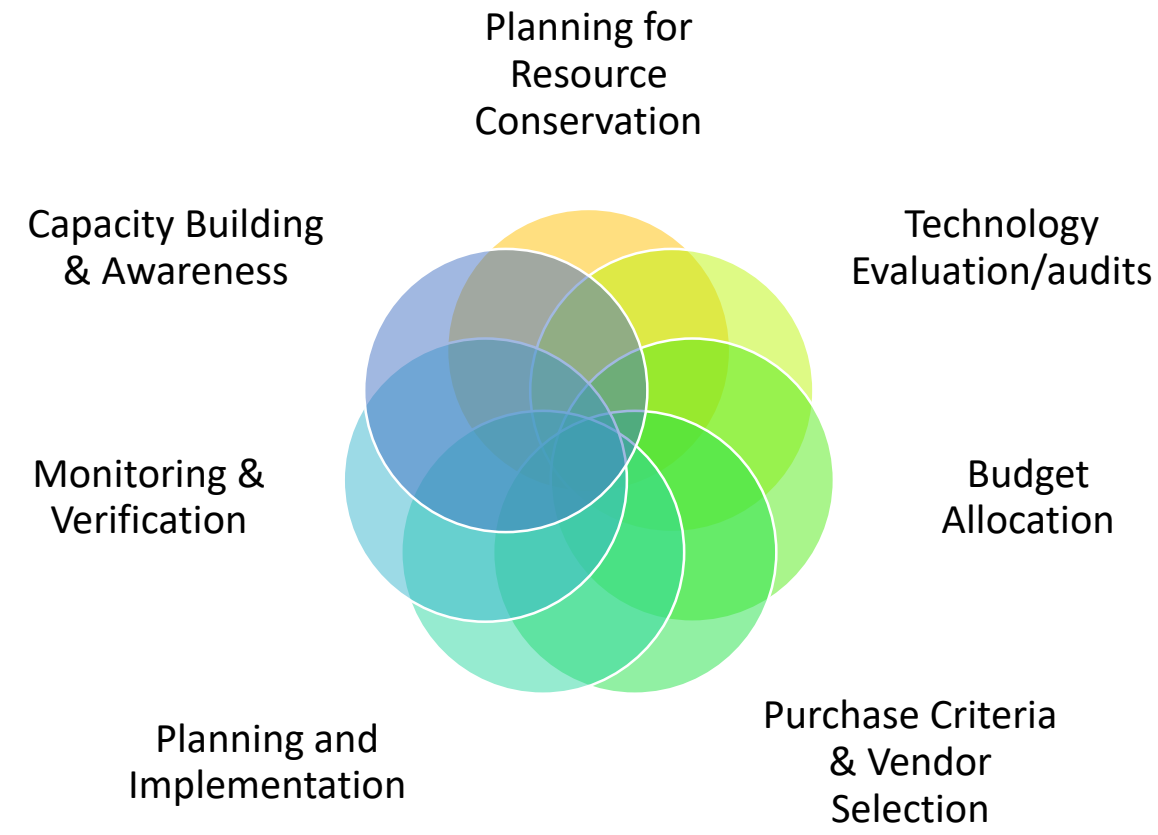
K NAGAHARI
UNIT HEAD

ITC Enduring Value
PAPERBOARDS AND SPECIALTY PAPERS DIVISION
UNIT: BHADRACHALAM

MONITORING OF PERFORMANCE PARAMETER

Quarterly Reviews by Divisional Management Committee

PDCA METHODOLOGY



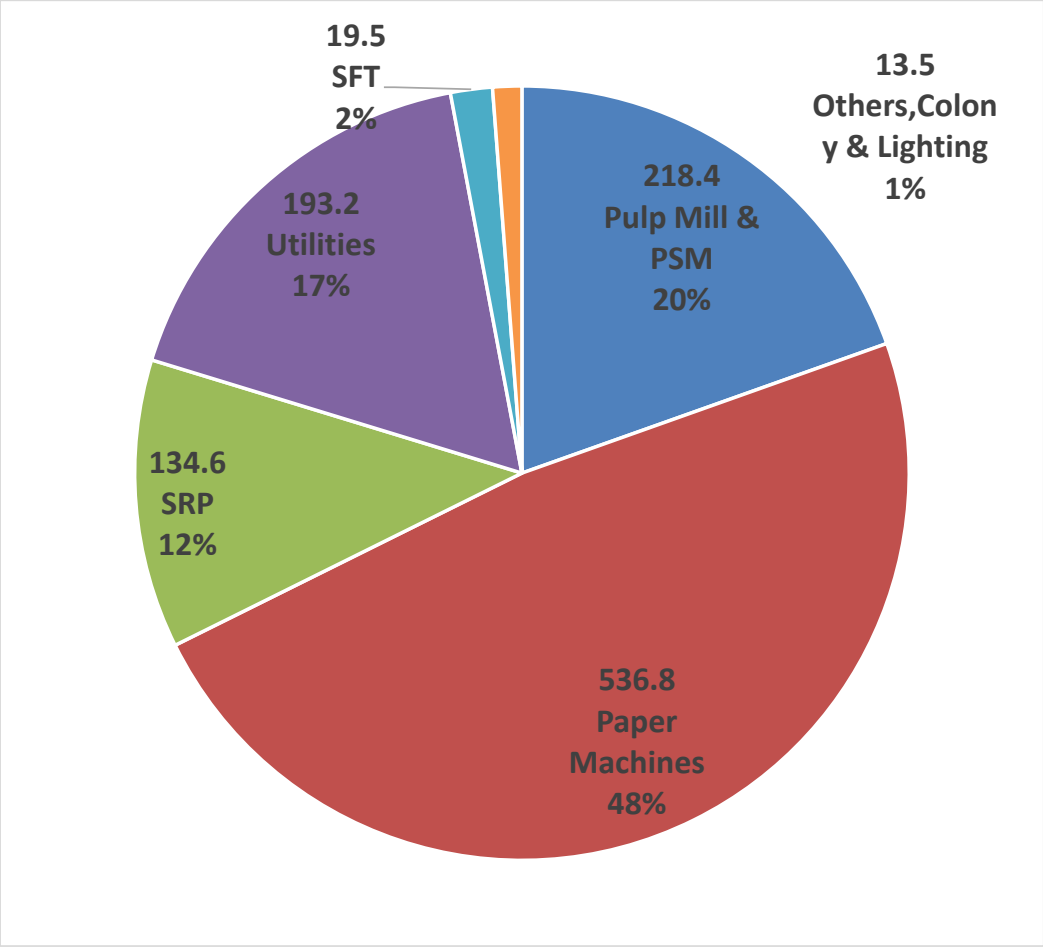
EMPLOYEE INVOLVEMENT

Green Week Celebration

ENERGY EFFICIENCY

Major Power Sinks

Specific Power Consumption Breakup (kWh/T Salable Product)



Overall Specific Power Consumption : 1106 kWh/T

ENERGY AUDITS

- High intense energy consumption areas were audited
  - Vacuum pumps
  - Refiners
  - Chillers
  - Cooling towers
  - Compressed air
  - Boilers UBC
- Energy saving opportunities were found and corrective measures were taken.

