ITC PSPD

Creating Enduring Value for India

Green Performance of ITC

ITC PSPD

Carbon Positive

12 Consecutive years

Water Positive

15 years in a row

Solid Waste Recycling Positive

For the last 10 years

Renewable Energy

More than 48% overall

Manufacturing Facilities

ITC PSPD

Bhadrachalam

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

7 Machines
Capacity of 405,000 TPA of Paperboard and 140,000 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

What is CII GreenCo ?

Confederation of Indian Industry
Since 1895

"How Green is the Company"

CII is a non-government, not-for-profit, industry-led and industry-managed organization, playing a proactive role in India's development process.

The CII-Sohrabji Godrej Green Business Centre (CII-Godrej GBC) was established in the year 2004, as CII's Developmental Institute on Green Practices & Businesses

A clear holistic mechanism was not available for evaluating the performance of companies on the **ecological** front.

Against this background, CII, through an extensive stakeholder consultation and interaction with experts has developed the **'GreenCo Rating'** system for evaluating the 'greenness of companies'.

This rating system acts as a holistic framework to assess and evaluate the performance of the company's activities on the green front.

How is the CII GreenCo Rating done ?

Parameters for Rating

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

It aims to provide leadership and guidance to businesses on how to implement green strategies.

The rating system evaluates green features of companies against **certain parameters carrying different weightages.**

Based on the total points scored for all the parameters, a **Certified/Bronze/Silver/Gold/Platinum** Rating is given.

A score of **more than 750** results in the highest Rating – **GreenCo Platinum**

What have ITC PSPD Units achieved ?

Both ITC PSPD Unit Bhadrachalam & Unit Kovai have achieved the **Greenco Platinum Rating – the Highest Rating in the system** – by getting a total score in the band of **801-900 points**

PAPERBOARDS AND SPECIALTY PAPERS DIVISION

Enduring Value

Unit BCM has also attained the distinction of being the **"First Integrated Pulp and Paper Manufacturing Unit" to be rated GreenCo Platinum in April 2016**

CII GreenCo Platinum Rating

Unit Kovai has also attained the distinction of being the **"First Company in the Pulp and Paper Manufacturing Sector" to be rated GreenCo Platinum in June 2015**

"The team's commitment to go green and the excellent effort put in throughout the process has been highly appreciated…….Unit - Kovai will pave the way for establishing itself as a global benchmark for manufacturers in the Pulp and Paper Sector going "Green", thereby leaving an example for others to emulate"

- K S Venkatagiri
Executive Director (Designate), CII – Godrej GBC

"This is an excellent accomplishment and CII-Godrej GBC would like to congratulate you and the entire team. Excellent co-ordination between DHQ and the Bhadrachalam Unit and unit's commitment to go green and the commendable efforts put in throughout the process is highly appreciated. It is noteworthy that in spite of plant ageing over a period of time, sustained efforts are visible in terms of upkeep and overall Green approach in focus."

- L S Ganapati
Chairman, GreenCo Assessment Panel

Rating: Kovai

GreenCo Scoreband - ITC Limited, PSPD, Unit Kovai															
PARAMETERS	POINTS AWARDED														
	0 -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
Energy Efficiency														X	
Water Conservation										X					
Renewable Energy									X						
GHG Emission										X					
Waste Management										X					
Material Conservation,Recycling & Recyclability										X					
Green Supply Chain										X					
Product Stewardship								X							
Life Cycle Assessment						X									
Others										X					

Legends

Points scored by ITC Limited, PSPD, Unit Kovai

X — Maximum points scored by another GreenCo Rated company

CERTIFICATION					
LEVELS	POINTS AWARDED				
	≥350 - 449	450 - 549	550 - 649	650 - 749	≥ 750
Certified					
Bronze					
Silver					
Gold					
Platinum					X

Rating: BCM

GreenCo Scoreband - ITC Limited, PSPD, Unit Bhadrachalam														
PARAMETERS	POINTS AWARDED													
	0 -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
Energy Efficiency														X	
Water Conservation										X					
Renewable Energy										X					
GHG Emission										X					
Waste Management										X					
Material Conservation,Recycling & Recyclability										X					
Green Supply Chain										X					
Product Stewardship								X							
Life Cycle Assessment						X									
Others										X					

Legends

Points scored by ITC Limited, PSPD, Unit Bhadrachalam

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CERTIFICATION					
LEVELS	POINTS AWARDED				
	≥350 - 449	450 - 549	550 - 649	650 - 749	≥ 750
Certified					
Bronze					
Silver					
Gold					
Platinum					X