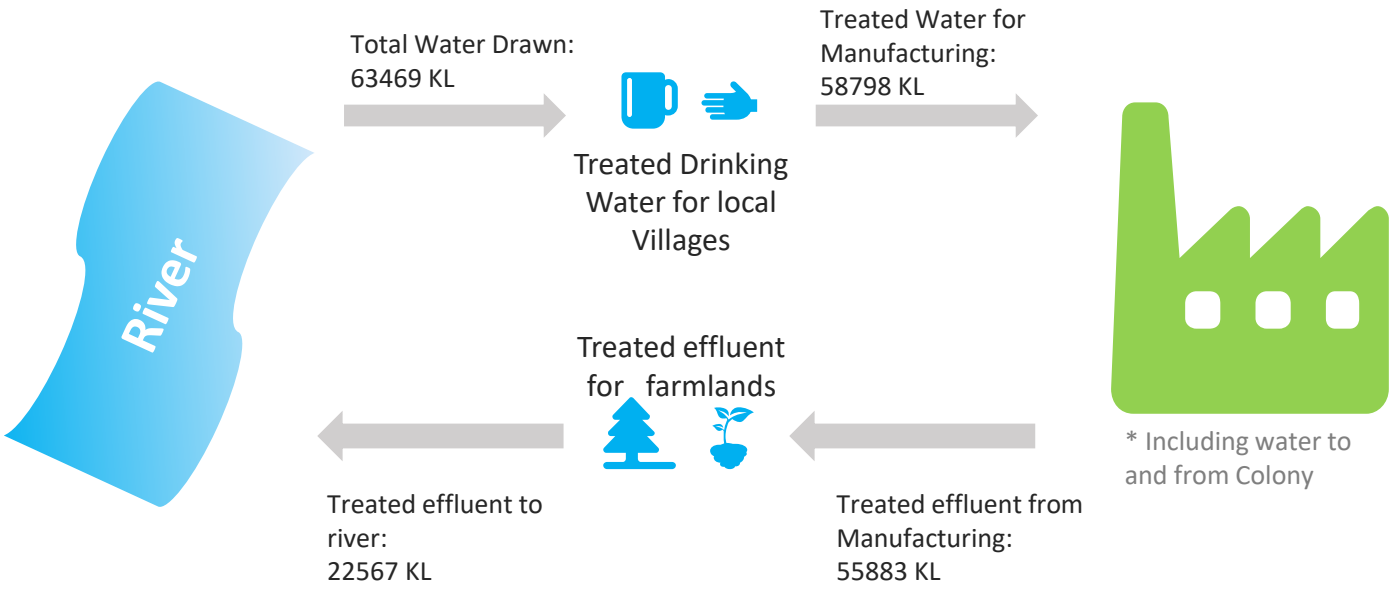
SUMMARY OF GREEN CO ENERGY EFFICIENCY JOURNEY

- Bhadrachalam unit stands national Bench mark in specific energy consumption
- New technology adopted eg: CFBC boiler, Turbo blower
- Energy campaign was organized to involve all stake holders.
- Every day energy saving catalyst (Tips & visuals) circulated for the different equipment
- Employees have contributed 152 kaizens resulting in a savings of Rs 80 lacs
- **Reduction of Specific energy of unit from 1122kwh/t in year 2014-15 to 1106kwh/t in 2016-17**
- Unit has been certified as ISO 50001:2011 Energy Management System (EnMS) standards

WATER CONSERVATION

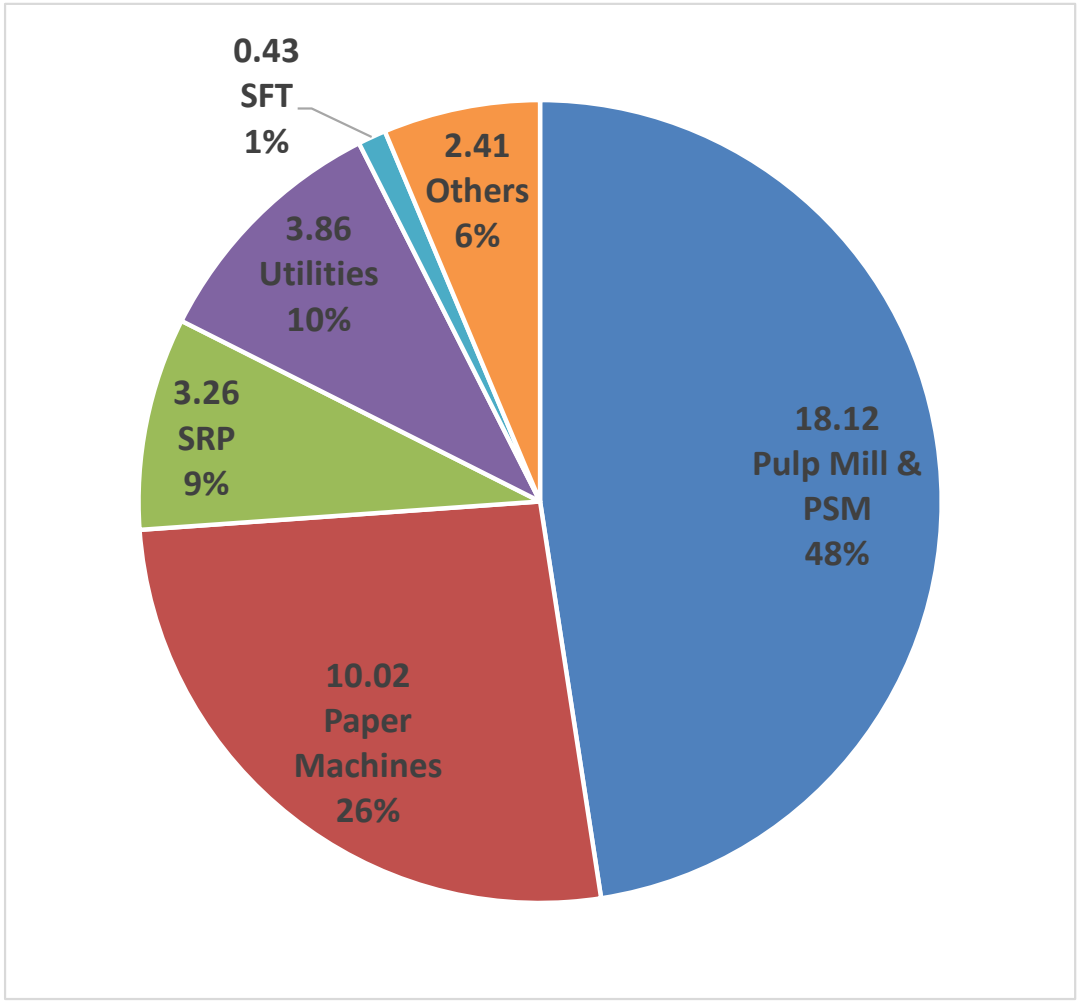
Water Scenario: Unit BCM

Per Day Water drawl and treated effluent release



Major Consumption Sinks

Specific Water Consumption Breakup
(kWh/T Salable Product)



Overall Specific water Consumption : 39.1 cum/T

Water saving – Reduce, reuse & recycle

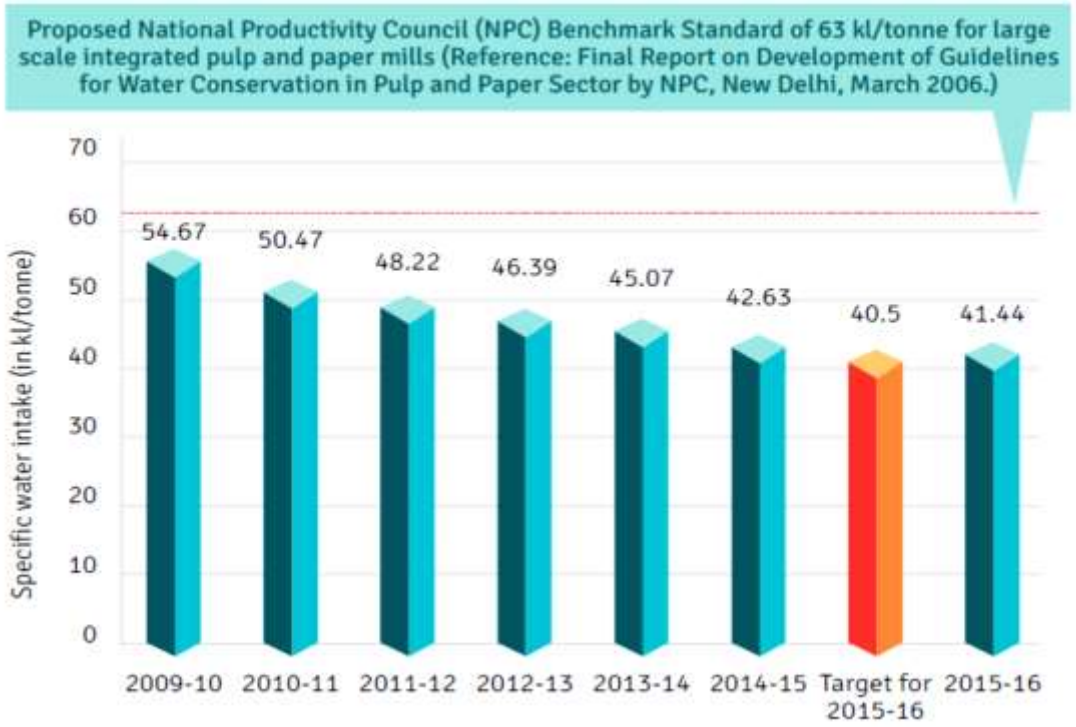
- Measuring all fresh water consumption.
- Tower dilution water optimization with machine back water.
- SFT uses machine back water for slushing.
- Zero water discharge in PM-2&3
- Zero water discharge at PM-6
- PM-7 water collection & recycling
- Recycling of treated etp water for cooling tower make up.
- Rain water harvesting at plantation.

RAIN WATER HARVESTING IN ROOF AND NON-ROOF

RAIN WATER HARVESTING – CPC LAXMIPURAM

Specific Water

- *One of the lowest specific water consumer at the national level*



- *Water Positive from last 14 years at corporate level*
- *Reduction of Specific Water Consumption by 11.59% in the last 3 years*

SUMMARY

- Water Positive from last 13 years – corporate level
- Reduction of Specific Water Consumption by 11.59% in the last 3 years
- **Specific water consumption is 39.1 cum/t for year 16-17 till date**
- Continuous focus on Water at all levels to Reduce, Recycle and Reuse
- Continuous effort to improve water security in Bhadrachalam catchment area, Godavari Basin

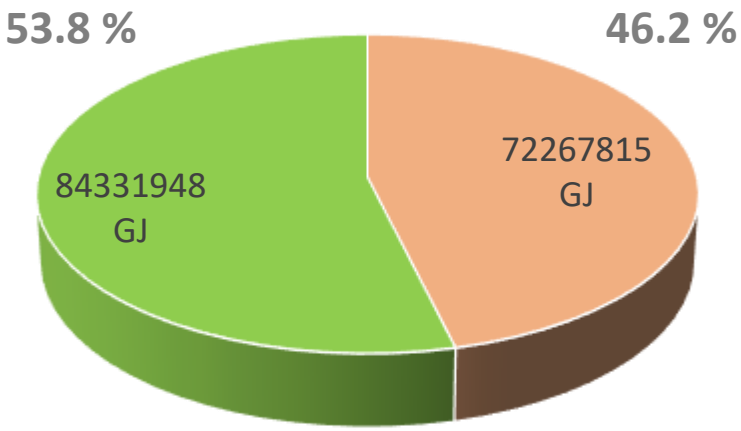
RENEWABLE ENERGY

Energy Scenario: ITC Bhadrachalam

Annual Energy Distribution

Energy & Water consumption 2016-17 till date (Avg)

In-house Power Generation capacity	**= 141 MW**
Power Consumption (Mfg.)	**= 72 MW**
Daily river water drawl	**= 63469 m3/day**
Water consumption (Mfg)	**= 58798 m3/day**
Coal consumption / day	**= 1406 T/Day**
Wind Power Generation(Till date)	**= 92815 MWH**