CII Feedback - Laudable Best Practices: Kovai

- Excellent involvement by ITC employees at all levels in the entire process
- Cross functional - highly dedicated team with clearly defined roles and responsibilities
- Initiatives resulting in 32.88% reduction in SWC in the last three years
- 44.3% overall energy needs is met through renewable energy
- 26.5% reduction in specific GHG intensity in last 3 years
- 100% of hazardous and non-hazardous waste is reused/recycled
- 20% reduction in non hazardous waste in the last three years
- Zero liquid discharge unit & Stack emissions well within limits
- Significant efforts that has led to 13.7% reduction in packaging material in the last three years
- Reduction in imports, environment as a criteria in Vendor Evaluation, Initiatives carried out in supplier premises on systems, energy, water, etc

CII Feedback - Laudable Best Practices: BCM

- National Best Specific Energy Consumption
- National Best Specific Water Consumption
- Unit Carbon Positive for more than 10 years
- 100% Solid Waste Recycling
- Significant improvement in ETP with MBBR technology
- 78% recycled content in the packaging material
- Focused effort in increasing procurement of wood from sustainable sources
- Classification of Vendors : 'A' Class and Critical & their Engagement
- Five Star grade rated products by PREPS for Responsible Paper Sourcing
- Eco-friendly product e.g. Antifungal board for soap cartons
- Papyra App for Customers
- Commitment to reduce environmental impact of the products through life cycle assessment method

Unit Credentials

- ISO 9001 – All Units
- ISO 14001 – All Units
- 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

Innovation Projects: Unit Kovai

High performance Paperboard using Paper- Poly trim waste

Waste Management

Problem/ Current situation:

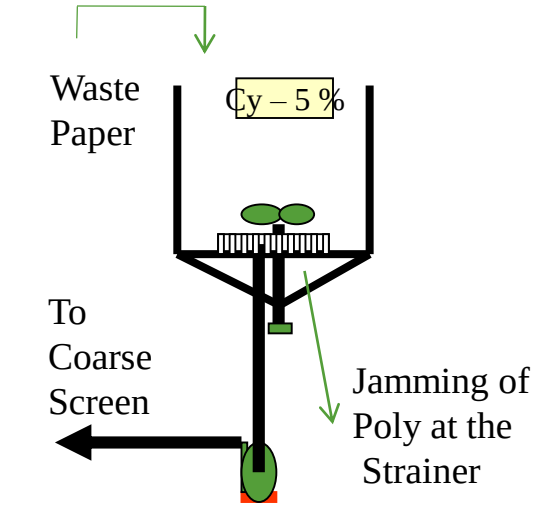
Every month, about 350 MT of poly sheet/ trim waste is generated at Unit Bollarum. Obtaining pulp from poly extruded trims was not possible through normal pulping, as the pulper would get jammed frequently. **This waste was discarded as scrap and the same was used as cushioning material or incinerated.**

Poly extruded trims

Analysis:

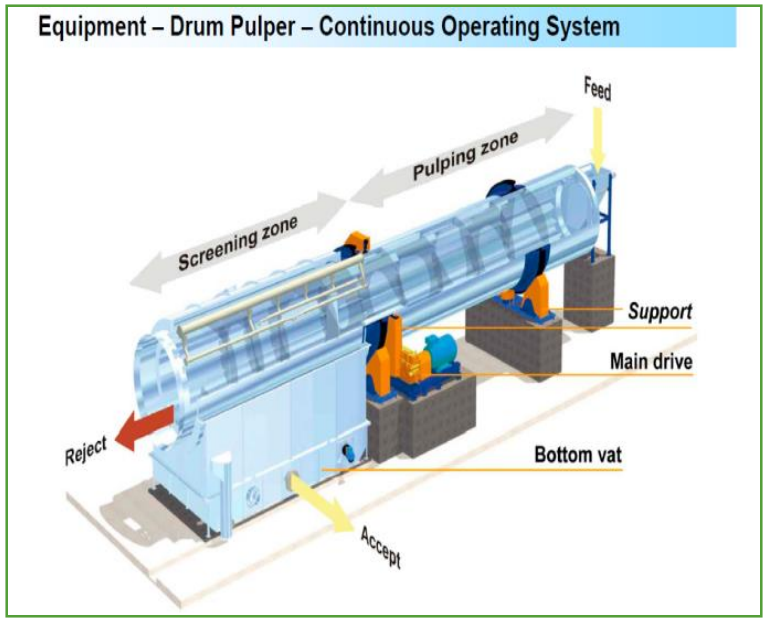
The process generation of pulp from the poly extruded trims through conventional pulping caused jamming of the poly at the strainer. The separation of poly rejects was not efficient enough to generate pulp. So, a continuous pulping system had to be introduced to generate pulp from the material.