Renewable Energy

More than 50% share

- **Direct Fossil Energy**
- **Direct Renewable Energy**

ON-SITE RENEWABLE ENERGY GENERATION

- **Green Boiler –** biomass fired boiler utilizing waste from plantation.
- **Soda recovery Boilers-** improved efficiency.
- **Solar PV -** 20kWp SPV plant installed at plantation facility
- **Wind Energy -** Commissioned 45 MW wind power generation facility for displacing electrical energy generated through coal
- **Biogas plant -** Generating biogas from food waste & ETP secondary sludge
- **Cogeneration plant up gradation with High Pressure Boiler & TG**
  - HP steam pressure increase from 62 ata to 105 ata
  - High efficiency 36MW TG set

WASTE MANAGEMENT

WASTE INVENTORIZATION

WASTE MANAGEMENT SYSTEM

- Collection, Segregation, Internal Handling and Disposal Mechanism

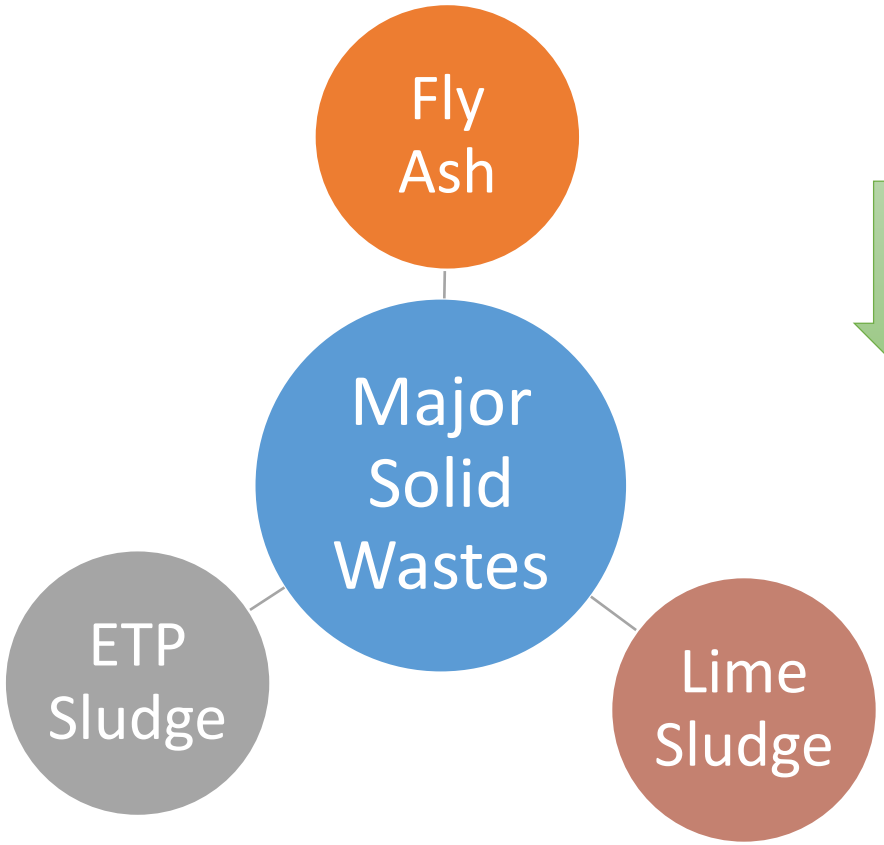
Scrap Yard Layout-

Hazardous and Non Hazardous Wastes stored separately

LEADERSHIP AND STRATEGY

SHORT TERM AND LONG TERM TARGETS

100 % of Hazardous & Non- Hazardous waste are Reused/Recycled through Authorized Recyclers



Long Term Targets
Reduce Waste Generation at Source

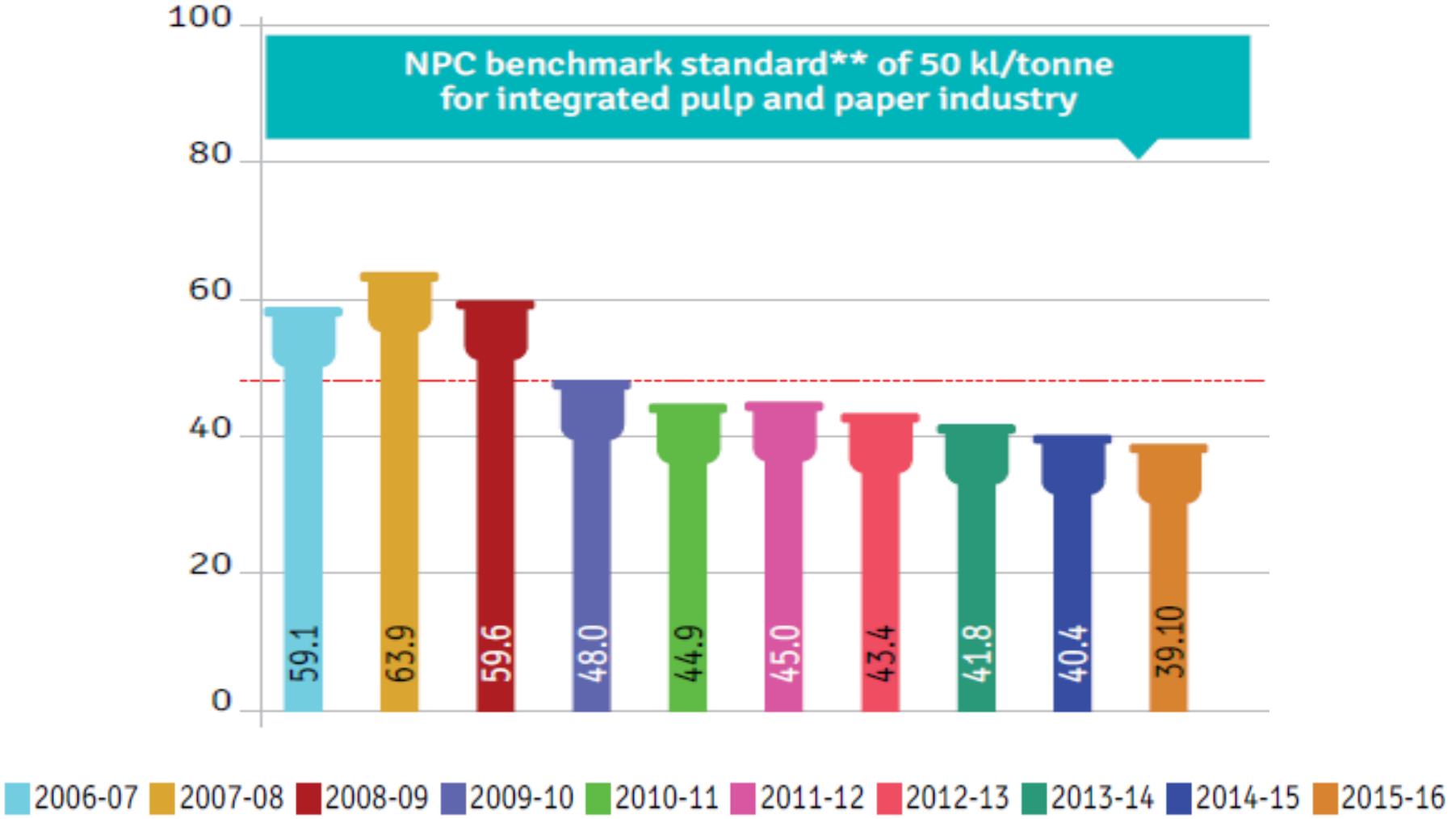
Fly Ash
Lime Sludge
ETP Sludge

REDUCE, RECYCLE AND SAFE DISPOSAL OF WASTE GENERATION

- **ETP water–** recycling of treated effluent , reduction in consumption of fresh water has significantly improved effluent discharge from unit 39.10 cum/ton. Treated water is being used for agriculture.
- **Lime sludge :** with new lime kiln and with improvised mud washers, leaves filter sludge losses have reduced to 4.5%
- **Fly ash :** with the commissioning of CFBC boiler, steam coal ratio has increased & fly ash generation has significantly decreased. Fly ash is being used in bricks manufacturing.