Black Clawson hydra pulper



Solution:

Unit Kovai, after brainstorming, came up with the idea of processing the poly trim material through its drum pulper. Pulp generation through drum pulper is a continuous operation as the pulper has internal pulping and screening zones. The material is fed along the horizontal axis of the pulper and moves forward as pulp is collected from the side.

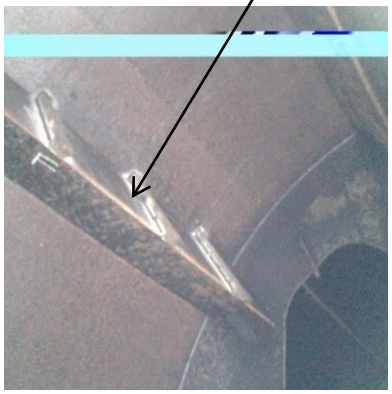


Constraints:

The team faced an issue of improper slushing of poly sheets due to the large size of the sheets. Water penetration in these sheets was difficult which caused fiber loss. To overcome this, **spikes were fixed in the pulping section of drum pulper. This helped to facilitate water penetration by piercing into the sheets. Hence clean removal of poly reject with reduced fiber loss was achieved.**

Improperly Slushed poly sheets

Spikes



Benefits:

➢A new product under the brand name "NeoWhite Bliss" was introduced in the market.

➢As the paperboard part of the poly trim material is 100% virgin-based, the pulp is stronger than that of recycled fiber.

➢The board has higher values of brightness and whiteness, with additional dosage of OBA and dyes.

➢ **350 MT/Month of Poly trim wastes are being reused**

Particular	Regular Product	NeoWhite Bliss
Bulk	1.32	1.42
Stiffness		+15%
Brightness – ISO	78%	85%
Whiteness Index - CIE	85%	105%

CO4 fodder grass as boiler fuel

Development of an Alternate Fuel Source

Challenges pertaining to Boiler Fuel

Scenario :

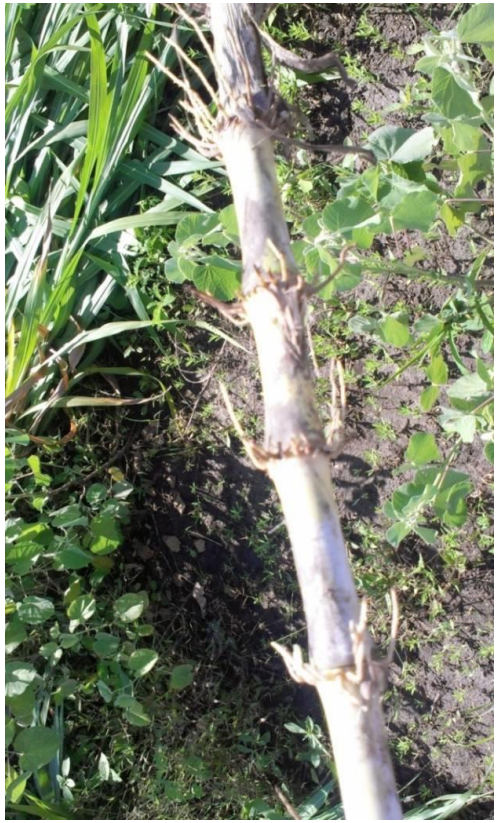
Unit utilizes Saw Dust as a major bio fuel to the extent of 200 MT/day. However, regular supply of saw dust is not available and contains more moisture(50 to 55%).By usage of High Moisture fuel (Saw Dust) , Boiler efficiency drops leading to increase in fossil fuel consumption. In addition to this , availability of bio fuels like Saw Dust , DOB , Wood chips and other agriculture waste fuel is limited, supply is unreliable and costs are high.

Uniqueness of the Improvement idea

- All other agriculture waste are seasonal product and availability is limited
- Co4 Fodder grass is a non seasonal product and available through out the year
- Productivity per unit area is very high compare to other bio mass / energy crop

Tangible benefits

Cost workout/acre/year			
S No	Particulars	UOM	Qty
1	Cost of cultivation	Rs	40,000
2	Expected yield at 78 % moisture	ton	160
3	Expected yield after sundry (40 % moisture)	ton	80
Cost for Harvesting & Processing			
4	Diesel consumption (two Harvesting)	Lit	30
5	Diesel cost (@ Rs 60 / lit)	Rs	1800
6	Man power cost - Operator	Rs	50
7	Tractor for transportation	Rs	9000
8	Pay loader for sundry	Rs	2700
9	Pulverize (75 Kw - 2.5 ton/ hr capacity)	Rs	7200
10	Total cost	Rs	60750
	Cost per ton of fuel	Rs	759



- Harvested area – 5 Acres
- Yield for one year with 40% moisture - - 600 Mt / year
- Saw dust Price – Rs. 2300 /-
- Cost savings per ton (compare to Saw dust) – Rs. 1541 /-
- Cost saving per year in 5 acres – (600mt * Rs1541) = Rs. 9.2 Laks

Tangible benefits Cont..

b) Waste / GHG / other emission reduction?.