LIQUID WASTE MANAGEMENT

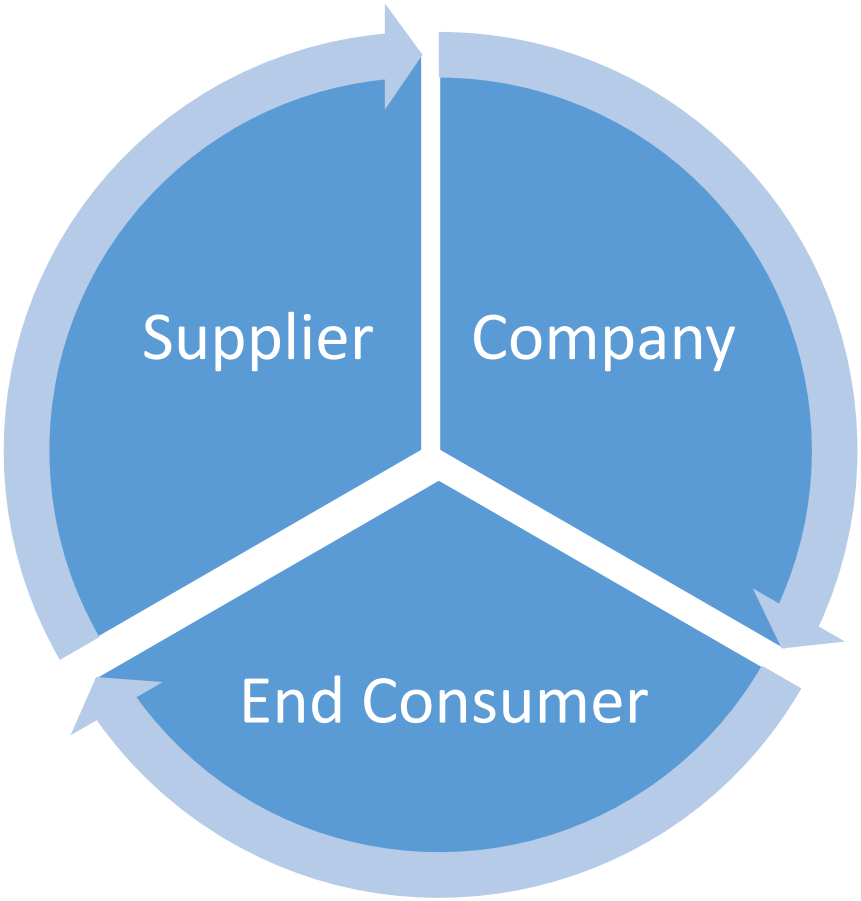
Reduction in Process Effluent Disposal



GREEN SUPPLY CHAIN

GREEN SUPPLY CHAIN

Lower cost
Expand market share
Better corporate image

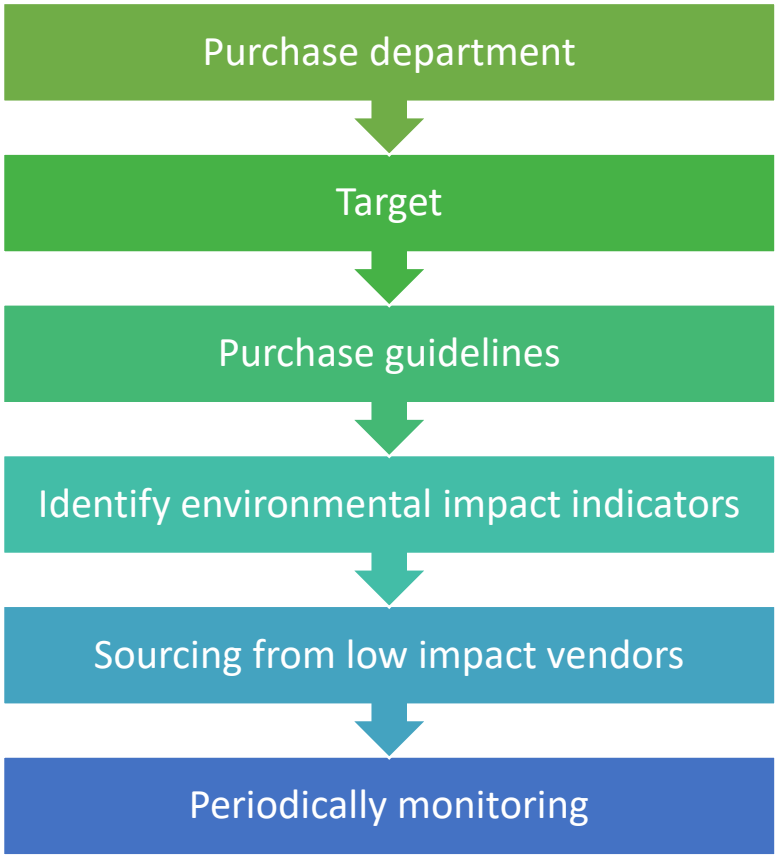


Brand Reputation
Meet consumer demand
Resource conservation
Cost reduction

Saving the environment

GREEN SUPPLY METHODOLOGY

GREEN SUPPLY PURCHASE FUNCTION



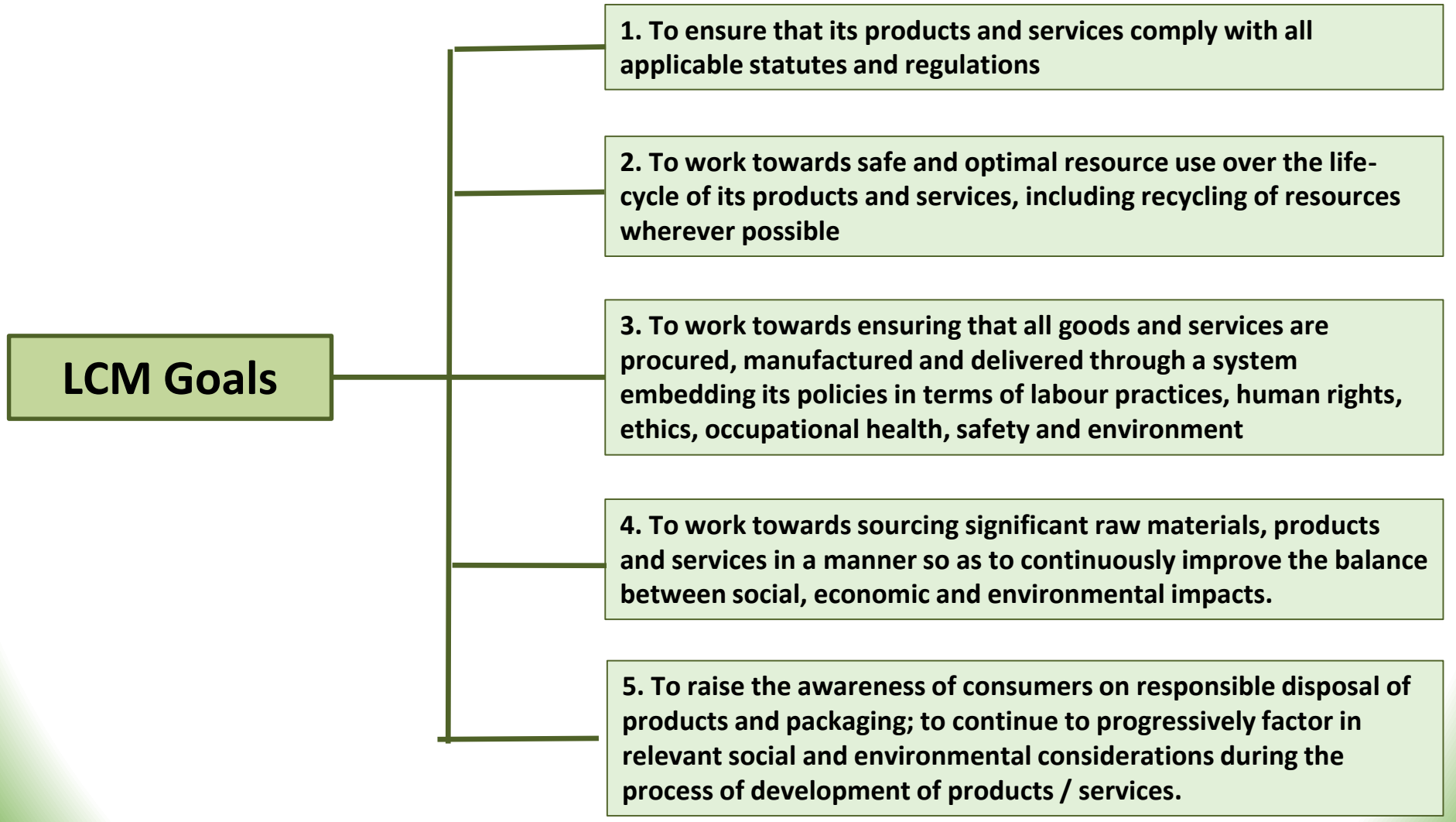
Benefits of green supply chain

- Sourcing of input materials from a sustainable sources,
- Input materials are having lower environmental impact
- Importance is given in sourcing the material locally to avoid transportation, handling and thereby reducing GHG emissions.
- Lower package requirement (redesign the product for package), load ability for ease of transport.
- Unit has engaged with suppliers and has guided in improving energy performance of its vendors. Eg : M/s Femcem, convertors located in and around the plant