S.No	Description	UOM	Qty / Year
1	Fossil fuel replaced with bio fuel	MT	600
2	Equivalent to lignite	MT	516
3	Co2 emission / kg of lignite	kg of CO_2	2.56
4	Total emission reduction	CO_2	1320960
		Ton of CO_2	**1321**

c) Material / Fuel consumption reduction?

Fossil fuel consumption reduction (Lignite) - 516 Mt per annum

Land Preparation

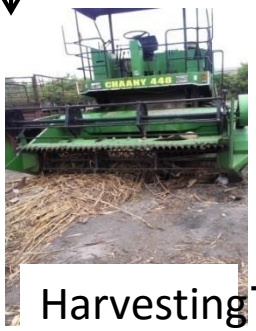
Planting

15 Days growth

45 Days growth

90 Days growth

120 days Planting



Harvesting

Shredded grass
with 80% moisture

Fuel for Boiler
After sun dry (40% moisture)

Innovation Projects: Unit BCM

Sustainable agroforestry model for Eucalyptus grown as pulpwood on farm lands in India.

Total Area covered under Agroforestry:
28000 Hectares

Introduction

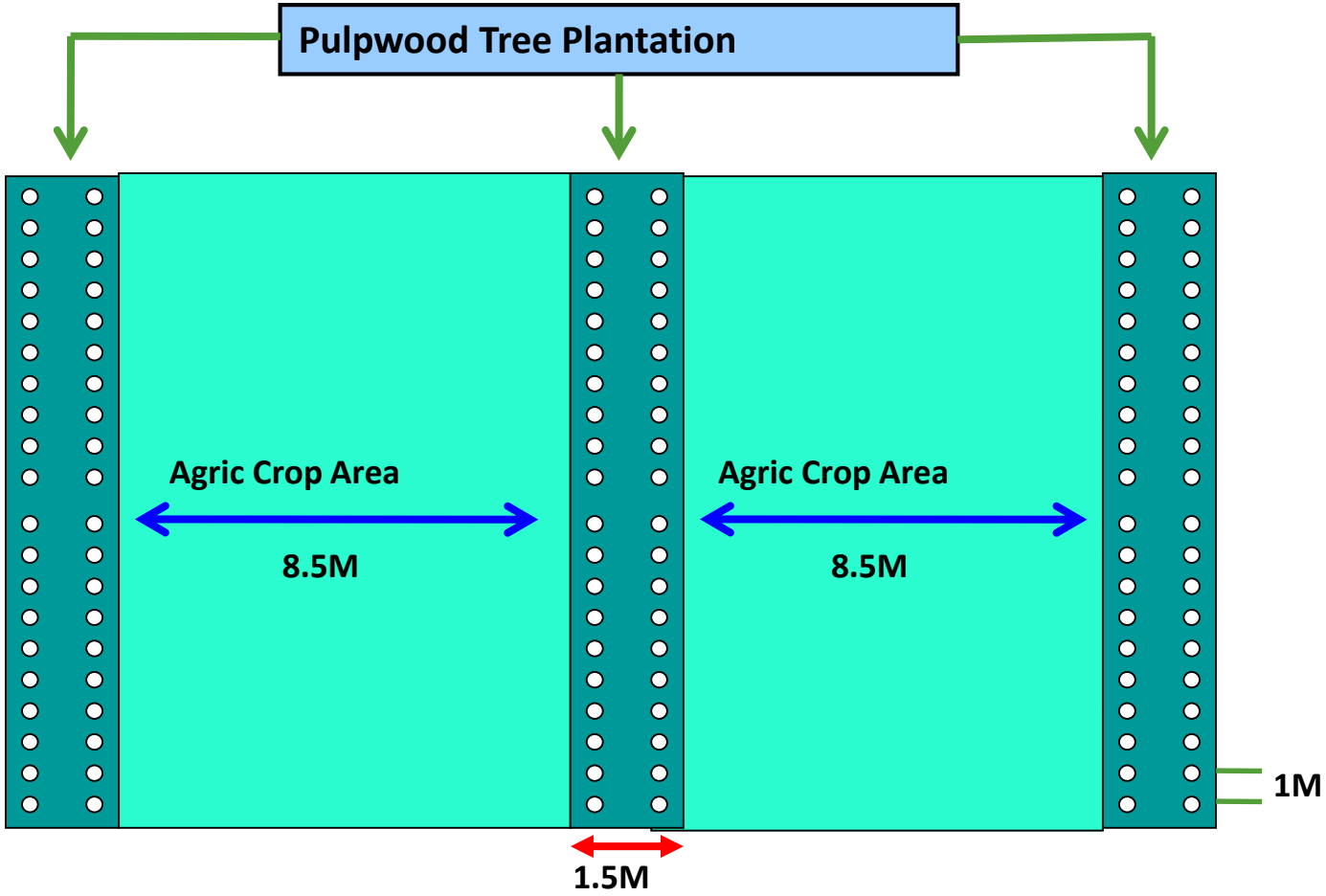
- **Innovation Project title -** Sustainable agroforestry model for Eucalyptus grown as pulpwood on farm lands in India
- **Date of Commencement –** 2010-11
- **Date of Completion –** 2012-13 and work in the field still going on
- **Trigger for the project –** Food and wood security
- **Outcome expected by project implementation –** Planting agriculture crop in-between the silviculture crop giving higher returns to the farmers.
- **The process employed and innovation implemented –** The research done for identifying the best possible spacing for incorporating both agriculture and silviculture.
- **Environmental Benefits derived -** Increasing diversity of farm lands by growing trees along with agriculture crops & higher carbon sequestration will help in mitigating the global climate change