LIFE CYCLE ASSESSMENT

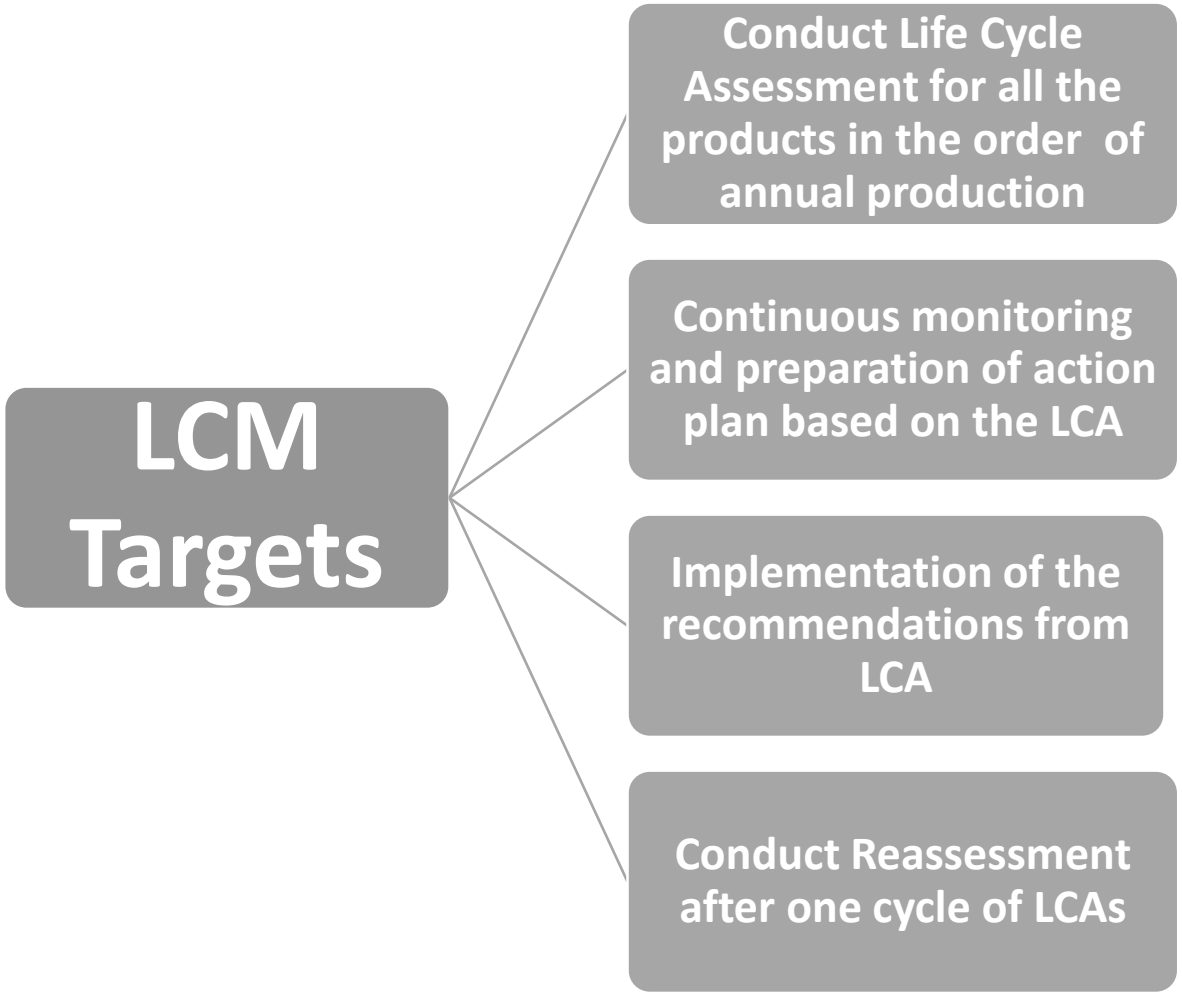
LEADERSHIP AND STRATEGY

GOALS & TARGETS



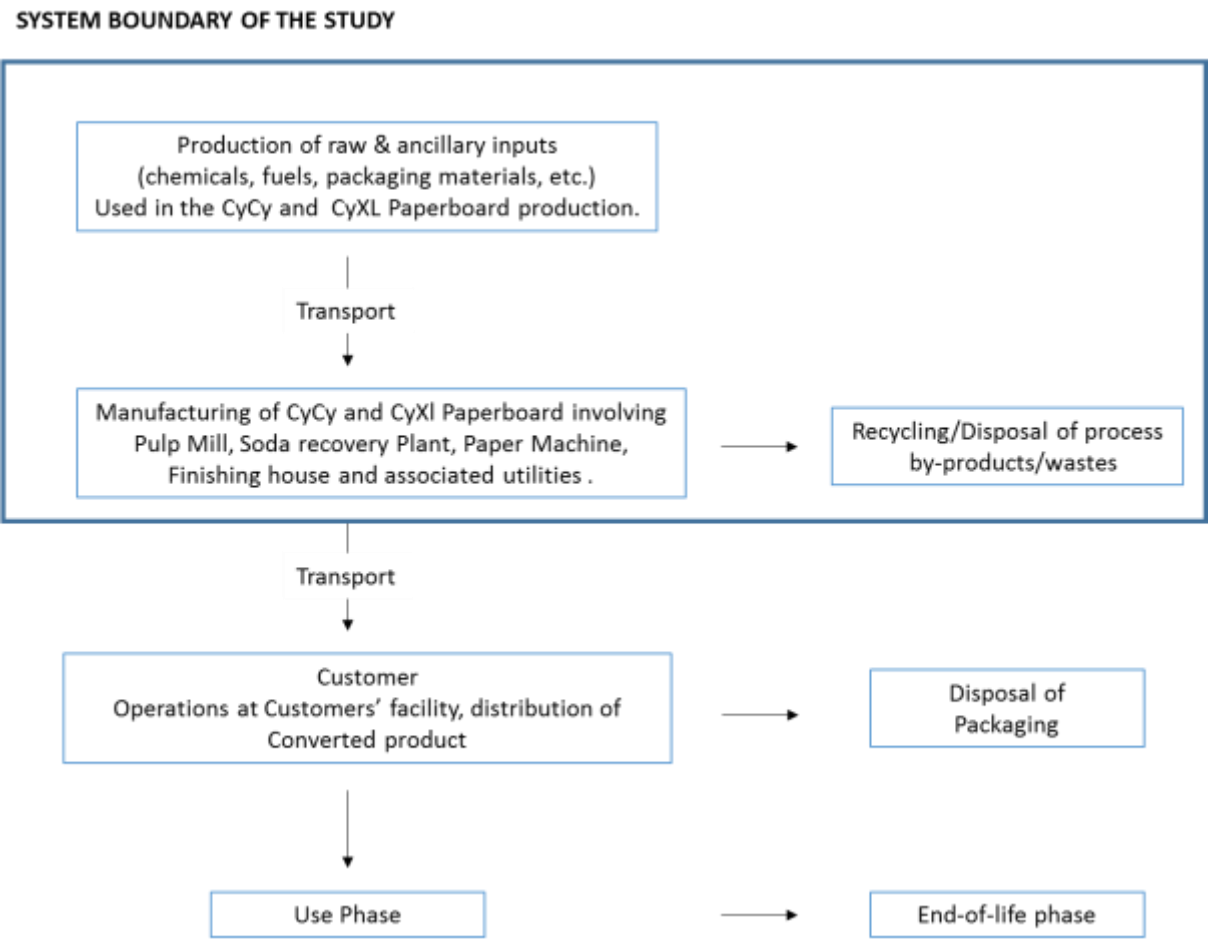
LEADERSHIP AND STRATEGY

GOALS & TARGETS



LCA for products occupying the highest share in the product line

Scope of the LCA study:



Peer Reviewer for the study:

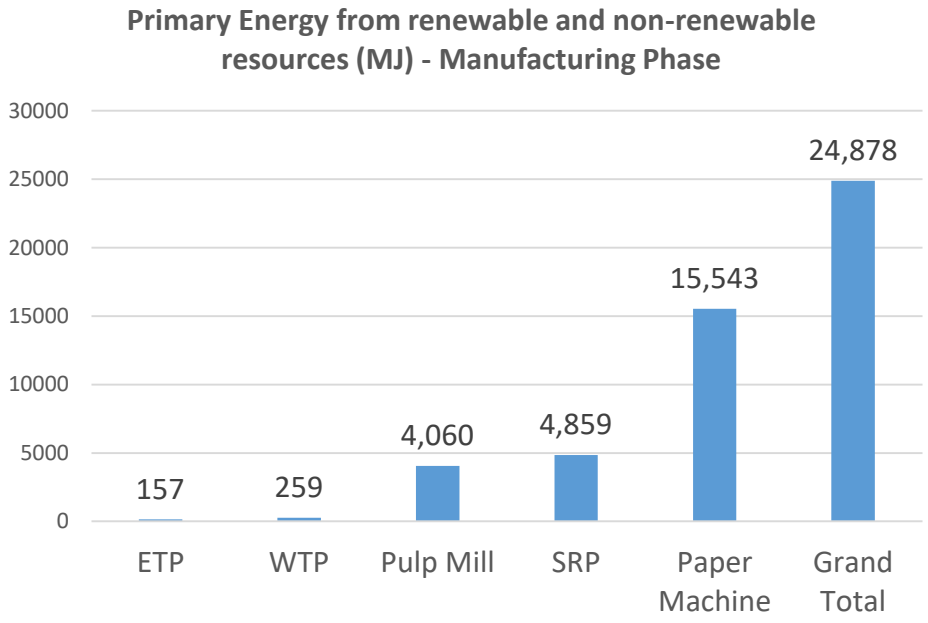
thinkstep

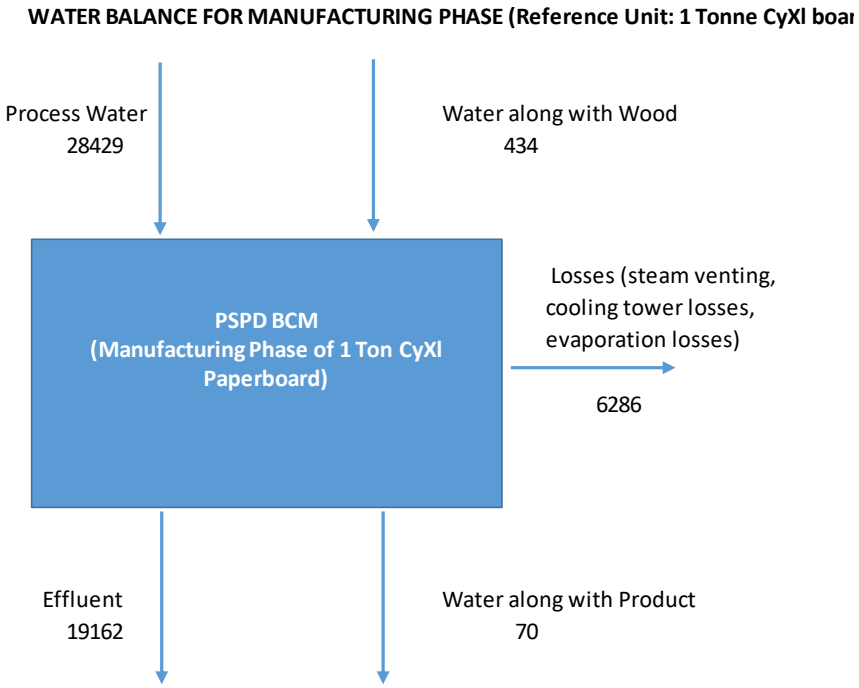
LCA for products occupying the highest share in the product line

Life Cycle Phases	Primary Energy (MJ)		Global Warming Potential (excluding biogenic carbon) (kgCO2e)	
	CyXl	CyCy	CyXl	CyCy
Upstream Phase	98377	143714	2175	3428
Manufacturing Phase	24878	9335	1173	696
Transportation	2081	2081	185	217
Credit for recycling of solid wastes	-2654	-1591	-158	-104
TOTAL	122683	153540	3375	4238

	CyberXL	CyberCypac
Fresh Water Use (Lit) in Manufacturing Phase	28688	12923

LCA for products occupying the highest share in the product line





	Upstream Phase	Manufacturing Phase	Transportation Phase	Credit for recycling the solid wastes	Total
Eutrophication Potential [kg Phosphate-Equiv.]	2.813	0.732	0.454	-0.044	3.956

Environmental Impact Reduction based on LCA(Carbon/Material/Water/Toxicity)

Major Actionable Points

Environmental Concern	Actionable Point
Significant Primary Energy Demand in Upstream phase for Imported Pulp	Increasing in house pulp Production
Higher Specific Environmental impact of Chemicals	Stepwise Replacement of chemicals with native chemicals.
High Primary Energy demand	Reducing Specific Power & Steam consumption
Evaporation Loss	Exploring secondary usage or Recovery of the vapour at Paper Machines and Soda Recovery Plant

Benefits and learnings from Green Co journey

Area	Benefits Achieved	Learnings for way forward
Energy Efficiency	Best performance at national level.	There is huge potential for further improvement and to achieve the international benchmark
		Involving the existing equipment suppliers for new developments .
		Strengthen Energy Management Cell with a view to bring latest technology/equipment in the plant (with thrust on innovation)
LCA Study	Overall environmental impact reduction of 10 %	Should involve local market research teams to collect relevant data
		Need to percolate the concepts and share the benefits accrued to have more buying and ownership from employees and managers.
Greening the supply chain.	Immediate monitory benefits to the vendors as the energy consumption has come down significantly	The participations from the suppliers was extra ordinary. The commitments demonstrated by them was excellent and far more than the expectations.
		Explore the possibility to support the vendors for allocation of resources, manpower for environmental performance improvement.
		Motivate promising vendors to opt for greenco certifications.
Employees participation	The team felt highly motivated by the recognetion.	Huge potential to work on quality of kaizens.
		To include the greenco initiatives and environmental achievements in the induction manuals and internal magzines.
		Collaborate with educational institutions and research institutions which will help in knowledge acquiring and sharing.

Triple Bottom Line Performance

Economic

Market Capitalization – over $ 44 billion
Turnover – over $ 8 billion
23.3% Compound annual growth in total shareholder returns over the last 20 years

Environment

The only Company in the world to be:

Carbon Positive	**– 11 consecutive years**
Water Positive	**– 14 years in a row**
Solid Waste Recycling Positive	**– for last 9 years**

Social

E-choupal- Empowering 4 million farmers
Afforestation programme – 2,25,000 Hectares
Women's Empowerment initiative – 50,000 beneficiaries
Educating 4,70,000 children

Green Performance of ITC

Carbon Positive

11 Consecutive years

Water Positive

14 years in a row

Solid Waste Recycling Positive

For the last 9 years

Renewable Energy

More than 48% overall

FOR ALL OUR TOMORROWS

The journey continues …

GreenCo Rating Assessment bestows on ITC Bhadrachalam, the responsibility of creating bench mark by which stakeholders will continue to assess the unit particularly on the upkeep of standards.

Thank You