Tree Spacing in Short Rotation Forestry

Age of Harvesting	Spacing	No of Trees/Ha	Trees / Acre
1) 9-10 Year	3m X 3m	1111	444
2) 7 Years	3m X 2m	1667	666
3) 4 Years	3m X 1.5m	2222	888

Farm Forestry & Social Forestry

A New Concept : Paired Row Design



Land Allocation: 75% - Agriculture & 25% - Forestry

Benefits of Agro Forestry Model

1. Improving the productivity & profitability of farm lands where one crop is grown in a year.
2. Contributing to the food security by restoring farm soil fertility for food crops.
3. Reducing deforestation and pressure on natural forests by providing pulpwood grown on farm lands.
4. Increasing diversity of farm lands by growing trees along with agriculture crops.
5. Trees act as wind and insect barriers
6. Higher carbon sequestration will help in mitigating the global climate change.
7. Reducing poverty through increased production of agro-forestry products.
8. Reduces the risk of rain-fed agriculture
9. Higher economic returns to the farmers
10. This model is best suited for small & marginal farmers

Sustainable Agro Forestry Model

Sustainable Agro Forestry Model

Sustainable Agro Forestry Model

Eucalyptus with Brinjal

Eucalyptus with Paddy

Elimination of LDPE in Soap cartons

Material Conservation & Waste management

Innovation Project title: **Elimination of LDPE in soap cartons**

Date of Commencement: October 2014

Trigger for the Project: Request from the customer to reduce environmental load due to their packaging

Out come expected from Project Implementation: Removal of fossil fuel based film without loss of barrier properties

The process employed and innovation implemented: Earlier format had a film of LDPE laminated to both the top and bottom side of the carton . Used an antifungal coating applied online on the paper machine to the reverse side of the board

Environmental Benefits derived: Lesser load on the environment due to removal of LDPE film which also made recovery and re-use easy in conventional waste management systems . 30 gsm of LDPE brougt down to 12 gsm – 60% savings and board grammage brought down by 15% (360 gsm and 380 gsm reduced to 312 gsm)

Impacts on GreenCo parameters: 1) material conservation and

2) improved waste management

What next beyond Platinum ?

2% reduction in Specific Steam YOY

2% reduction in GHG emissions YOY

Recover 36000 TPA of fiber waste

Complete LCA for all Products

5% reduction in Specific Water YOY

2% reduction in Specific Power YOY

Increase area under FSC

Continue to Produce 100% Recyclable Product

Encourage Vendors to GO GREEN

Challenges

- Approach to certification – theoretical vs practical – demonstrated through the LCA study – alternative eco friendly material
- Senior management involvement – each parameter had the respective functional head as the leader
- Envrionmental awareness week, quiz, booklet
- Eco benefit linked to financial benefits especially wrt energy and water
- Kovai – recycled water – usage – overcoming reservations
- BCM – Rain water harvesting – ground water could not be recharged
- Highlight environmental issues faced by others in the same industry